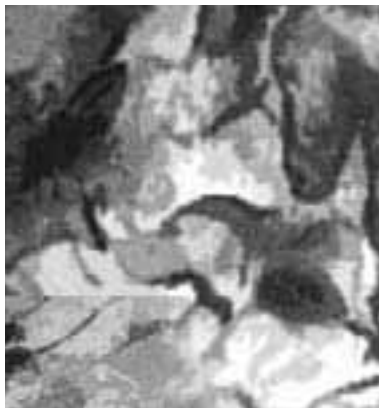


WORLD WATCH LIST

*for domestic
animal diversity*

3rd edition





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*for domestic
animal diversity*



3rd edition



EDITED BY
BEATE D. SCHERF



FOOD AND AGRICULTURE
ORGANIZATION OF THE
UNITED NATIONS

ROME, OCTOBER 2000



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PREFACE

World food production and agriculture utilize only a few animal species, within which many breeds with unique characteristics have developed over time. These genetic resources form the pool of domestic animal diversity (DAD) that is available to meet the increasing massive global demand for food and agriculture. The DAD component of biological diversity is essential to sustain efficient production from the world's broad range of food production environments required to satisfy many different needs of human communities.

This biological diversity is being lost as human population and economic pressures accelerate the pace of change in traditional agricultural systems. More and more breeds of domestic animals are in danger of becoming extinct.

Greater efforts in the conservation and sustainable use of these farm animal genetic resources are required to stop and reverse this trend of erosion of diversity. Conservation is not simply the preservation of those breeds that are currently not in use. It also encompasses the characterisation and monitoring over time of the gene pool of each species. The wise use of these resources also contributes an important conservation element. In the drive to realize Food for All, the necessary sustainable intensification of farming systems must also provide for the further development of breeds which are already highly adapted to the world's food and agriculture production environments.

Within the Global Strategy for the Management of Farm Animal Genetic Resources, FAO is establishing the Global Early Warning System for domestic animal diversity. The basis of this system is the Domestic Animal Diversity Information System (DAD-IS) and its incorporated database, which is used for the recording of breed inventories and descriptions and for the monitoring of the conservation of these genetic resources over time. The Global Databank for Farm Animal Genetic Resources currently includes information on 6 379 breed populations comprising thirty mammalian and avian species. This information has been used to prepare this third edition of the World Watch List for Domestic Animal Diversity (WWL-DAD:3).

In preparing WWL-DAD:3 a first concerted effort has been made to list those breeds considered to have become extinct; important information that will enable rates of loss to be monitored over time for evaluating the effectiveness of animal genetic management action.

Information on wild relatives of domestic animal genetic resources is also provided. The diversity represented in wild relatives has the potential to make important contributions to food and agricultural production. This edition of the WWL-DAD also includes a section on the potential costs and benefits of feral animal populations of animal genetic resources.

The WWL-DAD acts as the voice of the Global Early Warning System by providing inventories and basic descriptive information on domestic breeds at risk. The list serves to monitor their stability and conservation needs over time. Undoubtedly this list will be used in a range of ways by many governmental and non-governmental organizations at the local, national and international levels; in training and research and in planning action required to better understand, use and conserve what may now be considered irreplaceable biological capital. Opportunities for action arising from this third edition of WWL-DAD are listed in section 1.2.

WWL-DAD:3 contains new information on a large number of breeds and additional information on breeds that were listed in the first and second editions. WWL-DAD:3 provides further evidence for the erosion of genetic diversity; the data suggesting a further global deterioration in the state of these farm animal genetic resources since the release of the second edition of WWL-DAD in 1995. Thirty percent of all remaining animal genetic resources are now classified either on the critical, critical-maintained, endangered or endangered-maintained lists and approaching 800 farm animal genetic resources have been recorded as lost over the past century. These lists are presented here based on criteria established by FAO.

FAO and UNEP consider the communication of this information on the state of global animal genetic resources to be fundamental for the management of farm animal genetic resources. Eventually all 40+ animal species in use in agriculture, involving an estimated 6 000 or more discrete breeds, will be included by countries in the Global Databank for Farm Animal Genetic Resources.

Future editions of WWL-DAD will be extended to reflect this additional information. In this process the country technical networks will collate, validate and report data and information to FAO through the country-identified National Co-ordinators for animal genetic resources management. If you are able to provide new information on one or more breeds please assist through your country's Farm Animal Genetic Resources Network. The identification and complete address of your country's National Co-ordinator can be found in the communication module of DAD-IS (<http://www.fao.org/dad-is/>).

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ABBREVIATIONS AND ACRONYMS

AGRI	Animal Genetic Resources Information Bulletin
AI	Artificial Insemination
AnGR	Animal Genetic Resources
ARS	Agricultural Research Service
asl	above sea level
BC	Before Christ
CBD	Convention on Biological Diversity
CDAD	Centre for Domestic Animal Diversity
CENARGEN	Centro Nacional de Pesquisa de Recursos Geneticos e Biotecnologia
CGIAR	Consultative Group on International Agricultural Research
CIS	Commonwealth of Independent States
COP	Conference of the Parties (of the CBD)
DAD	Domestic Animal Diversity
DAD-IS	Domestic Animal Diversity - Information System
EAAP	European Association of Animal Production
EAAP-AGDB	European Association of Animal Production -Animal Genetic Data Bank
FAO	Food and Agriculture Organization of the United Nations
GRIN	Germplasm Resources Information Network
IARC	International Agriculture Research Centres
IC	Informal Contact
ICAR	International Committee for Animal Recording
ICARDA	International Centre for Agricultural Research in the Dry Areas
IICA	Inter-American Institute for Cooperation in Agriculture
ILRAD	International Laboratory for Research on Animal Disease
ILRI	International Livestock Research Institute
IPGRI	International Plant Genetic Resources Institute
ISIS	International Species Information System
IUCN	The World Conservation Union
NC	Country Official National Co-ordinator

NGO	Non-Governmental Organization
PDI	Population Data Index
REGENAL	Latin America and Caribbean Network for Animal Genetic Resources
SAR	Special Administrative Region
syn.	synonyms
UNEP	United Nations Environment Programme
USDA	United States Department of Agriculture
USSR	The Union of Soviet Socialist Republics

ABBREVIATIONS FOR RISK STATUS CATEGORIES OF DOMESTIC ANIMALS

C	Critical
D	Endangered
CM	Critical-maintained
DM	Endangered-maintained
X	Extinct
–	Unknown

LANGUAGE ABBREVIATIONS

afrik.	Afrikans	kal.	Kalimantanese
alb.	Albanian	kor.	Korean
amar.	Amarhic	lat.	Latin
amb.	Ambonese	min	Minangkabows
ar.	Arabic	mong.	Mongolian
bahasa mal.	Bahasa Malaysia	nor.	Norwegian
bal.	Balinese	pers.	Persian
ban.	Banjar	pol.	Polish
bat.	Bataks	port.	Portugese
bugis	Bugese	rom.	Romanian
bulg.	Bulgarian	ru.	Russian
chin.	Chinese	slov.	Slovakian
cro.	Croatian	sloven.	Slovene
dan.	Danish	sp.	Spanish
eng.	English	sum.	Sumatranese
est.	Estonian	sun.	Sundanese
fin.	Finish	swed.	Swedish
fr.	French	tim.	Timorese
gal.	Gallic	turk.	Turkish
ger.	German	viet.	Vietnamese
gr.	Greek	yug.	Yugoslavian
heb.	Hebrew		
hun.	Hungarian		
iban.	Ibanese		
ice.	Icelandic		
indon.	Indonesia		
irian.	Irianese		
it.	Italian		
jap.	Japanese		
javan.	Javanese		

Part 1

USING WWL-DAD:3



Kuri cattle in Chad are facing extinction due to uncontrolled zebu introgression

Demands for a diverse range of livestock products will increase rapidly in the next decades, primarily in the developing world. In order to meet the demands of a much larger and more affluent human population in this century, the use and development of a broad spectrum of locally adapted domestic animal breeds, in association with the intensification of animal agriculture in most available production environments is required.

Awareness of the roles and values of animal genetic resources and concern for their rapid loss must be translated into effective action at the local, national, regional and global levels. Development of FAO's Global Strategy for the Management of Farm Animal Genetic Resources is supported by the UN Secretariat's 181 members as offering a framework for planning and implementing necessary management action.

As an element of the Global Strategy for Farm Animal Genetic Resources, the World Watch List for Domestic Animal Diversity (WWL-DAD:3) provides inventories and descriptions of breeds at risk in order to identify and monitor conservation priorities. Part 1 of WWL-DAD:3 introduces the important issues relating to management and conservation of domestic animal genetic resources and outlines the structure of the list for better use.

1.1 THE PURPOSE OF WWL-DAD:3

The World Watch List for Domestic Animal Diversity (WWL-DAD) is the voice of the Global Early Warning System for Farm Animal Genetic Resources. Based on survey data, a system of monitoring has been put in place as part of FAO's Global Strategy for the Management of Farm Animal Genetic Resources. Analysis of this data, which has been collated in the Global Databank for Farm Animal Genetic Resources within the Domestic Animal Diversity Information System, enables the identification of domestic animal genetic resources at risk of loss and the monitoring over time of extinction rates.

The goal of WWL-DAD:3 is to communicate the state of these genetic resources and to further serve as a catalyst to stop and reverse the trend of erosion of genetic diversity. These farm animal resources and the genetic diversi-































ty they represent, have developed over 12 000 years of domestication as a result of selection by human communities and adaptation to new environments and environmental challenges. Because of their major contributions to food and agriculture production and their important role in sustainable production systems, a threat to domestic animal resources is a major threat to global food security.

Part 2 of WWL-DAD:3 includes information on 30 mammalian and avian species of domesticated animals, a list of which appears in Table 1.1.1.

Not to be overlooked are the wild relatives of domestic species and their current or future role as animal genetic resources important for food and agriculture production.

Part 3 of the WWL-DAD:3 is devoted to the wild relatives of domesticated species.

TABLE 1.1.1 SPECIES INCLUDED IN WWL-DAD:3

MAMMALIAN species		AVIAN species	
	Buffalo		Chicken
	Cattle ¹		Duck
	Yak		Turkey
	Goat		Goose
	Sheep		Muscovy Duck
	Pig		Guinea fowl
	Ass		Partridge
	Horse		Pheasant
	Bactrian Camel		Quail
	Dromedary		Pigeon
	Alpaca		Cassowary
	Llama		Emu
	Guanaco		Ñandu
	Vicuña		Ostrich
	Deer ²		
	Rabbit		

¹ The term cattle is used in the broad sense to include *Bos indicus*, *Bos taurus*, *Banteng*, *Mithan*.

² The term deer is used in the broad sense to include all domesticated and semi-domesticated deer species.

Part 4 introduces feral populations that have been derived from previously domesticated stock. Discussed in this section are the potential costs and benefits of feral animals, the impact of such animals on the environment, the use of management practices to limit harmful impacts and gain some economic and nutritional benefits and their value as sources of genetic diversity.

The WWL-DAD:

- Is a central communications tool for the Global Early Warning System for Farm Animal Genetic Resources.
- Will focus attention on the very large number of breed populations currently at high risk of loss.
- Provides risk status and extinction monitoring assessments as a tool for all those concerned with biodiversity and the production of food.
- Has been developed as an aid for use by country, regional and global NGOs and training and research institutions concerned with conserving threatened farm animal breeds and the sustainable utilization of animal genetic diversity.
- Identifies areas where action (conservation, sustainable use and research requirements) from governments and concerned institutions and organizations is needed.
- Facilitates education on and awareness of the status of domestic animal breeds and their conservation and sustainable use, thus leading to more effective management of these resources.
- Identifies those key country contacts and national coordinating institutions that are in the best position to assist with local information and advice on the status of animal breeds of all species used for food and agriculture and their conservation and sustainable use. These contacts are developing within-country networks responsible for providing quality data to upgrade and continually update the Global Databank for Farm Animal Genetic Resources, enabling it to assist country and regional decision-making and to develop as the ongoing global monitoring mechanism for domestic animal diversity.
- Contributes to better global communication and collaboration in conservation, encourages more efficient, effective and sustainable use of the remaining farm animal genetic resources and facilitates project development and international collaborative action.
- Brings to public attention the importance of the wild and feral relatives of domestic livestock. Wild and feral relatives are important for several reasons. Wild relatives may be domesticated in their own right and used to produce similar or new products in modified production systems, or possibly in new production environments. In the future, unique genes may be extracted from them and introgressed into domesticants to

improve production, productivity, product quality and possibly adaptive fitness to particular production systems. Similarly, feral populations of domesticated livestock represent important sources of genetic diversity.

1.2 OPPORTUNITIES FOR ACTION

To assist the necessary country, regional and global conservation efforts governments and other relevant bodies should consider the following opportunities for using and contributing to the information presented in the WWL-DAD:3.

- Treat animal genetic resources and domestic animal diversity, including the wild relatives of domestic farm animals, as an essential component of global biodiversity, which requires good management both for its most effective short-term use, and to ensure its future availability.
- Take into account the many breeds classified as critical and endangered and extinction rates when formulating, adopting and implementing farm animal genetic resource management policies and strategies for their sustainable use and conservation. Also to be considered are the wild relatives of farm animals classified as endangered, vulnerable, rare, indeterminate or threatened. For further information refer to references outlined in the bibliography (section 1.12) and in particular to the set of FAO's Guidelines that can be found in the Reference Library of the FAO Domestic Animal Diversity Information System (DAD-IS) at URL: www.fao.org/dad-is/.
- Implement appropriate conservation measures to maintain breeds or populations of wild relatives of farm animals included in WWL-DAD:3, in co-operation with neighbouring countries sharing a similar goal. All breed populations should be regularly monitored, whether currently under threat or not. A current and reliable description of the status of each animal genetic resource is fundamental to good management and sustainable development.
- Undertake the preparation of comprehensive national Watch Lists for all farm animal species and their wild relatives using the recommended status categories (see section 1.6). Particular emphasis should be given to locally adapted breeds and wild relatives that have not yet been well described. DAD-IS offers a readily available means for collecting, validating and reporting data.
- Strengthen national programmes for surveying and monitoring farm animals. Particular emphasis should be given to breeds listed in WWL-DAD:3 as critical or endangered and wild relatives of farm animals at risk.
- Maintain country animal genetic resources inventories current through DAD-IS.
- Regularly report data to FAO on the state of national

domestic breeds and their wild relatives, to contribute to benefit sharing amongst countries and to the development and maintenance of the Global Early Warning System for Farm Animal Genetic Resources.

- Identify incentives and possibilities encouraging the more effective development, use and maintenance of breeds under threat, and design, execute and maintain farm animal genetic development initiatives to ensure the conservation of diversity. Sustainable, well-managed utilization of a genetic resource (*in situ* conservation) is likely to be the most cost-effective means of also maintaining it for future use. For further information refer to references outlined in the bibliography (section 1.12) and in particular to FAO's Guidelines for the Development of National Farm Animal Genetic Resources Management Plans - Developing Breeding Strategies, that can be found in the Reference Library of DAD-IS at URL: www.fao.org/dad-is/.
- Support the development and maintenance of gene banks to ensure cryo-preservation of adequate samples of each animal genetic resource not currently being effectively maintained via *in situ* conservation activities. For further information refer to references outlined in the bibliography (section 1.12) and in particular to FAO's Guidelines for the Development of National Farm Animal Genetic Resources Management Plans - Management of Small Populations at Risk, that can be found in the Reference Library of DAD-IS at URL: www.fao.org/dad-is/.
- Participate in the first report on the State of the World's Animal Genetic Resources, to establish a sound basis for action at the country, regional and global levels, in relation to the resources themselves and the state of the art capacity to manage these resources' priority needs (see section 1.11).

1.3 THE STRUCTURE OF WWL-DAD:3

STRUCTURE OF PART 2

The information of greatest importance in WWL-DAD:3 includes the descriptive lists of the animal breeds currently recorded at risk and the resulting summary figures and charts presented by species for each region. This information is provided in Part 2 (see figures 2.2.2.1 to 2.2.7.2). Breeds are categorized in the lists as either CRITICAL, CRITICAL MAINTAINED, ENDANGERED or ENDANGERED MAINTAINED according to criteria described in section 1.6. Risk status was assessed only for breeds for which population information was available in the Global Databank for Farm Animal Genetic Resources, as of 30 November 1999.

Breeds are listed according to FAO's regional structure: Africa, Asia and the Pacific, Europe, Latin America and the Caribbean, Near East and North America. This regional categorization is based on climatic, agro-ecological and cultural considerations.

A section (sections 2.2.2 - 2.2.7) devoted to each region highlights the countries included and presents an outline of the region. Geography, demography, agro-ecology, and special factors affecting the development of breeds are described. Examples are included to illustrate the diversity and utility of breeds at the local level.

Within each region, breed descriptions are sorted alphabetically within mammalian and then within avian breeds, first by country, then by species, by risk status (see section 1.6) and finally by most common breed name. Breeds are referred to by using the name by which they are most commonly known within each country.

FAO REGION

BREED NAME

SPECIES

RISK STATUS

Local names or synonyms (lang.):

Population data: (total population size • number of breeding females • number of breeding males • year of data collection)

Population trend: (increasing/stable/decreasing)

Range of uses: (listed by priority)

COUNTRY

A short paragraph details the origins, current location, phenotype (particularly any unusual visible traits), adaptability to local environmental pressures, population information and any *in situ* and *ex situ* conservation efforts that are operational. Basic information is given only for traits that differ from the most common situation for the species as a whole. For example, cattle breeds are presumed to be horned unless specifically listed as polled, coat type is described only if it is exceptional in some way, etc.

BREED INFORMATION

Basic descriptive information documented in the Global Databank for Farm Animal Genetic Resources, provided by countries from Breed Surveys for each species, is presented in the format outlined below. Additional data such as performance data, provided by some countries' Breed Surveys are not included in the WWL-DAD:3. However, this information is available in the Global Databank for Farm Animal Genetic Resources within DAD-IS. Country networks are encouraged to better characterize their animal genetic resources by including more complete and current data in the Global Databank for Farm Animal Genetic Resources. The language of the most common name is identified in Local names or synonyms (lang.). Language abbreviations can be found on page XIX.

EXTINCTION INFORMATION

Although it may not be possible to conserve every breed at risk, attention to breed extinction in the animal genetic resources management programme will serve to reduce the number of losses and, through proper recording, enable the analysis of extinction rates over time periods as an indicator of the effectiveness of the programme.

WWL-DAD:3 provides the first concerted effort by FAO to collate and summarize all of the available information on breed loss. A summary, incorporating a list of documented extinct breeds, is provided in Part 2.3. The Extinct Breeds List gives some indication of the number and types of breeds that are being lost. The breeds are listed by region, by country and by species (mammalian species followed by avian species). For each entry the origin of the breed is given followed, when available, by the reason for its extinction. For some breeds, confirmation of their extinction is still required from National Co-ordinators.

STRUCTURE OF PART 3

Part 3 documents and describes the wild relatives of domestic livestock. Species are grouped taxonomically rather than geographically as they are in Part 2. Some species that are farmed also occur in the wild and others have just recently been bred in captivity. As a result, Parts 2 and 3 may contain some common information.

Part 3 records the geographical distribution of the wild relatives of domesticates, their current status in the wild, threats to survival and economic importance. Where appropriate, prospects for the use of their genetic attributes for the improvement of the productivity of their domestic counterparts are presented. Extensive ranching and intensive farming of some of these wild relatives are already being developed. Some speculations on potential value are made for other species that are not immediately related to domesticated animal species but which are, or could be, in the process of domestication for the benefit of humankind.

Past and present domestication achievements are discussed. The development of innovative husbandry techniques which may overcome the difficulties that have constrained the management, taming and breeding of non-social, territorial species are described.

STRUCTURE OF PART 4

Part 4 introduces the issue of feral populations associated with domestic animal diversity. In explaining that feral populations, by definition, are derived from previously domesticated stock, the section expands on the potential costs and benefits of feral animals. Species covered include goats and sheep, through cattle and buffaloes to horses.

Exploring issues related to the impact of feral organisms on the environment, the use of management practices, especially hunting, to limit harmful impacts and gain some economic and nutritional benefits is discussed. The value of the resource for genetic diversity and the means of assessing this potential are included.

More detailed documentation of these feral populations and their relationships to farm animal genetic resources will be provided as the Global Strategy for the Management of Farm Animal Genetic Resources is further developed.

The animal species important today for food and agriculture production are a consequence of processes of domestication that have been continuing for almost 12 000 years. The domestication of animal species involves controlled breeding and husbandry. As human beings evolved and extended the area under their control, animals were domesticated and breeds developed to provide for human needs within these new environments. The purpose was to ensure the sustainability of human communities. The result was the development of genetically distinct breeds through the combined response of these animal populations to two interacting forces: selection pressures imposed by human communities, identifying and making greater use of preferred genetic types amongst the available animals over time; and the selection pressures imposed by the ruling environmental stress factors which operate through differential reproduction and survival of parent animals and their offspring to realize high adaptive fitness of the breed in the environment.

The evolutionary relationships between several of the domestic mammalian and avian species are summarized in Figures 1.4.1 and 1.4.2. Thirty avian and mammalian species of domestic livestock are included WWL-DAD:3, and future issues will incorporate additional species as the survey data becomes available. There are some 40+ species of domestic animals. Although small in number, their impact is substantial - they contribute directly and indirectly to some 30 - 40 percent of the total value of food and agriculture production. For most agro-ecosystems animals are one of the fundamental elements. Combining animal and plant species will commonly increase production and productivity of sustainable agriculture in most production environments.

Animal genetic diversity allows farmers to select stocks or develop new breeds in response to environmental change, threats of disease, new knowledge of human nutrition requirements, changing market conditions and societal needs, all of which are largely unpredictable. What is predictable is the future human demand for food. At the current rate of population growth, during the second decade of this century, it is predicted that the consumption of food and agriculture products will be equivalent to that in all of the last 10 000 years. This need will be felt most acutely in developing countries where 85 percent of the increased food demand is expected.

Given the above facts, domestic animal diversity is critical for food security. It is important not to permit the erosion of this diversity. WWL-DAD:3 provides an inventory and basic descriptive information on the domestic animal breeds that are at risk of extinction and those that are already extinct. The list will serve to monitor the stability of the remaining breeds and highlight conservation needs over time.

The domestication of animals over the past 12 000 years has been arguably one of humankind's greatest achievements. The following paragraphs give some indication of the major schools of thought on the domestication of the animal genetic resources outlined in WWL-DAD:3. Some indication of the genetic relationships within and between the families of domestic animals is also given. Please note that there may be some overlap with Part 3, which provides more details on the wild relatives of domesticants.

MAMMALIAN SPECIES

HORSE AND ASS

There are four main species in the family *Equidae*, which include horses and asses.

Equus caballus - the true horses of Europe and northern Asia
Equus hemionus - the pseudo-asses of central and southern Asia
Equus asinus - the true asses of north and north-east Africa
Equus quagga, - the quaggas of Africa south of the Sahara
Equus grevyi, etc.

Archaeological evidence for the domestication of the horse has been found in the Eurasian Steppes of the Ukraine dating to 4 000 BC where they were used for riding and as a source of meat. Other possible areas of horse domestication have been suggested and include China, Mesopotamia, Turkestan and the region north of the Persian mountains.

Two theories for the domestication of the donkey are debated. One theory contends that the donkey is descended from the Nubian wild ass. An alternative theory suggests the *Equus asinus africanus*, or the *Equus africanus somalicus* as the progenitor. The group of true asses includes eight subspecies of Asian wild ass that have not been domesticated.

PIG

The ancestors of the domestic pig are found among the wild pigs of the species *Sus scrofa*. These wild relatives occur throughout Eurasia and in North Africa - in the countries through which the Atlas range runs, in the Sudan and, until the beginning of the 1900s, Egypt. *Sus scrofa* is divided into 25 subspecies.

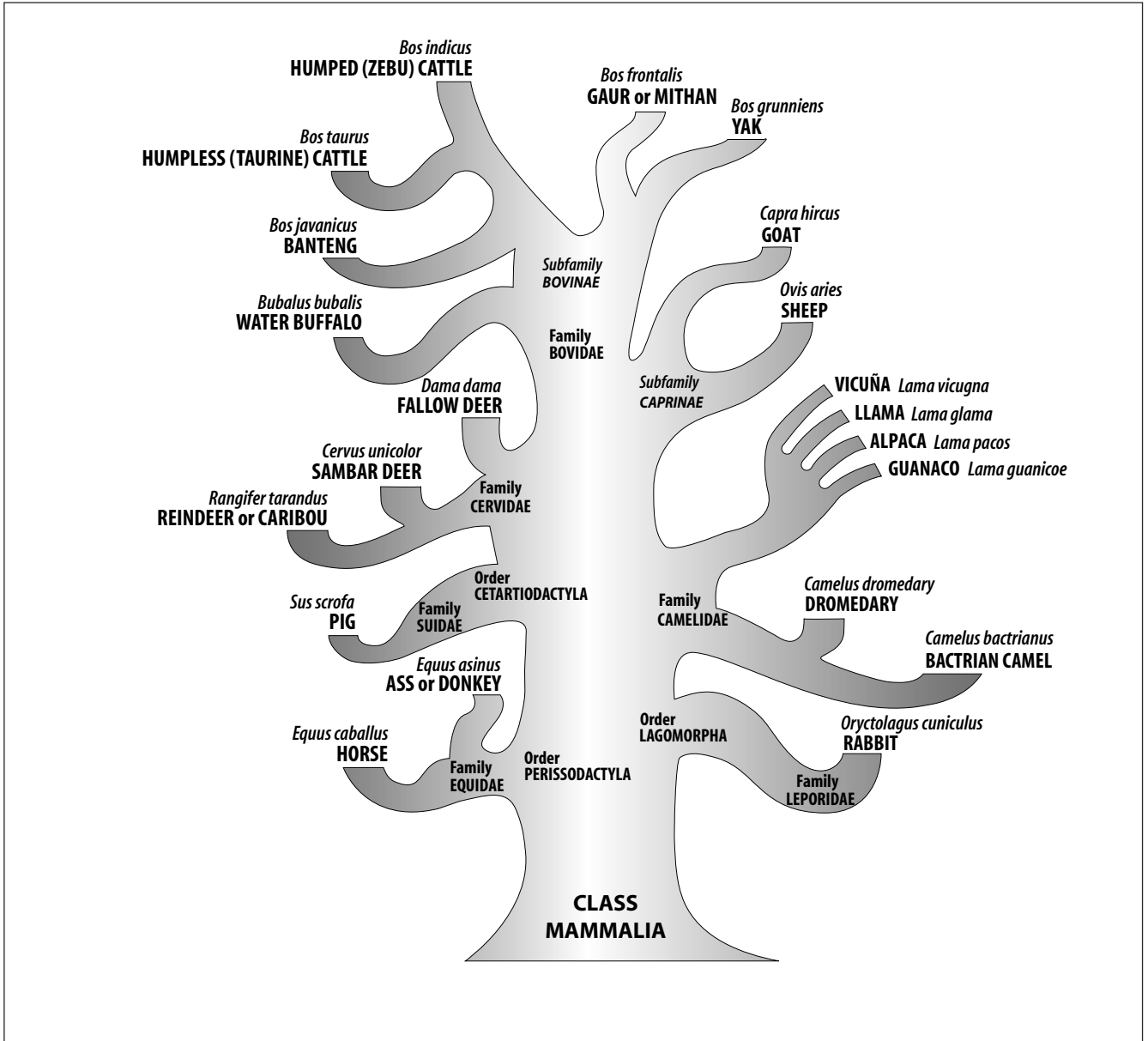
The domestic pig is believed to have originated in several different regions. For example, Chinese breeds originated in east Asia, whereas European breeds are believed to have originated in south-west Asia. The Sulawesi Warty Pig (*Sus celebensis*) has been independently domesticated on the island of Sulawesi and elsewhere in Indonesia.

GOAT AND SHEEP

Goats (*Capra hircus*) and sheep (*Ovis aries*) were among the earliest livestock species to be domesticated. As ruminants, they provided humankind with a means of digesting, via fermentation, a substantial proportion of the fibrous material produced by grasslands, which single-stomach or monogastric species are less able to digest.

FIGURE 1.4.1.

EVOLUTIONARY RELATIONSHIPS OF MAMMALIAN SPECIES USED FOR FOOD AND AGRICULTURE



These genera, *Capra* and *Ovis*, which form the subfamily *Caprinae*, have quite distinct evolutionary histories. The domestic breeds of goat are descended from the Bezoar of Pasang, *Capra aegagrus*, and may have been domesticated in Iran some time around 10 000 years ago. Genetic sequence analysis of mitochondrial cytochrome b genes suggests the presence of two distinct clades of goat in the Caucasus and a domestication event in the Fertile Crescent.

All domestic breeds of sheep are thought to have descended from the Mouflon (*Ovis musimon*), although the Urial (*Ovis orientalis*) may have contributed to European breeds. Blood protein analysis has suggested that the genetic variability is greater both within and between domesticated sheep than their wild relatives, probably a result of increased genetic drift following the processes of domestication.

CATTLE AND RELATED SPECIES

A further major group of mammals to be domesticated are the *Bovinae*. This family includes humped (*Bos indicus*) and humpleless (*Bos taurus*) cattle, the Yak (*Bos grunniens*), the Mithan or Gaur (*Bos frontalis*), Banteng (*Bos javanicus*) and Buffalo (*Bubalus bubalis*) and, as members of the same species group, may be inter-bred. Buffalo production is on the increase because of the lifecycle efficiency of this species particularly under extensive tropical and sub-tropical farming systems. The unique genetics of the Yak enable human communities to live in otherwise inhospitable high altitude, alpine ecosystems, by supplying most of the communities' daily needs.

Genetic evidence suggests two independent domestication events for *Bos indicus* and *Bos taurus* cattle.

Mitochondrial DNA sequence analysis identifies two major genetic clades; one in which humpless, or taurine, sequences cluster and another in which humped, or zebu, sequences cluster. The two major clades diverged at least 200 000 years ago, a date inconsistent with a single domestication 10 000 years ago. This has been interpreted most simply as evidence for two separate domestication events at this time, the ancestral stock presumably being different subspecies of the local aurochs, *Bos primigenius*. Taurine cattle were domesticated in the Fertile Crescent region, whereas zebu cattle were domesticated independently in the Indus valley region.

The range of species in the family *Bovinae* makes a very large number of important contributions to food and agriculture, providing nearly 30% of the world's meat and over 87% of the world's milk production. *Bovinae* are also highly valued for provision of draught power (transport of families and goods and for cultivation for cropping) and manure for fuel and fertilizer. *Bovinae* in particular commonly serve as the family bank and hedge against drought.

RABBIT

Domesticated rabbits are descended from the wild rabbit (*Oryctolagus cuniculus*) of Southern Europe and possibly North Africa. *Oryctolagus cuniculus* was discovered by the Phoenicians when they reached the shores of Spain in 1 000 BC, and the Romans introduced it as a game species throughout their empire. Domestication was probably carried out by monks in the late Middle Ages, and by the sixteenth century several breeds were known. Whilst China and Italy are the main producers of rabbit meat, farming of the species is increasing in many countries because of its high production capacity.

DEER

The wild relatives of those species of the *Cervidae* family which have been domesticated or semi-domesticated in recent years are in most cases still present in the wild in considerable numbers. Presently, the main species under domestication are Red deer (*Cervus elaphus elaphus*), Sika deer (*C. nippon nippon*), Wapiti (*C. elaphus canadensis*), Sambar (*C. unicolor unicolor*), Hog deer (*Axis porcinus*), Fallow deer (*Dama dama*), Rusa or Javan deer (*C. timorensis russa*), Chital or Axis deer (*Axis axis*), Reindeer/Caribou (*Rangifer tarandus*), Musk deer (*Moschus moschiferus*), Pere David's deer (*Elaphurus davidianus*) and Moose / Elk (*Alces alces*).

Deer of various species have long been exploited by man as mobile sources of meat. In recent years there has been much interest in the domestication and farming of different species of deer under varying degrees of intensification.

CAMELIDAE

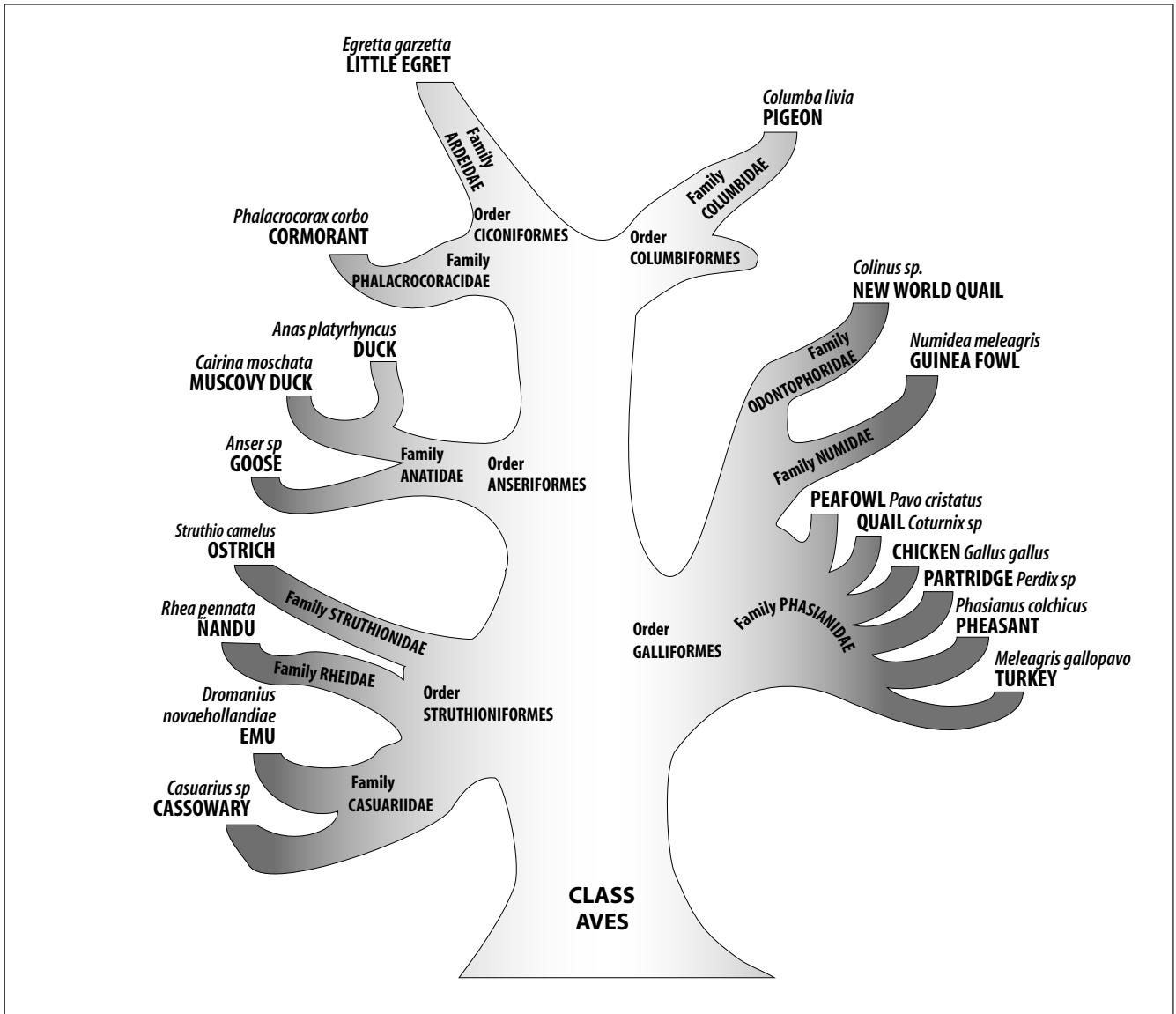
The early evolution of the family *Camelidae* occurred in North America over 40 million years ago. *Camelidae* descended from an animal the size of a rabbit. During one of the Ice Ages a solid bridge between Alaska and Siberia enabled the early migration of camels to Asia.

Camelids that migrated to South America became the ancestors of the Guanaco (*Lama guanicoe*) and Vicuña (*Vicugna vicugna*). Archaeological evidence indicates that Llama (*Lama glama*) and Alpaca (*Lama pacos*) were domesticated in the Andean Puna at elevations of 4 000 – 4 900 m asl, by 4 000 BC. There are different theories as to whether these New World camels should be classified as species or subspecies, and whether the Guanaco is the common ancestor of the Llama and Alpaca or the Alpaca is the result of crossing domestic Llama with the Vicuña. The Vicuña and the Guanaco are not domesticated, but species are hunted and used intensively for meat and wool.

Southern Arabia is the most probable area of domestication of the wild Dromedary Camel (*Camelus dromedary*) around 3 000 BC. The wild two-humped camel, the Bactrian Camel (*Camelus bactrianus*) is now found only in one small area in the Trans-Altai Gobi desert on the border of Mongolia, China and Russia. Many attempts have been made to introduce Dromedaries into areas beyond their original range, as far north as the Tuscany region in Italy but with lasting success only in the Canary Islands and Australia where the population is now feral.

Camelidae provide humankind with a range of products and services, from fine wool to meat, milk, blood and draught power. The ability of the *Camelidae* to go for long periods of time without water and live on thorny and high-fibre diets, tolerate high altitudes and extreme temperatures makes them one of the few animal families well adapted for food and agricultural production under harsh semi-desert environments.

FIGURE 1.4.2. EVOLUTIONARY RELATIONSHIPS OF AVIAN SPECIES USED FOR FOOD AND AGRICULTURE



AVIAN SPECIES

CHICKEN 

The representatives of the most useful family of birds for humankind belong to the family *Phasianidae*, from the order *Galliformes*. The genus *Gallus* comprises four species of birds occurring naturally in different regions of Asia. It is believed that the wild form of the red jungle fowl (*Gallus gallus*) was the main ancestor of the domestic form. The three other species (*G. sonneratii* - grey jungle fowl, *G. lafayetii* - Ceylon jungle fowl and *G. varous* - green jungle fowl) may also have contributed to the gene pool, although this has not yet been established using molecular genetic techniques. The exact date of its domestication is unknown but there is some evidence to suggest that the first domestication occurred in Southeast Asia some time prior to 6 000 BC before introduction to China. The domestication of chickens in the Indus Valley (India) around 2 500 - 2 100 BC might have been independent, although it has been argued that their presence

in this area may have been a result of diffusion from south-east Asia.

Chickens were formerly used primarily for cock-fighting or were assigned specific cultural or religious significance. However, they spread rapidly and became popular and highly appreciated as an important source of food. There is evidence that as early as the times of Plato and Aristotle specific chicken varieties were distinguishable.

DUCK 

The duck is a member of the genus *Anas*, subfamily *Anatinae*, family *Anatidae*, order *Anseriformes*. It is thought that *Anseriformes* and *Galliformes* (chickens) had a common ancestor in the Cretaceous period. The oldest fossils of *Anatidae* have been found in archaeological remains from the upper Eocene, about 40 - 50 million years ago. It is generally agreed that all breeds of domestic duck were derived from the wild mallard (*Anas platyrhynchos*) and that there were two domestication

events. The first is thought to have occurred in the Far East at least 3 000 years ago. The second domestication event took place in Europe during the Middle Ages.

TURKEY

The turkey belongs to the family *Phasianidae*, subfamily *Meleagridinae*. The natural habitats of birds belonging to the genus *Meleagris* were mixed forests, open woodlands and the savannahs of North and Central America. The earliest known fossils date to the Miocene period around 8 - 15 million years ago. It is believed that among the *Galliformes*, *Meleagris* is the closest relative to pheasants, from which it diverged around 11 million years ago. Domestic turkeys originated from the wild form *Meleagris gallopavo*. Although the exact place and date of domestication are not certain, it is believed that turkey domestication took place initially in Mexico. Archaeological remains dating to 200 BC - AD 700 found in the Puebla state region of Mexico, suggests this as the place of domestication. Early records from the Spanish Conquest period indicate that turkeys were being used at that time for meat.

MUSCOVY DUCK

The Muscovy duck belongs to the genus *Cairina*, family *Anatinae*. The domestic form was derived from the original dark Muscovy duck (*Cairina moschata*), the species common in Central and South America. Muscovy ducks were domesticated in pre-Columbian times in the Americas, but there is no evidence to indicate the precise time and location of this domestication. Domesticated Muscovy ducks, demonstrating different colour variants, were already present at the time of the Spanish Conquest. There is not a lot of information on the diffusion of Muscovy ducks, but it is believed that they were introduced to Europe after the Conquest.

GOOSE

The goose belongs to the genus *Anser*, subfamily *Anserinae*, family *Anatidae*. The genus *Anser* comprises 10 species. It is thought that there were several centres of goose domestication, one of which is believed to have been the Far East where the swan goose (*Anser cygnoides*) had been living with man in China and Southeast Asia from a very early date. The swan goose is the common ancestor of all Eastern goose breeds, the European domestic goose evolving from the greylag goose (*Anser anser*). It is possible that as early as before the great Mediterranean civilisations, Germanic tribes domesticated geese. There is also some evidence that the domestic goose was kept in Asia Minor about 4 000 BC. Domestic geese were very popular in the times of ancient Greece and Rome when they were regarded as a religious symbol as well as providing eggs, meat, down and feathers. A further domestication event occurred in Egypt where it is likely that both species, the greylag goose (*Anser anser*) and the Egyptian goose (*Alopochen aegyptiacus*) were present during the period of the Old Kingdom (around 2 500 BC). The domestication of the Egyptian goose was interrupted after the Persian Conquest in 525 - 524 BC.

GUINEA FOWL

The helmeted guinea fowl (*Numida meleagris*) belongs to the family *Phasianidae* and the subfamily *Numidinae*. Found exclusively in Africa, there are nine regionally specific subspecies: West Africa (*N.m. galeata*, *N.m. sabyi*); East Africa (*N.m. meleagris*, *N.m. somaliensis*); Central-Southern Africa (*N.m. reichenovi*, *N.m. mitrata*, *N.m. marungensis*, *N.m. papillosa*, and *N.m. coronata*). Although guinea fowl have been found depicted in an Egyptian mural dating to 2 400 BC, it is unclear whether they have been domesticated since that time. It is likely that there were several separate domestication centres in two regions: central-southern and West Africa, but the exact dates are unknown. There may have been more than one subspecies involved in the domestication process, however, it is supposed that *N.m. galeata* is the ancestral source of domestic birds. Since contact with man, guinea fowl have been bred for eggs and meat although no known breeds have been developed.

PHEASANT PARTRIDGE AND NEW WORLD QUAIL

There are a number of game birds bred in captivity on a very large scale for restocking wild populations, for sport shooting and as a speciality product for niche markets. The most common species used include the pheasant, the partridge and several species of quail. There are two species of pheasant from the genus *Phasianus*, subfamily *Phasianinae*: the common pheasant (*Phasianus colchicus*) and the green (or Japan) pheasant (*Phasianus versicolor*). The common pheasant is widespread in the temperate regions of Eurasia and lives on open country, open woodland, grassy steppes or farmland. They have been known in Europe since the time of Jason and the Argonauts, about 1 300 BC. Pheasants, although kept in captivity for many centuries, have not yet been fully domesticated. *Phasianus* has been introduced to many regions of the world and has become one of the most popular game birds.

A similar role is played by members of another genus *Perdrix*. One, the grey partridge (*Perdrix perdrix*), living naturally on farmland, steppes and meadows, is widespread in Eurasia. Members of the New World quail family (*Odontophoridae*), such as the Bobwhite quail (*Colinus virginianus*), live in the neotropical and nearctic regions of the Americas. Fossils of this family have been found dating to the lower Oligocene, around 37 million years ago. In spite of the similar nomenclature, quails from the New and Old Worlds should be clearly distinguished because they diverged some time around 35 - 63 million years ago.

PIGEON

Pigeons, together with doves, belong to the family *Columbidae* that has been divided into numerous genera. The genus *Columba* comprises 51 species found in all terrestrial habitats throughout the world except at the polar caps. Among these species, 34 are from the Old World and 17 from the New World. The two groups are

not closely related. The earliest known pigeon fossils date to the Miocene (30 million years ago) but the family is thought to be older. Since ancient times (around 6 000 years ago) the presence of pigeons has been regarded as a symbol of longevity or fertility.

The rock pigeon (*Columba livia*) from Eurasia is believed to be the wild ancestor of all domestic pigeon breeds. It is believed that the pigeon was the first domesticated bird and that domestication occurred in the eastern Mediterranean region around 5 000 - 10 000 years ago. Nowadays, as a result of selective breeding practices, the number of domestic varieties exceeds 350. They differ in important traits such as body weight and shape, rate of sexual maturity, plumage colour, specific ornaments and singing, flying and homing ability.

CASSOWARY

Three species of birds belong to the tribe *Casuariini*, one of the two tribes of the *Casuariidae* family. Their natural habitat is the dense, humid forest of Papua New Guinea and north-eastern Australia. Cassowaries have been hunted in the wild for some time, mainly for meat. In Papua New Guinea they are often kept in captivity where domestication efforts are underway.

EMU

The emu (*Dromaius novaehollandiae*) is the sole surviving species of the tribe *Dromaiini*, which, along with cassowaries, belongs to the family *Casuariidae*. Emus and cassowaries are thought to have had a common ancestor during the Pliocene (5 - 10 million years ago). Emus live in the open woodland and semi-desert regions of Australia and Tasmania. They are easy to keep and rear in captivity and have been bred on farms in western Australia since 1970 mainly for meat. Emus are gaining in popularity in anticipation of a market for their meat, feathers, oil and hide.

ÑANDU

The two species of ñandu, also known as rhea, belong to the family *Rbeidae*, order *Rbeiforms*. Ñandus are large, flightless birds related to ostriches, emus and cassowaries. Both of the ñandu species are confined to the South American continent: the common rhea (*Rbea americana*) inhabits open country from north-eastern Brazil to Argentina; Darwin's rhea (*Pterocnemia penna-ta*) is found in regions between Peru and Patagonia. They are hardy animals that can utilize marginal land. As a result, in the last few years they have become increasingly popular and commercial farming of the common rhea has commenced in North America primarily for meat, hide and oil products.

OSTRICH

Struthio camelus, the unique species of the *Struthionidae* family, was formerly widespread in the African savannah and bush. The ancestor of the ostrich probably emerged during the Cretaceous period

(65 - 146 million years ago) while contemporary ostrich fossils have been found dating to the Miocene period (12 million years ago). In Mesopotamian and Egyptian art there is evidence that ostrich feathers have been used by humankind for at least 5 000 years. However, the most important domestication occurred in the latter half of the nineteenth century when ostrich feathers became fashionable. In 1833 the first ostrich farm was established in South Africa. The number of ostrich farms as well as the number of breeding birds has increased in the last few decades, not only in South Africa and the Near East but also in regions with quite different climates, such as North America and Europe where ostrich meat has become valuable.

CORMORANT

The cormorant family (*Phalacrocoracidae*) includes 38 species found all over the world. Fossils of a cormorant ancestor have been found in North America dating to around 60 million years ago. The use of cormorants for fishing was widespread in the Old World, and in China this custom dates to the end of the fourth century BC. It is continued today both in China and Japan with both bred and tamed birds which belong mainly to two species: great (*Phalacrocorax carbo*) and Japanese (*Phalacrocorax capillatus*) cormorants. The truly domesticated birds are often variable in colour.

LITTLE EGRET

Egrets belong to the family *Ardeidae* and, like the cormorants, belong to the order *Ciconiformes*. The genus *Egretta* consists of 13 species. One, the *Egretta garzetta* (little egret), has been domesticated and has been farmed in Pakistan since 1930 for its ornamental plumes. At the height of the ostrich feather trade it was also domesticated and farmed on a small scale in Tunisia.

PEAFOWL

There are two species of peafowl: Indian peafowl (*Pavo cristacus*) and green peafowl (*Pavo muticus*) which belong to the genus *Pavo* and the subfamily *Phasianinae*. They naturally inhabit the open forests of India. The domestic form is descended from the Indian peafowl. Present in Indian mythology, it has been known outside India since the time of Solomon (about 900 BC). Peafowl were originally kept for the beauty of the males who were regarded as a symbol of wealth and power. No varieties have been developed since domestication.

QUAIL

The quail belongs to the subfamily *Phasianinae*, in which the eight species of the genus *Coturnix* are included. Quails are found widespread throughout the Old World. Their natural habitats are fields, meadows, pastures and farmlands. The oldest indication of quails in human culture comes from a hieroglyph from the Old Kingdom of Egypt (about 2 500 BC). It was most probably a common quail (*Coturnix coturnix*) that is found in Europe and some parts of Asia and Africa. It is believed that all, or

almost all, domestic quails were derived from the wild Japanese quail (*Coturnix japonica*) originating in the Far East where their domestication occurred in the eleventh or twelfth century. Japanese quails were kept and bred primarily for their song and it was not until the beginning of the twentieth century that quail eggs and meat became valuable. After the Second World War, the Japanese quail was introduced to North America, Europe and the Near East where it is now used both for eggs and meat as well as a laboratory animal.

1.5

THE WILD RELATIVES OF DOMESTIC ANIMALS

As many as 100 wild animal species a day may be facing extinction. The proportion of known threatened animal species varies on a country by country basis: according to the OECD (1999), in Japan eight percent of all known mammalian and avian species are threatened; and in the Czech Republic and Hungary almost 45 percent of all known mammalian and avian species are threatened.

Some of these vanishing wild species have the potential to contribute to humankind's food and agriculture by providing additional genetic diversity to that being maintained in the domestic breeds described in Part 2. For this reason, they are also of interest to food and agriculture for the sustainability of humankind, for which the Global Strategy for the Management of Farm Animal Genetic Resources is being developed. The imminent plight of both the domestic breed resources and of their wild relatives has not been widely recognised. Nevertheless, in 1980 a joint FAO/UNEP consultation on Animal Genetic Resources held in Rome "*urged all governments to give full consideration to ways and means of conserving viable populations of wild animal species, including avian, which are the ancestors or close relatives of domestic species*". To this end, the consultation recommended that FAO and UNEP "*expand their programmes in support of the establishment and improved management of national parks and reserves*". An outcome of the meeting was the development of a list, comprising more than 35 species of animals and birds, of the wild relatives of domestic species.

Developments are underway for the sustainable use and conservation of the genetic diversity associated both with domestic livestock and their immediate wild relatives. The botanical community has long recognised the importance of conservation and utilisation of wild plant genetic resources, but the conservation of wild animal genetic material lags far behind. The International Plant Genetic Resources Institute (IPGRD), co-ordinates the collection of wild specimens of plants, undertakes research and holds them in trust for farmers use. Research initiatives have led to improvements in crop yields and in disease and pest resistance. For animals, however, no such organisation exists. The International Livestock Research Institute (ILRI) has the system-wide mandate amongst the 14 International Agricultural Research Centres for certain domestic animal species and is developing a substantial animal genetic resources component in its research programme, with a second centre, The International Centre for Agricultural Research in the Dry Areas (ICARDA), now also contributing to this.

As yet, there have been very few examples of the systematic use of genetic material from wild relatives to improve modern domestic livestock. As such, the potential of these wild resources remains undervalued.

DOMESTIC ANIMALS

In a world where there are estimated to be a quarter of a million more mouths to feed each day, many changes in our food production systems will of necessity be made, even in the near future. For example, the majority of meat demanded by humankind is still produced from grazing and foraging animals. Against this background it has been shown that just 22 unimproved guinea pigs, fed largely on household scraps and kept in makeshift housing, can provide enough animal protein for a family of six for a year and that already improved guinea pigs, with increased weights from 0.5 kg to 1.8 kg, have been developed by selective breeding. It is a matter for speculation as to what might be the potential for meat production of some of the other highly fecund South American rodents once they attract the attention of animal breeders.

In October 1992 the FAO *Projet de Developpement des Animaux Villageois de Ouagadougou* in Burkina Faso organised a workshop on the development of the guinea fowl (*Numida meleagris*) as a semi-domestic producer of meat and eggs in the dry regions of West Africa. Considering that more than 73 million guinea fowl (55 million in Nigeria alone) are kept by village farmers in these dry countries, highlights the importance of this workshop. It is by drawing to the attention of agricultural extension officers and the farmers themselves those wild species that can thrive and produce in areas unsuitable for conventional domestic livestock that their intrinsic value will be realised and an incentive for their conservation provided. If there is not to be a disastrous collision between ever-increasing human numbers and the constraints of the earth's natural productivity, we can ill afford to ignore the genetic potential of the fast disappearing relatives of domestic livestock and the, as yet, largely unexploited wild animal resources.

The wild ancestral species included in Part 3 comprise those considered to be the free-living counterparts of the world's major domestic livestock species - cattle, sheep, goats, horses, asses, pigs, camelids and the avian species. Along with these long domesticated animals are a number of other taxa which are at present undergoing varying degrees of the domestication process. These taxa include species of deer, musk oxen, African and Asian elephants, bear, rodents and rabbits. The wild relatives of domestic chickens, ducks and geese are considered as are the emerging domesticants such as ostrich, emu and rhea (ñandu). Civet cats, valued for the production of musk, are also included because development of improved management procedures may eventually lead to their domestication. The imminent domestication of several reptile groups, important for meat and skin, is also discussed. Because of the contributions made to food and agricultural production by these wild, and sometimes emerging domestic species, they must not be overlooked in the global management of biodiversity.

In the analysis of the Global Databank for Farm Animal Genetic Resources, breeds are classified into one of seven categories:

- extinct
- critical
- critical-maintained
- endangered
- endangered-maintained
- not at risk
- unknown

This categorization is based on overall population size, number of breeding females, the number of breeding males, the percentage of females bred to males of the same breed and the trend in population size. Further consideration is given to whether active conservation programmes are in place for critical or endangered populations. When relevant information on conservation management of breeds at risk is not available a conservative approach is taken and the breed is categorised in the higher risk category of critical or endangered.

A further consideration in categorization is whether active conservation programmes are in place for critical or endangered populations.

When relevant information is not available a conservative approach is taken and the breed is categorised in the higher risk category.

The general guidelines used to determine the risk status involves the following iterative process:

EXTINCT

A breed is categorized as extinct if:

It is no longer possible to recreate the breed population. This situation becomes absolute when there are no breeding males or breeding females remaining. In reality extinction may be realized well before the loss of the last animal, gamete or embryo.

CRITICAL

A breed is categorized as critical if:

The total number of breeding females is less than or equal to 100 or the total number of breeding males is less than or equal to five;

OR

The overall population size is less than or equal to 120 and decreasing and the percentage of females being bred to males of the same breed is below 80 percent.

ENDANGERED

A breed is categorized as endangered if:

The total number of breeding females is greater than 100

and less than or equal to 1 000 or the total number of breeding males is less than or equal to 20 and greater than five;

OR

The overall population size is greater than 80 and less than 100 and increasing and the percentage of females being bred to males of the same breed is above 80 percent;

OR

The overall population size is greater than 1 000 and less than or equal to 1 200 decreasing and the percentage of females being bred to males of the same breed is below 80 percent.

Breeds may be further categorized as CRITICAL-MAINTAINED or ENDANGERED-MAINTAINED. These categories identify critical or endangered populations for which active conservation programmes are in place or populations are maintained by commercial companies or research institutions.

NOT AT RISK

A breed is categorized as not at risk if none of the above definitions apply and:

The total number of breeding females and males are greater than 1 000 and 20, respectively;

OR

If the population size is greater than 1 200 and the overall population size is increasing.

These definitions are currently used by FAO but are not final and will be further developed. As they are, they enable all countries to participate in the evaluation of information in the Global Databank for Farm Animal Genetic Resources. However, some countries may wish to use a more refined or conservative system.

Whilst a small number of countries have themselves declared particular breeds to be not at risk or unknown where they believe those breeds to be also represented in one or more other countries; this refinement was not included in the analysis on which this edition of WWL-DAD is based, for the information could not be properly recorded in the current version of the Global Databank for Farm Animal Genetic Resources. The risk status categorization of breeds documented in Part 2 refers only to the status of the breed population in that country and should not be interpreted as reflecting the global picture. However, the further development of the Global Early Warning System for Farm Animal Genetic Resources and of DAD-IS will enable all countries to evaluate the status of their breeds that occur in other countries and will provide for the calculation of the global risk status of all breeds.

WILD RELATIVES

The wild relatives documented in Part 3 are categorized by the IUCN threatened species categories which differ slightly from the FAO definitions of risk for domestic animals outlined above.

Species identified as threatened by IUCN are assigned a category indicating the degree of threat (for more details see reference in bibliography Part 3). These categories have been used for Part 3 of this text only, where they are generally more relevant. Definitions are as follows:

EXTINCT (EX)

Species not definitely located in the wild during the last 50 years.

ENDANGERED (E)

Taxa in danger of extinction and whose survival is unlikely if the causal factors continue operating. Included are taxa whose numbers have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to be in immediate danger of extinction. Also included are taxa that may be extinct but have definitely been seen in the wild in the past 50 years.

VULNERABLE (V)

Taxa believed likely to move into the endangered category in the near future if the causal factors continue operating. Included are taxa of which most of all the populations are decreasing because of over-exploitation, extensive destruction of habitat or other environmental disturbance; taxa with populations that have seriously been depleted and whose ultimate security has not yet been assured; and taxa with populations that are still abundant but are under threat from severe adverse factors throughout their range.

RARE (R)

Taxa with small world populations that are not at present endangered or vulnerable, but are at risk.

INDETERMINATE (I)

Taxa known to be endangered, vulnerable, or rare but where there is not enough information to say which of the three categories is appropriate.

INSUFFICIENTLY KNOWN (K)

Taxa that are suspected, but not definitely known, to belong to any of the above categories because of lack of information.

THREATENED (T)

Threatened is a general term to denote species that are endangered, vulnerable, rare, indeterminate, or insufficiently known and should not be confused with the use of the same term by the United States Office of Endangered Species.

COMMERCIALY THREATENED (CT)

Taxa not currently threatened with extinction, but most or all of whose populations are threatened as a sustainable commercial resource, or will become so, unless their exploitation is regulated. This category applies only to taxa whose populations are assumed to be relatively large.

1.7 INFORMATION GATHERING

The information used to compile WWL-DAD:3 was derived from an analysis of the country survey data in the Global Databank for Farm Animal Genetic Resources. These data were compiled from the following sources:

■ BREEDS SURVEYS

In 1991 a breed survey focusing on the major domestic livestock species (ass, buffalo, cattle, goat, horse, pig and sheep) was initiated in all non-European countries. The primary aims of the survey were to identify and obtain basic descriptions of all breeds and varieties within each country and to identify breeds at risk of extinction.

Brief two-page questionnaires were completed enabling the collation of basic morphological descriptions, population size and production performance data. These questionnaires form a subset of the questionnaires that are directly accessible by National Co-ordinators, through DAD-IS, either on-line (URL:<http://www.fao.org/dad-is>) or via the DAD-IS CD-ROM (see also Table 1.7.1). The focus of the initial survey was to gather basic breed identification data and information on population size.

The National Co-ordinator for each country:

- arranged for the completion/update of one questionnaire for each breed/breed variety in the country or region, and
- remains responsible for validating and updating the country's data stored in the Global Databank for Farm Animal Genetic Resources.

In Europe, the need for animal genetic resources conservation efforts was recognised in the late 1960s. The first concerted action was initiated in the 1980s when The European Association for Animal Production (EAAP) initiated three successive breed surveys (1982, 1985 and 1988) on European cattle, sheep, goat and pig breeds, with the participation of 22, 17 and 12 countries respectively. In 1986, the Department of Animal Breeding at Hannover Veterinary University was entrusted by EAAP with the task of creating the European data bank for animal genetic resources. By 1994 all of the data contained in the EAAP-AGDB (EAAP-Animal Genetic Data Bank) on both non-European and European breeds, was transferred to the Global Databank for Farm Animal Genetic Resources. The EAAP-AGDB can be found at URL: <http://www.tiho.hannover.de/einricht/zucht/eaap/index.htm>.

Towards the end of 1993 global surveys were initiated for domestic avian species and the *Camelidae*. Two-page questionnaires were developed for use with the avian species survey to provide for avian-specific characteristics. Provision was also made for some added avian species that have only recently been bred in captivity by farmers. Contacts were asked to complete a questionnaire for each breed in their country, including varieties, strains and lines for research or other purposes, all of

which must be regarded as animal genetic resources.

All of the information stored in the Global Databank for Farm Animal Genetic Resources is reviewed and verified before being made publicly accessible. When breed questionnaires are provided by National Co-ordinators to FAO a validation process is initiated. The data are critically examined in detail and, where necessary, correspondence is initiated between the National Co-ordinators and FAO in order to clarify points or questions raised by the provided data. Only when these queries are resolved is data released for general access through the Global Databank for Farm Animal Genetic Resources of DAD-IS. Once in the Global Databank for Farm Animal Genetic Resources a permanent record of sovereign animal genetic resources for the country is in place. This information is continually updated and developed by the respective National Co-ordinator. No sequential data such as population information has been or will be deleted or overwritten. This ensures the maintenance of valuable time-trend information that can be analysed at any point to assist management decision-making. For further verification of the stored information, all country contacts were requested, in early 1999, to check the validity of the data and to update the information where necessary. Tables 1.7.1 and 1.7.2 provide overviews of the type of information recorded in the Global Databank for Farm Animal Genetic Resources.

By April 1996, all of the information stored in the Global Databank for Farm Animal Genetic Resources was available for viewing on DAD-IS. In September 1998, the second stage of DAD-IS was released with additional functions, which included the initiation of an interactive service, allowing National Co-ordinators and Informal Contacts with special access rights to correct and update the information on the breeds in their own countries. The development of DAD-IS is ongoing. The third stage of development will train and include functionality to assist countries prepare for the first report on the State of the World's Animal Genetic Resources.

■ MASON'S WORLD DICTIONARY OF LIVESTOCK BREEDS
Mason's World Dictionary of Livestock Breeds (1988) was used as an initial information source for the development of the Global Databank for Farm Animal Genetic Resources. For seven species (ass, buffalo, cattle, goat, horse, pig and sheep) it lists the breeds and breed varieties that Mason identified worldwide. For each entry the following are provided: the breed name, synonymous names, location and sometimes the origin, physical appearance, main uses and risk status. FAO uses the term breed differently to Mason, to also include breed varieties. Almost all breeds described by Mason were originally entered in the Global Databank for Farm Animal Genetic Resources. Those described as feral or wild were also included, while those referring to an unstable cross between breeds or to a group or collection of breeds were not. The information originally obtained from Mason was updated and validated by National Co-ordinators and Informal Contacts operating directly with FAO.

TABLE 1.7.1

SUMMARY OF INFORMATION RECORDED FOR MAMMALIAN SPECIES IN THE GLOBAL DATABANK FOR FARM ANIMAL GENETIC RESOURCES

■ GENERAL INFORMATION	■ SPECIAL QUALITIES
Species Breed name (most common name and other local names) Distribution	Specific quality of products Specific health characteristics Adaptability to specific environment Special reproductive characteristics Other special qualities
■ POPULATION DATA	■ MANAGEMENT CONDITIONS
Basic Population Information: Year of data collection Total population size (range or exact figure) Reliability of population data Population trend (increasing, stable, decreasing) Population figures based on (census/survey at species/breed level or estimate)	Management system Mobility Feeding of adults Housing period Specific management conditions
Advanced Population Information: Number of breeding females and males Percentage of females bred to males of the same breed and percentage of males used for breeding. Number of females registered in herd book/register Artificial Insemination usage and storage of semen and embryos Number of herds and average herd size	■ <i>IN SITU</i> CONSERVATION
■ MAIN USES	Description of <i>in situ</i> conservation programmes
Listed in order of importance	■ <i>EX SITU</i> CONSERVATION
■ ORIGIN AND DEVELOPMENT	Semen stored and number of sires represented Embryos stored and number of dams and sires represented in embryos Description of <i>ex situ</i> conservation programmes
Current domestication status (domestic/wild/feral) Taxonomic classification (breed/variety/strain/line) Origin (description and year) Import Year of herd book establishment Organization monitoring breed (address)	■ PERFORMANCE
■ MORPHOLOGY	Birth weight Age at sexual maturity Average age of breeding males Age at first parturition and parturition interval Length of productive life Milk yield and lactation length (mammals) Milk fat Lean meat Daily gain Carcass Weight Dressing percentage Management conditions under which performance was measured
Adult height and weight Number and shape/size of horns Colour Specific visible traits Hair and/or wool type	

TABLE 1.7.2

SUMMARY OF INFORMATION RECORDED FOR AVIAN SPECIES IN THE GLOBAL DATABANK FOR FARM ANIMAL GENETIC RESOURCES

<p>■ GENERAL INFORMATION</p>	<p>■ MORPHOLOGY</p>
<p>Species Breed name (most common name and other local names) Distribution</p>	<p>Adult live weight Patterns within feathers Plumage pattern Skin colour Shank and foot colour Comb type Egg shell colour Specific visible traits</p>
<p>■ POPULATION DATA</p>	<p>■ SPECIAL QUALITIES</p>
<p>Basic Population Information: Year of data collection Total population size (range or exact figure) Reliability of population data Population trend (increasing, stable, decreasing) Population figures based on (census/survey at species/breed level or estimate)</p> <p>Advanced Population Information: Number of breeding females and males Percentage of females bred to males of the same breed and percentage of males used for breeding. Number of females registered in herd book/register Artificial Insemination usage and storage of semen and embryos Number of herds and average herd size</p>	<p>Specific quality of products Specific health characteristics Adaptability to specific environment Special reproductive characteristics Other special qualities</p>
<p>■ MAIN USES</p>	<p>■ MANAGEMENT CONDITIONS</p>
<p>Listed in order of importance</p>	<p>Management system Mobility Feeding of adults Housing period Specific management conditions</p>
<p>■ ORIGIN AND DEVELOPMENT</p>	<p>■ <i>IN SITU</i> CONSERVATION</p>
<p>Current domestication status (domestic/wild/feral) Taxonomic classification (breed/variety/strain/line) Origin (description and year) Import Year of herd book establishment Organization monitoring breed (address)</p>	<p>Description of <i>in situ</i> conservation programmes</p>
	<p>■ <i>EX SITU</i> CONSERVATION</p>
	<p>Semen stored and number of sires represented Description of <i>ex situ</i> conservation programmes</p>
	<p>■ PERFORMANCE</p>
	<p>Age at sexual maturity Age at first egg and clutch interval Length of productive life Number of eggs per year Daily gain Carcass Weight Dressing percentage Management conditions under which performance was measured</p>

In 1999, data on extinct breeds was extracted from Mason's World Dictionary of Livestock Breeds, Types and Varieties (1996) and entered into the Global Databank for Farm Animal Genetic Resources. National Co-ordinators and Informal Contacts were contacted and requested to confirm the loss of these breeds and to provide additional information on other extinct breeds that are not documented in Mason (see Part 2.3 for further information on extinct breeds).

■ PUBLISHED LITERATURE

A literature search was carried out for all breeds to collate initial information on population size and basic phenotypic performance. Several of the FAO Animal Production and Health series publications also provided substantial initial data, particularly volumes 46 and 65 published in 1984 and 1989. These publications describe the animal genetic resources of China and the former Union of Soviet Socialist Republics. Population data for breeds in developing countries are scarce. More direct reporting of this data is required. An improved recording and updating effort is needed within many countries to obtain the necessary survey data.

■ THE GLOBAL IMAGE DATABANK FOR FARM ANIMAL GENETIC RESOURCES

FAO receives many requests, particularly from the media, countries and other stakeholders interested in particular breeds, for quality images of animal genetic resources. To provide a reliable and efficient global service, FAO is developing a high quality image database to complement and link directly with the Global Databank for Farm Animal Genetic Resources. Survey country contacts and species experts throughout the world are invited to provide images (good quality slides, photo prints including high resolution virtual images) showing the breeds in various aspects within their primary production environment, together with brief informative descriptions of the images and identification of the photographer.

1.8

RESPONSIBILITY FOR QUALITY OF DATA

Under the Convention on Biological Diversity (CBD) (see also URL: <http://www.biodiv.org/>), implemented as international law in 1993, each country has sovereignty over all genetic resources occurring within its jurisdiction. Thus, each country must be responsible for validating and maintaining current data describing the status and characteristics of their resources and for reporting on this internationally.

The breed survey questionnaires are completed by country contacts, co-ordinated by the country-identified National Co-ordinators for the Management of Animal Genetic Resources. These individuals and the National Co-ordinating Institutions may be located in governments, research institutes, universities or NGOs having an effective link with governments. National Focal Points for the Management of Animal Genetic Resources also have primary technical responsibility for the country for collating and validating data maintained in the Global Databank for Farm Animal Genetic Resources. All countries deciding to participate in the first report on the State of the World's Animal Genetic Resources will need to have identified with FAO their National Focal Point for the Management of Animal Genetic Resources.

Some countries provide more detailed and better quality information than do others. In many cases further efforts have been made to validate and augment the original information supplied. Often this has not been possible as either the information requested is unavailable or the National Co-ordinator is not in a position to provide it.



PLEASE HELP

If you, the reader, are aware of, and are in a position to furnish further information on the breeds listed, or on other breeds that are not listed, current or extinct, please contact your National Co-ordinator - see Annex 2.2 for names and addresses of current National Co-ordinators for the Management of Animal Genetic Resources. Continuously updated National Co-ordinator information for your country can be found in the communication module of DAD-IS (URL: <http://www.fao.org/dad-is/>).

AGROBIODIVERSITY or **AGRICULTURAL BIOLOGICAL DIVERSITY**: that component of biodiversity that contributes to food and agriculture production. The term agrobiodiversity encompasses within-species, species and ecosystem diversity.

ANIMAL GENETIC RESOURCES DATABANK: a databank that contains inventories of farm animal genetic resources and their immediate wild relatives, including any information that helps to characterize these resources.

ANIMAL GENOME (GENE) BANK: a planned and managed repository containing animal genetic resources. Repositories include the environment in which the genetic resource has developed, or is now normally found (*in situ*) or facilities elsewhere (*ex situ* - *in vivo* or *in vitro*). For *in vitro*, *ex situ* genome bank facilities, germplasm is stored in the form of one or more of the following: semen, ova, embryos and tissue samples.

BIODIVERSITY or **BIOLOGICAL DIVERSITY**: the variety of life in all its forms, levels and combinations, encompassing genetic diversity, species diversity and ecosystem diversity.

BREED: either a subspecific group of domestic livestock with definable and identifiable external characteristics that enable it to be separated by visual appraisal from other similarly defined groups within the same species, or a group for which geographical and/or cultural separation from phenotypically similar groups has led to acceptance of its separate identity. Note: Breeds have been developed according to geographic and cultural differences, and to meet human food and agricultural requirements. In this sense, breed is not a technical term. The differences, both visual and otherwise, between breeds account for much of the diversity associated with each domestic animal species. Breed is often accepted as a cultural rather than a technical term.

CHARACTERIZATION OF ANIMAL GENETIC RESOURCES: all activities associated with the description of animal genetic resources aimed at better knowledge of these resources and their state. Characterization by a country of its animal genetic resources will incorporate development of necessary descriptors for use, identification of the country's sovereign animal genetic resources; baseline and advanced surveying of these populations including their enumeration and visual description, their comparative genetic description in one or more production environments, their valuation, and ongoing monitoring of those animal genetic resources at risk.

CRITICAL: a breed is categorized as critical if: The total number of breeding females is less than or equal to 100 or the total number of breeding males is less than or equal to five; or The overall population size is less than or equal to 120 and decreasing and the percentage of females being bred to males of the same breed is below 80 percent.

CRITICAL-MAINTAINED: are those critical populations for which active conservation programmes are in place or populations are maintained by commercial companies or research institutions.

DOMESTIC ANIMAL DIVERSITY (DAD): the spectrum of genetic differences within each breed, and across all breeds within each domestic animal species, together with the species differences; all of which are available for the sustainable intensification of food and agriculture production.

ENDANGERED: a breed is categorized as endangered if: The total number of breeding females is greater than 100 and less than or equal to 1 000 or the total number of breeding males is less than or equal to 20 and greater than five; or The overall population size is greater than 80 and less than 100 and increasing and the percentage of females being bred to males of the same breed is above 80 percent; or The overall population size is greater than 1 000 and less than or equal to 1 200 decreasing and the percentage of females being bred to males of the same breed is below 80 percent.

ENDANGERED -MAINTAINED: are those endangered populations for which active conservation programmes are in place or populations are maintained by commercial companies or research institutions.

EX SITU CONSERVATION OF FARM ANIMAL GENETIC DIVERSITY: all conservation of genetic material *in vivo*, but out of the environment in which it developed, and *in vitro* including, *inter alia*, the cryoconservation of semen, oocytes, embryos, cells or tissues. Note that *ex situ* conservation and *ex situ* preservation are considered here to be synonymous.

EXTINCT: a breed is categorized as extinct if: It is no longer possible to recreate the breed population. This situation becomes absolute when there are no breeding males or breeding females remaining. In reality extinction may be realized well before the loss of the last animal, gamete or embryo.

FARM ANIMAL GENETIC RESOURCES (AnGR): those animal species that are used, or may be used, for the production of food and agriculture, and the populations within each of them. These populations within each species can be classified as wild and feral populations, landraces and primary populations, standardized breeds, selected lines, and any conserved genetic material.

IN SITU CONSERVATION OF FARM ANIMAL GENETIC DIVERSITY: all measures to maintain live animal breeding populations, including those involved in active breeding programmes in the agro-ecosystem where they either developed or are now normally found, together with husbandry activities that are undertaken to ensure the continued contribution of these resources to sustainable food and agricultural production, now and in the future.

LINE: similar to a strain but refers to commercial line breeding, which is the breeding of birds that have outstanding performance characteristics within closed populations.

MANAGEMENT OF FARM ANIMAL GENETIC RESOURCES: the sum total of technical, policy, and logistical operations involved in understanding (characterization), using and developing (utilization), maintaining (conservation), accessing, and sharing the benefits of animal genetic resources.

NOT AT RISK: a breed is categorized as Not at Risk if none of the above definitions apply and: The total number of breeding females and males are greater than 1 000 and 20, respectively; OR If the population size is greater than 1 200 and the overall population size is increasing.

PRODUCTION ENVIRONMENT: all input-output relationships, over time, at a particular location. The relationships will include biological, climatic, economic, social, cultural and political factors, which combine to determine the productive potential of a particular livestock enterprise.

- **HIGH-INPUT PRODUCTION ENVIRONMENT:** a production environment where all rate-limiting inputs to animal production can be managed to ensure high levels of survival, reproduction and output. Output and production risks are constrained primarily by managerial decisions.
- **MEDIUM-INPUT PRODUCTION ENVIRONMENT:** a production environment where management of the available resources has the scope to overcome the negative effects of the environment on animal production, although it is common for one or more factors to limit output, survival or reproduction in a serious fashion.
- **LOW-INPUT PRODUCTION ENVIRONMENT:** a production environment where one or more rate-limiting inputs impose continuous or variable severe pressure on livestock, resulting in low survival, reproductive rate or output. Output and production risks are exposed to major influences which may go beyond human management capacity.

POPULATION: a generic term but when used in a genetic sense it defines an interbreeding group, and may refer to all the animals within a breed, variety or strain. The genetics of the population is concerned with the genetic constitution of the sum total of individuals it comprises, and with the transmission from generation to generation of the large number of genes and the alternative forms of these genes carried by each animal.

STRAIN: a group of birds within a variety named after their breeder and which has been developed with the aim to improve some special morphological or performance characteristics.

UTILIZATION OF FARM ANIMAL GENETIC RESOURCES: the use and development of animal genetic resources for the production of food and agriculture. The use in production systems of AnGRs that already possess high levels of adaptive fitness to the environments concerned, and the deployment of sound genetic principles, will facilitate sustainable development of the AnGRs and the sustainable intensification of the production systems themselves. The wise use of AnGRs is possible without depleting domestic animal diversity. Development of AnGRs includes a broad mix of ongoing activities that must be well planned and executed for success, and compounded over time, hence with high value. It requires careful definition of breeding objectives and the planning, establishment and maintenance of effective and efficient animal recording and breeding strategies.

VARIETY: a subdivision within a breed, characterised largely by distinctive colour of plumage or markings.

Estimates of the number of species of living organisms on earth range from two million to 100 million with a best estimate of somewhere near 10 million. Less than 0.5 percent of these species are known to be birds and mammals. Within this small slice of biological diversity there are some 40+ domestic livestock species. Only 14 percent of these species contribute to 82 percent of the world's food and agriculture production. Over the last 12 000 years these 14 species have been domesticated and have evolved into separate and genetically unique breeds adapted to their local environments and community requirements. There are some 6 000 to 7 000 domestic breeds remaining. These breeds and the species they represent, together with the 80+ species of wild relatives, comprise the world's animal genetic resources important for food and agriculture.

WHAT IS DOMESTIC ANIMAL DIVERSITY?

Domestic animal diversity has evolved over millions of years through the processes of natural selection forming and stabilizing each of the species used in food and agriculture. Over the more recent millennia the interaction between environmental and human selection has led to the development of genetically distinct breeds. Domestic animal diversity is the spectrum of genetic differences within and across all breeds and species utilised in agriculture.

Selection processes, directed by both humans and the environment, together with the random sampling processes causing genetic populations to drift over generations, have accelerated the development of the diversity within species leading to the creation of distinct genetic differences amongst breeds. Thus breeds, as well as species, have become important in the sustainability of production environments and the human communities that depend on agricultural ecosystems. Research to date suggests that about 50 percent of the genetic variation in each domestic animal species is breed level variation. Compared to domestic species, in the wild, relatively less diversity is observed within species.

WHAT IS THE ROLE OF ANIMAL PRODUCTION IN AGRICULTURE?

Animal production currently contributes between 30 and 40 percent of the total global economic value of food and agriculture with some 1.96 billion people depending at least in part directly upon farm animal species for their livelihood. Whilst its direct contribution to the value of food production is around 19 percent, animal production makes a range of further critical contributions.

Animal production provides a large component of the essential fertilizer for much of the world's developing agriculture. Without these organic nutrients much of the soil would not remain productive. Animal manure also

serves as the primary source of fuel for cooking and heating in many communities. In addition animals provide much of the draught power used to cultivate, irrigate and harvest crops, together with much of the transport in the world today. Animal products are also used as fibre for clothing and hides and leather meet a variety of material needs. Animal products are also used in medicines and in some communities have great cultural significance. Additionally, animal production serves to contribute to employment of villagers throughout the year. Furthermore, in much of the developing world domestic animals serve as an important cash reserve, a natural bank making important contributions to poor farmers' ability to manage risk. Finally, having a broad range of animal species is essential for the many mixed farming systems that are almost always more sustainable than monoculture in major agricultural production environments.

WHY CONSERVE DOMESTIC ANIMAL DIVERSITY?

The conservation of domestic animal diversity is essential to meet future needs. The earth comprises a vast range of environments in which the production of food and agriculture must be practised. These environments are not static but are dynamic and may change through seasons, years and decades. In order to cope with an unpredictable future, genetic reserves capable of readily responding to directional forces imposed by a broad spectrum of environments must be maintained. Maintaining genetic diversity is an insurance package against future adverse conditions. Due to diversity among environments, nutritional standards and challenges from infectious agents, a large number of breeds are required. These act as storehouses of genetic variation which forms the basis for selection and may be drawn upon in times of biological stress such as famine, drought or disease epidemics. The wide range of challenges faced by animals requires the use of a wide range of breeds and species, each specifically adapted to a different set of conditions.

Maintaining diversity also provides stability within a production environment. If more than one breed or species is kept, given the failure of one to produce under certain conditions, others can be drawn upon. By maintaining more breeds and species, farmers are thus spreading risk.

In addition, with increasing global human population pressures, the quantity of food and other products must increase. Indeed, it is predicted that more than a doubling of meat and milk production will be required over the next 20 years. Furthermore, the range and quality of food and agricultural products sought by communities is affected by cultural differences and variations in purchasing powers. The increasing demand for a broad range of products, both locally and globally, requires a dynamic, adaptable, adjustable livestock system.

Changes in the production of food and agriculture influence local ecosystems. The different requirements of the domestic animal species and indeed of the breeds of each species, and the differences in behaviour and in product

outputs have differential effects on, and interactions with, the respective production environments. Sustainability in these different environments will require different genetic types.

Furthermore, genetic diversity, particularly that within wild species, represents a storehouse of untested and unchallenged potential. Wild species may contain valuable but, as yet, unknown resources that could be useful and indeed essential for the future.

Not only should diversity be maintained for practical purposes, but also for cultural reasons. A community's domestic animals can enhance the environment as a living system, thus also enhancing the human inhabitants' quality of life. Domestic animal diversity that has evolved over more than 12 000 years is an integral component of our heritage, to be nurtured for future generations.

IS DOMESTIC ANIMAL DIVERSITY REPLACEABLE?

Domestic animal diversity cannot be replaced. As much as novel biotechnologies may attempt to improve breeds, it is not possible to replace lost diversity particularly over the time horizon now required to meet the human induced imperative. In practice, loss of diversity is forever.

Recent achievements in biotechnology have been enormous and the rapid increase in scientific knowledge acts to strengthen and accelerate these advances. Biotechnology offers the opportunity to better characterize, utilize, conserve and access animal genetic resources for food and agriculture production. However, there is neither an existing nor will there likely be a future biotechnology with the capacity to recreate and equal the naturally occurring diversity in the world today. Providing the inherent diversity associated with the farm animal species is conserved as a store of genetic potential, changes and improvements to existing breeds will continue to occur naturally over time, in response to the various dynamic environments, humankind's changing needs and through genetic drift.

To date, only a small number of engineered genes have proven useful for the improvement of plant production. Some transgenic cultivars of major food crops incorporating resistance to stress factors such as temperature, pests and herbicides, and with the potential to produce added food supplements have been successfully produced. The use and distribution of such plants is increasing rapidly. Animals, however, are more complex and costly than plants. All animals contain about 80 000 genes all of which interact in a complex system with each other. Unique combinations of genes are responsible for the adaptive fitness of a breed necessary for production in a particular environment. Transgenic alterations to individual genes are now becoming possible. In the near future these will likely begin to supplement classical selective breeding practices offering added opportunities to realize food security. The potential risks in doing this will need to be assessed on a case-by-case basis against the

benefits of achieving more rapid genetic improvement in food and agriculture production.

The management costs required to maintain the existing pool of animal genetic diversity, in such a way as to protect and prepare for a range of indeterminate, unforeseeable future uses are, however, negligible compared to the massive costs involved in biotechnology development. Additionally, although biotechnology can contribute to agricultural improvement and aid conservation efforts, in no way does it have the capacity to regenerate diversity if it is lost. For developing countries the practice of good management of their treasure chests of genetic potential remains the most viable option, and is essential to ensure the future sustainability of animal production for agriculture.

ARE THE HIGHEST PRODUCERS UNIVERSALLY THE BEST?

Marked differences between production systems, such as product needs and prices, disease occurrence, spread and control methods and climatic differences will often require, for each environment, the use of quite different genetic resources to realize sustained production of food and agriculture. The food and agriculture requirements of developed and developing world consumers are largely incomparable.

In the developed world, just as Formula 1 racing cars require a high quantity of specialized inputs to perform on specific tracks, so too do the small number of highly geared breeds that have been refined over the last four or five decades to satisfy the immediate needs of developed world consumers. Currently some 400 of these finely tuned breeds, produced mainly for meat, milk and eggs, are being intensively developed, mostly in high input systems.

However, in the developing world, the majority of the world's people and agriculture continue to utilize low to medium input production systems. In such agro-ecosystems emphasis on further refining and fine tuning locally adapted indigenous breeds will result in more sustainable outcomes than utilising high producing breeds that have been improved in developed world environments. The adaptive fitness of genetic resources to their local production environments is an important consideration for sustainable intensification of these lower input, generally high stress production systems.

In developing countries, locally adapted indigenous breeds or landraces commonly demonstrate low absolute production figures, although productivity is commonly high when the level of input and the necessary long production cycle are taken into account. Indigenous breeds have evolved to survive and reproduce in their local environments. Often, developing country production environments include combinations of intense stressors. Unless these can be rapidly overcome, then the use and further development of locally adapted breeds should be favoured. Indigenous breeds are an important asset to

countries for many reasons, but particularly because, over time, they have developed unique combinations of adaptive traits to best respond to the pressures of the local environment. These adaptive traits include:

- tolerance / resistance to various diseases
- tolerance to fluctuations in availability and quality of feed resources and water supply
- tolerance to extreme temperatures, humidity and other climatic factors
- adaptation to low capacity management conditions
- ability to survive, produce and reproduce for long periods of time

WHAT IS CONSERVATION?

Conservation is the management of human use of the biosphere so that it may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations.

The conservation of farm animal genetic resources refers to all human activities including strategies, plans, policies, and actions undertaken to ensure that the diversity of farm animal genetic resources is maintained to contribute to food and agricultural production and productivity, now and in the future. Having ratified the Convention on Biological Diversity, it is the sovereign prerogative of countries to establish their national conservation strategy for animal genetic resources at risk.

The requirements for effective management of conservation needs at the country level encompass for each species:

- The identification and listing of breeds;
- Their description and characterization, in order to understand their unique qualities and potential contributions, and to identify those breeds that have the greatest potential to contribute to necessary variety in the future;
- Monitoring the population statistics for each breed and regularly reporting to the world those breed populations currently at risk of extinction;
- Facilitating the current use of as many breeds as possible - the wise use of a breed is likely to be the most cost-effective way of conserving its gene pool for the future;
- Storing adequate samples of as many of the unique breeds as possible, in the form of live animals if feasible, preferably supplemented by managed banks of frozen semen, ova and embryos, to enable the future regeneration of a lost population of animals;
- Implementing education and training programmes in conservation genetics and effective field techniques;
- Maximizing involvement of all stakeholders that are necessary to make the programme a success; and

- Assisting with the development of the necessary national and international policy and legal instruments.

Conservation is often seen as simply preserving or storing samples of semen and/or embryos. This alone will not provide effective national and regional programmes for maintaining and making the best use of animal genetic diversity.

WHAT IS *IN SITU* CONSERVATION?

The *in situ* conservation of farm animal genetic diversity incorporates all measures that aim to maintain live animal breeding populations, including those involved in active breeding programmes in the agro-ecosystem where they either developed or are now normally found, together with husbandry activities that are undertaken to ensure the continued contribution of these resources to sustainable food and agricultural production, now and in the future. For wild relatives, *in situ* conservation, generally called *in situ* preservation, is the maintenance of live populations of animals in their adaptive environment or as close to it as practically possible.

WHAT IS *EX SITU* CONSERVATION?

In the context of the conservation of domestic animal diversity, *ex situ* conservation means storage. *Ex situ* conservation of farm animal genetic diversity is all conservation of genetic material *in vivo*, but out of the environment in which it developed, and *in vitro* including, *inter alia*, the cryo-conservation of semen, oocytes, embryos, cells or tissues. Note that *ex situ* conservation and *ex situ* preservation are considered here to be synonymous. Long-term storage of animal germplasm using cryo-conservation is possible for many, but not all, of the important animal livestock species.

Growing recognition of the roles and values of animal genetic resources over the past couple of decades has led to the initiation of conservation efforts. Many countries have attempted, or are attempting, to conserve some of their most important breeds using both *in situ* and *ex situ* conservation measures. Nevertheless, conservation efforts for animal genetic resources lag far behind conservation efforts for plant genetic resources.

IS THERE ONLY ONE RECIPE FOR CONSERVATION?

Whilst the basic operations of identification and characterization of genetic resources are universally required and an information system and management entity essential for the facilitation and co-ordination of the conservation effort, a variety of activities and technologies is needed in order to include all the processes required to best conserve a particular breed. Factors such as the breed's current use, the climatic, social and political stability of the area in which it is located, the number of animals in the existing breed population and the extent and type of performance recording and cross-breeding employed

should all be considered. National policies and local attitudes, culture, and of course, available finance are also important factors. The conservation means is also dependent upon the species involved, the financial and human resource capacity, the establishment of policy concerning incentives for conserving breeds at risk and availability of reliable long-term cryo-preservation storage. Regional back-up conservation facilities are being demonstrated by some countries as very cost-effective.

HOW CAN EFFECTIVE MANAGEMENT OF DOMESTIC ANIMAL DIVERSITY BE IMPLEMENTED?

With the knowledge that 32 percent of the recorded animal genetic resources globally are at high risk of loss, and with so little known about most of the breeds involved, it would be unwise to suggest that the scarce available finances should be spent on a small number of breed rescue projects. The emphasis must be on implementing a sound global management infrastructure that overcomes the erosion of animal genetic resources and ensures their better development and sustainable use. In situations where animal genetic resources are not of current use by farmers, then a management programme which also provides for a breed conservation strategy will be crucial to success.

Countries possess different subsets of animal genetic resources and, as recognized by the Convention on Biological Diversity, they have sovereignty over them. Therefore effective programmes of sustainable use and conservation by individual nations must provide the foundation for successful regional and global programmes of management. National strategies for the management of animal genetic resources should involve all stakeholders, from farmers to government policy makers. Broader participation means better management of animal genetic resources.

FAO has the international mandate for improving agriculture and food production for current and future world populations - with particular emphasis on developing countries. To this end, FAO is meeting the global challenge of effective conservation and sustainable use of animal genetic resources by assisting countries in the design of comprehensive national strategies for the management of their animal genetic resources and by co-ordinating policy development and management at the regional and global levels.

1.11

THE GLOBAL STRATEGY FOR MANAGEMENT OF FARM ANIMAL GENETIC RESOURCES

In 1992, the United Nations Conference on Environment and Development (The Earth Summit), the Convention on Biological Diversity and Agenda 21 formally identified domestic animal diversity as a genuine and important component of global biodiversity. Based on an expert consultation in 1992, an expanded priority programme of work associated with shaping and developing a Global Strategy for the Management of Farm Animal Genetic Resources (hereafter referred to as the Global Strategy) was recommended by FAO. The Global Strategy is now operational.

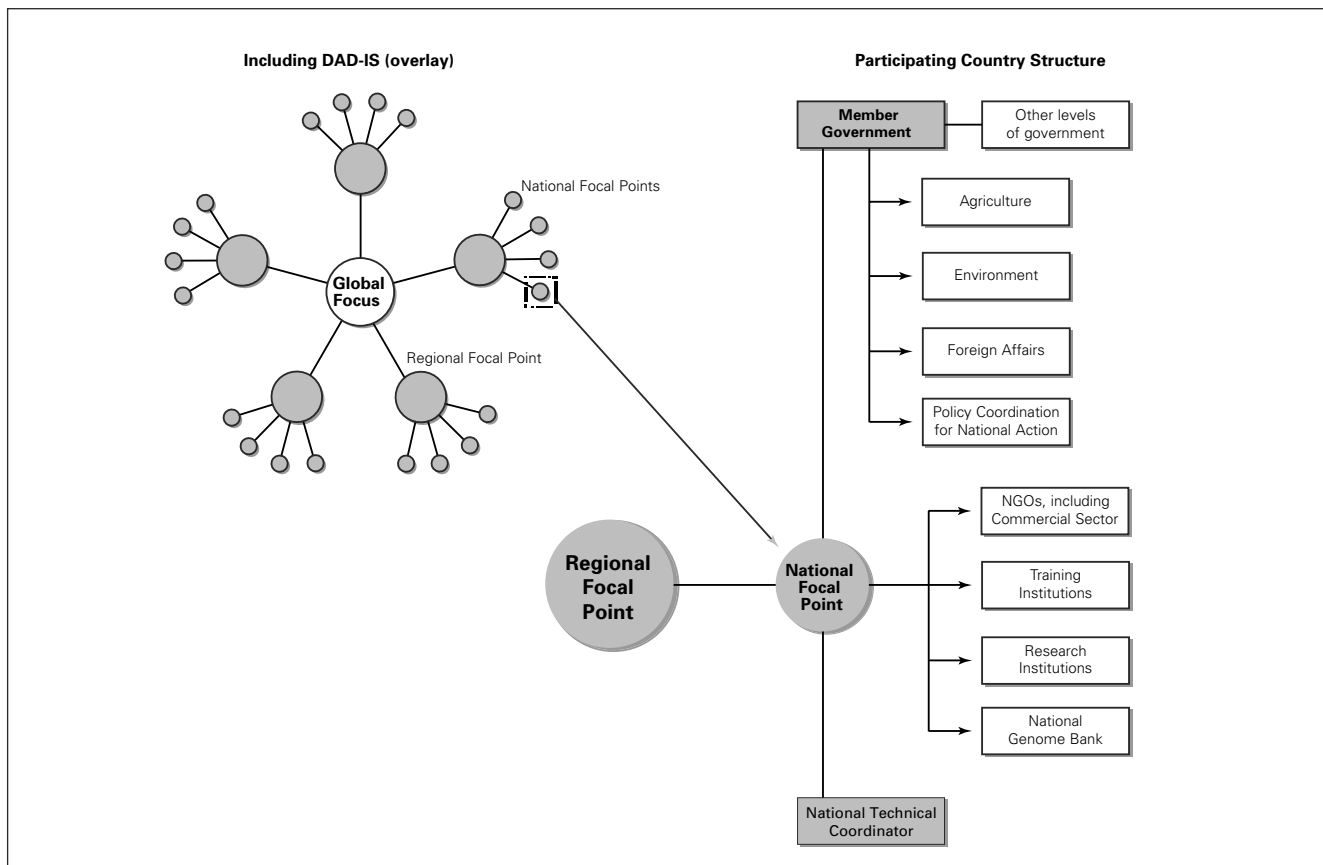
The goal of the Global Strategy is to overcome the erosion of animal genetic resources and to ensure the global better development and use of these resources. The Global Strategy provides a framework to assist countries, regions and other stakeholders plan, implement and maintain management programmes. The Global Strategy involves four fundamental components:

- an intergovernmental support mechanism for enabling direct government involvement and ensuring continuity of policy advice;
- a technical programme of interdependent activities to better characterize, use, develop and conserve those irreplaceable resource;
- a geographically distributed and country-based structure, supported by regional and global focal points (Figure 1.11.1), to assist national actions; and
- a reporting component to aid action planning and to monitor and evaluate progress.

At the core of the Global Strategy are several integrally related activities: the monitoring and describing of existing animal genetic resources; breed characterization at the molecular level to assess between breed diversity in order to maximize cost-effectiveness of management; a computer-based system serving as the information axis for country use (see also URL: <http://www.fao.org/dad-is/>); *in situ* and *ex situ* conservation strategies designed to make best use of and to maintain unique animal genetic resources; training in all aspects of sustainable intensification and conservation procedures; and communicating to the community the importance of animal genetic resources. Review of progress and long term vision for the Global Strategy is provided through the FAO's Commission on Genetic Resources for Food and Agriculture and its Intergovernmental Technical Working Group on Animal Genetic Resources.

FIGURE 1.11.1

STRUCTURE OF THE GLOBAL STRATEGY FOR MANAGEMENT OF FARM ANIMAL GENETIC RESOURCES



UNDERSTANDING THE STATE OF THE WORLD'S ANIMAL GENETIC RESOURCES

Recognising the need for increasing national and regional capacity to use, develop and conserve animal genetic resources, plus the ability to report on status and trends of the animal genetic resources and programmes supporting their management, the Intergovernmental Technical Working Group on Animal Genetic Resources (ITWG-AnGR) of FAO's Commission on Genetic Resources for Food and Agriculture (URL: <http://www.fao.org/WAI-CENT/FAOINFO/AGRICULT/cgrfa/default.htm>) recommended at its first meeting, September 1998, that FAO coordinate the development, over 2000 - 2005, of a country-driven Report on the State of the World's Animal Genetic Resources (SoW-AnGR). Subsequently, this recommendation was endorsed by the Commission and the ITWG-AnGR subsequently finalized the Guidelines for Development of Country Reports.

The SoW-AnGR will underpin the further development of the Global Strategy. The objective of the SoW-AnGR is to develop national capacities and international co-operation to achieve the sustainable intensification of livestock production systems through the wise use and development of farm animal genetic resources whilst taking into consideration the constraints and opportunities created by growing demands on the livestock sector and by changing climate and technologies.

The first SoW-AnGR Report will provide a foundation

for setting country, regional and global priorities and programmes and for developing co-operation and assistance in maintaining and enhancing the contribution of animal genetic resources to food and agriculture. The outcomes sought by the SoW-AnGR Process include:

- Assessing national and regional capacity to manage animal genetic resources, and facilitating priority-setting inter alia for training and technology transfer and other forms of capacity-building.
- Increasing awareness of the many roles and values of animal genetic resources in order to promote action aimed at the better use, development and conservation of these essential resources.
- Promoting informed planning and collaboration among governments, non-governmental organizations and experts involved in the management of animal genetic resources.
- Providing the Commission on Genetic Resources for Food and Agriculture with comprehensive data and information on the state of animal genetic resources, as a basis for policy and management development in this sector, identifying gaps and opportunities and thereby providing a foundation for establishing priorities for country, regional and global action.
- Improving understanding of the status of breeds and of wild relatives of domesticated animals that are at risk,

thus providing a foundation for an Early Warning System for animal genetic resources.

The SoW-AnGR process will not be limited to collecting information and reporting. During this process, follow-up activities and high-priority country projects will be identified and launched using information from the SoW-AnGR Strategic Priority Actions Report reflecting an array of longer-term outcomes sought which should include the essential elements of: institution and capacity building; characterization, sustainable use and development; and conservation

The governing bodies of FAO have strongly emphasized that the process for developing the first Report on SoW-AnGR must be country-driven, ensuring that national and regional capacities, issues, priorities and needs are reliably identified. The process will be co-ordinated by the SoW-AnGR Global Focal Point at FAO and guided by the ITWG-AnGR. For further information on progress and involvement, contact your National Co-ordinator and refer to the DAD-IS Stage 3 SoW-AnGR module at URL: <http://fao.org/dad-is/>.

FURTHER INITIATIVES

FAO is responsible for assisting countries in the development of an effective global programme of management for farm animal genetic resources. However, FAO is not the only organization making substantial contributions to effective management of these resources. In recent years there has been a range of other international, regional and national discussions on domestic animal genetic resources, and some national and regional bodies and programmes have been initiated.

Some examples of these initiatives are: in India the formation of a national animal genetic resources bureau and network; in Brazil the initiation of a national genetic resources and biotechnology programme (CENARGEN); in the United States of America the establishment of the national germplasm evaluation programme; in the European Community the focus on genetic resources and the establishment of a standing committee on animal genetic resources by the European Association of Animal Production (EAAP) resulting in the implementation of a range of other initiatives; the co-ordination of a Pan-African programme in animal genetic resources through the International Livestock Research Institute (ILRI) which is responsible for the CGIARs system-wide animal genetic resources initiative; in Latin American and the Caribbean the initiation of a network for animal genetic resources (REGENAL) and of an Inter-American System for the Sustainable Use and Conservation of Genetic Resources by the Inter-American Institute for Co-operation in Agriculture (IICA); the maintenance by the Nordic governments of joint standing committees on genetic resources and the Nordic Genebank; and the beginning of Regional Focal Points for animal genetic resources in Asia, Europe, Latin America and the Caribbean, the Near East and the Southern African Development Community (SADC), to assist countries.

1.12

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This section provides a collection of references relating to the management of animal genetic resources. Only some of the many available journal articles have been included in the bibliography. Please see also section 3.17, which provides a range of references for wild relatives of animal genetic resources and also the bibliography at the end of Part 4. If you are aware of any further significant publications, please inform FAO by using the Pro Forma provided in Annex 2.1. Note that the following abbreviations are used to denote the languages of some publications: **Ar** = Arabic, **C** = Chinese, **E** = English, **F** = French, **G** = German, **I** = Italian, **S** = Spanish, **Sl** = Slovene.

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Part

2

**FARM ANIMAL
GENETIC RESOURCES**



Brazilian Caracu cattle



Deutsche Legegans goose on pasture in Germany

Part 2 summarizes the information that is available in the Global Databank for Farm Animal Genetic Resources for breeds at risk of extinction. Inventories of breeds recorded in each risk status category are given. Breeds are listed according to FAO's regional structure: Africa, Asia and the Pacific, Europe, Latin America and the Caribbean, Near East and North America. This regional categorization is based on climatic, agro-ecological and cultural considerations. A short introduction to each region is given, followed by a statistical overview of the breeds recorded in each risk status category. The regional introductions are followed by lists of breed descriptions.

The risk status has been calculated for all breeds recorded in the Global Databank for Farm Animal Genetic Resources for which information on their population size and structure has been recorded. The risk status categorization of breeds refers only to the status of the breed population in that country and should not be interpreted as reflecting the global picture, for the breed may also be represented in one or more other countries. Breed populations are categorized as endangered, endangered-maintained, critical or critical-maintained. The categorization is based on the overall population size, the number of breeding females, the number of breeding males, the percentage of females bred to males of the same breed and the trend in population size. Further consideration is given to whether active conservation programmes are in place for critical or endangered populations. When relevant information on conservation management of breeds at risk is not available a conservative approach is taken and the breed is categorised in the higher risk category of critical or endangered.

A breed is categorized as CRITICAL if: the total number of breeding females is less than or equal to 100 or the total number of breeding males is less than or equal to five; or if the overall population size is less than or equal to 120 and decreasing and the percentage of females being bred to males of the same breed is below 80 percent.

A breed is categorized as ENDANGERED if: the total number of breeding females is greater than 100 and less than or equal to 1 000 or the total number of breeding males is less than or equal to 20 and greater than five; or if the overall population size is greater than 80 and less than 100 and increasing and the percentage of females being bred to males of the same breed is above 80 percent; or if the overall population size is greater than 1 000 and less than or equal to 1 200 and decreasing and the percentage of females being bred to males of the same breed is below 80 percent.

Breeds may be further categorized as CRITICAL-MAINTAINED or ENDANGERED-MAINTAINED. These categories identify critical or endangered populations for which active conservation programmes are in place or those that are maintained by commercial companies or research institutes.

Sections 2.1.1-2.1.4 provide lists of all breeds that fall within the critical, critical-maintained, endangered and endangered-maintained categories, respectively. Following the most common name of each breed is a page number referring the reader to section 2.2 where more detailed information may be found for the breed.

The Critical Breeds List is an inventory of all breeds for which there is data to suggest that the total number of breeding females is less than or equal to 100 or the total number of breeding males is less than or equal to five; or if the overall population size is less than or equal to 120 and decreasing and the percentage of females being bred to males of the same breed is below 80 percent.

The breeds are listed alphabetically by most common name within each species (mammalian species followed

by avian species). For each breed, the page number indicates where a detailed description may be found.

Please note that the risk status categorization of breeds refers only to the status of the breed population in that country and should not be interpreted as reflecting the global picture. Furthermore, breeds may be found listed more than once if the breed is critical in more than one country. Breeds may also be found listed in more than one risk status category if the risk status differs between breed populations found in different countries.

MAMMALIAN SPECIES

		488 Franqueiro	249 White Park
		83 Galloway	463 Yugoslav podolian
		299 Galloway	378 Yurinskaya
		187 Gasconne	95 Zanzibar Zebu
		187 Hrbinecky	
305 Asino dell'Asinara		179 Iskursko Govedo	
305 Asino Sardo		95 Jiddu	74 Botswana Camel
394 Asno De Las Encartaciones		290 Katerini	
211 Poitevin		463 Kolubarska	
305 Romagnolo		131 Kouprey	414 Allmogetter
		144 Kouprey	159 Alpine
121 Indian Bactrian		187 Kravarsky	134 Auckland Island
		125 Kuchinoshima	253 Braune Harzer Ziege
497 Buffalypso		247 Lincoln Red	254 Bündner Strahlenziege
95 Egyptian		247 Longhorn	310 Di Benevento
79 Mediterranean		395 Mallorquina	254 Erzgebirgsziege
		213 Marine Landaise	123 Gembrong
245 Ansbach-Triesdorfer		126 Mishima	254 Holländer Schecke
212 Aurochs de Heck		113 Moi	310 Istriana
132 Bali Cattle		331 Moldovian Estonian Red	254 Kaschmirziege
143 Banteng		80 Muturu	547 Kinder
331 Baqra Maltija		440 Normande	344 Koza Karpacka
187 Belgian Blue		395 Pallaresa	533 Nigerian Dwarf
245 Belted Galloway		378 Pechorskii tip kholmogorskogo skota	533 Oberhasli
212 Betizu		121 Punganur	255 Owamboziege
395 Betizu		247 Pustertaler Schecken	83 Pafuri
440 Blue Albion		168 Ramo Grande	255 Poitevine
83 Boran		532 Randall Blue Lineback	310 Pomellata
212 Bordelaise		545 Randall Blue Lineback	533 San Clemente
245 Brahman		179 Rodopska	547 San Clemente
246 Brangus		84 Romagnola	310 Sarda di Tavolara
181 Buša		84 Rotbunte Schleswig Holsteiner	311 Screziata
462 Buša		247 Rotvieh alter Angler Zuchtichtung	311 Sempione
246 Chianina		84 Salers	534 Tennessee Fainting
306 Chianino-Maremmna		188 Salers	126 Tokara
390 Cikasto govodo		498 Salers	311 Vallesana
212 Coopelso 93		396 Serrana negra	255 Zwergziege
74 Damara		463 Siva rasa	
332 Deep Red		188 Skotsky náhorni skot	257 Achal-Tekkiner
246 Dexter		248 South Devon	257 Aegidienberger
113 Dulong		290 Sykia	257 Alt-Württemberger
133 Enderby Island		159 Tarine	548 American Cream Draft
246 Fjaell-Rind		248 Ungarisches Steppenrind	257 Andalusier
		306 Varzese Ottonese	160 Arab
		248 Weißblaue Belgier	190 Arab
		248 White Galloway	



301 Arab
 208 Arabialainen
 386 Arabský Kôn
 386 Arabský Plnokrvník
 464 Arapska Rasa
 258 Ardenner
 258 Arenberg-Nordkirchner
 258 Berber
 258 Bosniaken
 179 Bosnian Pony
 259 Camargue
 179 Carakachanski Kon
 445 Caspian
 315 Cavallino di Monterufoli
 87 Clydesdale
 259 Cob Normand
 259 Comtois
 87 Connemara Pony
 208 Connemara Pony
 259 Dales
 122 Deccani
 512 Delibozskaya
 464 Domaci Brdski Konj
 260 Dülmener
 87 English Halbblut Horse
 446 Eriksay
 414 Exmoor pony
 260 Exmoor-Pony
 260 Falabella
 260 Fellpony
 261 Finnperd
 261 Fox-Trotter
 261 Freiberger
 386 Furioso
 208 Gotland Russ
 261 Hackney
 87 Hafflinger
 160 Haflinger
 218 Highland
 262 Highlandpony
 386 Huculské Plemeno
 262 Huzule
 208 Islannin Hevonen
 262 Kabardiner
 262 Karabach
 301 Kerry Bog Pony
 126 Kiso
 263 Kladruher
 263 Konik
 263 Lehmkuhlener Pony
 387 Lipican
 190 Lipicky
 218 Lipizzan
 446 Lipizzaner
 315 Lipizzano
 391 Ljutomerski Kasac
 263 Lusitano
 446 Lusitano
 264 Mangalarga Marchador

264 Mecklenburger Kaltblut
 182 Medjimurski konj
 264 Merens
 127 Misaki
 127 Miyako
 264 Morgan
 446 Morgan
 209 New Forest Pony
 127 Noma
 160 Nonius
 265 Nonius
 387 Nonius
 465 Nonius
 265 Noriker
 265 Orlow
 265 Paint
 266 Palomino
 88 Percheron
 266 Percheron
 266 Pfalz-Ardenner Kaltblut
 266 Polopony
 267 Rottaler
 267 Saddlebred
 316 Samolaco
 267 Sarvar
 267 Senner
 190 Shagya Arab
 414 Shagya Arabian Horse
 88 Shire
 268 Shire
 387 Slovenský Sportový Pony
 142 Sri Lankan Pony
 190 Starokladrubsky Belorus
 487 Sunicho
 268 Tarpan
 209 Täysverinen
 268 Tennessee Walking Horse
 268 Tersker
 114 Tieling Harness
 269 Tinker
 269 Tölter
 269 Tuigparden
 269 Vollblutaraber
 270 Warmblutschecken
 270 Warmblutschecken aus den ehem. preuß. Ostprovinzen
 209 Welsh
 127 Yonaguni
 465 Yugoslav Draft
 329 Zemaitukai (Modern Type)



90 American Hampshire
 275 Angler Sattelschwein
 114 Bamei
 294 Belga Lapály Sertés
 353 Bisaro
 275 Bunte Bentheimer
 489 Canastra
 490 Canastrão
 490 Canastrinha

490 Caruncho
 318 Casertana
 402 Chato-Murciano
 535 Chester White
 182 Crna Slavonska
 466 Crna Slavonska
 498 Cuino
 302 Duroc
 114 Ebei Black
 162 Forest Mountain
 550 Gloucestershire Old Spots
 275 Hampshire
 449 Hampshire
 295 Hampshire Sertés
 115 Hexi
 402 Ibérico
 223 Jia-Xing
 223 Landrace Belge
 550 Large Black
 140 Libtong
 466 Mangulica
 224 Meishan
 318 Mora Romagnola
 550 Mulefoot
 490 Mundi
 128 Ohmini
 90 Pietrain
 391 Pietrain
 491 Pirapitinga
 551 Poland China
 354 Porcul Ald de Banat
 466 Suboticka Mangulica
 318 Suino delle Nebrodi e Madonie
 491 Tatú
 224 Willebrand
 276 Wollschwein (blond)
 276 Wollschwein (rot)
 276 Wollschwein (schwalbenbüchig)



229 Belle Ile
 320 Bellunese
 91 Bezuidenhout
 536 Black Welsh Mountain
 96 Blackhead Persian
 111 Booroola Leicester
 452 Boreray
 135 Campbell Island
 111 Carpetmaster
 320 Cornella Bianca
 96 Corriedale
 536 Cotswold
 491 Crioulo Preto
 320 Di Corniglio
 91 Dorset Horn
 183 Dubrovacka
 170 Entre-Sambre-et-Meuse
 92 Finnish Landrace
 193 Finskå ovce
 452 Galway
 277 Gotland-Schaf



- 278 Gotländisches Wildschaf
552 Gulf Coast Native
278 Hampshire
161 Havasi
552 Hog Island
135 Hokonui
161 Il d'Frans
320 Istriana
278 Jakobschaf
171 Lakens Kuddeschaap
193 Merino Longwool
384 Mikhnovskaya
536 Montadale
552 Montadale
329 Native Coarsewooled
536 Newfoundland
80 Nungua Blackhead
135 Pitt Island
278 Quessant-Schaf
82 Romanov
193 Romanovska Ovce
279 Romney Marsh
321 Rosset
279 Rouge de Roussillon
537 Santa Cruz
552 Santa Cruz
321 Savoiarda
279 Soay Schaf
92 Southdown
92 Steekhaar
418 Steigar
245 Steppe Voloshian
537 Targhee
279 Ungarisches Zackelschaf
385 Valakhs kaya
92 Vador
468 Vitoroga Zackel
171 Vlaams Schaap
280 Walachenschaf
194 Zošl'achtenà Valaška
280 Zwartbles-Schaf

AVIAN SPECIES



- 173 Cassowary



- 283 Altsteirer White
355 Bantam alb
355 Barboasa de anvers
355 Barnevelder dublu locat-pitică
284 Barthühner Barred
284 Barthühner Blue
284 Barthühner Partridge Colour
284 Barthühner Silver-Black Mottled
285 Barthühner White
285 Bergische Schlotterkämme Black

- 285 Bergische Schlotterkämme black/white
356 Brahma herminat deschis
356 Cochin negru pitic
485 Cochins
356 Combatant indian
356 Combatant malaez alb
357 Combatant malaez galben
357 Combatant malaez rosu inchis
232 Coucou des flandres
232 Courtes-Pattes
357 Drezda
406 Empordanesa Blanca
407 Empordanesa Rossa
173 Fauve de Hesbaye
357 Faverolles alb
358 Gaina de portelan-pitica
358 Git golas de transilvania alb
358 Git golas de transilvania barat
358 Git golas de transilvania negru
359 Git golas de transilvania negru pitica
359 Git golas de transilvania rosu
457 Gold Legbar
173 Herve Hoen
359 Houdan pitic
359 Italiana pòtarnichie pitica
457 Ixworth
232 Janzé
360 Japonezã de mătase albã
360 Japonezã de mătase galbena
360 Japonezã de mătase neagra pitica
285 Krüper Black
286 Krüper Black and White
286 Krüper Black and Yellow
360 La Flèche
233 Landaise grise
361 Langsham
233 Le Mans
361 Legwels Alba
161 Local Tirana
162 Local Tropoja Pac
233 Lyonnaise
233 Lyonnaise naine
457 Marsh Daisy
470 Naked Neck
361 Negru pitic cu creasta batuta
420 Öländsk Dvärghöna
486 Old English Game Bantam
361 Orloff
196 P-Line
362 Paduana aurie
234 Pavilly
407 Penedesenca Aperdizada
407 Penedesenca Barrada
407 Penedesenca Trigueña
362 Plymouth Rock Alb
234 Poule des haies
483 Rhode Island Red
234 Sans-Queue
128 Shiba-Tori
387 Slovgal 03a

- 388 Slovgal 05a
286 Sulmtaler
362 Sussex pestrít pitic
470 Svrlijg Black
117 Theen-Yee
174 Vlaanderse Koekoek
486 Waydolles
362 Welsummer Maron
539 White Leghorn-Monrog Strain
363 White Sultan
540 White Wyandotte
486 White-Dark Brown Leghorn
363 Wiandotte alb pitic
363 Wyandotte alb
363 Wyandotte argintiu locat
364 Wyandotte argintiu locat pitic
364 Wyandotte auria locat
364 Wyandotte lacat
174 Zingems Vleeshoen
174 Zottegems hoen



- 410 Annera Mallorquina
240 Blanc De L'allier
241 D'estaires
241 De Bourbonbourg
176 Dendermondse eend
241 Duclair
176 Merchteuse eend
289 Orpington
205 Sort hvidbrystet dansk and



- 177 Emu



- 242 Blanche De Bourbonnais
290 Diepholzer
290 Lippegans
76 Local Goose of Karal and Massakory
76 Local Goose of Mandelia
541 Pilgrim
330 Vishtines
177 Vlaamse gans



- 81 Local Ghanean White Breasted Guineafowl






- 119 Black Muscovy l303






- 177 Nandu



- 78 Chadean Ostrich
81 Ghanean Ostrich

		
75	Ninningo	
138	Pakistani Ostrich	
186	Stroutho Camelos	
		
78	Local Partridge of Gredaya and Massakory	
		
139	Kalij	

		
178	Antwerpse Smierel	
		
389	British Range	
389	English White	
542	Japanese Ubc-A	
542	Japanese Ubc-B	
542	Japanese Ubc-G	
542	Japanese Ubc-N	
543	Japanese Ubc-Ncsu	
543	Japanese Ubc-Qf	
543	Japanese Ubc-Qm	

543	Japanese Ubc-Res	
544	Japanese Ubc-S	
544	Japanese Ubc-Sus	
544	Japanese Ubc-W	
544	Japanese Ubc-Wild	
389	Manchurian Golden	
390	Tuxedo	
		
79	Local Turkey of Mandelia	
462	Norfolk Black	
411	Pavo Negro Extremeño	
178	Rode Ardenner kalkoen	
178	Ronquières kalkoen	

2.1.2

CRITICAL-MAINTAINED BREEDS LIST

The Critical-Maintained Breeds List is an inventory of all breeds on which there is data to suggest that the total number of breeding females is less than or equal to 100 or the total number of breeding males is less than or equal to five; or if the overall population size is less than or equal to 120 and decreasing and the percentage of females being bred to males of the same breed is below 80 percent, but are maintained by an active conservation programme.

The breeds are listed alphabetically by most common name within each species (mammalian species followed

by avian species). For each breed, the page number indicates where a detailed description may be found.

Please note that the risk status categorization of breeds refers only to the status of the breed population in that country and should not be interpreted as reflecting the global picture. Furthermore, breeds may be found listed more than once if the breed is critical-maintained in more than one country. Breeds may also be found listed in more than one risk status category if the risk status differs between breed populations found in different countries.

MAMMALIAN SPECIES



213	Armoricaïne
213	Béarnaise
412	Bohuskulla
307	Calvana
396	Cardena Andaluza
188	Ceská cervinka
440	Chillingham
84	Dutch Friesian
335	dølefe
423	Evolèner
332	Fries Roodbont
181	Istarsko goviedo
207	Itäsuomenkarja
343	Jersey
163	Jochberger Hummeln
441	Kerry
396	Limiana
213	Lourdaise
307	Montana
396	Murciana
163	Original Braunvieh
207	Pohjoissuomenkarja
307	Pontremolese
197	SDM-1965
181	Slavonski podolac
163	Ungarisches Steppenrind
441	Vaynol
122	Vechur
85	Watusi
335	østlandsk rødkolle
	
198	Dansk Landrace
199	Nubisk
336	utegangargeit



166	Altösterreichisches Warmblut
400	Caballo Losino
401	Cavall Mallorquí
206	Eesti raskevehobune
333	Groninger Paard
166	Lipizzaner
291	Skyros Pony
353	Sorraiana
447	Suffolk
128	Tokara Pony
128	Tsushima
329	Zemaitukai



224	Bayeux
345	Belgijska zwisloucha
402	Celta
403	Cerdo negro canario
202	DL-1970
224	Duroc
403	Manchada de Jabugo
354	Mangalita
202	Sortbroget
183	Turopoljska Svinja
345	Zlotnicka Biala



167	Krainer Steinschaf
346	Olkuska
469	Pirotska
469	Svrljiška
167	Waldschaf
167	Zackelschaf

AVIAN SPECIES



429	Black Dwarf Strain 52
117	Erh-Mei
297	Gödöllői New Hampshire (white)
117	Hua-Tung
117	Ju-Chi
118	Nei-Mong
83	Ovambo
429	Partridge Dwarf Strain 23
348	Polbar
429	White Dwarf Strain 53



350	Minikaczka
144	Ped Puen Muang Pak-Nam
350	Polski Pekin
118	Quemoy
422	Svensk Gul Anka
207	Valge sinikaelpart



205	Grå og Gråbrogede Danske Gæs
350	Podkarpacka



119	White Muscovy Duck
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298	Rézpulyka
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2.1.3

ENDANGERED BREEDS LIST

The Endangered Breeds List is an inventory of all breeds with data to suggest that the total number of breeding females is greater than 100 and less than or equal to 1 000 or the total number of breeding males is less than or equal to 20 and greater than five; or if the overall population size is greater than 80 and less than 100 and increasing and the percentage of females being bred to males of the same breed is above 80 percent; or if the overall population size is greater than 1 000 and less than or equal to 1 200 and decreasing and the percentage of females being bred to males of the same breed is below 80 percent.

The breeds are listed alphabetically by most common name within each species (mammalian species followed by avian species). For each breed, the page number indicates where a detailed description may be found.

Please note that the risk status categorization of breeds refers only to the status of the breed population in that country and should not be interpreted as reflecting the global picture. Furthermore, breeds may be found listed more than once if the breed is endangered in more than one country. Breeds may also be found listed in more than one risk status category if the risk status differs between breed populations found in different countries.

MAMMALIAN SPECIES

					
495	Llamingos-pucungos				
					
515	Anger	532	American Milking Devon	168	Gorynskaya
394	Ase Mallorquí	546	American Milking Devon	142	Hatton
305	Asino dell'Amiata	532	American White Park	292	Hereford
121	Indian Wild Ass	546	American White Park	251	Hinterwälder
515	Iranian Onager	249	Aubrac	123	Hissar
517	Kulan	110	Australian Milking Zebu	330	Holstein-Friesian
522	Kulan	188	Ayrshire	214	Inra 95
394	Majorera	300	Ayrshire	300	Irish Blonde d'Aquitaine
545	Mammoth Jack Stock	75	Bakosi	140	Japanese Zebu
306	Martina Franca	75	Bakweri	379	Khevsurskaya gruppa
142	Puttalam Buruwa	110	Bali Cattle	198	Korthorn
306	Ragusana	112	Bami Orenscha	113	Kouprey
80	Somali Wild Ass	132	Banteng	143	Kouprey
80	Somali Wild Ass	81	Baria	515	Kurdi
519	Somali Wild Ass	497	Barroso	379	Kurganskaya
		441	Bazadaise	79	Lagune
378	Mongolian Bactrian	85	Beef Shorthorn	96	Lagune
		300	Belgian Blue	159	Lare e Kuge
520	Ghab	197	Belgisk Blåhvidt Kvæg	488	Lavinia
513	Minufi	379	Beliy sibirskiy skot	293	Limousin
131	Murrah	397	Berrendo en Negro	251	Limpurger
495	Murrah	397	Blanca Cacerena	442	Lincoln Red
121	Wild Water Buffalo	413	Blonde d' Aquitaine	251	Luing
133	Wild Water Buffalo	189	Blonde d'Aquitaine	214	Maine Anjou Lait
		249	Blonde d'Aquitaine	81	Manjaca
249	Aberdeen Angus	250	Braunvieh alter Zuchtrichtung	214	Maraíchine
412	Aberdeen Angus	521	Brune de l' Atlas	214	Massanaise
397	Albera	143	Burmese Gaur	243	Mingrelian Red
412	Allmokekor	95	Chagga	307	Modicana
441	American Brown Swiss	485	Chaqueño	300	Montbéliarde
332	American Dutch Belted	486	Chaqueño	442	Montbelliarde
532	American Dutch Belted	499	Chaqueño	96	Mpwapwa
545	American Dutch Belted	292	Charolais	463	Mrko-smeda rasa
		496	Criollo ecuatoriano	251	Murnau-Werdenfelser
		488	Crioulo Lageano	74	N'Dama
		250	Deutsches Shorthorn	74	N'Dama
		546	Devon	76	N'dama
		397	Doñana	215	Nantais
		123	FH-merah	85	Nguni
		546	Florida Cracker	97	Nkone
		398	Frieiresa	498	Normande
		189	Galloway	85	Pedi
		112	Gayal	442	Piedmontese
		250	Gelbvieh Fleischnutzung	189	Piemontese
		250	Glanrind	252	Piemonteser



252 Pinzgauer
 252 Pinzgauer Fleischnutzung
 488 Polled Crioulo Pereira Camargo
 343 Polska Czerwona
 86 Red Poll
 82 Renitelo
 169 Rood van Belgie
 252 Rotvieh Zuchtrichtung Höhenvieh
 487 Saavedreño
 442 Salers
 86 Sanganer
 498 Santa Gertrudis
 132 Seladang
 443 Shetland
 110 Simford
 142 Solomon Red
 122 Taylor
 398 Terreña
 253 Uckermärker
 428 Ukrainian Grey
 428 Ukrainian Whiteheaded
 122 Umblachery
 159 Valbona
 335 vestlandsk fjordfe
 336 vestlandsk raudkolle
 253 Welsh Black
 547 White Park
 487 Yacumeño
 253 Zwerg-Zebus



518 Arvana-Kazakh Type
 86 Dromedary



464 Alpine
 534 American Pygmy
 255 Anglo Nubier Ziege
 169 Anglo-Nubienne
 444 Angora
 256 Angoraziege
 424 Appenzellerziege
 134 Arapawa
 311 Argentata dell'Etna
 162 Azerbaidzhanskaya
 512 Azerbaidzhanskaya
 312 Bionda dell'Adamello
 169 Blanche
 124 Boer
 199 Boer
 445 British Toggenburg
 169 Chamoisée
 126 Chubby
 312 Cilentana Fulva
 312 Cilentana Nera
 380 Dagestanskaya
 312 Di Campobasso
 313 Di Potenza

313 Di Salerno
 313 Di Teramo
 390 Domaca krizana koza
 464 Domaca Sanska
 313 Girgentana
 314 Grigia molisana
 189 Hnedà Kratkosrstà Koza
 385 Hnedà Kràtkosrstà Koza
 380 Karachaevskaya
 243 Karachai
 520 Mestnye Grubosherstnye Kozy
 Srednei Azii
 522 Mestnye Grubosherstnye Kozy
 Srednei Azii
 522 Mestnye Grubosherstnye Kozy
 Srednei Azii
 516 Miriz
 199 Mohair
 124 Montgomery
 314 Napoletana
 136 Pak Angora
 400 Pitiüsa
 217 Poitevine
 314 Potentina
 218 Provencale
 547 Pygora
 314 Roccaverano
 518 Russian Central Asian Local Coarse-
 Haired
 518 Russian Central Asian Local Coarse-
 Haired
 160 Sana
 181 Sanska Koza
 315 Sarda
 390 Srnasta pasma
 548 Tennessee Fainting
 256 Thüringer Wald Ziege
 170 Toggenburg
 256 Toggenburger
 315 Valfortorina
 380 Volgograd White
 256 Walliser Schwarzhals-Ziege



291 Aglikos Katharohaemos
 548 Akhal-Teke
 270 Altmärkisches Kaltblut
 88 American Quarter Horse
 548 American Shetland Pony
 270 Appaloosa
 514 Arab
 520 Arab
 271 Araber
 219 Ardenais du Nord
 512 Azerbaidzhanskaya
 114 Baise Pony
 219 Barbe
 519 Barbe
 521 Barbe
 199 Belgier
 219 Camargue

110 Caspian
 134 Caspian
 515 Caspian
 549 Caspian
 401 Cavall Menorquí
 316 Cavallo Bardigiano
 316 Cavallo Del Catria
 316 Cavallo Del Ventasso
 317 Cavallo della Giara
 317 Cavallo Norico
 380 Charysh
 330 Cheval de Selle
 492 Chilenos
 381 Chistokovnaya Arabskaya
 381 Chistokrovnyaya Arabskaya
 549 Cleveland Bay
 447 Clydesdale
 219 Connemara
 271 Connemara
 447 Connemara
 244 Dagestan Pony
 381 Dagestanskii Poni
 447 Dales
 220 Dartmoor
 271 Dartmoor
 415 Dartmoor pony
 465 Engleski Punokrvnjak
 206 Estonskii Tyazhelovoz
 381 Estonskii Tyazhelovoz
 549 Exmoor
 485 Falabella Pony
 448 Fell Pony
 170 Fjord
 220 Fjord de Norvege
 271 Friesen
 88 Friesian Horse
 415 Gotlandruss
 89 Hackney
 89 Hackney Pony
 220 Haflinger
 330 Haflinger
 425 Haflinger
 448 Haflinger
 415 Haflingerhäst
 521 Hamdani
 136 Hirzai
 448 Irish Draught
 301 Irish Pony
 220 Islandais
 401 Jaca Navarra
 465 Jugoslovenski Kasac
 134 Kaimanawa 'Wild' Horse
 513 Karabakhskaya
 519 Kirgiz
 200 Knabstrupper
 272 Knabstrupper
 415 Knabstrupperhäst
 382 Kuznetskaya Porodnaya Gruppya
 534 Lac La Croix Indian Pony
 489 Lavradeiro



182 Lipicanac
 466 Lipicanska Rasa
 170 Lipizzan
 272 Lipizzaner
 416 Lipizzanerhäst
 221 Lusitanien
 137 Makra
 428 Malakan
 382 Mezenskaya
 244 Mingrelian
 416 Morgan Horse
 89 Namib Horse
 382 Narym
 200 New Forest
 272 New Forest
 221 New Forest Pony
 534 Newfoundland Pony
 89 Nooitgedacht Pony
 416 Nordsvensk Häst
 200 Oldenborger
 200 Ox-Araber
 416 Paint Horse
 272 Paso Peruano
 382 Pechorskaya
 317 Persano
 302 Piebald and Skewbald
 291 Pineia
 273 Pinto
 273 Pinto Typ Lewitzer
 168 Polesskaya
 221 Pony Ariégeois Mérens
 221 Pony Landais
 317 Pony dell'Esperia
 222 Pottok
 401 Pottoka
 383 Priobskaya
 133 Przewalski Horse
 383 Przewalski Horse
 209 Puoliverinen
 417 Quarterhäst
 273 Rheinisch Deutsches Kaltblut
 90 SA Miniature Horse
 535 Sable Island Pony
 549 Sable Island Pony
 273 Sächsisch-Thüringisches Kaltblut
 318 Salernitano
 274 Schleswiger Kaltblut
 274 Schwarzwälder Kaltblut
 274 schweres Warmblut
 274 schweres Warmblut / ostfriesisch-altoldenburgisch
 222 Shetland
 210 Shetland Pony
 448 Shire
 520 Somali Pony
 191 Starokladrubsky Uranik
 550 Suffolk
 383 Tavdinskaya
 186 Thoroughbred

124 Thoroughbred racing Horse
 275 Thüringer Warmblut
 222 Trait Auxois
 201 Trakehner
 383 Tuvinskaya
 384 Verkhne-Eniseiskaya
 90 Vlaamperd
 201 Welsh
 222 Welsh



514 Baladi White
 514 Galabi
 514 Giza White
 402 Ibicenco



518 Aksai Black Pied
 535 American Berkshire
 115 Bama Xiang Zhu
 391 Bela Zlahtna
 192 Belgickà Landrase
 467 Belgijiski Landras
 225 Carélie
 493 Casco de Mula
 91 Chester White
 319 Cinta Senese
 161 Comune
 276 Deutsche Landrase B
 277 Deutsches Sattelschwein
 115 Ding
 427 Djumajliska
 225 DRB
 225 DRC
 91 Duroc
 192 Duroc
 277 Duroc
 391 Duroc
 417 Duroc
 450 Duroc
 467 Duroc
 295 Duroc Sertés
 225 FH016
 226 FH019
 226 Gallia
 244 Georgian Mangalitsa
 551 Guinea Hog
 143 Hailum
 192 Hampshire
 202 Hampshire
 226 Hampshire
 319 Hampshire
 417 Hampshire
 467 Hempir
 551 Hereford
 115 Hetao Lop-Ear
 403 Ibérico
 403 Ibérico
 180 Istochnobalkanska Svinia
 116 Jilin Black

244 Kakhetian
 135 Kunekune
 144 Kwai
 535 Lacombe
 226 Laconie P77
 302 Large White
 417 Lindrödssvin
 116 Lingao
 116 Lutai White
 331 Moldavian Meat Type
 467 Moravka
 227 Musclor
 392 Nem Ka Landrace
 468 Nemacki Landras
 183 Njemacki Landras
 337 Norsk Yorkshire
 337 Norsk Yorkshire
 450 Oxford Sandy and Black
 227 Pen Ar Lan P 77
 227 Penshire P66
 491 Piau
 193 Pietrain
 227 Piétrain
 295 Pietrain Sertés
 404 Porc Negre Mallorquí
 228 Proligène 321
 551 Red Wattle
 468 Resavka
 493 Sampedreño
 277 Schwäbisch Hällisches Schwein
 384 Sibirskaia Chernopestraya
 319 Siciliano
 132 South China
 332 South Type
 450 Tamworth
 228 Tia Meslan P44
 429 Ukrainian Spotted Steppe
 183 Veliki Jorkir
 450 Welsh
 116 Yangxin
 354 Yorkshire
 468 Yugoslav Spotted



321 Alpagota
 553 American Tunis
 136 Arapawa Island
 229 Avranchin
 137 Baghdale
 385 Bakur
 537 Barbados Blackbelly
 303 Belclare
 392 Belokranjska pramenka
 303 Beltex
 194 Bergschaf
 303 Berrichon du Cher
 230 Blackface
 82 Blackhead Persian



280 Blauköpfiges Fleischschaf
 303 Bleu du Maine
 304 Bluefaced Leicester
 93 Border Leicester
 163 Bozakhskaya
 513 Bozakhskaya
 280 Braunes Bergschaf
 321 Brigasca
 230 Brigasque
 281 Brillenschaf
 453 British Friesland
 537 Canadian Arcott
 538 Canadian Corriedale
 404 Canaria De Pelo
 180 Carakachanska Ovsta
 167 Carinthian
 453 Charmoise
 405 Churra Lebrijana
 322 Ciavenasca
 296 Cikta
 428 Cine Capari
 334 Clun Forest
 180 Copper-Red
 93 Corriedale
 553 Cotswold
 493 Criolla Mora
 553 Delaine Merino
 538 DLS
 82 Dorper
 202 Dorset
 453 Est à laine Mérino
 203 Finulds făr
 291 Florina
 322 Frabosana
 111 Glen Vale
 281 Gotländisches Pelzschaf
 203 Gotlandsk Pelsfăr
 93 Hampshire
 137 Hissardale
 171 Houtlandschaap
 405 Ibicenca
 453 Icelandic
 469 Il d'Frans
 281 Ile de France
 171 Ile-de-France
 184 Istarska Ovca
 131 Kae
 281 Kamerun Schaf
 125 Kapstad
 93 Karakul
 282 Karakulschaf
 538 Katahdin
 553 Katahdin
 172 Kempens Schaap
 194 Kent, Romney Marsh
 292 Kymi
 304 L'Ile de France
 230 Landes de Bretagne
 203 Leicester

454 Llanwenog
 137 Marco Polo's
 512 Marco Polo's
 519 Marco Polo's
 521 Marco Polo's
 322 Marrane
 203 Marsh
 322 Matesina
 405 Menorquina
 172 Mergelland Schaap
 136 Mohaka
 172 Mouton Laitier Belge
 94 Multihorned Merino
 94 Namaqua Afrikaner
 538 Navajo-Churro
 554 Navajo-Churro
 323 Nobile di Badia
 418 Ostfriesiska mjölkfăr
 539 Outaouais Arcott
 194 Oxford Down
 418 Oxforddown
 138 Pak Awi
 138 Pak Karakul
 405 Palmera
 180 Panagyurishte
 385 Pechorskaya Porodnaya Gruppya
 230 Petite Manech
 323 Pomarancina
 323 Quadrella
 323 Razza di Garessio
 539 Rideau Arcott
 406 Roja Mallorquina
 282 Romanov-Schaf
 125 Romney
 304 Rouge de L'Ouest
 454 Rough Fell
 418 Ryggja
 204 Saane
 97 Sabi
 125 Saint Croix Blackbelly-Barbados cross
 324 Saltasassi
 324 Sampeierina
 492 Santa Ines
 123 Shapo
 513 Shirvanskaya
 419 Shropshire
 111 Siromeat
 282 Skudde
 454 Soay
 204 Spel
 419 Spelsau
 539 St. Croix
 554 St. Croix
 282 Steinschaf
 195 Suffolk
 204 Suffolk
 296 Suffolk
 419 Suffolk
 296 Szapora Merino
 324 Tacola
 454 Teeswater

195 Texel
 210 Texel
 195 Tsigai
 324 Turchessa
 499 Uruguayan Criollo
 325 Varesina
 406 Vasca Carranzana
 304 Vendeen
 455 Vendeen
 325 Vissana
 172 Vlaams Kuddeschaap
 173 Voskop
 195 Východofriskà Ovce
 283 Waldschaf
 283 Weiße gehörnte Heidschnucke
 283 Weißes Bergschaf
 554 Wiltshire Horn
 292 Zakynthos
 112 Zenith
 196 Zirnè Merino
 196 Zušlechtenà Valaška
 455 Zwartbles



496 Llamingos

AVIAN SPECIES



516 Abaedh
 286 Altsteirer Wild-Type Brown
 408 Andaluza
 426 Appenzeller Barthuhn
 427 Appenzeller Spitzhauben
 174 Ardennaise
 516 Arree El- Rakaba Abaedh
 516 Arree El- Rakaba Bunni
 496 Asa Brown
 517 Asswad
 364 Australorp
 141 Banaba
 234 Barbezieux
 393 Barred Plymouth Rock
 494 Barred Plymouth Rock
 287 Barthühner Gold-Black Mottled
 175 Bassette Liégeoise
 287 Bergische Kräher
 196 Bohemian Fowl
 141 Bolinao
 235 Bourbon
 175 Brabançonne
 184 Brahma
 365 Brahma alba
 365 Brahma herminat inchis
 175 Brakelhoen
 540 Brown Leghorn
 175 Brugserechten
 458 Buff Orpington
 458 Buff Sussex
 517 Bunni











197 C-Group of Congenic Lines
 408 Castellana Negra
 408 Catalana Del Prat
 494 Catalana Del Prat
 235 Caumont
 235 Caussade
 235 Charollaise
 365 Chochinchina galbena
 365 Chochinchina neagra
 366 Cornish alb-c
 366 Cornish alb-cy1
 366 Cornish alb-cy2
 366 Cornish alb-w
 458 Cornish Game
 367 Cornish rosu-s
 236 Côtentine
 236 Cou-nu du forez
 236 Coucou de rennes
 236 Crèvecoeur
 458 Croad Langshan
 205 Danske Land Høns
 459 Derbyshire Redcap
 287 Deutsche Sperber
 459 Dorking Silver-Grey
 408 Empordanesa Roja
 237 Estaires
 409 Euskal Oiloa-Beltza
 409 Euskal Oiloa-Zillara
 409 Extremeña Azul
 367 Faverolles Salmon
 144 Ga Dong Tao
 145 Ga Ho
 145 Ga Mia
 409 Gallina Mallorquina
 237 Gascogne
 237 Gauloise dorée
 237 Géline De Touraine
 338 Gjermundues 1
 338 Gjermundues 2
 338 Gjermundues 3
 120 Gold Link
 238 Gournay
 367 Gournay
 207 Hibro-6
 238 Houdan
 459 Indian Game
 299 Islanski hænsnastofninn
 367 Italiana argintie
 368 Italiana aurie
 368 Italiana neagra
 368 Italiana neagra pitica
 184 Italiener
 176 Izegemse Koekoek
 129 Jitokko
 338 Kalnes 1
 339 Kalnes 2
 339 Kalnes 3
 339 Kalnes 4
 339 Kalnes 5

129 Kawachiyakko
 129 Koeyoshi
 129 Kurokashiwa
 368 La bresse
 238 La Flèche
 287 Lakenfelder
 369 Leghorn alb-10
 369 Leghorn alb-7
 369 Leghorn alb-9
 369 Leghorn alb-d
 370 Leghorn alb-g
 370 Leghorn alb-j
 370 Leghorn alb-k7
 370 Light Sussex
 540 Light Sussex
 162 Local Black Tropoja Lekbibaj
 210 Maatiaiskana
 238 Mantes
 371 Marans alb
 371 Marans herminat deschis
 371 Marans negru
 239 Merlerault
 239 Meusienne
 130 Minohiki
 371 Minorca neagra
 288 Möwen
 517 Mukhatat
 133 Myogyi
 176 Naine du Tournaisis
 372 Negru de franta
 184 New Hampshire
 388 New Hampshire
 494 New Hampshire
 540 New Hampshire Red
 372 New hampshire rosu
 239 Noire De Challans
 239 Noire Du Berry
 340 Nor. brid 1
 340 Nor. brid 3
 340 Nor. brid 4
 340 Nor. brid 7
 341 Nor. brid 8
 459 Old English Pheasant Fowl
 185 Orpington
 372 Orpington alb
 372 Orpington galben
 326 Padovana
 410 Penedesenca Negra
 240 Petit combattant du nord
 240 Pictave
 185 Plymouth Rock
 373 Plymouth rock alb
 373 Plymouth Rock Alb, white skinned
 373 Plymouth rock alb-f
 373 Plymouth rock alb-n
 374 Plymouth rock alb-s(k)
 374 Plymouth rock barat
 374 Plymouth rock barat infuzat cu
 leghorn
 430 Poltava Clay-Experimental Line 6
 430 Poltava Clay-Experimental Line P5

327 Polverara-Schiatta
 497 Poule Creole
 240 Poule d'alsace naine
 210 Punainen Rhode Island
 288 Ramelsloher
 374 Rhode island alb-db
 375 Rhode island alb-murdar
 388 Rhode Island Red
 541 Rhode Island Red
 494 Rhode Island Red-Y1
 375 Rhode island rosu-e
 375 Rhode island rosu-h
 375 Rhode island rosu-m
 376 Rhode island rosu-p
 376 Rhode island rosu-pitic
 341 Roko hons 1
 341 Roko hons 2
 341 Roko hons 4
 130 Sado Hige-Jidori
 427 Schweizer Huhn
 460 Scots Grey
 460 Sebright Bantams
 120 Shaver-Brown
 393 Silver
 388 Slovgal 06a
 470 Sombor Crested
 75 Souche Kondé
 342 Sove 1
 460 Speckled Sussex
 185 Stajerka
 288 Sundheimerhuhn
 376 Sussex herminat
 376 Sussex mamaia sat
 389 Sussex White
 393 Synthetic Slovenian Line
 288 Thüringer
 130 Tosa Cochin
 130 Utai-Chahn
 410 Utrerana
 327 Valdarno
 289 Vorwerkhühner
 289 Westfälische Totleger
 541 White Leghorn-Hollywood Strain
 495 White Leghorn-Ñ
 495 White Plymouth Rock Dwarf-Mb
 377 White Plymouth Rock-dw
 377 White Plymouth Rock-Silver
 393 White Rock
 394 White Rock
 377 Wiandotte negru pitic
 377 Wyandotte negru



483 Antigua & Barbuda Duck
 422 Blekingeanka
 241 De Challans
 211 Pekingin Ankka
 289 Pommern
 242 Rouen foncé
 496 Tame Duck
 437 Ukrainian White

					
483	African Goose	77	Local Muscovy Duck of Karal and Massakory	78	Local pigeon of Karal and Massakory
242	Blanche Du Poitou	484	Muscovy Duck	79	Local pigeon of Port Belilé and N'djamena
197	Bohemian	120	Muscovy Duck of Rarotonga	120	Native pigeon of Cook Islands
242	Normande	138	Pakistani Muscovy Duck	178	Ronsenaar
411	Oca de l'Emporda				
439	Synthetic Ukrainian Population	94	Intje	412	Indiot Mallorqui
497	Tame Goose	177	Struis Vogel	113	Monn Barain
211	Valkea Italialainen			243	Noir De Sologne
119	White Chinese	139	Common Pea Fowl	243	Noir Du Bourbonnais
483	White Chinese	139	Himalayan Monal	462	Norfolk Bronze
484	White Emden	186	Ring Neck Pheasant	211	Pronssikalkkuna
		139	Tragopan Western Horned	545	Ridley Bronze
76	Amssala			97	Ugandean Turkey
77	Local Guinea fowl of Gredaya and Massakory	411	Colom Borino	485	White Giant
77	Local Guinea fowl of Moulkou and Bongor	411	Colom de Pinta	185	Zagorski puran
77	Local Guinea fowl of Port Belilé and N'djamena	78	Local pigeon of Gredaya and Massakory		
484	Pearl Guinea fowl				
484	Purple Guinea fowl				

2.1.4




ENDANGERED MAINTAINED BREEDS LIST


The Endangered-Maintained Breeds List is an inventory of all breeds with data to suggest that the total number of breeding females is greater than 100 and less than or equal to 1 000 or the total number of breeding males is less than or equal to 20 and greater than five; or if the overall population size is greater than 80 and less than 100 and increasing and the percentage of females being bred to males of the same breed is above 80 percent; or if the overall population size is greater than 1 000 and less than or equal to 1 200 and decreasing and the percentage of females being bred to males of the same breed is below 80 percent, but are maintained by an active conservation programme.

The breeds are listed alphabetically by most common name within each species (mammalian species followed by avian species). For each breed, the page number indicates where a detailed description may be found.

Please note that the risk status categorization of breeds refers only to the status of the breed population in that country and should not be interpreted as reflecting the global picture. Furthermore, breeds may be found listed more than once if the breed is endangered-maintained in more than one country. Breeds may also be found listed in more than one risk status category if the risk status differs between breed populations found in different countries.

MAMMALIAN SPECIES

		
395	Raza Asinina Catalana	
		
140	Tamarao	
487	Tipo Baio	
		
308	Agerolese	
327	Angeln	
215	Aure et Saint-Girons	
164	Austrian Blond	
398	Berrenda roja andaluza	
215	Bretonne Pie Noire	
308	Burlina	
308	Cabannina	
398	Cachena	
399	Caldelana	
533	Canadian	
492	Chino Santandereano	
492	Costeño con Cuernos	
489	Curraleiro	
186	Cyprus	
343	Czarno biala odmiana hf	
327	Danish Red	
205	Eesti maatõug	
215	Ferrandaise	
216	Flamande originelle	
216	Froment Du Léon	
308	Garfagnina	
216	Gasconne Aréolé	
443	Gloucester	
333	Groninger Blaarkop	
216	Hereford	
443	Hereford, Traditional	
217	Hérens	
423	Hinterwälder	
443	Irish Moiled	
198	Jysk Kvæg	
301	Kerry	

333	Lakenvelder	
328	Lithuanian Light Grey	
328	Lithuanian White Back	
399	Menorquina	
489	Mocho Nacional	
309	Modenese	
164	Murboden	
399	Negra de las Campinas Andaluzas	
399	Pajuna	
400	Palmera	
353	Pinzgau de transilvania	
309	Pisana	
309	Pustertaler Sprinzen	
217	Race espagnole	
424	Rätisches Grauvieh	
198	RDM-1970	
444	Red Poll	
309	Reggiana	
413	Ringamålako	
413	Rödkulla	
336	sidet trønderfe og nordlandsfe	
354	Sura de stepa	
413	Svensk kullig boskap	
336	telemarkfe	
86	Tswana	
164	Tux	
414	Väneko	
493	Velásquez	
400	Vianesa	
217	Villard De Lans	
164	Waldviertel	
444	White Park	
444	Whitebred Shorthorn	
379	Yakutskii Skot	
		
445	Bagot	
445	Golden Guernsey	
299	Icelandic	
424	Pfauenziege	
165	Pinzgauer Ziege	
218	Rove	
165	Saanenziege	
424	Stiefelgeiß	

165	Tauernschecken	
165	Toggenburger Ziege	
		
223	Boulonnais	
331	Cheval de Trait Ardennais	
449	Cleveland Bay	
344	Czysta Krew Arabska	
449	Dartmoor Pony	
201	Den Jydske Hest	
206	Eesti hobune	
449	Exmoor Pony	
201	Frederiksborgheste	
293	Furioso-North Star	
353	Garrano	
333	Gelders Paard	
293	Gidrån	
344	Hucul	
191	Hutsul	
302	Irish Draught	
191	Kladrubský	
344	Konik Polski	
124	kuda-Minahasa	
328	Latvian	
293	Lipicai	
294	Magyar Hidegvéru	
294	Nóniusz	
337	Nordlandshest	
223	Poitevin	
182	Posavac	
294	Shagya Arab	
166	Shagya-Araber	
191	Slezský Norik	
192	Starokladrubsky Kun	
384	Terskaya	
206	Tori hobune	
337	Tyngre Dølehest	
166	Vollblutaraber	
		
451	Berkshire	
228	Blanc de l'Ouest	
451	British Lop	



451 British Saddleback
 319 Calabrese
 328 Duroc
 228 Gasconne
 451 Gloucestershire Old Spot
 404 Ibérico
 404 Ibérico
 392 Krskopoljski Crnopasasti Prasic
 452 Large Black
 295 Mangalica
 452 Middle White
 329 Native Lithuanian
 229 Pie Noir du Pays Basque
 229 Porc de Saint Yriex
 355 Porcul de Banat
 345 Pulawska
 425 Schwalbenbauch Mangalitzta
 345 Zlotnicka Pstra



419 Allmogefär
 325 Altamurana
 325 Bagnolese
 469 Bardoka
 346 Białogłowa Owca Migsma
 334 Black Blazed Sheep
 392 Bovska ovca
 168 Braunes Bergschaf
 425 Bündner Oberländerschaf
 112 Camden Park
 455 Castlemilk Moorit
 296 Cigaja
 231 Clun Forest
 455 Cotswold
 346 Czarnogłowa Owca Migsna
 204 Dansk Landfär
 326 Di Corteno
 334 Drentse Heideschaap
 425 Engadiner Fuchsschaf
 231 Finnois
 326 Garfagnina White
 326 Lamon
 231 Landaise
 456 Leicester Longwool
 346 Leine
 456 Lincoln Longwool
 231 Lourdaise
 334 Mergelland Schaap
 406 Merina
 232 Mérinos de Rambouillet
 456 Norfolk Horn
 347 Polski Korideil
 456 Portland
 420 Ryafär
 335 Schoonebeker
 426 Skudde
 426 Spiegelschaf
 347 Swiniarka

470 Tsigai
 347 Uhruska
 426 Walliser Landschaf
 457 Whitefaced Woodland
 347 Zelaznienska

AVIAN SPECIES



420 Åsbohöna
 430 Barred Dwarf Strain 55
 430 Black Australorp-Line 101
 431 Black Speckled Australorp Marbled-Line 102
 431 Black Yerevan-Line 99
 499 Buche pelón
 431 California Grey-Line 91
 141 Camarines
 460 Dorking
 461 Dorking Dark
 461 Dorking Red
 297 Fehér erdélyi kopasznyakú
 297 Fehér magyar
 297 Fekete erdélyi kopasznyakú
 298 Gödöllői New Hampshire
 420 Gotlandshöna
 421 Hedemorahöna
 541 Hungarian Yellow
 131 Japanese Long-Tailed Fowl
 298 Kendermagos erdélyi kopasznyakú
 461 Langshan Black Croad
 461 Langshan White Croad
 348 Leghorn G99
 348 Leghorn H22
 431 Light Sussex-Line 100
 432 Line 27
 432 Line 69
 432 Line 70
 432 Line 71
 378 Marans barat
 410 Mos
 433 Naked Neck-Line 93
 421 Ölandshöns
 421 Orusthöna
 433 Poltava Clay-Line 37
 433 Poltava Clay-Line 41
 433 Red Dwarf Strain 54
 141 Red Jungle Fowl
 434 Red Yerevan-Line 98
 348 Rhode Island Red R11
 434 Rhode Island Red-Line 39
 434 Russian White-Line 61
 342 Samvirkekulling I1
 342 Samvirkekulling I2
 342 Samvirkekulling I3
 343 Samvirkekulling I5
 462 Scots Dumpy
 434 Single Comb Brown Leghorn
 435 Single Comb White Leghorn-Line 01
 435 Single Comb White Leghorn-Line 08

435 Single Comb White Leghorn-Line 26
 435 Single Comb White Leghorn-Line 273
 436 Single Comb White Leghorn-Line 31
 436 Single Comb White Leghorn-Line 32
 436 Single Comb White Leghorn-Line 34
 436 Single Comb White Leghorn-Line

D4 or 04
 94 South African Naked Neck
 349 Sussex S66
 421 Svensk dvärghöna
 437 White Plymouth Rock-Line 97
 437 Yurlovo Crower-Line 92
 349 Zielonozka Kuropatwiana /Z11/
 349 Zielonozka Kuropatwiana /ZK/
 349 Zoltonozka Kuropatwiana /Z33/



437 Black White-Breasted
 118 Brown Tsaiya
 438 Pekin-Line P3
 422 Svensk Blå Anka
 438 Ukrainian Clay
 438 Ukrainian Grey
 438 Ukrainian White-Line Ub 4
 439 Ukrainian White-Line Ub 5
 439 Ukrainian White-Line Ub 7
 118 White Pekin Line 201



350 Bilgorajska
 119 Brown Chinese
 427 Diepholzer
 298 Fodrostollú lúd
 351 Garbonosa
 351 Kartuska
 351 Kielecka
 351 Lubelska
 422 Ölandsgås
 352 Pomorska
 439 Rhenish White
 352 Rypinska
 423 Skånegås
 352 Suwalska
 352 Zatorska



423 Svensk myskanka



140 Cheer Pheasant



299 Bronzpulyka
 440 Line 5

2.2 GLOBAL REGIONS - BREEDS AT RISK

Section 2.2 provides a summary of the entries in the Global Databank for Farm Animal Genetic Resources that are recorded as being at risk. This section partitions breeds at risk by the six global regions defined by FAO: Africa, Asia and the Pacific, Europe, Latin America and the Caribbean, Near East and North America. Although breeds may be subdivided on the basis of their origin, environment, biology or other considerations, for this purpose FAO defined regions are used to assist genetic resource management activities for domestic animals.

A short introduction to each of the regions is given, listing the component countries and giving a brief description of some of the factors that have contributed to the development of domestic animal diversity in the region. The proportion of breeds recorded in each risk status category up to December 1999 is described, and these figures are compared to the data that was recorded in the Global Databank for Farm Animal Genetic Resources in May 1995. The amount of data recorded by each country in each region is also described.

Each regional introduction is followed by a breed description list, detailing information on critical (C), critical-maintained (CM), endangered (D) and endangered-maintained (DM) breeds in the region. Within these description lists breeds are sorted by country, by species (mammalian species followed by avian species), by risk status (critical followed by critical-maintained, endangered and endangered-maintained) and finally alphabetically by the most common name, as identified by the country. Whenever more than one breed name is provided, that used by the major ethnic group (in terms of numbers) is used to denote the most common name for the breed. For each breed a list of names or synonyms, the total population size (absolute or range), the number of breeding males and females, the population size trend and the range of uses are highlighted when available. This is followed by a brief description of the breed indicating its origins, current location, phenotype (particularly any unusual visible traits), adaptability to local stressors such as environmental pressures, population information (such as the proportion of females being bred to males of the same breed) and any *in situ* and *ex situ* conservation efforts that are operational.

In some cases information for the breed may not be available or may not have been provided and validated prior to preparation of WWL-DAD:3. Consequently, some sections will read No further information available. All data submitted to FAO before 31/11/99 has been validated and considered See Annex 2.1 for details on how to assist overcoming such information deficiencies.

The information presented refers to data collected by the Global Breed Surveys. These surveys are ongoing. Many countries have yet to provide survey information for their animal genetic resources while others should try to improve the quality of the information provided and regularly update their inventories, specifically to provide popu-

lation data to enable efficient management action and support for their animal genetic resources. It is likely that the data underestimate the true number of breeds at risk, for undoubtedly there are breeds not listed that are also under threat of extinction. This particularly refers to developing countries where due to poor infrastructure, good estimates of breed population status based on census data are often difficult to obtain. Again, it should be noted that the risk status categorization of breeds refers only to the status of the breed population in that country and should not be interpreted as reflecting the global picture.

2.2.1 GLOBAL SUMMARY

In 1991 FAO initiated the Global Breed Surveys to report on the seven major mammalian domestic animal species (ass, buffalo, cattle, goats, horses, pigs and sheep). Additional surveys were initiated in 1993 to include yaks, the six camelidae species and the 14 major avian species. Collection of data for deer species and rabbits has also now commenced. Including these additional species has produced a more comprehensive inventory enhancing the quality and quantity of the information in this, the third edition of the World Watch List for Domestic Animal Diversity.

For each region, for all of the world's domestic animal species recorded in the Global Databank for Farm Animal Genetic Resources, the share of the total population size and the share of the number of breeds in each species are given in table 2.2.1.1. Most of the world's domestic animal breeds, except for buffaloes and yaks in Asia and the Pacific and asses and camels in the Near East, are found in Europe. This may, however, merely reflect the larger amount of data available for Europe than the other regions. For almost all species, the proportional share of the global population size is greatest in Asia and the Pacific. However, the majority of the world's horses are found in Latin America and the Caribbean, most camels are found in the Near East and a large proportion of the world's turkey population is found in Europe.

An analysis of the data recorded in the Global Databank for Farm Animal Genetic Resources and a summary of the information given in WWL-DAD:3 are presented in figures 2.2.1.1 to 2.2.1.6. These figures illustrate the number of mammalian and avian breeds reported in each risk status category, by species and by region, up to 1999 and up to 1995 when the last edition of WWL-DAD was published.

The Global Databank for Farm Animal Genetic Resources contains 6 379 breeds of the 30 mammalian and avian species. Population size data is available for 4 183, or 66 percent, of all breeds recorded. Of those with population data 1 335 breeds, or 32 percent, are classified at high risk of loss. Breeds at high risk of loss are those that are categorized as critical or endangered but which are not maintained, as maintained breeds are presumed to be at less risk of loss than those that are not under such management. Because the quality and effectiveness of management programmes under which breeds are maintained are likely to vary considerably, the 32 percent at high risk of

loss is considered to be a conservative figure. When all breeds, including those that are maintained, are considered 1 687 breeds are classified at risk - or 40 percent of breeds with data on population size. Extrapolating this figure to include all breeds (including those without population data) recorded in the Global Databank for Farm Animal Genetic Resources would mean that 2 255 breeds are at risk. Overall, these figures represent a 10 percent increase in the number of breeds recorded at risk since 1995, and a 13 percent increase since 1993.

As illustrated in figures 2.2.1.4a and 2.2.1.6a the largest numbers of animal genetic resources are currently recorded in the European region; over 40 percent of the world's mammalian breeds and almost 60 percent of all avian breeds are documented in Europe. The high number of mammalian (2 512) and avian (611) breeds (of which 515 and 32 respectively are recorded as extinct) reported in the Global Databank for Farm Animal Genetic Resources reflects not only the early emphasis on breed development in this region but also the greater availability of data. Additionally, there are more conservation programmes operational in the European region than in the less developed regions of Africa, Asia and the Pacific, Near East and Latin America and the Caribbean. There are also more conservation programmes documented in Europe than in the North America region. Eleven percent of mammalian and 16 percent of avian breeds are maintained in Europe. By comparison, in less developed regions on average less than one percent of mammalian breeds and only three percent of avian breeds are maintained. It is surprising that some of the lowest percentages of resources at risk are recorded in these least developed regions. For example, in all of Sub-Saharan Africa only 95 of the 699 mammalian and avian breeds on file are recorded as being at risk.

The data also suggest that some animal species have a higher proportion of their animal genetic resources at risk than others. Whilst chickens and cattle have large absolute numbers of breeds at risk, the horse and goose have the highest percentages at risk of loss.

The 1 335 breeds categorized at high risk of loss is thought to be an underestimate of the global situation. Some countries do not always distinguish between the old, original breed and the improved breed types. At least in some of these cases, because of the substantial genetic difference existing between the original and improved types, consideration should be given to identifying them as separate breeds. Such a distinction must be determined by the individual country, which under the Convention on Biological Diversity has sovereignty over its identifiable genetic resources.

Therefore, it is possible that not all breeds have been entered into the Global Databank for Farm Animal Genetic Resources and of those that have, population size data is available for only 66 percent (see regional introductions, sections 2.2.2 - 2.2.7 for analyses of individual country data recording). Moreover, breeds at greatest risk are usually those for which accurate census information is the most difficult to obtain, especially in the developing regions.

Additionally, depending on the level of management under which maintained breeds are conserved, even some breeds categorized as maintained may in fact be predisposed to a high risk of loss. Finally, there are a number of domesticated animal species (for example, guinea pigs, elephants, cane rats, grass-cutters etc.) that have not yet been included in WWL-DAD:3 and may well contain breeds currently at risk of loss.

Of note is the relatively little data recorded for avian species. Although the recording of avian breeds was initiated after the recording of mammalian breeds, recently, little more data has been provided or added for avian breeds. Avian breeds should not be neglected as they represent an important component of global animal genetic resources, especially in the developing world.

In 1995, 4 146 mammalian and 887 avian breeds were recorded in the Global Databank for Farm Animal Genetic Resources. Since then, 2 074 mammalian and 161 avian breeds have been added, increasing the amount of data recorded by 64 percent and 18 percent, respectively, to give a total of 6 379 breeds. Figures 2.2.1.3 to 2.2.1.6 illustrate the structure of the data recorded in the Global Databank for Farm Animal Genetic Resources, showing the risk status of the mammalian and avian breeds recorded for each species and within each region up to 1995 and up to 1999.

Overall it seems that the last 1995 analysis (WWL-DAD:2) of risk status is further verified by the current 1999 analysis. However, it must be noted that with the addition of 64 percent and 18 percent of data recorded for mammalian and avian breeds respectively, and notably of an additional 66 percent extinct breeds, the 1995 data is not a random subset of the 1999 data. This bias is strengthened by the fact that breeds may have shifted across risk status categories as a result of changing population numbers. Therefore direct comparisons between data sets will be biased when given as proportions of the total number of breeds.

Despite the somewhat biased nature of the data, when the complete data sets are indirectly compared, some trends are clear. As percentages of the total number of existing breeds with population data (and therefore risk status known), the number of mammalian breeds at risk of extinction has increased from 23 percent (of 2 191) to 35 percent (of 4 183) since 1995. The situation with avian breeds is even more serious with the total percentage of breeds at risk of being lost increasing from 51 percent (of 733) in 1995 to 63 percent (of 804) in 1999. These figures are indeed disturbing and efforts must be made to encourage maintenance of these domestic animal genetic resources at risk.

Although the global documentation of breeds and their status is far from complete, one assessment of the complete situation might be obtained by extrapolating the estimated 40 percent of breeds with population data which are recorded at risk, to include the total number of breeds recorded (5 639), this including those that are currently maintained but excluding those recorded as extinct. This

TABLE 2.2.1.1 PROPORTIONAL SHARE OF THE WORLD'S TOTAL POPULATION SIZE AND NUMBER OF BREEDS OF THE MAJOR LIVESTOCK SPECIES IN EACH REGION

SPECIES	AFRICA		ASIA AND THE PACIFIC		EUROPE		LATIN AMERICA AND THE CARIBBEAN		NEAR EAST		NORTH AMERICA	
	population (%)	breeds (%)	population (%)	breeds (%)	population (%)	breeds (%)	population (%)	breeds (%)	population (%)	breeds (%)	population (%)	breeds (%)
Buffalo	0.1	3.5	93.4	70.0	0.3	3.5	1.0	10.5	2.5	11.0	0	0
Cattle	13.2	20.5	34.9	19.3	12.3	39.4	26.9	8.7	5.4	7.0	8.4	5.1
Yak	0	0	n/a	69.0	n/a	8	0	0	n/a	23.0	n/a	0
Goat	19.4	15.6	55.4	25.6	3.7	32.8	5.8	6.0	16.2	16.5	0.2	3.5
Sheep	12.1	11.2	38.6	17.7	17.5	47.9	8.5	3.2	23.0	15.3	0.7	4.7
Pig	2.8	4.4	54.7	36.9	21.5	45.8	8.2	6.0	0.1	0.4	7.8	6.4
Ass	22.2	12.4	34.3	12.4	3.5	23.7	18.8	5.2	21.3	41.2	0.1	5.2
Horse	7.4	7.7	24.5	11.4	12.8	60.7	42.5	4.3	4.2	8.5	10.7	7.3
Camel	17.7 ¹	20.6 ¹	14.8 ²	22.2 ²	0.1 ²	3.2 ²	100 ³	100 ³	66.8 ²	54.0 ²	0	0
Chicken	5.4	7.8	45.4	17.7	14.5	64.2	16.4	5.0	7.3	3.8	13.7	1.4
Duck ⁴	0.9	11.0	91.7	45.0	8.9	36.0	2.7	6.0	1.4	2.0	1.0	n/a
Turkey	1.0	17.6	0.8	17.6	49.5	47.1	6.3	11.8	3.1	2.9	39.6	2.9
Goose	1.4	7.6	89.8	19.7	7.0	63.6	0.2	7.6	4.8	n/a	0.1	1.5

¹ Dromedary Camels only

² Dromedary and Bactrian Camels

³ Camelids

⁴ Domestic Duck and Muscovy Duck

n/a not available

Source: FAOSTAT (estimates of 1999 live animal populations) and DAD-IS

extrapolation gives an estimate of 2 255 breeds currently under threat of extinction. If, conservatively, five percent of these breeds under threat are lost each year then the average rate of resulting breed loss globally is equivalent to two breeds per week. Alarming, this means that without adequate conservation action, the large number (2 255) of domestic animal breeds projected at risk of extinction will be lost within the next two decades.

Little information on breed loss has previously been reported to FAO. Consequently, it has not been possible to firmly establish trends in the loss of breed resources for each species. The global collation and regular reporting of information on breeds that have become extinct is encouraged, particularly as the resulting trends form an important indicator of the effectiveness of genetic resources management programmes. Reliable past extinction is not easy to establish, for the process of a breed's extinction has often been completed some time before the loss is recognized. Further, some past breed extinctions are likely to go unreported, rendering summaries based on historical data conservative.

WWL-DAD:3 marks the first step towards countries recording animal genetic resource extinctions. Whilst much of the extinction data reported in this edition was extracted from Mason (1996), country validation of this extinction data has now commenced. Over time the information in the Global Databank for Farm Animal Genetic

Resources will become more detailed and country, regional and global trends in extinction rates should become apparent for each domestic species.

Perhaps surprisingly the number of extinctions reported is already substantial, with 740 (or 12 percent) of the 6 379 reported breed populations being recorded as extinct. Of these, 119 breeds have been confirmed as extinct by National Co-ordinators and 37 by Informal Contacts. Data on the loss of indigenous animal genetic resources, on recently imported exotic resources and on specialised genetic lines, are all important to the development of a comprehensive animal genetic resources knowledge base.

FIGURE 2.2.1.1

PROPORTION OF THE WORLD'S BREEDS RECORDED IN EACH RISK STATUS CATEGORY IN THE GLOBAL DATABANK FOR FARM ANIMAL GENETIC RESOURCES UP TO DECEMBER 1999

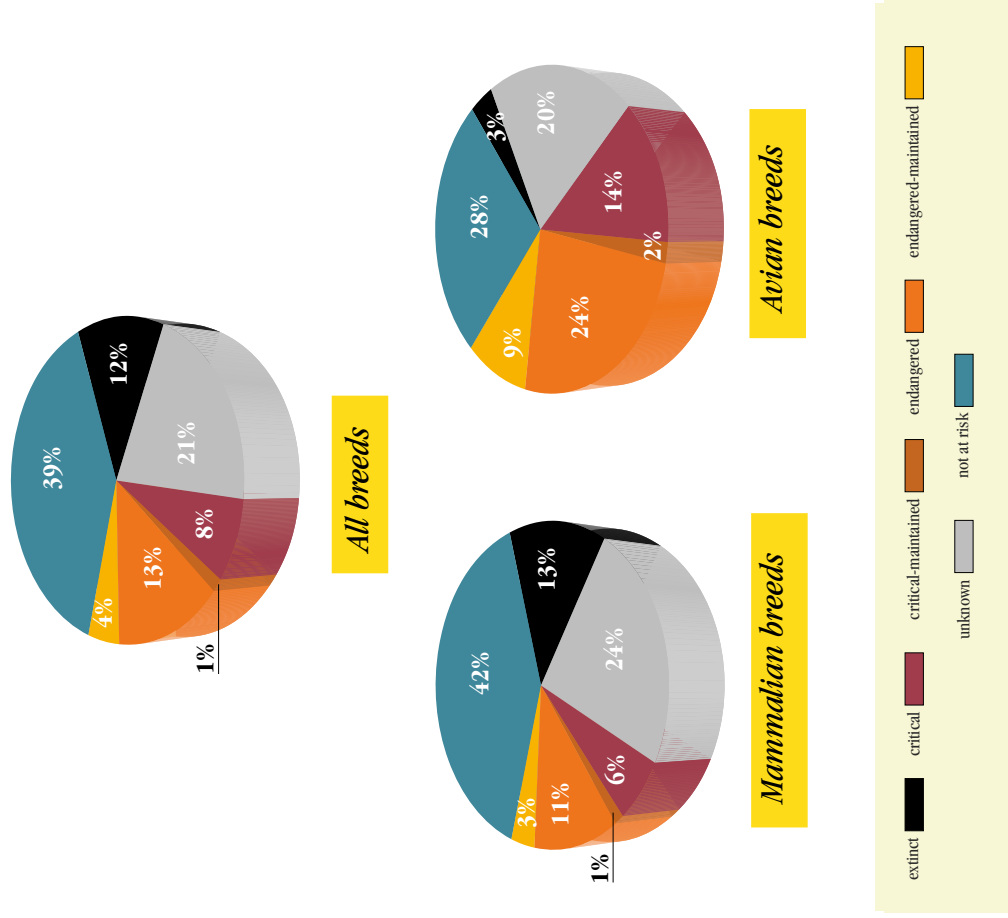


FIGURE 2.2.1.2

PROPORTION OF THE WORLD'S BREEDS RECORDED IN EACH RISK STATUS CATEGORY IN THE GLOBAL DATABASE FOR FARM ANIMAL GENETIC RESOURCES UP TO DECEMBER 1999 - BY REGION

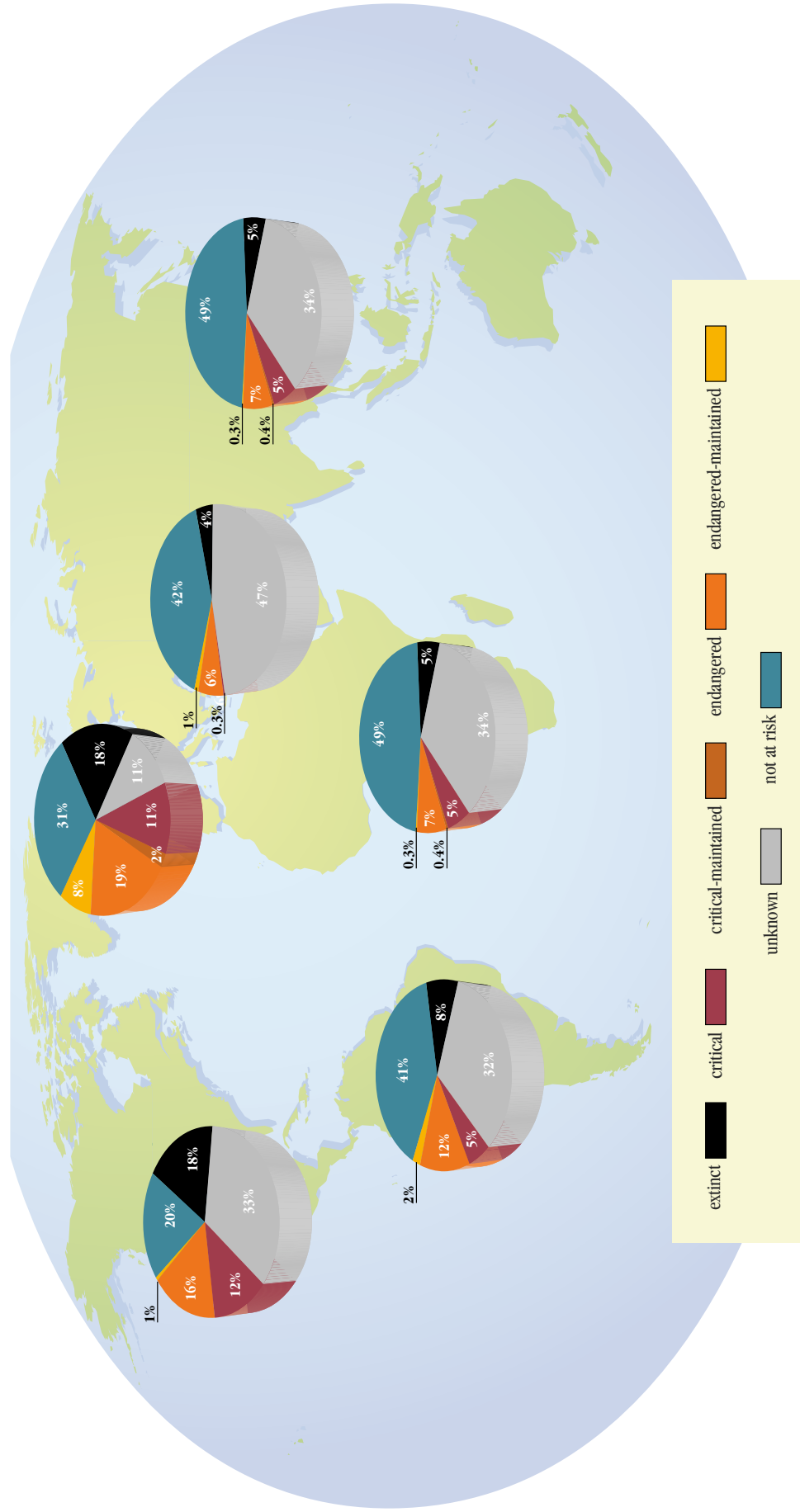


FIGURE 2.2.1.3A RISK STATUS OF THE WORLD'S MAMMALIAN BREEDS RECORDED UP TO DECEMBER 1999: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES - BY SPECIES

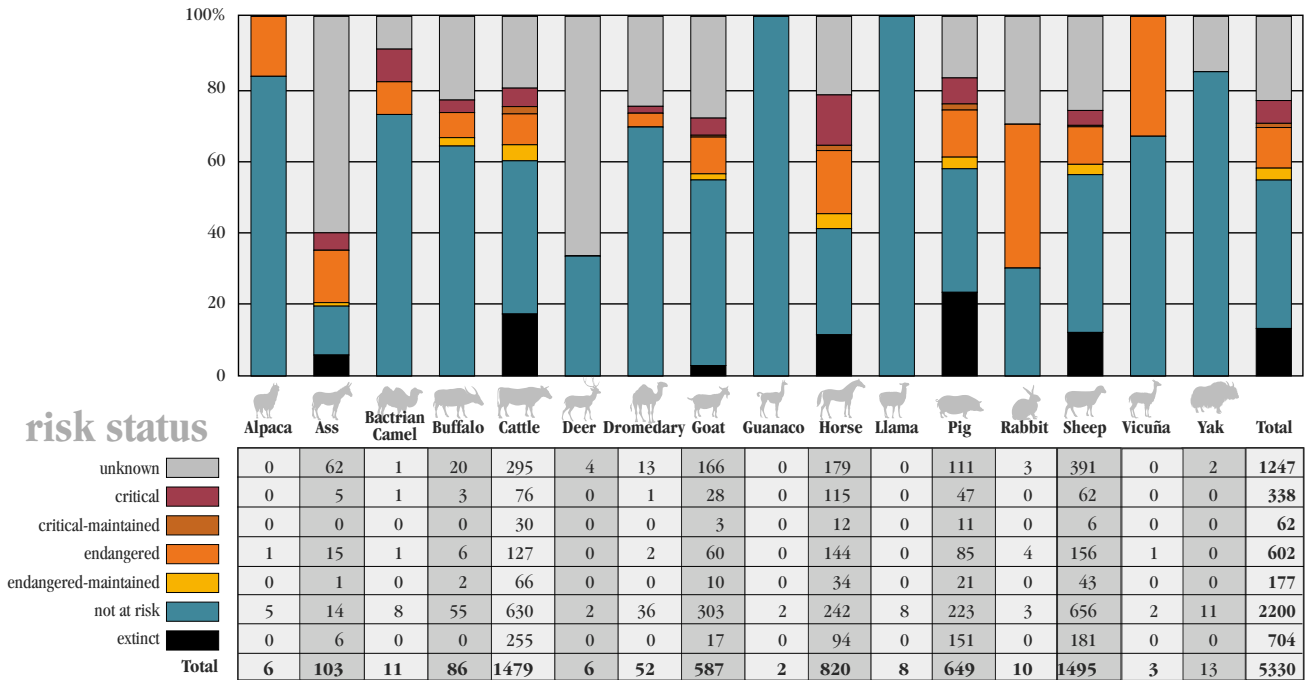


FIGURE 2.2.1.3B RISK STATUS OF THE WORLD'S MAMMALIAN BREEDS RECORDED UP TO MAY 1995: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES - BY SPECIES

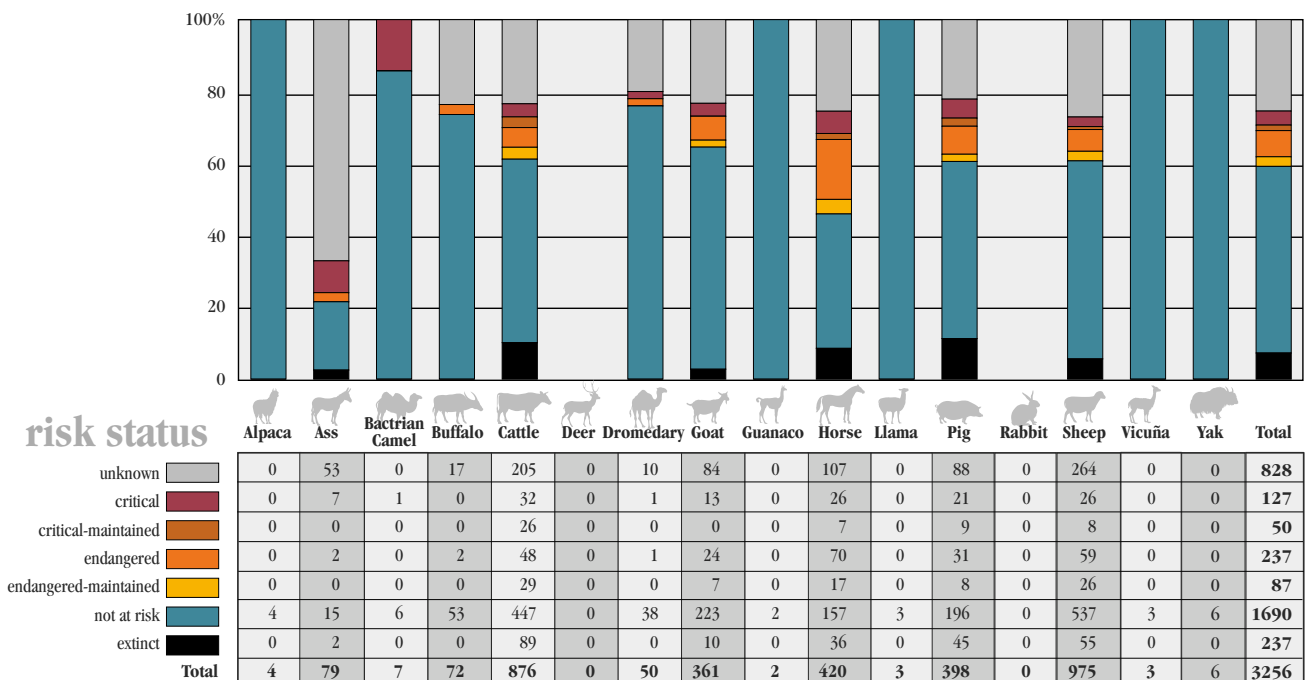


FIGURE 2.2.1.4A RISK STATUS OF THE WORLD'S MAMMALIAN BREEDS RECORDED UP TO DECEMBER 1999: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES - BY REGION

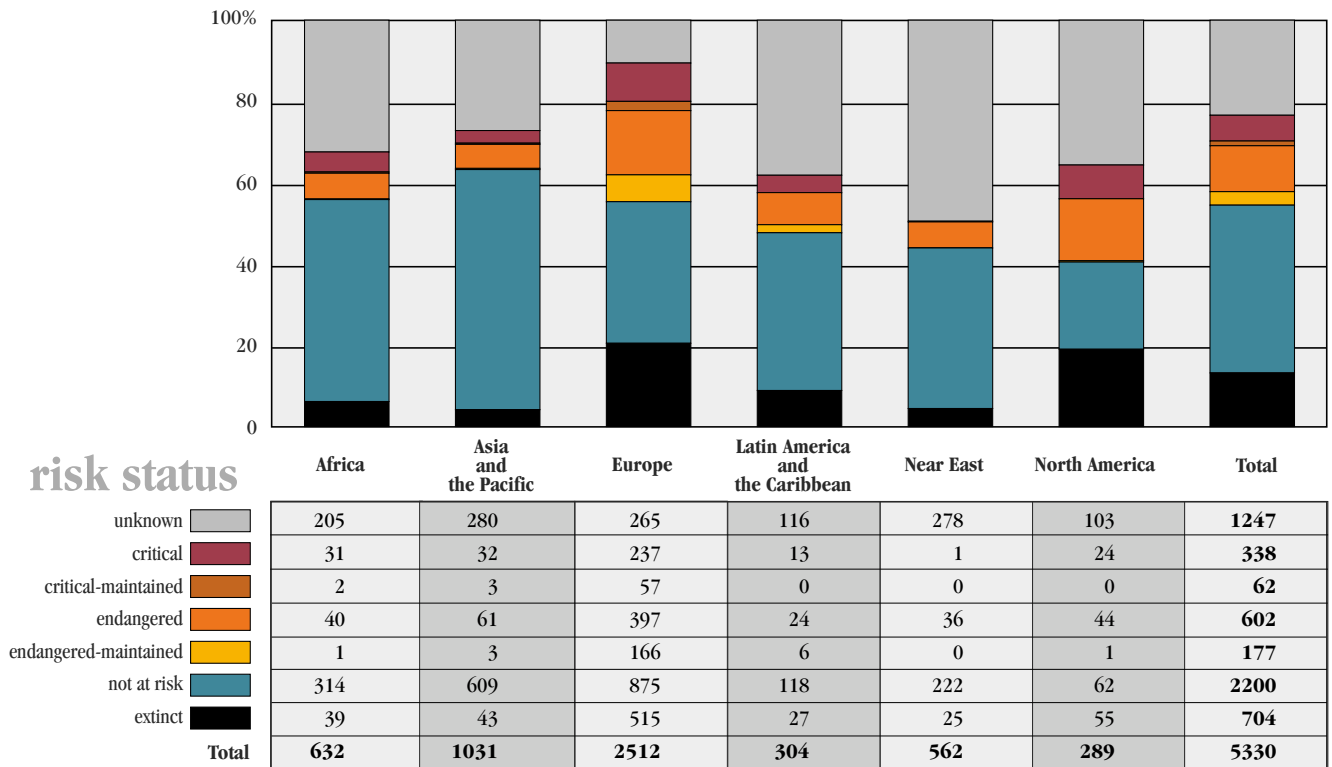


FIGURE 2.2.1.4B RISK STATUS OF THE WORLD'S MAMMALIAN BREEDS RECORDED UP TO MAY 1995: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES - BY REGION

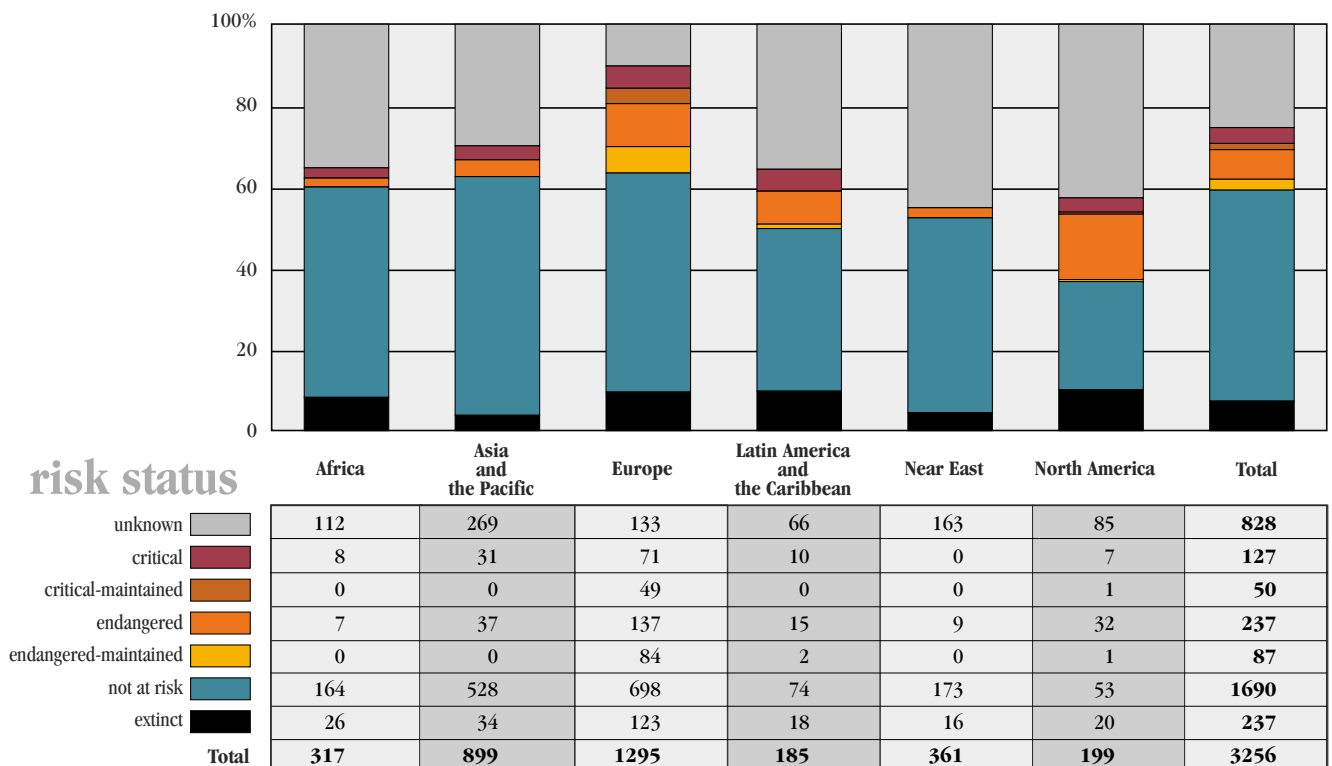


FIGURE 2.2.1.5A RISK STATUS OF THE WORLD'S AVIAN BREEDS UP TO DECEMBER 1999: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES - BY SPECIES

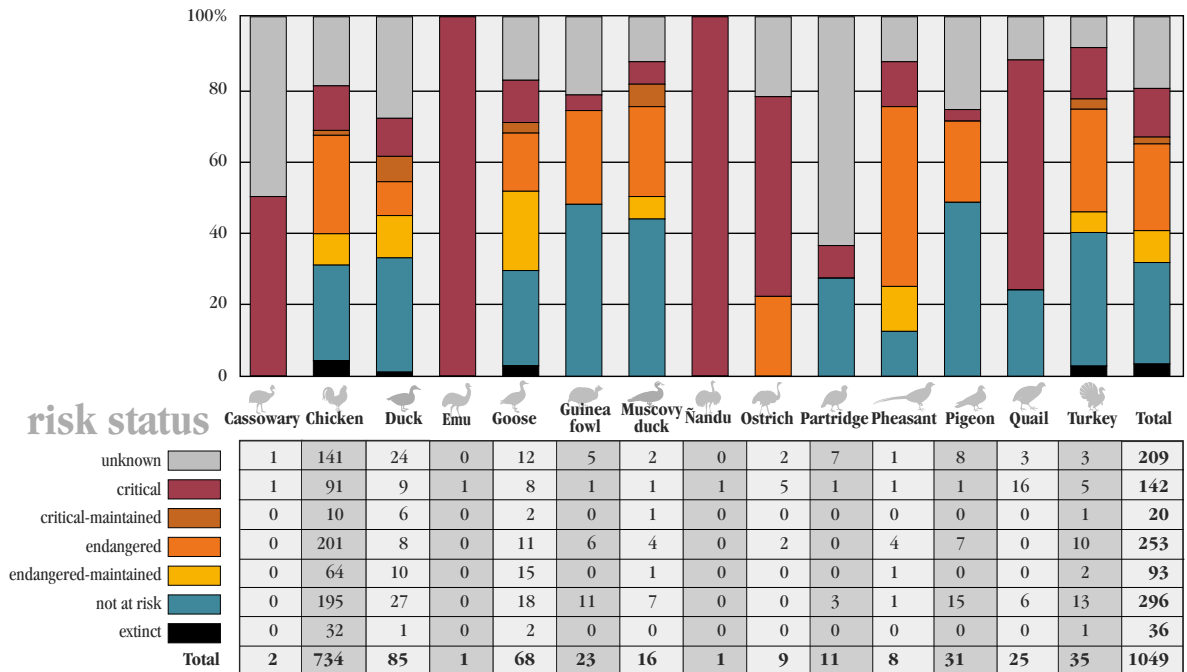


FIGURE 2.2.1.5B RISK STATUS OF THE WORLD'S AVIAN BREEDS UP TO MAY 1995: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES - BY SPECIES

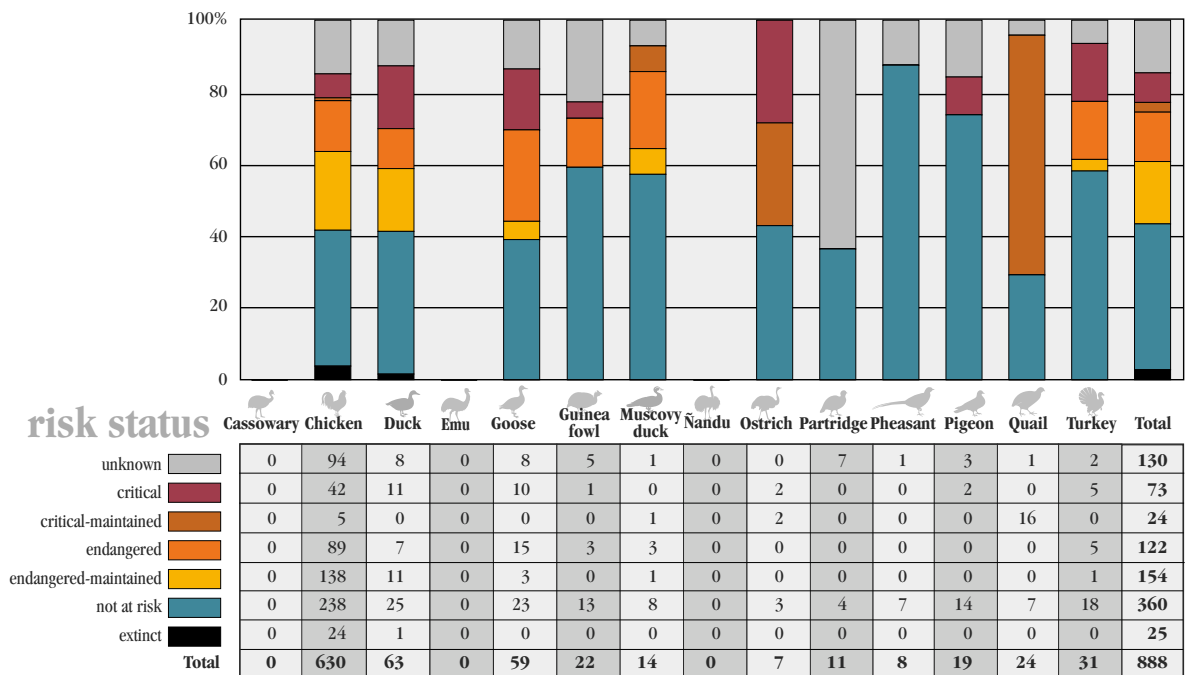


FIGURE 2.2.1.6A RISK STATUS OF THE WORLD'S AVIAN BREEDS UP TO DECEMBER 1999: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES - BY REGION

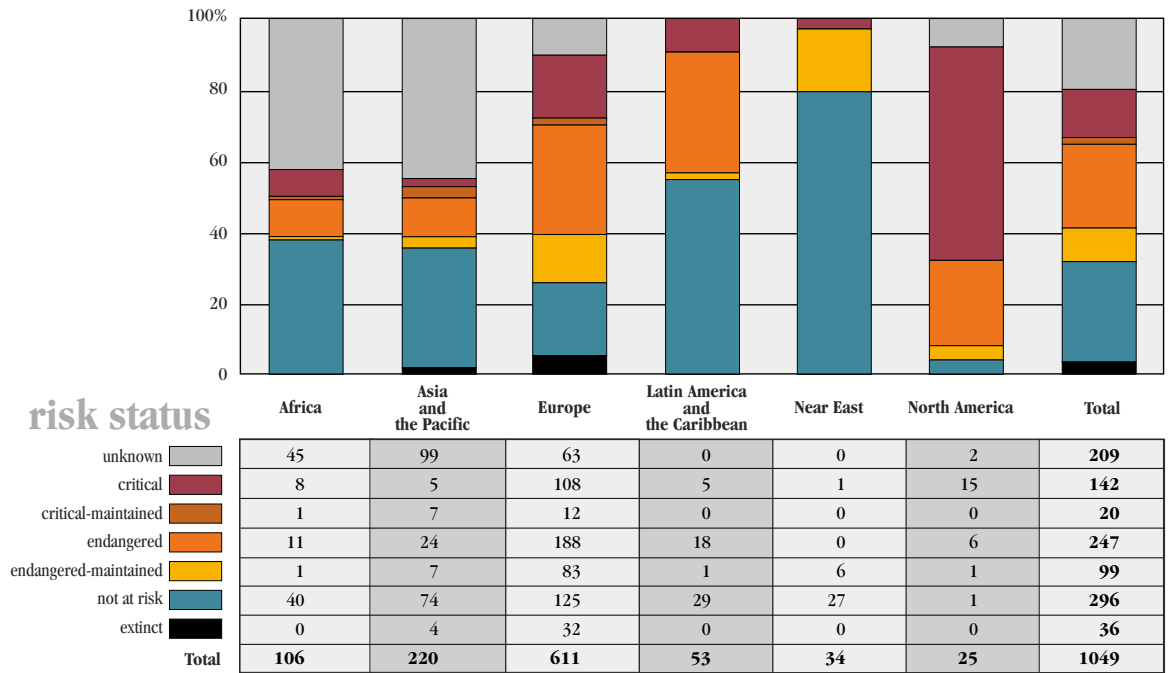
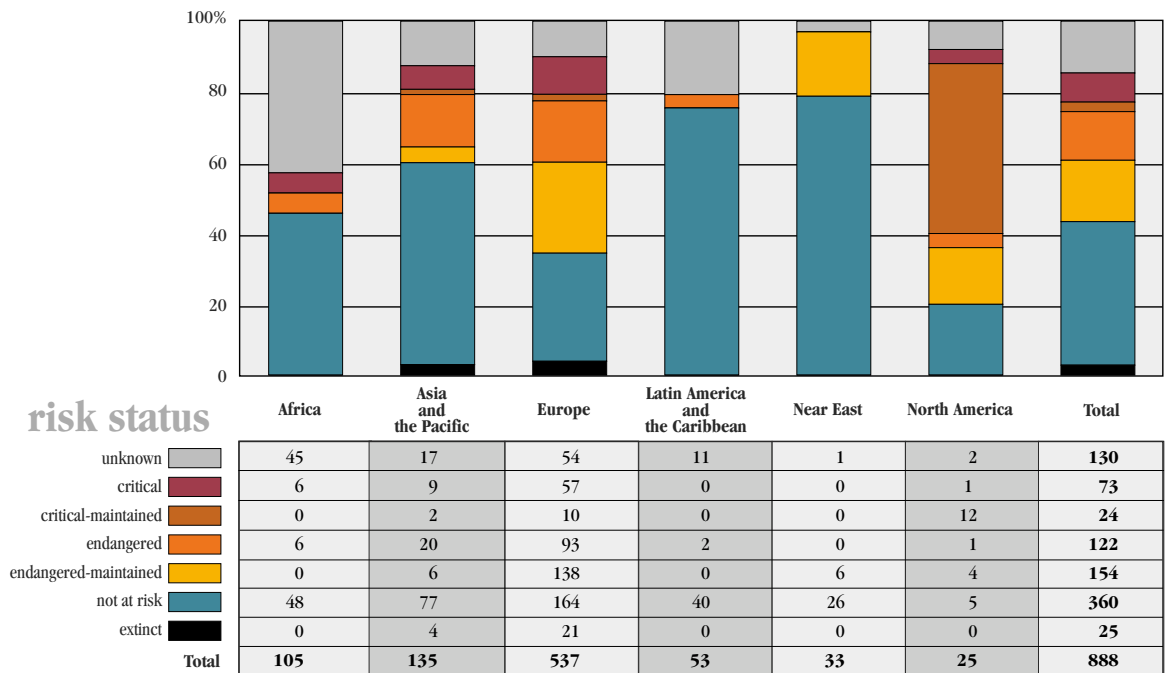


FIGURE 2.2.1.6B RISK STATUS OF THE WORLD'S AVIAN BREEDS UP TO MAY 1995: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES - BY REGION

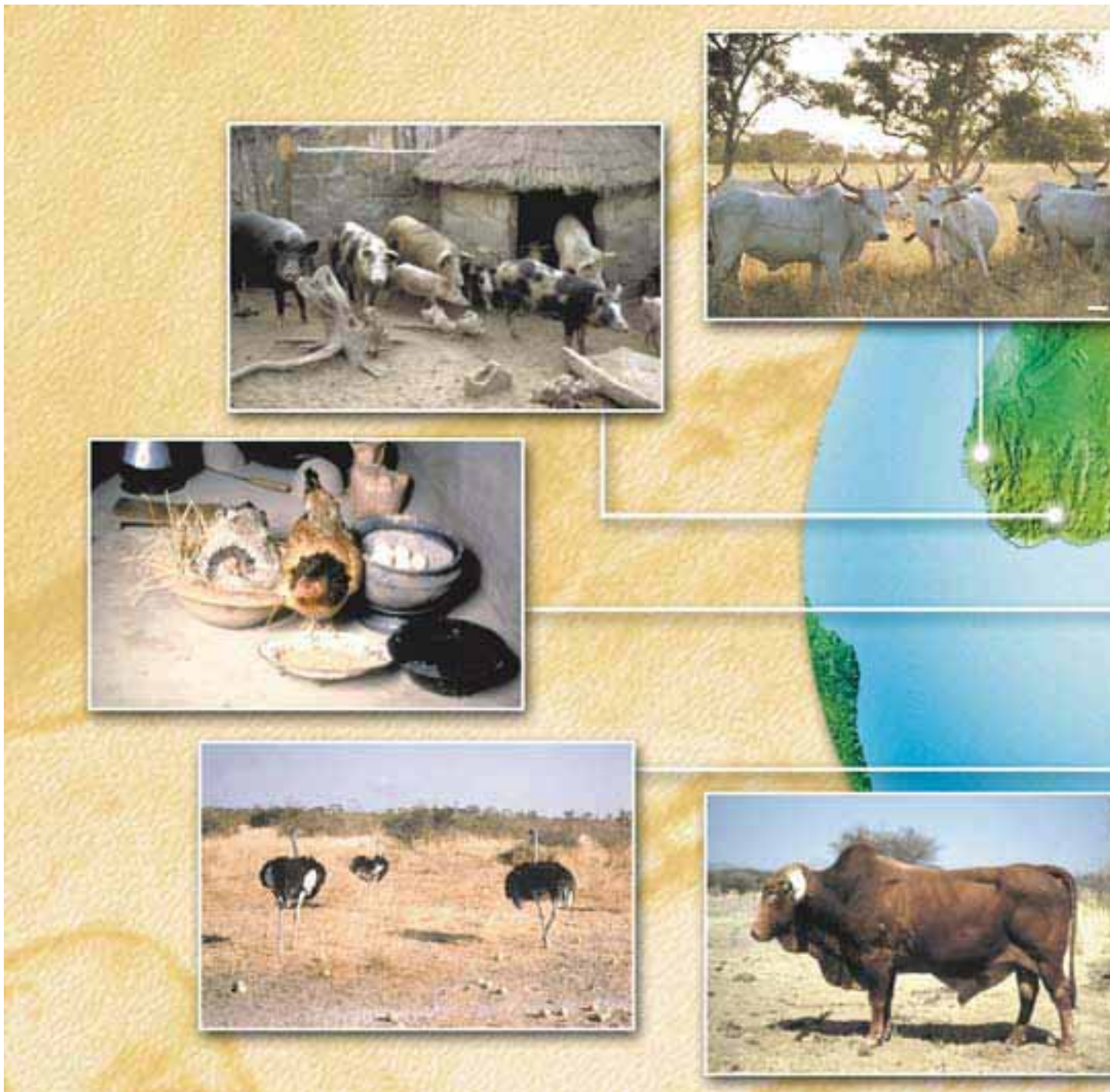


Africa lies between latitudes 37° 21' north and 34° 51' south and between longitudes 17° 32' west and 51° 25' east. The countries in northern Africa (Algeria, Djibouti, Egypt, the Libyan Arab Jamahiriya, Morocco, Somalia, the Sudan and Tunisia) share similar agro-ecology and climate with those of the Near East and consequently will be considered under that region. Table 2.2.2.1 lists the countries, dependent territories overseas departments, entities and areas covered in this section. Most are situated between the tropics of Cancer and Capricorn and have a tropical climate.

Despite the continent's large size (second only to Asia), it is home to only about 10 percent of the world's human population. Large expanses of this region are deserts that are essentially uninhabited. The Sahara - the world's largest desert - covers one-quarter of the entire continent. The greatest concentrations of people are found in Nigeria, the Ethiopian Highlands and around the shores of the East African lakes.

In 1998 the total human population size of Sub-Saharan Africa was estimated to be 570 million, of which over 60 percent were dependent on agriculture as a source of income. This is compared to 76 percent in 1975 and 65 percent in 1994. However, projected population increases (estimated growth of 2.5 percent per annum), will intensify the demands made on African agriculture in future. The challenge is further increased by vast areas of Africa being unsuitable for crop production (around 65 percent) especially around the desert regions, where only livestock are suitable for use in the farming systems. Tribes such as the Fulani, Masai and Moors, who specialize in animal husbandry, often utilize these areas.

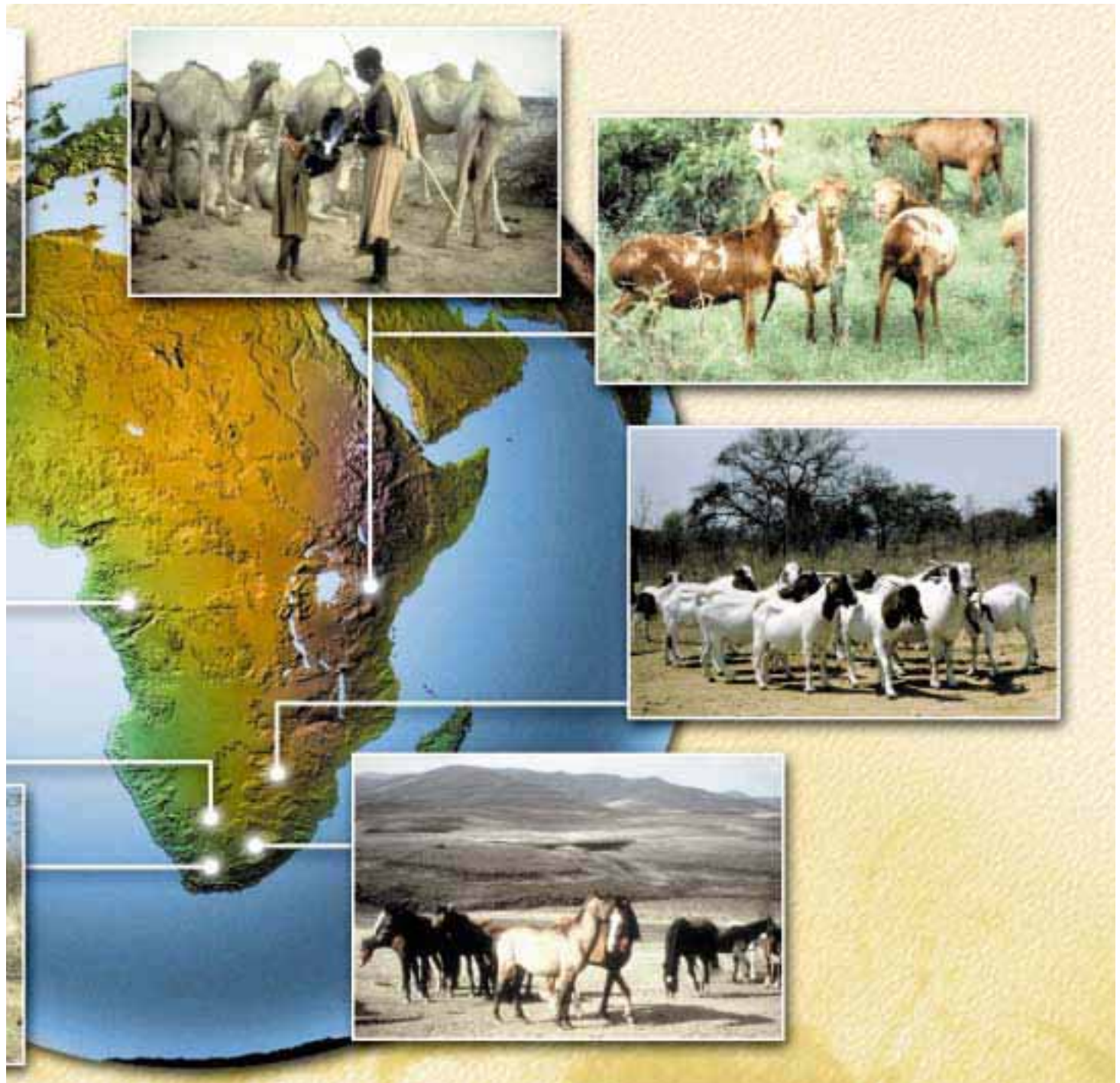
Sub-Saharan Africa in particular is an important source of animal genetic resources with a wealth of domesticated animal diversity. This has been generated in response to the variety of challenges faced by animals, primarily the wide range of agro-ecological zones and the considerable number of endemic diseases. These factors, coupled with frequent famines and political instability, place a range of demands on livestock, which cannot be met by any one breed or small number of breeds.



from top left clockwise:

- Korbogo pigs are found mainly in northern Côte d'Ivoire.
- Senegalese cattle grazing in the Ferlo region.
- A group of Rendille dromedaries after morning milking by members of the Rendille tribe in Kenya.
- Masai sheep are primarily a source of meat in Kenya.

RANGE OF PRODUCTION ENVIRONMENTS IN THE AFRICA REGION



- Herd of indigenous Zimbabwean goats.
- A herd of Basuto Pony in Lesotho, originally descended from the Cape Horse breed.
- An Afrikaner bull; this breed originates from cattle brought into South Africa by nomads during the first century AD and later kept by the Hottentot people.
- Ostriches feeding on wild melons in Botswana.
- Indigenous hens in the Democratic Republic of Congo with nest boxes made of locally available material.

TABLE 2.2.2.1

THE 51 COUNTRIES, DEPENDENT TERRITORIES, OVERSEAS DEPARTMENTS, ENTITIES AND AREAS IN THE AFRICA REGION

ANGOLA	•	ETHIOPIA	•	NIGER
BENIN	•	GABON	•	NIGERIA
BOTSWANA	•	GAMBIA	•	REUNION
BRITISH INDIAN OCEAN TERRITORY	•	GHANA	•	RWANDA
BURKINA FASO	•	GUINEA	•	SAINT HELENA
BURUNDI	•	GUINEA-BISSAU	•	SAO TOME AND PRINCIPE
CAMEROON	•	KENYA	•	SENEGAL
CAPE VERDE	•	KERGUÉLEN ISLANDS	•	SEYCHELLES
CENTRAL AFRICAN REPUBLIC	•	LESOTHO	•	SIERRA LEONE
CHAD	•	LIBERIA	•	SOUTH AFRICA
COMOROS	•	MADAGASCAR	•	SWAZILAND
CONGO	•	MALAWI	•	TANZANIA
CONGO, DEMOCRATIC REPUBLIC OF	•	MALI	•	TOGO
CÔTE D'IVOIRE	•	MAURITIUS	•	UGANDA
CROZET ISLANDS	•	MAYOTTE	•	WESTERN SAHARA
EQUATORIAL GUINEA	•	MOZAMBIQUE	•	ZAMBIA
ERITREA	•	NAMIBIA	•	ZIMBABWE

Animal husbandry has been practised in Africa for over 5 000 years. Despite the domestication of most major species in the Near East or Asia, the continual movement of peoples into Africa through the Isthmus of Suez, the Arabian Peninsula and later from Iberia, have all contributed to the considerable genetic diversity in evidence today. The Arab invasions around the seventh and eighth centuries introduced large numbers of humped cattle to the region. The spread of such cattle across Africa may be quite closely correlated with the spread of Islam.

Within Africa the composition of early livestock was greatly influenced by the constant movement of early herders, such as the migrations of nomadic peoples across the North African littoral. The smaller size of the Sahara at that time facilitated migrations by allowing nomads to circumvent barriers that are present today. This ensured the continual mixing of the gene pool for each species and placed considerable selection pressures on animals to tolerate conditions of poor nutrition, infectious diseases and long migrations.

Similar selection pressures are placed on modern African livestock by nomadic pastoralists such as the Tuareg and Fulani. Correspondingly their animals have evolved both morphologically and physiologically to meet these challenges.

The demands made on animals and consequently the make-up of breeds are closely related to the management systems practised. In Sub-Saharan Africa, traditional production systems may be subdivided into pastoral, mixed

farming and peri-urban, based on the relative contribution to household revenue.

Pastoral systems are important, especially around the desert regions where the levels of nutrition are generally fairly low. These systems are characterized by animals that can withstand severe nutritional and climatic stress and that are tolerant to a number of endemic diseases. Mixed farming based systems require higher levels of productivity and, to achieve this, they usually incorporate better levels of management.

In addition to the obvious value of production traits, many African livestock breeds also have a considerable cultural value and are often used for dowries, as a form of barter or for religious purposes. The larger species in particular also serve as the key cash reserve to help cover crop failure. Small species (small ruminants and poultry) play a very important role in the financing of crop production by providing cash to pay for seeds and food during the critical period of the growing season.

Growth in human population and urbanisation expansion has resulted in an increased demand for animal products. High pressures are being put on species (especially cattle) and on some particular breeds to meet these demands. Production should seek to develop further the contribution of all genetic resources being used by farmers to satisfy, in the long run, the increasing demands for animal products.

To respond to the pressure to satisfy these demands, some countries have set up strategies and policies to use exotic

TABLE 2.2.2.2 TOTAL POPULATION SIZE AND NUMBER OF BREEDS OF THE MAJOR LIVESTOCK SPECIES IN THE AFRICA REGION AND THEIR SHARE OF THE WORLD TOTAL

	POPULATION SIZE ('000)	NUMBER OF BREEDS	SHARE OF WORLD TOTAL POPULATION (%)	BREEDS (%)
Buffalo	0	3	0	3
Cattle	174 556	251	13	21
Goat	137 104	89	19	16
Sheep	127 440	147	12	11
Pig	27 119	22	3	4
Ass	9 639	12	22	12
Horse	4 487	56	7	8
Dromedary	3 368	13	18	21
Chicken	730 467	55	5	8
Duck ¹	6 721	11	1	11
Turkey	2 538	6	1	18
Goose (domestic)	3 041	5	1	8

¹ Domestic Duck and Muscovy Duck

n/a — not available

Source: FAOSTAT (estimates of 1999 live animal populations) and DAD-IS

breeds raised as straightbreds or utilised in crossing with indigenous breeds. However, these new genotypes can only develop in very limited environments and require high investments and inputs that the large majority of farmers do not have. There is a risk of leaving out the farmers who raise indigenous breeds, but also of losing or weakening the genetic attributes of local breeds that are better suited to the prevailing environment and perhaps better able to respond to the evolution of the demand.

In general, climate, and rainfall in particular, affects animals more than most other environmental factors. Breeds respond quite differently to severe conditions of humidity and temperature. Africa can be subdivided into five major agro-ecological zones based on annual rainfall (with the exception of the highland areas); arid (< 600 mm), semi-arid (> 600 and < 1 000), sub-humid (> 1 000 and < 1 500), humid (> 1 500) and highland. Each supports a different type of vegetation and makes different demands on livestock. Many long-established breeds, including the zebu cattle, West African Dwarf sheep and goats and dromedaries, have evolved the necessary physiology to cope with hot climates. For example, sheep in the tropics are usually hairy whereas those in colder regions such as the highlands of Ethiopia are woolled.

Major changes in climate or vegetation can cause quite dramatic changes in the composition of livestock. The encroachment of the Sahara into West Africa has resulted in

the recent decline of a large number of indigenous breeds (the indigenous shorthorn taurine cattle breeds) and has brought others close to extinction. Within the major climatic zones some highly specific micro-environments exist which make unique sets of demands on animals, an example being the Lake Chad basin. Here the Kuri cattle have evolved morphologically (they are quite tall) and physiologically (they are resistant to endemic diseases) to cope with an island existence.

In addition to the challenges created by the tropical climate, many of the warmer regions harbour a range of infectious diseases that present a serious threat to livestock. Over one-third of Africa is infested by tsetse fly and consequently trypanosomiasis, for which it serves as a vector, is endemic. Animals indigenous to these regions are generally trypanotolerant, which has ensured their survival. For example, the N'Dama cattle of West Africa, although small in size and stature, possess an innate tolerance to the disease.

In the past there have been large epidemics of other diseases, such as Rinderpest, which toward the end of the nineteenth century, wiped out nearly 90 percent of all African cattle. Rift Valley Fever, which affects small ruminants such as sheep and goats, and to a lesser extent cattle, and tick-borne diseases such as theileriosis, anaplasmosis, babesiosis and cowdriosis are all endemic in Sub-Saharan Africa. Breeds respond quite differently to such challenges. For example, the Ankole cattle breed is thought to be quite

FIGURE 2.2.2.1A

RISK STATUS OF MAMMALIAN BREEDS RECORDED IN THE AFRICA REGION UP TO DECEMBER 1999: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

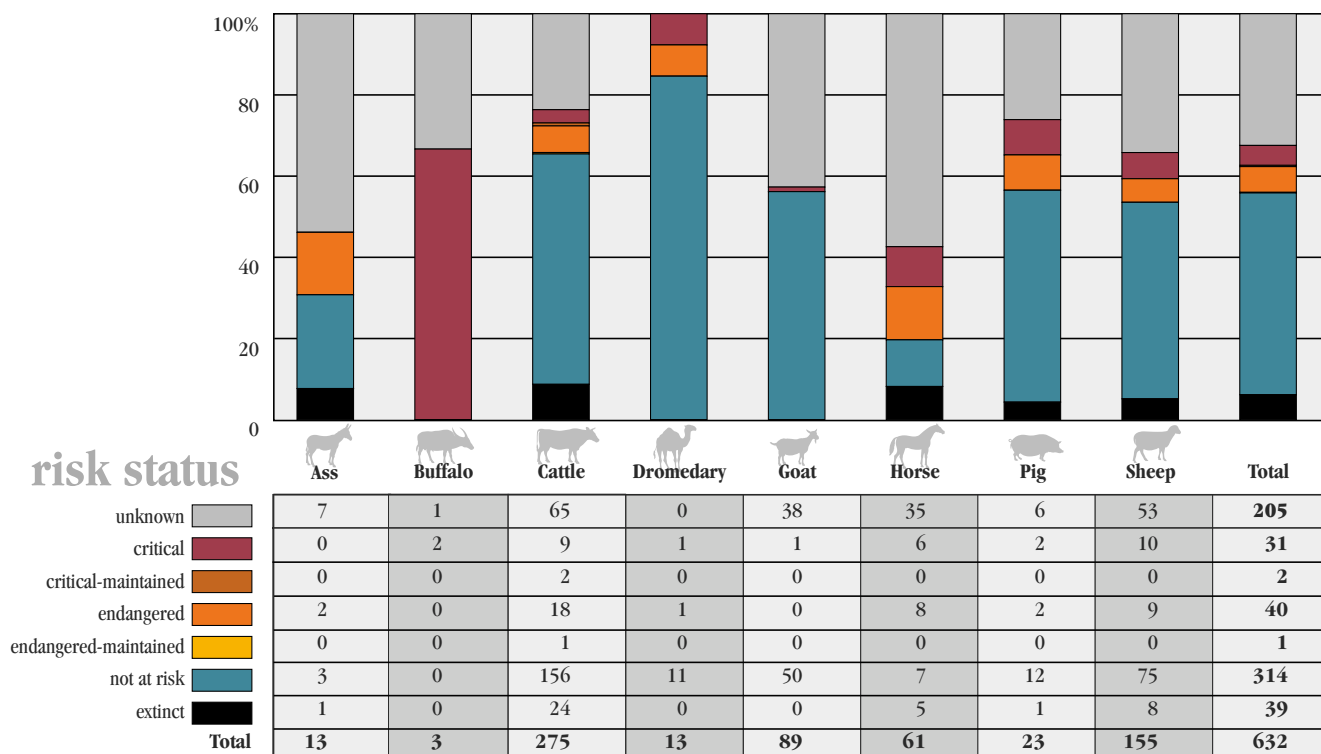


FIGURE 2.2.2.1B

RISK STATUS OF MAMMALIAN BREEDS RECORDED IN THE AFRICA REGION UP TO MAY 1995: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

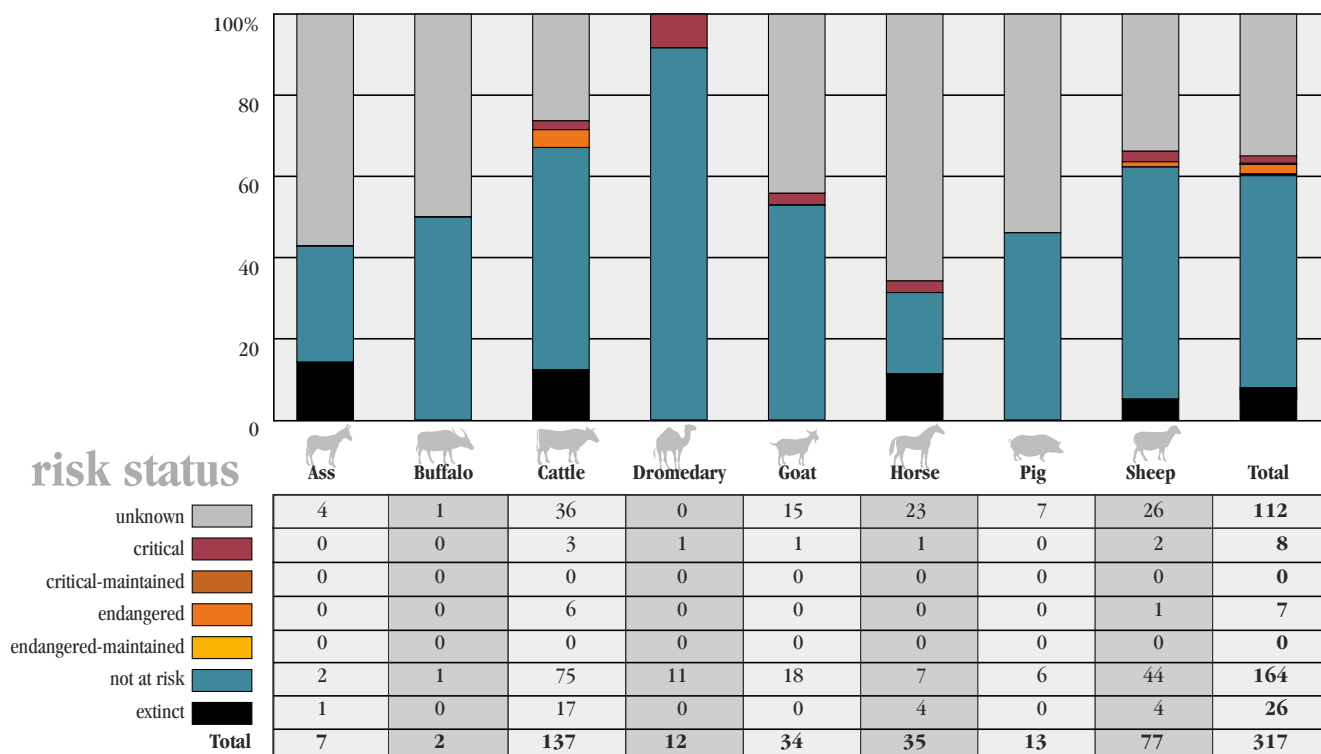


FIGURE 2.2.2.A

RISK STATUS OF AVIAN BREEDS RECORDED IN THE AFRICA REGION UP TO DECEMBER 1999: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

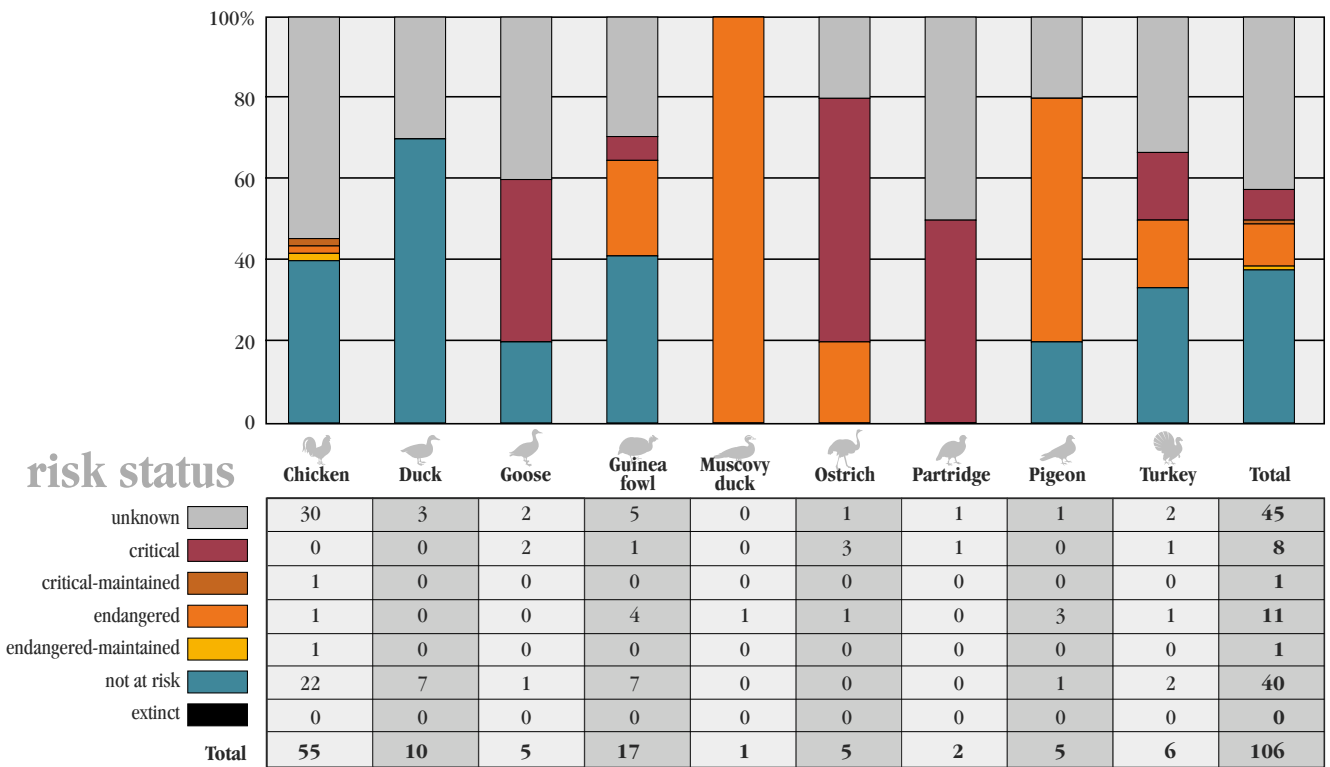


FIGURE 2.2.2.B

RISK STATUS OF AVIAN BREEDS RECORDED IN THE AFRICA REGION UP TO MAY 1995: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

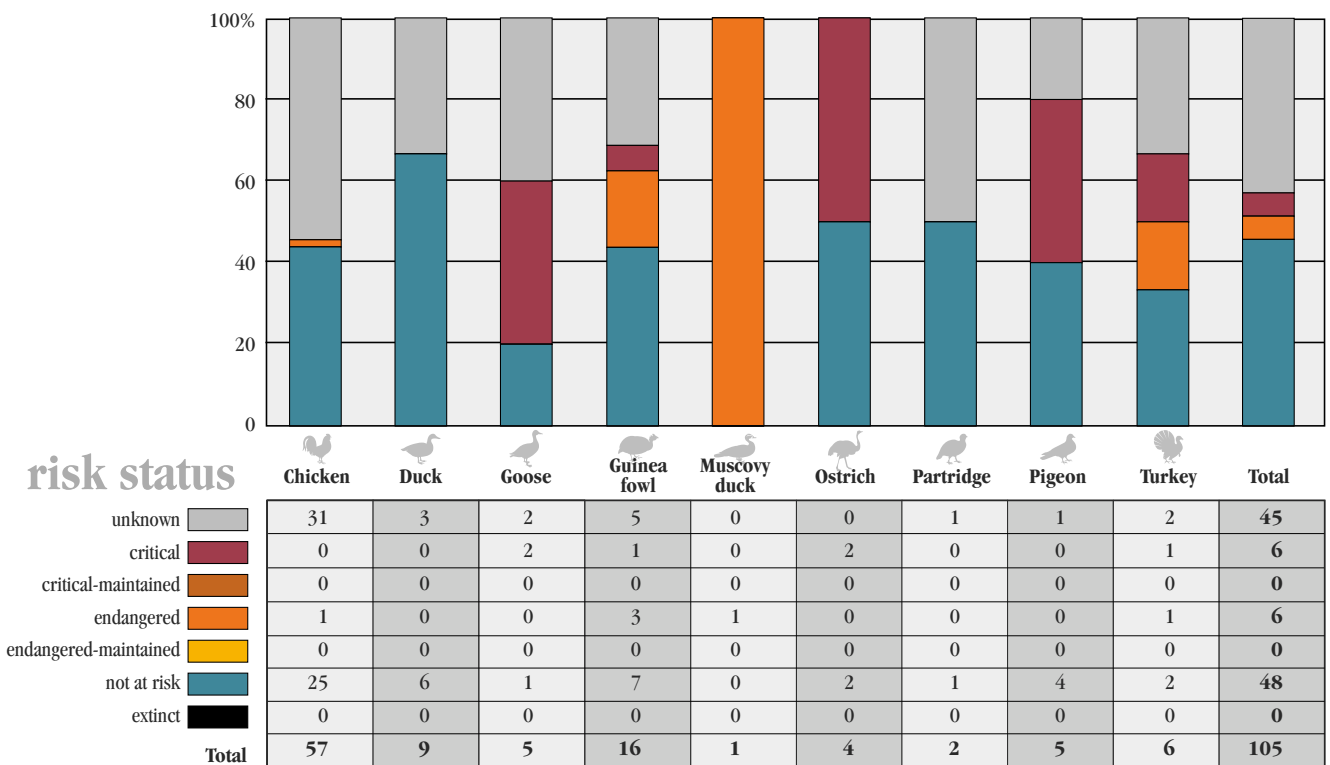
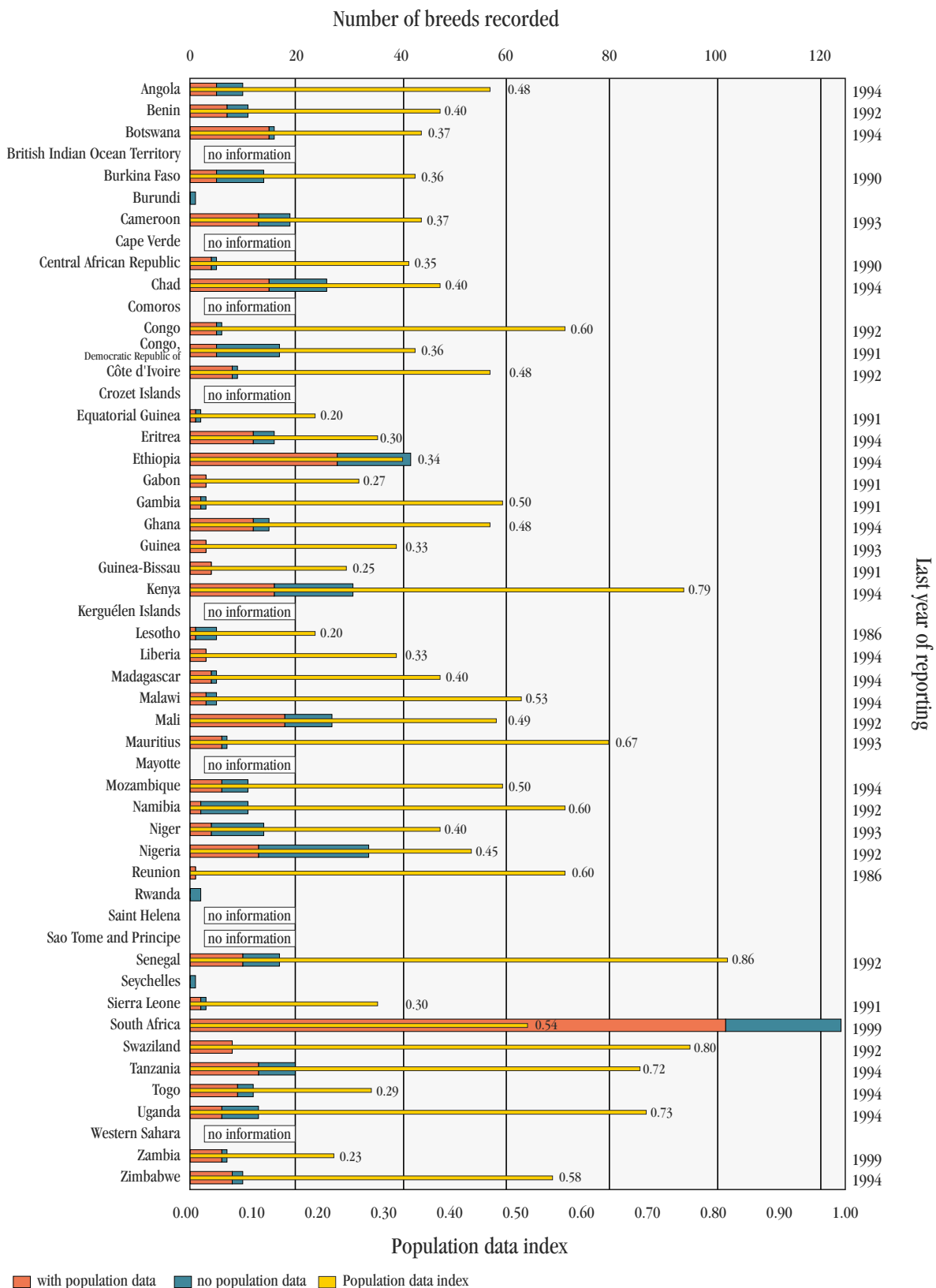


FIGURE 2.2.2.3

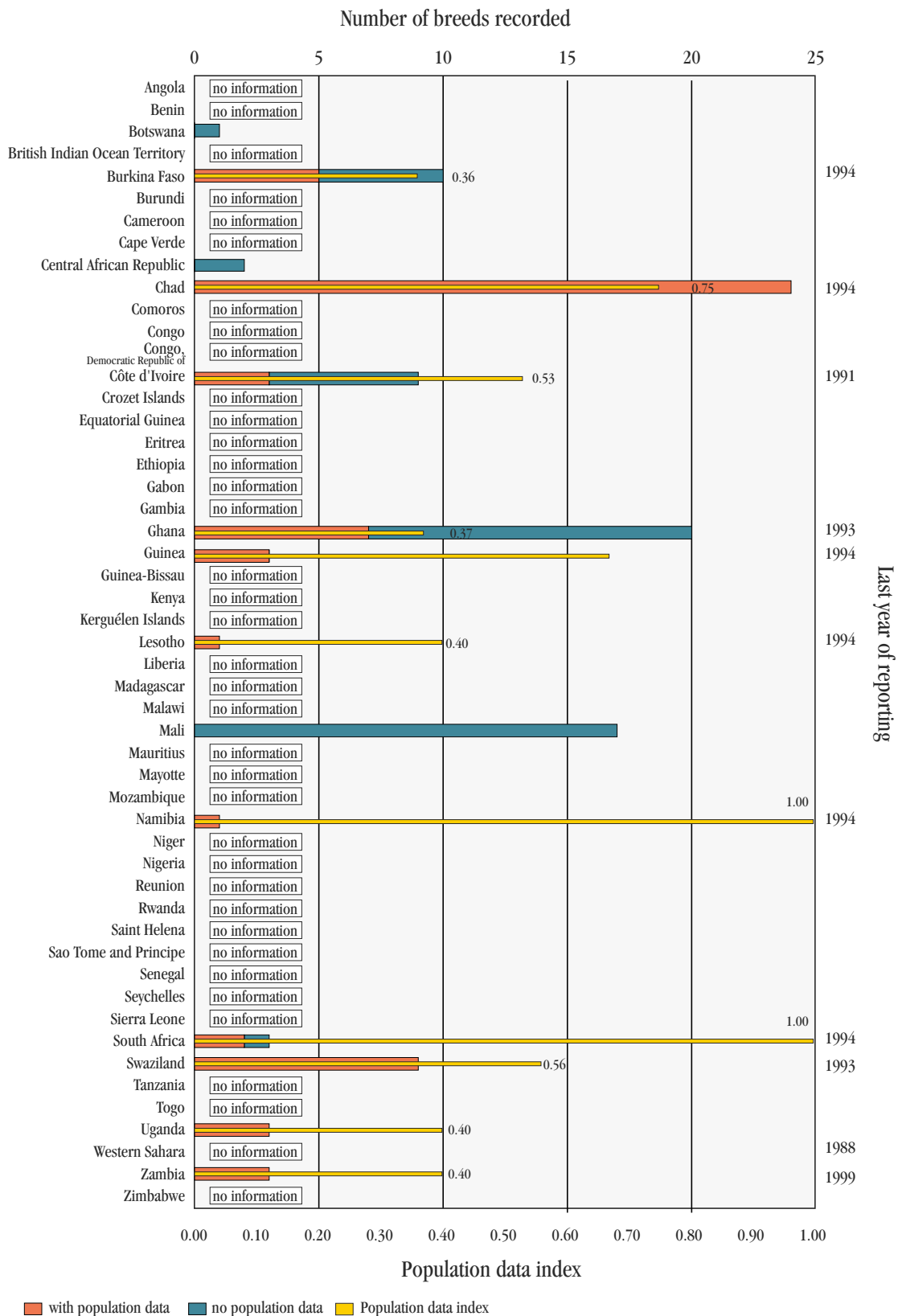
POPULATION DATA STATUS AND INDEX FOR MAMMALIAN BREEDS RECORDED BY COUNTRIES, DEPENDENT TERRITORIES, OVERSEAS DEPARTMENTS, ENTITIES AND AREAS OF THE AFRICA REGION UP TO DECEMBER 1999



With population data Those breeds with information recorded in one or more of the 16 population data fields.
No population data Those breeds with no information recorded in any of the 16 population data fields.
Population Data Index (PDI) For each country the PDI was calculated only for those breeds recorded with population data. The PDI is the fraction of selected population data fields (population size, number of breeding females, number of breeding males and the percentage of females bred to males of the same breed) that contain information, averaged across breeds.

FIGURE 2.2.2.4

POPULATION DATA STATUS AND INDEX FOR AVIAN BREEDS RECORDED BY COUNTRIES, DEPENDENT TERRITORIES, OVERSEAS DEPARTMENTS, ENTITIES AND AREAS OF THE AFRICA REGION UP TO DECEMBER 1999



With population data Those breeds with information recorded in one or more of the 16 population data fields.

No population data Those breeds with no information recorded in any of the 16 population data fields.

Population Data Index (PDI) For each country the PDI was calculated only for those breeds recorded with population data. The PDI is the fraction of selected population data fields (population size, number of breeding females, number of breeding males and the percentage of females bred to males of the same breed) that contain information, averaged across breeds.

resistant to East Coast Fever as a result of centuries of breeding in areas where the tick *Rhipicephalus appendiculatus*, its host, is endemic. The use of such breeds may make an important contribution to sustainable disease control and livestock production.

Similarly, epidemic diseases may seriously impact other species in the Africa region and spread to developed world countries. For example, Newcastle disease is the number one killer of chickens in Africa. A chicken ecotype, known as the Mwanza, is thought to have some genetic resistance to this pathogen. African Swine Fever, a devastating disease endemic to a number of African countries, is a major constraint to pig production in the region, periodically killing 90 - 100 percent of affected animals. There is no treatment and no vaccine. Investigations have started to examine genetic resistance to the disease, which may offer a partial practical solution.

As well as the 30 major domestic animal species, Sub-Saharan Africa is host to a large variety of other domesticated animals. These micro-livestock, which include rabbits, grasscutters and mouse deer, constitute valuable genetic resources. Many of the micro-livestock species are described in Part 3.

Some six percent of the world's population of recorded domestic animals and 12 percent of the breeds have been recorded in the Africa region. Table 2.2.2.2 gives the total population sizes and the number of breeds of each of the major domestic animal species recorded in the Africa region and the share of the world's population sizes and number of breeds. For example, one fifth of the world's recorded cattle and camel breeds are found in this region.

In 1995, 317 mammalian and 105 avian breeds were recorded in the Africa region in the Global Databank for Farm Animal Genetic Resources. Since then, 315 mammalian and 1 avian breeds have been added, increasing the amount of data recorded for the Africa region by 99 percent and 1 percent, respectively, to give a total of 738 breeds. Figures 2.2.2.1 to 2.2.2.2 illustrate the structure of the data recorded in the Global Databank for Farm Animal Genetic Resources, showing the risk status of the mammalian and avian breeds recorded for each species in the Africa region up to 1995 and up to 1999.

Surprisingly, only fourteen percent (95 of 699) of extant breeds on file (figures 2.2.2.1a and 2.2.2.2a) are categorized as at risk (for definition see section 1.6). This is believed to be a gross underestimate of the actual situation, primarily due to lack of information. For example, of the 699 mammalian and avian breeds recorded in this region, population data is available for only 449 or 64 percent. As outlined in section 2.2.1, those most at risk of extinction are usually the most difficult to obtain accurate census information on.

Very few (only four percent of mammalian; nine percent of avian) breeds at risk in the African region are recorded as being maintained (for definition see section 1.6).

It is difficult to make solid statements about the changes in the proportion of breeds recorded in each risk status category between 1995 and 1999, because with the large amount of additional data recorded and the manner of the recording method, the 1995 data is not a random subset of the 1999 data and direct comparisons between data sets would be biased by considering proportional changes.

Despite such biases, when the complete data sets are indirectly compared, some trends are clear. As percentages of the total number of existing breeds that have population data (and therefore risk status known), the number of mammalian breeds recorded in the Africa region at risk of extinction has increased from eight percent (of 179) to 19 percent (of 388) since 1995. The situation with avian breeds is even more serious with the total percentage of breeds at risk of being lost increasing from 20 percent (of 60) in 1995 to 34 percent (of 61) in 1999. These figures are alarming and efforts must be made to encourage maintenance of these domestic animal genetic resources at risk.

Figures 2.2.2.3 and 2.2.2.4 provide general overviews of the quantity and quality of the population data provided by each country for their animal genetic resources. A list of all contributors of information to the Global Databank for Farm Animal Genetic Resources is given in Annex 2.2 and 2.3. The last year of reporting refers to the date of the most recent entry of population data in the Global Databank for Farm Animal Genetic Resources. Potentially, this means that even if the data for only one breed is updated then that year will be indicated. The total number of breeds recorded by each country is shown. **No information** is displayed for those countries for which no breeds are recorded in the Global Databank for Farm Animal Genetic Resources. For each other country, breeds are split into those with **population data** and those with **no population data** (risk status unknown). When one or more fields in the Global Databank for Farm Animal Genetic Resources are completed then that breed is identified with population data. For an overview of the population data fields see tables 1.7.1 and 1.7.2.

For those breeds recorded with population data, a population data index (PDI) is calculated, which provides an indication of the completeness of the data provided by the country. Selected basic population data fields, regarded to be the most important and used in the calculation of risk status, are considered - population size (absolute or range), number of breeding females, number of breeding males and the percentage of females bred to males of the same breed. The PDI is calculated for each breed as the fraction of the selected fields that contain information. This is then averaged across all breeds for which the index is calculated.

For example (see figure 2.2.2.3), by 1999 South Africa had recorded 124 mammalian breeds in the Global Databank for Farm Animal Genetic Resources. Of those, 102 had information contained in one or more of the 16 population data fields, and were therefore identified as those breeds with population data. The PDI for South Africa was calculated as 0.54, indicating that of the 102 breeds recorded to

date with population data, on average 54 percent of the most important population fields were completed. By comparison, by 1992 Senegal had recorded 17 mammalian breeds, 10 of which were recorded with population data. For these breeds, on average 86 percent of the important population data fields were completed.

Overall, figures 2.2.2.3 and 2.2.2.4 highlight some serious deficiencies in population data and stress the fundamental challenge for countries to overcome these for better decision-making both nationally and internationally. For mammalian breeds (figure 2.2.2.3), of the 51 countries, dependent territories, overseas departments, entities and areas in the Africa region, 11 recorded no breed information at all for their genetic resources. For the 78 percent of the countries that did record mammalian genetic resources, the average PDI was 0.43. Of these countries, 36 percent (14 of 39) recorded more than 50 percent of the basic population data used for the calculation of risk status. Much less data again has been recorded for avian breeds (figure 2.2.2.4), with only 14 (27 percent) of the 51 countries, dependent territories, overseas departments, entities and areas having recorded their avian genetic resources and the average PDI for these countries being 0.46. In summary, for both mammalian and avian breeds recorded to date and for those countries that have recorded breed data, more than half of the data required for the FAO designation of risk status, have not yet been recorded. For the remaining countries, for which no breed information is recorded, the state of their animal genetic resources is unknown.

Of note is the relatively little data recorded for avian species. Although the recording of avian breeds was initiated after the recording of mammalian breeds, little more data has recently been added by countries for avian breeds. Avian breeds should not be neglected as they make important contributions to food, especially in the developing world, and represent an important component of global animal genetic resources.

For a complete list of breeds and their risk status, recorded by each country, see section 2.4.2.

Under the Convention on Biological Diversity (CBD), which became international law in December 1993, countries that have ratified this convention are not only recognized as having sovereignty over all genetic resources within their boundaries, but are also obliged to report data on these genetic resources, including their animal genetic resources. Each country is responsible for validating and maintaining current data describing the status and characteristics of these resources and for reporting on this internationally. FAO is the UN agency responsible for assisting countries to develop and maintain this reporting responsibility. Under Decision III/11 of the Conference of the Parties (COP) of the CBD, FAO also has the mandate to develop, as a priority activity, the Global Strategy for the Management of Farm Animal Genetic Resources for country use. In order to do this, countries should comply, and provide complete, high-quality breed data which should be regularly updated. Country inventories within the Global

Databank for Farm Animal Genetic Resources assist the management of animal genetic resources. Management includes the identification of those breeds at risk of extinction using a consistent approach. This information is crucial in order to develop the Global Early Warning System for Animal Genetic Resources and for the conservation of these resources. Breed data must be available in order to further develop methodologies, to consistently define risk status across countries, regions and the world and to share the benefits of animal genetic resources.

DESCRIPTION LIST

The following pages provide brief summary descriptions for all mammalian and avian breeds recorded as critical (C), endangered (D), critical-maintained (CM) and endangered-maintained (DM) in the Africa region. Within these description lists breeds are sorted by country, by species group (see table 1.1.1), by risk status (critical followed by critical-maintained, endangered and endangered-maintained) and finally alphabetically by the most common name, as identified by the country. Whenever more than one breed name is provided, that used by the major ethnic group (in terms of numbers) is used to denote the most common name for the breed. Colour varieties, especially of avian species, are listed as one breed. For each breed a list of names or synonyms, the total population size (absolute or range), the number of breeding males and females, the population size trend and the range of uses are highlighted when available. This is followed by a brief description of the breed indicating its origins, current location, phenotype (particularly any unusual visible traits), adaptability to local stressors such as environmental pressures, population information (such as the proportion of females being bred to males of the same breed) and any *in situ* and *ex situ* conservation efforts that are operational.

All data submitted to FAO before 31/11/99 has been validated and considered. In some cases information for the breed is not available or was not provided and validated prior to preparation of WWL-DAD:3. Consequently, some sections will read **No further information available** (see Annex 2.1 for details on how to assist overcoming such information deficiencies).

Breeds recorded as extinct in this region are listed in section 2.3.1. For a complete list of all breeds and their risk status recorded by each country in each region, see section 2.4.2.

It should be noted that risk status is assigned for a breed whenever the population size of a country population has been reported according to the criteria given in section 1.6. This may not be a true reflection of the status of the breed regionally or globally, for the breed may also be represented in one or more other countries.

The following list describes the 95 documented breeds at risk in the Africa region.

DAMARA*CRITICAL***Local names or syn.:** Herero**Population data:** < 100 • 1994**Population trend:** -**Range of uses:** -**ANGOLA**

The Damara is found in southern Angola and is a sanga type. The animals are usually red pied or yellow pied in colour and have long horns. There are still some animals in Angola, but because of the war in the region it is impossible to get more precise population information. It is not clear whether both Damara and Herero represent the same or separate breeds.

N'DAMA*ENDANGERED***Local names or syn.:** Boenca, Boyenca, Fouta Jallon, Fouta Longhorn (eng.), Outa Malinke, Futa, Malinke, Mandingo, N'dama Peti**Population data:** 500 • 1985**Population trend:** -**Range of uses:** -**BENIN**

The N'Dama is a West African small humpless longhorn. The animals are usually fawn, red or brown, occasionally black and may also be pied in colour with lyre or crescent shaped horns. They are small animals, adult males weighing on average 370 kg and females 250 kg with an average wither height of 116 cm and 104 cm respectively. The N'Dama can survive under very humid conditions, are reported to be trypanotolerant and are well known for their hardiness and rusticity.

BOTSWANA CAMEL*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 1994**Population trend:** -**Range of uses:** transport**BOTSWANA**

The Botswana Camel population is not used in agricultural production but the animals are used for transport by the police in some sandy desert parts of the country.

N'DAMA*ENDANGERED***Local names or syn.:** Boenca, Boyenca, Fouta Jallon, Fouta Longhorn (eng.), Outa Malinke, Futa, Malinke, Mandingo, N'dama Peti**Population data:** < 1 000 • 1977**Population trend:** -**Range of uses:** -**BURKINA FASO**

The N'Dama is a West African small humpless longhorn. The animals are usually fawn, red or brown, occasionally black and may also be pied in colour with lyre or crescent shaped horns. They are small animals, adult males weighing on average 370 kg and females 250 kg with an average wither height of 116 cm and 104 cm respectively. The N'Dama can survive under very humid conditions, are reported to be trypanotolerant and are well known for their hardiness and rusticity.

SOUCHE KONDÉ*ENDANGERED***Local names or syn.:** Kondé**Population data:** 100 - 1 000 • 1994**Population trend:** decreasing**Range of uses:** meat**BURKINA FASO**

The Souche Kondé is found in southern Burkina Faso. Although the origin of this strain is not known it has been mentioned in the history of the country. Their plumage can be variously coloured, they have white skin and the shanks and feet are usually black. The comb is of single type and egg shells are white in colour. They have an exceptionally big body size with adult males weighing on average 2.5 kg and females 1.5 kg. This breed is known for high production.

NINNINGO*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 1994**Population trend:** decreasing**Range of uses:** eggs, skins and hides, hunting, hobby**BURKINA FASO**

The Ninningo is an indigenous breed. They have white skin and grey shanks and feet. The size of the population is very uncertain.

BAKOSI*ENDANGERED***Local names or syn.:** Kosi, Muturu**Population data:** 1 000 - 1 300 • 1984**Population trend:** decreasing**Range of uses:** -**CAMEROON**

The Bakosi is found on the north-eastern boundary of the Bakosi tribe on the western slopes of Mount Manengouba in the Bangemu Subdivision of Southwest Province. It is a variety of West African Savannah Shorthorn. The animals are black, brown or pied in colour. On average females have a wither height of 110 cm. There are no official estimates on the size of the population but most sources suggest that there are several hundred animals. The breed is disappearing due to increasing cultivation of commercial crops such as coffee. These cattle seem to be becoming smaller and less fertile due to isolation and inbreeding.

BAKWERI*ENDANGERED***Local names or syn.:** Muturu**Population data:** 800 - 1 300 • 1979**Population trend:** -**Range of uses:** -**CAMEROON**

The Bakweri is found at the foot of Mt. Cameroons, south-western Cameroon. It is a variety of West African Dwarf Shorthorn. On average females have a wither height of 98 cm.

N'DAMA*ENDANGERED*

Local names or syn.: Boenca, Boyenca, Fouta Jallon, Fouta Longhorn, Outa Malinke, Futa, Malinke, Mandingo, N'dama Peti

Population data: 600 • 1985

Population trend: -

Range of uses: -

CENTRAL AFRICAN REPUBLIC

The N'Dama is a West African small humpless longhorn. The animals are usually fawn, red or brown, occasionally black and may also be pied in colour with lyre or crescent shaped horns. They are small animals, adult males weighing on average 370 kg and females 250 kg with an average wither height of 116 cm and 104 cm respectively. The N'Dama can survive under very humid conditions, are reported to be trypanotolerant and are well known for their hardiness and rusticity.

LOCAL GOOSE OF KARAL AND MASSAKORY*CRITICAL*

Local names or syn.: -

Population data: < 100 • 27 ♀ • 4 ♂ • 1994

Population trend: -

Range of uses: meat, eggs

CHAD

The Local Goose of Karal and Massakory is found in Karal, Massakory (Chari Baguirmi). It was imported from Italy. They have self-white (67%) or silver-columbian (33%) coloured plumage with barred autosomal (60%), spangled (30%) or barred sex-linked (10%) patterns within the feathers. They may have white (53%) or yellow (47%) skin and the shanks and feet may be white (55%), yellow (40%) or black (5%). Egg shells are white in colour. Adult males weigh on average 4 kg and females 3 kg.

LOCAL GOOSE OF MANDELIA*CRITICAL*

Local names or syn.: -

Population data: < 100 • 21 ♀ • 5 ♂ • 1994

Population trend: increasing

Range of uses: meat, eggs

CHAD

The Local Goose of Mandelia is found in Mandelia (Chari Baguirmi). It was imported from Italy. They have self-white (80%), wild-type and variants (15%) or silver-columbian (5%) coloured plumage with barred autosomal (87%), spangled (10%) or mottled (3%) patterns within the feathers. They may have white (78%) or yellow (22%) skin and the shanks and feet may be white (60%), yellow (30%) or green (10%). Egg shells are white in colour. Adult males weigh on average 4 kg and females 3 kg. The birds lay mainly during the cold period.

AMSSALA*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 900 ♀ • 45 ♂ • 1994

Population trend: increasing

Range of uses: meat, eggs

CHAD

The Amssala is found in Karal, Massakory (Chai Baguirmi). It originated from the indigenous wild population that has been domesticated. They have self-red and variants (50%), self-black (25%), silver-columbian (15%), wild-type and variants (5%) or various colours (5%) coloured plumage with mottled patterns within the feathers. They may have white (70%) or yellow (30%) skin and the shanks and feet may be white (65%), yellow (25%) or black (10%). Egg shells are brown in colour. Adult males weigh on average 1.5 kg and females 1 kg. The animals are very susceptible to trichomoniasis.

LOCAL GUINEAFOWL OF GREDAYA AND MASSAKORY



ENDANGERED

Local names or syn.: -

Population data: 1 000 - 10 000 • 1 000 ♀ • 150 ♂ • 1994

Population trend: increasing

Range of uses: meat, eggs

CHAD

The Local Guinea fowl of Gredaya and Massakory is found in Gredaya, Massakory (Chari Baguirmi). It originated from the indigenous wild population that has been domesticated. They have self-white (80%), wild-type and variants (15%) or silver-columbian (5%) coloured plumage with barred autosomal (87%), spangled (10%) or mottled (3%) patterns within the feathers. They may have white (78%) or yellow (22%) skin and the shanks and feet may be white (60%), yellow (30%) or green (10%). Egg shells are white in colour. Adult males weigh on average 4 kg and females 3 kg. The females are known for poor broodiness and the animals are very susceptible to trichomoniasis (*Trichomonas gallinarum*).

LOCAL GUINEAFOWL OF MOULKOU AND BONGOR



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 400 ♀ • 50 ♂ • 1994

Population trend: increasing

Range of uses: meat, eggs

CHAD

The Local Guinea fowl of Moulkou and Bongor is found in Moulkou, Bongor (Mayo Kebbi). It originated from the indigenous wild population that has been domesticated. They have wild-type and variants (70%), various colours (10%), self-white (10%) or silver-columbian (10%) coloured plumage with mottled (90%), spangled (5%) or barred sex-linked (5%) patterns within the feathers. They may have yellow (70%), white (20%) or blue-black (10%) skin and the shanks and feet may be black (80%), white (10%) or blue (10%). Egg shells are brown in colour. Adult males weigh on average 1 kg and females 0.8 kg. The animals are very susceptible to trichomoniasis (*Trichomonas gallinarum*).

LOCAL GUINEAFOWL OF PORT BELILÉ AND N'DJAMENA



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 981 ♀ • 78 ♂ • 1994

Population trend: increasing

Range of uses: meat, eggs

CHAD

The Local Guinea fowl of Port Belilé and N'djamena is found in Port Belilé, N'djamena Rural (Chari Baguirmi). It originated from the indigenous wild population that has been domesticated. They have silver-columbian (40%), self-white (35%), wild-type and variants (15%) or various colours (10%) coloured plumage with mottled (75%), barred autosomal (10%), no special pattern (5%), spangled (5%) or barred sex-linked (5%) patterns within the feathers. They may have white (62%) or yellow (48%) skin and the shanks and feet may be black (41%), yellow (23%), white (20%) or green (16%). Egg shells are brown in colour. Adult males weigh on average 1.5 kg and females 0.9 kg.

LOCAL MUSCOVY DUCK OF KARAL AND MASSAKORY



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 750 ♀ • 80 ♂ • 1994

Population trend: increasing

Range of uses: meat, eggs

CHAD

The Local Muscovy Duck of Karal and Massakory is found in Karal, Massakory (Chari Baguirmi). It is an indigenous breed. They have self-black (45%), self-white (30%), silver-columbian (15%) or wild-type and variants (10%) coloured plumage with mottled (70%), spangled (15%) or barred autosomal (15%) patterns within the feathers. They may have white (75%) or yellow (25%) skin and the shanks and feet may be black (60%), white (35%), yellow (4%) or green (1%). Egg shells are white in colour. Adult males weigh on average 3 kg and females 2 kg. This Muscovy duck is reported to be resistant to Newcastle disease.

CHADEAN OSTRICH*CRITICAL*

Local names or syn.: -

Population data: < 100 • 1994

Population trend: stable

Range of uses: meat

CHAD

The Chadean Ostrich is found in Gredaya, Massakory (Chari Baguirmi). It is an indigenous population that has been domesticated from the wild. Adult males weigh on average 30 kg and females 20 kg.

LOCAL PARTRIDGE OF GREDAYA AND MASSAKORY*CRITICAL*

Local names or syn.: -

Population data: 100 - 1 000 • 100 ♀ • 30 ♂ • 1994

Population trend: -

Range of uses: meat

CHAD

The Local Partridge of Gredaya and Massakory is found in Gredaya, Massakory (Chari Baguirmi). It is an indigenous breed. They have self-black (48%), various colours (35%) or self-white (17%) coloured plumage with mottled (80%), barred autosomal (10%) or spangled (10%) patterns within the feathers. They may have white (70%) or yellow (30%) skin and the shanks and feet may be yellow (75%), white (20%) or black (5%). Egg shells are white in colour. Adult males weigh on average 0.1 kg and females 0.06 kg.

LOCAL PIGEON OF GREDAYA AND MASSAKORY*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 500 ♀ • 100 ♂ • 1994

Population trend: increasing

Range of uses: meat

CHAD

The Local Pigeon of Gredaya and Massakory is an indigenous breed found in Gredaya, Massakory (Chari Baguirmi). They have self-white (60%), silver-columbian (30%) or various colours (10%) coloured plumage with mottled (70%), spangled (15%), barred autosomal (10%) or barred sex-linked (5%) patterns within the feathers. They may have white (80%) or yellow (20%) skin and the shanks and feet may be yellow (60%), white (20%), black (10%), blue (5%) or green (5%). Egg shells are white in colour. Adult males weigh on average 0.2 kg and females 0.15 kg.

LOCAL PIGEON OF KARAL AND MASSAKORY*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 200 ♀ • 35 ♂ • 1994

Population trend: increasing

Range of uses: meat, hobby

CHAD

The Local Pigeon of Karal and Massakory is an indigenous breed found in Karal, Massakory (Chari Baguirmi). They have self-white (40%), silver-columbian (35%), self-red and variants (15%) or various colours (10%) coloured plumage with barred autosomal (57%), mottled (33%) or spangled (10%) patterns within the feathers. They may have white (53%) or yellow (47%) skin and the shanks and feet may be white (46%), yellow (34%), black (15%) or blue (5%). Egg shells are white in colour. Adult males weigh on average 0.25 kg and females 0.15 kg.

**LOCAL PIGEON OF PORT BELILÉ
AND N'DJAMENA***ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 218 ♀ • 32 ♂ • 1994**Population trend:** increasing**Range of uses:** meat, hobby**CHAD**

The Local Pigeon of Port Belilé and N'djamena is an indigenous breed found in Port Belilé, N'djamena Rural (Chari Baguirmi). They have various colours (45%), self-white (32%), silver-columbian (14%) or wild-type and variants (9%) coloured plumage with spangled (45%), mottled (38%), barred autosomal (12%) or barred sex-linked (5%) patterns within the feathers. They may have white (66%) or yellow (34%) skin and the shanks and feet may be white (39%), black (30%), green (19%) or yellow (12%). Egg shells are white in colour. Adult males weigh on average 0.3 kg and females 0.15 kg.

LOCAL TURKEY OF MANDELIA*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 38 ♀ • 6 ♂ • 1994**Population trend:** increasing**Range of uses:** fancy**CHAD**

The Local Turkey of Mandelia is found in Mandelia (Chari Baguirmi). It was imported from Burkina Faso. They have self-red and variants coloured plumage with mottled patterns within the feathers. They may have white (63%) or yellow (37%) skin and the shanks and feet may be white (52%), yellow (40%) or black (8%). Egg shells are white in colour. Adult males weigh on average 12 kg and females 9 kg.

MEDITERRANEAN*CRITICAL***Local names or syn.:** Mediterraneo (it.), Bufalo Italiano (it.),
Bufalo Prete (it.)**Population data:** 285 ♀ • 2 ♂ • 1992**Population trend:** increasing**Range of uses:** draught power, meat, milk**CONGO**

The Mediterranean buffalo is a good draught breed and also a good producer of milk and meat. Adult males weigh on average 500 kg and females 450 kg with an average wither height for males of 180 cm. The poor quality of grazing in the Congo may be a handicap for the satisfactory development of the breed. Of females, 100% are bred to males of the same breed.

LAGUNE*ENDANGERED***Local names or syn.:** Lagunaire, Mayombe, Mayumbe, Race des
lagunes (fr.)**Population data:** < 1 000 • 1980**Population trend:** -**Range of uses:** -**CÔTE D'IVOIRE**

The Lagune, a variety of West African Dwarf Shorthorn, is found on the coast of Côte d'Ivoire. Lagune is the name used for Dwarf Shorthorn cattle in French-speaking West and Central Africa. The cattle are black or white in colour and are very small animals with short legs and short, slim horns. Adult males weigh on average 170 kg and females 155 kg with an average wither height of 100 cm and 88 cm respectively. This breed is reported to be trypanotolerant.

SOMALI WILD ASS*ENDANGERED***Local names or syn.:** -**Population data:** < 300 • 1994**Population trend:** -**Range of uses:** -**ERITREA**

The Somali Wild Ass is found in south-eastern Eritrea. It is an *Equus africanus somaliensis* variety of African Wild Ass. The animals are reddish-grey with dark manes and are seldomly found with a dorsal stripe or a shoulder cross-stripe. This ass is difficult to breed under captive conditions, the only two captive herds of pure Somali wild asses being at Basle Zoo in Switzerland and Hai Bar in Israel.

SOMALI WILD ASS*ENDANGERED***Local names or syn.:** -**Population data:** < 300 • 1994**Population trend:** -**Range of uses:** -**ETHIOPIA**

The Somali Wild Ass is an *Equus africanus somaliensis* variety of African Wild Ass. The animals are reddish-grey with dark manes and are seldomly found with a dorsal stripe or a shoulder cross-stripe. This ass is difficult to breed under captive conditions, the only two captive herds of pure Somali wild asses being at Basle Zoo in Switzerland and Hai Bar in Israel.

MUTURU*CRITICAL***Local names or syn.:** Nigerian Dwarf (eng.), Nigerian Shorthorn (eng.), Pagan, Forest Muturu (eng.)**Population data:** 100 - 200 • 1994**Population trend:** -**Range of uses:** -**GHANA**

The Muturu is found in the south-eastern coastal area near Ada and Keta Lagoon in Ghanais. It is a variety of West African Shorthorn. The animals are black or black and white pied in colour. They are the smallest cattle breed known with an average wither height of 95 cm and 88 cm for adult males and females respectively. Muturu cattle are reported to be trypanotolerant.

NUNGUA BLACKHEAD*CRITICAL***Local names or syn.:** -**Population data:** 80 • 48 ♀ • 2 ♂ • 1994**Population trend:** stable**Range of uses:** meat**GHANA**

The Nungua Blackhead is found in Legon and was originally developed on the Agricultural Research Station of the University of Ghana from Blackhead Persian and West African Dwarf. These sheep have coarse/carpet type hair, are white in colour with a black head and neck and have a fat laden tail head. Adult males weigh on average 39 kg and females 32 kg with an average wither height of 60 cm and 58 cm respectively. This breed was developed with the aim to produce a breed larger and faster growing than the West African Dwarf sheep. Some animals were sold to farmers in the surrounding villages. Undoubtedly the breed has not been kept pure in the villages. The population figures given thus refer to current numbers on the station where the breed was developed. It appears that the original population was 300 - 400. Of females, 100% are bred to males of the same breed.

LOCAL GHANEAN WHITE BREASTED GUINEAFOWL



CRITICAL

Local names or syn.: -

Population data: < 100 • 1993

Population trend: -

Range of uses: -

GHANA

The Local Ghanean White Breasted Guineafowl is found country-wide. It is an indigenous breed and may now be extinct.

GHANEAN OSTRICH



CRITICAL

Local names or syn.: -

Population data: 7 • 1993

Population trend: -

Range of uses: -

GHANA

The Ghanean Ostrich is found country-wide. It was imported from Burkina Faso or Mali. These ostriches make up the only population outside the Accra Zoo.

MANJACA



ENDANGERED

Local names or syn.: -

Population data: < 1 000 • 1977

Population trend: decreasing

Range of uses: -

GUINEA-BISSAU

The Manjaca is found on the coast of Guinea-Bissau. It is a variety of West African Dwarf Shorthorn. A few animals can be found in a small number of herds in Cacheu Region and on the islands, but are being absorbed.

BARIA



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1983

Population trend: -

Range of uses: meat, milk

MADAGASCAR

The Baria is found in Kelifely Causes, north-western Madagascar and is a wild population. It is a possibly a composite of zebu and humpless. The animals are black in colour with round shaped horns, females have a small hump and males have a small hump that is directed backward. The Baria is even less well characterised than the Madagascar Zebu.

RENITELO*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1989**Population trend:** -**Range of uses:** meat, draught power**MADAGASCAR**

The Renitelo is found in the Kianjasoa Region. It is a composite of Limousin (25%), Africander (48%) and Madagascar Zebu (27%) and was established in 1930. The animals are red in colour often with a paler underside and mucosae. Adult males weigh on average 750 kg and females 425 kg. The breed is fairly hardy but sensitive to Streptococcus. These are strong animals, good for working. In 1989 there were a few hundred Renitello cattle kept at the Centre de Recherches Zootechniques de Kianjasoa.

ROMANOV*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 40 ♀ • 5 ♂ • 1993**Population trend:** increasing**Range of uses:** -**MAURITIUS**

The Romanov descended from Russian Northern Short-Tailed and was established in the late 17th century. These sheep have coarse/carpet type wool, are grey in colour with a black head and legs and they usually have a white face and striped feet. Males and females may be either polled or horned. Adult males weigh on average 67 kg and females 47 kg with an average wither height of 57 cm and 56 cm respectively. A short pregnancy (145 days) is reported for the females who come into heat all year and are known to be very prolific. Of females, 50% are bred to males of the same breed.

BLACKHEAD PERSIAN*ENDANGERED***Local names or syn.:** -**Population data:** > 1 000 • 150 ♀ • 20 ♂ • 1993**Population trend:** increasing**Range of uses:** -**MAURITIUS**

Blackhead Persian sheep are white in colour with a black head and neck. They have short, medium fibred hair, are polled and are fat-rumped. Blackhead Persians have been introduced for cross-breeding purposes to the West Indies and to Central and South America. Of females, 60% are bred to males of the same breed.

DORPER*ENDANGERED***Local names or syn.:** Dorsian**Population data:** < 1 000 • 300 ♀ • 20 ♂ • 1993**Population trend:** increasing**Range of uses:** -**MAURITIUS**

Dorper sheep are white with a black head and often have black feet. Adult males weigh on average 65 kg and females 40 kg with an average wither height of 63 cm and 57 cm respectively. Males and females may be either polled or horned and they have short, medium fibred hair. Of females, 60% are bred to males of the same breed.

PAFURI*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 1990**Population trend:** stable**Range of uses:** meat, milk**MOZAMBIQUE**

The Pafuri is found in the area of Pafuri, south-western Mozambique. It is a composite of Boer (male) and Landim (female). It is a large breed, very variable in colour with long ears and a beard. Adult males weigh on average 60 kg and females 43 kg. The horns are well developed in males and scimitar shaped in females. Of females, 100% are bred to males of the same breed.

OVAMBO*CRITICAL-MAINTAINED***Local names or syn.:** Rural Chicken**Population data:** 1 000 - 10 000 • 100 ♀ • 30 ♂ • 1994**Population trend:** increasing**Range of uses:** -**NAMIBIA**

The Ovambo is found in Ovamboland. Early settlers introduced poultry which mixed with the local population and was then kept for meat and egg production. A nucleus population was collected throughout Ovamboland in 1975 and established at IAPI, South Africa, for future breeding for disease resistance. Registered production requires the maintenance of at least 120 hens and 40 cocks.

BORAN*CRITICAL***Local names or syn.:** -**Population data:** 61 • 30 ♀ • 1998**Population trend:** -**Range of uses:** meat**SOUTH AFRICA**

The Boran is an East African short-horned zebu-type found in KwaZulu-Natal. It has been recently imported from the main population in Kenya. The animals are mainly white or grey in colour but may also be red or pied. The horns are short, round in cross section, upright and thick at the base. The population figures refer to registered animals only.

GALLOWAY*CRITICAL***Local names or syn.:** -**Population data:** 14 • 14 ♀ • 0 ♂ • 1998**Population trend:** stable**Range of uses:** meat**SOUTH AFRICA**

The Galloway is found in Central KwaZulu-Natal and Eastern Cape Province. The breed originates from the Galloway, south-eastern Scotland. The animals are brownish black in colour and males and females are both polled. Population data is taken from the SA Studbook and Livestock Improvement Association. This breed is not critical globally.

ROMAGNOLA*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 1998**Population trend:** -**Range of uses:** meat**SOUTH AFRICA**

The Romagnola has been recently imported from Romagna, Italy. The animals are of podolian type and were improved with Chianina and Reggiana blood around 1850-80. They also contain Maremmana blood. The animals are grey-white in colour with lyre-shaped horns. Adult males and females have an average wither height of 155 cm and 141 cm respectively. 3 178 doses of semen from one male are stored at a commercial AI station.

**ROTBUNTE SCHLESWIG
HOLSTEINER***CRITICAL***Local names or syn.:** Red Pied Slesvig-Holstein (dan.)**Population data:** 12 • 1998**Population trend:** -**Range of uses:** -**SOUTH AFRICA**

No further information available.

SALERS*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 9 ♀ • 2 ♂ • 1998**Population trend:** -**Range of uses:** general crossbreeding, milk**SOUTH AFRICA**

The Salers is a recently introduced ancient French breed. There are 9 females registered in the herd book.

DUTCH FRIESIAN*CRITICAL-MAINTAINED***Local names or syn.:** -**Population data:** 2 • 1998**Population trend:** -**Range of uses:** milk**SOUTH AFRICA**

The Dutch Friesian is found in Gauteng and is descended from original Friesian cattle brought into the country by colonial settlers. Other small herds are said to be in existence and a small conservation herd is kept at the Diepkloof Museum, Heidelberg.

WATUSI*CRITICAL-MAINTAINED***Local names or syn.:** -**Population data:** 40 • 1998**Population trend:** -**Range of uses:** tourist attraction / touristic potential**SOUTH AFRICA**

The Watusi is found mainly in zoos in the larger cities and at the Natal Lion Park, but there are also additional populations in central Africa countries. The Watusi is of unknown origin and was established in South Africa following limited importation many years ago. The animals are mostly fawn to red-brown or mahogany in colour and are sometimes white. Although it is rare, they can also be fawn to red-brown pied or speckled in colour. Males and females may be either polled or giant-horned, the horns being 70-110 cm in length. 150 doses of semen from one male are stored.

BEEF SHORTHORN*ENDANGERED***Local names or syn.:** Korthoring (afrik.)**Population data:** 100 - 1 000 • 1999**Population trend:** -**Range of uses:** meat, milk**SOUTH AFRICA**

The Beef Shorthorn, imported from north-eastern England, is found in Northern KwaZulu-Natal, Eastern Cape and NW Provinces. It originated from Holderness and Teeswater in the late 18th century. The animals are red, white, roan or red and white in colour and have small horns. Adult females weigh on average 498 kg. 686 doses of semen from 3 males are stored at a commercial AI station.

NGUNI*ENDANGERED***Local names or syn.:** Swazi, Zulu**Population data:** 100 - 1 000 • 1999**Population trend:** -**Range of uses:** milk, socio-cultural, savings / security, meat, fuel**SOUTH AFRICA**

The Nguni, found in KwaZulu-Natal, Free State, Northern Cape, Western Cape, Eastern Cape, North-west and Northern Provinces, is a sanga type land race related to the Swazi, Landim, Pedi, Venda and Shangaan. Animals were introduced into South Africa with nomadic Iron Age people between the 3rd and 7th centuries. The animals are coloursided with 80 different patterns recognised. They have lyre shaped horns. Adult males weigh on average 750 kg and females 476 kg with mean wither heights of 118 cm and 119 cm. The Nguni is well adapted to survive in both subtropical and bushveld conditions and has a high level of tick and heat tolerance. The animals produce quality hides, are known for their calm temperament, are reported to be fertile and females are known for calving ease. A breed society was founded in 1986. 1 549 doses of semen from 4 males are stored at a commercial AI station.

PEDI*ENDANGERED***Local names or syn.:** Bapedi**Population data:** 100 - 1 000 • 1999**Population trend:** -**Range of uses:** milk, socio-cultural, savings / security, meat, fuel**SOUTH AFRICA**

The Pedi is found in Sekhukhuneland (Northern Province) and Mpumalanga Province. It is an ecotype of Nguni, a sanga cattle breed which was introduced into South Africa with nomadic Iron Age people between the 3rd and the 7th century. The population is regarded as a landrace. The animals are white, grey or red in colour. Adult females weigh on average 391 kg. The horns are medium sized and lyre shaped. The breed is well adapted to the arid hot conditions of Sekhukhuneland and has a high level of tick and heat tolerance. The animals produce quality hides are reported to be fertile and females are known for ease of calving. A conservation herd of 400 heads at Stellenbosch Research Station and a small population at the University of the North are in place.

RED POLL*ENDANGERED***Local names or syn.:** Rooi Poenskop (afrik.)**Population data:** 974 • 768 ♀ • 206 ♂ • 1998**Population trend:** stable**Range of uses:** meat, milk**SOUTH AFRICA**

The Red Poll originated in England and is a composite of Norfolk Red and Suffolk Dunis. It is found in Eastern Cape, Free State, Northern and North-west Provinces. The animals are red in colour and males and females are both polled. Adult females weigh on average 485 kg. There are 768 females registered in the herd book. 1 278 doses of semen from 3 males are stored at a commercial AI station.

SANGANER*ENDANGERED***Local names or syn.:** -**Population data:** 204 • 184 ♀ • 20 ♂ • 1998**Population trend:** stable**Range of uses:** meat**SOUTH AFRICA**

The Sanganer is found in Gauteng and is a composite of Sanga and Afrikaner. The animals are multi coloured. Animals of this breed are well adapted to hot, dry environments. There are 184 females registered in the herd book. 536 doses of semen from one male are stored.

TSWANA*ENDANGERED-MAINTAINED***Local names or syn.:** West Sanga**Population data:** 308 • 1998**Population trend:** decreasing**Range of uses:** milk, socio-cultural, savings / security, meat, fuel**SOUTH AFRICA**

The Tswana, regarded as a land race and found in the North-west Province, is a sanga ecotype of the Nguni brought to South Africa by nomadic Iron Age people between the 3rd and 7th centuries. The animals are multi coloured with lyre shaped horns. Animals of this breed are well adapted to hot, dry environments and have a high level of tick and heat tolerance. They produce quality hides, are fertile and the females are known for their ease of calving. In addition to the 1998 recorded population figures there may be further numbers in rural areas. In 1996 at the Klipkuil Research Station the total number of animals was 119, including 59 breeding females and 2 breeding males and at the Radobil Research Station the total number of animals was 189, including 113 breeding females and 5 breeding males.

DROMEDARY*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1999**Population trend:** -**Range of uses:** -**SOUTH AFRICA**

No further information available.

CLYDESDALE



CRITICAL

SOUTH AFRICA

No further information available.

Local names or syn.: -

Population data: < 100 • 1999

Population trend: -

Range of uses: -

CONNEMARA PONY



CRITICAL

SOUTH AFRICA

No further information available.

Local names or syn.: -

Population data: < 100 • 1999

Population trend: -

Range of uses: -

ENGLISH HALBBLUT HORSE



CRITICAL

SOUTH AFRICA

No further information available.

Local names or syn.: -

Population data: < 100 • 1999

Population trend: -

Range of uses: -

HAFFLINGER



CRITICAL

SOUTH AFRICA

No further information available.

Local names or syn.: -

Population data: < 100 • 1999

Population trend: -

Range of uses: -

PERCHERON



CRITICAL

SOUTH AFRICA

No further information available.

Local names or syn.: -

Population data: < 100 • 1999

Population trend: -

Range of uses: -

SHIRE



CRITICAL

SOUTH AFRICA

No further information available.

Local names or syn.: -

Population data: < 100 • 1999

Population trend: -

Range of uses: -

AMERICAN QUARTER HORSE



ENDANGERED

SOUTH AFRICA

No further information available.

Local names or syn.: -

Population data: 100 - 1 000 • 1999

Population trend: -

Range of uses: -

FRIESIAN HORSE



ENDANGERED

SOUTH AFRICA

No further information available.

Local names or syn.: -

Population data: 100 - 1 000 • 1999

Population trend: -

Range of uses: -

HACKNEY*ENDANGERED***SOUTH AFRICA**

No further information available.

Local names or syn.: -

Population data: 100 - 1 000 • 1999

Population trend: -

Range of uses: -

HACKNEY PONY*ENDANGERED***SOUTH AFRICA**

No further information available.

Local names or syn.: -

Population data: 100 - 1 000 • 1999

Population trend: -

Range of uses: -

NAMIB HORSE*ENDANGERED***SOUTH AFRICA**

No further information available.

Local names or syn.: -

Population data: 100 - 1 000 • 1999

Population trend: -

Range of uses: -

NOOITGEDACHT PONY*ENDANGERED***SOUTH AFRICA**

The Nooitgedacht Pony is found in east Transvaal. It was developed in 1952 from the Basuto Pony with some input from Boer and Arab horses. There are 75 active breeders and the average number of registrations per year is 80. Of females, 95% are bred to males of the same breed.

Local names or syn.: Nooitgedachtperd (afrik.), Nooitgedachter (afrik.)

Population data: 2 000 • 800 ♀ • 120 ♂ • 1992

Population trend: increasing

Range of uses: -

SA MINIATURE HORSE*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1999**Population trend:** -**Range of uses:** -**SOUTH AFRICA**

No further information available.

VLAAMPERD*ENDANGERED***Local names or syn.:** Flemish horse (eng.), SA Vlamberd**Population data:** 100 - 1 000 • 1999**Population trend:** -**Range of uses:** draught power, sport**SOUTH AFRICA**

The Vlaamperd was developed from Dutch Friesian Draft Horses with some infusion of local horses (Cape Harness, Hackney, Thoroughbred). The animals are black in colour, of light build, medium weight with an average wither height of 154 cm and 154 cm for adult males and females respectively.

AMERICAN HAMPSHIRE*CRITICAL*

Local names or syn.: Belted (eng.), Mackay, Norfolk Thin Rind (eng.), Ring Middle (eng.), Ring Necked (eng.), Saddleback (eng.), Woburn, Gempshir

Population data: > 80 • 50 ♀ • 30 ♂ • 1992**Population trend:** stable**Range of uses:** meat**SOUTH AFRICA**

The American Hampshire originated in the 19th century from Old English (probably from Hampshire) and was only reintroduced into the country in the 1980s. The animals are black in colour with a white belt. Of females, 100% are bred to males of the same breed.

PIETRAIN*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 1999**Population trend:** -**Range of uses:** -**SOUTH AFRICA**

The Pietrain was imported to South Africa from stable European populations.

CHESTER WHITE*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1999

Population trend: -

Range of uses: meat

SOUTH AFRICA

The Chester White was reintroduced to South Africa only in the 1980s. The animals are white in colour.

DUROC*ENDANGERED*

Local names or syn.: Duroc-Jersey (synonym from 1877-1934)

Population data: > 1 800 • 600 ♀ • 80 ♂ • 1992

Population trend: stable

Range of uses: -

SOUTH AFRICA

The Duroc was only reintroduced in the 1980s. The animals are red in colour. Of females, 100% are bred to males of the same breed.

BEZUIDENHOUT*CRITICAL*

Local names or syn.: -

Population data: < 100 • 1999

Population trend: -

Range of uses: meat, wool

SOUTH AFRICA

The Bezuidenhout is found in Free State. Developed by the Bezuidenhout family (south-west Free State) in 1917 from Ronderib Afrikaner and woolled Persian (derived from Blackhead Persian-Merino crosses) crosses, the breed has become a hardy dual purpose (mutton and coarse wool) type. The animals are polled, white in colour with a fat tail and coarse/carpet type wool. The wool that is harvested from these animals is suitable for carpet production. The breed is known for its high fertility.

DORSET HORN*CRITICAL*

Local names or syn.: -

Population data: < 100 • 1999

Population trend: -

Range of uses: -

SOUTH AFRICA

No further information available.

FINNISH LANDRACE



CRITICAL

SOUTH AFRICA

Experimental flock.

Local names or syn.: -

Population data: < 100 • 1999

Population trend: -

Range of uses: -

SOUTHDOWN



CRITICAL

SOUTH AFRICA

No further information available.

Local names or syn.: -

Population data: < 100 • 1999

Population trend: -

Range of uses: -

STEEKHAAR



CRITICAL

SOUTH AFRICA

The Steekhaar is a variety of Blinkahaar Ronderib Afrikaner. These sheep have coarse/carpet type wool.

Local names or syn.: Blinkhaar Steekhaar Afrikaner (afrik.)

Population data: < 100 • 1999

Population trend: -

Range of uses: -

VANDOR



CRITICAL

SOUTH AFRICA

The Vador originated at Zingfontein, near Philipstown and is a composite of Dorset Horn and Van Rooy sheep. These sheep have coarse/carpet type wool.

Local names or syn.: -

Population data: < 100 • 1999

Population trend: -

Range of uses: -

BORDER LEICESTER*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1999

Population trend: -

Range of uses: -

SOUTH AFRICA

No further information available.

CORRIEDALE*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1999

Population trend: -

Range of uses: meat

SOUTH AFRICA

The Corriedale, imported in 1924 from Australia, is found in KwaZulu-Natal midlands and is a composite of Lincoln (Leicester Longwool) and Merino that was developed in New Zealand. The animals are white in colour. Adult males weigh on average 92 kg and females 68 kg. These sheep have medium fibred wool.

HAMPSHIRE*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1999

Population trend: -

Range of uses: -

SOUTH AFRICA

No further information available.

KARAKUL*ENDANGERED*

Local names or syn.: Karakul', Karakul'Skaya, Astrakhan, Bukhara, Persian Lamb (eng.), Persian Lambrakhan, Bukhara

Population data: 100 - 1 000 • 1999

Population trend: -

Range of uses: pelt / fur, milk

SOUTH AFRICA

The Karakul was established in 1916 when animals were first imported from Namibia. They are fat tailed and the tip of the tail is S-shaped. Adult males weigh on average 58 kg and females 45 kg. Females are polled. Phenotypic selection is based on pelt characteristics at birth. A Karakul breed society existed until 1937.

MULTIHORNED MERINO*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1999**Population trend:** -**Range of uses:** -**SOUTH AFRICA**

The Multihorned Merino is found in Orange Free State. These sheep have coarse/carpet type wool.

NAMAQUA AFRIKANER*ENDANGERED***Local names or syn.:** Namakwa Afrikaner (afrik.), Namaqua Afrikaner**Population data:** 100 - 1 000 • 1999**Population trend:** -**Range of uses:** meat**SOUTH AFRICA**

The Namaqua Afrikaner, found in North-western Cape Province, is one of the few remaining indigenous sheep breeds. It is a variety of Africander, descended from Namaqua (variety of Hottentot). The animals are white, usually with a black or brown head. They have a hairy, long, slender, fat tail and coarse/carpet type hair. Females may be polled or horned and males are always horned. They are well suited to live under arid conditions. It has no breed society although a small nucleus flock (100 heads) is maintained by the Department of Agriculture. Apart from this flock and one or two other small flocks, this breed has been replaced, in the most part, by Karakul. They used to be wide-spread in the North and North-western Cape Province and in Namibia (south-west Africa) but have since disappeared in Namibia, having been used as a popular base in Karakul breeding.

SOUTH AFRICAN NAKED NECK*ENDANGERED-MAINTAINED***Local names or syn.:** Kaalnekke (afrik.)**Population data:** 10 000 - 100 000 • 200 ♀ • 100 ♂ • 1994**Population trend:** increasing**Range of uses:** -**SOUTH AFRICA**

The South African Naked Neck originated from various regions of the RSA, including Kaysna forest where they were possibly introduced by early settlers. As the name suggests, they have a naked neck. Population data comes from a nucleus population maintained for breeding and conservation projects at IAPI, Irene, South Africa, where there are a minimum of 120 hens and 40 males.

INTJE*ENDANGERED***Local names or syn.:** -**Population data:** 530 • 1993**Population trend:** increasing**Range of uses:** -**SWAZILAND**

The Intje was imported over the last two decades. Three quarters of the population roam wild.

EGYPTIAN*CRITICAL***Local names or syn.:** -**Population data:** > 100 • 50 ♀ • 10 ♂ • 1994**Population trend:** decreasing**Range of uses:** -**TANZANIA**

The Egyptian buffalo is black or grey in colour with short curved horns. On average, adult males weigh 337.5 kg with a wither height of 132 cm. The breed is adapted to the local semi-arid and sub-humid climate. These animals are mainly found in The Livestock Production Research Institute at Mpwapwa and have not been characterized. Of females, 100% are bred to males of the same breed.

JIDDU*CRITICAL***Local names or syn.:** Giddu, Macien, Sorco, Sucra, Surco, Surco Sanga, Surug, Suruq**Population data:** < 100 • 50 ♀ • 10 ♂ • 1994**Population trend:** decreasing**Range of uses:** milk, meat**TANZANIA**

The Jiddu is found in Zanzibar and is a sanga-zebu intermediate. The breed is adapted to live under semi-humid and humid climatic conditions. Of females, 100% are bred to males of the same breed.

ZANZIBAR ZEBU*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 50 ♀ • 10 ♂ • 1994**Population trend:** stable**Range of uses:** milk, meat**TANZANIA**

The Zanzibar Zebu is found on the islands of Zanzibar and Pemba and along coastal regions. It is a variety of Small East African Zebu with some influence from Indian, Somali and Boran. They are light red, dun, black or grey in colour with a well developed hump and are adapted to live under semi-arid and humid climatic conditions.

CHAGGA*ENDANGERED***Local names or syn.:** Wachagga**Population data:** < 1 000 • 300 ♀ • 50 ♂ • 1994**Population trend:** decreasing**Range of uses:** milk, meat**TANZANIA**

The Chagga is found in Kilimanjaro, northern Tanzania and is a dwarf variety of Tanzanian Zebu. The breed is adapted to a sub-humid climate. These animals have not been characterized properly and may be found in the Northern Zone. Of females, 100% are bred to males of the same breed.

MPWAPWA*ENDANGERED***Local names or syn.:** Indo-African Zebu (eng.)**Population data:** < 1 000 • 350 ♀ • 50 ♂ • 1994**Population trend:** decreasing**Range of uses:** milk, meat**TANZANIA**

The Mpwapwa is found in eastern Tanzania. It is a composite of Sahiwal (75%) and other breeds and was established in the 1940s. The animals are usually light to dark red in colour. They are a zebu type and are normally humped. Adult males weigh on average 520 kg and females 400 kg with an average wither height of 119 cm and 119 cm respectively. This breed performs better than other zebu animals in semi-arid conditions. Animals are found mainly in research stations and only a few are kept by individual farmers. Mpwapwa cattle are subject to a static cross breeding system. Of females, 50% are bred to males of the same breed.

BLACKHEAD PERSIAN*CRITICAL***Local names or syn.:** -**Population data:** 50 ♀ • 10 ♂ • 1994**Population trend:** stable**Range of uses:** -**TANZANIA**

Blackhead Persian sheep are white in colour with a black head and neck. They have short, medium fibred hair, are fat-rumped and are polled. Adult males weigh on average 50 kg and females 30 kg. The breed is adapted to a semi-arid and highland climate and has been introduced for cross-breeding purposes to the West Indies and to Central and South America. Of females, 50% are bred to males of the same breed.

CORRIEDALE*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 50 ♀ • 10 ♂ • 1994**Population trend:** decreasing**Range of uses:** -**TANZANIA**

Corriedale sheep are white in colour with medium fibred wool. They are adapted to a highland environment. Only very few animals are kept by farmers. Of females, 50% are bred to males of the same breed.

LAGUNE*ENDANGERED***Local names or syn.:** Lagune, Lagunaire, Mayombe, Mayumbe, Race des lagunes (fr.)**Population data:** < 1 000 • 1994**Population trend:** decreasing**Range of uses:** -**TOGO**

The Lagune is a variety of West African Dwarf Shorthorn but the evolution of the breed is difficult to determine. Lagune is the name used for Dwarf Shorthorn cattle in French-speaking West and Central Africa. The animals are black and white in colour, are small and short legged with short slim horns. Adult males weigh on average 220 kg and females 180 kg with an average wither height of 100 cm and 88 cm respectively. This breed is reported to be trypanotolerant and, according to surveys, is disappearing.

UGANDEAN TURKEY*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** -**UGANDA**

No further information available.

NKONE*ENDANGERED***Local names or syn.:** Mangoni, Manguni**Population data:** 513 ♀ • 56 ♂ • 1994**Population trend:** -**Range of uses:** meat, milk, draught power**ZIMBABWE**

The Nkone, an Nguni type, related to Govuvo, is found in Matabeleland, south-western Zimbabwe. They are red, roan or red and white in colour and are similar in appearance to Nguni (broken white top line with red unbroken sidepanels). They have a small cervico-thoracic hump and thin, lyre-shaped horns. Adult males weigh on average 750 kg and females 475 kg. The breed is adapted to live under semi-arid/subtropical conditions, is known for above average fertility and females are very protective mothers. There are only 2 registered breeders but it is suggested that remnant pockets of pure-breeds are owned by small scale and communal farmers in western Zimbabwe. In 1994 there were only 513 females and 56 males registered with the Zimbabwe herd book for breeders and 307 breeding cows were present at the state-supported breeding Station of Peddie Coast in Ciskei (South Africa).

SABI*ENDANGERED***Local names or syn.:** Rhodesian (obsolete synonym)**Population data:** 6 000 • 511 ♀ • 91 ♂ • 1992**Population trend:** stable**Range of uses:** meat**ZIMBABWE**

The Sabi, an indigenous breed, is found at the Matopos Research Station in southern Zimbabwe and small remnant pockets, mainly of a sub-type, may also be found along the Zambesi valley. They are an African long-fat-tailed type, are brown or a combination of black, grey, brown and white in colour, have coarse/carpet type hair and are sometimes horned (selected for polled). They are large animals with adult males weighing on average 55 kg and females 42.5 kg with an average wither height of 69 cm and 57 cm respectively. The breed is well adapted to a semi-arid, sub-tropical climate. The maternal abilities of Sabi sheep are believed to be much better than those of South African Mutton Merino and they breed throughout the year. Efforts are underway to introduce these sheep to more farmers. Indiscriminate crossing with Dorper and Wiltshire is taking place.

The countries, dependent territories, overseas departments, entities and areas in the Asia and the Pacific region are listed in table 2.2.3.1. A large range of agro-ecological zones are represented in this region, from the highland regions of the Himalayas to the small island communities of the Pacific, and from the arid desert areas of India and China to the tropical regions of Southeast Asia. The region contains nearly 23 percent of the world's total land area and accounts for 30 percent of the world's arable and permanently cropped land, 55 percent of the total world's human population and 75.9 percent of the agricultural population. In other words, over half of the world's population and three-quarters of the world's agricultural population exist on less than one-third of the world's arable land.

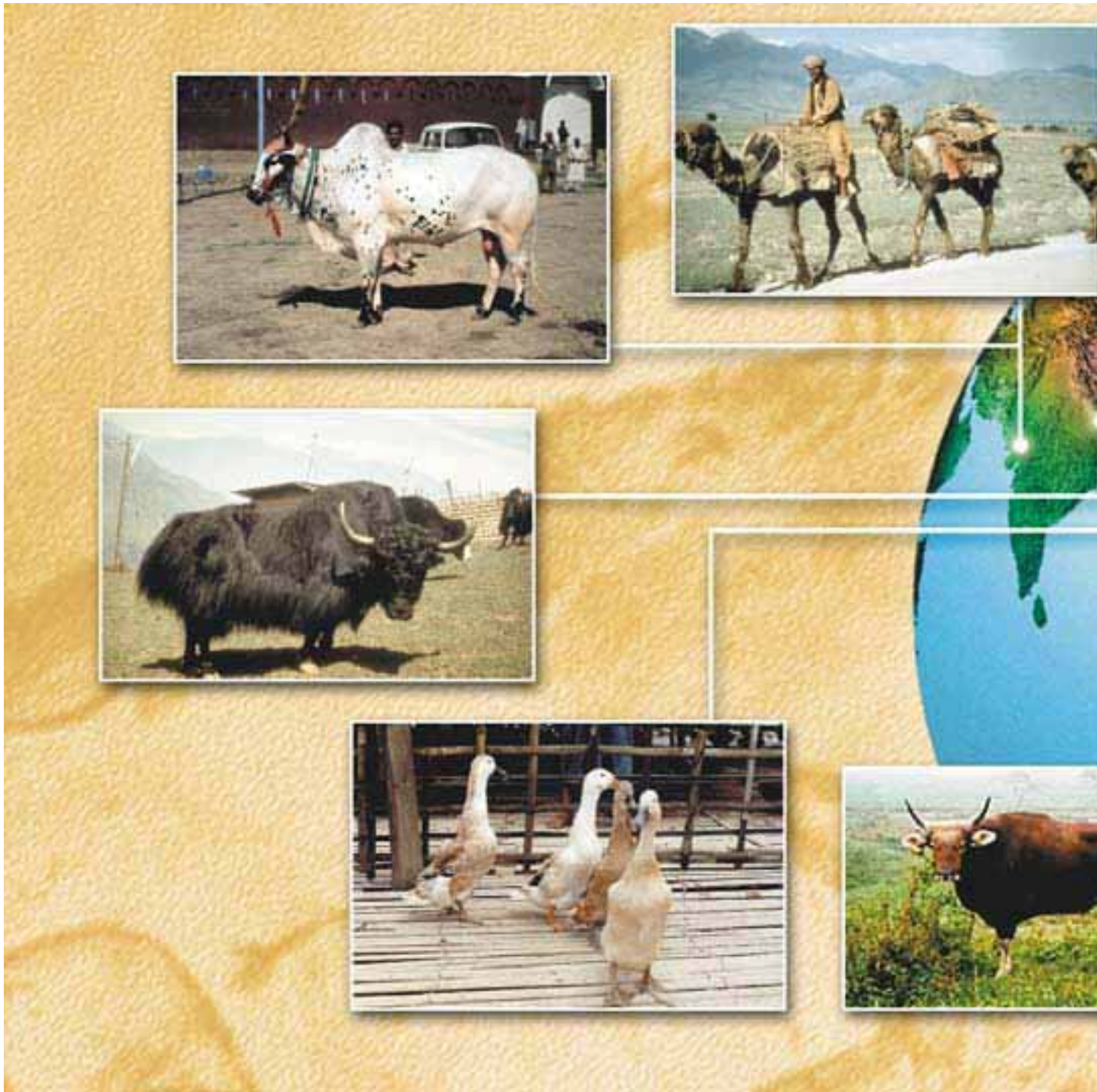
Agriculture is one of the most important sectors in the majority of countries and livestock represent a major component of this. Consequently the Asia and the Pacific region has developed a greater diversity of domesticated livestock breeds than any other region (table 2.2.3.2).

In 1998 the total human population size in the Asia and the Pacific region was estimated to be 3 293 million, an increase of almost one hundred million people since 1994. With the population size expected to double over the next 30 years, the region's demand for food and agricultural products is expected to increase annually by as much as 3.1 percent. Fulfilling this need without causing irreparable damage to the ecosystem presents a formidable challenge and will require the optimal use of all agricultural resources.

Animal husbandry has been practised in Africa for over 5 000 years. Despite the domestication of most major species in the Near East or Asia, the continual movement of peoples into Africa through the Isthmus of Suez, the Arabian Peninsula and later from Iberia, have all contributed to the considerable genetic diversity in evidence today. The Arab invasions around the seventh and eighth centuries introduced large numbers of humped cattle to the region. The spread of such cattle across Africa may be quite closely correlated with the spread of Islam.

Animal production in the region is characterized mainly by small-scale units, the introduction of larger commercial farms near urban areas being a more recent phenomenon. The relative importance of livestock production, as compared to that of crops, has increased in past years. This has been boosted by the generation of strong markets resulting from increased urbanization. In rural areas many millions of people rely directly on farm animals for many outputs such as meat, milk, eggs, hides, skins, draught power and wool.

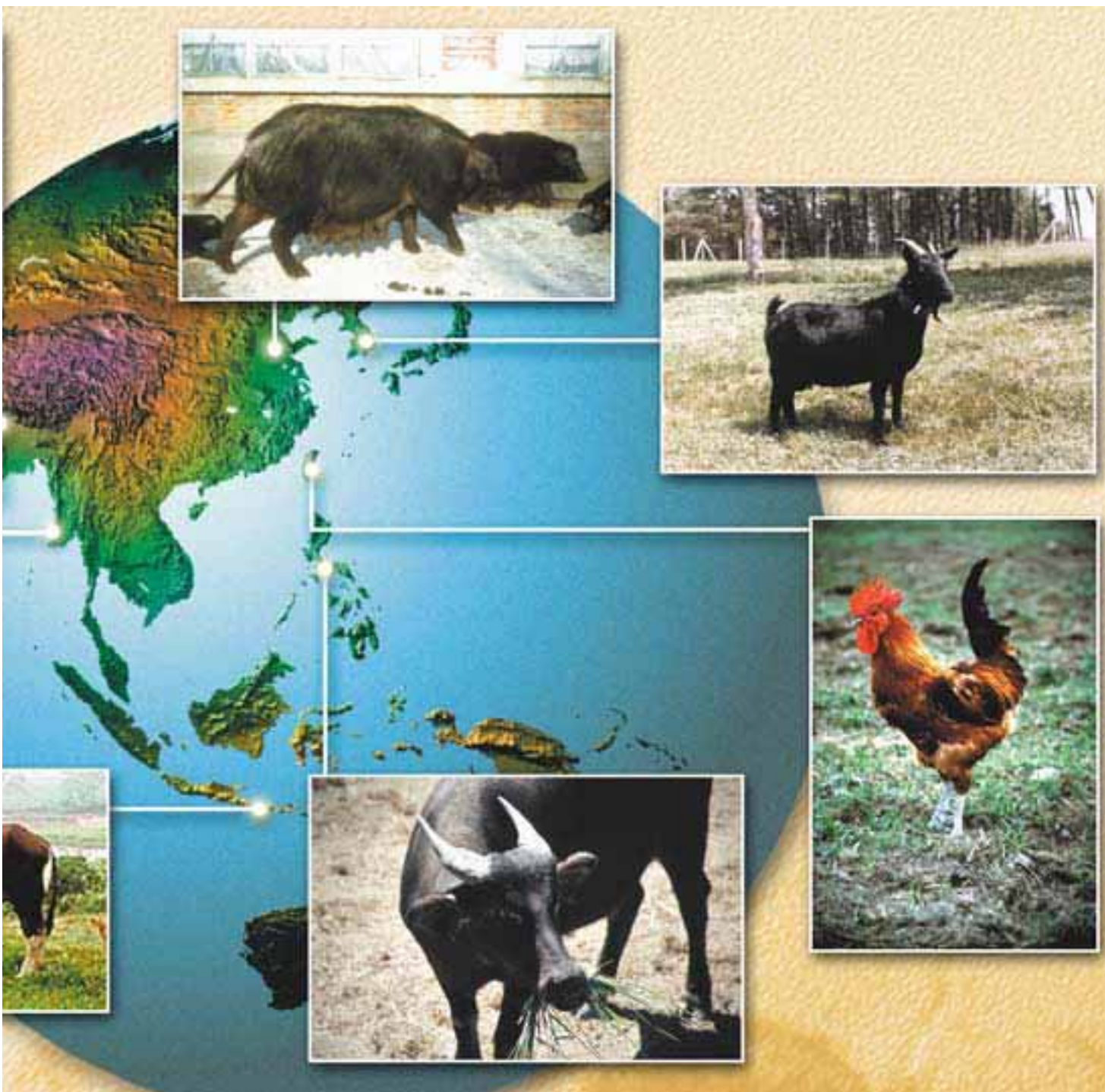
The use of animals for draught power is especially important, although this reliance is declining in several countries. Approximately 85 percent of farmers use cattle and buffaloes for crop cultivation and threshing. Small ruminants also make a considerable contribution to livestock output by



from top left clockwise:

- Dhanni cattle in Pakistan are kept primarily for draught power.
- Caravan of Afghan refugees on the Kharlachi-Parachina road in northern Pakistan.
- Min pigs are found in north-eastern China and are able to survive in temperatures of -40 degrees C.
- Yemso - a local Korean goat breed.

RANGE OF PRODUCTION ENVIRONMENTS IN THE ASIA AND THE PACIFIC REGION



- Poultry, such as this Theen-Yee cock (critical), are an integral part of many Asian farming systems.
- Tamarao buffalo from the Philippines are very hardy and can survive on very poor quality forage - endangered-maintained.
- Bali Cattle, found mainly in Indonesia, are the domesticated relatives of wild Banteng.
- Khayan Ducks under a back yard management system in Myanmar.
- Chour-gau yak in India: yak tolerate the low atmospheric oxygen levels of the Asian highlands.

TABLE 2.2.3.1

THE 53 COUNTRIES, DEPENDENT TERRITORIES, OVERSEAS DEPARTMENTS, ENTITIES AND AREAS IN THE ASIA AND PACIFIC REGION

AMERICAN SAMOA	KIRIBATI	PACIFIC ISLANDS
AUSTRALIA	KOREA, PEOPLE'S DEMOCRATIC	PAKISTAN
BANGLADESH	REPUBLIC	PALAU
BHUTAN	KOREA, REPUBLIC OF	PAPUA NEW GUINEA
BRUNEI DARUSSALAM	LAOS	PHILIPPINES
CAMBODIA	MALAYSIA	PITCAIRN ISLAND
CANTON AND ENDERBURY ISLANDS	MALDIVES	SAMOA
CHINA (INCLUDING HONG KONG SAR,	MARSHALL ISLANDS	SINGAPORE
MACAU SAR AND TAIWAN PROVINCE OF	MICRONESIA, FEDERATED STATES OF	SOLOMON ISLANDS
CHINA)	MIDWAY ISLANDS	SRI LANKA
COOK ISLANDS	MONGOLIA	THAILAND
EAST TIMOR	MYANMAR	TOKELAU
FIJI	NAURU	TONGA
FRENCH POLYNESIA	NEPAL	TUVALU
GUAM	NEW CALEDONIA	VANUATU
INDIA	NEW ZEALAND	VIET NAM
INDONESIA	NIUE	WAKE ISLAND
JAPAN	NORFOLK ISLAND	WALLIS AND FUTUNA ISLANDS
JOHNSTON ISLAND	NORTHERN MARIANA ISLANDS	

capitalizing on areas often inaccessible to larger ruminants (cattle and buffalo). Small ruminants, especially goats, are great scavengers and can tolerate severe climatic stress and many endemic diseases under conditions of poor nutrition. The advantage of husbanding large animals, however, is that they tend to establish status.

Livestock are exploited to different degrees within the region depending on the environment and culture. For example, Australia, India, Japan, the Republic of Korea and Pakistan give high priority to dairy production, whereas China, the Philippines and Vietnam have tended to place more emphasis on swine production.

The major problems relating to the region's agricultural sector can be summarized as follows: the need to improve the overall efficient use of resources in systems, to improve breeding systems and local breeds, to provide adequate feed for these breeds and to tackle the various endemic diseases that have a debilitating effect on animals. The region has already reached its safe limits on horizontal expansion of agriculture and future needs will probably only be met by intensification. This could result in a considerable reduction of the region's animal genetic resources. For example, current development pressures often fail to consider efficiency in the context of available resources and tend to be guided by developed country definitions and views.

Although animal husbandry is thought to have first developed in the Near East, a number of important species were domesticated in the Asia and the Pacific region. These include

the banteng, yak, water buffalo, zebu cattle and chicken. Evidence for animal herding (dating to 6 000 BC) may be found in the Indus valley, Baluchistan. In addition to a large number of reliefs depicting ruminant species, sites at Mohenjo Daro and Harrapa (Indus valley) provide the first evidence of domesticated fowl. From these areas of early civilizations, domesticated animals spread both east and west facilitated by the movements of Aryan and Dravidian peoples and extensive trade links with the Near East region.

Some authors have argued that Late Stone Age hunter-gatherers formed independent associations with animals throughout other parts of Asia. This may be true for the banteng and yak - the former is believed to have been domesticated in Thailand, the latter in Tibet. In Oceania the majority of livestock have resulted from European and, to a lesser extent, Asian importations. Since their introduction, animals have adapted well to the low levels of management and nutrition often encountered in the small island communities.

Milk production has always been a part of traditional agriculture in many of the region's countries, especially in societies of Aryan and Mongolian origin. As a consequence of Hindu and Buddhist veneration of animals, meat production has not been of significant importance in these areas. This has led to the development of traditional skills in livestock husbandry and the exploitation of milk-related products.

In addition to production and draught some animals are husbanded specifically for their cultural value. Cattle in India have special religious significance and statues of bulls may

TABLE 2.2.3.2 TOTAL POPULATION SIZE AND NUMBER OF BREEDS OF THE MAJOR LIVESTOCK SPECIES IN THE ASIA AND THE PACIFIC REGION AND THEIR SHARE OF THE WORLD TOTAL

	POPULATION SIZE ('000)	NUMBER OF BREEDS	SHARE OF WORLD TOTAL	
			POPULATION (%)	BREEDS (%)
Buffalo	152 404	61	93	70
Cattle	461 197	236	35	19
Yak	n/a	9	n/a	69
Goat	390 433	146	55	26
Sheep	408 098	233	39	18
Pig	525 598	184	55	37
Ass	14 885	12	34	12
Horse	14 859	83	25	11
Camel ¹	2 815	14	15	22
Chicken	6 181 645	124	45	18
Duck ²	717 811	45	92	45
Turkey	2 142	6	1	18
Goose (domestic)	189 436	13	90	20

¹ *Dromedary and Bactrian Camels*

² *Domestic Duck and Muscovy Duck*

n/a — not available

Source: FAOSTAT (estimates of 1999 live animal populations) and DAD-IS

be found at the entrances to many Hindu temples. In north-east India the Mithan (domesticated Gaur) is used as a sacrificial animal or as a form of currency. Furthermore, even though the practice is now illegal in many countries, fighting cocks are often used as a source of entertainment.

The Asia and the Pacific region has a number of endemic diseases including Rinderpest, Foot-and-Mouth disease and haemorrhagic septicaemia, a major killer of cattle, especially working buffalo. Babesiosis and anaplasmosis are also endemic and cause considerable losses in imported animals. Newcastle disease and duck virus enteritis are quite prevalent in poultry species.

Breeds of livestock respond quite differently to infection. For example, zebu cattle are generally considered to be more tolerant of Rinderpest than humpless breeds. They are also quite resistant to some tick species such as *Boophilus microplus*, which acts as host to a number of diseases. The Haryana cattle breed in particular is thought to be resistant to anaplasmosis which causes many problems in cattle populations.

As a consequence of the diversity of environments, nutritional standards and challenges from infectious agents, the Asia and the Pacific region has developed a large number of breeds. These act as storehouses of genetic variation which form the basis for selection and may be drawn upon in times of biological stress such as famine, drought or epidemics.

The region is also home to quite a number of breeds whose potentials may not yet be fully realized. For example, the Min pig in China is a highly prolific breed equipped to tolerate temperature extremes of both heat and cold such as those encountered in the north-east region of China. However, as a result of extensive cross-breeding with exotic breeds, this breed is now under pressure. Other species such as the banteng have not been exploited to any considerable degree despite the growing popularity of meat from these animals in the West.

Aside from the major livestock species, the Asia and the Pacific region is host to a range of micro-livestock species. For example, the Pygmy Hog (*Sus salvanius*) which is found in northern India, is on the verge of extinction. Its small size makes it ideal for husbanding in small village communities where it can be used as a source of meat. It is also likely that this species carries resistance to a number of indigenous porcine diseases.

The kouprey, a large ungulate found in south-east Asia, may be better able to dissipate heat than other domesticated species. Animals of this species are thought to be resistant to Rinderpest, a major killer in domesticated cattle populations. However, the existence of living animals of this species is questionable. Other examples include the wild Musk Deer that has been hunted to near extinction for the use of a glandular secretion in males for perfume produc-

FIGURE 2.2.3.1A

RISK STATUS OF MAMMALIAN BREEDS RECORDED IN THE ASIA AND THE PACIFIC REGION UP TO DECEMBER 1999: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

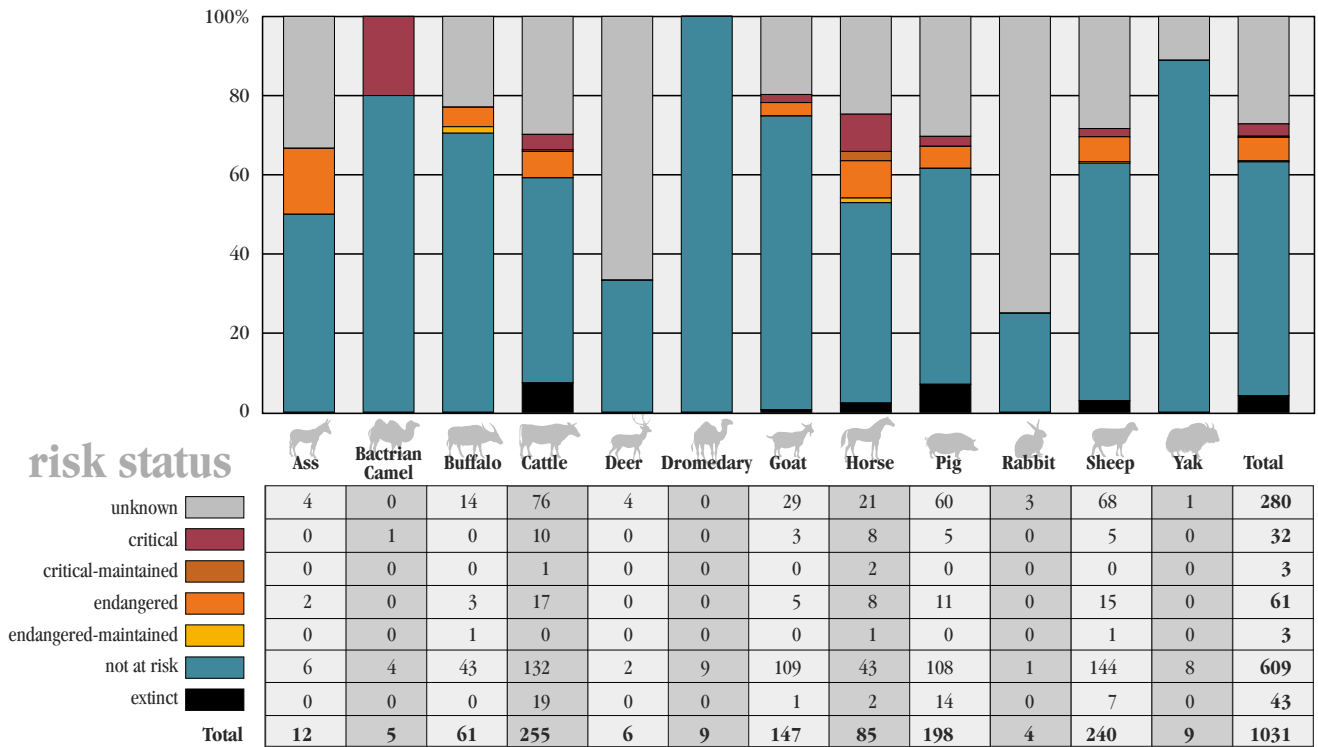


FIGURE 2.2.3.1B

RISK STATUS OF MAMMALIAN BREEDS RECORDED IN THE ASIA AND THE PACIFIC REGION UP TO MAY 1995: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

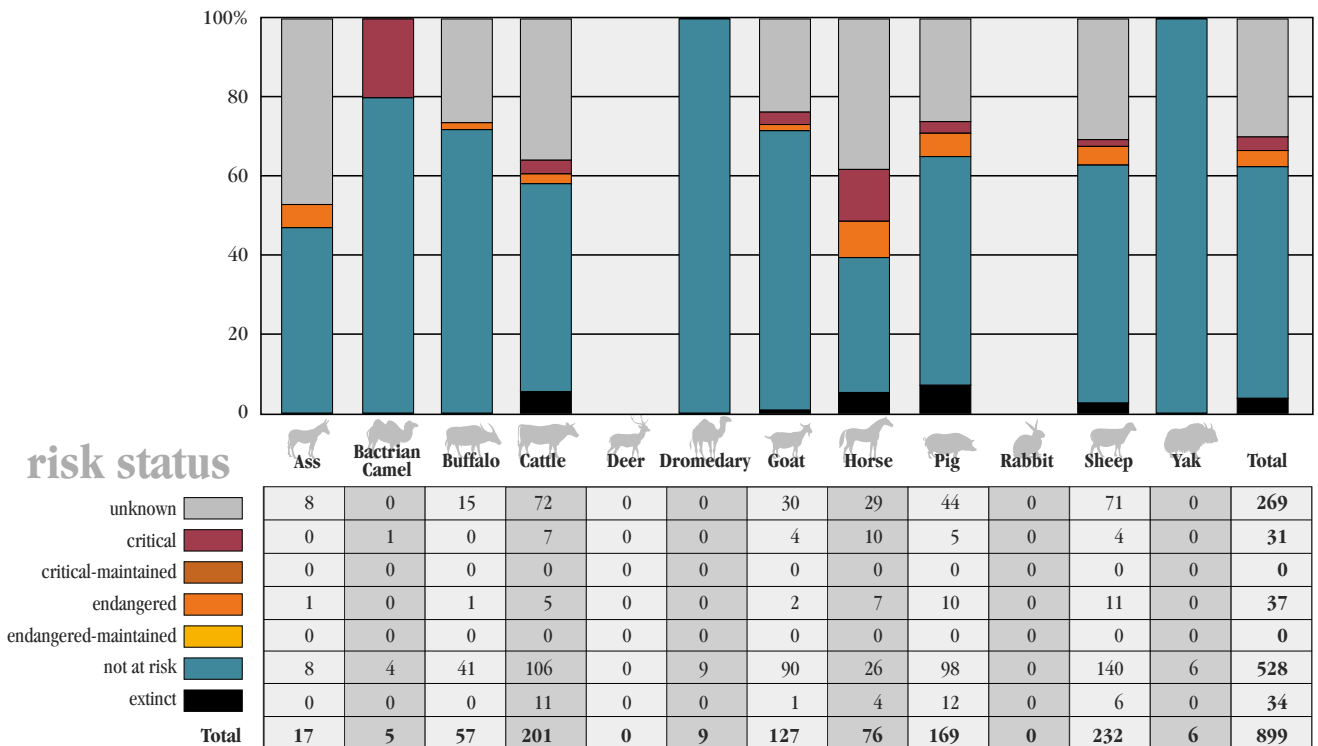


FIGURE 2.2.3.2A

RISK STATUS OF AVIAN BREEDS RECORDED IN THE ASIA AND THE PACIFIC REGION UP TO DECEMBER 1999: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

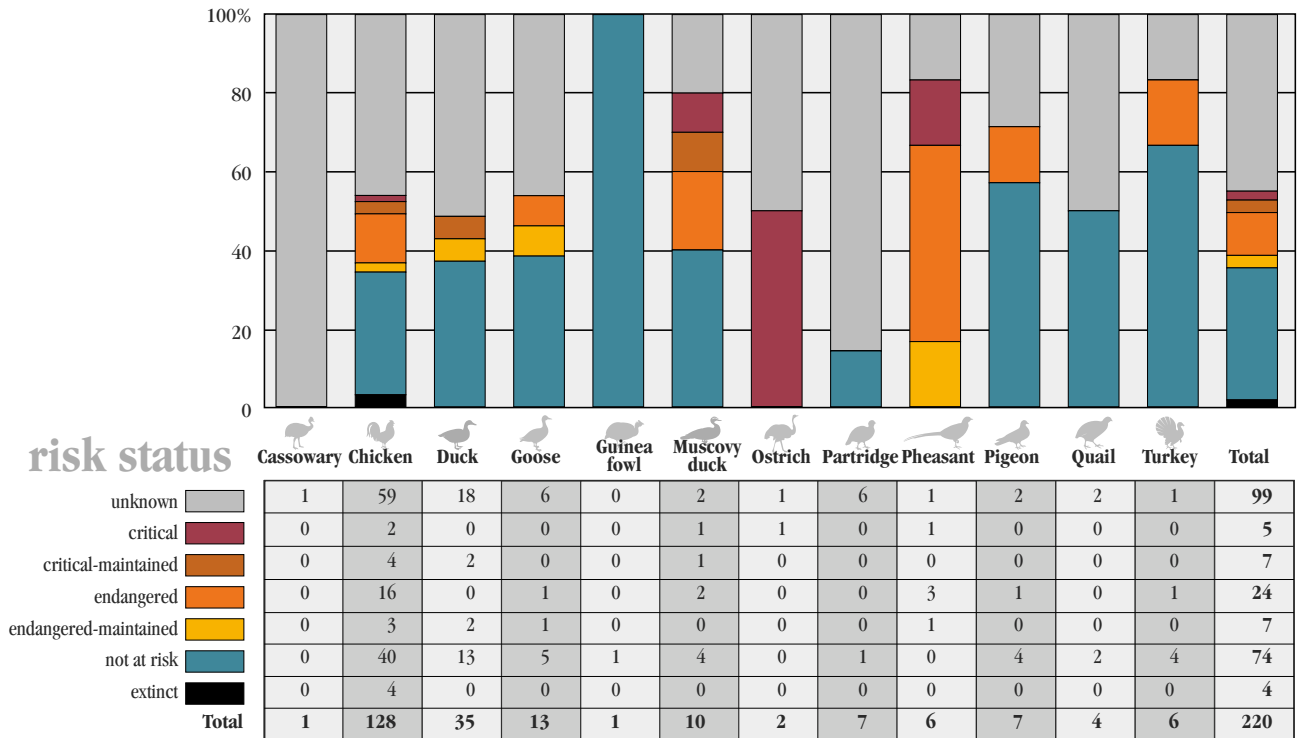


FIGURE 2.2.3.2B

RISK STATUS OF AVIAN BREEDS RECORDED IN THE ASIA AND THE PACIFIC REGION UP TO MAY 1995: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

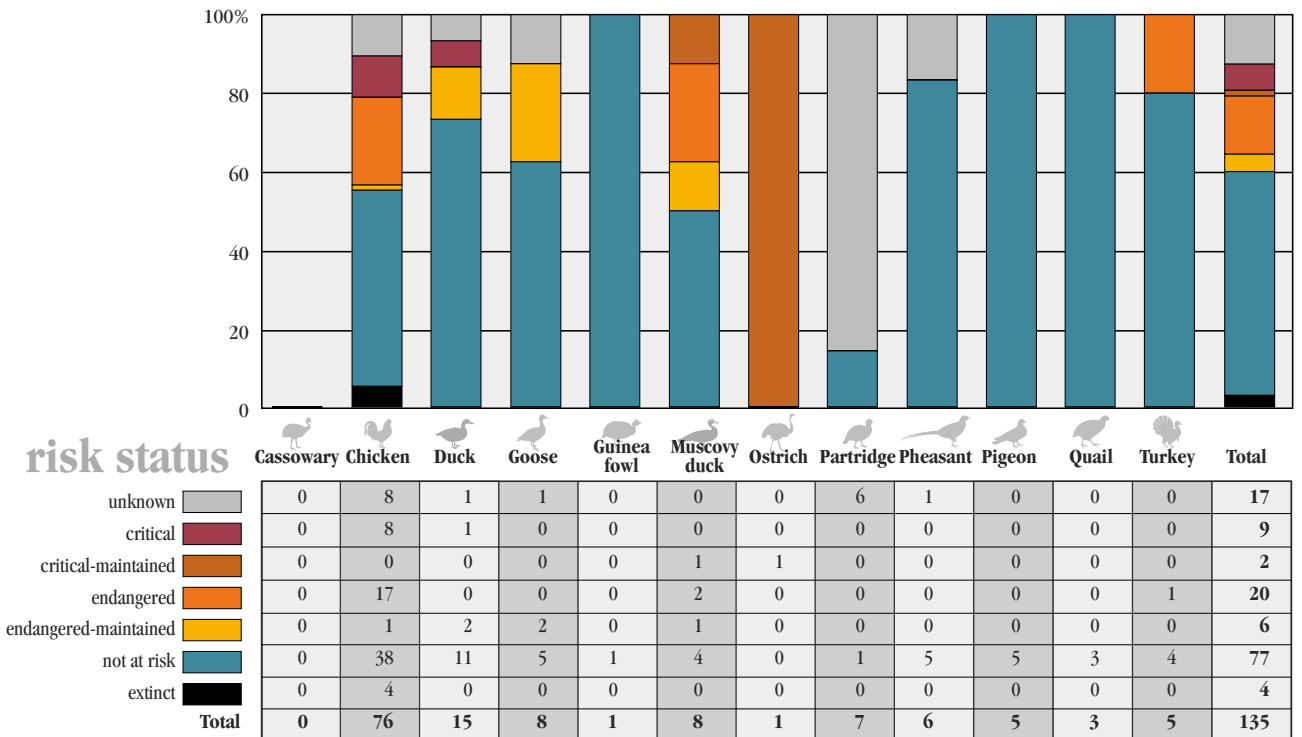
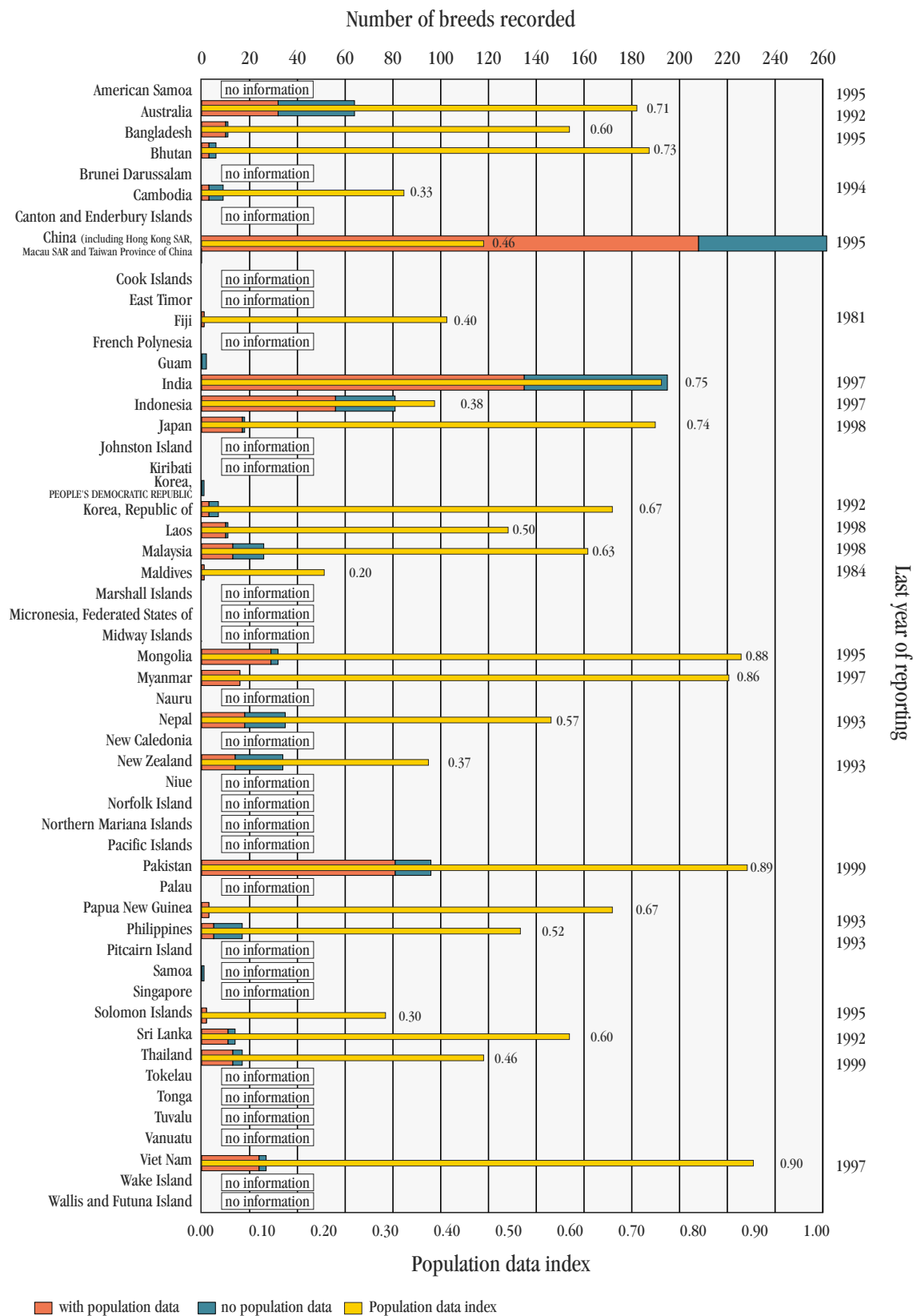


FIGURE 2.2.3.3

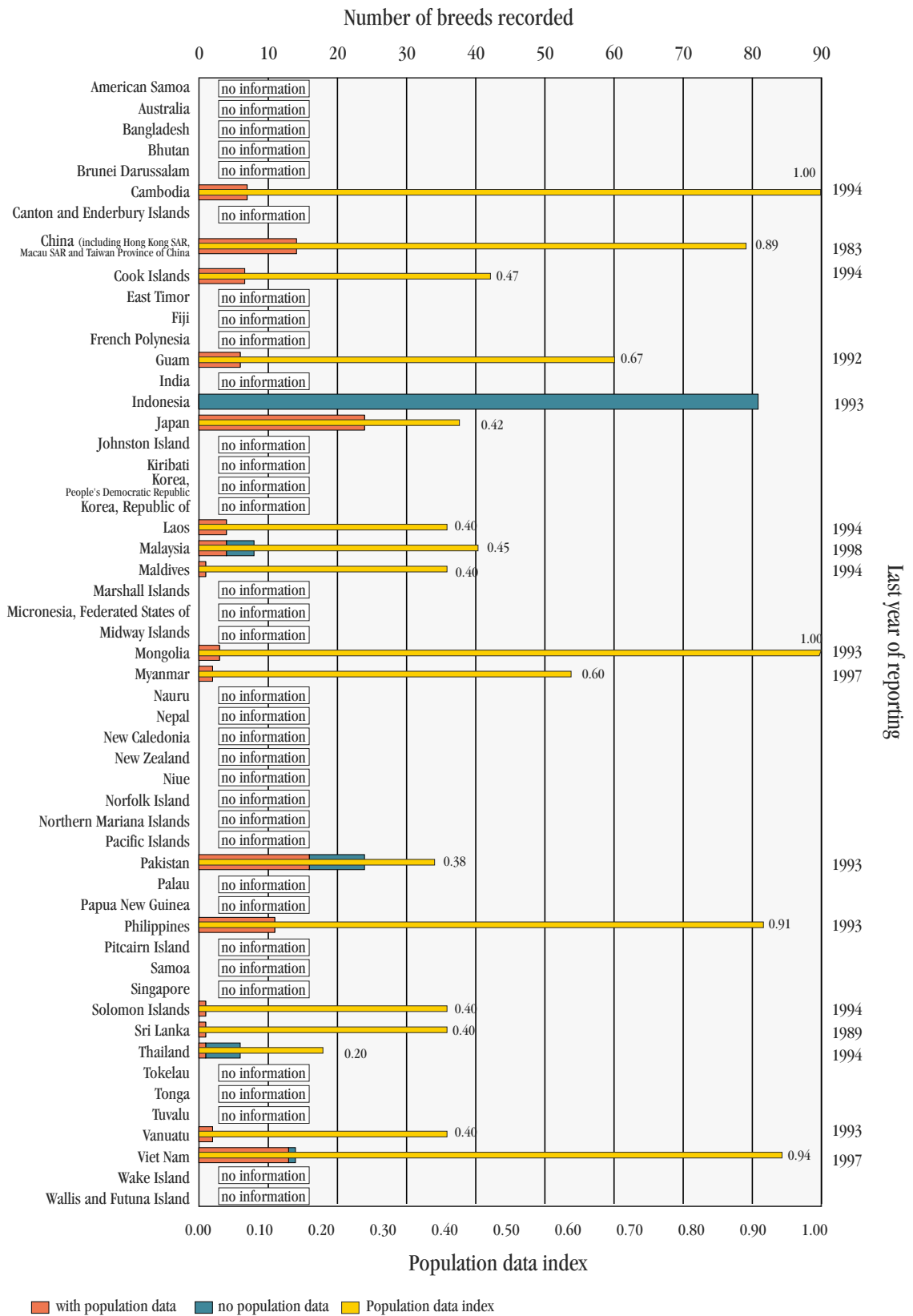
POPULATION DATA STATUS AND INDEX FOR MAMMALIAN BREEDS RECORDED BY COUNTRIES, DEPENDENT TERRITORIES, OVERSEAS DEPARTMENTS, ENTITIES AND AREAS OF THE ASIA AND THE PACIFIC REGION UP TO DECEMBER 1999



With population data Those breeds with information recorded in one or more of the 16 population data fields.
No population data Those breeds with no information recorded in any of the 16 population data fields.
Population Data Index (PDI) For each country the PDI was calculated only for those breeds recorded with population data. The PDI is the fraction of selected population data fields (population size, number of breeding females, number of breeding males and the percentage of females bred to males of the same breed) that contain information, averaged across breeds.

FIGURE 2.2.3.4

POPULATION DATA STATUS AND INDEX FOR AVIAN BREEDS RECORDED BY COUNTRIES, DEPENDENT TERRITORIES, OVERSEAS DEPARTMENTS, ENTITIES AND AREAS OF THE ASIA AND THE PACIFIC REGION UP TO DECEMBER 1999



With population data Those breeds with information recorded in one or more of the 16 population data fields.

No population data Those breeds with no information recorded in any of the 16 population data fields.

Population Data Index (PDI) For each country the PDI was calculated only for those breeds recorded with population data. The PDI is the fraction of selected population data fields (population size, number of breeding females, number of breeding males and the percentage of females bred to males of the same breed) that contain information, averaged across breeds.

tion and also for its value in oriental medicine. These species are described in Part 3.

Table 2.2.3.2 illustrates the number of animals of each major species in the region and also gives an estimate of the number of breeds. The relative importance of buffaloes, pigs, chickens, ducks and cattle in the region is reflected by the large numbers of these species. In fact, most of the world's buffalo breeds are found here. As a consequence of the need to increase production, much of this domestic animal diversity is under threat of extinction. This is exacerbated by inadequate economic support to implement active conservation programmes in most countries.

In Japan consumer demand has become more diverse as a result of rising incomes. People now often complain about the flavour and quality of meat in commercial broilers. Japan has implemented a comprehensive conservation programme and commercial companies are now examining native breeds in order to introduce new genes that may improve the quality of chicken meat. Had these breeds been allowed to vanish, this would not be an option today. The recent economic crisis has caused some countries of Southeast Asia to reconsider the use of their traditional breeds – if not instead of, at least in conjunction with, exotic breeds.

The Asia and the Pacific region contains more than one-fifth of the world's animal genetic resources, with 1 251 mammalian and avian breeds currently recorded in the Global Databank for Farm Animal Genetic Resources. Table 2.2.3.2 gives the total population sizes and the number of breeds of each of the major domestic animal species recorded in the Asia and the Pacific region and the share of the world's population sizes and number of breeds. The majority of the world's buffaloes and yaks, almost half of its muscovy ducks, pheasants and partridges, one-third of its pig breeds and one quarter of its goat breeds are found in the region. Additionally, the greatest population sizes for buffaloes, cattle, goats, sheep, pigs, asses, chickens, ducks and geese are present in the Asia and the Pacific region.

In 1995, 899 mammalian and 135 avian breeds (including extinct) were recorded in the Global Databank for Farm Animal Genetic Resources. Since then, 132 mammalian and 85 avian breeds have been added, increasing the amount of data recorded by 15 and 63 percent, respectively. Figures 2.2.3.1 to 2.2.3.2 illustrate the structure of the data recorded in the Global Databank for Farm Animal Genetic Resources, showing the risk status of the mammalian and avian breeds recorded for each species in the Asia and the Pacific region up to 1995 and up to 1999.

Surprisingly, only 12 percent (142 of 1 204) of extant breeds on file (figures 2.2.3.1a and 2.2.3.2a) are categorized as at risk (for definition see section 1.6). This is believed to be a gross underestimate of the actual situation, primarily due to lack of information. For example, of the 1 251 mammalian and avian breeds recorded in this region, population data is available for only 825 or 66 percent. As outlined in section 2.2.1, those most at risk of extinction are usually the most dif-

ficult to obtain accurate census information on.

Very few (only six percent of mammalian; 33 percent of avian) breeds at risk are recorded as being maintained.

It is difficult to make solid statements about the changes in the proportion of breeds recorded in each risk status category between 1995 and 1999, because with the large amount of additional data recorded and the manner of the recording method, the 1995 data is not a random subset of the 1999 data and direct comparisons between data sets would be biased by considering proportional changes.

Despite such biases, when the complete data sets are indirectly compared, some trends are clear. As percentages of the total number of existing breeds that have population data (and therefore risk status known), the number of mammalian breeds recorded in the Asia and the Pacific region at risk of extinction has increased from 11 percent (of 596) to 14 percent (of 708) since 1995. Similarly, the situation with avian breeds is gaining seriousness, with the total percentage of breeds at risk of being lost increasing from 32 percent (of 114) in 1995 to 37 percent (of 117) in 1999. These figures are alarming and efforts must be made to encourage maintenance of these important domestic animal genetic resources at risk.

Figures 2.2.3.3 and 2.2.3.4 provide general overviews of the quantity and quality of the population data provided by each country for their animal genetic resources. A list of all contributors of information to the Global Databank for Farm Animal Genetic Resources is given in Annex 2.2 and 2.3. The last year of reporting refers to the date of the most recent entry of population data in the Global Databank for Farm Animal Genetic Resources. Potentially, this means that even if the data for only one breed is updated then that year will be indicated. The total number of breeds recorded by each country is shown. **No information** is displayed for those countries for which no breeds are recorded in the Global Databank for Farm Animal Genetic Resources. For each other country, breeds are split into those **with population data** and those with **no population data** (risk status unknown). When one or more fields in the Global Databank for Farm Animal Genetic Resources are completed then that breed is identified with population data. For an overview of the population data fields see tables 1.7.1 and 1.7.2.

For those breeds recorded with population data, a population data index (PDI) is calculated, which provides an indication of the completeness of the data provided by the country. Selected basic population data fields, regarded to be the most important and used in the calculation of risk status, are considered - population size (absolute or range), number of breeding females, number of breeding males and the percentage of females bred to males of the same breed. The PDI is calculated for each breed as the fraction of the selected fields that contain information. This is then averaged across all breeds for which the index is calculated.

For example (see figure 2.2.3.3), by 1995 China (Mainland) had recorded 256 mammalian breeds in the Global Databank

for Farm Animal Genetic Resources. Of those, 81 percent (208 breeds) had information contained in one or more of the 16 population data fields, and were therefore identified as those breeds with population data. Although a large proportion of the breeds had some population data, the PDI for China (Mainland) was calculated as 0.46, indicating that of the 208 breeds recorded to date with population data, on average less than half of the most important population fields were completed. By contrast, by 1997 Viet Nam had recorded 27 mammalian breeds, almost all (24 breeds) of which were recorded with at least some population data and, for these breeds, on average 90 percent of the important population data fields were completed.

Overall, figures 2.2.3.3 and 2.2.3.4 highlight some serious deficiencies in population data and stress the fundamental challenge for countries to overcome these for better decision-making both nationally and internationally. For mammalian breeds (figure 2.2.3.3), of the 53 countries, dependent territories, overseas departments, entities and areas in the Asia and the Pacific region, 25 recorded no breed information at all for their genetic resources. For the 28 countries that did record mammalian genetic resources, the average PDI was 0.50. Of these countries and entities, 50 percent (16 of 28) recorded more than half of the basic population data used for the calculation of risk status. Much less data again has been recorded for avian breeds (figure 2.2.3.4), with only 19 (35 percent) of the 53 countries, dependent territories, overseas departments, entities and areas having recorded their avian genetic resources and the average PDI for these countries being 0.55. In summary, for both mammalian and avian breeds recorded to date, and for those countries that have recorded breed data, almost half of the data required for the FAO designation of risk status, have not yet been recorded. For the remaining countries, for which no breed information is recorded, the state of their animal genetic resources is unknown.

Of note is the relatively little data recorded for avian species. Although the recording of avian breeds was initiated after the recording of mammalian breeds, little more data has recently been added by countries for avian breeds. Avian breeds should not be neglected as they make important contributions to food, especially in the developing world, and represent an important component of global animal genetic resources.

For a complete list of breeds and their risk status, recorded by each country, see section 2.4.2.

Under the Convention on Biological Diversity (CBD), which became international law in December 1993, countries that have ratified this convention are not only recognized as having sovereignty over all genetic resources within their boundaries, but are also obliged to report data on these genetic resources, including their animal genetic resources. Each country is responsible for validating and maintaining current data describing the status and characteristics of these resources and for reporting on this internationally. FAO is the UN agency responsible for assisting countries to develop and maintain this reporting responsibility. Under Decision III/11 of the Conference of the Parties (COP) of the CBD, FAO also has the mandate to develop, as a priority activity, the Global

Strategy for the Management of Farm Animal Genetic Resources for country use. In order to do this, countries should comply, and provide complete, high-quality breed data which should be regularly updated. Country inventories within the Global Databank for Farm Animal Genetic Resources assist the management of animal genetic resources. Management includes the identification of those breeds at risk of extinction using a consistent approach. This information is crucial in order to develop the Global Early Warning System for Animal Genetic Resources and for the conservation of these resources. Breed data must be available in order to further develop methodologies, to consistently define risk status across countries, regions and the world and to share the benefits of animal genetic resources.

DESCRIPTION LIST

The following pages provide brief summary descriptions for all mammalian and avian breeds recorded as critical (C), endangered (D), critical-maintained (CM) and endangered-maintained (DM) in the Asia and the Pacific region. Within these description lists breeds are sorted by country, by species group (see table 1.3.1), by risk status (critical followed by critical-maintained, endangered and endangered-maintained) and finally alphabetically by the most common name, as identified by the country. Whenever more than one breed name is provided, that used by the major ethnic group (in terms of numbers) is used to denote the most common name for the breed. Colour varieties, especially of avian species, are listed as one breed. For each breed a list of names or synonyms, the total population size (absolute or range), the number of breeding males and females, the population size trend and the range of uses are highlighted when available. This is followed by a brief description of the breed indicating its origins, current location, phenotype (particularly any unusual visible traits), adaptability to local stressors such as environmental pressures, population information (such as the proportion of females being bred to males of the same breed) and any *in situ* and *ex situ* conservation efforts that are operational.

All data submitted to FAO before 31/11/99 has been validated and considered. In some cases information for the breed is not available or was not provided and validated prior to preparation of WWL-DAD:3. Consequently, some sections will read **No further information available** (see Annex 2.1 for details on how to assist overcoming such information deficiencies).

Breeds recorded as extinct in this region are listed in section 2.3.1. For a complete list of all breeds and their risk status recorded by each country in each region, see section 2.4.2.

It should be noted that risk status is assigned for a breed whenever the population size of a country population has been reported according to the criteria given in section 1.6. This may not be a true reflection of the status of the breed regionally or globally, for the breed may also be represented in one or more other countries.

The following list describes the 142 documented breeds at risk in the Asia and the Pacific region.

AUSTRALIAN MILKING ZEBU



ENDANGERED

Local names or syn.: AMZ (eng.)

Population data: < 2 000 • 1 000 ♀ • 10 ♂ • 1992

Population trend: -

Range of uses: milk

AUSTRALIA

The Australian Milking Zebu is found in northern New South Wales. It is a composite of Sahiwal, Red Sindhi and Jersey, with best F3 selected and was established in 1955. The animals are tan (like Jersey) in colour. Adult males weigh on average 700 kg and females 500 kg. The breed is reported to be heat tolerant and tick resistant. Of females, 60% are bred to males of the same breed.

BALI CATTLE



ENDANGERED

Local names or syn.: Balinese (eng.), Banteng, Cobourgh Peninsula

Population data: 1 070 • 1978

Population trend: -

Range of uses: -

AUSTRALIA

Bali Cattle are banteng, found in the Northern Territory. 20 individuals were imported from Bali and established in 1849, soon after which they were freed and became feral. Their number never exceeded 3 000 and in 1978 was estimated at 1 070. A large pure-bred herd (about 200) is due to be established at the Coastal Plains (Beatrice Hill) Research Station. Males are red to black in colour while females are reddish-brown with white patches on their hindquarters and legs. Adult males weigh on average 375 kg. This breed is very fertile, possibly due to the long heat period, and are reported to show a high degree of disease resistance.

SIMFORD



ENDANGERED

Local names or syn.: -

Population data: 2 000 • 1 000 ♀ • 150 ♂ • 1991

Population trend: increasing

Range of uses: meat

AUSTRALIA

Simford cattle are found in New South Wales. The breed is a stabilised cross between Simmental and Hereford and was established in 1990. The animals may be red to deep honey coloured with a white face. This breed has no records as it is in the development stage. Of females, 20% are bred to males of the same breed.

CASPIAN



ENDANGERED

Local names or syn.: Caspian Miniature (eng.)

Population data: 100 - 1 000 • 1988

Population trend: -

Range of uses: -

AUSTRALIA

Caspian ponies are usually bay, grey, chestnut or occasionally black in colour.

BOORoola LEICESTER



CRITICAL

Local names or syn.: -

Population data: 400 • 100 ♀ • 20 ♂ • 1993

Population trend: increasing

Range of uses: meat

AUSTRALIA

The Booroola Leicester breed is a composite of Border Leicester (7/8) and Merino (1/8) and carries two copies of the Booroola gene. Adult males weigh on average 92 kg and females 65 kg. These sheep have coarse/carpet type wool. Prime lambs are produced by this breed. Of females, 100% are bred to males of the same breed.

CARPETMASTER



CRITICAL

Local names or syn.: -

Population data: < 100 • 1995

Population trend: -

Range of uses: wool

AUSTRALIA

The Carpetmaster breed is a composite of coarse-wooled (CW) Border Leicester-Romney and CW Perendales. These sheep have coarse/carpet type wool. These sheep are no longer found in New Zealand, although a population has been established in Australia.

GLEN VALE



ENDANGERED

Local names or syn.: Improved Border Leicester (eng.), Border Leicester Improved (eng.)

Population data: > 1 500 • 400 ♀ • 270 ♂ • 1993

Population trend: stable

Range of uses: -

AUSTRALIA

By 1993 the Glen Vale breed had been created by Alan Luff, co-ordinator of the performance services (lambplan) in New South Wales. These sheep have medium fibred wool.

SIROMEAT



ENDANGERED

Local names or syn.: -

Population data: 310 • 230 ♀ • 80 ♂ • 1989

Population trend: -

Range of uses: -

AUSTRALIA

The Siromeat breed originated in Armidale and was established in 1989. It is a composite of Dorset Horn (3/8), Cheviot (3/8) and Corriedale (2/8) and originated from a CSIRO Research Project in Armidale. These sheep have coarse/carpet type wool. The CSIRO Siromeat project was conducted in Armidale and was concluded in 1989 when the sheep were offered for sale on the commercial market. Of females, 100% are bred to males of the same breed.

ZENITH



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1988

Population trend: -

Range of uses: wool

CAMDEN PARK



ENDANGERED-MAINTAINED

Local names or syn.: Macarthur Merino (eng.)

Population data: > 700 • 250 ♀ • 25 ♂ • 1994

Population trend: stable

Range of uses: tourist attraction / touristic potential

GAYAL



ENDANGERED

Local names or syn.: Mithun (eng.), Mythan (eng.)

Population data: 450 • 125 ♀ • 1992

Population trend: decreasing

Range of uses: socio-cultural

BAMI ORENSCHA



ENDANGERED

Local names or syn.: Mithun (eng.), Mythan (eng.)

Population data: 222 • 101 ♀ • 3 ♂ • 1992

Population trend: -

Range of uses: socio-cultural

AUSTRALIA

The Zenith breed is found in Victoria. It is a composite of Merino (predominant) and Lincoln and was established in 1947. These sheep have medium fibred wool and all animals are polled.

AUSTRALIA

The Camden Park breed is found in Macarthur Park, New South Wales. It is a early strain of Australian Merino and was established between 1797 and 1856. These sheep have small bodies and coarse/carpet type wool. Camden Park sheep are found only in a flock containing the direct descendants of the first Merinos imported from Spain in approximately 1795. In 1978 the flock numbered 15 adult and 5 young males, 180 adult and 80 young females. The flock has always been closed and animals are selected for size and type. About 4-5 rams are used for 100 ewes. 450 animals are kept at a farm in Camden and 250 at another farm at Trangie. They are both museum flocks. Rams are selected at random and there is no selection practised. The animals are kept for their historical importance. Of females, 100% are bred to males of the same breed.

BANGLADESH

The Gayal is a domesticated Gaur (*Bos frontalis*) and is found in deeply forested areas of Chittagong Hill Tracts. The animals are dark slate coloured with white stockings below the knees and a dorsal ridge on the crest of the shoulder. Calves are born dark red but develop their adult colouration by the time they are six months old. These animals have a short tail, big dewlap and a flat forehead. Adult males weigh on average 644 kg and females 400 kg with an average wither height of 137 cm and 125 cm respectively. The horns are symmetrical, diverging outward with pointed tips. Of females, 100% are bred to males of the same breed.

BHUTAN

The Bami Orenscha is a domesticated Gaur (*Bos frontalis*) and is found in deeply forested areas of Chittagong Hill Tracts. The animals are dark slate coloured with white stockings below the knees and a dorsal ridge on the crest of the shoulder. Calves are born dark red but develop their adult colouration by the time they are six months old. These animals have a short tail, big dewlap and a flat forehead. Adult males weigh on average 370 kg and females 350 kg with an average wither height of 180 cm and 160 cm respectively. The horns are symmetrical, diverging outward with pointed tips. Of females, 100% are bred to males of the same breed.

MOI



CRITICAL

Local names or syn.: -

Population data: < 100 • 1988

Population trend: decreasing

Range of uses: -

CAMBODIA

The Moi is of zebu origin and is nearly extinct.

KOUPREY



ENDANGERED

Local names or syn.: Cambodian Wild Ox (eng.), Grey Cambodian Ox (eng.), Indo-Chinese Forest Ox (eng.)

Population data: < 200 • 1994

Population trend: decreasing

Range of uses: -

CAMBODIA

The Kouprey (*Bos sauveli*) is a wild species and is possibly resistant to rinderpest (cattle plague). In 1994 exact population numbers were unknown, but are almost certain to be extremely low. Investigation among local hunters in 1974, conducted by Harvey Neese, indicated the presence of Kouprey animals in the area south and west of Kompong Sra Lau. The main causes for the continuing decline in numbers of the Kouprey include a naturally low reproductive rate, uncontrolled hunting and a demand for its lyre-shaped horns as trophies.

MONN BARAIN



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 500 ♀ • 250 ♂ • 1993

Population trend: decreasing

Range of uses: fancy

CAMBODIA

The Monn Barain is an indigenous turkey breed. These birds have self-black (90%) or silver-columbian (10%) coloured plumage with barred, sex-linked (90%) or barred, autosomal (10%) patterns within the feathers. They may have blue-black (99%) skin and the shanks and feet may be black (90%) or blue (10%). The comb may be of duplex or V-shaped (99%) type and egg shells may be white (99%) or brown (1%) in colour. Adult males weigh on average 5 kg and females 4 kg.

DULONG



CRITICAL

Local names or syn.: Mithun (eng.), Mythan (eng.)

Population data: 20 • 1985

Population trend: -

Range of uses: -

CHINA (INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The Dulong, found in Yunnan Province, is a domesticated Gaur (*Bos frontalis*). The animals are dark slate coloured with white stockings below the knees and a dorsal ridge on the crest of the shoulder. Calves are born dark red but develop their adult colouration by the time they are six months old. These animals have a short tail, big dewlap and a flat forehead. Adult males weigh on average 250 kg and females 400 kg with an average wither height of 125 cm and 128 cm respectively. The horns are symmetrical, diverging outward with pointed tips. The animals rarely mate under captivity and usually mate in the forests. Some crosses of Mithan and domestic cattle are frequently found in the jungle. The population figure for 1968 is an estimate for all Mithun irrespective of the country.

TIELING HARNESS



CRITICAL

Local names or syn.: Tieling

Population data: 120 • 1982

Population trend: decreasing

Range of uses: draught power

CHINA (INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The Tieling Harness breed is found in Liaoning Province. It is a composite of Soviet breeds and local horses and is currently in formation. Adult males weigh on average 630 kg and females 604.5 kg with an average wither height of 156 cm and 154 cm respectively. Their numbers have decreased due to mechanization.

BAISE PONY



ENDANGERED

Local names or syn.: -

Population data: 676 • 1983

Population trend: -

Range of uses: -

CHINA (INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The Baise Pony is a variety of Baise and is dwarf. The breed is found in Yunnan and Sichuan Provinces and Guangxi Zhuang Autonomous Region, south-western China. Adult males weigh on average 110 kg and females 85 kg with an average wither height of 101 cm and 100 cm respectively. Of females, 100% are bred to males of the same breed.

BAMEI



CRITICAL

Local names or syn.: Jingchuan (chin.), Xi (chin.)

Population data: 1 000 • 80 ♀ • 5 ♂ • 1983

Population trend: decreasing

Range of uses: lard, meat

CHINA (INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The Bamei breed, found in Shaanxi and Gansu Provinces, is a North China type. The animals are black in colour. Adult males weigh on average 104 kg and females 80 kg with an average wither height of 55 cm and 59 cm respectively. This breed is adapted to the local cold climate and is known for prolificacy.

EBEI BLACK



CRITICAL

Local names or syn.: -

Population data: 100 ♀ • 1983

Population trend: decreasing

Range of uses: lard

CHINA (INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The Ebei Black breed is found in northern Hubei Province.

HEXI



CRITICAL

Local names or syn.: -

Population data: 44 ♀ • 4 ♂ • 1983

Population trend: decreasing

Range of uses: lard

CHINA (INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The Hexi breed is found in Wuwei, Zhangye and Jiuquan Districts of Gansu Province. Adult males weigh on average 104 kg and females 83 kg with an average wither height of 58 cm and 64 cm respectively.

BAMA XIANG ZHU



ENDANGERED

Local names or syn.: Bamm Mini Pig (eng.)

Population data: < 1 000 • 150 ♀ • 1983

Population trend: -

Range of uses: meat

CHINA (INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

Bama Xiang Zhu pigs are small. On average females weigh 60 kg with an average wither height of 48 cm. The meat is fragrant (Xiang means fragrant in English).

DING



ENDANGERED

Local names or syn.: Ting (chin.), Tinghsien (chin.), Dinsyan (ru.)

Population data: 400 - 500 • 1995

Population trend: decreasing

Range of uses: -

CHINA (INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The Ding breed, found in Dingxian, Hebei, is a variety of Huang-Huai-Hai Back; probably with some input of Poland China since 1929. The pigs have horizontal or lop ears. Adult males weigh on average 178 kg and females 162 kg with an average wither height of 79 cm and 72 cm respectively. The numbers of these animals decreased in the late 1960s due to cross-breeding

HETAO LOP-EAR



ENDANGERED

Local names or syn.: Hetao Daer (chin.)

Population data: 1 000 ♀ • 1981

Population trend: decreasing

Range of uses: -

CHINA (INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The Hetao Lop-Ear breed, found in Inner Mongolia, is part of the Huang-Huai-Hai Black Pig group. Adult males weigh on average 149 kg and females 103 kg. These animals have been crossed because of low performance and no conservation programme is in place.

JILIN BLACK



ENDANGERED

Local names or syn.: Tszilin Chernaya (ru.)

Population data: 1 000 ♀ • 200 ♂ • 1982

Population trend: -

Range of uses: meat

CHINA

(INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The Jilin Black breed, found in Jilin, north-eastern China, is a variety of Xinjin. Adult males weigh on average 280 kg and females 200 kg with an average wither height of 82 cm and 80 cm respectively. Population figures refer only to pure-breds. Of females, 100% are bred to males of the same breed.

LINGAO



ENDANGERED

Local names or syn.: -

Population data: 200 • 1976

Population trend: -

Range of uses: -

CHINA

(INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The Lingao breed are very small. Adult males weigh on average 47.5 kg and females 61 kg. This breed is known for early sexual maturity (3 to 4 months of age).

LUTAI WHITE



ENDANGERED

Local names or syn.: -

Population data: 3 000 • 750 ♀ • 1983

Population trend: stable

Range of uses: meat

CHINA

(INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The Lutai White breed is found in Lutai Farm, Hebei. It is a composite of Russian Large White and Large White. The animals are white in colour.

YANGXIN



ENDANGERED

Local names or syn.: -

Population data: 1 000 • 1989

Population trend: -

Range of uses: -

CHINA

(INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

Yangxin pigs are found in south-eastern Hubei and the breed is a Lower Changjiang Basin type. Adult males weigh on average 128 kg and females 94 kg with an average wither height of 59 cm and 68 cm respectively.

THEEN-YEE



CRITICAL

Local names or syn.: -

Population data: 150 • 50 ♀ • 20 ♂ • 1994

Population trend: stable

Range of uses: meat

CHINA (INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The Theen-Yee breed originated in Theen-Yee, Nanton, central Taiwan Province of China. These chickens have no special pattern within their feathers. They have white skin and the shanks and feet are blue. The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 2.7 kg and females 2 kg.

ERH-MEI



CRITICAL-MAINTAINED

Local names or syn.: -

Population data: 100 • 50 ♀ • 15 ♂ • 1994

Population trend: stable

Range of uses: meat

CHINA (INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The Erh-Mei breed originated in Ehr-Mei, Hsin-Chu, Taiwan Province of China. These birds have self-red and variants (98%) or self-white (2%) coloured plumage with spangled patterns within the feathers. They have white skin and the shanks and feet are blue. The comb may be of walnut (76%), single (17%), pea (4%) or rose (3%) type and egg shells are tinted in colour. Adult males weigh on average 3.8 kg and females 2.6 kg. A flock is preserved at the National Chung-Hsing University.

HUA-TUNG



CRITICAL-MAINTAINED

Local names or syn.: -

Population data: 150 • 50 ♀ • 20 ♂ • 1994

Population trend: stable

Range of uses: meat

CHINA (INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

Hua-Tung chickens originated in Hualien and Taitung, eastern Taiwan Province of China. They have self-black coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are black. The comb may be of walnut (86%), single (9%) or pea (5%) type and egg shells are tinted in colour. Adult males weigh on average 3.3 kg and females 2.5 kg. A flock is preserved at the National Chung-Hsing University.

JU-CHI



CRITICAL-MAINTAINED

Local names or syn.: -

Population data: 100 • 50 ♀ • 15 ♂ • 1994

Population trend: decreasing

Range of uses: meat

CHINA (INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The Ju-Chi breed originated in Ju-Chi, Chia-Yi, Taiwan Province of China. They have self-black coloured plumage with no special pattern within the feathers. They may have white (80%) or blue-black (20%) skin and the shanks and feet are black. The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 2.6 kg and females 2.1 kg. A flock is preserved at the National Chung-Hsing University.

NEI-MONG



CRITICAL-MAINTAINED

Local names or syn.: -

Population data: 20 • 10 ♀ • 4 ♂ • 1994

Population trend: decreasing

Range of uses: meat

CHINA

(INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The Nei-Mong breed originated in Nei-Mong, Kuoshiug, southern Taiwan Province of China. They have gold-columbian coloured plumage, white skin and blue shanks and feet. The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 2.4 kg and females 1.9 kg. Reproduction performances of this breed are decreasing due to inbreeding. A flock is preserved at the National Chung-Hsing University.

QUEMOY



CRITICAL-MAINTAINED

Local names or syn.: -

Population data: 150 • 50 ♀ • 20 ♂ • 1994

Population trend: increasing

Range of uses: meat

CHINA

(INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The Quemoy breed originated on Quemoy Island, Taiwan Province of China. They have self-black coloured plumage, gold laced on the neck. They have white skin and the shanks and feet are blue. The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 1.9 kg and females 1.4 kg. A flock is preserved at the National Chung-Hsing University.

BROWN TSAIYA



ENDANGERED-MAINTAINED

Local names or syn.: -

Population data: 1 500 • 200 ♀ • 30 ♂ • 1994

Population trend: stable

Range of uses: research, meat

CHINA

(INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The Brown Tsaiya is an indigenous breed of duck, found in Taiwan Province of China. The birds have self-white coloured plumage and yellow skin, shanks and feet. Egg shells may be white (90%) or greenish (10%) in colour. Adult males weigh on average 1.4 kg and females 1.5 kg. A closed flock is kept at the I-Lan Duck Research Center of the Taiwan Livestock Research Institute. These ducks are used as a female terminal line for the production of White Mule Ducks which is the most important meat duck in Taiwan.

WHITE PEKIN LINE 201



ENDANGERED-MAINTAINED

Local names or syn.: -

Population data: 1 000 • 120 ♀ • 25 ♂ • 1994

Population trend: stable

Range of uses: research, meat

CHINA

(INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The White Pekin Line 201 breed was imported from the United States of America and is found in Taiwan Province of China. They have self-white coloured plumage and yellow skin, shanks and feet. Egg shells may be white (99%) or greenish (1%) in colour. Adult males weigh on average 3 kg and females 2.7 kg. A closed flock is kept at the I-Lan Duck Research Center of the Taiwan Livestock Research Institute. They are a terminal sire line for the production of White Mule Ducks.

WHITE CHINESE



ENDANGERED

Local names or syn.: -

Population data: 250 • 189 ♀ • 1994

Population trend: increasing

Range of uses: meat, research, downs

CHINA (INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The White Chinese goose was imported from south-eastern China by Han immigrants over the past 300 years to Taiwan Province of China. They have white skin, the shanks and feet are yellow and egg shells are white in colour. Adult males weigh on average 6 kg and females 4.8 kg. Consumers in Taiwan are known to pay up to 80% more for meat of this breed than for meat of other exotic breeds due to its very high quality.

BROWN CHINESE



ENDANGERED-MAINTAINED

Local names or syn.: -

Population data: 240 • 177 ♀ • 45 ♂ • 1994

Population trend: increasing

Range of uses: meat, research, downs

CHINA (INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The Brown Chinese goose has been imported from south-eastern China by Han immigrants over the past 300 years to Taiwan Province of China. They have white skin, the shanks and feet are yellow and egg shells are white in colour. Adult males weigh on average 5.8 kg and females 4.8 kg. This breed produces good quality meat. Brown and White Chinese geese kept by farmers in Taiwan are interbred making it very difficult to find pure animals. This is the only pure variety flock preserved at the Chang-Hwa Propagation Station of the Taiwan Livestock Research Institute.

BLACK MUSCOVY L303



CRITICAL

Local names or syn.: -

Population data: 140 • 90 ♀ • 50 ♂ • 1994

Population trend: stable

Range of uses: research, meat

CHINA (INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The Black Muscovy L303 breed is an indigenous population, found in Taiwan Province of China. These birds have self-black (95%) or self-white (5%) coloured plumage. They have yellow skin, black shanks and feet and egg shells are white in colour. Adult males weigh on average 3.5 kg and females 2 kg. This breed is reported to be resistant to duck viral hepatitis (DVH) and viral hepatitis of geese (GVH or Derzsey disease).

WHITE MUSCOVY DUCK



CRITICAL-MAINTAINED

Local names or syn.: -

Population data: 1 000 • 100 ♀ • 15 ♂ • 1994

Population trend: stable

Range of uses: research, meat

CHINA (INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

The White Muscovy Duck originated in France and is a terminal sire line for the production of White Mule Ducks, found in Taiwan Province of China. They have self-white coloured plumage, yellow skin, shanks and feet and egg shells that are white in colour. Adult males weigh on average 4.8 kg and females 2.6 kg. A closed flock is kept at the I-Lan Duck Research Center of the Taiwan Livestock Research Institute.

SHAVER-BROWN



ENDANGERED

Local names or syn.: Brown Bird (eng.)

Population data: 100 - 1 000 • 1994

Population trend: decreasing

Range of uses: meat, eggs

COOK ISLANDS

The Shaver-Brown chicken is found on the island of Rarotonga. It was imported from Hatchey, New Zealand, for egg and meat production and was introduced at the same time as the White Shaver. They have self-red and variants coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 2 kg and females 1.5 kg. The population has declined as people have changed over to the White Shaver for egg production.

MUSCOVY DUCK OF RAROTONGA



ENDANGERED

Local names or syn.: Local Duck (eng.)

Population data: 100 - 1 000 • 1994

Population trend: stable

Range of uses: meat, eggs

COOK ISLANDS

The Muscovy Duck of Rarotonga is found on the island of Rarotonga. Judging from their colour and size these birds are of Muscovy origin and may have been introduced and established at the beginning of the 19th century. They have self-white (50%) or self-black (50%) coloured plumage with barred, sex-linked patterns within the feathers. They have yellow skin, shanks and feet. The comb is of single type and egg shells are brown in colour. These Muscovy ducks are heavily muscled, dwarf birds. The meat is widely accepted for local consumption. The population seems to remain stable although the number of people rearing these birds has fallen since the 1950s and 1960s.

NATIVE PIGEON OF COOK ISLANDS



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1994

Population trend: increasing

Range of uses: meat

COOK ISLANDS

The Native Pigeon of the Cook Islands is found on the island of Rarotonga. The bird is native to this island and also to the outer islands of Manke and Asin. They have self-blue (50%), self-black (25%) or self-white (25%) coloured plumage with barred, sex-linked patterns within the feathers. They have yellow skin, shanks and feet. The comb is of single type and egg shells are tinted in colour. The population size has increased mostly on the island of Manke.

GOLD LINK



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 500 ♀ • 25 ♂ • 1992

Population trend: stable

Range of uses: meat, eggs

GUAM

The Gold Link breed was imported from Pennsylvania, the United States of America. These birds have self-red and variants coloured plumage with barred, sex-linked patterns within the feathers and yellow shanks and feet. The comb may be of single type and egg shells are brown in colour. Adult males and females weigh on average 3 kg. Chick sexing is possible for this breed.

INDIAN WILD ASS



ENDANGERED

Local names or syn.: Baluchi Wild Ass (eng.), Thor Char, Indian Onager (eng.), Khur

Population data: 800 • 1994

Population trend: -

Range of uses: -

INDIA

The Indian Wild Ass (*Equus hemionus khur*) is a variety of Onager and is found in jungle areas of Runn of Kutch, Gujarat State. It also used to be found in Baluchistan. Some seasonal migration northwards into southern Pakistan may take place.

INDIAN BACTRIAN



CRITICAL

Local names or syn.: -

Population data: 46 • 1986

Population trend: -

Range of uses: -

INDIA

Adult Indian Bactrian males weigh on average 500 kg with an average wither height of 195 cm.

WILD WATER BUFFALO



ENDANGERED

Local names or syn.: Wild Asiatic Buffalo (eng.)

Population data: 1 000 - 1 500 • 1980

Population trend: decreasing

Range of uses: -

INDIA

The Wild Water Buffalo (*Bubalus bubalis*) is found in Assam and Madhya Pradesh, although very few of the Wild Water Buffaloes can be considered pure wild stock. In the 1960s their population was approximately 2 000, but the loss of its riverine habitat to human settlement and cultivation, competition for forage and disease transmission by domestic stock and interbreeding with the domestic buffalo have led to the dramatic reduction of the range and numbers of the Wild Asiatic Buffalo.

PUNGANUR



CRITICAL

Local names or syn.: -

Population data: < 100 • 1988

Population trend: -

Range of uses: draught power, milk

INDIA

The Punganur breed is found in Chittoor, southern Andhra Pradesh. It is a dwarf type similar to a Mysore type and maybe the smallest of all cattle breeds. The animals are white, grey, red, brown or occasionally black in colour, with small, crescent shaped horns. Adult males and females weigh on average 115 kg with an average wither height of 80 cm. Cows are fair milkers and bulls are more docile than females. In an attempt to rescue the breed from extinction during the mid 1950s, a herd of Punganur cattle was put together and bred at the Government Livestock Farm at Palamanery in Chittoor District, but due to the cattle's lack of utility the herd was dispersed.

VECHUR



CRITICAL-MAINTAINED

Local names or syn.: Dwarf Cow (eng.)

Population data: < 100 • 1992

Population trend: decreasing

Range of uses: milk

INDIA

The Vechur breed is found in Kottayam district in southern Kerala. The animals are light red, black or fawn and white in colour. They are a dwarf type and have small horns that curve forward and downwards. Adult males weigh on average 167 kg and females 123 kg with an average wither height of 98 cm and 87 cm respectively. These cattle are reported to be adaptable and have high disease resistance. The breed is nearly extinct because of its extensive grading with superior indigenous breeds and cross-breeding with exotic dairy breeds. An *in situ* conservation programme, sponsored by ICAR, was initiated in 1989 to conserve and multiply the available stock. This herd was initially composed of 4 cows, 1 heifer, 1 bull and 2 bull calves.

TAYLOR



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1988

Population trend: -

Range of uses: milk

INDIA

The Taylor breed is found in Patna, Bihar. It is a composite of 4 Shorthorn and channel island bulls and local zebu cattle and was established in 1856. The animals are humpless and black, grey or red in colour.

UMLACHERY



ENDANGERED

Local names or syn.: Jathi madu, Mottai madu, Southern, Tanjore, Therkuthi madu

Population data: 100 - 1 000 • 1988

Population trend: -

Range of uses: draught power

INDIA

The Umblachery breed is found in the Thanjanvur, Nagai-Quaide-e-Milleth and A.T. Panneerselvam districts of Tamil Nadu. It is a zebu type breed and may have developed by crossing Kangayam with local animals as it is similar to Kangayam only smaller. These cattle have very small horns and are grey with white points, stockings and back-line, although calves are red or brown when born. Adult males weigh on average 385 kg and females 325 kg with an average wither height of 113 cm and 103 cm respectively. The breed was developed to provide draft power in marshy paddy fields.

DECCANI



CRITICAL

Local names or syn.: Bhimthadi

Population data: < 100 • 1988

Population trend: -

Range of uses: wool

INDIA

The Deccani pony, found in Bombay, is nearly extinct.

SHAPO



ENDANGERED

Local names or syn.: Ovis Orientalis Vignei, Astor Urial, Ladakh Urial, Urin, Ladkh Urial

Population data:

Population trend: 450 • 250 ♀ • 50 ♂ • 1991

Range of uses: decreasing

-

INDIA

The Shapo (*Ovis vignei vignei*), which is found in Ladakh and Astor, is a variety of Urial. Adult males weigh on average 63 kg and females 36 kg with an average wither height of 91 cm and 76 cm respectively. These sheep have coarse/carpet type wool. The animals are adapted to barren treeless regions in stony valleys and lower foothills. Shapo used to be very common but are now very rare on the west bank of the Kunhar river in the Chitral and in the lower hills surrounding the Gilgit valley. However, it is presumed that they are not subjected to such severe hunting pressure in other areas. Population estimates have been made by consultation with wildlife experts (although earlier attempts to estimate population size proved very difficult) and by referring to wildlife reports. Of females, 100% are bred to males of the same breed.

FH-MERAH



ENDANGERED

Local names or syn.: Red Friesian (eng.)

Population data: < 1 000 • 1997

Population trend: decreasing

Range of uses: milk, meat

INDONESIA

The FH-merah breed is found in western Java. It was imported from Australia and Hungary and was established in 1987. The animals are red and white in colour and have dairy conformation. Adult males weigh on average 800 kg and females 600 kg with an average wither height of 135 cm and 130 cm respectively. Females may be either polled or horned (the horns are short and closed) and males are always horned. The breed is well adapted to highlands above 700 m asl, with temperatures of 16 to 24 °C, relative humidity of 75 % and rainfall of about 2 000 mm. Cows of this breed are good milkers but have moderate reproductive ability. Although this breed has a similar production ability to black and white HE, red coloured animals are not popular resulting in a decreasing population. The semen of one male is stored.

HISSAR



ENDANGERED

Local names or syn.: Milking Zebu (eng.)

Population data: < 500 • 1997

Population trend: decreasing

Range of uses: milk, meat

INDONESIA

The Hissar is found in northern Sumatra and western Sumbawa. This zebu dairy breed was imported from India and established in 1909. The animals are white in colour with small, outward pointing, V-shaped horns. Adult males weigh on average 550 kg and females 375 kg with an average wither height of 135 cm and 126 cm respectively. This breed is not currently popular for milk production and as a consequence the population is decreasing.

GEMBRONG



CRITICAL

Local names or syn.: -

Population data: 100 • 1997

Population trend: decreasing

Range of uses: wool for fishing lures, meat

INDONESIA

The origin of the Gembrong goat breed, which is found in eastern Bali, is not known. The animals are white in colour and are bigger than Kacang goats, have a chubby face and long (20-22 cm) fine fibred, hairy wool of Angora or Cashmere type. Adult males weigh on average 45 kg and females 38 kg with an average wither height of 70 cm and 65 cm respectively. Males have small V-shaped horns and females may be polled or horned. The breed is well adapted to lowland or sea shore villages but is susceptible to bloat. The goats' hair is shaved every 6-8 months for use as tuna fishing lures and as a result the breed is only popular in fishing villages.

BOER



ENDANGERED

Local names or syn.: -

Population data: 400 • 1997

Population trend: increasing

Range of uses: general crossbreeding, meat

INDONESIA

The Boer goat breed is found in northern Sumatra. The breed was established in 1997 when males, semen and embryos were imported from Australia. The animals are light to dark brown or black in colour with a white neck and head and have a massive body. Adult males weigh on average 80 kg and females 60 kg with an average wither height of 75 cm and 65 cm respectively. This breed is susceptible to scabies and bloat. Embryos and the semen of 15 males have been stored.

MONTGOMERY



ENDANGERED

Local names or syn.: -

Population data: 1 000 • 1997

Population trend: decreasing

Range of uses: sire line

INDONESIA

The Montgomery breed is found in Java.

THOROUGHBRED RACING HORSE



ENDANGERED

Local names or syn.: Thoroughbred racing horse (eng.)

Population data: 320 • 1997

Population trend: increasing

Range of uses: racing, general crossbreeding

INDONESIA

The Thoroughbred racing horse is found in Jakarta, western, central and eastern Java, Jogjakarta, western Sumatra, northern, central and southern Sulawesi and western and eastern Nusatenggara. It was imported from Australia, Europe and the United States of America and was established in 1975. The horses are mainly brown in colour and are a strong, light, streamlined and active racing horse. Adult males weigh on average 510 kg and females 450 kg with an average wither height of 165 cm and 158 cm respectively.

KUDA-MINAHASA



ENDANGERED-MAINTAINED

Local names or syn.: -

Population data: 1 000 • 1997

Population trend: increasing

Range of uses: racing, sire line, draught power, meat

INDONESIA

The kuda-Minahasa breed is found in North Sulawesi. It is a composite of Sandelewood and Thoroughbred and was established in 1968. The animals are mainly brown in colour and have a race horse conformation. Adult males weigh on average 420 kg and females 340 kg with an average wither height of 144 cm and 134 cm respectively.

KAPSTAD



ENDANGERED

Local names or syn.: -

Population data: 1 000 • 1997

Population trend: decreasing

Range of uses: meat

INDONESIA

The Kapstad breed is found in Java.

ROMNEY



ENDANGERED

Local names or syn.: -

Population data: 1 000 • 1997

Population trend: decreasing

Range of uses: meat

INDONESIA

The Romney breed is found in Java.

SAINT CROIX BLACKBELLY- BARBADOS CROSS



ENDANGERED

Local names or syn.: -

Population data: 500 • 1997

Population trend: increasing

Range of uses: meat

INDONESIA

Saint Croix Blackbelly-Barbados cross sheep are found in northern Sumatra. The breed was imported from the United States of America in 1994. This sheep breed is heat tolerant, prolific and a good meat producer. The semen of 5 males is stored.

KUCHINOSHIMA



CRITICAL

Local names or syn.: -

Population data: < 100 • 14 ♀ • 5 ♂ • 1995

Population trend: -

Range of uses: -

JAPAN

Kuchinoshima cattle are found on Kuchinoshima Island, Tokara Islands, Kagoshima Prefecture. The breed, established in 1918, is a variety of Japanese Native Feral cattle, descended from domestic cattle that escaped from farms in 1918. The animals are small and either black, red, pink, grey, black pied or red pied in colour. Adult males weigh on average 400 kg with an average wither height of 110 cm for males and 100 cm for females. Of females, 100% are bred to males of the same breed.

MISHIMA



CRITICAL

Local names or syn.: -

Population data: 65 • 46 ♀ • 5 ♂ • 1991

Population trend: stable

Range of uses: meat

JAPAN

The Mishima breed is found in Mishima Island, north-western Hagi, Yamaguchi Prefecture. The breed is a variety of Japanese Native and has retained its original characteristics as it has not been affected by breeds imported during the Meiji era. The cattle are small, but produce high quality meat with fine marbling, and are black in colour. Adult males weigh on average 600 kg and females 400 kg with an average wither height of 125 cm and 115 cm respectively. The breed was reduced to about 150 animals in 1967 and was designated a so-called national monument animal in 1979. By 1990 there were only 30 animals remaining, according to the Preservation Committee. Of females, 100% are bred to males of the same breed.

TOKARA



CRITICAL

Local names or syn.: -

Population data: < 100 • 1995

Population trend: -

Range of uses: meat

JAPAN

The Tokara goat is found in Tokara Archipelago (west of the Mainland), Kagoshima Prefecture. This breed is primitive and was introduced from Okinawa Prefecture. The goats are brown with a black back-stripe and have long, backwards curving horns. Adult males weigh on average 30.4 kg and females 19.3 kg. The animals are known for breeding throughout the year and are reported to be strongly resistant to filariasis cerebrospinalis. 50 of these goats have been recorded, although the date of this data is unknown. In 1979 there was a herd with 26 animals but there is no indication whether or not this was the only herd. Of females, 100% are bred to males of the same breed.

CHUBBY



ENDANGERED

Local names or syn.: -

Population data: 100 - 500 • 1995

Population trend: decreasing

Range of uses: -

JAPAN

The Chubby goat is found in Goto Island, Nagasaki Prefecture. The animals are white in colour and miniature. Adult males weigh on average 41.8 kg and females 43.1 kg with an average wither height of 65 cm and 55 cm respectively. These goats can produce kids throughout the year. Of females, 100% are bred to males of the same breed.

KISO



CRITICAL

Local names or syn.: -

Population data: 100 • 50 ♀ • 5 ♂ • 1998

Population trend: decreasing

Range of uses: -

JAPAN

The Kiso breed is found in central Honshu, in the Kiso River basin, Nagano Prefecture. This breed, which is a variety of Japanese native was established in the Meiji era. Since then national improvement plans led to a sharp fall in the number of pure Kiso Ponies. After 1945 Kiso ponies were bred using the few surviving pure bred individuals. These small animals are either bay, chestnut, black or palomino in colour. Adult males weigh on average 450 kg and females 300 kg with an average wither height of 134 cm and 132 cm respectively. Of females, 100% are bred to males of the same breed.

MISAKI



CRITICAL

Local names or syn.: Wild Horse (eng.)

Population data: 100 • 40 ♀ • 25 ♂ • 1998

Population trend: stable

Range of uses: tourist attraction / touristic potential

JAPAN

The Misaki breed is found in Cape Toi, south Kyushu, Miyazaki Prefecture. It is a variety of Japanese Native horse and was designated a natural treasure in 1953. The animals are brown in colour with an average wither height of 132 cm and 132 cm for males and females respectively. Of females, 100% are bred to males of the same breed.

MIYAKO



CRITICAL

Local names or syn.: -

Population data: 20 • 10 ♀ • 10 ♂ • 1998

Population trend: stable

Range of uses: tourist attraction / touristic potential

JAPAN

The Miyako horse is found on Miyako Island of the Ryu-Kyu Islands, Okinawa Prefecture. It is a variety of Japanese Native horse with an average wither height for males and females of 122 cm and 120 cm respectively. Of females, 100% are bred to males of the same breed.

NOMA



CRITICAL

Local names or syn.: -

Population data: 80 • 30 ♀ • 10 ♂ • 1998

Population trend: increasing

Range of uses: riding (by children)

JAPAN

The Noma breed, found in Shikoku, Ehime Prefecture, is the smallest of all varieties of Japanese Native horses. This breed may have been originally reared for transportation on the islands of the inland sea. Males and females have an average wither height of 110 cm and 112 cm respectively. Of females, 100% are bred to males of the same breed.

YONAGUNI



CRITICAL

Local names or syn.: -

Population data: 100 • 60 ♀ • 5 ♂ • 1998

Population trend: increasing

Range of uses: -

JAPAN

The Yonaguni breed is found in Yonaguni Island, Ryukyu Islands, Okinawa Prefecture. It is a variety of Japanese Native horse, with an average wither height of 120 cm for males and 116 cm for mares. These horses graze in the same pastures as cattle. Of females, 100% are bred to males of the same breed.

TOKARA PONY



CRITICAL-MAINTAINED

Local names or syn.: -

Population data: 110 • 60 ♀ • 50 ♂ • 1998

Population trend: increasing

Range of uses: -

JAPAN

The Tokara Pony is found on the Tokara Islands, Kagoshima Prefecture. It is a medium sized, island variety of Japanese Native horse. The ponies are usually dark brown in colour with a darker mane and tail. Adult males weigh on average 204.5 kg and females 191 kg with an average wither height of 115 cm and 114 cm respectively. The animals used to be widely used for cultivation, draft and as a power source for crushing sugar cane. Of females, 100% are bred to males of the same breed. An *in situ* conservation programme is operational, with animals being raised on the Kagoshima Prefecture mainland.

TSUSHIMA



CRITICAL-MAINTAINED

Local names or syn.: Taishu Pony (eng.)

Population data: 40 • 20 ♀ • 5 ♂ • 1998

Population trend: -

Range of uses: sport, tourist attraction / touristic potential

JAPAN

The Tsushima breed, found on Tsushima Island, Nagasaki Prefecture, is a variety of Japanese native horse. They were once widely used on Tsushima Island for transportation between isolated villages connected only by narrow paths across steep slopes. Now, however, they are rarely used for such work. These horses have strong legs and feet and are smaller than normal horses, with an average wither height of 123 cm and 123 cm for males and females respectively. The Taishu Pony Conservation Group in Tsushima plans to use these ponies not only for the riding but also as tourist attraction. Of females, 100% are bred to males of the same breed.

OHMINI



CRITICAL

Local names or syn.: -

Population data: 100 • 60 ♀ • 20 ♂ • 1978

Population trend: -

Range of uses: -

JAPAN

The Ohmini breed was created and established by the Institute of Japan Livestock Development in the 1950s by crossing 30 Chinese Miniature pigs with 5 Minnesota Miniature pigs using a brother-sister inbreeding system. These miniature pigs are usually black but may occasionally be black pied in colour. Adult males weigh on average 20 kg and females 20 kg. The strain was bred by the Institute of Japan Livestock Development.

SHIBA-TORI



CRITICAL

Local names or syn.: Shiba-jidori (jap.)

Population data: < 100 • 1993

Population trend: decreasing

Range of uses: fancy

JAPAN

The Shiba-Tori breed is found in Niigata Prefecture and appears to be one of the older, indigenous types of Japanese chicken. They have self-red and variants coloured plumage, yellow shanks and feet and the comb is of single type. Adult males weigh on average 1.5 kg and females 1.2 kg.

JITOKKO



ENDANGERED

Local names or syn.: Japanese Creeper (eng.)

Population data: 100 - 1 000 • 1987

Population trend: -

Range of uses: fancy

JAPAN

The Jitokko breed, the origin of which is unknown, is found in Kagoshima and Miyazaki Prefectures. These chickens have yellow shanks and feet while their plumage may be self-red and variants, self-black, wild-type and variants or self-white. One section of the population is white in colour with a black breast. The comb may be of pea, walnut or single type. Adult males weigh on average 3 kg and females 2.5 kg. This breed was designated a natural monument in 1943.

KAWACHIYAKKO



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1987

Population trend: decreasing

Range of uses: fancy

JAPAN

The Kawachiyakko chicken is presumed to have genes from crosses between Kojidori and Koshamo breeds and is found in Mie Prefecture. It was designated a natural monument in 1943. These chickens have white or gold-columbian coloured plumage with a black breast and yellow shanks and feet. Kawachiyakkos have a unique pea comb, the central ridge of which is large and prominent. It is a bantam chicken with a long saddle. Adult males weigh on average 0.9 kg and females 0.7 kg.

KOEYOSHI



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1987

Population trend: stable

Range of uses: fancy

JAPAN

The Koeyoshi breed is found in Akita, Aomori and Iwate Prefectures. Although controversial, it is generally thought that Koeyoshi derives from a cross between Shamo (Japanese Game Bantam) and Tomaru. In 1937 Koeyoshi was designated a natural monument by the Japanese Government. The breed has white coloured plumage with a black breast, yellow shanks and feet and a pea type comb. The cock has a deep, hoarse crow, which lasts for approximately 15 seconds. Adult males weigh on average 4.5 kg and females 4 kg.

KUROKASHIWA



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1987

Population trend: -

Range of uses: fancy

JAPAN

The Kurokashiwa breed is found in Yamaguchi and Shimane Prefectures and was designated a natural monument in 1951. Although the origin of this breed is unknown, it has a close genetic relationship with some breeds such as Akakashiwa, Shirokashiwa and Banshukashiwa. These chickens have self-black coloured plumage, black shanks and feet and a single type comb. This breed has a graceful appearance similar to that of Shokoku, with long, abundant tail feathers. Adult males weigh on average 2.8 kg and females 1.8 kg.

MINOHIKI



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1987

Population trend: decreasing

Range of uses: fancy

JAPAN

The Minohiki breed, presumably originating from crosses between Shokoku and Shamo (Japanese Game), is found in Aichi and Shizuoka Prefectures. They have wild-type and variants, self-white or self-red and variants coloured plumage with a black breast and yellow or green shanks and feet. The comb may be of duplex or V-shaped, walnut or pea type. Long, abundant saddle feathers are characteristic of this breed. Adult males weigh on average 2.5 kg and females 1.8 kg. The breed was designated a natural monument of Japan in 1940.

SADO HIGE-JIDORI



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1987

Population trend: decreasing

Range of uses: fancy

JAPAN

The origin of the Sado Hige-Jidori, which is found in Niigata Prefecture, is unknown. It may derive from a mutant type of Shiba-tori also found in Niigata Prefecture. These chickens have self-red and variants coloured plumage, yellow or green shanks and feet and a single type comb. Adult males weigh on average 1.9 kg and females 1.5 kg.

TOSA COCHIN



ENDANGERED

Local names or syn.: Tosa-kukin (jap.)

Population data: 100 - 1 000 • 1987

Population trend: stable

Range of uses: meat, fancy

JAPAN

The Tosa Cochin breed is found in Kochi Prefecture and appears to originate from the Buff Cochin breed imported from England, although this breed does not have feathered legs. The breed was upgraded and established in the Kochi prefecture during the late 19th century. They have self-red and variants coloured plumage. They have yellow skin, the comb is of single type and egg shells are brown in colour. The breed has a large body, adult males weighing on average 4 kg and females 3 kg. These chickens are sometimes used for broiler production and crossed with meat-type breeds.

UTAI-CHAHN



ENDANGERED

Local names or syn.: Okinawa Native Fowl (eng.)

Population data: 100 - 1 000 • 1987

Population trend: decreasing

Range of uses: fancy

JAPAN

The origin of the Utai-Chahn, which is found in Okinawa Prefecture, is unknown. These chickens have black and white (56%), self-black (28%) or self-white (16%) coloured plumage with spangled patterns within the feathers. Their shanks and feet may be yellow (55%), blue (37%) or white (8%). They have a single type comb and whiskers, but no wattles. Adult males weigh on average 1.9 kg and females 1.4 kg. Utai-Chahn chickens are kept because of the cock's attractive crow which consists of three distinct syllables, 'Quack-quah-quah', and which stops abruptly on a high note.

JAPANESE LONG-TAILED FOWL



ENDANGERED-MAINTAINED

Local names or syn.: Onaga-dori (jap.), Yokohama (jap.), Phoenix (eng.)

Population data: 100 - 1 000 • 200 ♀ • 100 ♂ • 1991

Population trend: decreasing

Range of uses: fancy

JAPAN

The Japanese Long-Tailed Fowl is found in Kochi Prefecture and is thought to have been established in southern Shikoku in the 17th or 18th century. The plumage of these chickens may be self-white, self-red and variants or wild-type and variants and they may have a black breast. They have white skin, blue or yellow shanks and feet, a single type comb and egg shells may be tinted or brown in colour. The main tail feathers do not moult and can grow to more than 10 meters in length. Adult males weigh on average 1.8 kg and females 1.3 kg. This breed was designated a natural monument in 1923 by the Japanese Government and as a special natural monument in 1952 in order to protect it from extinction.

KOUPREY



CRITICAL

Local names or syn.: Cambodian Wild Ox (eng.), Grey Cambodian Ox (eng.), Indo-Chinese Forest Ox (eng.)

Population data: 40 - 100 • 1994

Population trend: decreasing

Range of uses: -

LAOS

The Kouprey (*Bos sauveli*) is a wild species found in southern Laos which is possibly resistant to rinderpest (cattle plague). Population numbers are unknown, but almost certain to be extremely low. Reports from 1983 suggest the species may still survive in Laos. The main causes for the continuing decline in numbers of the Kouprey include a naturally low reproductive rate, uncontrolled hunting and a demand for its lyre-shaped horns as trophies.

KAE



ENDANGERED

Local names or syn.: Crossbreed Sheep (eng.)

Population data: < 1 000 • 1998

Population trend: -

Range of uses: -

LAOS

The Kae breed is a composite of local and Mongolian sheep breeds, bred for meat production. Adult males weigh on average 35 kg and females 25 kg.

MURRAH



ENDANGERED

Local names or syn.: Riverine Buffalo (eng.), Bubalus bubalis (lat.)

Population data: 996 • 369 ♀ • 162 ♂ • 1996

Population trend: decreasing

Range of uses: milk

MALAYSIA

The Murrah breed of dairy type buffalo is found mainly in the western region of the Malaysian Peninsula. This breed originated from the Indian sub-continent and was established in 1900 when they were introduced by Indian and Pakistani farmers. Adult males weigh on average 600 kg and females 500 kg with an average wither height of 130 cm and 120 cm respectively. Of females, 100% are bred to males of the same breed.

BALI CATTLE



CRITICAL

Local names or syn.: Balinese (eng.), Bos banteng (lat.)

Population data: 31 • 23 ♀ • 4 ♂ • 1994

Population trend: -

Range of uses: -

MALAYSIA

Bali Cattle are domesticated Banteng. Males range from red to black in colour and females are reddish-brown with white patches on hindquarters and legs. Adult males weigh on average 250 kg and females 200 kg. Bali Cattle are very fertile, possibly due to the long heat period, and are reported to show a high degree of disease resistance. In 1994 the Department of Wildlife and National Parks reported that *Bos banteng* were dangerously endangered in the wild. Of females, 100% are bred to males of the same breed.

BANTENG



ENDANGERED

Local names or syn.: Banteng Banteng Wagner (lat.), Banteng Sondaicus Schlegel and Müller (lat.)

Population data: 100 - 1 000 • 1988

Population trend: -

Range of uses: -

MALAYSIA

The Banteng, a wild species of *Bos javanicus*, is found mainly in Bali, Kalimantan and Lombok. These animals are black or brown in colour with white stockings and rump patch.

SELADANG



ENDANGERED

Local names or syn.: Malayan Bison (eng.), Malayan Gaur (eng.), Bos gaurus hubackii (lat.)

Population data: 300 - 400 • 1996

Population trend: decreasing

Range of uses: -

MALAYSIA

The Seladang is found mainly in the primary forest of the Malay Peninsula and is a variety of Gaur (*Bos frontalis*). Adult males weigh on average 900 kg and females 500 kg with an average wither height of 210 cm and 180 cm respectively. The animals of this breed are reported to show a high degree of disease resistance. The numbers of this breed are decreasing rapidly. In 1977, 20 animals were raised in captivity in the Wildlife Department's farm in the State of Perak. One entered the Central Animal Research Institute, Kluang, Johor, and this male is now being crossed with Holstein-Friesian females. 4 males have been used in a study conducted by the Wildlife Department (of which 2 were in AI). Of females, 100% are bred to males of the same breed.

SOUTH CHINA



ENDANGERED

Local names or syn.: Cantonese (eng.), Canton Pig (eng.), Local Chinese (eng.)

Population data: 400 • 1996

Population trend: decreasing

Range of uses: meat

MALAYSIA

The South China breed is found in West Malaysia. It is a South China Black (Canton) type and Hainan type imported from China and was established in 1880. The pigs have black heads and backs and white bellies and legs. Adult males weigh on average 40 kg and females 32 kg with an average wither height of 50 cm and 47 cm respectively. The breed is reported to be hardy, adapted to poor feed and highly resistant to heat and direct solar radiation. The breed has a poor growth rate and produces a soft and lardy carcass. This breed shows a good fecundity with two litters per year and it is reported to be immune to kidney worm and liver fluke. The breed has declined in numbers as pig production in Malaysia has become quite intensive and it is now restricted to remote areas. Pigs also pose a problem for the Muslim culture. South China pigs are now under serious threat of extinction.

PRZEWALSKI HORSE



ENDANGERED

Local names or syn.: Asiatic Wild Horse (eng.), Mongolian Wild Horse (eng.), Mongolian Tarpan (eng.), Taki (mong.)

Population data: 100 - 1 000 • 1988

Population trend: -

Range of uses: -

MONGOLIA

Przewalski Horses (*Equus ferus przewalskii*) are red-brown in colour with light underparts, leg bars and a back stripe and an erect mane.

MYOGYI



ENDANGERED

Local names or syn.: Inbinwa Chicken (eng.)

Population data: 100 - 1 000 • 450 ♀ • 70 ♂ • 1994

Population trend: decreasing

Range of uses: meat, eggs, fancy

MYANMAR

The origin of the Myogyi breed, found in Meikhtilar Township, Inbinwa, Mandalay Division, central Myanmar, is not clear. These chickens may have white, black or red coloured plumage, white skin and yellow shanks and feet. The comb is of pea type, egg shells are tinted in colour and they have feathered legs. Adult males weigh on average 2.2 kg and females 2 kg. This breed, which is very well adapted to a hot, dry climate and is reported to be resistant to certain diseases, is known for its remarkable growth rate, its high body weight and meat quality.

WILD WATER BUFFALO



ENDANGERED

Local names or syn.: Wild Asiatic Buffalo (eng.)

Population data: 1 000 - 1 500 • 1980

Population trend: decreasing

Range of uses: -

NEPAL

The Wild Water Buffalo (*Bubalus bubalis*) is found in south-eastern Nepal. In the 1960s it was estimated that the Wild Water Buffalo population was about 2 000. By 1980 the population had fallen and very few animals could be considered of pure wild stock. The principal reason for the dramatic reduction of the range and numbers of the Wild Asiatic buffalo has been the loss of its riverine habitat to human settlement and cultivation, and its survival is also threatened by interbreeding with the domestic buffalo, by competition for forage from domestic stock and by diseases transmitted by domestic animals.

ENDERBY ISLAND



CRITICAL

Local names or syn.: -

Population data: 2 ♀ • 1993

Population trend: -

Range of uses: -

NEW ZEALAND

In 1993 there were only 2 females of the Enderby Island breed remaining, with 800 straws of semen from 15 bulls.

AUCKLAND ISLAND



CRITICAL

Local names or syn.: -

Population data: 13 ♀ • 1993

Population trend: -

Range of uses: -

NEW ZEALAND

The Auckland Island breed is found in North-west Side of Port Ross. It is a feral goat, first introduced and established in 1865. The goats are either white or pied in colour. They have beards and overgrown, split hooves.

ARAPAWA



ENDANGERED

Local names or syn.: -

Population data: < 200 • 1993

Population trend: -

Range of uses: -

NEW ZEALAND

The Arapawa breed, probably descended from the Old English breed, is found on Arapawa Island in Marlborough Sounds. These goats are either black, brown or pied in colour. They have erect ears and long, twisted horns. Adult males weigh on average 40 kg with an average wither height of 65 cm and 55 cm for males and females respectively. In 1978 a herd of 100 animals was established by the Department of Lands and Survey and other herds also existed. The periodical 'Genesis', vol. 9, #2, estimated that 55-60 goats were found in the Arapawa Island Sanctuary in the Marlborough Sounds, 12 at Puriri Preservation Trust, 10 at Willowbank Wildlife Reserve, 20 at Spencer Park and 50 running free. In 1993 six goats were been taken from New Zealand to Plimouth Plantation in Massachusetts.

CASPIAN



ENDANGERED

Local names or syn.: Caspian Miniature (eng.)

Population data: 100 - 1 000 • 1988

Population trend: -

Range of uses: -

NEW ZEALAND

Caspian ponies are usually bay, grey, chestnut or occasionally black in colour.

KAIMANAWA 'WILD' HORSE



ENDANGERED

Local names or syn.: -

Population data: > 1 000 • 1993

Population trend: -

Range of uses: -

NEW ZEALAND

The Kaimanawa 'Wild' Horse, found in the southern Kaimanawa Range, was established in the 19th century. The breed is descended from domestic horses and Cavalry horses (pre-1940). In 1978 the breed numbered approximately 174, of which about 30 were in Mr. Batley's Motumatai Private Scenic Reserve.

KUNEKUNE



ENDANGERED

Local names or syn.: Maori

Population data: 100 - 1 000 • 1993

Population trend: -

Range of uses: lard

NEW ZEALAND

The Kunekune breed is found in North Island. The animals are black in colour, or mainly black with sandy splashes and they have tassels.

CAMPBELL ISLAND



CRITICAL

Local names or syn.: -

Population data: < 100 • 1993

Population trend: -

Range of uses: -

NEW ZEALAND

The Campbell Island breed is found on Campbell Island. These sheep have medium fibred wool.

HOKONUUI



CRITICAL

Local names or syn.: Hokonui Merino (eng.)

Population data: < 100 • 1993

Population trend: -

Range of uses: wool

NEW ZEALAND

The Hokonui breed, found in South Island, is descended from the Tasmanian Merino breed and was established around 1858. The animals are white in colour with fine fibred wool and males and females may be either polled or horned. The flock was destroyed in 1976 as a disease control measure but in 1977 the Ruakura Animal Research Station, Hamilton, obtained 11 animals and by 1978 the flock consisted of 6 adult and 2 young males, 5 adult and 5 young females.

PITT ISLAND



CRITICAL

Local names or syn.: -

Population data: < 100 • 1993

Population trend: -

Range of uses: wool

NEW ZEALAND

The Pitt Island breed is found on Pitt Island, the Chatham Islands. It was established in the 1840s and is descended from the Saxony Merino breed, although it has been feral for most of the 20th century. These sheep have fine fibred wool.

ARAPAWA ISLAND



ENDANGERED

Local names or syn.: Arapawa Merino (eng.)

Population data: 100 - 1 000 • 1993

Population trend: -

Range of uses: wool

NEW ZEALAND

The Arapawa Island breed is found on Arapawa Island in Marlborough Sounds. The breed was established in the 1860s when it developed from the Australian Merino breed. The sheep are usually black with a white blaze, or occasionally white in colour. They have fine fibred wool and males have large, curled horns.

MOHAKA



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1993

Population trend: -

Range of uses: -

NEW ZEALAND

Mohaka sheep have fine fibred wool.

PAK ANGORA



ENDANGERED

Local names or syn.: -

Population data: 377 • 202 ♀ • 13 ♂ • 1992

Population trend: stable

Range of uses: wool, meat

PAKISTAN

The Pak Angora breed is kept at the Government Livestock Experiment Station Kherawala (Layyah). It is a composite of Angora and hair goat breeds and it produces soft Mohair. Adult males weigh on average 47 kg and females 27 kg with an average wither height of 75 cm and 65 cm respectively. The breed is reported to be heat tolerant and to have an unspecified disease resistance. This breed is raised exclusively on a few governmental farms and has not been propagated. Of females, 100% are bred to males of the same breed.

HIRZAI



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1988

Population trend: -

Range of uses: -

PAKISTAN

The Hirzai breed, of Arab origin, is found in Baluchistan. The animals are light and are grey or white in colour.

MAKRA



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1988

Population trend: -

Range of uses: -

PAKISTAN

Makra horses, found in Sind, are light animals. The horses are dun in colour.

BAGHDALE



ENDANGERED

Local names or syn.: -

Population data: 850 • 382 ♀ • 12 ♂ • 1992

Population trend: stable

Range of uses: wool

PAKISTAN

The Baghdale breed is kept at the Livestock Farm, Kalabagh (Mianwali) and is owned by a private breeder in Punjab. It originated at Kalabagh Farm, Mianwali from Hissardale (25%), Damani (25%) and Rambouillet (50%) breeds. The sheep are white in colour with brown around the eyes. Adult males weigh on average 61.7 kg and females 47.2 kg with an average wither height of 80 cm and 75 cm respectively. These sheep have fine fibred wool and males may be either polled or horned while females are always polled. Of females, 100% are bred to males of the same breed.

HISSARDALE



ENDANGERED

Local names or syn.: -

Population data: 790 • 307 ♀ • 7 ♂ • 1992

Population trend: stable

Range of uses: wool

PAKISTAN

The Hissardale breed originated at the Government Livestock Farm, Hissar, now in eastern Punjab. It is a composite of Australian Merino (7/8) and Bikaneri (1/8) and was established in the 1920s. The sheep are mainly white in colour although some have brown or black patches. They have short legs and leaf-like, medium-sized ears. Adult males weigh on average 66 kg and females 51 kg with an average wither height of 85 cm and 80 cm respectively. These sheep have fine fibred wool and rams may be horned or polled, while ewes are always polled. The animals are fed with concentrates during the breeding season. In 1992 this breed was only kept at the government farm in Jahangirabad. Of females, 100% are bred to males of the same breed.

MARCO POLO'S SHEEP



ENDANGERED

Local names or syn.: Great Tibetan Sheep (eng.), Pamir Argali, Great Pamir Sheep (eng.)

Population data: < 200 • 1991

Population trend: -

Range of uses: -

PAKISTAN

Marco Polo's Sheep (*Ovis ammon polii*) are a variety of Argali. Adult males weigh on average 126 kg and females 76 kg with an average wither height of 113 cm and 100 cm respectively. These sheep have coarse/carpet type wool. The total population size of this species in 1991 was less than 200. The population of Marco Polo sheep has declined in Pakistan and its future is bleak in both China and Pakistan. There are some steps being taken to save the breed in Khunjab National Park and Klick Mintika.

PAK AWASSI



ENDANGERED

Local names or syn.: -

Population data: 1427 • 827 ♀ • 6 ♂ • 1992

Population trend: stable

Range of uses: milk, wool, meat

PAKISTAN

The Pak Awassi breed, found in Punjab, is a composite of Awassi and Kachhi breeds. The sheep are white in colour and have coarse/carpet type wool. Adult males weigh on average 73 kg and females 43 kg with an average wither height of 89 cm and 75 cm respectively. The breed is in its development stage and animals are kept exclusively on government farms. Some Awassi rams have been distributed in the field for cross-breeding with local breeds of sheep. However, it is difficult to determine the exact number of these and to designate them as Pak Awassi. Of females, 100% are bred to males of the same breed.

PAK KARAKUL



ENDANGERED

Local names or syn.: -

Population data: 853 • 346 ♀ • 21 ♂ • 1992

Population trend: stable

Range of uses: pelt / fur

PAKISTAN

Pak Karakul sheep, found in Punjab, are a composite of Karakul and Kachhi breeds. The breed, established in 1965, was developed at Rakh Kairewala Farm, Muzaffa. Adult males weigh on average 55 kg and females 31 kg with an average wither height of 75 cm and 66 cm respectively. These sheep have coarse/carpet type wool. The breed is maintained exclusively at government farms, therefore the population is very small and the data are considered reliable. Of females, 100% are bred to males of the same breed.

PAKISTANI MUSCOVY DUCK



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1993

Population trend: -

Range of uses: meat, eggs

PAKISTAN

No further information available.

PAKISTANI OSTRICH



CRITICAL

Local names or syn.: -

Population data: > 100 • 1993

Population trend: -

Range of uses: meat, eggs

PAKISTAN

The Pakistani Ostrich has no special pattern within the feathers. These birds have yellow skin and brown egg shells. The breed is well adapted to the rough and tough conditions of rural areas but is found only in zoos. The females become broody.

KALIJ



CRITICAL

Local names or syn.: -

Population data: < 100 • 1991

Population trend: -

Range of uses: hunting, fancy

PAKISTAN

The Kalij breed is found in Hazara, Kohistan, Murree, Kahula, Rawalpindi Margala and Azad Kashmir's mountainous areas at heights of 400 to 3 000 meters asl. They have black or brown coloured plumage (males are bright blackish in colour, females are brown), black shanks and feet and egg shells that may be cream white to pale greyish in colour. Males have a sharp spur. Adult males weigh on average 1.2 kg and females 0.75 kg. The breeding period lasts from March to June and the incubation period is 24 to 25 days.

COMMON PEA FOWL



ENDANGERED

Local names or syn.: Move

Population data: 100 - 1 000 • 1991

Population trend: -

Range of uses: -

PAKISTAN

The Common Pea Fowl is found in Murree Kahula hills, Changa Manga, Sukhuv, Sanghuv, Miani and Mirpur Khas areas of Pakistan. These pheasants have green coloured plumage (males are a brilliant golden bronzy green) and egg shells that are cream white to pale greyish in colour. Males have a strong spur. Adult males weigh on average 5 kg and females 3.3 kg. The breeding period lasts from April to October and the incubation period is 28 days.

HIMALAYAN MONAL



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1991

Population trend: -

Range of uses: hunting, fancy

PAKISTAN

The Himalayan Monal breed is found in Chitral, Dir, Swat, Gilgil, Azara and Azad Kashmir at heights of 2 500 to 5 000 meters asl. These pheasants have self-blue coloured plumage (males are bluish-purple or bluish-green), their shanks and feet are black and egg shells are reddish in colour. Males have a blunt spur. Adult males weigh on average 2.2 kg and females 2.1 kg. The breeding period lasts from April to June and the incubation period is 28 days.

TRAGOPAN WESTERN HORNED



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1991

Population trend: -

Range of uses: hunting, fancy

PAKISTAN

The Tragopan Western Horned pheasant is found in Hazara, Kohistan, Kaghan valley and Azad Kashmir mountainous areas of Pakistan at heights of 1 300 to 3 600 meters asl. These birds have white pinkish shanks and feet and egg shells that are light brown in colour. Their bodies are grey brown, spotted/dotted all over with white ocelli, and males have a sharp spur. Adult males weigh on average 2.1 kg. The breeding period lasts from May to June and the incubation period is 28 days.

CHEER PHEASANT



ENDANGERED-MAINTAINED

Local names or syn.: -

Population data: 100 - 1 000 • 1991

Population trend: -

Range of uses: hunting, fancy

PAKISTAN

The Cheer Pheasant is found in Azad Kashmir at heights of 1 400 to 2 500 meters asl. They have brown coloured plumage, grey shanks and feet and egg shells may be cream white to pale greyish in colour. The males have a prominent spur and are darker than females, being blackish-brown in colour. Adult males weigh on average 1.4 kg and females 1 kg. The breeding period lasts from April to June and the incubation period is 26 to 27 days. The chickens mature during the breeding season following hatching. The Cheer Pheasant was rehabilitated in the Margala hills by the World Wildlife Fund of Pakistan.

JAVANESE ZEBU



ENDANGERED

Local names or syn.: Zebu

Population data: 400 - 600 • 500 ♀ • 1992

Population trend: decreasing

Range of uses: meat

PAPUA NEW GUINEA

The Javanese Zebu breed, established in the 19th century, is descended from cattle imported from Java, Sumatra and Thailand. Adult males weigh on average 540 kg and females 365 kg. The breed is highly prolific and hardy and is highly resistant to tick and screw worm infestation. The economic performance of this breed is comparable to that of the Droughtmaster (Brahman cross-breeds), although under prolonged drought periods the Javanese Zebu is superior. Its smaller body size has made it unpopular among cattle producers and as a result the breed is declining rapidly.

TAMARAO



ENDANGERED-MAINTAINED

Local names or syn.: Mindoro Buffalo (eng.), Tamaraw

Population data: 356 • 1987

Population trend: -

Range of uses: meat, skins and hides

PHILIPPINES

The Tamarao (*Bubalus mindorensis*) is found at Mount Igllet, Mount Baco, Mount Calavita and Sablayan in Mindoro. The animals are black, grey or brown in colour. This very hardy breed can survive on poor quality forage. The official estimate of the population in 1983 was 250 animals, an unofficial estimate 300-400. In 1987, an estimate quoted by Petocz (1989) indicated a figure of 356. Hunting for meat has been the main cause of the decline of the Tamarao, but cattle ranching in and around the National parks of Mindonoro is probably one of the major threats to its recovery. Aside from the captive herd of 6 Tamaraw (5 males, 1 female) in the PCCT gene pool, the only other Tamarao known in captivity is at Manila Zoo. The conservation of the species is co-ordinated by the Presidential Committee for the conservation of the Tamaraw (PCCT) created in 1979 by President Marcos.

LIBTONG



CRITICAL

Local names or syn.: Baboy, Tagudin

Population data: > 1 000 • 200 ♀ • 3 ♂ • 1993

Population trend: increasing

Range of uses: -

PHILIPPINES

The Libtong breed is found in Luzon. It is a probably a composite of Hampshire and Philippine Native breeds and was only recently created in the Municipality of Tagudin (Ilocos Sur). The breed is named after the Libtong village where it was recently created and established. The pigs have white spots on their forehead, white feet and tail tip. They have a low set belly, 12-14 teats, and boars are much bigger than the sows. Of females, 90% are bred to males of the same breed.

BANABA



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 200 ♀ • 150 ♂ • 1992

Population trend: stable

Range of uses: hunting, eggs, meat, research

BOLINAO



ENDANGERED

Local names or syn.: Philippine Native

Population data: 1 000 - 10 000 • 750 ♀ • 450 ♂ • 1991

Population trend: stable

Range of uses: hunting, eggs, meat, research

CAMARINES



ENDANGERED-MAINTAINED

Local names or syn.: -

Population data: 100 - 1 000 • 300 ♀ • 200 ♂ • 1992

Population trend: stable

Range of uses: hunting, eggs, meat

RED JUNGLE FOWL



ENDANGERED-MAINTAINED

Local names or syn.: Labuyo (tagalog)

Population data: 100 - 1 000 • 150 ♀ • 100 ♂ • 1992

Population trend: stable

Range of uses: hunting, eggs, meat

PHILIPPINES

The Banaba breed is found in Region IV, southern Tagalog (Batangas). These chickens have self-red and variants coloured plumage with no special pattern within the feathers. They have white skin and yellow shanks and feet. The comb is of single type and egg shells may be white or brown in colour. This breed has spurs, and it holds its wings close to its large body. Adult males weigh on average 1.6 kg and females 1.5 kg. The hens are broody and excellent mothers and it is very hard to break her broodiness. This very popular game breed is reported to be resistant to respiratory diseases and fowl pox.

PHILIPPINES

The Bolinao breed is found in Region I, Ilocos Region (Pangasinan). These chickens have self-red and variants coloured plumage, white skin and the shanks and feet are green. The comb is of single type and egg shells are brown in colour. The birds have straight spurs, are able to fly when in combat, have a bushy tail rather similar to that of a squirrel and both males and females are tightly feathered with well placed wings carried close to the body. Adult males weigh on average 2 kg and females 1.5 kg. The hens are broody and excellent mothers. This breed is popularly raised by farmers for its aggressiveness while fighting, and it has very tasty meat.

PHILIPPINES

The Camarines breed is found in Region V, Bicol Region. These chickens are orange and white in colour with laced (50%) or mottled (50%) patterns within the feathers. They have white skin, shanks and feet, a single type comb and egg shells that are brown in colour. Adult males weigh on average 2 kg and females 1.7 kg. The birds are reported to show resistance to respiratory diseases and some bacterial infections. The males of this breed are very popular as fighting roosters and fanciers have maintained the breed pure. The breed has been selected by the local population for its plumage and aggressiveness in fighting, it also has a stylish carriage which the natives greatly admire.

PHILIPPINES

The Red Jungle Fowl, a native breed, is found in mountainous and forested areas of the Philippines. These chickens, which can be tamed and kept as pets, have self-black (75%) or self-red and variants (25%) coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are green. The comb is of single type and egg shells are brown in colour. This breed is of medium size with a bright red single comb and has slender feet with long spurs. The main tail feathers are arched and carried high above the head and males have a shrill crowing voice. Adult males weigh on average 1 kg and females 0.8 kg. The animals are reported to show resistance to Newcastle disease. There are conservation groups that protect the habitat of the Jungle Fowl.

SOLOMON RED



ENDANGERED

Local names or syn.: -

Population data: < 1 000 • 1995

Population trend: decreasing

Range of uses: -

SOLOMON ISLANDS

The Solomon Red breed is a composite of Brahman, Santa Gertrudis, Hereford, Shorthorn and Droughtmaster breeds and was established in 1970-1980. This breed has a quiet temperament.

PUTTALAM BURUWA



ENDANGERED

Local names or syn.: -

Population data: 500 • 200 ♀ • 200 ♂ • 1992

Population trend: decreasing

Range of uses: -

SRI LANKA

The Puttalam Buruwa, a dwarf breed of ass, is found in Puttalam. Adult males weigh on average 125 kg and females 90 kg with an average wither height of 100 cm and 100 cm respectively. These animals are feral, freely grazing and are seasonal breeders, calving during Maha season (November to December). A report by Mason (1979) on feral populations states that there is a strictly protected population of pygmy donkeys in the north-west of Sri Lanka which is blackish brown to buff with a white muzzle, and that the Department of Wildlife Conservation maintains a small herd in Colombo Zoo (2 males and 2 females). Of females, 100% are bred to males of the same breed.

HATTON



ENDANGERED

Local names or syn.: Cape, Cappel harak

Population data: 1 000 • 1992

Population trend: decreasing

Range of uses: milk

SRI LANKA

The Hatton breed is found in hilly country, central Sri Lanka. It is a composite of European and local cattle created and established in 1880. During the last 50 years the A.I. service has been greatly expanded and the breed has been crossed with Friesian, Ayrshire and Jersey. A recent survey failed to find any pure-breeds suggesting that it may have become extinct. Perhaps about 1 000 pure-bred animals do still exist in certain isolated pockets which the A.I. service has not reached. Of females, 100% are bred to males of the same breed.

SRI LANKAN PONY



CRITICAL

Local names or syn.: -

Population data: 100 • 25 ♀ • 25 ♂ • 1992

Population trend: decreasing

Range of uses: -

SRI LANKA

The Sri Lankan Pony was probably brought by the Portuguese, over 150 years ago, to Delft Island where they became feral. Over the years the horses became inbred and dwarf animals were produced. The animals were later taken to other areas and are now found in Puttalam. Adult males weigh on average 200 kg and females 150 kg with mean wither heights of 130 cm and 125 cm. Recently the private sector has started to cross breed these animals with imported stallions. 75% are domesticated and used for racing purposes while 25% are feral and graze freely. Coat colour varies from dark chocolate brown to buff with a white patch on the forehead. The Department of Wildlife Conservation maintains a small stud in Colombo Zoo (1 male, 2 females). Of females, 50% are bred to males of the same breed.

BANTENG



CRITICAL

Local names or syn.: Banteng Babteng Wagner, Banteng Sondaicus Schegel and Müller (lat.)

Population data: < 100 • 1999

Population trend: -

Range of uses: -

THAILAND

The Banteng (*Bos javanicus*) is a very rare wild species found mainly in jungle along the borders with Myanmar and Cambodia. The animals are black or brown in colour with white stockings and rump patch.

BURMESE GAUR



ENDANGERED

Local names or syn.: Burmese Bison (eng.), Pyoung, Pyaung, Pyun

Population data: < 500 • 1977

Population trend: decreasing

Range of uses: -

THAILAND

The Burmese Gaur (*Bos frontalis*) is a wild species, and is the largest of the Asiatic bovines. Two subspecies are recognised, *B.f. gaurus* (India, Nepal) and *B.f. laosiensis* (Myanmar, Thailand, Laos, Viet Nam, Cambodia and West Malaysia). Adult males weigh on average 950 kg and females 750 kg. They produce good, tasty meat and good quality leather. No population data is available on these animals in Thailand. However, the population has declined and continues to do so due to habitat destruction, indiscriminate hunting and diseases such as rinderpest, Foot and Mouth disease and anthrax transmitted by domestic stock. It only survives in isolated and fragmented populations and most are captive bred in about 25 zoological collections. In 1980 the New York Zoological Society successfully bred a Gaur by surgically implanting a Gaur embryo in a Holstein cow. The semen of 2 males is stored.

KOUPREY



ENDANGERED

Local names or syn.: Cambodian Wild Ox (eng.), Grey Cambodian Ox (eng.), Indo-Chinese Forest Ox (eng.)

Population data: < 300 • 1994

Population trend: decreasing

Range of uses: -

THAILAND

The Kouprey (*Bos sauveli*) is a wild species found in eastern Thailand. This breed is possibly resistant to rinderpest (cattle plague). Population numbers are unknown, but are almost certain to be extremely low. A small herd of 1 bull, 2 cows and 2 calves was seen in July, 1982. The population in Thailand is seasonal, for some are known to cross the Dongrak Mountain into eastern Thailand from Viet Nam. The main causes for the continuing decline in numbers of the Kouprey include a naturally low reproductive rate, uncontrolled hunting and a demand for its lyre-shaped horns as trophies.

HAILUM



ENDANGERED

Local names or syn.: Hainan

Population data: > 400 • 280 ♀ • 120 ♂ • 1992

Population trend: decreasing

Range of uses: lard

THAILAND

The Hailum breed is found in southern Thailand and is a probably descended from Hainan-Thai native pig. These lard type pigs are black and white in colour. Adult males weigh on average 115 kg and females 115 kg with an average wither height of 58 cm and 57 cm respectively. The breed is well adapted to the local hot and humid climate and known for its high prolificacy and its ability to thrive on poor quality feeds. The breed is reported to have an unspecified disease resistance. These animals can be found only in very remote areas, where some are raised by hill tribes. Hailum, Kwai and Raad pigs were prevalent in Thailand 30 years ago but were replaced by the introduction of exotic breeds (e.g. Large White, Landrace) and by cross-breeding. In Uttaradit Province there are 400 Hailum pigs (280 breeding females and 120 males).

KWAI



ENDANGERED

Local names or syn.: -

Population data: 400 • 280 ♀ • 120 ♂ • 1992

Population trend: decreasing

Range of uses: -

THAILAND

The Kwai breed can only be found in very remote areas, and some are raised by hill tribes in Uttaradit Province, northern Thailand. The animals of this lard type, native breed are black in colour and sometimes have white on their shoulders and legs. Adult males weigh on average 137 kg and females 137 kg with an average wither height of 70 cm and 71 cm respectively. The breed tolerates low quality feed, is well adapted to live under the local hot and humid climatic conditions and is reported to have an unspecified disease resistance. Kwai pigs were prevalent in Thailand 30 years ago but they have been replaced by modern, exotic breeds such as Large White and Landrace through pure- and cross-breeding. In Uttaradit Province, among the native pigs (so-called Numpard pigs), there are 400 Kwai pigs (280 breeding females and 120 males).

PED PUEN MUANG PAK-NAM



CRITICAL-MAINTAINED

Local names or syn.: -

Population data: < 100 • 1994

Population trend: decreasing

Range of uses: -

THAILAND

The Ped Puen Muang Pak-Nam breed is one of four strains of native ducks that have been conserved and subjected to genetic improvement.

KOUPREY



CRITICAL

Local names or syn.: Cambodian Wild Ox (eng.), Grey Cambodian Ox (eng.), Indo-Chinese Forest Ox (eng.)

Population data: 27 • 1994

Population trend: decreasing

Range of uses: -

VIET NAM

The Kouprey (*Bos sauveli*) is a wild species found in western Viet Nam. This breed is possibly resistant to rinderpest (cattle plague). Population numbers are unknown, but almost certain to be extremely low. The presence of about 10 animals living in Thua Thien Province was reported in August, 1980. The main causes for the continuing decline in numbers of the Kouprey include a naturally low reproductive rate, uncontrolled hunting and a demand for its lyre-shaped horns as trophies.

GA DONG TAO



ENDANGERED

Local names or syn.: Dong Tao Chicken (eng.)

Population data: 100 - 1 000 • 100 ♀ • 15 ♂ • 1997

Population trend: increasing

Range of uses: meat

VIET NAM

The Ga Dong Tao breed, an indigenous chicken, originated in Haihung Province (Red River Delta), Viet Nam. They have self-red and variants (90%) or yellow (10%) coloured plumage with no special pattern within the feathers. They have yellow skin, shanks and feet. The comb may be of pea (90%) or single (10%) type and egg shells are brown in colour. They have very big shanks and a large skeleton. Adult males weigh on average 3.6 kg and females 2.6 kg.

GA HO



ENDANGERED

Local names or syn.: Ho Chicken (eng.)

Population data: 100 - 1 000 • 500 ♀ • 50 ♂ • 1997

Population trend: increasing

Range of uses: meat

VIET NAM

The Ga Ho breed is found in the Red River Delta, Habac Province, northern Viet Nam. It is an indigenous chicken breed that originated in Bae Ninh Province (Red River Delta). These chickens have self-red and variants (90%) or yellow (10%) coloured plumage with no special pattern within the feathers. They have yellow skin, shanks and feet. The comb may be of pea (90%) or single (10%) type and egg shells are brown in colour. They have big shanks and a large skeleton. Adult males weigh on average 4.4 kg and females 2.7 kg.

GA MIA



ENDANGERED

Local names or syn.: Mia Chicken (eng.)

Population data: 100 - 1 000 • 650 ♀ • 100 ♂ • 1997

Population trend: increasing

Range of uses: meat

VIET NAM

Ga Mia, an indigenous chicken breed of Viet Nam, originated in Hatay Province (Red River Delta). These chickens have self-red and variants (90%) or black and yellow (10%) coloured plumage with no special pattern within the feathers. They have yellow skin, shanks and feet. The comb may be of single (90%) or pea (10%) type and egg shells are brown in colour. They have medium sized shanks and skeleton. Adult males weigh on average 3.7 kg and females 2.7 kg.

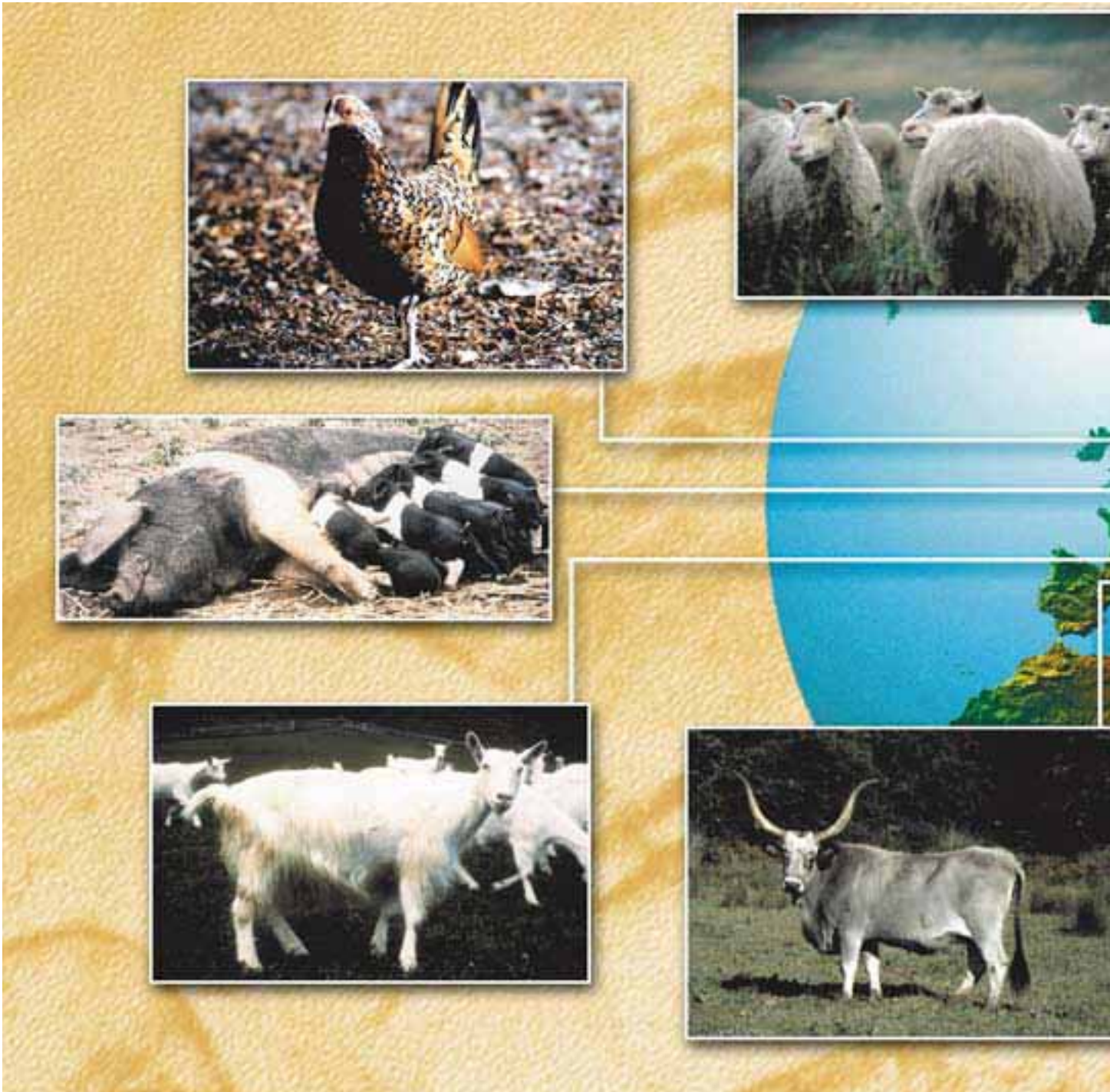
The European region includes 52 countries, dependent territories, overseas departments, entities and areas (see table 2.2.4.1) of varied political, religious and cultural backgrounds. Geographically, Cyprus, Israel and Turkey fall within the Near East region. However, FAO includes them in the Europe region and they will be considered as such here. The countries of the former Union of Soviet Socialist Republics (USSR) are considered partly under Europe and partly under the Near East. Included in the Europe region are the three Baltic Republics (Estonia, Latvia and Lithuania), Belarus, Ukraine, Georgia, Armenia, Moldova and the Russian Federation.

In 1998 the total human population size of the Europe region was 809 million of which under 11 percent were directly involved in agriculture. The proportion involved in agriculture has decreased significantly from 19.3 percent in 1975 and 12.5 percent in 1994, principally due to increased urbanization and the mechanization of farming systems. Urbanization and industrialization tend to conceal the high levels of agricultural production and the importance of this sector to many of the region's economies.

Geographically the continent is quite complex and despite its small size presents a wide variety of landforms ranging from the highland regions of the Alps to the lowland plains of the Netherlands and the highland, lowland and mountainous steppes of Siberia. The former USSR countries are host to a large range of climates, from the very hot deserts in south-central Asia to the arctic regions of Siberia. Vast areas of the north of the Russian Federation are too cold for farming, other areas being too dry, too swampy or infertile. Consequently, the many agro-ecological zones require a large range of livestock breeds each adapted to cope with various environmental challenges.

A large portion of the region's land is suitable for agriculture, especially in the north where the moist cool climate is conducive to the growth of rich pastures. These can support a high density of livestock and consequently a large portion of the livestock industry is concentrated here. For example, in Ireland there are almost two cows for every human, whereas in Portugal there are almost eight humans for every cow.

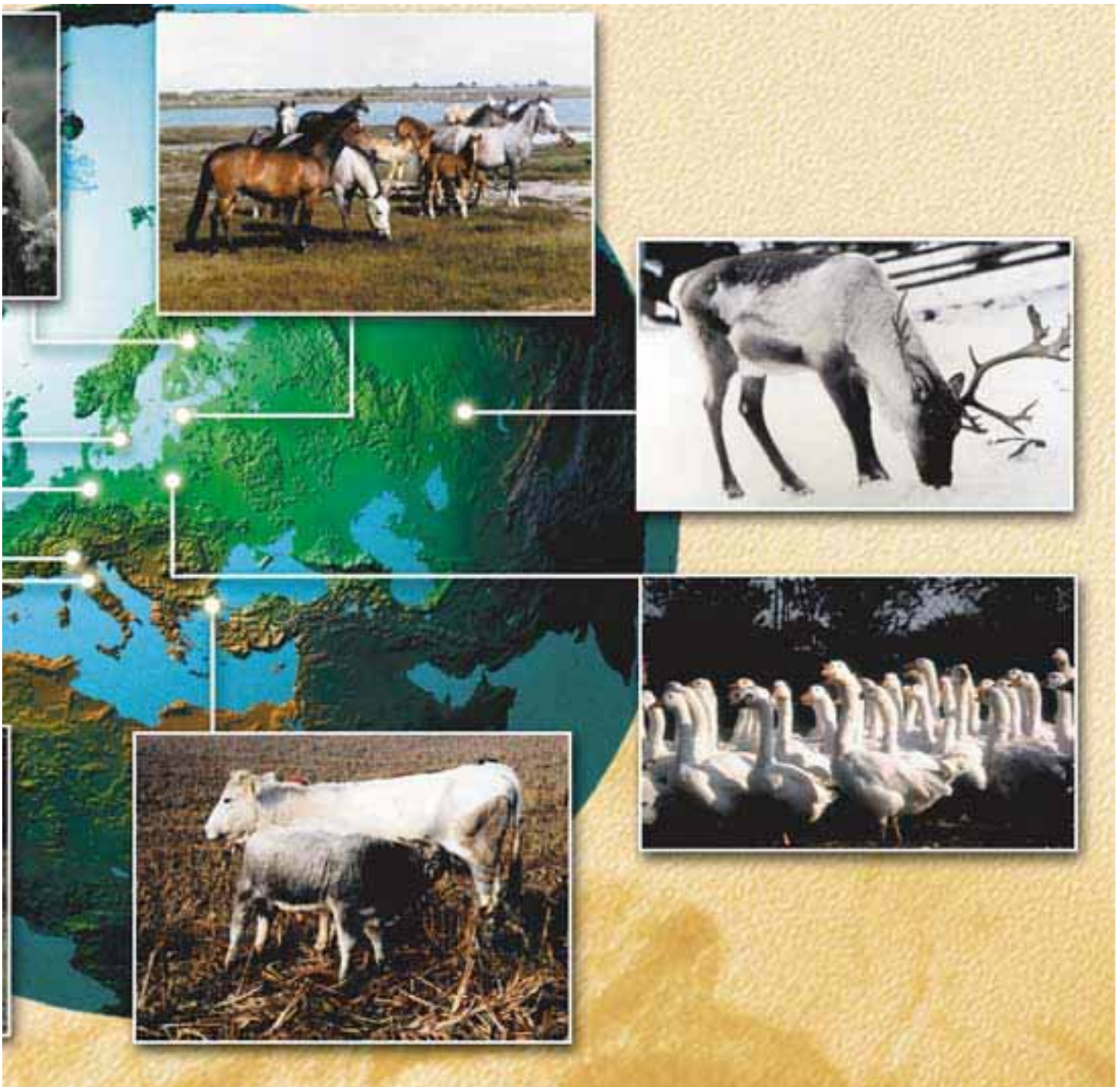
Politically, the region may be subdivided into East and West, the countries in the West having adopted free-market economies whereas those in the East have, until recently, embraced a more socialist ideology and are currently in transition. These markedly different philosophies have had a significant effect on the region's agricultural sector. The economies of Western Europe have directed agricultural policy through the provision of subsidies and through market forces. On the other hand, Eastern Europe developed, during the twentieth century, the concept of socialized farming with the livestock industry being dom-



from top left clockwise:

- *Öländsk Dvärghöna is a local dwarf landrace chicken found on Öland Island, Sweden - critical.*
- *Finnish Suomenlammas sheep are early maturing and very prolific.*
- *Eesti Hobune horses are mainly located on the Estonian islands - endangered-maintained.*
- *An Evenk stag in the Russian Federation.*

RANGE OF PRODUCTION ENVIRONMENTS IN THE EUROPE REGION



- Polish Bilgorajska geese have high quality feathers and carcass - endangered-maintained.
- Iskursko Govedo cattle, found in Bulgaria, are known for their ability to survive on marginal grazing - critical.
- Maremmana cattle in Italy have characteristically lyre-shaped horns.
- Appenzellerziege dairy goats in Switzerland - endangered.
- German Angler Sattelschwein sow with piglets - critical.

TABLE 2.2.4.1

THE 52 COUNTRIES, DEPENDENT TERRITORIES, OVERSEAS DEPARTMENTS, ENTITIES AND AREAS IN THE EUROPE REGION

ALBANIA	GERMANY	NORWAY
ANDORRA	GIBRALTAR	POLAND
ARMENIA	GREECE	PORTUGAL
AUSTRIA	GREENLAND	ROMANIA
AZORES AND MADEIRA	HOLY SEE	RUSSIAN FEDERATION
BELARUS	HUNGARY	SAN MARINO
BELGIUM	ICELAND	SLOVAKIA
BOSNIA AND HERZEGOVINA	IRELAND	SLOVENIA
BULGARIA	ISRAEL	SPAIN
CROATIA	ITALY	SWEDEN
CYPRUS	LATVIA	SWITZERLAND
CZECH REPUBLIC	LIECHTENSTEIN	THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA
DENMARK	LITHUANIA	TURKEY
ESTONIA	LUXEMBOURG	UKRAINE
FAEROE ISLANDS	MALTA	UNITED KINGDOM
FINLAND	MOLDOVA, REPUBLIC OF	YUGOSLAVIA
FRANCE	MONACO	
GEORGIA	NETHERLANDS	

inated by large state farms where standardization rather than diversification was emphasized.

With the exception of the horse, most major livestock species were first domesticated in the Near East region. From this centre of domestication, the spread of animals north to Europe was facilitated by military conquests and the movements of nomadic tribes. Early archaeological finds (circa 7 000 BC) indicate the presence of cattle, sheep and goats in the Balkans and Macedonia, from where they spread north to cover the rest of Europe. The horse is thought to have been first domesticated in Eastern Europe during the Neolithic period and unlike other species was primarily used for draught. The replacement of the ox by the horse as a draught animal enabled more specialized breeding of cattle and accelerated the process of intensification.

It is thought that reindeer were initially domesticated in the Altai area of Siberia (this theory is still controversial) where they acted as a source of transport and meat for local peoples. Bactrian camels, now found mainly in Mongolia, were first husbanded in southern Turkmenistan and Iran. They are believed to have first operated the ancient silk route from China through Central Asia and northern Iran to Baghdad. Reindeer are included in Part 3 of this WWL-DAD:3.

During the Middle Ages animals of each country tended to be typical of that region. Local varieties were selected for

specific colour types, productivity and environmental influences. These animals, although not highly productive, were quite well adapted to local conditions. However, the demands of the growing urban population, and later of the industrial revolution, necessitated an increase in milk, meat and egg production and hence more organized breeding programmes. This was facilitated by the improvement of roads and increased communications and led to the hybridization of many local varieties to give rise to breeds developed to respond to high input levels of feed, health care and management.

Today there are a number of infectious diseases that affect European livestock populations. They include hog cholera, brucellosis, Newcastle disease, mastitis and rabies. Although these may cause chronic decreases in productivity or even death, they generally do not effect breeding policy to the same extent as in developing regions.

Other factors such as sociology and economics have played a much greater role in shaping contemporary European breeds. The greater emphasis given to the production of animals has led to increased specialization for traits such as high milk and egg yield and high quality meat and wool. For example, the growing demand for carpets and luxury items led to the specialization of a range of sheep breeds, from coarse to fine wool types. In many cases local breeds have been mixed with exotic breeds to produce the desired phenotypes. This process of hybridiza-

TABLE 2.2.4.2

TOTAL POPULATION SIZE AND NUMBER OF BREEDS OF THE MAJOR LIVESTOCK SPECIES IN THE EUROPE REGION AND THEIR SHARE OF THE WORLD TOTAL

	POPULATION SIZE ('000)	NUMBER OF BREEDS	SHARE OF WORLD TOTAL	
			POPULATION (%)	BREEDS (%)
Buffalo	412	3	0.3	5
Cattle	162 119	482	12	39
Yak	n/a	1	n/a	8
Goat	26 092	187	4	33
Sheep	185 035	629	18	48
Pig	206 528	228	21	46
Ass	1 512	23	3	24
Horse	7 777	441	13	61
Camel	18	2	0	3
Chicken	1 973 012	451	14	64
Duck ¹	70 057	36	9	36
Turkey	125 639	16	50	47
Goose	14 743	42	7	64

¹ Domestic Duck and Muscovy Duck

n/a — not available

Source: FAOSTAT (estimates of 1999 live animal populations) and DAD-IS

tion has continued unabated and has resulted in the increased reliance on a small number of breeds to meet the region's food requirements. For example, the concentration on Holstein cattle, both in the East and the West, has dramatically narrowed the genetic base of the milking cattle populations of Europe.

Consumer trends, such as the desire to eat leaner meat or the demand for specialized milk products, also affect breeding policy and breeds that meet such specified market requirements tend to be favoured. In some cases, sophisticated management systems have standardized the environment giving little attention to traits such as disease resistance, adaptability to climate etc. The poultry and pig industries are a good example of this: the White Leghorn breed now accounts for practically all of the commercial hybrid layers of white eggs; and commercial piggeries tend to rely on only a handful of specialized breeds such as Large White, Duroc and Landrace.

A large number of European breeds are now threatened with extinction because of their perceived lack of economic competitiveness. Furthermore, inadequate consideration is given to the possible future potential of these breeds. Ancient breeds have only survived in marginal areas where conditions are unfavourable for intensification and views on breeding and the economy are more conservative. For example, the North Ronaldsay sheep breed,

found in the Orkney islands off the northern coast of Scotland, survives on mosses and seaweed found along the seashore. Winter storms throw great amounts of seaweed onto the beaches and consequently this is one of the few breeds that actually fattens during the winter period. Action by the European Union to offer a small incentive to farmers maintaining the rare breeds of some species, offers an outstanding example of the way farmers respond to such signals, for, almost without exception, the numbers of animals of these breeds at risk have increased.

In Eastern Europe, however, the situation is especially critical as there are few active conservation programmes in place. Under the previous socialist ideology large farms were developed in order to standardize production. Indigenous breeds, often highly adapted to local conditions, were upgraded with a small number of highly specialized exotic breeds, thus considerably narrowing the genetic base. The current uncertain political climate in the region will accelerate the loss of many breeds, the former Yugoslavia being an extreme example. Many valuable breeds such as the highly prolific Olkuskasz or Wrzosowka sheep breeds from Poland may become extinct if immediate action is not taken.

State-owned farms developed new breeds by crossing internationally recognized breeds with indigenous animals in an attempt to improve production. As a result, breeds

FIGURE 2.2.4.1A

RISK STATUS OF MAMMALIAN BREEDS RECORDED IN THE EUROPE REGION UP TO DECEMBER 1999: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

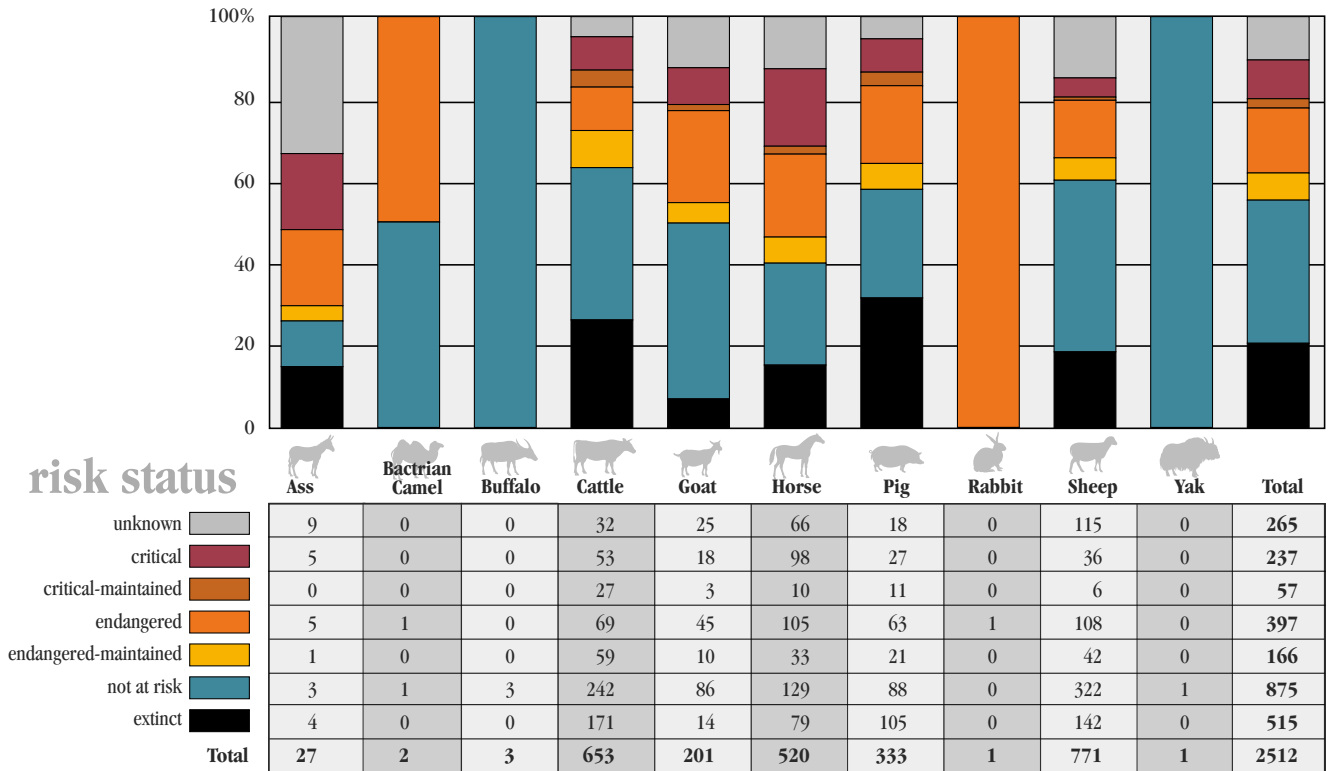


FIGURE 2.2.4.1B

RISK STATUS OF MAMMALIAN BREEDS RECORDED IN THE EUROPE REGION UP TO MAY 1995: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

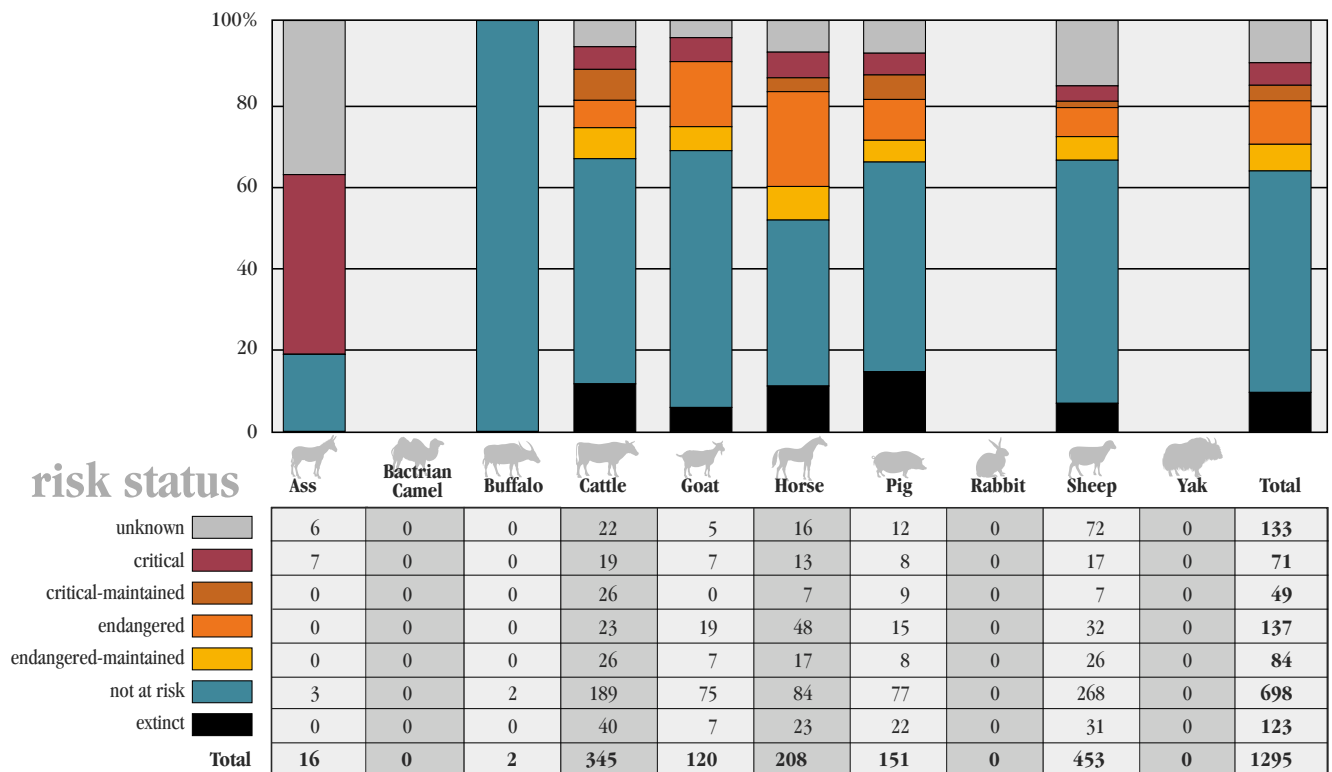


FIGURE 2.2.4.2A

RISK STATUS OF AVIAN BREEDS RECORDED IN THE EUROPE REGION UP TO DECEMBER 1999: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

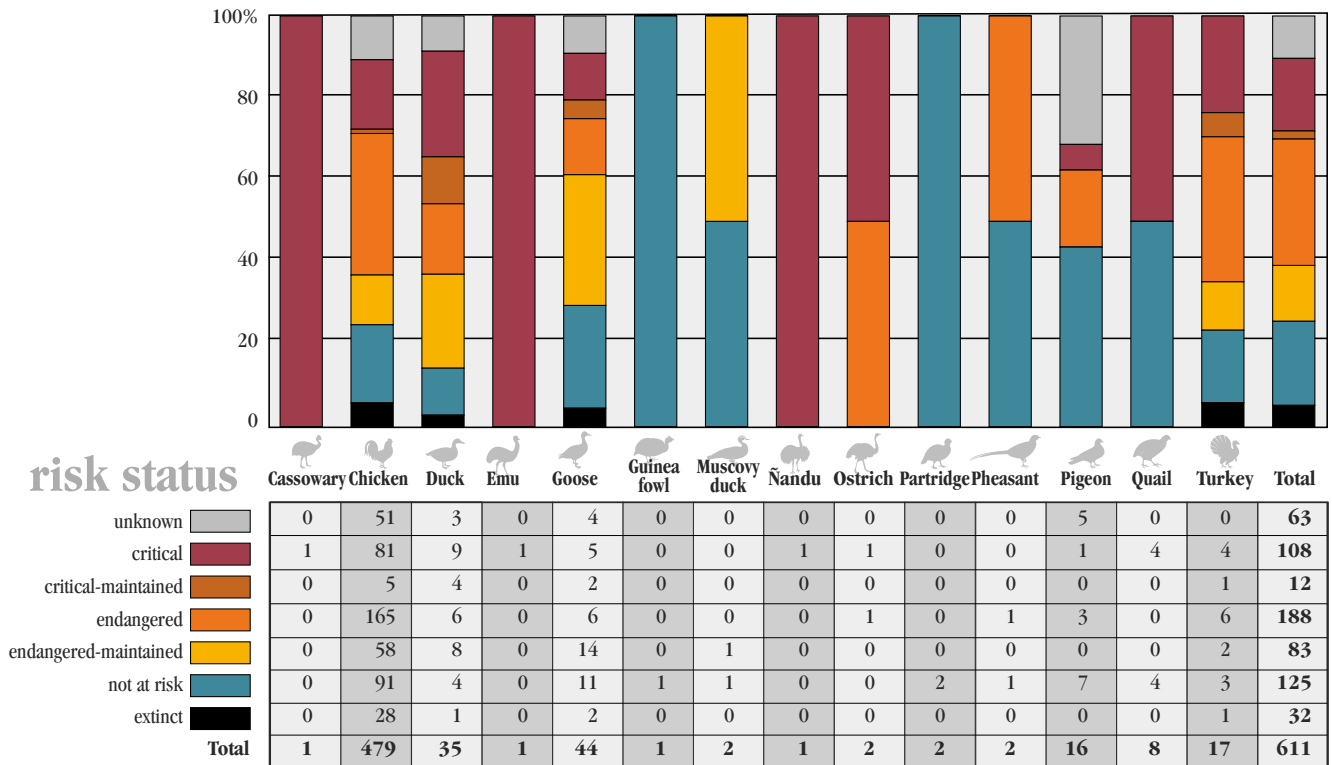


FIGURE 2.2.4.2B

RISK STATUS OF AVIAN BREEDS RECORDED IN THE EUROPE REGION UP TO MAY 1995: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

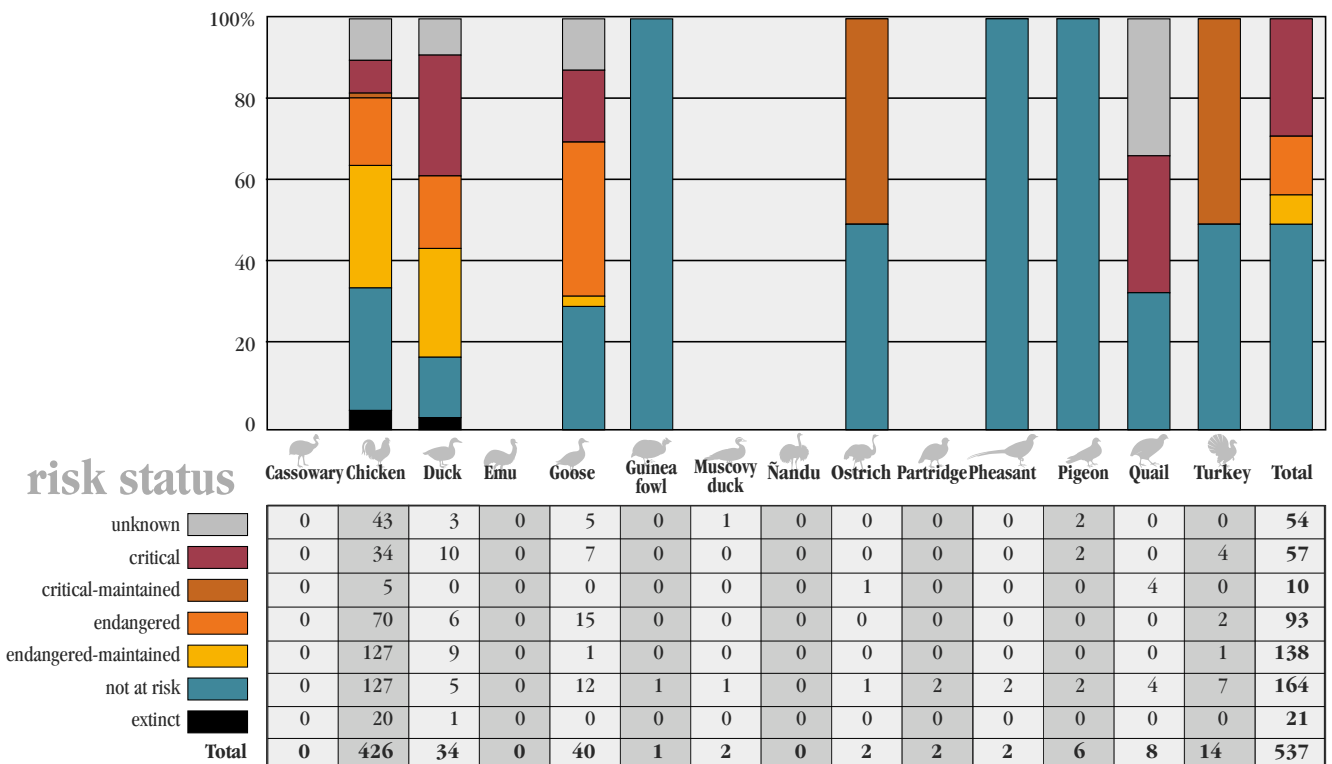
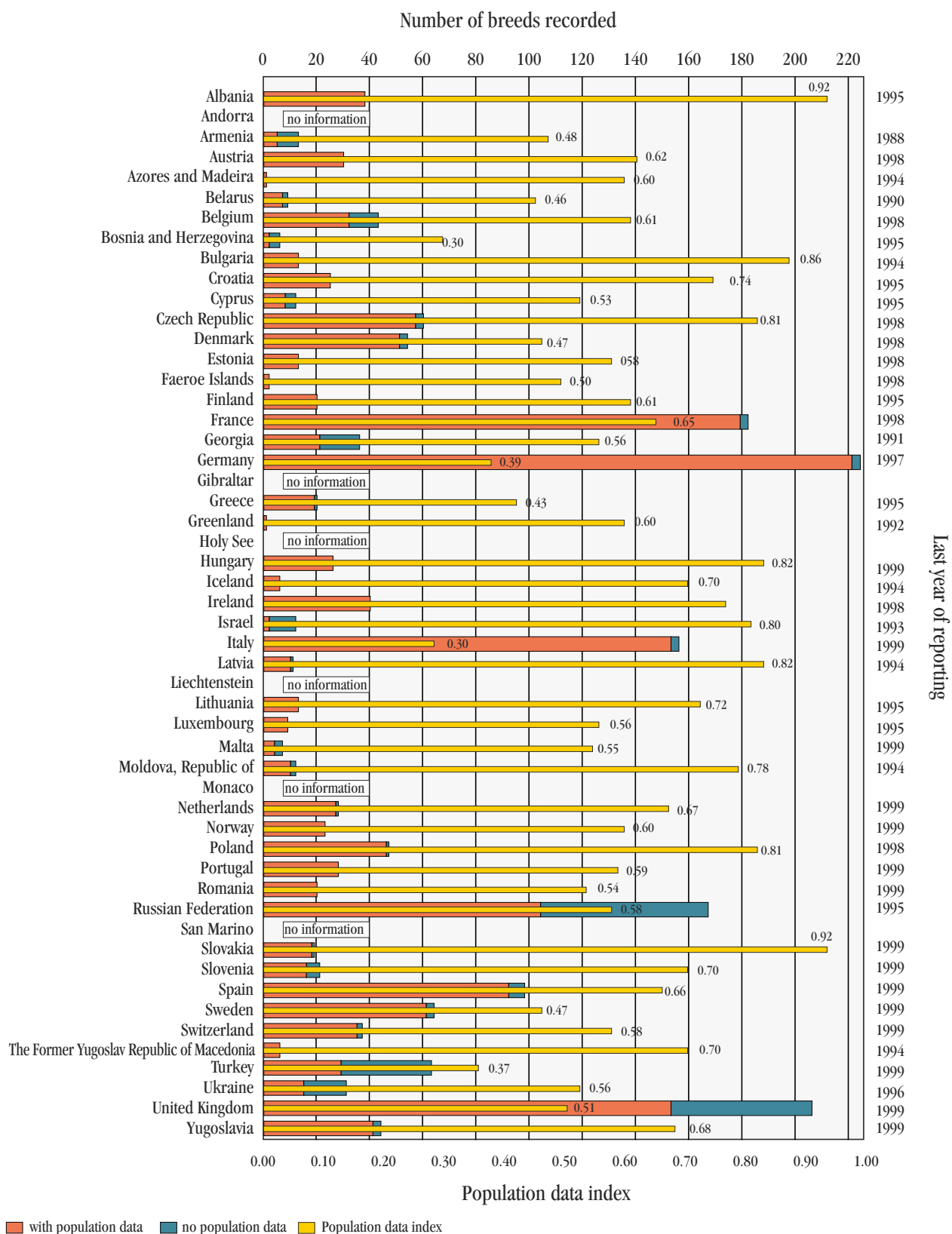


FIGURE 2.2.4.3

POPULATION DATA STATUS AND INDEX FOR MAMMALIAN BREEDS RECORDED BY COUNTRIES, DEPENDENT TERRITORIES, OVERSEAS DEPARTMENTS, ENTITIES AND AREAS OF THE EUROPE REGION UP TO DECEMBER 1999



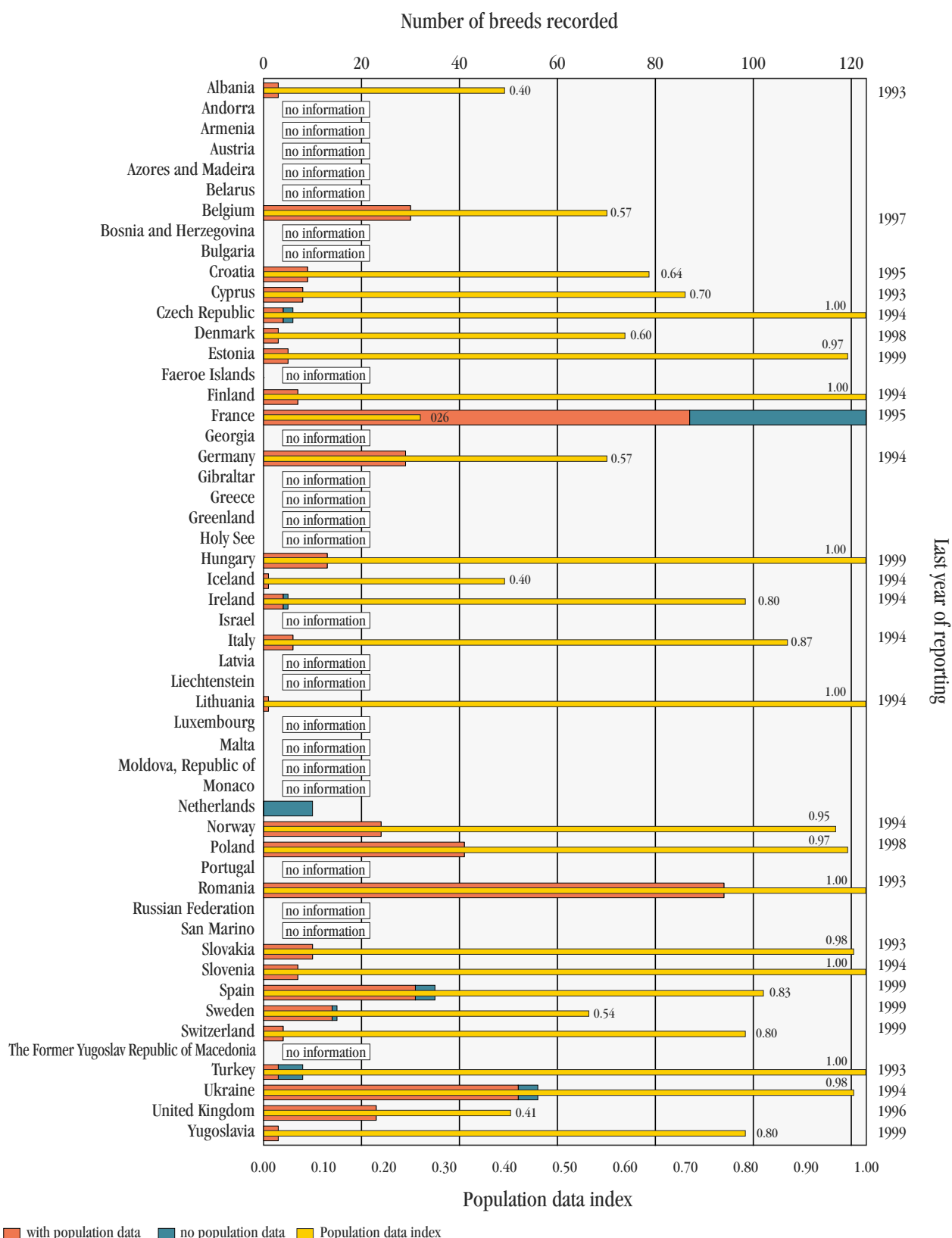
With population data Those breeds with information recorded in one or more of the 16 population data fields.

No population data Those breeds with no information recorded in any of the 16 population data fields.

Population Data Index (PDI) For each country the PDI was calculated only for those breeds recorded with population data. The PDI is the fraction of selected population data fields (population size, number of breeding females, number of breeding males and the percentage of females bred to males of the same breed) that contain information, averaged across breeds.

FIGURE 2.2.4.4

POPULATION DATA STATUS AND INDEX FOR AVIAN BREEDS RECORDED BY COUNTRIES, DEPENDENT TERRITORIES, OVERSEAS DEPARTMENTS, ENTITIES AND AREAS OF THE EUROPE REGION UP TO DECEMBER 1999



With population data Those breeds with information recorded in one or more of the 16 population data fields.

No population data Those breeds with no information recorded in any of the 16 population data fields.

Population Data Index (PDI) For each country the PDI was calculated only for those breeds recorded with population data. The PDI is the fraction of selected population data fields (population size, number of breeding females, number of breeding males and the percentage of females bred to males of the same breed) that contain information, averaged across breeds.

such as Black Pied cattle and Ukrainian Spotted Steppe pigs were developed and these are now quite popular in the Commonwealth of Independent States (CIS). Many other local populations, such as the Mingrelian, Mezen and Pechora horse breeds were driven close to extinction by these extensive crossbreeding programmes.

Changing consumer tastes, product specification and market segregation are stimulating a greater variety in each livestock product, and this trend is projected to continue. The Racka sheep breed in Hungary is noted for its tasty meat and could prove valuable. Jersey cattle, once prized for their creamy milk, are now confined to fewer and fewer farms. In the north of Italy the Reggina and Bianca Valpadana breeds are highly suited to the production of Parmesan cheese because they have a high frequency of the kappa-casein B allele whose product improves the cheese-making properties of milk. However, these breeds are under threat of extinction as their levels of milk production are not as high as those of Holstein cattle. Some local breeds of sheep appear to be resistant to diseases such as scrapie and piroplasmiasis and could prove useful if these diseases were to become widespread.

The need to maintain such a range of breeds is clear. For example, vast areas of the CIS are suitable only for extensive husbandry and many of the specialized high-production breeds are ill-equipped for the limited feed resources and climatic conditions found in these areas. Breeds such as Yakut cattle, found in northern Siberia, can sustain winter temperatures as low as - 60°C under poor nutritional conditions that would be detrimental to most other livestock. Yet extensive crossing with Simmental has resulted in the near extinction of this breed. Furthermore, recent changes in consumer requirements have resulted in a dramatic reduction in the numbers of lard and semi-lard pigs (over 20 breeds lost), and the increased use of mechanized transport has caused a decline in horse and ass numbers.

Throughout the CIS a few state farms have been used to maintain pure breeding stock of some of the region's indigenous livestock. However, given the current political and economic climate, it is uncertain how these will be maintained in the future. It should also be emphasized that due to the current difficulty in obtaining accurate census data from such countries in transition, the status of much of the region's animal genetic resources is unknown. Consequently, a number of the breeds currently thought to exist may already be extinct.

Apart from the major livestock breeds, Europe is home to a number of minor species. These include deer species such as reindeer, Sika deer and Marals in the Russian Federation, as well as carnivore species such as silver fox, blue fox, sable and martin in the northern parts, all husbanded for their fur. Part 3 of WWL-DAD:3 includes descriptions of the deer species.

Table 2.2.4.2 gives the total population sizes and the number of breeds of each of the major domestic animal species recorded in the Europe region and the share of the world's

population sizes and number of breeds. Relative to its size, Europe is home to a large proportion of the world's domestic animal diversity, with the records within the Global Databank for Farm Animal Genetic resources showing that almost half (46 percent) of the world's breed diversity is present in this region. Relatively few numbers of animals are actually found in the region however, being home to just 14 percent of the global population of domestic animals. Over a quarter of the world's cattle, goat, sheep, pig, duck and turkey breeds and over a half of the world's horse, chicken and geese breeds (table 2.2.4.2) are recorded in the Europe region. These figures reflect the early interest in breed development, the specialization of breeds for particular products and the more advanced inventory and description of breeds in Europe.

Recently there has been greater enthusiasm to maintain rare breeds and a number of non-governmental organizations (NGOs) have been set up to try to document their plight. Unfortunately such associations are operating on the periphery and have not been able to gain the attention of the public at large. Their activities must gain more impetus if much more of the region's domestic animal diversity is to survive (see section 2.3 on Extinct Breeds).

Of importance also in Europe is the current intense research activity for cattle, sheep, pigs, horses and chickens aimed at characterizing breeds at the molecular level. From this process, the estimation of genetic distances amongst breeds leads to the assessment of breed relationships and thus will assist conservation efforts. These studies should be expanded to include all breeds, and should also be strongly encouraged in other regions.

In 1995, 1 295 mammalian and 535 avian breeds (including extinct) were recorded in the Global Databank for Farm Animal Genetic Resources. Since then, 1 217 mammalian and 76 avian breeds have been added, increasing the amount of data recorded by 94 percent and 14 percent, respectively. Figures 2.2.3.1 to 2.2.3.2 illustrate the structure of the data recorded in the Global Databank for Farm Animal Genetic Resources, showing the risk status of the mammalian and avian breeds recorded for each species in the Europe region up to 1995 and up to 1999.

Figures 2.2.4.1 and 2.2.4.3 illustrate the risk status of the major domestic animal breeds in the Europe region. Of the 2 576 extant mammalian and avian breeds, almost half (48 percent) are categorized at risk (for definition see section 1.6). This figure is much greater than the equivalent in other regions and reflects the relative difficulty in obtaining census data for those breeds found in the developed regions. Additionally, Europe has the greatest number of conservation programmes in operation with 26 percent of mammalian and 24 percent of avian breeds at risk being maintained.

It is difficult to make solid statements about the changes in the proportion of breeds recorded in each risk status category between 1995 and 1999, because with the large amount of additional data recorded and the manner of the

recording method, the 1995 data is not a random subset of the 1999 data and direct comparisons between data sets would be biased by considering proportional changes. Despite such biases, when the complete data sets are indirectly compared, some trends are clear. As percentages of the total number of existing breeds that have population data (and therefore risk status known), the number of mammalian breeds recorded in the Europe region at risk of extinction has increased from 33 percent (of 1 039) to 49 percent (of 1 732) since 1995. The situation with avian breeds is even more serious, with the total percentage of breeds at risk of being lost increasing from 65 percent (of 462) in 1995 to 76 percent (of 516) in 1999. These figures are alarming and efforts must be made to encourage maintenance of these important domestic animal genetic resources at risk.

Figures 2.2.4.3 and 2.2.4.4 provide general overviews of the quantity and quality of the population data provided by each country for their animal genetic resources. A list of all contributors of information to the Global Databank for Farm Animal Genetic Resources is given in Annex 2.2 and 2.3. The last year of reporting refers to the date of the most recent entry of population data in the Global Databank for Farm Animal Genetic Resources. Potentially, this means that even if the data for only one breed is updated then that year will be indicated. The total number of breeds recorded by each country is shown. **No information** is displayed for those countries for which no breeds are recorded in the Global Databank for Farm Animal Genetic Resources. For each other country, breeds are split into those **with population data** and those with **no population data** (risk status unknown). When one or more fields in the Global Databank for Farm Animal Genetic Resources are completed then that breed is identified with population data. For an overview of the population data fields see tables 1.7.1 and 1.7.2.

For those breeds recorded with population data, a population data index (PDI) is calculated, which provides an indication of the completeness of the data provided by the country. Selected basic population data fields, regarded to be the most important and used in the calculation of risk status, are considered - population size (absolute or range), number of breeding females, number of breeding males and the percentage of females bred to males of the same breed. The PDI is calculated for each breed as the fraction of the selected fields that contain information. This is then averaged across all breeds for which the index is calculated.

For example (see figure 2.2.4.3), by 1999 the United Kingdom had recorded 206 mammalian breeds in the Global Databank for Farm Animal Genetic Resources. Of those, almost three quarters (153 breeds) had information contained in one or more of the 16 population data fields, and were therefore identified as those breeds with population data. Although a large proportion of the breeds had some population data, the PDI for the United Kingdom was calculated as 0.51, indicating that of the 153 breeds recorded to date with population data, on

average only half of the most important population fields were completed. Similarly, by 1997 Germany had recorded 225 mammalian breeds, almost all (221 breeds) of which were recorded with at least some population data. However, on average only 40 percent of the important population data fields were completed.

Overall, figures 2.2.4.3 and 2.2.4.4 highlight deficiencies in the population data and stress the fundamental challenge for countries to overcome these for better decision-making both nationally and internationally. For mammalian breeds (figure 2.2.4.3), the vast majority of countries, dependent territories, overseas departments, entities and areas in the Europe region recorded breed information. The smallest countries in the region (see figure 2.2.4.3) were the only countries recording no mammalian genetic resources. For the majority that did record mammalian genetic resources, the average PDI was 0.62. More than 80 percent of these countries recorded more than 50 percent of the basic population data used for the calculation of risk status, Albania and Slovakia completing more than 90 percent of these fields.

Much less data has been recorded for avian breeds (figure 2.2.4.4), only 28 (54 percent) of the 52 countries, dependent territories, overseas departments, entities and areas having recorded their avian genetic resources. However, the average PDI for those countries recording some data was high and was calculated as 0.75. Most of these countries (82 percent) recorded more than 50 percent of the basic population data, and seven countries completed 100 percent of these fields. In summary, for both mammalian and avian breeds recorded to date and for those countries that have recorded breed data, there remains some data, required for the calculation of risk status, that has not yet been recorded. For the remaining countries, for which no breed information is recorded, the state of their animal genetic resources is unknown.

Of note is the relatively little data recorded for avian species. Although the recording of avian breeds was initiated after the recording of mammalian breeds, little more data has recently been added by countries for avian breeds. Avian breeds should not be neglected as they make important contributions to food, especially in the developing world, and represent an important component of global animal genetic resources.

For a complete list of breeds and their risk status, recorded by each country, see section 2.4.2.

Under the Convention on Biological Diversity (CBD), which became international law in December 1993, countries that have ratified this convention are not only recognized as having sovereignty over all genetic resources within their boundaries, but are also obliged to report data on these genetic resources, including their animal genetic resources. Each country is responsible for validating and maintaining current data describing the status and characteristics of these resources and for reporting on this internationally. FAO is the UN agency responsible for assisting

countries to develop and maintain this reporting responsibility. Under Decision III/11 of the Conference of the Parties (COP) of the CBD, FAO also has the mandate to develop, as a priority activity, the Global Strategy for the Management of Farm Animal Genetic Resources for country use. In order to do this, countries should comply, and provide complete, high-quality breed data which should be regularly updated. Country inventories within the Global Databank for Farm Animal Genetic Resources assist the management of animal genetic resources. Management includes the identification of those breeds at risk of extinction using a consistent approach. This information is crucial in order to develop the Global Early Warning System for Animal Genetic Resources and for the conservation of these resources. Breed data must be available in order to further develop methodologies, to consistently define risk status across countries, regions and the world and to share the benefits of animal genetic resources.

DESCRIPTION LIST

The following pages provide brief summary descriptions for all mammalian and avian breeds recorded as critical (C), endangered (D), critical-maintained (CM) and endangered-maintained (DM) in the Europe region. Within these description lists breeds are sorted by country, by species group (see table 1.3.1), by risk status (critical followed by critical-maintained, endangered and endangered-maintained) and finally alphabetically by the most common name, as identified by the country. Whenever more than one breed name is provided, that used by the major ethnic group (in terms of numbers) is used to denote the most common name for the breed. Colour varieties, especially of avian species, are listed as one

breed. For each breed a list of names or synonyms, the total population size (absolute or range), the number of breeding males and females, the population size trend and the range of uses are highlighted when available. This is followed by a brief description of the breed indicating its origins, current location, phenotype (particularly any unusual visible traits), adaptability to local stressors such as environmental pressures, population information (such as the proportion of females being bred to males of the same breed) and any *in situ* and *ex situ* conservation efforts that are operational.

All data submitted to FAO before 31/11/99 has been validated and considered. In some cases information for the breed is not available or was not provided and validated prior to preparation of WWL-DAD:3. Consequently, some sections will read **No further information available** (see Annex 2.1 for details on how to assist overcoming such information deficiencies).

Breeds recorded as extinct in this region are listed in section 2.3.1. For a complete list of all breeds and their risk status recorded by each country in each region, see section 2.4.2.

It should be noted that risk status is assigned for a breed whenever the population size of a country population has been reported according to the criteria given in section 1.6. This may not be a true reflection of the status of the breed regionally or globally, for the breed may also be represented in one or more other countries.

The following list describes the 1 248 documented breeds at risk in the Europe region.

TARINE*CRITICAL***Local names or syn.:** Tarentaise (fr.)**Population data:** 40 • 30 ♀ • 3 ♂ • 1994**Population trend:** increasing**Range of uses:** milk, meat**ALBANIA**

Tarine cattle are reddish in colour. Adult males weigh on average 500 kg and females 450 kg with an average wither height of 150 cm and 140 cm respectively. The animals are adapted to high mountains. Of females, 100% are bred to males of the same breed.

LARE E KUGE*ENDANGERED***Local names or syn.:** Simmental (eng.)**Population data:** 500 • 250 ♀ • 1994**Population trend:** stable**Range of uses:** meat, milk**ALBANIA**

Lare e Kuge cattle are white with red spots. Adult males weigh on average 530 kg and females 500 kg with an average wither height of 155 cm and 145 cm respectively. They are adapted to harsh field conditions. Of females, 100% are bred to males of the same breed. The semen of one male is stored.

VALBONA*ENDANGERED***Local names or syn.:** Valbona (alb.), Grauvieh (ger.), Oberinntal (ger.)**Population data:** 1 040 • 470 ♀ • 20 ♂ • 1994**Population trend:** stable**Range of uses:** milk, meat**ALBANIA**

Valbona cattle are grey in colour. Adult males weigh on average 394 kg and females 335 kg with an average wither height of 140 cm and 130 cm respectively. These cattle are adapted to high mountains. Of females, 100% are bred to males of the same breed. The semen of 2 males is stored.

ALPINE*CRITICAL***Local names or syn.:** -**Population data:** 129 • 100 ♀ • 5 ♂ • 1994**Population trend:** stable**Range of uses:** milk**ALBANIA**

Alpine goats are brown in colour and have pendant ears. Adult males weigh on average 75 kg and females 45 kg with an average wither height of 75 cm and 65 cm respectively. They are adapted to high mountains. Of females, 100% are bred to males of the same breed.

SANA*ENDANGERED***Local names or syn.:** Saanen (eng.)**Population data:** 353 • 270 ♀ • 25 ♂ • 1994**Population trend:** increasing**Range of uses:** milk**ALBANIA**

Sana goats are white in colour with big ears. Adult males weigh on average 75 kg and females 56 kg with an average wither height of 80 cm and 70 cm respectively. They are adapted to harsh field conditions. Of females, 100% are bred to males of the same breed.

ARAB*CRITICAL***Local names or syn.:** -**Population data:** 18 • 10 ♀ • 3 ♂ • 1994**Population trend:** stable**Range of uses:** riding (sports)**ALBANIA**

Arab horses may be white or grey with spots in colour. Adult males weigh on average 400 kg and females 360 kg with an average wither height of 148 cm and 140 cm respectively. This breed is adapted to harsh field conditions. Of females, 100% are bred to males of the same breed.

HAFLINGER*CRITICAL***Local names or syn.:** -**Population data:** 87 • 30 ♀ • 23 ♂ • 1994**Population trend:** increasing**Range of uses:** draught power**ALBANIA**

Haflinger horses are brown in colour. Adult males weigh on average 472 kg and females 448 kg with an average wither height of 145 cm and 140 cm respectively. This breed is adapted to harsh field conditions. Of females, 100% are bred to males of the same breed.

NONIUS*CRITICAL***Local names or syn.:** -**Population data:** > 143 • 55 ♀ • 63 ♂ • 1994**Population trend:** stable**Range of uses:** draught power**ALBANIA**

The Nonius are black in colour. Adult males weigh on average 470 kg and females 430 kg with an average wither height of 158 cm and 150 cm respectively. They are adapted to harsh field conditions. Of females, 100% are bred to males of the same breed.

COMUNE*ENDANGERED***Local names or syn.:** Common (eng.)**Population data:** 1750 • 230 ♀ • 20 ♂ • 1994**Population trend:** stable**Range of uses:** meat**ALBANIA**

Comune pigs are brown in colour. Adult males weigh on average 165 kg and females 145 kg with an average wither height of 61 cm and 53 cm respectively. Of females, 100% are bred to males of the same breed.

HAVASI*CRITICAL***Local names or syn.:** -**Population data:** > 120 • 110 ♀ • 5 ♂ • 1994**Population trend:** increasing**Range of uses:** milk**ALBANIA**

Havasi sheep are light brown in colour with big, hanging ears. Adult males weigh on average 38 kg and females 33 kg with an average wither height of 64 cm and 59 cm respectively. These sheep have coarse/carpet type wool and are adapted to harsh field conditions. Of females, 100% are bred to males of the same breed.

IL D'FRANS*CRITICAL***Local names or syn.:** Ile-de-France (fr.)**Population data:** > 180 • 150 ♀ • 5 ♂ • 1994**Population trend:** increasing**Range of uses:** meat**ALBANIA**

Il d'Frans sheep are white in colour and have coarse/carpet type wool. Adult males weigh on average 44 kg and females 39 kg with an average wither height of 72 cm and 64 cm respectively. These sheep are adapted to harsh field conditions.

LOCAL TIRANA*CRITICAL***Local names or syn.:** -**Population data:** 50 • 1993**Population trend:** -**Range of uses:** eggs**ALBANIA**

The Local Tirana is an indigenous breed found in Tirana. They have self-black, self-red and variants, self-white or various colours coloured plumage. They may have yellow (52%), white (32%) or blue-black (16%) skin and the shanks and feet may be yellow (56%), blue (24%) or white (20%). The comb may be of single (88%) or rose (12%) type and egg shells may be white or brown in colour. Adult males weigh on average 2.1 kg and females 1.6 kg.

LOCAL TROPOJA PAC*CRITICAL***Local names or syn.:** -**Population data:** 128 • 1991**Population trend:** -**Range of uses:** eggs**ALBANIA**

The Local Tropoja Pac is an indigenous breed found in Tropoja, Pac. These chickens have self-black, self-red and variants or self-white coloured plumage. They may have white, yellow or blue-black skin and the shanks and feet may be yellow, blue or white. The comb may be of single, pea or rose type. Plumage may be distributed as normal, naked neck, feathered legs and naked shank.

LOCAL BLACK TROPOJA LEKBIBAJ*ENDANGERED***Local names or syn.:** -**Population data:** 309 • 1991**Population trend:** -**Range of uses:** -**ALBANIA**

The Local Black Tropoja Lekbibaj is an indigenous breed found in Tropoja, Lekbibaj. These chickens have various colours, self-red and variants, self-white or self-black coloured plumage. They may have white, yellow or blue-black skin and the shanks and feet may be yellow, blue or white. The comb may be of single, duplex or V-shaped, rose or pea type. Plumage may be distributed as normal, naked neck, feathered legs or naked shank.

AZERBAIDZHANSKAYA*ENDANGERED*

Local names or syn.: Azerbaijan (eng.), Long-Haired Caucasian (eng.), South Caucasian (eng.), Transcaucasian (eng.)

Population data: 100 - 1 000 • 1988**Population trend:** -**Range of uses:** meat, milk**ARMENIA**

The Azerbaidzhanskaya may be black, red or grey, but are usually pied, black dappled with red, in colour.

FOREST MOUNTAIN*CRITICAL*

Local names or syn.: Lesogornaya Porodnaya Gruppa (ru.), New Lesogor (eng.), Novaya Lesogornaya (ru.)

Population data: 579 • 75 ♀ • 16 ♂ • 1980**Population trend:** decreasing**Range of uses:** meat, lard**ARMENIA**

The Forest Mountain is found in forested mountain regions. It is a composite of Mangalitsa and Large White x local pigs and was established in the 1950s. The animals are white, black or grey in colour, are long-haired in winter and have semi-lop ears. Adult males weigh on average 260 kg and females 166 kg. The animals can survive on pasture and produce high quality meat. These hardy animals are known for their strong constitution. Of females, 100% are bred to males of the same breed.

BOZAKHSKAYA*ENDANGERED***Local names or syn.:** Bozakh (eng.)**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** -**ARMENIA**

The Bozakhskaya is a Caucasian fat-tailed type. The animals may be white (36%), yellow-white (23%), tan (13%), grey (10%) or red (8%) in colour. Adult males weigh on average 65 kg and females 50 kg. Females have an average wither height of 64 cm. Males and females may be either polled or horned.

JOCHBERGER HUMMELN*CRITICAL-MAINTAINED***Local names or syn.:** Jochberg Hummeln (eng.)**Population data:** 30 ♀ • 4 ♂ • 1994**Population trend:** increasing**Range of uses:** meat**AUSTRIA**

The Jochberger Hummeln is a polled variety of Pinzgauer found in Bezirk Kitzbühel, Tirol. Adult males weigh on average 1 200 kg and females 700 kg with an average wither height of 151 cm and 139 cm respectively. All animals are polled. There are 3 herds remaining and 30 females registered in the herd book, of which 40% are bred to males of the same breed.

ORIGINAL BRAUNVIEH*CRITICAL-MAINTAINED***Local names or syn.:** Brown (Original) (eng.), Original Österreichisches Braunvieh (ger.), Original Austrian Brown (eng.)**Population data:** < 100 • 50 ♀ • 1997**Population trend:** decreasing**Range of uses:** milk, meat, vegetation management**AUSTRIA**

The Original Braunvieh, established in 1850, is a locally developed autochthonous breed found country-wide. The animals are brown with dark pigmented hooves and a light ring around the muzzle (ger.= Rehmaul), black horntips and black skin colour. Adult males weigh on average 1 100 kg and females 650 kg with an average wither height of 155 cm and 140 cm respectively. This is a robust breed that is adapted to Alpine conditions (high mountains, hot and cold climate). The females are known for good nursing abilities. There are 45 females registered in the herd book, of which 50% are bred to males of the same breed. The *in situ* conservation programme covers 11 herds or breeders with 12 males with semen for AI. Embryos are also stored and the material is stored in three locations.

UNGARISCHES STEPPENRIND*CRITICAL-MAINTAINED***Local names or syn.:** Hungarian Steppe (eng.)**Population data:** 10 ♀ • 4 ♂ • 1994**Population trend:** increasing**Range of uses:** meat**AUSTRIA**

The Ungarisches Steppenrind is found in Neusiedler See, Burgenland. The animals are silver-white to ash-grey in colour, have a large body size and long horns. Adult males weigh on average 900 kg and females 600 kg with an average wither height of 150 cm and 140 cm respectively. This breed is reported to be resistant to diseases and is known for its fast growing calves. There are 4 herds remaining with 10 females registered in the herd book, all of which are bred to males of the same breed.

AUSTRIAN BLOND*ENDANGERED-MAINTAINED*

Local names or syn.: Kärntner Blondvieh (ger.), Lavanttal (ger.), Mariahof (ger.), Mariahofer-Lavanttaler (ger.), Plava, Styrian Blond (eng.), Carinthian Blond (eng.)

Population data: 100 - 1 000 • 250 ♀ • 1997

Population trend: stable

Range of uses: meat, milk, vegetation management

AUSTRIA

The Austrian Blond is found in Kärnten. It is a composite of Keltentrinder, Mitteldeutsches Bergvieh, Maria Hofer and Lavanttaler (1850) and was established in 1900. The animals are blond with a white muzzle and light coloured skin. Adult males weigh on average 825 kg and females 550 kg with an average wither height of 141 cm and 131 cm respectively. The breed is adapted to mountainous regions, produces meat of excellent quality and is known for both its excellent fertility and staying power. There are 227 females registered in the herd book, of which 70% are bred to males of the same breed. The *in situ* conservation programme covers 33 herds or breeders with 12 males with semen for AI.

MURBODEN*ENDANGERED-MAINTAINED*

Local names or syn.: Murbodner (ger.), Murboden-Mürztal (ger.), Murbodner (ger.), Svetlolisata (slov.), Pomurska

Population data: 100 - 1 000 • 450 ♀ • 1998

Population trend: stable

Range of uses: meat, milk, vegetation management

AUSTRIA

The Murboden is found in Steiermark. It is a composite of Bergschecken, Maria Hofer and Mürztaler Schlag and was established in 1850. The animals are brown with a white surrounded slate-blue muzzle, black horn-tips and claws and dark skin. Adult males weigh on average 950 kg and females 600 kg with an average wither height of 141 cm and 135 cm respectively. The breed is adapted to mountainous regions and produces high quality meat for which a programme for trademarking of the meat exists. This breed is also known for its staying power. There are 395 females registered in the herd book, of which 50% are bred to males of the same breed. The *in situ* conservation programme covers 57 herds or breeders with 13 reproducing males. The semen of 16 males is stored in two locations.

TUX*ENDANGERED-MAINTAINED*

Local names or syn.: Tuxer (ger.), Tirolense (it.), Tux-Zillertaler (ger.)

Population data: 100 - 1 000 • 250 ♀ • 1997

Population trend: increasing

Range of uses: meat, vegetation management, milk

AUSTRIA

The Tux is found in Zillertal, Tirol. It is a local breed, established in 1800, probably from Herens (Switzerland). The animals are black, red or brown with white markings on pelvis, base of tail, hypogastrium, belly and udder and have dark skin. They have a short head with strong horns. Adult males weigh on average 1 100 kg and females 600 kg with an average wither height of 130 cm and 125 cm respectively. The breed is well adapted to the local environment (high mountain country) and is known for its staying power. A very good meat quality with a low fat content is reported for this breed. There are 98 females registered in the herd book, of which 90% are bred to males of the same breed. The *in situ* conservation programme covers 60 herds or breeders with 6 males with semen for AI. Embryos are also stored and the material is stored in two locations.

WALDVIERTEL*ENDANGERED-MAINTAINED*

Local names or syn.: Waldviertler Vieh (ger.), Waldviertler Blondvieh (ger.), Manhartsberg (ger.), Schiltern (czech)

Population data: 133 ♀ • 11 ♂ • 1994

Population trend: -

Range of uses: milk, meat, socio-cultural

AUSTRIA

The Waldviertel is found in Niederösterreich and is a composite of Keltentrinder and Mitteldeutsches Bergvieh, established in 1950. The animals are red, brown, white, or blond with wax coloured horns and flesh coloured muzzle. Adult males weigh on average 900 kg and females 575 kg with an average wither height of 140 cm and 132 cm respectively. The breed is well adapted to a harsh climate, has hard hooves, high staying power and produces high quality meat. There are 50 herds remaining and 129 females registered in the herd book, of which 97% are bred to males of the same breed. The semen of 11 males is stored.

PINZGAUER ZIEGE*ENDANGERED-MAINTAINED***Local names or syn.:** Pinzgau (eng.)**Population data:** 290 ♀ • 37 ♂ • 1994**Population trend:** increasing**Range of uses:** milk, meat**AUSTRIA**

The Pinzgauer Ziege is found in Kärnten, Salzburg, Steiermark and Tirol and has been selected based on colour within local landraces. The animals are brown to red-brown with black legs, black head and black dorsal stripe and males and females may be either polled or horned. Adult males weigh on average 65 kg and females 45 kg with an average wither height of 80 cm and 75 cm respectively. The breed is robust, well adapted to live under Austrian Alpine conditions and known for good fertility. There are 40 herds remaining with 64 females registered in the herd book, 20% of which are bred to males of the same breed.

SAANENZIEGE*ENDANGERED-MAINTAINED***Local names or syn.:** Saanen (eng.)**Population data:** 700 ♀ • 40 ♂ • 1994**Population trend:** increasing**Range of uses:** milk, meat, skins and hides**AUSTRIA**

The Saanenziege, an indigenous breed, originated in Saanenland and Obersimmental and is now found in Tirol, Niederösterreich. The animals are white with small dark pigmented spots on the nose, lips, ears and udder. Adult males weigh on average 75 kg and females 50 kg with an average wither height of 87 cm and 80 cm respectively. All animals are polled. There are 40 herds remaining. There are 350 females registered in the herd book, of which 50% are bred to males of the same breed.

TAUERNSCHECKEN*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 280 ♀ • 30 ♂ • 1994**Population trend:** increasing**Range of uses:** meat**AUSTRIA**

The Tauernschecken is found in Salzburg, Steiermark and Osttirol. It is a local breed and was established under controlled breeding for 60 years. The animals are brown-white or black-white pied in colour and frequently have a blaze. Adult males weigh on average 65 kg and females 45 kg with an average wither height of 80 cm and 75 cm respectively. This breed is known for its fertility and robusticity. There are 22 herds remaining. There are 145 females registered in the herd book, of which 90% are bred to males of the same breed.

TOGGENBURGER ZIEGE*ENDANGERED-MAINTAINED***Local names or syn.:** Toggenburg (eng.)**Population data:** 200 ♀ • 11 ♂ • 1994**Population trend:** increasing**Range of uses:** milk, meat**AUSTRIA**

The Toggenburger Ziege, descended from Toggenburg and St. Gallen, is found in Tirol, Steiermark and Niederösterreich. The animals are light bay to mouse grey with white legs and have coarse/carpet type long hair. Adult males weigh on average 70 kg and females 47 kg with an average wither height of 80 cm and 75 cm respectively. This robust breed shows a good performance (good growth rate). There are 10 herds remaining and 95 females registered in the herd book, of which 50% are bred to males of the same breed.

ALTÖSTERREICHISCHES WARMBLUT



CRITICAL-MAINTAINED

Local names or syn.: Old Austrian Warmblood (eng.)

Population data: < 100 • 40 ♀ • 4 ♂ • 1998

Population trend: decreasing

Range of uses: sport, hobby

LIPIZZANER



CRITICAL-MAINTAINED

Local names or syn.: Lipitsa

Population data: 100 ♀ • 35 ♂ • 1994

Population trend: increasing

Range of uses: Spanish horseshool

SHAGYA-ARABER



ENDANGERED-MAINTAINED

Local names or syn.: Shagya-Arab (eng.)

Population data: 100 - 1 000 • 25 ♂ • 1998

Population trend: stable

Range of uses: sport, hobby

VOLLBLUTARABER



ENDANGERED-MAINTAINED

Local names or syn.: Arab (eng.)

Population data: 313 ♀ • 91 ♂ • 1992

Population trend: increasing

Range of uses: sport

AUSTRIA

The Altösterreichisches Warmblut is found country-wide. It is a local landrace that has been upgraded with Arab and English Halfbred (1800) blood. The animals may be black, light black, bay, dark chestnut, chestnut, light chestnut or grey in colour. Adult males weigh on average 500 kg and females 500 kg with an average wither height of 165 cm and 160 cm respectively. This is a persistent breed known for its heat tolerance. There are 40 females registered in the herd book. The *in situ* conservation programme covers 25 herds or breeders with 4 reproducing males and 5 additional males with semen for AI stored in one location.

AUSTRIA

The Lipizzaner is found in Steiermark and Vienna. It is a composite of local horses and old Spanish horses. The animals are white as adults but foals are born black or brown in colour. Adult males weigh on average 550 kg and females 550 kg with an average wither height of 158 cm and 158 cm respectively. This breed is known for late maturity. The animals of this breed are reported to be resistant to diseases and are undemanding. Of females, 100% are bred to males of the same breed.

AUSTRIA

The Shagya-Araber is found country-wide. It is a composite of Thoroughbred, Arab and local horses and was established in 1842. The animals are all colours but are predominantly white and rarely black in colour. Adult males weigh on average 450 kg and females 450 kg with an average wither height of 160 cm and 157 cm respectively. The animals are persistent and tolerant of heat and adapted to arid/dry areas. There are 253 females registered in the herd book, of which 90% are bred to males of the same breed. The *in situ* conservation programme covers 25 reproducing males.

AUSTRIA

The Vollblutaraber was imported from Germany, Egypt, the United States of America, Poland and the Former Soviet Republic and is found country-wide. The animals are grey, chestnut or bay in colour and have a long fine mane and tail. Adult males weigh on average 450 kg and females 450 kg with an average wither height of 155 cm and 155 cm respectively. These are hardy animals known for their staying power. There are 10 herds remaining and 313 females registered in the herd book, of which 100% are bred to males of the same breed.

KRAINER STEINSCHAF*CRITICAL-MAINTAINED***Local names or syn.:** -**Population data:** 35 ♀ • 7 ♂ • 1994**Population trend:** increasing**Range of uses:** milk, meat, pelt / fur**AUSTRIA**

The Krainer Steinschaf is native breed found on the Alps in Steiermark and Kärnten and descended from Zackelschaf. The animals are white in colour with short loping ears and coarse/carpet type wool. Males and females may be either polled or horned. Adult males weigh on average 90 kg and females 77 kg with an average wither height of 82 cm and 75 cm respectively. These sheep have a high milk yield and are reported to be very resistant to diseases. They are robust and have hard hooves. There are six herds remaining and only 35 females registered in the herd book, of which 100% are bred to males of the same breed.

WALDSCHAF*CRITICAL-MAINTAINED***Local names or syn.:** -**Population data:** 80 ♀ • 4 ♂ • 1994**Population trend:** increasing**Range of uses:** wool, meat**AUSTRIA**

The Waldschaf, descended from Zackelschaf through incrossing, is found in the Austrian part of Bohemia. The animals are white in colour, have coarse/carpet type wool, erect ears and a straight head with a slightly roman profile. Adult males weigh on average 65 kg and females 47 kg with an average wither height of 70 cm and 62 cm respectively. This robust breed is considered undemanding and is adapted to rough weather conditions. There are 2 herds remaining and only 80 females registered in the herd book, of which 100% are bred to males of the same breed.

ZACKELSCHAF*CRITICAL-MAINTAINED***Local names or syn.:** Zackel (eng.)**Population data:** 36 ♀ • 9 ♂ • 1994**Population trend:** increasing**Range of uses:** meat, wool**AUSTRIA**

The Zackelschaf is found in the northern part of Burgenland. The animals are white in colour with a small body size and coarse/carpet type wool. This breed is highly fertile but only 5 herds remain. There are 36 females registered in the herd book, of which 100% are bred to males of the same breed.

CARINTHIAN*ENDANGERED***Local names or syn.:** Kärntner Brillenschaf (ger.), Seeländer Schaf (ger.)**Population data:** 351 ♀ • 57 ♂ • 1994**Population trend:** -**Range of uses:** meat, socio-cultural, wool**AUSTRIA**

The Carinthian, a composite of a local breed, Paduaner, and Bergamasca is found in Kärnten. The animals are usually white with black ears and black spots around the eyes but may also be black in colour. Adult males weigh on average 80 kg and females 60 kg with an average wither height of 75 cm and 65 cm respectively. These sheep have medium fibred wool and all animals are polled. These are hardy animals, well adapted to the local environment (mountains) and they produce good quality meat with a game-like taste. There are 26 herds remaining with 335 females registered in the herd book, 80% of which are bred to males of the same breed.

BRAUNES BERGSCHAF



ENDANGERED-MAINTAINED

Local names or syn.: Brown Mountain (eng.)

Population data: 525 ♀ • 65 ♂ • 1994

Population trend: increasing

Range of uses: meat, pelt / fur, wool

AUSTRIA

The Braunes Bergschaf is found in Salzburg, Steiermark, Tirol and Niederösterreich and has been selected from brown landraces. The animals are brown in colour with a roman head, big, long, lop ears and hard hooves. They have coarse/carpet type wool and all animals are polled. Adult males weigh on average 77 kg and females 67 kg with an average wither height of 72 cm and 68 cm respectively. They are highly fertile and no oestrus seasonality is reported. There are 49 herds remaining and 295 females registered in the herd book, of which 50% are bred to males of the same breed.

RAMO GRANDE



CRITICAL

Local names or syn.: -

Population data: 98 ♀ • 3 ♂ • 1994

Population trend: decreasing

Range of uses: draught power, meat

AZORES AND MADEIRA

The Ramo Grande is found on the Azores Islands and is a composite of Alentejana, Mirandesa and Shorthorn. The animals may be either brown or white in colour and weigh on average 800 kg and 550 kg for males and females respectively. There are 10 herds remaining and 50% of females are bred to males of the same breed.

GORYNSKAYA



ENDANGERED

Local names or syn.: Goryn (eng.)

Population data: 100 - 1 000 • 1988

Population trend: -

Range of uses: milk, meat

BELARUS

The Gorynskaya is found in Stolin District, Brest Province and is a composite of old-type Simmental and Polish Red. The animals are red and white pied in colour.

POLESSKAYA



ENDANGERED

Local names or syn.: Polesian (eng.)

Population data: 100 - 1 000 • 1988

Population trend: -

Range of uses: -

BELARUS

The Poleskaya pony is a Konik type.

ROOD VAN BELGIE*ENDANGERED*

Local names or syn.: Rouge de Belgique (fr.), Belgian Red (eng.)

Population data: 100 - 1 000 • 1995

Population trend: decreasing

Range of uses: milk, meat

BELGIUM

The Rood van Belgie is found in western Flanders and is an indigenous breed established in 1967. The animals are red or red and white in colour. Adult males weigh on average 1 200 kg and females 700 kg with an average wither height of 150 cm and 140 cm respectively. The semen of 40 males is stored.

ANGLO-NUBIENNE*ENDANGERED*

Local names or syn.: Anglo-Nubische (dutch), Anglo-Nubian (eng.)

Population data: 224 - 1 000 • 135 ♀ • 89 ♂ • 1998

Population trend: stable

Range of uses: milk, hobby, meat

BELGIUM

The Anglo-Nubienne is found country-wide and was imported from the United Kingdom. The animals are varied in colour with long and pendulous ears. Males and females have an average wither height of 84 cm and 75 cm respectively. The milk of this breed contains high butterfat and milk-protein percentages. There are 27 herds remaining with 135 females registered in the herd book, 95% of which are bred to males of the same breed. In total, 32% of males are used for breeding.

BLANCHE*ENDANGERED*

Local names or syn.: Witte (dutch), Belgian White (eng.)

Population data: 1 000 - 10 000 • 1998

Population trend: stable

Range of uses: milk, hobby, meat

BELGIUM

The Blanche is found in northern Belgium and was imported from Switzerland. The animals are white in colour and males and females may be either polled or horned. Adult males weigh on average 60 kg and females 60 kg with an average wither height of 80 cm and 71 cm respectively.

CHAMOISÉE*ENDANGERED*

Local names or syn.: Hertkleurig (dutch), Belgian Fawn (eng.)

Population data: 847 - 1 000 • 631 ♀ • 216 ♂ • 1998

Population trend: stable

Range of uses: milk, hobby, meat

BELGIUM

The Chamoisée is found country-wide and is a local breed with great influence from French Alpine goats. The animals are brown in colour and may be either polled or horned. Adult males weigh on average 65 kg and females 60 kg with an average wither height of 81 cm and 72 cm respectively. There are 50 herds remaining with 631 females registered in the herd book, 100% of which are bred to males of the same breed. In total, 23% of males are used for breeding.

TOGGENBURG*ENDANGERED***Local names or syn.:** Toggenburger (dutch)**Population data:** 100 - 1 000 • 1998**Population trend:** stable**Range of uses:** milk, hobby, meat**BELGIUM**

The Toggenburg was imported from Switzerland. The animals are light brown in colour with white drawings and may be either polled or horned. Males and females have an average wither height of 73 cm and 65 cm respectively.

FJORD*ENDANGERED***Local names or syn.:** -**Population data:** 1 000 • 1 000 ♀ • 10 ♂ • 1998**Population trend:** increasing**Range of uses:** milk, meat**BELGIUM**

Ninety-five percent of females are bred to males of the same breed.

LIPIZZAN*ENDANGERED***Local names or syn.:** Lipizzaner (dutch)**Population data:** 170 • 25 ♀ • 16 ♂ • 1998**Population trend:** increasing**Range of uses:** dressage, riding (sports)**BELGIUM**

The Lipizzan, established in 1580, originates from Lipica in the kingdom of Habsbourg and is a composite of a local breeds called Karst, Andalous and Arab with some input of Danois. The animals are grey, sometimes black or brown and foals are always brown or black in colour. Adult males weigh on average 550 kg and females 500 kg with an average wither height of 158 cm and 155 cm respectively. There are 90 females registered in the herd book, of which 100% are bred to males of the same breed.

ENTRE-SAMBRE-ET-MEUSE*CRITICAL***Local names or syn.:** -**Population data:** 57 • 1998**Population trend:** stable**Range of uses:** -**BELGIUM**

The Entre-Sambre-et-Meuse was developed from many local breeds that were very prevalent in the past. The animals are white in colour with erect ears and coarse/carpet type wool. All animals are polled. There are 4 herds remaining.

LAKENS KUDDESCHAAP*CRITICAL***Local names or syn.:** -**Population data:** 93 • 1998**Population trend:** stable**Range of uses:** meat, wool**BELGIUM**

The Lakens Kuddeschaap was developed from a local selection of the dynasty herd from 1890 (Domain Laken). Adults are light beige-brown in colour with spotted skin and lambs are rose in colour. They have erect ears, coarse/carpet type wool and all animals are polled. Adult males weigh on average 70 kg and females 60 kg and males have an average wither height of 70 cm. The animals are known for their good fertility and there are 6 herds remaining.

VLAAMS SCHAAP*CRITICAL***Local names or syn.:** Mouton Flamand (fr.)**Population data:** 76 • 1998**Population trend:** decreasing**Range of uses:** wool, meat**BELGIUM**

The Vlaams Schaap is found in eastern and western Flanders and was developed on the coast grounds for wool production. The animals are pigmented around the nose, have erect ears, coarse/carpet type wool and are polled. Adult males weigh on average 90 kg and females 70 kg with an average wither height of 95 cm and 85 cm respectively. The animals are known for their good fertility. There are 10 herds remaining.

HOUTLANDSCHAAP*ENDANGERED***Local names or syn.:** Ardennais tacheté (fr.)**Population data:** 119 • 1998**Population trend:** stable**Range of uses:** meat**BELGIUM**

The Houtlandschaap is found in the Province of East-Flandern, Wallonie and was established in the beginning of the 20th century by crossings with Ardenne, Sambre-et-Meuse and Vlaamse Schaap. In the middle of the 20th century the breed increased in East-Flandern and Hainaut. The animals are white with black-grey spots around the nose and the head and limbs are spotted with pink-brown colour. They are polled, have coarse/carpet type wool, a roman nose and unwoolled legs. Adult males weigh on average 87 kg and females 60 kg with an average wither height of 83 cm and 73 cm respectively. They are a very prolific, rustic and precocious breed. There are 9 herds remaining.

ILE-DE-FRANCE*ENDANGERED***Local names or syn.:** -**Population data:** 10 ♂ • 1994**Population trend:** stable**Range of uses:** meat, wool**BELGIUM**

The Ile-de-France is found country-wide and was imported from France. Females weigh on average 70 kg and have an average wither height of 66 cm. The animals are white in colour, have coarse/carpet type wool and all animals are polled. There are 125 females registered in the herd book.

KEMPENS SCHAAP*ENDANGERED*

Local names or syn.: Mouton Campinois (fr.), Kempisch Heideschaap (dutch), Kempen Heath (eng.)

Population data: 145 • 1998

Population trend: stable

Range of uses: meat

BELGIUM

The Kempens Schaap is found in the agricultural region of Campine and was created in the 19th century by crossing the local breed with Spanish Merinos. The animals are white in colour with a long narrow unwoolled head, erect ears and a long neck. These sheep have coarse/carpet type wool and small horns or knobs. Adult males weigh on average 55 kg and females 47 kg with an average wither height of 72 cm and 66 cm respectively. There are 7 herds remaining.

MERGELLAND SCHAAP*ENDANGERED*

Local names or syn.: Merckelland (eng.)

Population data: 500 ♀ • 1994

Population trend: -

Range of uses: meat

BELGIUM

The Mergelland Schaap was developed in the East-Limburg, Noorth-liege and Netherlands south Limburg regions in the beginning of the 20th century. The animals are polled, beige or cream-coloured in colour, have coarse/carpet type wool and a roman nose. Males have an average wither height of 67 cm. The animals are known for their good fertility.

MOUTON LAITIER BELGE*ENDANGERED*

Local names or syn.: Belgisch Melkschaap (dutch), Belgian Milk (eng.)

Population data: 1 000 - 10 000 • 749 ♀ • 200 ♂ • 1998

Population trend: stable

Range of uses: milk, hobby, wool

BELGIUM

The Mouton Laitier Belge is a local breed found country-wide. The animals are white in colour with a long thin woolless tail. Adult males weigh on average 113 kg and females 75 kg with an average wither height of 82 cm and 73 cm respectively. These sheep have medium fibred wool and all animals are polled. There are 36 herds remaining with 749 females registered in the herd book, 100% of which are bred to males of the same breed. In total, 18% of males are used for breeding.

VLAAMS KUDDESCHAAP*ENDANGERED*

Local names or syn.: -

Population data: 338 • 1998

Population trend: stable

Range of uses: meat, wool

BELGIUM

The Vlaams Kuddeschaap is a local breed found in Flanders. The animals have a cream-coloured white coat and may be black or black spotted around the nose. They have coarse/carpet type wool and all animals are polled. Adult males weigh on average 95 kg and females 67 kg with an average wither height of 74 cm and 65 cm respectively. The animals are known for their good fertility. There are 4 herds remaining.

VOSKOP*ENDANGERED***Local names or syn.:** Ardennais Roux (fr.)**Population data:** 477 • 1998**Population trend:** stable**Range of uses:** meat, hobby**BELGIUM**

The Voskop is found country-wide and was developed from old Ardenne sheep. The animals are light-brown with a brown unwoolled head, black-brown nose and black-brown hooves. Adult males weigh on average 70 kg and females 60 kg with an average wither height of 75 cm and 65 cm respectively. These sheep have medium fibred wool. Males may be either polled or horned and females are always polled. The breed is known for its top-quality lean meat with excellent flavour. Voskop sheep are very prolific. There are 24 herds remaining.

CASSOWARY*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 1994**Population trend:** stable**Range of uses:** research, tourist attraction / touristic potential**BELGIUM**

The Cassowary is found only in zoos.

FAUVE DE HESBAYE*CRITICAL***Local names or syn.:** Vale van Haspengouw (dutch)**Population data:** 100 • 1997**Population trend:** stable**Range of uses:** hobby, eggs, meat**BELGIUM**

The Fauve de Hesbaye originated in eastern Belgium. The chickens have wild-type and variants coloured plumage, white skin and the shanks and feet are white pinkish. The comb is of single type and egg shells are white in colour. Adult males weigh on average 3.5 kg and females 3 kg. In 1994 the breed was recreated, in a small number, as bantam by fancy breeders. The original breed is probably extinct.

HERVE HOEN*CRITICAL***Local names or syn.:** Herve (fr.)**Population data:** < 100 • 1994**Population trend:** decreasing**Range of uses:** eggs, meat, fancy**BELGIUM**

The Herve Hoen is found in eastern Belgium and is related to the Ardenne fowl. They have self-black coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are black. The comb is of single type and egg shells are white in colour. They are small chickens, very similar to Bantana. Adult males weigh on average 2 kg and females 1.5 kg. Some fancy breeders propose to recreate the 'Herve' for exhibition purposes.

VLAANDERSE KOEKOEK*CRITICAL***Local names or syn.:** Coucou des Flandres (fr.)**Population data:** < 50 • 30 ♀ • 10 ♂ • 1994**Population trend:** decreasing**Range of uses:** eggs, meat, downs**BELGIUM**

The Vlaanderse Koekoek, originating in the Dender region in the south of Eastern Flanders, has been developed from local fowls with cuckoo plumage. They have black and white coloured plumage with barred, sex-linked patterns within the feathers. They have white skin and the shanks and feet are white. The comb is of single type and egg shells may be tinted (90%) or white (10%) in colour. Adult males weigh on average 3.5 kg and females 3 kg. The breed is suitable for lowlands and is a good egg producer during the winter. The Vlaanderse Koekoek is very close to extinction and only a few breeders remain. This type of chicken has been used to create the Malines chicken breed by crossing with the Antwerp Brahma.

ZINGEMS VLEESHOEN*CRITICAL***Local names or syn.:** Poulet de chair de Zingem (fr.)**Population data:** < 50 • 50 ♀ • 10 ♂ • 1994**Population trend:** decreasing**Range of uses:** meat**BELGIUM**

The Zingems Vleeshoer was created in the 1960s as a meat chicken using White Cornish and White Malines. It never became popular because the market demand at that time was for yellow meat instead of the white meat that is produced by this breed. They have self-white coloured plumage with no special pattern within the feathers, white skin and the shanks and feet are white. The comb is of pea type and egg shells are brown in colour. Adult males weigh on average 5.5 kg and females 4 kg.

ZOTTEGEMS HOEN*CRITICAL***Local names or syn.:** Zottegemse Zwartkop (dutch), Zottegem (dutch)**Population data:** < 100 • 50 ♀ • 10 ♂ • 1994**Population trend:** stable**Range of uses:** hobby, eggs, meat**BELGIUM**

The Zottegems hoen is found in south-east Flanders, western Belgium. It is considered as a breed by some, but in fact it is a variety of Braekel. These chickens have silver-columbian (90%) or gold-columbian (10%) coloured plumage with black bars. They have white skin and the shanks and feet are blue. The comb is of single type and egg shells are white in colour. Adult males weigh on average 2.5 kg and females 2.5 kg.

ARDENNAISE*ENDANGERED***Local names or syn.:** Ardense hoen (dutch), Ardenner (dutch)**Population data:** < 250 • 1997**Population trend:** decreasing**Range of uses:** meat, eggs, fancy**BELGIUM**

The Ardennaise originated in the Ardenne region and is a very old breed. The chickens have wild-type and variants coloured plumage, white skin, blue shanks, single comb type and white egg shells. About 50% are a rumpless (no tail) variety. Adult males weigh on average 2.5 kg and females 2 kg and they are very hardy. Few breeders are interested in this breed and there is no special conservation policy for these animals.

BASSETTE LIÉGEOISE*ENDANGERED***Local names or syn.:** Luikse Bassette (dutch), Bassette (eng.)**Population data:** 300 • 200 ♀ • 50 ♂ • 1994**Population trend:** decreasing**Range of uses:** eggs, hobby, meat**BELGIUM**

The Bassette Liégeoise is found in the Liege region, eastern Belgium. They are a dwarf type, similar to the Brabant, but smaller and without a crest. These chickens have silver-columbian, gold-columbian or wild-type and variants coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are blue. The comb is of single type and egg shells are white in colour. Adult males weigh on average 1 kg and females 0.9 kg.

BRABANÇONNE*ENDANGERED***Local names or syn.:** Brabants hoen (dutch), Topman, Houquette**Population data:** 200 • 150 ♀ • 50 ♂ • 1994**Population trend:** stable**Range of uses:** eggs, fancy, meat**BELGIUM**

The Brabançonne originated in Brabant, central and south-eastern Belgium and is a very old breed. They have wild-type and variants (95%), self-white (1%), self-black (1%) or self-blue (1%) coloured plumage. They have white skin and the shanks and feet are blue. The comb is of single type and egg shells are white in colour. They have a small crest, especially in the females. Adult males weigh on average 2.5 kg and females 2 kg. The breed is an excellent egg-producer during the winter season. The Belgian Brabant chicken population is bred separately without any connections to Brabant in The Netherlands.

BRAKELHOEN*ENDANGERED***Local names or syn.:** Braekel (eng.)**Population data:** 1 500 • 1 000 ♀ • 200 ♂ • 1994**Population trend:** decreasing**Range of uses:** eggs, meat, fancy**BELGIUM**

The Brakelhoe is found in the southern part of East-Flanders, western Belgium and is a very old breed (15th century) which was once popular from the north of France to The Netherlands and from England to Germany. Adult males weigh on average 2.5 kg and females 2.5 kg. Today's breeders mostly do fancy breeding for shows and the economic importance of this breed is diminishing. Before 1950 these chickens were kept under intensive management conditions. The so-called Campine was a lighter variety, fed on poor sandy soil. It's origin was also connected to Friesland and Westfalen chicken breeds.

BRUGSERECHTEN*ENDANGERED***Local names or syn.:** Combattant de bruges (fr.), Combattant belges (fr.), Belgian Fighter (eng.)**Population data:** 1 000 - 10 000 • 1 000 ♀ • 1994**Population trend:** decreasing**Range of uses:** tourist attraction / touristic potential, fancy**BELGIUM**

The Brugserechten was once very common as a game fowl all over Belgium. Since cock fighting has become illegal in Belgium, most players go to the north of France for the game. They have wild-type and variants (95%) or various colours (5%) coloured plumage. They have white skin and the shanks and feet may be blue (95%), white (3%) or yellow (2%). The comb may be of pea (80%) or single (20%) type and egg shells may be tinted (90%) or white (10%) in colour. Adult males weigh on average 5.5 kg and females 4 kg. These are a very hardy but aggressive chicken although some show-strains are more docile. Several Belgian varieties and also Northern French Fighters are mixed with this breed and the estimation of the number of breeding stock of Belgian Fighters depends on the observers' judgement on how much influence this breed has into the mixed population.

IZEGEMSE KOEKOEK*ENDANGERED***Local names or syn.:** Coucou d'Iseghem (fr.)**Population data:** 1 000 • 600 ♀ • 100 ♂ • 1994**Population trend:** increasing**Range of uses:** meat, eggs, fancy**BELGIUM**

The Izegemse Koekoek originated south of West Flanders and East Flanders and is a very old breed established in the 15th century. They have black and white coloured plumage with barred, sex-linked patterns within the feathers. They have white skin and the shanks and feet are white. The comb is of rose type and egg shells are tinted in colour. Adult males weigh on average 4 kg and females 3.5 kg. The Izegemse Koekoek is a very good dual-purpose breed.

NAINES DU TOURNAISIS*ENDANGERED***Local names or syn.:** Doornikse kriel (dutch), Poule de batelier (fr.), Mille fleurs du Tournais (fr.), Tiquetée (fr.)**Population data:** 200 • 150 ♀ • 30 ♂ • 1994**Population trend:** decreasing**Range of uses:** hobby, eggs, meat**BELGIUM**

The Naine du Tournais was kept in little villages along the river Scheldt and seems to be related to the Old English Game bantam. These chickens are a dwarf type and have wild-type and variants coloured plumage with spangled patterns within the feathers, a single comb type and white egg shells. Adult males weigh on average 0.85 kg and females 0.75 kg.

DENDERMONDSE EEND*CRITICAL***Local names or syn.:** Blue Termonde (eng.)**Population data:** < 100 • 50 ♀ • 10 ♂ • 1994**Population trend:** decreasing**Range of uses:** meat, eggs**BELGIUM**

The Dendermondse eend originated in Dendermonde in the Scheldt region, western Belgium. They have self-blue coloured plumage with no special pattern within the feathers, white skin and the shanks and feet are blue. Adult males weigh on average 3 kg and females 2.5 kg.

MERCHEUSE EEND*CRITICAL***Local names or syn.:** Merchtem (eng.)**Population data:** < 100 • 50 ♀ • 10 ♂ • 1994**Population trend:** decreasing**Range of uses:** meat, eggs**BELGIUM**

The Merchteuse eend is found north of Brussels, central Belgium. This breed might be related to Aylesbury and has white skin and white egg shells. Adult males weigh on average 3 kg and females 2.5 kg.

EMU*CRITICAL*

Local names or syn.: -

Population data: < 100 • 1994**Population trend:** increasing**Range of uses:** hobby**BELGIUM**

Emus have wild-type and variants coloured plumage.

VLAAMSE GANS*CRITICAL*

Local names or syn.: Oie flamande (fr.), Flemish (eng.)

Population data: < 100 • 30 ♀ • 20 ♂ • 1994**Population trend:** stable**Range of uses:** meat, eggs, guard**BELGIUM**

The Vlaamse gans originated in the western part of Flanders and is an old breed. They have grey and white coloured plumage, white skin and egg shells are white in colour. Adult males weigh on average 6 kg and females 4.5 kg.

ÑANDU*CRITICAL*

Local names or syn.: -

Population data: > 100 • 100 ♀ • 1994**Population trend:** increasing**Range of uses:** tourist attraction / touristic potential,
hobby, meat**BELGIUM**

Ñandu have wild-type and variants coloured plumage.

STRUIS VOGEL*ENDANGERED*

Local names or syn.: -

Population data: > 500 • 1994**Population trend:** increasing**Range of uses:** meat, hobby**BELGIUM**

Struis Vogel have wild-type and variants coloured plumage.

ANTWERPSE SMIEREL*CRITICAL*

Local names or syn.: Smerle des Flandres (fr.), Smerle Anversois (fr.), Antwerp Smierel (eng.)

Population data: < 100 • 1994

Population trend: decreasing

Range of uses: hunting, tourist attraction / touristic potential, hobby

BELGIUM

The Antwerpse Smierel is found in the city of Antwerp and surrounding region. It is a old game pigeon.

RONSENAAR*ENDANGERED*

Local names or syn.: Renaisien (fr.)

Population data: 1 000 • 1994

Population trend: stable

Range of uses: meat, hobby

BELGIUM

The Ronsenaar originated from the city of Ronse and the surrounding area. They have self-white coloured plumage.

RODE ARDENNER KALKOEN*CRITICAL*

Local names or syn.: Dindon Rouge des Ardennes (fr.), Red Ardenne Turkey (eng.)

Population data: < 100 • 50 ♀ • 10 ♂ • 1994

Population trend: decreasing

Range of uses: meat

BELGIUM

The Rode Ardenner kalkoen is found in the Ardenne region, southern Belgium and is probably related to Ronquieres. They have self-red and variants coloured plumage with no special pattern within the feathers, white skin, shanks and feet and egg shells are tinted in colour. Adult males weigh on average 9 kg and females 4.5 kg. The breed is reported to be very hardy and particularly tolerant of bad weather. Females, however, are known for their poor maternal abilities.

RONQUIÈRES KALKOEN*CRITICAL*

Local names or syn.: Dindon de Ronquière (fr.), Ronquière (fr.)

Population data: 200 • 100 ♀ • 25 ♂ • 1994

Population trend: stable

Range of uses: meat

BELGIUM

The Ronquière kalkoen originated from the Hainant region, south-west Belgium. They have self-white, self-red and variants or yellow coloured plumage, white skin and the shanks and feet are white. Adult males weigh on average 11 kg and females 5.5 kg. The females are known for their poor maternal ability but they are good brooders. These very hardy animals can live outside all year round. The Ronquière kalkoen was popular at the beginning of the century and is the basis of the Crollurtzer turkey from Germany.

BOSNIAN PONY*CRITICAL*

Local names or syn.: Bosniak, Bosnian Mountain (eng.),
Bosanski Brdski Konj

Population data: < 100 • 1995

Population trend: -

Range of uses: -

BOSNIA AND HERZEGOVINA

The Bosnian Pony is found in mountainous areas and is a local Busa pony. They can be many colours.

ISKURSKO GOVEDO*CRITICAL*

Local names or syn.: Iskar Grey (eng.), Gey Iskar Cattle (eng.),
Grey Native Cattle (eng.), Bulgarian Grey
(eng.)

Population data: 245 • 120 ♀ • 5 ♂ • 1994

Population trend: decreasing

Range of uses: milk, meat, socio-cultural

BULGARIA

The Iskursko Govedo is found around the Iskar, Vitt and Ossam rivers and descends from local Grey cattle. The animals are light to dark grey, shading to black with black muzzle and hooves. Adult males weigh on average 750 kg and females 350 kg with an average wither height of 140 cm and 118 cm respectively. The horns are lyre-shaped. The breed is well adapted to the local conditions. There are 42 herds remaining with 120 females registered in the herd book, 100% of which are bred to males of the same breed. The semen of 5 males is stored.

RODOPSKA*CRITICAL*

Local names or syn.: K'soroga (bulg.), Rhodopa Short Horned
(eng.), Rodopi (eng.)

Population data: 128 • 14 ♀ • 2 ♂ • 1994

Population trend: decreasing

Range of uses: milk, meat, socio-cultural

BULGARIA

The Rodopska is found in the Rhodopa region and is an indigenous breed. The animals are brown-black in colour with a white dorsal stripe. Adult males weigh on average 350 kg and females 240 kg with an average wither height of 115 cm and 97 cm respectively. The horns are lyre-shaped. The breed is adapted to altitudes above 1 800 m asl. Only one herd remains. There are 14 females registered in the herd book, of which 100% are bred to males of the same breed.

CARAKACHANSKI KON*CRITICAL*

Local names or syn.: Karakachan (eng.)

Population data: 30 • 13 ♀ • 2 ♂ • 1994

Population trend: stable

Range of uses: -

BULGARIA

The Carakachanski Kon is found in forested regions in the area of Shumen, North-eastern Bulgaria. It is a old local breed. The animals are black or dark brown in colour. Males and females have an average wither height of 137 cm and 136 cm respectively. Only one herd remains. Of females, 100% are bred to males of the same breed.

ISTOCHNOBALKANSKA SVINIA*ENDANGERED***Local names or syn.:** Eastbolckan Swine (eng.)**Population data:** 2 500 • 408 ♀ • 38 ♂ • 1994**Population trend:** increasing**Range of uses:** meat**BULGARIA**

The Istochnobalkanska Svinia is found in the eastern part of the Bolckan and Strandga mountains. It is directly descended from the wild swine (*Sus scrofa*). The animals may be dark grey or black in colour, are medium sized, have a long head with straight profile, small erect ears, short neck, medium body capacity and long hair on the neck. The breed is well adapted to the local living conditions and is known for its excellent meat quality and thick fat. The breed has a strong constitution, late maturity and low prolificacy (6 piglets) and is reported to be resistant to diseases. There are 4 herds remaining with 408 females registered in the herd book, 100% of which are bred to males of the same breed.

CARAKACHANSKA OVSTA*ENDANGERED***Local names or syn.:** Carakachanska (eng.)**Population data:** 25 000 • 700 ♀ • 50 ♂ • 1994**Population trend:** decreasing**Range of uses:** -**BULGARIA**

The Carakachanska Ovsta is found mainly in the mountain and semi-mountain areas of south Bulgaria (Smolian, Sofia) and north Bulgaria (Lovach). It is related to the old breed Tsakel. The animals are predominantly coloured and are rarely white. They have a short tail, small compact body, and coarse/carpet type wool. Adult males weigh on average 42 kg and females 30 kg with an average wither height of 48 cm and 40 cm respectively. The animals are energetic and agile and show good endurance. There are 700 females registered in the herd book, of which 100% are bred pure.

COPPER-RED*ENDANGERED***Local names or syn.:** Medno-Chervena Ovsta (bulg.),
Karnobatoshumenska (bulg.)**Population data:** 12 000 • 350 ♀ • 12 ♂ • 1994**Population trend:** stable**Range of uses:** milk, meat**BULGARIA**

The Copper-Red is found in the Shumen and Karnobat area and has been locally selected. The animals are fawn, copper red or black in colour. Adult males weigh on average 60 kg and females 40 kg. They have coarse/carpet type wool and females are polled. The animals are well adapted to local living conditions. There are 2 herds remaining with 350 females registered in the herd book, 100% of which are bred to males of the same breed.

PANAGYURISHTE*ENDANGERED***Local names or syn.:** Sriednogorska Ovsta (bulg.), Sredna Gora
(bulg.)**Population data:** 5 000 • 800 ♀ • 19 ♂ • 1994**Population trend:** stable**Range of uses:** -**BULGARIA**

The Panagyurishte is found in the Sriedna Gora mountain area, southern Bulgaria. It is descended from the old breeds, Tsigai and Tsakel. The animals are usually white in colour but may also be other colours. They are medium sized and have big black spots around the eyes. Adult males weigh on average 60 kg and females 45 kg with an average wither height of 65 cm and 55 cm respectively. These sheep have coarse/carpet type wool and all animals are polled. These animals are well adapted to the local conditions (mountains up to 1 200 m asl). There are 800 females registered in the herd book, of which 100% are bred to males of the same breed.

BUŠA*CRITICAL***Local names or syn.:** -**Population data:** 20 • 1994**Population trend:** decreasing**Range of uses:** milk, meat, draught power**CROATIA**

The Buša is found in the highlands of Lika. It is an indigenous native breed of Brachyceros type. The animals are yellowish-brown, brown and dark brown in colour and they have short horns. They have a small stature, adult males weighing on average 400 kg and females 200 kg with an average wither height of 122 cm and 112 cm respectively. The breed is very well adapted to the locally prevailing marginal conditions and is especially moderate in nutrition. The females are known for calving ease and the breed is known for longevity.

ISTARSKO GOVEDO*CRITICAL-MAINTAINED***Local names or syn.:** Istrian (eng.) Boškarin (cro.)**Population data:** 110 • 103 ♀ • 7 ♂ • 1995**Population trend:** stable**Range of uses:** meat, draught power, milk, tourist attraction / touristic potential**CROATIA**

The Istarsko govedo is found in central Istria, Peninsula Istra. It is an indigenous Podolian breed with influence from the Romagnola (Italy). The animals are grey with light snout and rings around the eyes, black tongue, black palate and vulva (scrotum). Adult males weigh on average 900 kg and females 625 kg with an average wither height of 148 cm and 138 cm respectively. The horns are very long (about 1m). High heat tolerance and adaptation to the local karst region are reported for this breed which is also known for longevity and being moderate in nutrition (karst pasture land, browsing, straw). There are 70 herds remaining with 103 females registered in the herd book, 30% of which are bred to males of the same breed.

SLAVONSKI PODOLAC*CRITICAL-MAINTAINED***Local names or syn.:** Slavonian Podolian (eng.), Slavonian Sarmian Cattle (eng.)**Population data:** 20 • 12 ♀ • 3 ♂ • 1995**Population trend:** stable**Range of uses:** -**CROATIA**

The Slavonki podolac is found in Slavonia and is an indigenous native breed of Podolic origin. The animals are grey in colour. They are very long animals with lyre-shaped horns. Adult males weigh on average 600 kg and females 460 kg with an average wither height of 135 cm and 128 cm respectively. The breed is known for its adaptation to the locally extreme climatic conditions, calving ease and longevity. Only one herd remains. There are 12 females registered in the herd book, of which 100% are bred to males of the same breed. The semen of 3 males is stored.

SANSKA KOZA*ENDANGERED***Local names or syn.:** Saanen (eng.)**Population data:** 2 000 • 500 ♀ • 15 ♂ • 1994**Population trend:** increasing**Range of uses:** milk, meat**CROATIA**

The Sanska Koza is found in central Croatia and was imported from France. The animals are white in colour. Adult males weigh on average 70 kg and females 55 kg with an average wither height of 80 cm and 72 cm respectively. There are 160 herds remaining with 500 females registered in the herd book, 25% of which are bred to males of the same breed.

MEDJIMURSKI KONJ*CRITICAL***Local names or syn.:** Murinsulaner (ger.), Mur Island (eng.)**Population data:** < 30 • 30 ♀ • 2 ♂ • 1994**Population trend:** decreasing**Range of uses:** draught power**CROATIA**

The Medjimurski konj is found in Medimurje in the northern part of Croatia. It is a native Croatian breed, created in the 19th century from native warmblood (mares), Noriker, Percheron, Ardennais and Brabant. The animals can be brown, black or grey in colour. They have a strong, well-proportioned body, stocky compact, deep girth and broad chest. Adult males weigh on average 800 kg and females 650 kg with an average wither height of 163 cm and 158 cm respectively. They are adaptable and hard working animals.

LIPICANAC*ENDANGERED***Local names or syn.:** Lipitsa (eng.), Lipizzaner (ger.)**Population data:** 400 • 200 ♀ • 97 ♂ • 1994**Population trend:** increasing**Range of uses:** sport, draught power, socio-cultural**CROATIA**

The Lipicanac is found in Slavonia, eastern Croatia and was imported from Slovenia in the 19th century. The animals are grey in colour and are partial albinos. They have a silky mane and tail and a compact body. Adult males weigh on average 570 kg and females 520 kg with an average wither height of 166 cm and 164 cm respectively. This breed is intelligent and has an excellent temperament. There are 120 herds remaining with 85 females registered in the herd book, 90% of which are bred to males of the same breed.

POSAVAC*ENDANGERED-MAINTAINED***Local names or syn.:** Hrvatski posavac (cro.), Posavina (eng.)**Population data:** 550 • 430 ♀ • 20 ♂ • 1995**Population trend:** stable**Range of uses:** draught power, socio-cultural**CROATIA**

The Posavac is found in Posavina, central Croatia and on the Flood Plains of the river Sava and its tributaries (Odra, Lonja). It is a native Croatian breed, with influence of Asian and Arabian horses and later Spanish and Italian stallions as well as Nonius and Lipizzaner. The animals are predominantly bay, dark bay, grey and may also be black in colour. The ears are elliptic and distant from each other, the head is noble in profile, shoulders are medium long, hooves are flat, broad and concave and the body is compact and firm. Adult males weigh on average 600 kg and females 500 kg with an average wither height of 150 cm and 143 cm respectively. The breed is very well adapted to harsh conditions (flooded areas) and is reported to be resistant to diseases. There are 110 herds remaining with 403 females registered in the herd book, 60% of which are bred to males of the same breed.

CRNA SLAVONSKA*CRITICAL***Local names or syn.:** Pfeifer Pig (eng.), Fajferica (cro.), Black Slavonian (eng.)**Population data:** 100 ♀ • 1994**Population trend:** decreasing**Range of uses:** meat, general crossbreeding**CROATIA**

The Crna Slavonka is found in the Slavonia lowland regions, eastern Croatia. It is a composite of Berkshire, Poland China and Black Mangalitsa and was created in the 19th century. The animals are black in colour, have semi-lop ears and well muscled hind quarters. Adult males weigh on average 320 kg and females 270 kg with an average wither height of 72 cm and 68 cm respectively. The animals are well adapted to locally harsh field conditions and are known for their ability to thrive semi-wild, in forests throughout the year.

TUROPOLJSKA SVINJA*CRITICAL-MAINTAINED***Local names or syn.:** Turopolje (eng.)**Population data:** 50 • 30 ♀ • 10 ♂ • 1995**Population trend:** -**Range of uses:** meat**CROATIA**

The Turopoljska Svinja is found in Turopolje and Posavina and is a native breed derived from Siška and Krškopolje pigs. The animals are grey, white or yellow in colour with 5 - 9 hand-sized black spots. They are curly haired, with semi-lop ears, and are primarily a bacon pig. Adult males weigh on average 246 kg and females 240 kg with an average wither height of 74 cm and 69 cm respectively. These animals are well adapted to wet land and marsh, tolerate extreme summer and winter temperatures and have the ability to pass the winter outdoors. They can survive on a minimal diet and swim very well. There are 10 herds remaining. There are 15 females registered in the herd book, of which 80% are bred to males of the same breed.

NJEMACKI LANDRAS*ENDANGERED***Local names or syn.:** German Landrace (eng.)**Population data:** 1 600 • 1 000 ♀ • 150 ♂ • 1994**Population trend:** increasing**Range of uses:** meat**CROATIA**

The Njemacki Landras is found in the lowlands of Croatia and was imported from Germany. The animals are white in colour. They have a long body, long head and lop ears. Adult males weigh on average 400 kg and females 320 kg with an average wither height of 80 cm and 73 cm respectively. There are 954 females registered in the herd book, of which 70% are bred to males of the same breed. The semen of 76 males is stored.

VELIKI JORKIR*ENDANGERED***Local names or syn.:** Large White (eng.)**Population data:** 2 200 • 1 000 ♀ • 1 200 ♂ • 1994**Population trend:** increasing**Range of uses:** meat**CROATIA**

The Veliki Jorkir is found in the lowlands of Croatia and was imported from the United Kingdom and Germany. The animals are white in colour and adult males weigh on average 350 kg and females 280 kg with an average wither height of 88 cm and 78 cm respectively. There are 900 females registered in the herd book, of which 20% are bred to males of the same breed. The semen of 350 males is stored.

DUBROVACKA*CRITICAL***Local names or syn.:** Dubrovacka Ruda (serbo-cro), Dubrovnik (eng.)**Population data:** 55 ♀ • 5 ♂ • 1994**Population trend:** decreasing**Range of uses:** wool, milk**CROATIA**

The Dubrovacka is found in Ston, Herceg Novi in the coastal area of Dubrovnik. It is descended from local Pramenka, imported from France, Spain and Italy. The animals are white or spotted (10%) in colour. Adult males weigh on average 43 kg and females 33 kg with an average wither height of 63 cm and 59 cm respectively. These sheep have medium fibred wool and all animals are polled. The breed is adapted to arid areas and shows a high heat tolerance. There are 30 herds remaining. Of females, 70% are bred to males of the same breed.

ISTARSKA OVCA*ENDANGERED*

Local names or syn.: Istarska Pramenka (cro.), Istarska mljecna (cro.), Istrian Milk (eng.)

Population data: 1 000 ♀ • 30 ♂ • 1995

Population trend: decreasing

Range of uses: milk, meat, wool

CROATIA

The Istarska Ovca is found on the Peninsula Istra. It is a Mediterranean type of Pramenka that has been influenced by Italian Bergamo. The animals are predominantly white but may also be black or brown in colour. They have a convex profile of the head, a rather long tail, coarse/carpet type wool and all animals are polled. Heat resistance is reported for this breed and they can also tolerate a shortage of water supply. There are two types of Istrian sheep in Croatia. The bigger type is 69-70 cm tall with a weight of 50-70 kg. The whiter height of the smaller type is 55 cm and the weight is 30 kg. According to Karaman et al. (1993) there were only 20 animals of the smaller type left in Croatia.

BRAHMA*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1995

Population trend: stable

Range of uses: fancy, tourist attraction / touristic potential

CROATIA

The Brahma have yellow skin and the shanks and feet are yellow. The comb is of pea type and egg shells are brown in colour. Adult males weigh on average 6 kg and females 5 kg.

ITALIENER*ENDANGERED*

Local names or syn.: Talijanka (cro.)

Population data: 100 - 1 000 • 1995

Population trend: stable

Range of uses: -

CROATIA

The Italiener is of exogenous origin. Adult males weigh on average 2.5 kg and females 1.7 kg.

NEW HAMPSHIRE*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1995

Population trend: stable

Range of uses: fancy, meat, eggs

CROATIA

The New Hampshire is of exogenous origin.

ORPINGTON*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1995**Population trend:** stable**Range of uses:** -**CROATIA**

The Orpington is of exogenous origin. They have gold-columbian (70%) or self-red and variants (30%) coloured plumage, white skin and the shanks and feet are white pinkish. The comb is of single type and egg shells may be brown (80%) in colour. Adult males weigh on average 4.3 kg and females 3.1 kg.

PLYMOUTH ROCK*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1995**Population trend:** decreasing**Range of uses:** fancy, hunting**CROATIA**

The Plymouth Rock is of exogenous origin. They have yellow skin, the shanks and feet are yellow and they have barred, autosomal patterns within the feathers. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 4.3 kg and females 3.3 kg.

STAJERKA*ENDANGERED***Local names or syn.:** Altsteirer (ger.)**Population data:** 100 - 1 000 • 1995**Population trend:** stable**Range of uses:** fancy**CROATIA**

Adult males weigh on average 2.5 kg and females 1.7 kg.

ZAGORSKI PURAN*ENDANGERED***Local names or syn.:** Zagorje Turkey (eng.)**Population data:** 750 ♀ • 75 ♂ • 1993**Population trend:** stable**Range of uses:** meat**CROATIA**

The Zagorski puran is found in Hrvatsko Zagorje and was imported from the United States of America, France and Italy. They may have self-black (50%), silver-columbian (40%) or wild-type and variants (10%) coloured plumage, white (70%) or yellow (30%) skin and light brown or cream white to pale greyish coloured egg shells. Adult males weigh on average 8 kg and females 4 kg. This breed resists cold and adverse weather conditions and females are known as good brooding hens.

CYPRUS*ENDANGERED-MAINTAINED***Local names or syn.:** Kypriaki (Cyprus)**Population data:** 135 ♀ • 16 ♂ • 1995**Population trend:** decreasing**Range of uses:** draught power, meat**CYPRUS**

Cyprus cattle are found in Paphos and Limassol and are a composite of zebu and humpless, similar to Damascus, Egyptian and Lebanese. The animals are fawn to black in colour. Adult males weigh on average 570 kg and females 520 kg. They are well adapted to a hot climate in summer. There are 59 herds remaining. Of females, 95% are bred to males of the same breed. The *in situ* conservation programme involves 10 reproducing males and an additional 2-4 males with semen for AI. Twelve herds or breeders are involved in the programme.

THOROUGHBRED*ENDANGERED***Local names or syn.:** Katharoemo (cypr.)**Population data:** 100 - 1 000 • 1994**Population trend:** increasing**Range of uses:** sport, hobby**CYPRUS**

The Thoroughbred is found in Nicosia, Limassol and Larnaca and was imported from the United Kingdom. The animals are bay, chestnut or grey in colour. There are 839 females registered in the herd book.

STROUTHO CAMELOS*CRITICAL***Local names or syn.:** -**Population data:** 124 • 84 ♀ • 40 ♂ • 1993**Population trend:** increasing**Range of uses:** meat, skins and hides, tourist attraction /
touristic potential**CYPRUS**

A group of 125 Stroutho Camelos was imported in 1993 from South Africa by a private company to establish a multiplication unit (nucleus flock). The target is to produce breeding animals for meat and tourism purposes.

RING NECK PHEASANT*ENDANGERED***Local names or syn.:** Phasianos**Population data:** 800 • 650 ♀ • 150 ♂ • 1993**Population trend:** increasing**Range of uses:** meat**CYPRUS**

The Ring Neck Pheasant (*Phasianus Colchicus*) was imported from the United Kingdom. Adult males weigh on average 2 kg and females 1.5 kg. The birds are kept under confinement for the production of young pheasants for game purposes. In 1993 about 9 000 birds were produced/released in game reserve areas.

BELGIAN BLUE*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 66 ♀ • 1997**Population trend:** increasing**Range of uses:** meat, vegetation management**CZECH REPUBLIC**

Belgian Blue cattle were imported from The Netherlands in 1994 and are now found country-wide. The animals may be blue, white or blue pied in colour. Adult males weigh on average 1 100 kg and females 700 kg with an average wither height of 145 cm and 133 cm respectively. There are 6 females registered in the herd book, of which 100% are bred to males of the same breed.

GASCONNE*CRITICAL***Local names or syn.:** -**Population data:** 100 - 1 000 • 150 ♀ • 5 ♂ • 1997**Population trend:** increasing**Range of uses:** meat, vegetation management**CZECH REPUBLIC**

Gasconne cattle were imported in 1994 from France and are now found country-wide. The animals are grey in colour. Adult males weigh on average 1 000 kg and females 650 kg with an average wither height of 145 cm and 135 cm respectively. There are 29 females registered in the herd book, of which 100% are bred to males of the same breed.

HRBINECKY*CRITICAL***Local names or syn.:** Hrbinecky skot (czech), Senhengsky skot (czech)**Population data:** 11 ♀ • 1993**Population trend:** -**Range of uses:** milk, meat**CZECH REPUBLIC**

The Hrbinecky is found in M. Trebova, Svitavy and Sumperk Districts. It is a composite of Red Cattle cows and Bern-Hane bulls and has been gradually fused with Cech Brindled. The animals are red with a white head. Females weigh on average 550 kg and have an average wither height of 135 cm.

KRAVARSKY*CRITICAL***Local names or syn.:** Kravarsky skot (czech)**Population data:** 16 ♀ • 1993**Population trend:** -**Range of uses:** milk, meat**CZECH REPUBLIC**

The Kravarsky is found near the towns of Fulnek, north Jicin, Pribor and Opava. It is a composite of Red Cattle, Pinzgauer and Bern. The animals are red and white in colour and females weigh on average 590 kg with an average wither height of 137 cm.

SALERS*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 50 ♀ • 1997**Population trend:** increasing**Range of uses:** meat, vegetation management**CZECH REPUBLIC**

Salers cattle were imported from France in 1995 and are found country-wide. They are red in colour and adult males weigh on average 1 000 kg, females 650 kg with an average wither height of 145 cm and 135 cm respectively. There are 22 females registered in the herd book, of which 100% are bred to males of the same breed.

SKOTSKY NÁHORNÍ SKOT*CRITICAL***Local names or syn.:** Highland Cattle (eng.)**Population data:** < 100 • 78 ♀ • 5 ♂ • 1997**Population trend:** increasing**Range of uses:** meat, vegetation management, hobby**CZECH REPUBLIC**

The Skotský náhorní skot was imported from the United Kingdom between 1992-1995 and is now found in Sumava National Park. The cattle are red in colour, adult males weighing on average 750 kg and females 500 kg with an average wither height of 130 cm and 122 cm respectively. There are 15 females registered in the herd book, of which 100% are bred to males of the same breed.

ČESKÁ CERVINKA*CRITICAL-MAINTAINED***Local names or syn.:** Czech Red, Bohemian Red (eng.)**Population data:** < 100 • 42 ♀ • 1998**Population trend:** stable**Range of uses:** meat, milk, vegetation management**CZECH REPUBLIC**

The Česká cervinka is the only native Czech cattle breed, formerly spread all over Bohemia and central Europe. Today it is found only in the Middle and South of Bohemia. In the beginning of the 20th century Bern and Simens bulls were also used for breeding. The animals are red in colour with a medium body frame. Adult males weigh on average 800 kg and females 500 kg with an average wither height of 136 cm and 127 cm respectively. The breed is well adapted to live under the natural conditions of Bohemia and Moravia, is reported to be resistant and healthy and is known for its longevity. The *in situ* conservation programme involves 4 reproducing males and an additional 2 males with semen for AI. Two herds or breeders are involved in the programme. Embryos are also stored and the material is stored in one location.

AYRSHIRE*ENDANGERED***Local names or syn.:** -**Population data:** 580 • 235 ♀ • 8 ♂ • 1993**Population trend:** stable**Range of uses:** milk**CZECH REPUBLIC**

Ayrshire cattle are yellow-brown in colour. Adult males weigh on average 750 kg and females 350 kg with an average wither height of 127 cm and 120 cm respectively. Of females, 100% are bred to males of the same breed. The semen of 8 males is stored.

BLONDE D'AQUITAINE*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 720 ♀ • 22 ♂ • 1997**Population trend:** increasing**Range of uses:** meat, vegetation management**CZECH REPUBLIC**

The Blonde d'Aquitaine, imported from France between 1992-1995, is found country-wide. As their name suggests, the animals are blonde in colour. Adult males weigh on average 1 100 kg and females 750 kg with an average wither height of 150 cm and 140 cm respectively. There are 260 females registered in the herd book, of which 100% are bred to males of the same breed.

GALLOWAY*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 252 ♀ • 10 ♂ • 1997**Population trend:** increasing**Range of uses:** meat, vegetation management, hobby**CZECH REPUBLIC**

Galloway cattle were imported from the United Kingdom between 1992 and 1995 and are found now country-wide. The animals are black in colour and are polled. Adult males weigh on average 700 kg and females 450 kg with an average wither height of 130 cm and 120 cm respectively. There are 100 females registered in the herd book, of which 100% are bred to males of the same breed.

PIEMONTESE*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 543 ♀ • 12 ♂ • 1997**Population trend:** increasing**Range of uses:** meat, vegetation management**CZECH REPUBLIC**

Piemontese cattle were imported from Italy between 1992 and 1995 and are now found country-wide. They are grey in colour, adult males weighing on average 850 kg, females 550 kg with an average wither height of 135 cm and 125 cm respectively. There are 276 females registered in the herd book, of which 100% are bred to males of the same breed.

HNEDÀ KRATKOSRSTA KOZA*ENDANGERED***Local names or syn.:** Brown Shorthair Goat (eng.)**Population data:** 350 ♀ • 120 ♂ • 1998**Population trend:** increasing**Range of uses:** milk, meat, hobby**CZECH REPUBLIC**

The Hnedà Kratkosrsta Koza is found in the Obvod Kolin border regions of the Czech Republic and is a composite of an indigenous breed and Harz from Germany. The animals are brown with a black head and muzzle and a black stripe along the back, cannon bones, ears. They have a medium body size, short fur and erect ears. Adult males weigh on average 75 kg and females 50 kg with an average wither height of 85 cm and 70 cm respectively. More than 80% of the animals are polled (mass selection for polledness) but, when horned, they have average sized, upright, narrow horns. The Hnedà Kratkosrsta Koza is adapted to live under harsh conditions and early sexual maturity is reported. This breed produces certificated bio-products, cheese being the most important. There are 289 females registered in the herd book, of which 100% are bred to males of the same breed.

ARAB*CRITICAL***Local names or syn.:** Arabsky Plnokrevnik (czech)**Population data:** < 100 • 51 ♀ • 8 ♂ • 1998**Population trend:** increasing**Range of uses:** sport, general crossbreeding**CZECH REPUBLIC**

Arab (pure-bred) horses descend from wild Asian horses (5000 BC), and in the Czech Republic are found country-wide. The animals are black, bay, dark to light chestnut, grey and may also be white intermixed with black. They are light animals with a concave head profile and mid-back. Adult males weigh on average 450 kg and females 400 kg with an average wither height of 160 cm and 156 cm respectively. The animals are well adapted to the local climate and to semi desert land. There are 34 females registered in the herd book, of which 100% are bred to males of the same breed.

LIPICKY*CRITICAL***Local names or syn.:** Lipica Horse (eng.)**Population data:** < 100 • 34 ♀ • 4 ♂ • 1998**Population trend:** increasing**Range of uses:** hobby, draught power**CZECH REPUBLIC**

The Lipicky, found country-wide, was established in 1580 as a composite of Old Spanish Horse (Spain) and Old Neapolitan Horse (Italy). The Lipicky, known for their high knee action and extended gaits, are grey in colour with an average wither height of 160 cm and 158 cm for males and females respectively. There are 19 females registered in the herd book, of which 100% are bred to males of the same breed.

SHAGYA ARAB*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 65 ♀ • 8 ♂ • 1997**Population trend:** increasing**Range of uses:** sport, hobby**CZECH REPUBLIC**

The Shagya Arab is found country-wide. The mares originated from an Austria-Hungary army stud farm and in 1816 pure-bred Arabs were imported from the Orient. The horses are black, bay, chestnut or grey in colour and have a concave head profile. Adult males weigh on average 520 kg and females 450 kg with an average wither height of 155 cm and 152 cm respectively. There are 65 females registered in the herd book, of which 100% are bred to males of the same breed.

STAROKLADRUBSKY BELORUS*CRITICAL***Local names or syn.:** Old Kladruby White (eng.)**Population data:** 95 ♀ • 17 ♂ • 1993**Population trend:** stable**Range of uses:** draught power**CZECH REPUBLIC**

The Starokladrubsky Belorus has been known since 1579 and was developed from Lipitsa, Spanish and Neapolitan horses. They have a big body frame with a slightly convex head profile. Adult males weigh on average 600 kg and females 575 kg with an average wither height of 165 cm and 162 cm respectively. Of females, 100% are bred to males of the same breed.

STAROKLADRUBSKY URANIK*ENDANGERED***Local names or syn.:** Old Kladruby Black (eng.)**Population data:** 125 ♀ • 14 ♂ • 1993**Population trend:** stable**Range of uses:** -**CZECH REPUBLIC**

The Starokladrubsky Uranik is found at the Stud Farm Slatinany and Bzenec in Modonin District, Moravia. The animals are black in colour and are robust with a slightly convex head profile. Adult males weigh on average 600 kg and females 575 kg with an average wither height of 165 cm and 162 cm respectively. These horses are known to be hard workers and have a good character and temperament. Of females, 50% are bred to males of the same breed.

HUTSUL*ENDANGERED-MAINTAINED***Local names or syn.:** Hucul, Hutculsky**Population data:** 384 ♀ • 39 ♂ • 1998**Population trend:** stable**Range of uses:** sport, draught power, vegetation management**CZECH REPUBLIC**

The Hutsul is found in Topolcianky, Prag, Janova Hora. It is a local Carpatian type of Tarpan, a composite of Tarpan, Kertak and Arab, established in the 17th and 18th centuries. The animals are usually dun or bay and are sometimes chestnut or piebald in colour. They have a harmonic body frame, short limbs, exuberant mane, robust neck and a wide and deep chest. Adult males weigh on average 390 kg and females 370 kg with an average wither height of 146 cm and 145 cm respectively. The breed is well adapted to work in mountains. Of females, 93% are bred to males of the same breed. The *in situ* conservation programme involves 36 males and an additional 3 males with semen for AI. The semen is stored in two locations.

KLADRUBSKÝ*ENDANGERED-MAINTAINED***Local names or syn.:** Kladruby (eng.), Starokladrubský Kun, Kladruber (ger.)**Population data:** 500 • 320 ♀ • 31 ♂ • 1995**Population trend:** decreasing**Range of uses:** sport, draught power, carting**CZECH REPUBLIC**

The Kladrubský is found in Kladruby Nad Labem (grey) and Slatinany (black) and is a local horse with Spanish influence. The animals are grey or black in colour, have a silky flowing mane and tail and a convex profile. Adult males weigh on average 595 kg and females 570 kg with an average wither height of 166 cm and 162 cm respectively. This breed is known for late maturity. Of females, 100% are bred to males of the same breed.

SLEZSKÝ NORIK*ENDANGERED-MAINTAINED***Local names or syn.:** Silesian Norik (eng.)**Population data:** 100 - 1 000 • 414 ♀ • 30 ♂ • 1998**Population trend:** stable**Range of uses:** draught power, hobby**CZECH REPUBLIC**

The Slezský Norik is found in Klokocov Farm, Opava District, Slezsko and North Moravia and was imported from Austria in the 20th century. The animals are sorrel in colour and have a medium framed body. Adult males weigh on average 800 kg and females 750 kg with an average wither height of 159 cm and 157 cm respectively. There are 185 females registered in the herd book, of which 88% are bred to males of the same breed. The *in situ* conservation programme involves 29 males and an additional 1 male with semen for AI.

STAROKLADRUBSKY KUN*ENDANGERED-MAINTAINED***Local names or syn.:** Old Kladruby Horse (eng.)**Population data:** 100 - 1 000 • 255 ♀ • 42 ♂ • 1998**Population trend:** increasing**Range of uses:** sport, draught power, socio-cultural**CZECH REPUBLIC**

The Starokladrubsky Kun horse is found in East Bohemia. Established in the 16th and 17th century, it is a composite of Old Spanish Horse (Spain) and Old Neapolitan Horse (Italy) that were mainly imported in 1552. The animals are black, light black and grey in colour and have a silky flowing mane and tail. Adult males weigh on average 620 kg and females 590 kg with an average wither height of 166 cm and 164 cm respectively. A late maturing average age of 5-6 years is reported for the Starokladrubsky Kun. There are 255 females registered in the herd book, of which 100% are bred to males of the same breed. The *in situ* conservation programme involves 31 males and an additional 11 males with semen for AI. One herd or breeder is involved in the programme.

BELGICKÀ LANDRASE*ENDANGERED***Local names or syn.:** Belgian Landrace (eng.)**Population data:** 100 - 1 000 • 40 ♂ • 1997**Population trend:** stable**Range of uses:** meat**CZECH REPUBLIC**

The Belgickà Landrase was imported from Belgium, Germany and France and is found country-wide. The animals are white in colour with lop ears. Adult males weigh on average 290 kg and females 270 kg with an average wither height of 92 cm and 80 cm respectively. An outstanding meat performance is reported for this breed. There are 120 females registered in the herd book, of which 80% are bred to males of the same breed. The semen of 15 males is stored.

DUROC*ENDANGERED***Local names or syn.:** -**Population data:** 225 ♀ • 230 ♂ • 1997**Population trend:** stable**Range of uses:** meat**CZECH REPUBLIC**

The Duroc is found country-wide and was imported from the United States of America in 1973 and Canada in 1995. The animals are red and red-brown in colour. They have a large body size and short lop ears. Adult males weigh on average 350 kg and females 270 kg with an average wither height of 98 cm and 82 cm respectively. This breed has a firm constitution. There are 225 females registered in the herd book, of which 80% are bred to males of the same breed. The semen of 59 males is stored.

HAMPSHIRE*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 180 ♂ • 1997**Population trend:** stable**Range of uses:** meat**CZECH REPUBLIC**

The Hampshire is found country-wide and was imported from the United States of America, Canada and Denmark. The animals are black with a white belt and have erect ears. Adult males weigh on average 300 kg and females 270 kg with an average wither height of 96 cm and 86 cm respectively. This breed shows an outstanding meat performance. There are 300 females registered in the herd book, of which 80% are bred to males of the same breed. The semen of 30 males is stored.

PIETRAIN*ENDANGERED***Local names or syn.:** -**Population data:** < 1 000 • 250 ♀ • 37 ♂ • 1993**Population trend:** stable**Range of uses:** meat**CZECH REPUBLIC**

Pietrain pigs are white or light grey with irregular black or dark-brown spots and erect ears. Adult males weigh on average 275 kg and females 265 kg with an average wither height of 90 cm and 82 cm respectively. Of females, 28% are bred to males of the same breed. The semen of 22 males is stored.

FINSKÀ OVCE*CRITICAL***Local names or syn.:** Finnsheep (eng.), Suomenlammas (fin.), Finnois (fr.)**Population data:** > 38 • 34 ♀ • 2 ♂ • 1993**Population trend:** stable**Range of uses:** meat, wool**CZECH REPUBLIC**

Finskà ovce sheep are white with short erect ears, a broad forehead and medium fibred wool. Adult males weigh on average 80 kg and females 65 kg with an average wither height of 70 cm and 65 cm respectively. Of females, 100% are bred to males of the same breed.

MERINO LONGWOOL*CRITICAL***Local names or syn.:** Nemecka Dlouhovlnna (czech)**Population data:** 100 - 1 000 • 500 ♀ • 5 ♂ • 1997**Population trend:** decreasing**Range of uses:** meat, wool, vegetation management**CZECH REPUBLIC**

The Merino Longwool is found in the Moravian Highlands and is a German Longwool type imported from East Germany in 1984. The animals are white in colour with medium fibred wool and no horns. Adult males weigh on average 100 kg and females 65 kg. A good adaptability to the local climate is reported for this breed. There are 461 females registered in the herd book, of which 30% are bred to males of the same breed. The semen of one male is stored.

ROMANOVSKA OVCE*CRITICAL***Local names or syn.:** Romanov Sheep (eng.)**Population data:** < 100 • 8 ♂ • 1997**Population trend:** decreasing**Range of uses:** meat, pelt / fur, vegetation management**CZECH REPUBLIC**

The Romanovska Ovce, imported from the former Czechoslovakia in 1970 and from The Netherlands in 1996, is found country-wide. The animals are grey or white with a black head and short tail, medium fibred wool and no horns. Adult males weigh on average 70 kg and females 50 kg. A very high prolificity and long breeding season is reported for this breed. There are 56 females registered in the herd book, of which 80% are bred to males of the same breed. The semen of 3 males is stored.

ZOŠL'ACHTENÀ VALAŠKA*CRITICAL***Local names or syn.:** Valachian (eng.), Valasska**Population data:** 35 ♀ • 5 ♂ • 1994**Population trend:** decreasing**Range of uses:** wool, meat, milk**CZECH REPUBLIC**

The Zošl'achtenà Valaška, an indigenous native Valachian breed, is found only in Moravia, Zd Staré Hamry. Animals are white and sometimes pigmented in colour and have a small body size and light skeleton. Adult males weigh on average 55 kg and females 37 kg with an average wither height of 60 cm and 55 cm respectively. These sheep have coarse/carpet type wool and are well adapted to the local environment (mountain conditions). This breed is suitable for the so-called Chalet System of Breeding in Adverse Climatic Conditions. There are 2 herds remaining. Of females, 100% are bred to males of the same breed.

BERGSCHAF*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 320 ♀ • 10 ♂ • 1997**Population trend:** increasing**Range of uses:** meat, vegetation management, wool**CZECH REPUBLIC**

The Bergschaf was imported from Germany in 1980 and is found country-wide. The animals are white in colour and have pendulous ears, coarse/carpet type wool and all animals are polled. Adult males weigh on average 100 kg and females 70 kg with an average wither height of 80 cm and 70 cm respectively. They are well adapted to mountainous regions and the associated climate and a long breeding season is reported. There are 277 females registered in the herd book, of which 100% are bred to males of the same breed. The semen of one male is stored.

KENT, ROMNEY MARSH*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 800 ♀ • 39 ♂ • 1997**Population trend:** stable**Range of uses:** meat, wool, vegetation management**CZECH REPUBLIC**

Kent, Romney Marsh sheep were imported from Hungary in 1991 and are now found country-wide. The animals are white in colour, have medium fibred wool and are polled. Adult males weigh on average 100 kg and females 70 kg. The Kent, Romney Marsh are known for their very good adaptability to the local climate. There are 644 females registered in the herd book, of which 100% are bred to males of the same breed.

OXFORD DOWN*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 8 ♂ • 1997**Population trend:** increasing**Range of uses:** meat, vegetation management, wool**CZECH REPUBLIC**

Oxford Down sheep were imported in 1993 from Denmark and are now found country-wide. These animals are white with black head and legs, medium fibred wool and no horns. Adult males weigh on average 130 kg and females 95 kg with an average wither height of 75 cm and 65 cm respectively. There are 162 females registered in the herd book, of which 100% are bred to males of the same breed.

SUFFOLK*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1997**Population trend:** increasing**Range of uses:** meat, vegetation management, wool**CZECH REPUBLIC**

Suffolk sheep are found country-wide. The animals are white with black skin and legs, long, thin and slightly lop ears and a slightly arched nose. Adult males weigh on average 110 kg and females 75 kg with an average wither height of 75 cm and 65 cm respectively. Suffolks have medium fibred wool and are polled. There are 929 females registered in the herd book, of which 100% are bred to males of the same breed. The semen of 7 males is stored.

TEXEL*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 500 ♀ • 20 ♂ • 1997**Population trend:** stable**Range of uses:** meat, wool, vegetation management**CZECH REPUBLIC**

Texel sheep are found country-wide. The animals are white in colour, have small erect ears, medium fibred wool and are polled. Adult males weigh on average 115 kg and females 75 kg with an average wither height of 75 cm and 70 cm respectively. There are 373 females registered in the herd book, of which 100% are bred to males of the same breed, and the semen of 19 males is stored.

TSIGAI*ENDANGERED***Local names or syn.:** Cigaja (czech)**Population data:** 24 ♂ • 1997**Population trend:** decreasing**Range of uses:** milk, meat, wool**CZECH REPUBLIC**

The Tsigai is an indigenous breed found in the Jeseníky Mountains and submountainous areas of Jeseník, northern Moravia. The animals are white with a black head and black or dark brown limbs. They have a medium body size, convex head profile and light skeleton. Adult males weigh on average 75 kg and females 55 kg with an average wither height of 72 cm and 67 cm respectively. These sheep have coarse/carpet type wool and females are polled. They are well adapted to hilly regions and a specific product named Bryndza, a kind of white cheese, is produced. There are 614 females registered in the herd book, of which 70% are bred to males of the same breed.

VÝCHODOFRISKÀ OVCE*ENDANGERED***Local names or syn.:** East Friesian Milk sheep (eng.), East Friesian (eng.), Ostfriesisches Milchschaaf (ger.)**Population data:** 100 - 1 000 • 15 ♂ • 1997**Population trend:** stable**Range of uses:** meat, milk, wool**CZECH REPUBLIC**

The Východofriskà Ovce, imported from Germany in 1940, is found in Northern Moravia. The animals are white in colour with long horizontal ears and a slightly arched nose. Adult males weigh on average 120 kg and females 90 kg with an average wither height of 85 cm and 75 cm respectively. These sheep have medium fibred wool and all animals are polled. A high reproductive rate is reported for this breed. There are 218 females registered in the herd book, of which 80% are bred to males of the same breed. The semen of 3 males is stored in one location.

ZIRNÉ MERINO*ENDANGERED*

Local names or syn.: Merinofleischschaf (ger.), Merino Mutton (eng.)

Population data: 100 - 1 000 • 12 ♂ • 1997

Population trend: decreasing

Range of uses: meat, wool, vegetation management

CZECH REPUBLIC

The Zirné Merino was imported from Germany in 1960 and is now found country-wide. The animals are white in colour with horizontal ears and a slightly arched nose. Adult males weigh on average 110 kg and females 70 kg with an average wither height of 85 cm and 75 cm respectively. They have fine fibred wool and females are polled. There are 504 females registered in the herd book, of which 30% are bred to males of the same breed. The semen of 11 males is stored.

ZUŠLECHTENÀ VALAŠKÀ*ENDANGERED*

Local names or syn.: Valachian (Improved) (eng.)

Population data: 1 000 - 10 000 • 1 000 ♀ • 39 ♂ • 1997

Population trend: decreasing

Range of uses: meat, vegetation management, wool

CZECH REPUBLIC

Zušlechtenà Valaškà sheep, established around 1950, are descended from Valachian sheep and have been improved by Texel, Cheviot and East Friesian. They are found in Moravia in the submountainous and mountainous areas of the Czech Republic. The animals are white in colour and have horizontal ears and coarse/carpet type wool. Adult males weigh on average 80 kg and females 50 kg with an average wither height of 80 cm and 70 cm respectively. Males have medium sized, sickle shaped horns and females are polled. The animals are well adapted to mountainous areas and the associated climate. There are 948 females registered in the herd book, of which 100% are bred to males of the same breed.

P-LINE*CRITICAL*

Local names or syn.: -

Population data: 80 • 60 ♀ • 20 ♂ • 1994

Population trend: stable

Range of uses: research

CZECH REPUBLIC

The P-Line chicken descends from two chicks of an old native Russian and Brown Leghorn. They have wild-type and variants coloured plumage with no special pattern within the feathers, yellow skin and yellow shanks and feet. The comb is of single type and egg shells are white in colour. Adult males weigh on average 2.1 kg and females 1.6 kg. This breed is reported to be free of endogenous DNA-sequences of avian leukosis viruses.

BOHEMIAN FOWL*ENDANGERED*

Local names or syn.: Czech Fowl (eng.)

Population data: 1 000 • 250 ♀ • 100 ♂ • 1994

Population trend: stable

Range of uses: fancy, eggs, meat

CZECH REPUBLIC

The Bohemian Fowl, an original native breed that was widely distributed throughout Bohemia until around 1850, is now found in Bohemia and Moravia. Since 1913 it has been crossed with imported breeds but has been regenerated from the small population preserved in western Bohemia and in the Bohemian and Moravian highlands. In 1930 it was incorporated into the registry of breeds of great economic value. They have wild-type and variants (80%), silver-columbian (7%), black (7%) or white (6%) coloured plumage with laced patterns within the feathers, white skin, grey slated shanks and feet, single comb and cream and white to pale greyish egg shells. Cocks have a tail full with long sickles and hens have fan-like tails. Adult males weigh on average 2.3 kg and females 1.9 kg. The animals are reported to show resistance to Marek's disease.

C-GROUP OF CONGENIC LINES*ENDANGERED*

Local names or syn.: -

Population data: 400 • 300 ♀ • 100 ♂ • 1994

Population trend: stable

Range of uses: -

CZECH REPUBLIC

The C-Group of Congenic Lines originated from the original inbred line C. This line, established at the breeding station in Reasheath in 1932, was imported in 1958 from England to the Institute of Experimental Biology and Genetics (now the Institute of Molecular Genetics) in Prague.

BOHEMIAN*ENDANGERED*

Local names or syn.: Czech goose (eng.)

Population data: 200 • 150 ♀ • 50 ♂ • 1994

Population trend: increasing

Range of uses: feathers, downs

CZECH REPUBLIC

The Bohemian is an old native breed found in Bohemia. They have self-white coloured plumage with no special pattern within the feathers, white egg shells and skin and pinkish white shanks and feet. Adult males weigh on average 5.5 kg and females 4.5 kg. They rear goslings twice a year and have a reputation as good sitters. The Bohemian was bred pure until the end of the last century when it was almost replaced by larger foreign breeds. Due to the high management requirements of the imported breeds, the Bohemian was regenerated from the remaining population (Southern Bohemia) and was included among the breeds of great economic value in the 1930s. Experimental keeping under large-scale production systems was carried out after the Second World War, but low egg production and light live weight led to its replacement by other breeds. They are now reared by breeders of the Bohemian Goose Club.

SDM-1965*CRITICAL-MAINTAINED*

Local names or syn.: -

Population data: 25 • 1998

Population trend: increasing

Range of uses: milk, meat

DENMARK

The SDM-1965 line of cattle is a Friesian line without HF genes. When the Danish Friesian Breed organisation opened the herd book to allow the inclusion of Holstein Friesian, semen of bulls of the European type of Friesian cattle was stored. On the basis of this storage it has been possible to breed a line of Friesians without HF genes. In order to distinguish this line, the year (1965) has been added to the breed name abbreviation. The animals are black and white in colour and adult males weigh on average 1 050 kg, females 600 kg with an average wither height of 145 cm and 132 cm respectively. Financial support is available to breeders. The semen of 22 males is stored.

BELGISK BLÅHVIDT KVÆG*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1998

Population trend: stable

Range of uses: meat, sire line

DENMARK

The Belgisk Blåhvidt Kvæg, was imported from Belgium in 1965 and is found country-wide. The animals are black and white or blue roan in colour. Adult males weigh on average 1 100 kg and females 750 kg with an average wither height of 155 cm and 140 cm respectively. This breed is poorly adapted to its environment and animals often experience dystocia. All animals are doubled muscled.

KORTHORN*ENDANGERED***Local names or syn.:** Dansk Korthorn (dan.)**Population data:** 100 - 1 000 • 1998**Population trend:** decreasing**Range of uses:** meat, milk**JYSK KVÆG***ENDANGERED-MAINTAINED***Local names or syn.:** Jutland Cattle (eng.)**Population data:** 120 • 1998**Population trend:** increasing**Range of uses:** meat, socio-cultural**RDM-1970***ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 200 • 1998**Population trend:** stable**Range of uses:** milk, meat**DANSK LANDRACE***CRITICAL-MAINTAINED***Local names or syn.:** Danish Landrace (eng.)**Population data:** > 84 • 60 ♀ • 24 ♂ • 1997**Population trend:** decreasing**Range of uses:** milk, meat, hobby**DENMARK**

Korthorn cattle, imported from the UK at the beginning of the 20th century, are found in Jutland. The animals are red and white or roan in colour. Adult males weigh on average 1 000 kg and females 600 kg with an average wither height of 145 cm and 135 cm respectively. The breed derives from Dairy Shorthorn which was introduced to Denmark at the beginning of the 20th century. A few breeders continued to breed pure before the Danish Dairy Shorthorn was crossed with other red and white breeds to form the Danish Red and White. Very few breeders still breed the old type of Danish Shorthorn, but the majority of breeders have used semen from imported bulls from other Shorthorn populations (predominantly from Canada and New Zealand). Semen from 3 bulls of the old Danish type of Dairy Shorthorn is stored in a semen bank.

DENMARK

The Jysk Kvæg derive from native cattle in Jutland. In 1881 the first herd book was published which distinguished between animals of dairy and beef type. During the first part of the 20th century the breed was selected for milk production and was called Black and White Dairy Breed from Jutland. In 1950 it was crossed with black and white cattle (Holland and Germany) to form the SDM breed although a few breeders continued to breed pure. In the 1980s it almost became extinct and a programme to save this native breed was launched. The cattle are mainly black and white but may also be grey and white. Adult males weigh on average 1 000 kg and females 550 kg with an average wither height of 145 cm and 132 cm respectively. This breed is very robust and hardy. The Danish Ministry of Food, Agriculture and Fishery supports breeders of these animals. The semen of 11 males is stored.

DENMARK

The RDM-1970 is a pure-bred line of the old national Danish Red dairy breed. When the breed association decided, in 1980, to open the herd book for animals of Brown Swiss and Red Holstein, some breeders continued pure breeding of the Danish Red. To distinguish the old type from the new synthetic, the year (1970) was added to the breed name abbreviation (RDM-1970). The animals are red in colour with a dark muzzle and hooves. Adult males weigh on average 1 050 kg and females 550 kg with an average wither height of 150 cm and 132 cm respectively. Financial support is available to breeders. The semen of 48 males is stored.

DENMARK

The Dansk Landrace was imported from Norway and is now found country-wide. The animals are black, grey, brown or white in colour. Adult males weigh on average 85 kg and females 50 kg with an average wither height of 75 cm and 70 cm respectively. The goats are well adapted to the local humid and cold climate and are very hardy animals. Population figures are based on the number of registered animals.

NUBISK



CRITICAL-MAINTAINED

Local names or syn.: -

Population data: > 60 • 41 ♀ • 19 ♂ • 1997

Population trend: increasing

Range of uses: meat

DENMARK

Male and female Nubisk goats have an average wither height of 87 cm and 75 cm respectively. Population figures are based on the number of registered animals.

BOER



ENDANGERED

Local names or syn.: -

Population data: > 170 • 113 ♀ • 57 ♂ • 1997

Population trend: increasing

Range of uses: meat

DENMARK

Male and female Boer goats have an average wither height of 85 cm and 75 cm respectively. Population figures are based on the number of registered animals.

MOHAIR



ENDANGERED

Local names or syn.: -

Population data: > 360 • 270 ♀ • 90 ♂ • 1997

Population trend: stable

Range of uses: hair

DENMARK

Male and female Mohair goats have an average wither height of 75 cm and 70 cm respectively. Population figures are based on the number of registered animals.

BELGIER



ENDANGERED

Local names or syn.: Den Belgiske Hest (dan.)

Population data: 100 - 1 000 • 1997

Population trend: decreasing

Range of uses: -

DENMARK

No further information available.

KNABSTRUPPER



ENDANGERED

Local names or syn.: Dansk Knabstrupper Hest (dan.)

Population data: 170 • 1998

Population trend: decreasing

Range of uses: -

DENMARK

The breed organization for the Knabstrupper horse accepts the breeding of mares to stallions of other breeds. A small group of breeders breed pure, but very few pure-bred animals exist. Breeders are registered.

NEW FOREST



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1998

Population trend: stable

Range of uses: -

DENMARK

No further information available.

OLDENBORGER



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1998

Population trend: stable

Range of uses: -

DENMARK

No further information available.

OX-ARABER



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1998

Population trend: stable

Range of uses: -

DENMARK

No further information available.

TRAKEHNER*ENDANGERED***DENMARK**

No further information available.

Local names or syn.: -

Population data: 100 - 1 000 • 1998**Population trend:** stable**Range of uses:** -**WELSH***ENDANGERED***DENMARK**

No further information available.

Local names or syn.: -

Population data: 100 - 1 000 • 1998**Population trend:** stable**Range of uses:** -**DEN JYDSKE HEST***ENDANGERED-MAINTAINED***DENMARK**

The Den Jydske Hest horse, a native Danish breed, was established in 1881 and is now found in Jutland. The animals are usually chestnut, sometimes sorrel or roan often with white markings on face and legs. Adult males weigh on average 800 kg and females 800 kg with an average wither height of 158 cm and 155 cm respectively. Financial support is available to breeders of stallions. The semen of 2 males is stored.

Local names or syn.: Jyder (dan.), The Jutland Horse (eng.)**Population data:** 275 • 1998**Population trend:** stable**Range of uses:** socio-cultural, draught power, meat**FREDERIKSBORGHESTE***ENDANGERED-MAINTAINED***DENMARK**

The Frederiksborgheste is found country-wide, but mainly on Zealand and Funen. It is a native Danish country breed, established in the late 17th century at the Royal National Stud from Andalusian and Neapolitanian horses. The animals are chestnut in colour. Adult males weigh on average 650 kg and females 600 kg with an average wither height of 164 cm and 160 cm respectively. The breed organization accepts cross-breeding with stallions of other breeds, however a group of breeders is trying to keep a pure-bred line. A conservation programme was initiated in 1997, and financial support is granted to breeders of males with at least 15/16 blood from original Frederiksborg horses. The semen of one stallion is stored.

Local names or syn.: Frederiksborg (eng.)**Population data:** 230 • 1998**Population trend:** decreasing**Range of uses:** sport

DL-1970*CRITICAL-MAINTAINED***Local names or syn.:** Dansk Landrace anno 1970 (dan.)**Population data:** 50 • 1998**Population trend:** increasing**Range of uses:** -**DENMARK**

The Danish Landrace was established in 1891. Until 1970 the population was developed, by pure-breeding, as a highly specialized breed for bacon production. DL-1970 is a pure-bred line of the Danish Landrace, as this breed appeared before foreign lines of Landrace were accepted around 1970. A few breeders continued to breed the old type of Danish Landrace which was also present as a control line established in 1971 on an experimental station. The present population of DL-1970 originates from these sources. Breeders are registered and financial support is available to breeders. The semen of 14 males is stored.

SORTBROGET*CRITICAL-MAINTAINED***Local names or syn.:** Danish Black Pied (eng.), Danish Black Spotted (eng.), Danish White and Black (eng.)**Population data:** 100 ♀ • 20 ♂ • 1992**Population trend:** decreasing**Range of uses:** meat**DENMARK**

The Sortbroget is a native local breed found country-wide. The pigs may be black or white in colour. Adult males weigh on average 350 kg and females 300 kg with an average wither height of 80 cm and 70 cm respectively. There are 20 herds remaining. Of females, 80% are bred to males of the same breed. The semen of 2 males is stored.

HAMPSHIRE*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1998**Population trend:** stable**Range of uses:** meat, sire line**DENMARK**

No further information available.

DORSET*ENDANGERED***Local names or syn.:** -**Population data:** 900 - 1 000 • 1998**Population trend:** stable**Range of uses:** -**DENMARK**

No further information available.

FINULDS FÅR*ENDANGERED***DENMARK**

No further information available.

Local names or syn.: Fine Wool Sheep (eng.)**Population data:** 400 - 500 • 1998**Population trend:** stable**Range of uses:** -**GOTLANDSK PELSFÅR***ENDANGERED***DENMARK**

No further information available.

Local names or syn.: Gotland Pelt Sheep (eng.)**Population data:** 100 - 200 • 1998**Population trend:** stable**Range of uses:** -**LEICESTER***ENDANGERED***DENMARK**

No further information available.

Local names or syn.: -**Population data:** 600 - 700 • 1998**Population trend:** stable**Range of uses:** -**MARSH***ENDANGERED***DENMARK**

Marsh sheep were imported from Germany and the United Kingdom and are found in Jutland. They are polled and are white in colour with coarse/carpet type wool. Adult males weigh on average 60 kg and females 75 kg with an average wither height of 80 cm and 75 cm respectively. This breed is reported to be tolerant to the local weather conditions and is well adapted to marsh lands. This breed is known for its high fertility but only 12 herds remain.

Local names or syn.: Hvidhovedet Marsk (dan.)**Population data:** 1 000 ♀ • 225 ♂ • 1992**Population trend:** decreasing**Range of uses:** meat, wool

SAANE*ENDANGERED***DENMARK**

No further information available.

Local names or syn.: -

Population data: 200 - 300 • 1998**Population trend:** stable**Range of uses:** -**SPEL***ENDANGERED***DENMARK**

No further information available.

Local names or syn.: -

Population data: 100 - 200 • 1998**Population trend:** stable**Range of uses:** -**SUFFOLK***ENDANGERED***DENMARK**

Population figures for the Suffolk sheep are based on registered flocks.

Local names or syn.: -

Population data: 900 • 723 ♀ • 97 ♂ • 1997**Population trend:** -**Range of uses:** -**DANSK LANDFÅR***ENDANGERED-MAINTAINED***DENMARK**

The Dansk Landfår is found in Jutland. Established in 1900, it is a composite of Danish Heath and Merino (18th century) with some Leicester Longwool and Oxford Down input. The sheep are polled, have coarse/carpet type wool and are white in colour with a grey head. Adult males weigh on average 70 kg and females 50 kg with an average wither height of 75 cm and 70 cm respectively. There are 20 herds remaining. Of females, 100% are bred to males of the same breed.

Local names or syn.: Klitfår (dan. = Dune Sheep), Danish
Landrace (eng.)

Population data: 200 ♀ • 20 ♂ • 1992**Population trend:** increasing**Range of uses:** meat, wool, hobby

DANSKE LAND HØNS*ENDANGERED***Local names or syn.:** -**Population data:** 1 000 ♀ • 150 ♂ • 1994**Population trend:** increasing**Range of uses:** eggs, fancy**DENMARK**

Danske Land Høns chickens have wild-type and variants coloured plumage, white skin and blue shanks and feet. The comb is of single type and egg shells may be white in colour. Adult males weigh on average 2 kg and females 1.8 kg. The breed is well adapted to temperate climates and is known for longevity.

SORT HVIDBRYSTET DANSK*CRITICAL***Local names or syn.:** Danish Black White-Breasted (eng.)**Population data:** < 100 • 1998**Population trend:** -**Range of uses:** meat**DENMARK**

Sort hvidbrystet dansk ducks have self-white or self-black coloured plumage, white skin, black shanks and feet and white egg shells. Adult males weigh on average 3.5 kg and females 3 kg. This hardy breed is known for a high egg yield and good broodiness of the hens.

**GRÅ OG GRÅBROGEDE DANSKE
GÆS***CRITICAL-MAINTAINED***Local names or syn.:** -**Population data:** < 100 • 1998**Population trend:** decreasing**Range of uses:** meat, socio-cultural**DENMARK**

The Grå og Gråbrogede Danske Gæs has grey and white or grey coloured plumage and white egg shells. Adult males weigh on average 6 kg and females 4.5 kg. They are very hardy animals and females are known for broodiness. The *in situ* conservation programme involves the registration of breeders.

EESTI MAATÕUG*ENDANGERED-MAINTAINED***Local names or syn.:** Estonian Native (eng.)**Population data:** 100 - 1 000 • 481 ♀ • 16 ♂ • 1998**Population trend:** decreasing**Range of uses:** milk, meat**ESTONIA**

The Eesti maatõug, found in Pärnumaa, Raplamaa, Saaremaa, Lääne-Virumaa, Läänemaa and Harjumaa, is a northern European polled type descended from West Finnish, Jersey, Swiss and Red Holstein (1896). They are yellow, mixed red, brown and white, at times with white spots, have a medium wide chest, strong legs and hooves. Mean male and female weights are 700 kg and 460 kg and they stand 134 cm and 125 cm tall. They show longevity, tolerance to local harsh conditions, resistance to disease, calving ease, produce milk with high fat and protein content, have a low food consumption per unit of production and are considered a valuable base for crossing with other breeds. 176 females are registered in the herd book (80% bred pure). The *in situ* conservation programme involves 12 herds or breeders and 3 reproducing males. Embryos and semen from 6 males are stored in one location.

EESTI RASKEVEOHOBUNE*CRITICAL-MAINTAINED***Local names or syn.:** Estonian Heavy Draught (eng.)**Population data:** 100 - 1 000 • 88 ♀ • 10 ♂ • 1998**Population trend:** decreasing**Range of uses:** draught power, sport, hobby**ESTONIA**

The Eesti raskevehobune, established in 1921, is found in East Viru District and West Viru District and is a composite of Estonian Native horse and Ardennais horse. The animals are bay and dark to light chestnut, some having a flea-bitten pattern. Adult males weigh on average 680 kg and females 640 kg with an average wither height of 161 cm and 157 cm respectively. The animals are well adapted to the northern Estonian soil. The breed consists of 7 stallion lines and mares of 9 lines. Eighty-eight females are registered in the herd book and all are bred to males of the same breed. The *in situ* conservation programme involves 10 reproducing males and 26 herds or breeders.

ESTONSKII TYAZHELOVOZ*ENDANGERED***Local names or syn.:** Estonian Draft (eng.), Estonian Ardens (eng.)**Population data:** 400 • 120 ♀ • 15 ♂ • 1994**Population trend:** decreasing**Range of uses:** draught power**ESTONIA**

The Estonskii Tyazhelovoz is found in north-eastern Estonia. It is a composite of Estonian Native and Ardennes (Belgium, later from Sweden) and was established in 1930-1940. Adult males weigh on average 750 kg and females 700 kg with an average wither height of 160 cm and 158 cm respectively. In 1988 this breed was thought to be extinct, however it has been confirmed that the Estonskii Tyazhelovoz exists in small numbers. One draught breed stallion was recently imported from Germany to improve this breed. The breed has 7 lines.

EESTI HOBUNE*ENDANGERED-MAINTAINED***Local names or syn.:** Estonian Native (eng.)**Population data:** 100 - 1 000 • 250 ♀ • 19 ♂ • 1998**Population trend:** stable**Range of uses:** draught power, sport, riding (by children)**ESTONIA**

The Eesti hobune, similar to Zemaitukai, is found mainly on Saaremaa and Hiiu- and the western coast of Estonia. It is a local breed established in the 11th century and further developed by pure-breeding of local animals in the 19th and 20th centuries. There has been some influence from Arabian and Finnish (1930s) horses. They are black, light black, isabelle, bay, mouse, dark to light chestnut, grey or white intermixed with black or chestnut. Adult males weigh on average 450 kg, females 420 kg with an average wither height of 147 cm and 145 cm respectively. A conservation effort involving 19 reproducing males, 246 registered mares and 52 herds or breeders, aims to maintain the breed's disease resistance, good temperament and adaptation to the local conditions. Inbreeding is on average 15% but no negative impacts are evident. The semen of 1 male is stored in one location.

TORI HOBUNE*ENDANGERED-MAINTAINED***Local names or syn.:** Tori (eng.), Toric (eng.)**Population data:** 100 - 1 000 • 469 ♀ • 37 ♂ • 1998**Population trend:** stable**Range of uses:** sport, draught power**ESTONIA**

The Tori hobune, established in 1920, was developed at the Tori breeding station and is now found in the continental part of Estonia. It is a composite of Estonian and Hackney (1896-1926) cross-bred with Breton Posthorse (till 1970) and Hannover (recent years) with some influence from Norfolk, East Friesian and Holstein. The main breeding goal is a lighter type. They are black, bay, dark chestnut, chestnut, palomino or white intermixed with black. Adult males weigh on average 650 kg and females 620 kg with an average wither height of 166 cm and 164 cm respectively. This breed is known for its quite high fertility, longevity, strong constitution and adaptation to local conditions. 469 females are registered in the herd book (70% bred pure). The *in situ* conservation programme involves 122 herds or breeders, 30 reproducing males and semen from 3 males (stored in one location).

HIBRO-6*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 250 ♀ • 6 ♂ • 1999**Population trend:** decreasing**Range of uses:** meat**ESTONIA**

The Hibro-6 was imported from The Netherlands in 1982. They have self-white coloured plumage with barred, autosomal patterns within the feathers, yellow skin and the shanks and feet are yellow. The comb may be of single type and egg shells are brown in colour. Adult males weigh on average 3.9 kg and females 3 kg.

VALGE SINIKAELPART*CRITICAL-MAINTAINED***Local names or syn.:** White Mallard (eng.)**Population data:** 100 - 1 000 • 68 ♀ • 32 ♂ • 1998**Population trend:** decreasing**Range of uses:** meat**ESTONIA**

Valge sinikaelpart ducks, established in 1987, are found at Riitsalu farm in Pärnumaa. The common Mallard has been raised since 1986 on a duck farm of the Kaarepere Forestry Experiment Station. In 1987 some mutants with totally white plumage were unexpectedly hatched in an incubator, thereafter separated from the general flock and multiplied. The results of test-crossing showed that the nature of the gene pair inducing white feathering was a sex linked dominant gene. They have self-white coloured plumage with barred, autosomal patterns within the feathers. They have yellow skin and the shanks and feet are white. The comb is of single type and egg shells are white in colour. Adult males weigh on average 1.7 kg and females 1.2 kg. They are well adapted to the local conditions.

ITÄSUOMENKARJA*CRITICAL-MAINTAINED***Local names or syn.:** Red-and-White Finnish (eng.), Red Pied Karelian (eng.), East Finncattle (eng.), Finnish (eng.)**Population data:** 75 ♀ • 25 ♂ • 1994**Population trend:** increasing**Range of uses:** milk, meat**FINLAND**

The Itäsuomenkarja, an indigenous local cattle breed, is found in eastern Finland. The animals are red-sided with a white back and all animals are polled. Adult males weigh on average 600 kg and females 440 kg with an average wither height of 135 cm and 118 cm respectively. The frequency of the K-casein B gene is about 80%. There are 10 herds remaining and, of females, 100% are bred to males of the same breed. The semen of 20 males is stored and embryos are also stored.

POHJOISSUOMENKARJA*CRITICAL-MAINTAINED***Local names or syn.:** North Finnish (eng.), North Finncattle (eng.)**Population data:** 65 ♀ • 20 ♂ • 1994**Population trend:** increasing**Range of uses:** milk, meat**FINLAND**

The Pohjoissuomenkarja is an indigenous breed found in northern Finland. The animals are either black or white with black spots and they are polled. Adult males weigh on average 650 kg and females 400 kg with an average wither height of 128 cm and 118 cm respectively. The frequency of the K-casein B gene is about 80%. There are 10 herds remaining with 65 females registered in the herd book, 100% of which are bred to males of the same breed. The semen of 18 males is stored and embryos are also stored.

ARABIALAINEN*CRITICAL***Local names or syn.:** Arab (eng.)**Population data:** 12 ♀ • 2 ♂ • 1993**Population trend:** stable**Range of uses:** sport**FINLAND**

The Arabialainen is found in southern Finland and was imported from Sweden. The horses may be grey, chestnut or bay in colour and have long fine manes and tails and short backs. Adult males weigh on average 450 kg and females 450 kg with an average wither height of 155 cm and 150 cm respectively. This breed is known for its endurance and elegance. Twenty females are registered in the herd book, 20% of which are bred to males of the same breed.

CONNEMARA PONY*CRITICAL***Local names or syn.:** -**Population data:** 400 • 24 ♀ • 4 ♂ • 1993**Population trend:** stable**Range of uses:** sport**FINLAND**

The Connemara Pony is found country-wide. The animals may be dun with dark legs, grey, bay, black, brown, roan or chestnut in colour. Adult males and females weigh on average 400 kg with average wither heights of 144 cm and 140 cm respectively. The animals are known as good riding ponies. There are 10 herds remaining and 50 females registered in the herd book.

GOTLAND RUSS*CRITICAL***Local names or syn.:** Gotland Pony (eng.)**Population data:** 200 ♀ • 7 ♂ • 1993**Population trend:** decreasing**Range of uses:** sport**FINLAND**

The Gotland Russ is found country-wide. The horses are commonly bay or black but may also be all other standard colours. Adult males weigh on average 250 kg and females 280 kg with an average wither height of 130 cm and 130 cm respectively. This breed is known as a good trotting pony. There are 10 herds remaining and 200 females registered in the herd book, 100% of which are bred to males of the same breed.

ISLANNIN HEVONEN*CRITICAL***Local names or syn.:** Iceland Pony (eng.)**Population data:** 32 ♀ • 4 ♂ • 1993**Population trend:** stable**Range of uses:** sport**FINLAND**

The Islannin Hevonen, imported from Iceland, is found in southern Finland. The animals are usually grey or dun, are sometimes bay or chestnut, but are rarely black. Adult males weigh on average 360 kg and females 350 kg with an average wither height of 135 cm and 135 cm respectively. This breed is known as a good pade, 5-gait-pony and the horses are sturdy animals. There are 100 females registered in the herd book, of which 100% are bred to males of the same breed.

NEW FOREST PONY*CRITICAL***Local names or syn.:** -**Population data:** 60 ♀ • 12 ♂ • 1993**Population trend:** stable**Range of uses:** sport**FINLAND**

The New Forest Pony is found country-wide. The animals are any colour except piebald or skewbald and they are well built. Adult males weigh on average 400 kg and females 400 kg with an average wither height of 139 cm and 140 cm respectively. The animals are good riding ponies. There are 10 herds remaining with 350 females registered in the herd book, 100% of which are bred to males of the same breed.

TÄYSVERINEN*CRITICAL***Local names or syn.:** Thoroughbred (eng.)**Population data:** 10 ♀ • 2 ♂ • 1993**Population trend:** stable**Range of uses:** sport**FINLAND**

Täysverinen horses were imported from Sweden and are found country-wide. They can be any solid colour and have a fine coat and long legs. Adult males weigh on average 450 kg and females 450 kg with an average wither height of 165 cm and 160 cm respectively. This breed is known for its speed and stamina. There are 5 herds remaining and 10 females registered in the herd book, of which 30% are bred to males of the same breed.

WELSH*CRITICAL***Local names or syn.:** -**Population data:** 40 ♀ • 4 ♂ • 1993**Population trend:** stable**Range of uses:** sport**FINLAND**

Welsh horses are found country-wide. They are any colour except piebald or skewbald and have a light head and hard legs. Adult males weigh on average 200 kg and females 200 kg with an average wither height of 125 cm and 122 cm respectively. They are known to be willing animals. Ten herds remain with 60 females registered in the herd book, 100% of which are bred to males of the same breed.

PUOLIVERINEN*ENDANGERED***Local names or syn.:** Finnish Warmblood (Fnb) (eng.)**Population data:** 250 ♀ • 15 ♂ • 1993**Population trend:** increasing**Range of uses:** sport**FINLAND**

The Puoliverinen is found country-wide and was imported from Sweden and other European countries. The animals are bay in colour and have a good conformation. Adult males and females weigh on average 600 kg with an average wither height of 167 cm and 163 cm respectively. There are 10 herds remaining including 700 females registered in the herd book, 90% of which are bred to males of the same breed. The semen of one male is stored.

SHETLAND PONY*ENDANGERED***Local names or syn.:** -**Population data:** 260 ♀ • 30 ♂ • 1993**Population trend:** stable**Range of uses:** sport**FINLAND**

The Shetland Pony is found country-wide. The animals may be any colour and have a profuse mane and tail, deep chest and short croup and legs. Adult males weigh on average 150 kg and females 160 kg with an average wither height of 100 cm and 100 cm respectively. This breed is a good company pony. There are 10 herds remaining with 600 females registered in the herd book, 100% of which are bred to males of the same breed.

TEXEL*ENDANGERED***Local names or syn.:** -**Population data:** 482 ♀ • 264 ♂ • 1994**Population trend:** stable**Range of uses:** meat, wool**FINLAND**

The Texel, imported from Sweden and Denmark, is found in southern Finland. These sheep are white in colour, have coarse/carpet type wool and are polled. Adult males weigh on average 105 kg and females 80 kg. There are 56 females registered in the herd book, of which 60% are bred to males of the same breed.

MAATIAISKANA*ENDANGERED***Local names or syn.:** Landrace Hen (eng.)**Population data:** 850 • 600 ♀ • 250 ♂ • 1993**Population trend:** increasing**Range of uses:** eggs, fancy, research**FINLAND**

The Maatiaiskana is a Finnish native breed. The chickens have self-black (36%), grey (20%), black and white (20%), brown (20%) or self-white (1%) coloured plumage with spangled (50%) or mottled (50%) patterns within the feathers. They have yellow skin and the shanks and feet may be yellow (14%), white (13%) or blue (8%). The comb is of single type and egg shells may be brown (28%) or white (4%) in colour. Adult males weigh on average 2 kg and females 1.8 kg.

PUNAINEN RHODE ISLAND*ENDANGERED***Local names or syn.:** Rhode Island Red (Rir) (eng.)**Population data:** 100 - 1 000 • 200 ♀ • 70 ♂ • 1994**Population trend:** increasing**Range of uses:** eggs, fancy**FINLAND**

The Punainen Rhode Island was imported from Sweden. They have self-red and variants coloured plumage with mottled (70%) or spangled (30%) patterns within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 3 kg and females 2 kg.

PEKINGIN ANKKA



ENDANGERED

Local names or syn.: Pekin (eng.)

Population data: 100 - 1 000 • 300 ♀ • 50 ♂ • 1994

Population trend: increasing

Range of uses: meat, fancy

FINLAND

Pekingin Ankka ducks were imported from Norway. They have self-white coloured plumage, white skin, white egg shells and the shanks and feet are yellow. Adult males weigh on average 4 kg and females 3.5 kg.

VALKEA ITALIALAINEN



ENDANGERED

Local names or syn.: White Italian (eng.)

Population data: 100 - 1 000 • 500 ♀ • 100 ♂ • 1994

Population trend: stable

Range of uses: meat, fancy

FINLAND

The Valkea Italialainen was created in the 1920's by cross-breeding German Landrace and Emden geese. The Finnish population was imported from Sweden. They have self-white (70%) or grey (30%) coloured plumage, white skin, yellow shanks and feet and white egg shells. Adult males weigh on average 7.5 kg and females 6.5 kg.

PRONSSIKALKKUNA



ENDANGERED

Local names or syn.: Finish Bronze (eng.)

Population data: 100 - 1 000 • 250 ♀ • 50 ♂ • 1994

Population trend: stable

Range of uses: meat, fancy

FINLAND

Pronssikalkkuna turkeys were imported from Spain in the 17th century. They have wild-type and variants coloured plumage with spangled patterns within the feathers, yellow skin, shanks and feet and white egg shells. Adult males weigh on average 9 kg and females 5 kg.

POITEVIN



CRITICAL

Local names or syn.: Baudet du Poitou (fr.), Poitou (eng.)

Population data: < 200 • 1994

Population trend: stable

Range of uses: interspecies crossing

FRANCE

The Poitevin is found in western France. The animals are bay and black in colour with long hair and big ears directed frontward. Adults weigh on average 400 kg with an average wither height of 148 cm.

AUROCHS DE HECK*CRITICAL***Local names or syn.:** Heck Cattle (eng.), Aurochs reconsti. (fr.)**Population data:** 76 - 100 • 47 ♀ • 29 ♂ • 1996**Population trend:** increasing**Range of uses:** vegetation management, meat**FRANCE**

The Aurochs de Heck, imported from Germany in 1979, is found country-wide. The animals are yellow and have lyre-shaped horns with black tips. Adult males weigh on average 825 kg and females 550 kg with an average wither height of 144 cm and 137 cm respectively. There are 47 females registered in the herd book, of which 100% are bred to males of the same breed. The semen of one male is stored.

BETIZU*CRITICAL***Local names or syn.:** Betsioak, Betizuak**Population data:** 40 - 100 • 20 ♀ • 20 ♂ • 1996**Population trend:** stable**Range of uses:** vegetation management**FRANCE**

The Betizu, an autochthonous breed established in 1800, is found in Aquitaine. These cattle are yellow in colour and have lyre-shaped horns. Adult males weigh on average 400 kg and females 300 kg with an average wither height of 135 cm and 130 cm respectively. Of females, 100% are bred to males of the same breed.

BORDELAISE*CRITICAL***Local names or syn.:** -**Population data:** 28 - 100 • 26 ♀ • 2 ♂ • 1997**Population trend:** increasing**Range of uses:** milk**FRANCE**

The Bordelaise, an autochthonous breed established in 1860, is found in Aquitaine. The animals are black with a white speckled body. The head, tail and legs are always black. There are 20 females registered in the herd book, of which 40% are bred to males of the same breed. The semen of one male is stored.

COOPELSO 93*CRITICAL***Local names or syn.:** -**Population data:** 6 ♂ • 1994**Population trend:** decreasing**Range of uses:** sire line**FRANCE**

The Coopelso 93, is an experimental breed composed of Charolais, Blonde d'Aquitaine and Limousine found in south-western France. The animals are yellow in colour. Adult males weigh on average 1 000 kg and females 700 kg with an average wither height of 144 cm and 138 cm respectively. The semen of 33 males is stored and embryos are also stored.

MARINE LANDAISE*CRITICAL***Local names or syn.:** Marine Landais (eng.)**Population data:** 15 - 100 • 11 ♀ • 4 ♂ • 1996**Population trend:** stable**Range of uses:** vegetation management**FRANCE**

The Marine Landaise, an autochthonous breed established in 1800, is found in Aquitaine. The animals are yellow in colour, have lyre-shaped horns with an average wither height of 130 cm and 120 cm for males and females respectively. There are 11 females registered in the herd book, of which 100% are bred to males of the same breed. The semen of one male is stored.

ARMORICAINE*CRITICAL-MAINTAINED***Local names or syn.:** Armorican (eng.)**Population data:** < 100 • 43 ♀ • 1996**Population trend:** increasing**Range of uses:** milk, meat**FRANCE**

The Armoricaine, established in 1880, is found in central Bretagne and is a composite of Froment du Leon, Pie Rouge de Carhaix and Shorthorn. The animals are red with a light muzzle and white belly. Adult females weigh on average 650 kg and have a mean wither height of 138 cm. There are 26 females registered in the herd book, of which 90% are bred to males of the same breed. The semen of 14 males is stored.

BÉARNAISE*CRITICAL-MAINTAINED***Local names or syn.:** Basco-Béarnaise (fr.), Blonde des Pyrénées (fr.), Bearnais (eng.)**Population data:** 100 - 1 000 • 91 ♀ • 18 ♂ • 1996**Population trend:** stable**Range of uses:** meat, milk**FRANCE**

The Béarnaise, a native of the Pyrénées, is found in the western Pyrénées and Aquitaine. The animals are yellow and blond in colour with lyre-shaped horns. Adult females weigh on average 550 kg and have a mean wither height of 132 cm. The breed is very well adapted to mountain areas and mountain grazing and the animals are known for their endurance. There are 73 females registered in the herd book, of which 80% are bred to males of the same breed. The semen of 13 males is stored.

LOURDAISE*CRITICAL-MAINTAINED***Local names or syn.:** Lourdais (eng.)**Population data:** 94 - 100 • 79 ♀ • 15 ♂ • 1996**Population trend:** increasing**Range of uses:** meat**FRANCE**

Lourdais cattle are found in the central Pyrénées and are native to this region. They are yellow and white in colour with pink mucosa and lyre-shaped horns. Adult females weigh on average 600 kg and have a mean wither height of 135 cm. There are 58 females registered in the herd book, of which 80% are bred to males of the same breed. The semen of 9 males is stored.

INRA 95*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 125 ♀ • 44 ♂ • 1994**Population trend:** stable**Range of uses:** meat**FRANCE**

The Inra 95 is found in south-western France and is a composite of Charolais, Blonde d'Aquitaine, Limousin, Maine-Anjou and Blanc-Bleu Belge. The animals may be solid white or a combination of black, blue, red and white. Adult males weigh on average 1 050 kg and females 740 kg with an average wither height of 145 cm and 139 cm respectively. The Inra 95 is a double muscled experimental breed constituting a double muscled synthetic sire line for terminal crossing. Of females, 100% are bred to males of the same breed.

MAINE ANJOU LAIT*ENDANGERED***Local names or syn.:** Dairy Maine Anjou (eng.)**Population data:** 100 - 1 000 • 300 ♀ • 1996**Population trend:** increasing**Range of uses:** -**FRANCE**

The Maine Anjou Lait is found in Pays de la Loire. The animals are brown in colour. Adult males weigh on average 1 350 kg and females 850 kg with an average wither height of 150 cm and 140 cm respectively. There are 116 females registered in the herd book, of which 100% are bred to males of the same breed.

MARAÎCHINE*ENDANGERED***Local names or syn.:** Maraichin (eng.)**Population data:** 100 - 1 000 • 159 ♀ • 30 ♂ • 1996**Population trend:** increasing**Range of uses:** meat**FRANCE**

The Maraîchine is found in Pays de la Loire, Poitou and is descended from the autochthonous dual purpose Parthenais. The animals are yellow in colour and they have lyre-shaped horns. Adult males weigh on average 1 200 kg and females 700 kg with an average wither height of 145 cm and 140 cm respectively. There are 98 females registered in the herd book, of which 90% are bred to males of the same breed. The semen of 19 males is stored and embryos are also stored.

MASSANAISE*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 200 ♀ • 1997**Population trend:** decreasing**Range of uses:** -**FRANCE**

The Massanaise, an autochthonous breed, is found in Languedoc-Roussillon. The animals are yellow in colour.

NANTAIS*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 122 ♀ • 18 ♂ • 1996**Population trend:** increasing**Range of uses:** meat, milk, draught power**FRANCE**

The Nantais is an indigenous local breed related to Parthenais cattle found in Loire Atlantique Department and Pays de la Loire. The animals are brown with a dark muzzle. Adult females weigh on average 650 kg and have an average wither height of 135 cm. This breed is known for its good carcass, meat and milk quality. There are 72 females registered in the herd book, of which 80% are bred to males of the same breed. The semen of 6 males is stored.

AURE ET SAINT-GIRONS*ENDANGERED-MAINTAINED***Local names or syn.:** Race des Pyrénées Centrales (fr.), Aurois (eng.), Casta, Race de St. Girons et d'Aure (fr.), Central Pyrenean (eng.)**Population data:** < 200 • 135 ♀ • 30 ♂ • 1996**Population trend:** increasing**Range of uses:** meat, milk, draught power**FRANCE**

Aure et Saint-Girons cattle are native to the Pyrénées and are still found in the upper regions of the Pyrénées and Midi-Pyrénées. The animals are grey in colour with lyre-shaped horns. Adult females have an average weight of 600 kg and height of 135 cm. The breed is adapted to the local environment (marginal areas). There are 94 females registered in the herd book, of which 90% are bred to males of the same breed. The semen of 17 males is stored.

BRETONNE PIE NOIRE*ENDANGERED-MAINTAINED***Local names or syn.:** Breton Black Pied (eng.), Brittany Black-and-White (eng.), Morbihan**Population data:** 100 - 1 000 • 800 ♀ • 29 ♂ • 1996**Population trend:** increasing**Range of uses:** milk, meat**FRANCE**

The Bretonne Pie Noire, a native breed of Bretagne, is still found in that region. The animals are black and white in colour and have lyre-shaped horns. Adult males weigh on average 600 kg and females 400 kg with an average wither height of 123 cm and 117 cm respectively. The breed is adapted to marginal areas. There are 523 females registered in the herd book, of which 85% are bred to males of the same breed. The semen of 25 males is stored.

FERRANDAISE*ENDANGERED-MAINTAINED***Local names or syn.:** Ferrandais (eng.)**Population data:** 100 - 1 000 • 345 ♀ • 38 ♂ • 1996**Population trend:** increasing**Range of uses:** milk, meat, draught power**FRANCE**

The Ferrandaise is a native of Auvergne found in northern Central Massif and Auvergne. The animals are black, red or white black pied in colour with lyre-shaped horns. Adult females weigh on average 650 kg and have an average wither height of 138 cm. Ferrandaise cattle are known for their longevity. There are 242 females registered in the herd book, of which 75% are bred to males of the same breed. The semen of 21 males is stored.

FLAMANDE ORIGINELLE*ENDANGERED-MAINTAINED***Local names or syn.:** Flemish (Original) (eng.)**Population data:** 100 - 1 000 • 300 ♀ • 1997**Population trend:** decreasing**Range of uses:** milk, meat**FRANCE**

The Flamande originelle is found in northern France and Picardie. It is a native of northern France, to be distinguished from Rouge Flamande. The animals may be black or red in colour. Adult females weigh on average 650 kg and have an average wither height of 135 cm. There are 180 females registered in the herd book, of which 100% are bred to males of the same breed. The semen of 31 males is stored.

FROMENT DU LÉON*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 100 - 1 000 • 123 ♀ • 13 ♂ • 1996**Population trend:** increasing**Range of uses:** milk, meat**FRANCE**

The Froment Du Léon, an indigenous local breed related to the Guernsey, is still found in northern Bretagne. The animals are yellow and sometimes have white patches. Adult females weigh on average 550 kg and have a mean wither height of 135 cm. This breed produces coloured milk with a high percentage of fat and butter. There are 75 females registered in the herd book, of which 90% are bred to males of the same breed. The semen of 9 males is stored.

GASCONNE ARÉOLÉ*ENDANGERED-MAINTAINED***Local names or syn.:** Mirandais (fr.), Gascon Areole (eng.)**Population data:** 100 - 1 000 • 291 ♀ • 20 ♂ • 1996**Population trend:** increasing**Range of uses:** meat, draught power**FRANCE**

The Gasconne Aréolé is a native of Gascogne found in Département du Gers and Midi-Pyrénées. The adults are grey, white and blond in colour and the calves are born red. Adult males weigh on average 900 kg and females 650 kg with an average wither height of 150 cm and 140 cm respectively. The horns are long and lyre-shaped. The animals can tolerate different temperatures. This breed is known for excellent fertility and longevity. There are 208 females registered in the herd book, of which 90% are bred to males of the same breed. The semen of 9 males is stored.

HEREFORD*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 350 ♀ • 30 ♂ • 1994**Population trend:** stable**Range of uses:** meat, general crossbreeding**FRANCE**

The Hereford was imported from the United States of America and the United Kingdom and is found country-wide. The animals are red with a dominant white head. Adult males weigh on average 1 000 kg and females 600 kg with an average wither height of 145 cm and 140 cm respectively. Cows are known for calving ease and staying power and the breed is adapted to extensive conditions. There are 100 females registered in the herd book, of which 95% are bred to males of the same breed.

HÉRENS*ENDANGERED-MAINTAINED***Local names or syn.:** French Herens (eng.), Valais (fr.)**Population data:** 100 - 1 000 • 200 ♀ • 1996**Population trend:** stable**Range of uses:** milk, fighting, meat**FRANCE**

The Hérens was imported from Switzerland and is found in Chamonix Valley and Rhône-Alpes. The animals are black, brown and dark red in colour. Adult females weigh on average 500 kg and have a mean wither height of 132 cm. There are 100 females registered in the herd book, of which 80% are bred to males of the same breed.

RACE ESPAGNOLE*ENDANGERED-MAINTAINED***Local names or syn.:** Brava (sp.), Fighting Bull (eng.)**Population data:** 1 000 ♀ • 40 ♂ • 1994**Population trend:** stable**Range of uses:** tourist attraction / touristic potential, hobby, meat**FRANCE**

The Race espagnole is found in the Grande Camargue region and was originally imported from Spain. The animals are black in colour. Adult males weigh on average 500 kg and females 300 kg with an average wither height of 130 cm and 125 cm respectively. The breed is adapted to the feeding and climatic conditions of the Camargue. There are 10 herds remaining. Of females, 100% are bred to males of the same breed.

VILLARD DE LANS*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 100 - 1 000 • 208 ♀ • 33 ♂ • 1996**Population trend:** increasing**Range of uses:** milk, meat, draught power**FRANCE**

The Villard De Lans is found in the mountains of Vercors, Alps. It is a composite of local Feline and Bressane and was established in 1850. The animals are yellow in colour. Adult females weigh on average 700 kg and have an average wither height of 140 cm. There are 147 females registered in the herd book, of which 80% are bred to males of the same breed. The semen of 22 males is stored.

POITEVINE*ENDANGERED***Local names or syn.:** Poitou (eng.)**Population data:** 1 000 - 10 000 • 1 000 ♀ • 60 ♂ • 1995**Population trend:** stable**Range of uses:** milk, meat**FRANCE**

The Poitevine is found in the Poitou Region and the western part of France between the Massif Central and the Atlantic Ocean. It is an indigenous breed and was established in 1800. The animals are brown with a white belly, have long hair and a similar type head to the Toggenburg. Adult males weigh on average 72 kg and females 55 kg with an average wither height of 80 cm and 75 cm respectively. There are 300 females registered in the herd book, of which 95% are bred to males of the same breed. The semen of 5 males is stored.

PROVENCALE*ENDANGERED*

Local names or syn.: Commune Provencale (fr.), Payse (fr.),
Provençal (eng.)

Population data: 100 - 1 000 • 560 ♀ • 40 ♂ • 1997

Population trend: decreasing

Range of uses: milk, meat

FRANCE

The Provencale, an autochthonous breed, is found in Provence, Alpes and Côte d'Azur. Of females, 30% are bred to males of the same breed.

ROVE*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 100 - 1 000 • 250 ♀ • 10 ♂ • 1996

Population trend: decreasing

Range of uses: milk, meat, socio-cultural

FRANCE

The Rove, found in Provence, is an indigenous breed established in 1900. The animals may be red, yellow, red with some black, black and tan or badger in colour. Adult males weigh on average 80 kg and females 55 kg with an average wither height of 85 cm and 72 cm respectively. The breed is adapted to live under Mediterranean conditions. Of females, 80% are bred to males of the same breed.

HIGHLAND*CRITICAL*

Local names or syn.: Highland Pony (eng.)

Population data: 108 ♀ • 15 ♂ • 1993

Population trend: stable

Range of uses: sport

FRANCE

The Highland was imported from the United Kingdom and is found in Bretagne and Normandie. The animals are grey, sorrel, chestnut and isabelle and may rarely be dun with zebra-striped legs. Adult males weigh on average 550 kg and females 500 kg with an average wither height of 134 cm. There are 50 herds remaining with 98 females registered in the herd book, 90% of which are bred to males of the same breed.

LIPIZZAN*CRITICAL*

Local names or syn.: Lipitsa (eng.)

Population data: 24 ♀ • 6 ♂ • 1993

Population trend: increasing

Range of uses: sport, dressage

FRANCE

The Lipizzan was imported from Austria and is found country-wide. The animals are usually grey with a sleek coat and silky mane and tail. Adult males weigh on average 650 kg and females 550 kg with an average wither height of 160 cm and 150 cm respectively. There are 15 herds remaining. Of females, 100% are bred to males of the same breed.

ARDENNAIS DU NORD*ENDANGERED*

Local names or syn.: Trait du Nord (fr.), Northern Ardennes (eng.), Northern Ardennais (eng.)

Population data: 437 ♀ • 31 ♂ • 1993

Population trend: decreasing

Range of uses: meat, draught power

FRANCE

The Ardenais du Nord, a local Trait du Nord, is found in northern Picardie. The animals are bay, roan, dun and, more rarely, chestnut in colour. Adult males weigh on average 1 000 kg and females 775 kg with an average wither height of 165 cm and 160 cm respectively. There are 131 herds remaining with 335 females registered in the herd book, 76% of which are bred to males of the same breed.

BARBE*ENDANGERED*

Local names or syn.: Barb (eng.)

Population data: 221 ♀ • 25 ♂ • 1993

Population trend: increasing

Range of uses: sport

FRANCE

The Barbe was imported from Algeria, Tunisia and Morocco and is found country-wide. The animals may be grey, chestnut or bay in colour and have a profuse mane and flowing low-set tail. Males have an average wither height of 155 cm. There are 92 herds remaining and 225 females registered in the herd book, of which 98% are bred to males of the same breed.

CAMARGUE*ENDANGERED*

Local names or syn.: -

Population data: 572 ♀ • 82 ♂ • 1993

Population trend: increasing

Range of uses: herding, sport, socio-cultural

FRANCE

The Camargue is a local breed found in Camargue. The animals are light grey in colour. Mature horses weigh on average 350 kg with a mean wither height of 140 cm. This breed is known for stability. There are 145 herds remaining and 572 females registered in the herd book, of which 100% are bred to males of the same breed.

CONNEMARA*ENDANGERED*

Local names or syn.: Connemara Pony (eng.)

Population data: 596 ♀ • 166 ♂ • 1993

Population trend: increasing

Range of uses: sport

FRANCE

The Connemara was imported from Ireland and is found country-wide. The animals are mainly grey and are sometimes black, bay, chestnut, roan or isabelle in colour. Adult males weigh on average 450 kg and females 400 kg with an average wither height of 142 cm. There are 381 herds remaining and 806 females registered in the herd book, 39% of which are bred to males of the same breed.

DARTMOOR*ENDANGERED***Local names or syn.:** Dartmoor Pony (eng.)**Population data:** 187 ♀ • 31 ♂ • 1993**Population trend:** stable**Range of uses:** sport**FRANCE**

The Dartmoor was imported from the United Kingdom and is found in northern Picardie, Central France and Bretagne. The animals are usually bay but can also be any colour except piebald or skewbald. Adult males weigh on average 300 kg and females 280 kg with an average wither height of 117 cm. There are 65 herds remaining and 142 females are registered in the herd book, 64% of which are bred to males of the same breed.

FJORD DE NORVEGE*ENDANGERED***Local names or syn.:** Fjord (eng.)**Population data:** 799 ♀ • 94 ♂ • 1993**Population trend:** increasing**Range of uses:** sport, draught power**FRANCE**

The Fjord de Norvege was imported from Norway and is found in Alsace. The animals are dun with dark legs and tail and an erect mane that is dark at the center and silver towards the outside. Adult males weigh on average 580 kg and females 520 kg with an average wither height of 140 cm. There are 318 herds remaining with 618 females registered in the herd book, 77% of which are bred to males of the same breed.

HAFLINGER*ENDANGERED***Local names or syn.:** -**Population data:** 605 ♀ • 55 ♂ • 1993**Population trend:** increasing**Range of uses:** sport, draught power**FRANCE**

The Haflinger was imported from Austria and the United Kingdom and is found in Alsace, Rhones-Alps and Normandie. The animals are light to dark chestnut in colour and have a full flaxen mane and tail. Adult males weigh on average 580 kg and females 520 kg with an average wither height of 143 cm and 138 cm respectively. There are 602 females registered in the herd book, of which 99% are bred to males of the same breed.

ISLANDAIS*ENDANGERED***Local names or syn.:** Iceland Pony (eng.)**Population data:** 248 ♀ • 26 ♂ • 1993**Population trend:** stable**Range of uses:** sport**FRANCE**

The Islandais was imported from The Netherlands and is found in Alsace, Lorraine and Auvergne. The animals may be any colour. Adult males weigh on average 420 kg and females 380 kg with an average wither height of 134 cm. There are 78 herds remaining with 238 females registered in the herd book, 96% of which are bred to males of the same breed.

LUSITANIEN*ENDANGERED***Local names or syn.:** Lusitanian (eng.)**Population data:** 245 ♀ • 58 ♂ • 1993**Population trend:** increasing**Range of uses:** sport, dressage, fighting**FRANCE**

The Lusitanien was imported from Portugal and is found country-wide. The animals are grey and may also be any other solid colour. Adult males weigh on average 650 kg and females 550 kg with an average wither height of 175 cm and 155 cm respectively. There are 83 herds remaining with 245 females registered in the herd book, 100% of which are bred to males of the same breed.

NEW FOREST PONY*ENDANGERED***Local names or syn.:** New Forest (eng.)**Population data:** 654 ♀ • 63 ♂ • 1993**Population trend:** decreasing**Range of uses:** sport**FRANCE**

The New Forest Pony was imported from the United Kingdom and is found in Normandie and Pays de Loire. The animals are usually bay or grey in colour. Piebald or skewbald animals are not accepted for this breed. Adult males weigh on average 430 kg and females 380 kg with an average wither height of 134 cm. There are 138 herds remaining with 218 females registered in the herd book, 33% of which are bred to males of the same breed.

PONEY ARIÉGEAIS MÉRENS*ENDANGERED***Local names or syn.:** Merens Pony (eng.)**Population data:** 1 119 ♀ • 70 ♂ • 1993**Population trend:** increasing**Range of uses:** sport, draught power, socio-cultural**FRANCE**

The Pony Ariégeois Mérens is a native breed found in Ariège and the Alps. The animals are black in colour with no markings at all. Adult males weigh on average 600 kg and females 550 kg with an average wither height of 142 cm. These horses are well adapted for equestrian acrobatics and are especially suitable for young children because of their docility. When pulling a cart these horses are remarkable for their hardiness and they are remarkable for their endurance when working. The mares are good milk producers and this breed is known for stability. There are 382 herds remaining with 882 females registered in the herd book, 97% of which are bred to males of the same breed.

PONEY LANDAIS*ENDANGERED***Local names or syn.:** Landais (eng.)**Population data:** 137 ♀ • 21 ♂ • 1993**Population trend:** stable**Range of uses:** sport**FRANCE**

The Pony Landais is a native breed found in Aquitaine. The animals are bay, black, brown and chestnut in colour. Grey, piebald and skewbald animals are not accepted for this breed. Mature horses have an average wither height of 128 cm. There are 42 herds remaining with 96 females registered in the herd book, 70% of which are bred to males of the same breed.

POTTOK*ENDANGERED***Local names or syn.:** -**Population data:** 141 ♀ • 25 ♂ • 1993**Population trend:** decreasing**Range of uses:** sport, meat**FRANCE**

The Pottok is found in Euskadi, Basque Provinces and is a native breed. The animals are bay, brown, chestnut, piebald and skewbald in colour. Adult males weigh on average 350 kg and females 300 kg with an average wither height of 134 cm and 130 cm respectively. This breed is reported to be resistant to piroplasmosis. There are 44 herds remaining and there are 103 females registered in the herd book, of which 73% are bred to males of the same breed.

SHETLAND*ENDANGERED***Local names or syn.:** Shetland Pony (eng.)**Population data:** 1 000 ♀ • 150 ♂ • 1993**Population trend:** stable**Range of uses:** sport**FRANCE**

The Shetland was imported from the United Kingdom and is found country-wide. All colours are admissible for this breed and they have a profuse mane and tail with an average wither height of 107 cm. Of females, 100% are bred to males of the same breed.

TRAIT AUXOIS*ENDANGERED***Local names or syn.:** Auxois (eng.)**Population data:** 456 ♀ • 29 ♂ • 1993**Population trend:** increasing**Range of uses:** meat, draught power**FRANCE**

The Trait Auxois is a local Auxois horse found in Bourgogne. The animals are usually bay or roan and are sometimes dun or chestnut in colour. Adult males and females weigh on average 900 kg with an average wither height of 164 cm. There are 117 herds remaining with 304 females registered in the herd book, 100% of which are bred to males of the same breed.

WELSH*ENDANGERED***Local names or syn.:** Welsh Pony (eng.)**Population data:** 652 ♀ • 93 ♂ • 1993**Population trend:** increasing**Range of uses:** sport**FRANCE**

The Welsh was imported from the United Kingdom and is found country-wide. All colours are admissible for this breed except piebald and skewbald. Adult males weigh on average 400 kg and females 350 kg with an average wither height of 135 cm. There are 141 herds remaining and 410 females registered in the herd book, of which 44% are bred to males of the same breed.

BOULONNAIS*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 602 ♀ • 36 ♂ • 1993**Population trend:** decreasing**Range of uses:** meat, draught power**FRANCE**

The Boulonnais is a local breed found in northern Picardie. Boulonnais horses are usually a light dapple-grey and may also be chestnut in colour. They have a small Arabic-type head. Adult males weigh on average 900 kg and females 900 kg with an average wither height of 163 cm and 163 cm respectively. There are 219 herds remaining with 462 females registered in the herd book, 76% of which are bred to males of the same breed.

POITEVIN*ENDANGERED-MAINTAINED***Local names or syn.:** Mulassier (fr.), Poitou (eng.)**Population data:** 157 ♀ • 22 ♂ • 1993**Population trend:** decreasing**Range of uses:** meat, draught power, interspecies crossing**FRANCE**

The Poitevin, a composite of Poitou and Friesian, is found in Pays de Loire, Poitou-Charentes. The animals are mainly dun but may also be any other solid colour. Adult males weigh on average 900 kg and females 800 kg with an average wither height of 168 cm and 168 cm respectively. There are 52 herds remaining. Ninety-six females are registered in the herd book, of which 61% are bred to males of the same breed.

JIA-XING*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 12 ♀ • 1997**Population trend:** stable**Range of uses:** research**FRANCE**

The Jia-Xing, imported from China, is found in Poitou-Charentes. The animals are black in colour and males and females weigh on average 170 kg and 200 kg respectively. Sows are known for early maturity and fertility and have 20 teats. Of females, 100% are bred to males of the same breed. The semen of one male is stored.

LANDRACE BELGE*CRITICAL***Local names or syn.:** Belgian Landrace (eng.)**Population data:** 90 ♀ • 53 ♂ • 1994**Population trend:** decreasing**Range of uses:** meat, general crossbreeding**FRANCE**

The Landrace Belge was imported from Belgium and is found mainly in northern France. The animals are white in colour with lop ears. Adult males weigh on average 330 kg and females 280 kg with an average wither height of 90 cm and 85 cm respectively. This breed is halothane positive. There are 5 herds remaining with 90 females registered in the herd book, 100% of which are bred to males of the same breed.

MEISHAN*CRITICAL***Local names or syn.:** Mei-Shan, Chinois (fr.)**Population data:** 100 - 1 000 • 70 ♀ • 16 ♂ • 1997**Population trend:** decreasing**Range of uses:** research**FRANCE**

The Meishan, imported from China, is found in Charente (INRA), Poitou. The animals are black and white spotted in colour. Adult males weigh on average 200 kg and females 240 kg. The Meishan produce good quality meat and early sexual maturity and good fertility are reported. Of females, 100% are bred to males of the same breed. The semen of 8 males is stored.

WILLEBRAND*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 10 ♀ • 14 ♂ • 1998**Population trend:** stable**Range of uses:** research**FRANCE**

The Willebrand, a composite of Hampshire and Yorkshire (United States of America, 1973), is found in Poitou-Charentes. The animals are white in colour. Adult males weigh on average 350 kg and females 300 kg with an average wither height of 120 cm and 100 cm respectively. The semen of 6 males is stored.

BAYEUX*CRITICAL-MAINTAINED***Local names or syn.:** -**Population data:** < 100 • 63 ♀ • 1996**Population trend:** increasing**Range of uses:** meat**FRANCE**

The Bayeux, established in 1928 as a composite of old Porc de l'Ouest (France) and Berkshire (United Kingdom), is found in Basse-Normandie. The animals are black and white in colour. Adult males weigh on average 350 kg and females 300 kg with an average wither height of 90 cm and 90 cm respectively. There are 63 females registered in the herd book, of which 80% are bred to males of the same breed. The semen of 7 males is stored.

DUROC*CRITICAL-MAINTAINED***Local names or syn.:** -**Population data:** 100 ♀ • 6 ♂ • 1993**Population trend:** stable**Range of uses:** meat, general crossbreeding**FRANCE**

The Duroc was imported from the United States of America and Hungary (1977) and is found on some special farms. The animals are red in colour. Adult males weigh on average 350 kg and females 300 kg. This breed is known for its rusticity. Only one herd remains. Of females, 100% are bred to males of the same breed.

CARÉLIE*ENDANGERED***Local names or syn.:** PECC**Population data:** 100 - 1 000 • 610 ♀ • 15 ♂ • 1997**Population trend:** -**Range of uses:** -**FRANCE**

The Carélie is found in Bretagne. The animals are white in colour. There are 610 females registered in the herd book, of which 25% are bred to males of the same breed.

DRB*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 180 ♀ • 30 ♂ • 1996**Population trend:** increasing**Range of uses:** research**FRANCE**

The DRB, a Duroc type pig, is found in Bourgogne. The animals are grey and white and sometimes have grey spots. Adult males weigh on average 350 kg and females 250 kg with an average wither height of 120 cm and 100 cm respectively. There are 180 females registered in the herd book.

DRC*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 172 ♀ • 12 ♂ • 1996**Population trend:** increasing**Range of uses:** meat, research**FRANCE**

The DRC is found in Bourgogne and is a composite of Duroc (Denmark, Germany, Switzerland) and French Landrace (France). The animals are white and sometimes have red spots. There are 172 females registered in the herd book, of which 21% are bred to males of the same breed.

FH016*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 250 ♀ • 24 ♂ • 1997**Population trend:** increasing**Range of uses:** research**FRANCE**

The FH016 is found in central France. The animals are white in colour. Adult males weigh on average 200 kg and females 200 kg with an average wither height of 100 cm and 100 cm respectively. There are 250 females registered in the herd book, of which 90% are bred to males of the same breed. The semen of 30 males is stored.

FH019*ENDANGERED***Local names or syn.:** -**Population data:** 800 ♀ • 20 ♂ • 1997**Population trend:** -**Range of uses:** research**FRANCE**

The FH019 is found in central France. Seventy percent of animals are white in colour. Adult males weigh on average 250 kg and females 250 kg with an average wither height of 110 cm and 110 cm respectively. There are 800 females registered in the herd book, of which 30% are bred to males of the same breed. The semen of 20 males is stored.

GALLIA*ENDANGERED***Local names or syn.:** PEGG**Population data:** 100 - 1 000 • 860 ♀ • 15 ♂ • 1997**Population trend:** -**Range of uses:** research**FRANCE**

The Gallia is found in Bretagne. The animals are white in colour. There are 860 females registered in the herd book, of which 25% are bred to males of the same breed.

HAMPSHIRE*ENDANGERED***Local names or syn.:** -**Population data:** 270 ♀ • 1983**Population trend:** decreasing**Range of uses:** meat, general crossbreeding**FRANCE**

The Hampshire was imported from the United Kingdom and the United States of America and is found on some special farms. The animals are black with a white belt and have erect ears. Adult males weigh on average 310 kg and females 270 kg. Of females, 100% are bred to males of the same breed.

LACONIE P77*ENDANGERED***Local names or syn.:** Laconie (fr.), PELL**Population data:** 100 - 1 000 • 300 ♀ • 15 ♂ • 1997**Population trend:** increasing**Range of uses:** meat**FRANCE**

The Laconie P77, a composite of Large White, Hampshire and Pietrain (France), is found in Bretagne. The animals may be black, brown or white in colour. Adult males weigh on average 430 kg and females 290 kg. Laconie P77 pigs are stress-resistant and hardy. There are 300 females registered in the herd book, of which 50% are bred to males of the same breed.

MUSCLOR*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 303 ♀ • 20 ♂ • 1996**Population trend:** increasing**Range of uses:** meat**FRANCE**

The Musclor is found in Bretagne. The animals are black and white in colour. There are 303 females registered in the herd book, of which 30% are bred to males of the same breed.

PEN AR LAN P 77*ENDANGERED*

Local names or syn.: -

Population data: 250 ♀ • 18 ♂ • 1993**Population trend:** increasing**Range of uses:** meat**FRANCE**

The Pen Ar Lan P 77 is found around the Ille River and the Vilaine River, Department of Ille Et Vilaine, Bretagne. It is a composite of Large White, Hampshire and Piétrain. The animals may be black, brown or white in colour. Adult males weigh on average 430 kg and females 290 kg. The animals are stress resistant. Only one herd remains. Of females, 100% are bred to males of the same breed.

PENSHIRE P66*ENDANGERED*

Local names or syn.: PEPP

Population data: 100 - 1 000 • 300 ♀ • 15 ♂ • 1997**Population trend:** increasing**Range of uses:** meat**FRANCE**

The Penshire P66 is found in the Department of Ille Et Vilaine, Bretagne. It is a composite of Hampshire, Large White and Duroc and has been a closed line since 1984. The animals are black, brown and white belted or spotted in colour. Adult males weigh on average 430 kg and females 290 kg. The animals are stress resistant. There are 300 females registered in the herd book, of which 50% are bred to males of the same breed.

PIÉTRAIN*ENDANGERED*

Local names or syn.: Piétrain (eng.)

Population data: 100 - 1 000 • 524 ♀ • 1996**Population trend:** decreasing**Range of uses:** meat, general crossbreeding**FRANCE**

The Piétrain, imported from Belgium, is found mainly in northern France. The animals are white with black spots and have short, erect ears. Adult males weigh on average 280 kg and females 250 kg with an average wither height of 85 cm and 80 cm respectively. Poor meat quality and halothane positiveness are reported for this breed. There are 524 females registered in the herd book, of which 100% are bred to males of the same breed.

PROLIGÈNE 321*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 884 ♀ • 15 ♂ • 1996**Population trend:** increasing**Range of uses:** research**FRANCE**

The Proligène 321, a French Landrace type, is found in Bourgogne. The animals are white in colour. Adult males weigh on average 350 kg and females 250 kg with an average wither height of 120 cm and 100 cm respectively. There are 884 females registered in the herd book, of which 11% are bred to males of the same breed.

TIA MESLAN P44*ENDANGERED***Local names or syn.:** PETT**Population data:** 100 - 1 000 • 700 ♀ • 15 ♂ • 1997**Population trend:** increasing**Range of uses:** research**FRANCE**

The Tia Meslan P44 is found around the Ille River and the Vilaine River, Department of Ille et Vilaine, Bretagne. It is a composite of Pen Ar Lan P77, Meishan and Jia Xing, and has been a closed line since 1984. The animals are white in colour. There are 700 females registered in the herd book, of which 40% are bred to males of the same breed.

BLANC DE L'OUEST*ENDANGERED-MAINTAINED***Local names or syn.:** Normand (eng.), Porc de l'Ouest (fr.)**Population data:** 100 - 1 000 • 164 ♀ • 26 ♂ • 1996**Population trend:** stable**Range of uses:** meat**FRANCE**

The Blanc de l'Ouest is a native of Normandie and is found in Normandie, Basse and Bretagne. The animals are white in colour. Adult males weigh on average 350 kg and females 300 kg with an average wither height of 100 cm. There are 164 females registered in the herd book, of which 100% are bred to males of the same breed. The semen of 12 males is stored.

GASCONNE*ENDANGERED-MAINTAINED***Local names or syn.:** Gascony (eng.)**Population data:** 100 - 1 000 • 300 ♀ • 80 ♂ • 1996**Population trend:** increasing**Range of uses:** meat, hobby**FRANCE**

The Gasconne is an indigenous breed found in Midi-Pyrénées and Aquitaine. The animals are black in colour. Adult males weigh on average 200 kg and females 180 kg with an average wither height of 75 cm. There are 172 females registered in the herd book, of which 100% are bred to males of the same breed. The semen of 14 males is stored.

PIE NOIR DU PAYS BASQUE*ENDANGERED-MAINTAINED***Local names or syn.:** Basque Black Pied (eng.)**Population data:** 100 - 1 000 • 150 ♀ • 25 ♂ • 1996**Population trend:** increasing**Range of uses:** meat, hobby**FRANCE**

The Pie Noir du Pays Basque, a variety of Basque, is found in Euskadi, Basque Provinces, Pyrénées and Aquitaine. The animals are black with a white saddle and lop ears. Adult males weigh on average 180 kg and females 150 kg with an average wither height of 75 cm and 75 cm respectively. There are 129 females registered in the herd book, of which 100% are bred to males of the same breed. The semen of 23 males is stored.

PORC DE SAINT YRIEX*ENDANGERED-MAINTAINED***Local names or syn.:** Limousin (eng.), Cul Noir Limousin (fr.)**Population data:** 100 - 1 000 • 155 ♀ • 1996**Population trend:** increasing**Range of uses:** meat, hobby**FRANCE**

The Porc de Saint Yriex is found in Limousin and is an indigenous breed. The animals are black with a white saddle and erect ears. Adult males weigh on average 180 kg and females 150 kg with an average wither height of 75 cm. The breed is adapted to extensive conditions. There are 78 females registered in the herd book, of which 100% are bred to males of the same breed. The semen of 14 males is stored.

BELLE ILE*CRITICAL***Local names or syn.:** Race de Deux (fr.)**Population data:** 85 - 100 • 75 ♀ • 10 ♂ • 1997**Population trend:** increasing**Range of uses:** meat**FRANCE**

The Belle Ile is found in Bretagne, Pays de la Loire and is a autochthonous breed established in 1800. The animals are white in colour. Adult males weigh on average 65 kg and females 47 kg with an average wither height of 61 cm and 59 cm respectively. These sheep have medium fibred wool and all animals are polled. Of females, 100% are bred to males of the same breed.

AVRANCHIN*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 537 ♀ • 39 ♂ • 1994**Population trend:** increasing**Range of uses:** meat, wool, general crossbreeding**FRANCE**

The Avranchin is found in western Calvados, Basse-Normandie and Bretagne. It is a composite of a local breed, Leicester, Kent and South Down. The animals are white with a brownish face and feet, coarse/carpet type wool and no horns. Adult males weigh on average 105 kg and females 75 kg. There are 180 females registered in the herd book, of which 100% are bred to males of the same breed. The semen of 6 males is stored.

BLACKFACE*ENDANGERED***Local names or syn.:** -**Population data:** 1 000 - 10 000 • 1 000 ♀ • 1994**Population trend:** stable**Range of uses:** meat, wool, vegetation management**FRANCE**

The Blackface is found in southern France, south-eastern France and Languedoc-Rousillon. It was imported from the United Kingdom (1974). The animals are white or black with a black-white spotted head and legs. These sheep have coarse/carpet type wool.

BRIGASQUE*ENDANGERED***Local names or syn.:** Brigasca (eng.)**Population data:** 100 - 1 000 • 429 ♀ • 10 ♂ • 1997**Population trend:** decreasing**Range of uses:** milk, meat, wool**FRANCE**

The Brigasque is found in the Alpes Maritimes district, in La Brigue along the border of south-eastern France and in north-western Italy. It is a composite of Moutons de Pays, Langhe and Fabrosa (Italy). The animals are white and the head and legs are red marbled in colour. Adult males weigh on average 70 kg and females 60 kg with an average wither height of 90 cm and 78 cm respectively. These sheep have coarse/carpet type wool. The breed is known for its adaptation to the local marginal conditions (steep mountain sides). Of females, 100% are bred to males of the same breed.

LANDES DE BRETAGNE*ENDANGERED***Local names or syn.:** -**Population data:** 194 ♀ • 1996**Population trend:** increasing**Range of uses:** meat, vegetation management**FRANCE**

The Landes de Bretagne is found in Bretagne. It is an autochthonous breed, established in 1850. The animals are white in colour, have coarse/carpet type wool and are polled. Of females, 100% are bred to males of the same breed.

PETITE MANECH*ENDANGERED***Local names or syn.:** Xaxi Ardia, Gorri Tipia**Population data:** 1 000 ♀ • 1997**Population trend:** decreasing**Range of uses:** meat**FRANCE**

The Petite Manech, an indigenous breed, is found in Aquitaine. The animals are black, red or white with red and black spots, a coloured head, short ears and coarse/carpet type wool. Males and females have an average wither height of 62 cm and 60 cm respectively. Of females, 70% are bred to males of the same breed.

CLUN FOREST*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 100 - 1 000 • 300 ♀ • 1994**Population trend:** stable**Range of uses:** meat, wool**FRANCE**

Clun Forest sheep, imported from the United Kingdom, are found in the western and southern Massif Central regions. The animals are white with a brown head and legs, coarse/carpet type wool and all animals are polled. Adult males weigh on average 80 kg and females 55 kg. The animals are adapted to forest areas. There are 75 females registered in the herd book, of which 40% are bred to males of the same breed.

FINNOIS*ENDANGERED-MAINTAINED***Local names or syn.:** Finnsheep (eng.)**Population data:** 100 - 1 000 • 255 ♀ • 100 ♂ • 1994**Population trend:** stable**Range of uses:** general crossbreeding, meat**FRANCE**

The Finnois is found in Picardie, Champagne and Ardennes and was imported from Finland. The animals are white in colour, have coarse/carpet type wool and are polled. Adult males weigh on average 80 kg and females 60 kg with an average wither height of 70 cm and 60 cm respectively. This breed is known for high prolificity. There are 255 females registered in the herd book, of which 90% are bred to males of the same breed.

LANDAISE*ENDANGERED-MAINTAINED***Local names or syn.:** Landais (eng.), Landes de Gascogne (fr.)**Population data:** 100 - 1 000 • 355 ♀ • 30 ♂ • 1997**Population trend:** increasing**Range of uses:** meat, vegetation management**FRANCE**

The Landaise, a native local population established in 1850, is found in Les Landes and Aquitaine. The animals are white with brown and black spots and have coarse/carpet type wool. Adult males weigh on average 70 kg and females 45 kg with an average wither height of 70 cm and 65 cm respectively. Of females, 100% are bred to males of the same breed.

LOURDAISE*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 900 ♀ • 29 ♂ • 1997**Population trend:** decreasing**Range of uses:** meat, wool, vegetation management**FRANCE**

The Lourdaise is found in the Pyrénées. It is a composite of an ancient local breed and Mérino. The animals are white (90%) or brown pied (10%) in colour with coarse/carpet type wool. Adult males weigh on average 90 kg and females 65 kg with an average wither height of 80 cm and 72 cm respectively. The animals are well adapted to the mountain climate and are able to walk long distances. There are 534 females registered in the herd book, of which 60% are bred to males of the same breed. The semen of 10 males is stored.

MÉRINOS DE RAMBOUILLET*ENDANGERED-MAINTAINED***Local names or syn.:** Rambouillet (eng.)**Population data:** 15 ♂ • 1997**Population trend:** stable**Range of uses:** wool, meat, socio-cultural**FRANCE**

The Mérinos de Rambouillet, a composite of different Spanish Merino strains, is found in Bergerie Nationale de Rambouillet and Ile de France. The animals are white in colour, have fine fibred wool and females are polled. Adult males weigh on average 80 kg and females 50 kg with an average wither height of 72 cm and 62 cm respectively. The breed is known for excellent thermotolerance. There are 128 females registered in the herd book, of which 100% are bred to males of the same breed. The semen of 44 males is stored and embryos are also stored.

COUCOU DES FLANDRES*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 1995**Population trend:** increasing**Range of uses:** eggs, meat**FRANCE**

The Coucou des Flandres has been recently recreated and is found in the northern Picardie Region. These chickens have black and white coloured plumage with barred, sex-linked patterns within the feathers, white-pinkish shanks and feet, single comb type and tinted egg shells. Adult males weigh on average 3.2 kg and females 2.7 kg. Analogies with the Coucou De Rennes (French) and Coucou de Malines (Belgian) have been made.

COURTES-PATTES*CRITICAL***Local names or syn.:** Krüper (ger.)**Population data:** < 100 • 1995**Population trend:** stable**Range of uses:** meat, eggs**FRANCE**

The Courtes-Pattes is found in western France. This old breed originated in western France and north-western Germany, the breed standard being approved in 1912. It became extinct soon afterwards but has been re-bred by Jean Davesne and Jean-Claude Périquet in 1980. The chickens have barred, sex-linked, mottled or no special pattern within the feathers, white skin and blue shanks and feet. The comb is of single type and egg shells are white in colour. If the animals have a short shank length (lethal factor) they are not approved. Adult males weigh on average 2 kg and females 1.7 kg. It raises little interest among conservationists and breeders.

JANZÉ*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 1995**Population trend:** increasing**Range of uses:** meat**FRANCE**

The Janzé is found in Ille-et-Vilaine Department where it originated. It is a composite of black local fowl and Janzé. They have self-black coloured plumage with no special pattern within the feathers, white skin and blue shanks and feet. The comb is of single type and egg shells are white in colour. Their plumage is found stuck to the body and they have a light skeleton but no dwarfism. Adult males weigh on average 2.5 kg and females 2 kg. Some breeders are trying to recreate the breed.

LANDAISE GRISE*CRITICAL***Local names or syn.:** Landaise Grey (eng.)**Population data:** < 100 • 1995**Population trend:** increasing**Range of uses:** meat, eggs**FRANCE**

The Landaise grise is found in the Landes Region and parts of the Gascogne Region and was created in 1922-23 by the priest Marcel Dubordieux. It is related to the Bresse, Caussade and Gasconne breeds. They have self-black (99%) coloured plumage with no special pattern within the feathers, white skin and black shanks and feet. The comb is of single type and egg shells are white in colour. They have a light skeleton but no dwarfism. Adult males weigh on average 2.5 kg and females 2 kg. This breed is considered to be a good layer.

LE MANS*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 1995**Population trend:** increasing**Range of uses:** meat**FRANCE**

The Le Mans is found in Le Mans, Sarthe Department and is a very old breed (16th-17th century), related to La Fleche chickens. They have self-black coloured plumage with no special pattern within the feathers, white skin and blue shanks and feet. The comb is of rose type and egg shells are white in colour. There is no dwarfism. Adult males weigh on average 3.2 kg and females 2.7 kg. This breed was famous in the past for its meat and there are plans for its recreation.

LYONNAISE*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 1995**Population trend:** decreasing**Range of uses:** fancy, eggs**FRANCE**

The Lyonnaise is found in the Rhône Department. It originated in the Lyon region and was created by Etienne Tamburini at Vaul-en-Velin (Département du Rhone). The breed was approved in 1969 and is now almost extinct. The chickens have self-black coloured frizzle plumage with no special pattern within the feathers, white skin and the shanks and feet are blue. The comb is of rose type and egg shells are white in colour. They are light fowls, adult males weighing on average 2.5 kg and females 1.5 kg. This breed is known for its original appearance and the presence of the major gene F (frizzle plumage).

LYONNAISE NAIN*CRITICAL***Local names or syn.:** Dwarf Lyonnaise (eng.)**Population data:** < 100 • 1994**Population trend:** -**Range of uses:** fancy**FRANCE**

The Lyonnaise naine, originated in the Lyon region and is found in the Rhône Department. The shanks and feet are blue, egg shells are white and they have curled feathers.

PAVILLY*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 1995**Population trend:** increasing**Range of uses:** meat, eggs**FRANCE**

The Pavilly is found in Pavilly, Normandie Region. Related to the Crevecoeur, Caumont and Merlerault breeds, it became extinct in 1940 and was re-created by Jean-Claude Périquet in the 1980s. They have self-black coloured plumage with no special pattern within the feathers, white skin and the shanks and feet are blue. The comb is of single type and egg shells are white in colour. There is no dwarfism in this breed. Adult males weigh on average 3.2 kg and females 2.2 kg.

POULE DES HAIES*CRITICAL***Local names or syn.:** Ardennaise (eng.)**Population data:** < 100 • 1995**Population trend:** increasing**Range of uses:** meat, eggs**FRANCE**

The Poule des haies is found in Ardennes at the Belgian border and is considered more a Belgian breed than a French one. It is a very old breed described the first time in 1883 by P. Monseu. They have white skin and the shanks and feet are blue. The comb is of single type and egg shells are white in colour. They are average sized, proud, sharp, slender and hardy. The Poule des haies exist especially as a dwarf variety. Adult males weigh on average 2.2 kg and females 1.85 kg.

SANS-QUEUE*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 1995**Population trend:** stable**Range of uses:** fancy**FRANCE**

The Sans-Queue is often considered to be a subvariety of the Ardennaise breed. The chickens have gold-columbian, silver-columbian, wild-type and variants, self-red and variants or self-white coloured plumage. They have white skin and the shanks and feet may be white pinkish, black or blue. The comb is of single type and egg shells are white in colour. Adult males weigh on average 3.2 kg and females 2.2 kg.

BARBEZIEUX*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1995**Population trend:** increasing**Range of uses:** meat**FRANCE**

The Barbezieux is found in Barbezieux, Chaente Department, south-west France where it originated in the 19th century or earlier. They have self-black coloured plumage, white skin and the shanks and feet are blue. The comb is of single type and egg shells are white in colour. It does not exist in dwarf form. Adult males weigh on average 4.5 kg and females 3.5 kg. Excellent meat is produced by this breed and they are proud, strong, and powerful birds.

BOURBOUR*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1995**Population trend:** increasing**Range of uses:** meat, eggs**FRANCE**

The Bourbour is found in northern France. This breed is thought to descend from the Brahma, although its exact ancestral origin is uncertain. They have silver-columbian coloured plumage, yellow skin and the shanks and feet are white pinkish. The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 3.5 kg and females 2.7 kg. These are rustic animals.

CAUMONT*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1995**Population trend:** increasing**Range of uses:** meat, eggs**FRANCE**

The Caumont, related to the Pavilly, Crèvecoeur and Merlerault breeds, is found in Caumont L'evente, Calvados Department. This breed almost became extinct after the Second World War but has since been recreated by Jean-Claude Périquet. They have self-black coloured plumage with no special pattern within the feathers. They have white skin, the shanks and feet may be black (50%) or blue (50%) and egg shells are white in colour. They have a cylindrical body and a small crest. No dwarfism has been yet obtained in spite of several attempts. Adult males weigh on average 3.7 kg and females 2.7 kg.

CAUSSADE*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1995**Population trend:** increasing**Range of uses:** meat**FRANCE**

The Caussade, an old local breed related to the Gascone, is found in Tarn-Et-Garonne Department and has been known since the 19th century. They have self-black coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are blue. The comb is of single type and egg shells are white in colour. They are small sized with a light skeleton, but there is no dwarfism. Adult males weigh on average 1.7 kg and females 1.5 kg. This is a hardy breed.

CHAROLLAISE*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1995**Population trend:** stable**Range of uses:** meat**FRANCE**

The Charollaise is found in Charolles, Saône-Et-Loire Department where it originated. The breed standard was defined only in 1964. They have self-white coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are white. The comb is of rose type and egg shells are white in colour. They have a large breast and a horizontal back line. Plans to create dwarf fowls are in place. Adult males weigh on average 3.5 kg and females 2.5 kg.

CÔTENTINE*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1995**Population trend:** increasing**Range of uses:** meat, eggs**FRANCE**

The Côtentine is found on the Peninsula of Côtentin and in the Normandie Region. These black poultry have been grown for a long time and the breed standard was first proposed in 1925. They have self-black coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are blue. The comb is of single type and egg shells are tinted in colour. They are medium sized and there is no dwarfism in this breed. Adult males weigh on average 3.2 kg and females 2.2 kg.

COU-NU DU FOREZ*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1995**Population trend:** increasing**Range of uses:** meat**FRANCE**

The Cou-nu du forez, established in 1945, is found in the Loire Department. It was originally bred by Henri Calemard (breeder in Saint-Etienne) after the Second World War. The chickens have self-white coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are white pinkish. The comb is of single type and egg shells are tinted in colour. They have a naked neck with a feathered tuft in the middle of the neck (heterozygous subjects), plumage well stuck to the body and there is no dwarfism. Adult males weigh on average 3.2 kg and females 2.5 kg. Heat resistance is reported for this breed.

COUCOU DE RENNES*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1995**Population trend:** increasing**Range of uses:** meat, eggs**FRANCE**

The Coucou de rennes is found in the area of Rennes. The breed originated in this region and has been bred and selected since 1880, the breed standard being approved in 1914. The chickens have black and white coloured plumage with barred, autosomal patterns within the feathers. They have white skin and the shanks and feet are white pinkish. The comb is of single type and egg shells are tinted in colour. It is very difficult to get the same colour patterns for cocks and hens. Adult males weigh on average 3.5 kg and females 3 kg. Analogies with the Coucou Des Flandres breed have been made.

CRÈVECOEUR*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1995**Population trend:** increasing**Range of uses:** meat**FRANCE**

The Crèvecoeur is found in Crèvecoeur-En-Auge and in the Normandie Region. They have self-black (95%), self-white, self-blue or black and white coloured plumage with no special pattern (95%) or barred, sex-linked (5%) patterns within the feathers. They have white skin and the shanks and feet are black. The comb is of duplex or V-shaped type and egg shells are white in colour. They have a crest, mufflings and a well developed beard with rudimentary wattles and no dwarfism. Adults weigh on average 3 kg.

ESTAIRE*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1995**Population trend:** increasing**Range of uses:** meat**FRANCE**

The Estaires, originating in Estaires, around Calais, is found in Department du Nord. It became extinct after the Second World War and has since been recreated by some breeders in the north. Estaires descended from common fowls, Combattant du Nord and Langshan breeds. They have no special pattern within the feathers, white skin, blue slightly feathered shanks and blue feet. The comb is of single type and egg shells are tinted in colour. There is no dwarfism. Adult males weigh on average 4.2 kg and females 3 kg.

GASCOGNE*ENDANGERED***Local names or syn.:** Gasconne (eng.)**Population data:** 100 - 1 000 • 1995**Population trend:** increasing**Range of uses:** meat, eggs**FRANCE**

The Gasconne is found in the Garonne River valley, south-west France, where it originated. These chickens have self-black coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are blue. The comb is of single type and egg shells are white in colour. They are medium sized, round in shape and similar to the Caussade, but larger. Adult males weigh on average 3 kg and females 2.2 kg. The creation of a dwarf variety is in progress.

GAULOISE DORÉE*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1995**Population trend:** increasing**Range of uses:** meat, eggs**FRANCE**

The Gauloise dorée is the oldest free-range French breed and is the national French emblem, the Gallic cock. It should not be confused with the Gauloise (black, blue, grey) which is a different breed, Bresse. They have gold-columbian coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are blue. The comb is of single type and egg shells may be cream white to pale greyish in colour. Adult males weigh on average 2.5 kg and females 2 kg.

GÉLINE DE TOURAINE*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1995**Population trend:** increasing**Range of uses:** meat, eggs**FRANCE**

The Géline De Touraine is found in the Touraine Region and is an old black hen of Touraine, Berry and Limousin, crossed with Langshan. The breed standard was established in 1913. They have self-black coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are blue. The comb is of single type and egg shells are tinted in colour. They have a light skeleton, large and long outline, and there is no dwarfism. Adult males weigh on average 3.2 kg and females 2.7 kg.

GOURNAY*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1995**Population trend:** stable**Range of uses:** meat, eggs**FRANCE**

The Gournay is found in Gournay-En-Bray. It is a composite of the Houdan and Brahma breeds and was created by the Voiteiller brothers between 1870-1880. They have silver-columbian coloured plumage with mottled patterns within the feathers, white skin and white pinkish shanks and feet. The comb is of single type and egg shells are white in colour. There is no dwarfism. Adult males weigh on average 2.5 kg and females 2 kg.

HOUDAN*ENDANGERED***Local names or syn.:** Houdan (Bantam) (eng.)**Population data:** 100 - 1 000 • 1994**Population trend:** -**Range of uses:** -**FRANCE**

The Houdan is found in Houdan and the surrounding region west of Paris where it originated. It is one of the oldest French breeds and was established in the 17th century. The chickens have white skin and the shanks and feet are black. The comb is of duplex or V-shaped type and egg shells are white in colour. They are a dwarf variety of chicken.

LA FLÈCHE*ENDANGERED***Local names or syn.:** Flèche (Bantam) (eng.)**Population data:** 100 - 1 000 • 1994**Population trend:** -**Range of uses:** meat**FRANCE**

The La Flèche is a very old breed (15th century) found in La Flèche, Sarthe Department, where it originated. They have white skin and the shanks and feet are blue. The comb is of duplex or V-shaped type and egg shells are white in colour.

MANTES*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1995**Population trend:** increasing**Range of uses:** meat, eggs**FRANCE**

The Mantes, an old French breed obtained by crossing Houdan and Brahma in the 19th century, is found in the Ile-De-France Region. It disappeared after the Second World War but has been recreated by Alex Wiltzer at Mantes-La-Jolie. They have black and flinty white coloured plumage with mottled patterns within the feathers, white skin, black shanks and feet, single comb and cream white to pale greyish egg shells. They are average sized chickens and there is no dwarfism. They have a beard and mufflings are present. Adult males weigh on average 3 kg and females 2.2 kg.

MERLERAULT*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1995**Population trend:** increasing**Range of uses:** meat, eggs, fancy**FRANCE**

The Merlerault is found in the Normandie Region. This old population is a subvariety of the Crèvecoeur breed. The chickens have self-black coloured plumage with no special pattern within the feathers, blue-black skin and the shanks and feet are blue. The comb is of duplex or V-shaped type and egg shells may be white in colour. They have a crest that is a bit smaller than that of the Crèvecoeur, no beard or mufflings and there is no dwarfism. Adult males weigh on average 3 kg and females 2.7 kg. This breed has been rare even since its origin.

MEUSIENNE*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1995**Population trend:** increasing**Range of uses:** meat**FRANCE**

The Meusienne, found in Gincrey, Meuse Department, was created recently by Jean-Claude Périnet from the Faverolle Foncée breed in Gincrey, Meuse (France) and the standard was approved in 1987. A dwarf variety is currently being created by Jean-Claude Perinet. These chickens have yellow coloured plumage with no special pattern within the feathers, white skin and the shanks and feet are white. The comb is of single type and egg shells are tinted in colour. They are large sized animals with 5 spurs slightly feathered, developed wattles, no beard and no mufflings. Adult males weigh on average 4.1 kg and females 2.9 kg.

NOIRE DE CHALLANS*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1995**Population trend:** increasing**Range of uses:** meat**FRANCE**

The Noire De Challans, found in Challans, Machecoul, Beauvoir-Sur-Mer, Bouin Marah Regions and Vendee Department, was created by crossing local breeds with Langshan and Black Orpington. The standard was approved in 1967. They have self-black coloured plumage with spangled patterns within the feathers, white skin and blue shanks and feet. The comb is of single type and egg shells are cream white to pale greyish in colour. There is no dwarfism in this breed. Adult males weigh on average 3.2 kg and females 2.2 kg.

NOIRE DU BERRY*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1995**Population trend:** increasing**Range of uses:** meat, eggs**FRANCE**

The Noire Du Berry is a local breed found in Indre, Cher Department. This breed has resulted from many crossings (Brahma, Langshan, Orpington) and has never had a standard, only a simple description. They have self-black coloured plumage with no special pattern within the feathers, white skin and the shanks and feet are blue. The comb is of single type and egg shells are cream white to pale greyish in colour. Adult males weigh on average 3 kg and females 2.3 kg. Some interest in re-breeding these birds has been expressed.

PETIT COMBATTANT DU NORD*ENDANGERED***Local names or syn.:** Small Combattant Du Nord (eng.)**Population data:** 100 - 1 000 • 1995**Population trend:** stable**Range of uses:** -**FRANCE**

The Petit combattant du nord is found in Pas-De-Calais Department, northern France. It originated in the Département du Nord and around Calais. The shanks and feet may be yellow or green, the comb is single and egg shells are white in colour. Adult males weigh on average 1.25 kg and females 1.12 kg.

PICTAVE*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1995**Population trend:** increasing**Range of uses:** fancy**FRANCE**

The Pictave chicken is found in the Poitou Region and was created around 1900 by Rymond Lecointre in order to brood his pheasant eggs. The standard was approved in 1928. This dwarf French breed has no equivalent in normal size. They have gold-columbian coloured plumage with no special pattern within the feathers, white skin and the shanks and feet are white pinkish. The comb is of single type and egg shells are cream white to pale greyish in colour. Adult males weigh on average 0.8 kg and females 0.6 kg. The females are known for broodiness.

POULE D'ALSACE NAINE*ENDANGERED***Local names or syn.:** Dwarf Alsacienne (eng.)**Population data:** 100 - 1 000 • 1994**Population trend:** increasing**Range of uses:** meat, eggs**FRANCE**

The Poule d'alsace naine is found in Alsace, Haut-Rhin and Bas-Rhin Departments. They have no special pattern within the feathers, white skin and blue shanks and feet. The comb is of rose type and egg shells may be white in colour.

BLANC DE L'ALLIER*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 1994**Population trend:** increasing**Range of uses:** -**FRANCE**

The Blanc De L'allier originated in the Bourbonnaise region. Similar to Aylesbury ducks, they have self-white coloured plumage, orange shanks and feet and white egg shells. Adult males weigh on average 4 kg and females 3.5 kg. These are rustic animals with a rapid growth rate.

D'ESTAIRES*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 1994**Population trend:** -**Range of uses:** meat**FRANCE**

The D'estaires originated in the Department Du Nord and was created from Pekin ducks. They have whitish-yellow coloured plumage and are similar to the Bourbourg but are smaller. Adult males weigh on average 2.2 kg and females 2.2 kg. They are rustic animals.

DE BOURBOURG*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 1994**Population trend:** increasing**Range of uses:** meat**FRANCE**

The De Bourbourg originated in the area around the city of Bourbourg, Department Du Nord from Mertchem (Belgium) and Aylesbury (England) ducks. They have self-white coloured plumage, the shanks and feet are yellow and egg shells are cream white to pale greyish in colour. Adult males weigh on average 3.2 kg and females 3 kg.

DUCLAIR*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 1994**Population trend:** increasing**Range of uses:** meat**FRANCE**

The Duclair originated in the Normandie region, the standard of the breed being established by Ms. Bodinier-Pochè, Dr. Ramè and M. Chevallier on November 11, 1923. They have white skin, the shanks and feet are black and egg shells are tinted in colour. Adult males weigh on average 3 kg and females 2.5 kg.

DE CHALLANS*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1994**Population trend:** stable**Range of uses:** meat**FRANCE**

The De Challans, created by crossing Rouen Clair and wild duck Colvert, originated in the Nantaise and Grand-Brière regions and in Challans Swamp and Beavoir. They have wild-type and variants coloured plumage and the shanks and feet are yellow. Adult males weigh on average 3 kg and females 2.5 kg.

ROUEN FONCÉ*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1994**Population trend:** increasing**Range of uses:** -**FRANCE**

The Rouen foncé originated around Rouen. The shanks and feet are reddish in colour and egg shells are greenish. Adult males weigh on average 3.5 kg and females 3 kg.

BLANCHE DE BOURBONNAIS*CRITICAL*

Local names or syn.: -

Population data: < 100 • 1994**Population trend:** stable**Range of uses:** meat**FRANCE**

The Blanche De Bourbonnais originated in the Allier region. These geese have self-white coloured plumage, reddish shanks and feet and white egg shells. Adult males weigh on average 9.5 kg and females 7.5 kg.

BLANCHE DU POITOU*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1994**Population trend:** stable**Range of uses:** -**FRANCE**

The Blanche Du Poitou originated in the Poitevine region. These geese have self-white coloured plumage and yellow shanks and feet. Adult males weigh on average 6.5 kg and females 6 kg.

NORMANDE*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1994**Population trend:** increasing**Range of uses:** -**FRANCE**

The Normande goose originated in Normandie and has been developed by upgrading the common goose population. They have self-white coloured plumage, orange shanks and feet and white egg shells. Adult males weigh on average 5 kg and females 4.5 kg. These are very rustic animals.

NOIR DE SOLOGNE*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1994**Population trend:** -**Range of uses:** -**FRANCE**

The Noir De Sologne have self-black coloured plumage and orange shanks and feet. Adult males weigh on average 11.2 kg and females 6.7 kg.

NOIR DU BOURBONNAIS*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1994**Population trend:** -**Range of uses:** meat**FRANCE**

The Noir Du Bourbonnais have self-black coloured plumage and black shanks and feet. They are similar to the Noir de Sologne, but are more elegant and are light.

MINGRELIAN RED*ENDANGERED***Local names or syn.:** Krasnyi megrelskii skot (ru.), Megrel, Megrelian, Mingrelian (eng.)**Population data:** 2 600 • 862 ♀ • 41 ♂ • 1990**Population trend:** decreasing**Range of uses:** milk, meat**GEORGIA**

The Mingrelian Red is found in western Georgia. It is a subvariety of Lesser Caucasus which is a variety of Caucasus. The animals are either grey or various shades of red in colour. Adult males weigh on average 450 kg and females 300 kg with an average wither height of 124 cm and 115 cm respectively. This breed exploits water-logged meadows in winter and poor alpine pastures in summer. Its adaptation to the hot climate is remarkable. Resistance to some diseases has been reported and it can withstand long distance travel. Of females, 43% are bred to males of the same breed.

KARACHAI*ENDANGERED***Local names or syn.:** Karachaevskaya (ru.), North Caucasian (eng.)**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** meat, milk, wool**GEORGIA**

The Karachai is found in northern Caucasus. The animals may be black, grey, red, white or pied in colour.

DAGESTAN PONY*ENDANGERED***Local names or syn.:** Dagestanskii poni (ru.)**Population data:** 456 • 186 ♀ • 43 ♂ • 1990**Population trend:** decreasing**Range of uses:** milk**GEORGIA**

The Dagestan Pony is found in northern Caucasus. Of females, 100% are bred to males of the same breed.

MINGRELIAN*ENDANGERED***Local names or syn.:** Mingrel'skaya (ru.), Megrel'skaya (ru.)**Population data:** 861 • 511 ♀ • 82 ♂ • 1990**Population trend:** decreasing**Range of uses:** -**GEORGIA**

The Mingrelian pony is found in western Georgia. Males have an average wither height of 130 cm. Of females, 56% are bred to males of the same breed.

GEORGIAN MANGALITSA*ENDANGERED***Local names or syn.:** Mangalitskaya (ru.)**Population data:** 670 • 166 ♀ • 38 ♂ • 1980**Population trend:** decreasing**Range of uses:** lard**GEORGIA**

The Georgian Mangalitsa is found in the mountain areas of Georgia. The animals have black skin with white to dark tan hair. Adult males weigh on average 149 kg and females 113 kg.

KAKHETIAN*ENDANGERED***Local names or syn.:** Kakhetinskaya (ru.)**Population data:** < 3 000 • 429 ♀ • 40 ♂ • 1990**Population trend:** stable**Range of uses:** lard, meat**GEORGIA**

The Kakhetian is found in Akhmeta, Telavi, Gurjaam, Dushet and eastern Georgia. It is closely related to the wild boar and is a native breed. Adults are grey and piglets are striped in colour. They are covered with hard, long, straight bristles and have erect ears. Adult males weigh on average 250 kg and females 155 kg. Of females, 100% are bred to males of the same breed.

STEPPE VOLOSHIAN*CRITICAL*

Local names or syn.: Valakhszkaya (ru.), Voloshskaya (ru.),
Vagas, Valachian (eng.), Vala(k)hian,
Volosh, Walachian (ger.), Woloschian

Population data: 100 • 1989

Population trend: decreasing

Range of uses: meat, wool

GEORGIA

The Steppe Voloshian, found in northern Caucasus, is a typical variety of Voloshian and is descended from Zackel with some fat-tail blood. The animals are white and rarely black in colour. Rams may be either polled or horned and ewes are always polled. Adult males weigh on average 50 kg and females 44 kg. These sheep have coarse/carpet type wool with a long fat tail, occasionally touching the ground.

ANSBACH-TRIESDORFER*CRITICAL*

Local names or syn.: -

Population data: 35 ♀ • 2 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Ansbach-Triesdorfer is a composite of Friesian, Simmentaler, Allgäuer and Breitenburger. The cattle are yellow and red patterned like a tiger. Adult females weigh on average 550 kg. There are 35 females registered in the herd book.

BELTED GALLOWAY*CRITICAL*

Local names or syn.: -

Population data: 43 ♀ • 15 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Belted Galloway population is closely related to Belted Galloway populations in other countries. There are 43 females registered in the herd book.

BRAHMAN*CRITICAL*

Local names or syn.: -

Population data: 9 ♀ • 2 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Brahman population is closely related to Brahman populations in other countries. There are 9 females registered in the herd book.

BRANGUS*CRITICAL*

Local names or syn.: -

Population data: 22 ♀ • 3 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Brangus population is closely related to Brangus populations in other countries. There are 22 females registered in the herd book.

CHIANINA*CRITICAL*

Local names or syn.: -

Population data: 20 ♀ • 1997

Population trend: -

Range of uses: -

GERMANY

The Chianina population is closely related to Chianina populations in other countries. There are 20 females registered in the herd book.

DEXTER*CRITICAL*

Local names or syn.: -

Population data: 72 ♀ • 1997

Population trend: -

Range of uses: -

GERMANY

The Dexter population is closely related to Dexter populations in other countries. There are 72 females registered in the herd book.

FJAELL-RIND*CRITICAL*

Local names or syn.: -

Population data: 3 ♀ • 1997

Population trend: -

Range of uses: -

GERMANY

The Fjaell-Rind population is closely related to Fjaell-Rind populations in other countries. There are 3 females registered in the herd book.

LINCOLN RED*CRITICAL*

Local names or syn.: -

Population data: 8 ♀ • 1997

Population trend: -

Range of uses: -

GERMANY

The Lincoln Red population is closely related to Lincoln Red populations in other countries. There are 8 females registered in the herd book.

LONGHORN*CRITICAL*

Local names or syn.: -

Population data: 4 ♀ • 1997

Population trend: -

Range of uses: -

GERMANY

The Longhorn population is closely related to Longhorn populations in other countries. There are 4 females registered in the herd book.

PUSTERTALER SCHECKEN*CRITICAL*

Local names or syn.: -

Population data: 60 ♀ • 22 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

Pustertaler Schecken cattle are black, red, brown, white and pied brown or black in colour. They have white flanks and a broad white back stripe. Adult females weigh on average 550 kg and have an average wither height of 128 cm. There are 60 females registered in the herd book.

**ROTVIEH ALTER ANGLER
ZUCHTRICHTUNG***CRITICAL*

Local names or syn.: -

Population data: 85 ♀ • 8 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Rotvieh alter Angler Zuchtrichtung is a variety of old Red Angeln (see also various German Red varieties and Angeln). The animals are red and brown with black hooves and muzzle. Adult females weigh on average 600 kg and have an average wither height of 135 cm. There are 85 females registered in the herd book.

SOUTH DEVON*CRITICAL*

Local names or syn.: -

Population data: 5 ♀ • 1997

Population trend: -

Range of uses: -

GERMANY

The South Devon population is closely related to South Devon populations in other countries. There are 5 females registered in the herd book.

UNGARISCHES STEPPENRIND*CRITICAL*

Local names or syn.: -

Population data: 36 ♀ • 5 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Ungarisches Steppenrind population is closely related to Ungarisches Steppenrind populations in other countries. There are 36 females registered in the herd book.

WEIßBLAUE BELGIER*CRITICAL*

Local names or syn.: -

Population data: 7 ♀ • 7 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Weißblaue Belgier population is closely related to Weißblaue Belgier populations in other countries. There are 7 females registered in the herd book.

WHITE GALLOWAY*CRITICAL*

Local names or syn.: -

Population data: 74 ♀ • 11 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The White Galloway population is closely related to White Galloway populations in other countries. There are 74 females registered in the herd book.

WHITE PARK*CRITICAL*

Local names or syn.: -

Population data: 5 ♀ • 1 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The White Park population is closely related to White Park populations in other countries. There are 5 females registered in the herd book.

ABERDEEN ANGUS*ENDANGERED*

Local names or syn.: -

Population data: 698 ♀ • 1997

Population trend: -

Range of uses: -

GERMANY

The Aberdeen Angus population is closely related to Aberdeen Angus populations in other countries. There are 698 females registered in the herd book.

AUBRAC*ENDANGERED*

Local names or syn.: -

Population data: 309 ♀ • 29 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Aubrac population is closely related to Aubrac populations in other countries. There are 309 females registered in the herd book.

BLONDE D'AQUITAINE*ENDANGERED*

Local names or syn.: -

Population data: 498 ♀ • 1997

Population trend: -

Range of uses: -

GERMANY

The Blonde d'Aquitaine population is closely related to Blonde d'Aquitaine populations in other countries. There are 498 females registered in the herd book.

**BRAUNVIEH ALTER
ZUCHTRICHTUNG***ENDANGERED*

Local names or syn.: -

Population data: 157 ♀ • 10 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Braunvieh alter Zuchtrichtung is an indigenous breed, descended from Allgäuer and Schweizer Torfrind. The animals are white with white surrounded dark muzzles, hooves and horn tips. Adult females weigh on average 550 kg and have an average wither height of 129 cm respectively. There are 157 females registered in the herd book.

DEUTSCHES SHORTHORN*ENDANGERED*

Local names or syn.: -

Population data: 282 ♀ • 1997

Population trend: -

Range of uses: -

GERMANY

The Deutsches Shorthorn was imported from the United Kingdom. The animals are red, white or red-white-red mottled with patches on the abdomen region and a pink and dark muzzle. Adult females weigh on average 600 kg and have an average wither height of 131 cm. There are 282 females registered in the herd book.

GELBVIEH FLEISCHNUTZUNG*ENDANGERED*

Local names or syn.: -

Population data: 435 ♀ • 1997

Population trend: -

Range of uses: -

GERMANY

The Gelbvieh Fleischnutzung population is closely related to Gelbvieh Fleischnutzung populations in other countries. There are 435 females registered in the herd book.

GLANRIND*ENDANGERED*

Local names or syn.: -

Population data: 422 ♀ • 17 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Glanrind is a composite of local red cattle, Berner Vieh and Limpurger. These cattle are yellow with a light mouth and nose. Adult females weigh on average 650 kg and have an average wither height of 140 cm. There are 422 females registered in the herd book.

HINTERWÄLDER*ENDANGERED*

Local names or syn.: -

Population data: 663 ♀ • 61 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Hinterwälder is an indigenous breed, originating from Keltensind. The animals are red or yellow with a dominant white head (similar to Simmental). Adult females weigh on average 400 kg and have an average wither height of 118 cm. There are 663 females registered in the herd book.

LIMPURGER*ENDANGERED*

Local names or syn.: -

Population data: 243 ♀ • 9 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

There are 243 females registered in the Limpurger herd book.

LUING*ENDANGERED*

Local names or syn.: -

Population data: 214 ♀ • 34 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Luing population is closely related to Luing populations in other countries. There are 214 females registered in the herd book.

MURNAU-WERDENFELSER*ENDANGERED*

Local names or syn.: -

Population data: 152 ♀ • 6 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Murnau-Werdenfelser is a composite of Oberinntal Grey, Brown Swiss and Murboden. The animals are yellow with a white rim around a dark muzzle and black pigmented mucosa. Adult females weigh on average 525 kg and have an average wither height of 128 cm. There are 152 females registered in the herd book.

PIEMONTESE



ENDANGERED

Local names or syn.: -

Population data: 155 ♀ • 1997

Population trend: -

Range of uses: -

GERMANY

The Piemonteser population is closely related to Piemonteser populations in other countries. There are 155 females registered in the herd book.

PINZGAUER



ENDANGERED

Local names or syn.: -

Population data: 286 ♀ • 6 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

Pinzgauer cattle are red or brown with a white back and belly. Adult females weigh on average 750 kg and have an average wither height of 140 cm. There are 286 females registered in the herd book.

PINZGAUER FLEISCHNUTZUNG



ENDANGERED

Local names or syn.: -

Population data: 906 ♀ • 42 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Pinzgauer Fleischnutzung population is closely related to Pinzgauer Fleischnutzung populations in other countries. There are 906 females registered in the herd book.

ROTVIEH ZUCHTRICHTUNG HÖHENVIEH



ENDANGERED

Local names or syn.: -

Population data: 377 ♀ • 10 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Rotvieh Zuchtichtung Höhenvieh is a variety of German Red that is descended from local Red Cattle with some Angeln influence. The animals are red with a light muzzle. Adult females weigh on average 500 kg and have an average wither height of 128 cm. There are 377 females registered in the herd book.

UCKERMÄRKER*ENDANGERED***GERMANY**

There are 930 females registered in the Uckermärker herd book.

Local names or syn.: -

Population data: 930 ♀ • 80 ♂ • 1997

Population trend: -

Range of uses: -

WELSH BLACK*ENDANGERED***GERMANY**

The Welsh Black population is closely related to Welsh Black populations in other countries. There are 853 females registered in the herd book.

Local names or syn.: -

Population data: 853 ♀ • 85 ♂ • 1997

Population trend: -

Range of uses: -

ZWERG-ZEBUS*ENDANGERED***GERMANY**

The Zwerg-Zebus population is closely related to Zwerg-Zebus populations in other countries. There are 271 females registered in the herd book.

Local names or syn.: -

Population data: 271 ♀ • 38 ♂ • 1997

Population trend: -

Range of uses: -

BRAUNE HARZER ZIEGE*CRITICAL***GERMANY**

There are 45 females registered in the Braune Harzer Ziege herd book.

Local names or syn.: -

Population data: 45 ♀ • 6 ♂ • 1997

Population trend: -

Range of uses: -

BÜNDNER STRAHLENZIEGE*CRITICAL*

Local names or syn.: -

Population data: 3 ♀ • 2 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

There are 3 females registered in the Bündner Strahlenziege herd book.

ERZGEBIRGSZIEGE*CRITICAL*

Local names or syn.: -

Population data: 5 ♀ • 1 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Erzgebirgsziege is an indigenous breed. The goats are red and brown with a black face, back stripe and legs and all animals are polled. Adult females weigh on average 53 kg. There are 5 females registered in the herd book.

HOLLÄNDER SCHECKE*CRITICAL*

Local names or syn.: -

Population data: 26 ♀ • 6 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Holländer Schecke population is closely related to Holländer Schecke populations in other countries. There are 26 females registered in the herd book.

KASCHMIRZIEGE*CRITICAL*

Local names or syn.: -

Population data: 9 ♀ • 1 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Kaschmirziege population is closely related to Kaschmirziege populations in other countries. There are 9 females registered in the herd book.

OWAMBOZIEGE*CRITICAL*

Local names or syn.: -

Population data: 19 ♀ • 9 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Owamboziege population is closely related to Owamboziege populations in other countries. There are 19 females registered in the herd book.

POITEVINE*CRITICAL*

Local names or syn.: -

Population data: 3 ♀ • 1 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Poitevine population is closely related to Poitevine populations in other countries. There are 3 females registered in the herd book.

ZWERGZIEGE*CRITICAL*

Local names or syn.: -

Population data: 24 ♀ • 7 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Zwergziege population is closely related to Zwergziege populations in other countries. There are 24 females registered in the herd book.

ANGLO NUBIER ZIEGE*ENDANGERED*

Local names or syn.: -

Population data: 106 ♀ • 17 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Anglo Nubier Ziege population is closely related to Anglo Nubier Ziege populations in other countries. There are 106 females registered in the herd book.

ANGORAZIEGE*ENDANGERED*

Local names or syn.: -

Population data: 108 ♀ • 23 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Angoraziege population is closely related to Angoraziege populations in other countries. There are 108 females registered in the herd book.

THÜRINGER WALD ZIEGE*ENDANGERED*

Local names or syn.: -

Population data: 202 ♀ • 50 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Thüringer Wald Ziege is a composite of Toggenburger-, Harzer-, Rhönziege and Thüringer Landziege. The animals are brown with white flecks on the head and legs with a light face and they may be either polled or horned. Adult females weigh on average 48 kg and have an average wither height of 74 cm. There are 202 females registered in the herd book.

TOGGENBURGER*ENDANGERED*

Local names or syn.: -

Population data: 419 ♀ • 34 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Toggenburger population is closely related to Toggenburger populations in other countries. There are 419 females registered in the herd book.

WALLISER SCHWARZHALS-ZIEGE*ENDANGERED*

Local names or syn.: -

Population data: 143 ♀ • 38 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Walliser Schwarzhals-Ziege population is closely related to Walliser Schwarzhals-Ziege populations in other countries. There are 143 females registered in the herd book.

ACHAL-TEKKINER*CRITICAL*

Local names or syn.: -

Population data: 41 ♀ • 20 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Achal-Tekkiner population is closely related to Achal-Tekkiner populations in other countries. There are 41 females registered in the herd book.

AEGIDIENBERGER*CRITICAL*

Local names or syn.: -

Population data: 43 ♀ • 15 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

There are 43 females registered in the Aegdienberger herd book.

ALT-WÜRTTEMBERGER*CRITICAL*

Local names or syn.: -

Population data: 30 ♀ • 0 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

There are 30 females registered in the Alt-Württemberger herd book.

ANDALUSIER*CRITICAL*

Local names or syn.: -

Population data: 56 ♀ • 36 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Andalusier population is closely related to Andalusier populations in other countries. There are 56 females registered in the herd book.

ARDENNER*CRITICAL*

Local names or syn.: -

Population data: 5 ♀ • 0 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Ardenner population is closely related to Ardenner populations in other countries. There are 5 females registered in the herd book.

ARENBERG-NORDKIRCHNER*CRITICAL*

Local names or syn.: -

Population data: 20 ♀ • 5 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

There are 20 females registered in the Arenberg-Nordkirchner herd book.

BERBER*CRITICAL*

Local names or syn.: -

Population data: 35 ♀ • 11 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Berber population is closely related to Berber populations in other countries. There are 35 females registered in the herd book.

BOSNIAKEN*CRITICAL*

Local names or syn.: -

Population data: 17 ♀ • 5 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Bosniaken population is closely related to Bosniaken populations in other countries. There are 17 females registered in the herd book.

CAMARGUE*CRITICAL*

Local names or syn.: -

Population data: 50 ♀ • 19 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Camargue population is closely related to Camargue populations in other countries. There are 50 females registered in the herd book.

COB NORMAND*CRITICAL*

Local names or syn.: -

Population data: 0 ♀ • 1 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Cob Normand population is closely related to Cob Normand populations in other countries. No female is registered in the herd book.

COMTOIS*CRITICAL*

Local names or syn.: -

Population data: 3 ♀ • 2 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Comtois population is closely related to Comtois populations in other countries. There are 3 females registered in the herd book.

DALES*CRITICAL*

Local names or syn.: -

Population data: 3 ♀ • 1 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Dales population is closely related to Dales populations in other countries. There are 3 females registered in the herd book.

DÜLMENER*CRITICAL*

Local names or syn.: -

Population data: 46 ♀ • 16 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Dülmener is a composite of feral and wild horses, with input from several primitive European horse breeds. The animals are dun in all variations, with wild type markings. Adult females have an average wither height of 132 cm. There are 46 females registered in the herd book.

EXMOOR-PONY*CRITICAL*

Local names or syn.: -

Population data: 40 ♀ • 20 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Exmoor-Pony population is closely related to Exmoor-Pony populations in other countries. There are 40 females registered in the herd book.

FALABELLA*CRITICAL*

Local names or syn.: -

Population data: 5 ♀ • 2 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Falabella population is closely related to Falabella populations in other countries. There are 5 females registered in the herd book.

FELLPONY*CRITICAL*

Local names or syn.: -

Population data: 21 ♀ • 8 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Fellpony population is closely related to Fellpony populations in other countries. There are 21 females registered in the herd book.

FINNPFERD*CRITICAL*

Local names or syn.: -

Population data: 3 ♀ • 1 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Finnperd population is closely related to Finnperd populations in other countries. There are 3 females registered in the herd book.

FOX-TROTTER*CRITICAL*

Local names or syn.: -

Population data: 14 ♀ • 0 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Fox-Trotter (Missouri-Fox-Trott-Hunter) population is closely related to Fox-Trotter populations in other countries. There are 14 females registered in the herd book.

FREIBERGER*CRITICAL*

Local names or syn.: -

Population data: 45 ♀ • 2 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

There are 45 females registered in the Freiburger herd book.

HACKNEY*CRITICAL*

Local names or syn.: -

Population data: 12 ♀ • 6 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Hackney population is closely related to Hackney populations in other countries. There are 12 females registered in the herd book. Population figures do not include Zwerghackney.

HIGHLAND PONY*CRITICAL*

Local names or syn.: -

Population data: 30 ♀ • 8 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Highland Pony population is closely related to Highland Pony populations in other countries. There are 30 females registered in the herd book.

HUZULE*CRITICAL*

Local names or syn.: -

Population data: 24 ♀ • 3 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Huzule population is closely related to Huzule populations in other countries. There are 24 females registered in the herd book.

KABARDINER*CRITICAL*

Local names or syn.: -

Population data: 4 ♀ • 4 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Kabardiner population is closely related to Kabardiner populations in other countries. There are 4 females registered in the herd book.

KARABACH*CRITICAL*

Local names or syn.: -

Population data: 2 ♀ • 2 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Karabach population is closely related to Karabach populations in other countries. There are 2 females registered in the herd book.

KLADRUBER*CRITICAL*

Local names or syn.: -

Population data: 2 ♀ • 0 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Kladruber population is closely related to Kladruber populations in other countries. There are 2 females registered in the herd book.

KONIK*CRITICAL*

Local names or syn.: -

Population data: 19 ♀ • 8 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Konik population is closely related to Konik horse populations in other countries. There are 19 females registered in the herd book.

LEHMKUHLNER PONY*CRITICAL*

Local names or syn.: -

Population data: 3 ♀ • 4 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

There are 3 females registered in the Lehmkuhlener Pony herd book.

LUSITANO*CRITICAL*

Local names or syn.: -

Population data: 5 ♀ • 11 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Lusitano population is closely related to Lusitano populations in other countries. There are 5 females registered in the herd book.

MANGALARGA MARCHADOR*CRITICAL*

Local names or syn.: -

Population data: 44 ♀ • 10 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Mangalarga Marchador population is closely related to Mangalarga Marchador populations in other countries. There are 44 females registered in the herd book.

MECKLENBURGER KALTBLUT*CRITICAL*

Local names or syn.: -

Population data: 47 ♀ • 7 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Mecklenburger Kaltblut is a composite of Rhenish Westphalian Draught Horse. The animals are bay, chestnut, black and grey in colour. Adult females have an average wither height of 160 cm. There are 47 females registered in the herd book.

MERENS*CRITICAL*

Local names or syn.: -

Population data: 9 ♀ • 5 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Merens population is closely related to Merens populations in other countries. There are 9 females registered in the herd book.

MORGAN*CRITICAL*

Local names or syn.: -

Population data: 1 ♀ • 2 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Morgan population is closely related to Morgan populations in other countries. Only one female is registered in the herd book.

NONIUS*CRITICAL*

Local names or syn.: -

Population data: 1 ♀ • 5 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Nonius population is closely related to Nonius populations in other countries. Only one female is registered in the herd book.

NORIKER*CRITICAL*

Local names or syn.: -

Population data: 3 ♀ • 4 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

There are 3 females registered in the Noriker herd book.

ORLOW*CRITICAL*

Local names or syn.: -

Population data: 30 ♀ • 0 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Orlow population is closely related to Orlow populations in other countries. There are 30 females registered in the herd book.

PAINT*CRITICAL*

Local names or syn.: -

Population data: 47 ♀ • 38 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Paint population is closely related to Paint populations in other countries. There are 47 females registered in the herd book.

PALOMINO



CRITICAL

Local names or syn.: -

Population data: 14 ♀ • 6 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Palomino population is closely related to Palomino populations in other countries. There are 14 females registered in the herd book.

PERCHERON



CRITICAL

Local names or syn.: -

Population data: 11 ♀ • 2 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Percheron population is closely related to Percheron populations in other countries. There are 11 females registered in the herd book.

PFALZ-ARDENNER KALTBLUT



CRITICAL

Local names or syn.: -

Population data: 14 ♀ • 3 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

There are 14 females registered in the Pfalz-Ardenner Kaltblut herd book.

POLO PONY



CRITICAL

Local names or syn.: -

Population data: 32 ♀ • 0 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Polo Pony population is closely related to Polo Pony populations in other countries. There are 32 females registered in the herd book.

ROTTALER*CRITICAL*

Local names or syn.: -

Population data: 21 ♀ • 0 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Rottaler is a native breed, with input from Oldenburg horses since 1866. The animals are mainly bay with few markings and are sometimes black or chestnut in colour. Adult females weigh on average 650 kg with an average wither height of 160 cm respectively. There are 21 females registered in the herd book.

SADDLEBRED*CRITICAL*

Local names or syn.: -

Population data: 13 ♀ • 11 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

There are 13 females registered in the Saddlebred herd book.

SARVAR*CRITICAL*

Local names or syn.: -

Population data: 13 ♀ • 1 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Sarvar population is closely related to Sarvar populations in other countries. There are 13 females registered in the herd book.

SENNER*CRITICAL*

Local names or syn.: -

Population data: 5 ♀ • 0 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Senner horse is a composite of Thoroughbred (United Kingdom), Arab and Anglo-Arab. The animals are predominantly bay or grey in colour. Adult females weigh on average 510 kg and have a mean wither height of 162 cm. There are 5 females registered in the herd book.

SHIRE



CRITICAL

Local names or syn.: -

Population data: 1 ♀ • 0 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Shire population is closely related to Shire populations in other countries. There is one female registered in the herd book.

TARPAN



CRITICAL

Local names or syn.: -

Population data: 12 ♀ • 4 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Tarpan population is closely related to Tarpan populations in other countries. There are 12 females registered in the herd book.

TENNESSEE WALKING HORSE



CRITICAL

Local names or syn.: -

Population data: 8 ♀ • 2 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Tennessee Walking Horse population is closely related to population Tennessee Walking Horses in other countries. There are 8 females registered in the herd book.

TERSKER



CRITICAL

Local names or syn.: -

Population data: 11 ♀ • 4 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Tersker population is closely related to Tersker populations in other countries. There are 11 females registered in the herd book.

TINKER*CRITICAL*

Local names or syn.: -

Population data: 33 ♀ • 5 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Tinker population is closely related to Tinker populations in other countries. There are 33 females registered in the herd book.

TÖLTER*CRITICAL*

Local names or syn.: -

Population data: 23 ♀ • 1 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Tölter population is closely related to Tölter populations in other countries. There are 23 females registered in the herd book.

TUIGPARDEN*CRITICAL*

Local names or syn.: -

Population data: 19 ♀ • 3 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Tuigparden population is closely related to Tuigparden populations in other countries. There are 19 females registered in the herd book.

VOLLBLUTARABER*CRITICAL*

Local names or syn.: -

Population data: 26 ♀ • 10 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Vollblutaraber population is closely related to Vollblutaraber populations in other countries. There are 26 females registered in the herd book.

WARMBLUTSCHECKEN*CRITICAL*

Local names or syn.: -

Population data: 86 ♀ • 15 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

There are 86 females registered in the Warmblutschecken herd book.

**WARMBLUTSCHECKEN AUS DEN
EHM. PREUß. OSTPROVINZEN***CRITICAL*

Local names or syn.: -

Population data: 13 ♀ • 3 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

There are 13 females registered in the Warmblutschecken aus den ehem. preuß. Ostprovinzen herd book.

ALTMÄRKISCHES KALTBLUT*ENDANGERED*

Local names or syn.: -

Population data: 272 ♀ • 20 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Altmärkisches Kaltblut is a composite of Rhenish Westphalian Draught horse. The horses are bay, chestnut, black or grey in colour. Adult females have an average wither height of 161 cm. There are 272 females registered in the herd book.

APPALOOSA*ENDANGERED*

Local names or syn.: -

Population data: 251 ♀ • 105 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Appaloosa population is closely related to Appaloosa populations in other countries. There are 251 females registered in the herd book.

ARABER



ENDANGERED

Local names or syn.: -

Population data: 502 ♀ • 77 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

There are 502 females registered in the Araber (Shagya-/Anglo-/Arabisches Halbblut) herd book.

CONNEMARA



ENDANGERED

Local names or syn.: -

Population data: 511 ♀ • 56 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Connemara population is closely related to Connemara populations in other countries. There are 511 females registered in the herd book.

DARTMOOR



ENDANGERED

Local names or syn.: -

Population data: 119 ♀ • 25 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Dartmoor population is closely related to Dartmoor populations in other countries. There are 119 females registered in the herd book.

FRIESEN



ENDANGERED

Local names or syn.: -

Population data: 411 ♀ • 95 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Friesen population is closely related to Friesen populations in other countries. There are 411 females registered in the herd book.

KNABSTRUPPER



ENDANGERED

Local names or syn.: -

Population data: 193 ♀ • 41 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Knabstrupper population is closely related to Knabstrupper populations in other countries. There are 193 females registered in the herd book.

LIPIZZANER



ENDANGERED

Local names or syn.: -

Population data: 104 ♀ • 59 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Lipizzaner population is closely related to Lipizzaner populations in other countries. There are 104 females registered in the herd book.

NEW FOREST



ENDANGERED

Local names or syn.: -

Population data: 641 ♀ • 82 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The New Forest population is closely related to New Forest populations in other countries. There are 641 females registered in the herd book.

PASO PERUANO



ENDANGERED

Local names or syn.: -

Population data: 157 ♀ • 46 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Paso Peruano population is closely related to Paso Peruano populations in other countries. There are 157 females registered in the herd book.

PINTO*ENDANGERED*

Local names or syn.: -

Population data: 790 ♀ • 113 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Pinto population is closely related to Pinto populations in other countries. There are 790 females registered in the herd book.

PINTO TYP LEWITZER*ENDANGERED*

Local names or syn.: -

Population data: 242 ♀ • 28 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

There are 242 females registered in the Pinto Typ Lewitzer herd book.

**RHEINISCH DEUTSCHES
KALTBLUT***ENDANGERED*

Local names or syn.: -

Population data: 695 ♀ • 48 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Rheinisch Deutsches Kaltblut is a composite of Belgian Draught Horses. The animals are bay, chestnut, black and grey in colour. Adult females have an average wither height of 165 cm. There are 695 females registered in the herd book.

**SÄCHSISCH-THÜRINGISCHES
KALTBLUT***ENDANGERED*

Local names or syn.: -

Population data: 286 ♀ • 19 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Sächsisch-Thüringisches Kaltblut is a composite of Rhenish Westphalian Draught Horse. The animals are bay, chestnut, black and grey in colour and adult females have an average wither height of 161 cm. There are 286 females registered in the herd book.

SCHLESWIGER KALTBLUT*ENDANGERED*

Local names or syn.: -

Population data: 213 ♀ • 31 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Schleswiger Kaltblut is a composite of Bauernlandpferd and Jütisches Kaltblut. The animals are chestnut, black and grey in colour. Adult females weigh on average 700 kg and have an average wither height of 158 cm. There are 213 females registered in the herd book.

SCHWARZWÄLDER KALTBLUT*ENDANGERED*

Local names or syn.: -

Population data: 616 ♀ • 37 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Schwarzwälder Kaltblut is a local breed with some imports. The animals are usually (dark) chestnut. However there are also a few bay horses and there is one known grey family. They often have blazes and sometimes have stitched white hairs on the body. Adult females have an average weight of 610 kg and an average wither height of 152 cm. There are 616 females registered in the herd book.

SCHWERES WARMBLUT*ENDANGERED*

Local names or syn.: -

Population data: 804 ♀ • 29 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

There are 804 females registered in the schweres Warmblut herd book.

SCHWERES WARMBLUT / OST-FRIESISCH-ALTOLDENBURGISCH*ENDANGERED*

Local names or syn.: -

Population data: 113 ♀ • 11 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

There are 113 females registered in the schweres Warmblut / ostfriesisch-altoldenburgisch herd book.

THÜRINGER WARMBLUT*ENDANGERED*

Local names or syn.: -

Population data: 973 ♀ • 33 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

There are 973 females registered in the Thüringer Warmblut herd book.

ANGLER SATTELSCHWEIN*CRITICAL*

Local names or syn.: -

Population data: 35 ♀ • 5 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Angler Sattelschwein is a composite of Landrace and Wessex Saddleback. The animals are black with a white saddle. Adult females weigh on average 300 kg and have an average wither height of 85 cm respectively. There are 35 females registered in the herd book.

BUNTE BENTHEIMER*CRITICAL*

Local names or syn.: -

Population data: 60 ♀ • 22 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Bunte Bentheimer is a native local landrace found in Emsland, northern Germany. The animals are black, white or black and white spotted in colour. Adult females weigh on average 180 kg and have an average wither height of 70 cm. There are 60 females registered in the herd book.

HAMPSHIRE*CRITICAL*

Local names or syn.: -

Population data: 83 ♀ • 58 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

Hampshire pigs are black with a white saddle and white forelegs. Adult females weigh on average 200 kg and have an average wither height of 85 cm. The Hampshire population is closely related to Hampshire populations in other countries. There are 83 females registered in the herd book.

WOLLSCHWEIN (BLOND)*CRITICAL*

Local names or syn.: -

Population data: 60 ♀ • 38 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Wollschwein (blond) population is closely related to Wollschwein (blond) populations in other countries. There are 60 females registered in the herd book.

WOLLSCHWEIN (ROT)*CRITICAL*

Local names or syn.: -

Population data: 50 ♀ • 17 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Wollschwein (rot) population is closely related to Wollschwein (rot) populations in other countries. There are 50 females registered in the herd book.

**WOLLSCHWEIN (SCHWALBEN-
BÄUCHIG)***CRITICAL*

Local names or syn.: -

Population data: 45 ♀ • 16 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Wollschwein (schwalbenbäuchig) population is closely related to Wollschwein (schwalbenbäuchig) populations in other countries. There are 45 females registered in the herd book.

DEUTSCHE LANDRASSE B*ENDANGERED*

Local names or syn.: -

Population data: 352 ♀ • 104 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Deutsche Landrasse B was imported from Belgium. The animals are white in colour. Adult females weigh on average 270 kg and have an average wither height of 79 cm. There are 352 females registered in the herd book.

DEUTSCHES SATTELSCHWEIN*ENDANGERED*

Local names or syn.: -

Population data: 114 ♀ • 22 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Deutsches Sattelschwein is a composite of Angler Sattelschwein and Schwäbisch-Hällisches Schwein (Germany). The animals are black with a white saddle. Adult females weigh on average 300 kg and have an average wither height of 86 cm respectively. There are 114 females registered in the herd book.

DUROC*ENDANGERED*

Local names or syn.: -

Population data: 253 ♀ • 90 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

Duroc pigs are red or brown in colour. Adult females weigh on average 220 kg and have an average wither height of 90 cm. The Duroc population is closely related to Duroc populations in other countries. There are 253 females registered in the herd book.

SCHWÄBISCH HÄLLISCHES SCHWEIN*ENDANGERED*

Local names or syn.: -

Population data: 177 ♀ • 30 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Schwäbisch Hällisches Schwein is a composite of Landraces and Old Saddlebacks (Asian origin). The animals are black with a white saddle. Adult females weigh on average 280 kg and have an average wither height of 80 cm. There are 177 females registered in the herd book.

GOTLAND-SCHAF*CRITICAL*

Local names or syn.: -

Population data: 45 ♀ • 6 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

There are 45 females registered in the Gotland-Schaf herd book.

GOTLÄNDISCHES WILDSCHAF



CRITICAL

Local names or syn.: -

Population data: 18 ♀ • 5 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Gotländisches Wildschaf population is closely related to Gotländisches Wildschaf populations in other countries. There are 18 females registered in the herd book.

HAMPSHIRE



CRITICAL

Local names or syn.: -

Population data: 16 ♀ • 1 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Hampshire population is closely related to Hampshire populations in other countries. There are 16 females registered in the herd book.

JAKOBSCHAF



CRITICAL

Local names or syn.: -

Population data: 67 ♀ • 8 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

Jakobschaf sheep are black, grey, brown and white in colour. Adult females weigh on average 50 kg and have an average wither height of 70 cm. They have medium fibred wool. This population is closely related to Jakobschaf populations in other countries. There are 67 females registered in the herd book.

QUESSANT-SCHAF



CRITICAL

Local names or syn.: -

Population data: 24 ♀ • 4 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Quessant-Schaf population is closely related to Quessant-Schaf populations in other countries. There are 24 females registered in the herd book.

ROMNEY MARSH*CRITICAL*

Local names or syn.: -

Population data: 100 ♀ • 2 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Romney Marsh population is closely related to Romney Marsh populations in other countries. There are 100 females registered in the herd book.

ROUGE DE ROUSSILLON*CRITICAL*

Local names or syn.: -

Population data: 93 ♀ • 20 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

Rouge de Roussillon sheep are yellowish with red or pied heads and legs. They have medium fibred wool and are polled. There are 93 females registered in the herd book.

SOAY SCHAF*CRITICAL*

Local names or syn.: -

Population data: 9 ♀ • 1 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Soay Schaf population is closely related to Soay Schaf populations in other countries. There are 9 females registered in the herd book.

UNGARISCHES ZACKELSCHAF*CRITICAL*

Local names or syn.: -

Population data: 61 ♀ • 4 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Ungarisches Zackelschaf population is closely related to Ungarisches Zackelschaf populations in other countries. There are 61 females registered in the herd book.

WALACHENSCHAF*CRITICAL*

Local names or syn.: -

Population data: 88 ♀ • 58 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Walachenschaf are white with spotted legs and face and have medium fibred wool. Adult females weigh on average 45 kg. There are 88 females registered in the herd book.

ZWARTBLES-SCHAF*CRITICAL*

Local names or syn.: -

Population data: 4 ♀ • 1 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Zwartbles-Schaf population is closely related to Zwartbles-Schaf populations in other countries. There are 4 females registered in the herd book.

BLAUKÖPFIGES FLEISCHSCHAF*ENDANGERED*

Local names or syn.: -

Population data: 822 ♀ • 59 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Blauköpfiges Fleischschaf was imported from France and the United Kingdom. The animals are blue, brown or may be a combination of blue and white with a blue head and legs. Adult females weigh on average 80 kg and have an average wither height of 68 cm. These sheep have medium fibred wool and all animals are polled. There are 822 females registered in the herd book.

BRAUNES BERGSCHAF*ENDANGERED*

Local names or syn.: -

Population data: 535 ♀ • 39 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Braunes Bergschaf is a composite of Zaupelschaf, Steinschaf, and Bergamaskerschaf. The animals are brown in colour, have medium fibred wool and are polled. Adult females weigh on average 65 kg and have an average wither height of 65 cm. There are 535 females registered in the herd book.

BRILLENSCHAF*ENDANGERED*

Local names or syn.: -

Population data: 273 ♀ • 21 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Brillenschaf, imported from Austria and Italy, is a composite of Zaupelschaf, Steinschaf and Vilmöser Schaf. The animals are white with black ears and black rims around the eyes. Adult females weigh on average 65 kg and have an average wither height of 65 cm. These sheep have medium fibred wool and all animals are polled. There are 273 females registered in the herd book.

GOTLÄNDISCHES PELZSCHAF*ENDANGERED*

Local names or syn.: -

Population data: 158 ♀ • 27 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Gotländisches Pelzschaf population is closely related to Gotländisches Pelzschaf populations in other countries. There are 158 females registered in the herd book.

ILE DE FRANCE*ENDANGERED*

Local names or syn.: -

Population data: 223 ♀ • 6 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Ile de France population is closely related to Ile de France populations in other countries. There are 223 females registered in the herd book.

KAMERUN SCHAF*ENDANGERED*

Local names or syn.: -

Population data: 663 ♀ • 52 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Kamerun Schaf population is closely related to Kamerun Schaf populations in other countries. There are 663 females registered in the herd book.

KARAKULSCHAF



ENDANGERED

Local names or syn.: -

Population data: 200 ♀ • 15 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Karakulschaf population is closely related to Karakulschaf populations in other countries. There are 200 females registered in the herd book.

ROMANOV-SCHAF



ENDANGERED

Local names or syn.: -

Population data: 155 ♀ • 14 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Romanov-Schaf population is closely related to Romanov-Schaf populations in other countries. There are 155 females registered in the herd book.

SKUDDE



ENDANGERED

Local names or syn.: -

Population data: 658 ♀ • 33 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Skudde is an indigenous Northern Heather Sheep from East Prussia and the Baltics. The animals are white or black, are seldom brownish, and have medium fibred wool. Females may be either polled or horned and males are always horned. Adult females have an average weight of 32 kg and an average wither height of 48 cm. There are 658 females registered in the herd book.

STEINSCHAF



ENDANGERED

Local names or syn.: -

Population data: 124 ♀ • 6 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Steinschaf is descended from the Zaupelschaf breed. They are colourful animals and may be white, brown-black or spotted in colour. Adult females weigh on average 47 kg. These sheep have medium fibred wool. There are 124 females registered in the herd book.

WALDSCHAF



ENDANGERED

Local names or syn.: -

Population data: 531 ♀ • 31 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Waldschaf is a composite of Zaupelschaf, Bergschaf, and Merinolandschaf. The animals are polled, white in colour and have medium fibred wool. Adult females weigh on average 47 kg and have an average wither height of 62 cm. There are 531 females registered in the herd book.

WEIßE GEHÖRNTHE HEIDSCHNUCKE



ENDANGERED

Local names or syn.: -

Population data: 511 ♀ • 32 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Weiße gehörnte Heidschnucke is an indigenous breed. The animals are white in colour and have medium fibred wool. Adult females weigh on average 45 kg and have an average wither height of 55 cm. There are 511 females registered in the herd book.

WEIßES BERGSCHAF



ENDANGERED

Local names or syn.: -

Population data: 956 ♀ • 68 ♂ • 1997

Population trend: -

Range of uses: -

GERMANY

The Weißes Bergschaf is a composite of Zaupelschaf and Steinschaf. The animals are polled, white in colour and have medium fibred wool. Adult females weigh on average 75 kg and have a mean wither height of 72 cm. There are 956 females registered in the herd book.

ALTSTEIRER WHITE



CRITICAL

Local names or syn.: -

Population data: 60 • 1994

Population trend: -

Range of uses: -

GERMANY

The Altsteirer White have self-white coloured plumage.

BARTHÜHNER BARRED



CRITICAL

Local names or syn.: -

Population data: 50 • 1994

Population trend: -

Range of uses: -

GERMANY

Barthühner Barred chickens have barred, autosomal patterns within the feathers.

BARTHÜHNER BLUE



CRITICAL

Local names or syn.: -

Population data: 30 • 1994

Population trend: -

Range of uses: -

GERMANY

The Barthühner Blue have self-blue coloured plumage.

**BARTHÜHNER PARTRIDGE
COLOUR**



CRITICAL

Local names or syn.: -

Population data: 50 • 1994

Population trend: -

Range of uses: -

GERMANY

Barthühner Partridge Colour chickens have wild-type and variants coloured plumage.

**BARTHÜHNER SILVER-BLACK
MOTTLED**



CRITICAL

Local names or syn.: -

Population data: 50 • 1994

Population trend: -

Range of uses: -

GERMANY

Barthühner Silver-Black Mottled chickens have silver-columbian coloured plumage with mottled patterns within the feathers.

BARTHÜHNER WHITE*CRITICAL*

Local names or syn.: -

Population data: 50 • 1994

Population trend: -

Range of uses: -

GERMANY

The Barthühner White have self-white coloured plumage.

**BERGISCHE SCHLOTTERKÄMME
BLACK***CRITICAL*

Local names or syn.: -

Population data: 75 • 1994

Population trend: -

Range of uses: -

GERMANY

The Bergische Schlotterkämme Black have self-black coloured plumage.

**BERGISCHE SCHLOTTERKÄMME
BLACK/WHITE***CRITICAL*

Local names or syn.: -

Population data: 60 • 1994

Population trend: -

Range of uses: -

GERMANY

The Bergische Schlotterkämme black/white have black and white coloured plumage.

KRÜPER BLACK*CRITICAL*

Local names or syn.: -

Population data: 102 • 85 ♀ • 17 ♂ • 1994

Population trend: -

Range of uses: -

GERMANY

Krüper Black chickens have self-black coloured plumage.

KRÜPER BLACK AND WHITE



CRITICAL

GERMANY

The Krüper Black and White have black and white coloured plumage.

Local names or syn.: -

Population data: 18 • 15 ♀ • 3 ♂ • 1994

Population trend: -

Range of uses: -

KRÜPER BLACK AND YELLOW



CRITICAL

GERMANY

The Krüper Black and Yellow have black and yellow coloured plumage.

Local names or syn.: -

Population data: 18 • 15 ♀ • 3 ♂ • 1994

Population trend: -

Range of uses: -

SULMTALER



CRITICAL

GERMANY

The Sulmtaler have yellow coloured plumage.

Local names or syn.: -

Population data: 120 • 1994

Population trend: -

Range of uses: -

ALTSTEIRER WILD-TYPE BROWN



ENDANGERED

GERMANY

The Altsteirer Wild-Type Brown have wild-type and variants coloured plumage.

Local names or syn.: -

Population data: 600 • 1994

Population trend: -

Range of uses: -

BARTHÜHNER GOLD-BLACK MOTTLED



ENDANGERED

Local names or syn.: -

Population data: 200 • 1994

Population trend: -

Range of uses: -

GERMANY

Barthühner Gold-Black Mottled chickens have gold-columbian coloured plumage with mottled patterns within the feathers.

BERGISCHE KRÄHER



ENDANGERED

Local names or syn.: -

Population data: 260 • 1994

Population trend: -

Range of uses: -

GERMANY

No further information available.

DEUTSCHE SPERBER



ENDANGERED

Local names or syn.: -

Population data: 315 • 1994

Population trend: -

Range of uses: -

GERMANY

Deutsche Sperber chickens have barred, autosomal patterns within the feathers.

LAKENFELDER



ENDANGERED

Local names or syn.: -

Population data: 350 • 280 ♀ • 70 ♂ • 1994

Population trend: -

Range of uses: -

GERMANY

The Lakenfelder have black and white coloured plumage.

MÖWEN*ENDANGERED***GERMANY**

The Möwen have gold-columbian coloured plumage.

Local names or syn.: -

Population data: 200 • 160 ♀ • 40 ♂ • 1994

Population trend: -

Range of uses: -

RAMELSLOHER*ENDANGERED***GERMANY**

The Ramelsloher have white and yellow coloured plumage.

Local names or syn.: -

Population data: 450 - 600 • 1994

Population trend: -

Range of uses: -

SUNDHEIMERHUHN*ENDANGERED***GERMANY**

No further information available.

Local names or syn.: -

Population data: 1 050 • 840 ♀ • 210 ♂ • 1994

Population trend: -

Range of uses: -

THÜRINGER*ENDANGERED***GERMANY**

The Thüringer have self-black coloured plumage.

Local names or syn.: -

Population data: 400 • 1994

Population trend: -

Range of uses: -

VORWERKHÜHNER*ENDANGERED***GERMANY**

The Vorwerkhühner have black and yellow coloured plumage.

Local names or syn.: -

Population data: 430 • 344 ♀ • 86 ♂ • 1994

Population trend: -

Range of uses: -

WESTFÄLISCHE TOTLEGER*ENDANGERED***GERMANY**

Westfälische Totleger chickens have silver-columbian or gold-columbian coloured plumage with mottled patterns within the feathers.

Local names or syn.: -

Population data: 720 • 600 ♀ • 120 ♂ • 1994

Population trend: -

Range of uses: -

ORPINGTON*CRITICAL***GERMANY**

Orpington ducks have yellow coloured plumage.

Local names or syn.: -

Population data: 60 • 45 ♀ • 15 ♂ • 1994

Population trend: -

Range of uses: -

POMMERN*ENDANGERED***GERMANY**

The Pommern have self-blue coloured plumage.

Local names or syn.: -

Population data: 200 • 150 ♀ • 50 ♂ • 1994

Population trend: -

Range of uses: -

DIEPHOLZER*CRITICAL*

Local names or syn.: -

Population data: 150 • 115 ♀ • 35 ♂ • 1994

Population trend: -

Range of uses: -

GERMANY

The Diepholzer have self-white coloured plumage.

LIPPEGANS*CRITICAL*

Local names or syn.: -

Population data: 50 • 1994

Population trend: -

Range of uses: -

GERMANY

Lippegans geese have self-white coloured plumage.

KATERINI*CRITICAL*

Local names or syn.: -

Population data: 80 ♀ • 5 ♂ • 1995

Population trend: decreasing

Range of uses: meat, draught power, milk

GREECE

The Katerini is found in Macedonia and Thessaly. It is an indigenous local breed with characteristics of *Bos taurus primigenius*. The animals may be grey or brown in colour and have lyre-shaped horns. Adult males weigh on average 400 kg and females 285 kg with an average wither height of 123 cm and 113 cm respectively. This breed is known for its low feeding requirements.

SYKIA*CRITICAL*

Local names or syn.: -

Population data: 90 ♀ • 5 ♂ • 1995

Population trend: -

Range of uses: meat, draught power, milk

GREECE

The Sykia is found in Sykia village in Halkidiki-Macedonia. It is an indigenous local breed, derived from *Bos taurus primigenius*. The animals are grey in colour and females stand 116 cm tall at the withers. The horns are lyre-shaped.

SKYROS PONY*CRITICAL-MAINTAINED***Local names or syn.:** -**Population data:** 53 ♀ • 26 ♂ • 1993**Population trend:** stable**Range of uses:** sport, draught power**GREECE**

The Skyros Pony is found on Skyros Island and is a native local breed. The animals are grey, dun, chestnut or bay in colour. Adult males weigh on average 130 kg and females 120 kg with an average wither height of 104 cm for both. There are 3 herds remaining.

AGLIKOS KATHAROHAEMOS*ENDANGERED***Local names or syn.:** Thoroughbred (eng.)**Population data:** 490 ♀ • 120 ♂ • 1986**Population trend:** increasing**Range of uses:** sport**GREECE**

The Aglikos Katharohaemos was imported from the United Kingdom and is found in Attica, Thessaly, Macedonia, Peloponnese and central Greece. These horses can be any solid colour and they have a fine coat. Adult males weigh on average 550 kg and females 520 kg with an average wither height of 170 cm for both. There are 490 females registered in the herd book, of which 100% are bred to males of the same breed.

PINEIA*ENDANGERED***Local names or syn.:** Geogalidiko (gr.), Geogaludiko (gr.)**Population data:** < 1 000 • 380 ♀ • 6 ♂ • 1994**Population trend:** decreasing**Range of uses:** draught power, riding (sports), socio-cultural**GREECE**

The Pineia is found in a small, hilly and mountainous area of Ilea Prefecture, in the western part of Peloponnesus. It is a composite of Arab stallions and local mares from the Greek Mountain Horse breed and was established in the early 20th century. The animals are predominantly grey, white, bay and brown in colour. Adult males and females have an average wither height of 140 cm and 138 cm respectively. The breed is adapted to the local environment (hills and mountains). Of females, 95% are bred to males of the same breed.

FLORINA*ENDANGERED***Local names or syn.:** Pellagonia**Population data:** 400 ♀ • 20 ♂ • 1993**Population trend:** decreasing**Range of uses:** milk, meat, wool**GREECE**

The Florina is found in north-western Macedonia. It is a composite of indigenous breeds, probably local mountain and lowland sheep. The animals are white with black spots around the eyes and the nose, have a thin tail and fine fibred wool. Adult females weigh on average 43 kg and have an average wither height of 67 cm. Females are polled but males have spiral shaped horns. The breed is adapted to the local environment (mountains). The milk is used for cheese production.

KYMI*ENDANGERED***Local names or syn.:** -**Population data:** 900 ♀ • 50 ♂ • 1993**Population trend:** decreasing**Range of uses:** milk, meat, wool**GREECE**

The Kymi is found around Kymi village on the Island of Euboea. It is a local breed that originated from Skopelos. The animals are white with brown and black spots on the face and feet and they have a thin tail and fine fibred wool. Adult females weigh on average 55 kg and have a mean wither height of 64 cm. Males and females may be either polled or have spiral shaped horns. Twin births and a long breeding season are reported for this breed. There are 10 herds remaining. There are 500 females registered in the herd book, of which 95% are bred to males of the same breed.

ZAKYNTHOS*ENDANGERED***Local names or syn.:** -**Population data:** 450 ♀ • 25 ♂ • 1993**Population trend:** decreasing**Range of uses:** milk, meat, wool**GREECE**

The Zakynthos, an indigenous local breed possibly related to Italian, is found on the Island of Zakynthos. The animals are white in colour with a thin long tail and a roman nose. Adult males weigh on average 63 kg and females 50 kg, and females have an average wither height of 70 cm. The Zakynthos have fine fibred wool and females are polled. In males the horns are spiral shaped. Twin births and a long breeding season are reported for this breed. Of females, 95% are bred to males of the same breed.

CHAROLAIS*ENDANGERED***Local names or syn.:** -**Population data:** 650 • 600 ♀ • 50 ♂ • 1998**Population trend:** increasing**Range of uses:** meat**HUNGARY**

Charolais cattle were imported from France. They are yellowish in colour and may be either polled (10%) or horned (90%). Adult males weigh on average 1 400 kg and females 700 kg with an average wither height of 148 cm and 135 cm respectively. Of females, 100% are bred to males of the same breed. The semen of 14 males is stored.

HEREFORD*ENDANGERED***Local names or syn.:** -**Population data:** 1 100 • 900 ♀ • 200 ♂ • 1998**Population trend:** decreasing**Range of uses:** meat**HUNGARY**

Hereford cattle were imported from the United Kingdom, the United States of America and Canada. The animals are dark red with a white stripe along the back. Adult males weigh on average 800 kg and females 500 kg with an average wither height of 136 cm and 127 cm respectively. Males and females may be either polled (20%) or horned (80%). Of females, 100% are bred to males of the same breed. The semen of 2 males is stored.

LIMOUSIN



ENDANGERED

Local names or syn.: -

Population data: 500 ♀ • 450 ♀ • 50 ♂ • 1998

Population trend: decreasing

Range of uses: meat

HUNGARY

Limousin cattle were imported from France. The animals are red in colour. Adult males weigh on average 1 300 kg and females 700 kg with an average wither height of 149 cm and 133 cm respectively. Of females, 100% are bred to males of the same breed. The semen of 5 males is stored.

FURISOSO-NORTH STAR



ENDANGERED-MAINTAINED

Local names or syn.: -

Population data: 541 ♀ • 60 ♂ • 1998

Population trend: stable

Range of uses: sport, draught power

HUNGARY

The Furisoso-North Star is found country-wide and is a composite of local breeds and Thoroughbred horses. The animals are dark bay in colour. Adult males weigh on average 520 kg and females 480 kg with an average wither height of 165 cm and 161 cm respectively. There are 541 females registered in the herd book, of which 80% are bred to males of the same breed. The semen of 2 males is stored.

GIDRÀN



ENDANGERED-MAINTAINED

Local names or syn.: Gidran (eng.)

Population data: 200 ♀ • 29 ♂ • 1998

Population trend: -

Range of uses: sport, draught power

HUNGARY

The Gidràn horse is found in Szántód and is a composite of local breeds and one Arab Halfbred stallion. The animals are sorrel and chestnut in colour. Adult males weigh on average 500 kg and females 400 kg with an average wither height of 170 cm and 160 cm respectively. The breed is known for its good adaptability to extreme factors. There are 8 herds remaining and 144 females are registered in the herd book.

LIPICAI



ENDANGERED-MAINTAINED

Local names or syn.: Lipitsa (eng.)

Population data: 322 ♀ • 24 ♂ • 1998

Population trend: stable

Range of uses: draught power, sport

HUNGARY

The Lipicai is found in northern Hungary and is a composite of Neapolitan and other Spanish lines. The animals are grey with a sleek coat and silky mane and tail. Foals are born black, brown or grey and become lighter in colour when 7 years old. Adult males weigh on average 500 kg and females 420 kg with an average wither height of 159 cm and 156 cm respectively. There are 10 herds remaining. There are 322 females registered in the herd book, of which 100% are bred to males of the same breed.

MAGYAR HIDEGVÉRU*ENDANGERED-MAINTAINED***Local names or syn.:** Hungarian Draft (eng.)**Population data:** 1 300 • 1 000 ♀ • 300 ♂ • 1998**Population trend:** stable**Range of uses:** draught power**HUNGARY**

The Magyar Hidegvéru is a composite of Noric, Percheron, Ardennes and Hungarian and was established in the late 19th century. The animals are bay, chestnut and grey in colour. Adult males weigh on average 650 kg and females 650 kg with an average wither height of 154 cm and 154 cm respectively. Of females, 30% are bred to males of the same breed.

NÓNIUSZ*ENDANGERED-MAINTAINED***Local names or syn.:** Nonius (eng.)**Population data:** 525 ♀ • 1998**Population trend:** -**Range of uses:** draught power**HUNGARY**

The Nóniusz is found in eastern Hungary and is a composite of local breeds, Anglo-Norman and Thoroughbred (United Kingdom). The animals are black or dark bay in colour and have a slightly convex nose. Adult males weigh on average 600 kg and females 550 kg with an average wither height of 165 cm and 162 cm respectively. The breed is well adapted to live under the locally prevailing marginal conditions. This carriage horse is frugal, surefooted and a good working horse especially for draught power. Furthermore, it is well known for its stamina and handling ease. The semen of 2 males is stored.

SHAGYA ARAB*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 365 ♀ • 10 ♂ • 1998**Population trend:** increasing**Range of uses:** sport**HUNGARY**

The Shagya Arab is found in western Hungary and is a composite of local breeds and Arab horses. The animals are grey, bay and chestnut in colour with a silky mane and tail, a fine coat, small head and long neck. Adult males weigh on average 450 kg and females 400 kg with an average wither height of 155 cm and 152 cm respectively. There are 4 herds remaining. Of females, 70% are bred to males of the same breed.

BELGA LAPÀLY SERTÉS*CRITICAL***Local names or syn.:** Belgian Landrace (eng.)**Population data:** 80 • 73 ♀ • 7 ♂ • 1998**Population trend:** decreasing**Range of uses:** meat**HUNGARY**

Belga Lapály Sertés pigs are white in colour with forward lop ears and yellow nails. Of females, 100% are bred to males of the same breed. The semen of 3 males is stored.

HAMPSHIRE SERTÉS*CRITICAL***Local names or syn.:** Hampshire (eng.)**Population data:** 17 • 12 ♀ • 5 ♂ • 1998**Population trend:** decreasing**Range of uses:** meat**HUNGARY**

Hampshire Sertés pigs are pied with a white shoulder stripe, black nails and small, erect ears. Of females, 100% are bred to males of the same breed. The semen of 3 males is stored.

DUROC SERTÉS*ENDANGERED***Local names or syn.:** Duroc (eng.)**Population data:** 433 • 410 ♀ • 21 ♂ • 1998**Population trend:** -**Range of uses:** meat**HUNGARY**

Duroc Sertés are dark, medium or light red in colour with slate-grey skin, nose and nails and forward lop ears. The semen of 3 males is stored.

PIETRAIN SERTÉS*ENDANGERED***Local names or syn.:** Pietrain (eng.)**Population data:** 260 • 218 ♀ • 29 ♂ • 1998**Population trend:** -**Range of uses:** meat**HUNGARY**

Pietrain Sertés are white or grey with spots and have erect or lop ears pointing forwards. Of females, 94% are bred to males of the same breed. The semen of 6 males is stored.

MANGALICA*ENDANGERED-MAINTAINED***Local names or syn.:** Hungarian Mangalitza (eng.)**Population data:** 700 ♀ • 70 ♂ • 1999**Population trend:** increasing**Range of uses:** lard, meat**HUNGARY**

Mangalica, a typical lard breed developed in the Carpathian basin (19th century), is found country-wide. Blond Mangalica, developed using curly haired Sumadia pigs, are grey to yellow or reddish-yellow in colour depending on husbandry and soil conditions. Swallow-bellied Mangalica, developed by crossing Mangalica and Szeremségi pigs, have a black back and sides and are white to silver-grey from belly to chops. Red Mangalica, developed by crossing Mangalica and Szalontai pigs are dark to light brownish-red with black nails, nose and teats. All Mangalica have curly thick hair, lop ears and some are swallow-bellied. On average, adult males and females weigh 125 kg and 100 kg and stand 75 cm and 73 cm tall respectively. They are generally resistant to harsh environmental conditions and are known for excellent lard production. Of females, 100% are bred to males of the same breed.

CIKTA*ENDANGERED***Local names or syn.:** -**Population data:** 199 ♀ • 30 ♂ • 1998**Population trend:** stable**Range of uses:** meat**HUNGARY**

The Cikta is found in Tardosbánya and was brought to Hungary in the 18th century by German settlers. The animals are white in colour and they have erect ears. Adult males weigh on average 37 kg and females 45 kg with an average wither height of 55 cm and 47 cm respectively. These sheep have fine fibred wool and females are polled. The breed is adapted to extreme climatic conditions. Only one herd remains. Of females, 100% are bred to males of the same breed.

SUFFOLK*ENDANGERED***Local names or syn.:** -**Population data:** 547 • 229 ♀ • 16 ♂ • 1998**Population trend:** stable**Range of uses:** meat**HUNGARY**

Suffolk sheep are white with a black head and legs. They are big, long animals with lop ears. Adult males weigh on average 90 kg and females 68 kg. These sheep have medium fibred wool and all animals are polled. Of females, 100% are bred to males of the same breed.

SZAPORA MERINO*ENDANGERED***Local names or syn.:** Prolific Merino (eng.)**Population data:** 1538 • 950 ♀ • 19 ♂ • 1998**Population trend:** -**Range of uses:** wool, meat**HUNGARY**

Szapora Merino sheep are white in colour and have medium fibred wool. Adult males weigh on average 65 kg and females 45 kg with an average wither height of 65 cm and 60 cm respectively. Females are polled and males have spiral shaped horns. The breed is known for its aseasonality. Of females, 96% are bred to males of the same breed. The semen of 10 males is stored.

CIGÀJA*ENDANGERED-MAINTAINED***Local names or syn.:** Tsigai (eng.)**Population data:** 886 ♀ • 593 ♂ • 1998**Population trend:** -**Range of uses:** milk, meat**HUNGARY**

The Cigàja, brought to the Carpathian region from the 13th century onwards, is found in Szalkszentmárton, Orosháza. Adult males weigh on average 60 kg and females 50 kg with an average wither height of 60 cm and 53 cm respectively. These sheep are white with a black face and feet, have fine fibred wool and all animals are polled. The breed is known for its adaptability towards extreme climatic conditions. Of females, 100% are bred to males of the same breed.

GÖDÖLLŐI NEW HAMPSHIRE (WHITE)



CRITICAL-MAINTAINED

Local names or syn.: Gödöllő New Hampshire (White) (eng.)

Population data: 124 • 100 ♀ • 24 ♂ • 1999

Population trend: decreasing

Range of uses: eggs, meat, research, household pest control, fancy

HUNGARY

The Gödöllői New Hampshire (white) chicken variety was derived from the Gödöllő New Hampshire (brown) in 1990. It is genetically the same as the Gödöllő New Hampshire (brown), but is white in colour. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are also yellow. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 2.6 kg and females 1.9 kg. This breed is maintained by the Institute for Small Animal research as a closed population.

FEHÉR ERDÉLYI KOPASZNYAKÚ



ENDANGERED-MAINTAINED

Local names or syn.: White Transylvanian Naked Neck (eng.)

Population data: 511 • 461 ♀ • 50 ♂ • 1999

Population trend: -

Range of uses: eggs, meat, household pest control, research, fancy

HUNGARY

The origin of the Fehér erdélyi kopasznyakú is unknown. They have silver-columbian coloured plumage with no special pattern within the feathers, yellow (50%) or white (50%) skin and white (50%) or yellow (50%) shanks and feet. The comb is of single type, egg shells are tinted in colour and they have a naked neck. Adult males weigh on average 2.1 kg and females 1.6 kg. Early male sexual maturity, resistant to heat stress and a general disease resistance are reported. The population is part of the Hungarian Chicken Conservation Programme supervised and partly financed by the National Institute of Agricultural Quality Control in Hungary. Two stocks are maintained at the Institute for Small Animal Research and at Debercsény (private farm). In 1999 there was state support for the Hungarian Chicken Conservation Programme of 700 HUF/year/breeding individual.

FEHÉR MAGYAR



ENDANGERED-MAINTAINED

Local names or syn.: Hungarian White (eng.)

Population data: 511 • 461 ♀ • 50 ♂ • 1999

Population trend: stable

Range of uses: eggs, meat, household pest control, research, fancy

HUNGARY

The origin of the Fehér magyar chicken is unknown. They have silver-columbian coloured plumage with no special pattern within the feathers. They may have white (50%) or yellow (50%) skin and the shanks and feet may be white (50%) or yellow (50%). The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 2 kg and females 1.46 kg. Early male sexual maturity and a general disease resistance are reported for this breed. The population is part of the Hungarian Chicken Conservation Programme supervised and partly financed by the National Institute of Agricultural Quality Control in Hungary. Two stocks are maintained at the Institute for Small Animal Research and at Debercsény (private farm). In 1999 there was state support for the Hungarian Chicken Conservation Programme of 700 HUF/year/breeding individual.

FEKETE ERDÉLYI KOPASZNYAKÚ



ENDANGERED-MAINTAINED

Local names or syn.: Black Transylvanian Naked Neck (eng.)

Population data: 498 • 448 ♀ • 50 ♂ • 1999

Population trend: stable

Range of uses: eggs, meat, household pest control, research, fancy

HUNGARY

The Fekete erdélyi kopasznyakú was imported from Transylvania in the 1970s. They have self-black coloured plumage with no special pattern within the feathers, white skin and black shanks and feet. The comb is of single type, egg shells are tinted in colour and they have a naked neck. Adult males weigh on average 2 kg and females 1.52 kg. Resistance to heat stress, early male sexual maturity and general disease resistance are reported for this breed. The population is part of the Hungarian Chicken Conservation Programme supervised and partly financed by the National Institute of Agricultural Quality Control in Hungary. Two stocks are maintained at the Institute for Small Animal Research and at Debercsény (private farm). In 1999 there was state support for the Hungarian Chicken Conservation Programme of 700 HUF/year/breeding individual.

GÖDÖLLŐI NEW HAMPSHIRE*ENDANGERED-MAINTAINED***Local names or syn.:** Gödöllő New Hampshire (Brown) (eng.)**Population data:** 580 • 500 ♀ • 80 ♂ • 1999**Population trend:** decreasing**Range of uses:** eggs, meat, research, household pest control, fancy**HUNGARY**

The Gödöllői New Hampshire is found in Gödöllő, the original population having been imported from Landesmann Breeders (Austria) in 1958. They have gold-columbian coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 2.6 kg and females 1.9 kg. Chick sexing is possible for this breed. It is the most popular dual-purpose breed in Hungary and is maintained at the Institute for Small Animal Research.

**KENDERMAGOS ERDÉLYI
KOPASZNYAKÚ***ENDANGERED-MAINTAINED***Local names or syn.:** Speckled Transylvanian Naked Neck (eng.)**Population data:** 512 • 458 ♀ • 54 ♂ • 1999**Population trend:** stable**Range of uses:** meat, eggs, household pest control, research, fancy**HUNGARY**

The origin of the Kendermagos erdélyi kopasznyakú is unknown. They have wild-type and variants coloured plumage with barred, autosomal patterns within the feathers, yellow (50%) or white (50%) skin and yellow shanks and feet. The comb is of single type, egg shells are tinted in colour and they have a naked neck. Adult males weigh on average 2.3 kg and females 1.61 kg. Early male sexual maturity and general disease resistance are reported for this breed. The population is part of the Hungarian Chicken Conservation Programme supervised and partly financed by the National Institute of Agricultural Quality Control in Hungary. Two stocks are maintained at the Institute for Small Animal Research and at Debrecen University of Agricultural Sciences. In 1999 there was state support for the Hungarian Chicken Conservation Programme of 400 HUF/year/breeding individual.

FODROSTOLLÚ LÚD*ENDANGERED-MAINTAINED***Local names or syn.:** Hungarian Frizzled Goose (eng.)**Population data:** 500 • 380 ♀ • 120 ♂ • 1999**Population trend:** increasing**Range of uses:** fancy**HUNGARY**

The origin of the native Fodrostollú lúd goose is uncertain. They have self-white coloured plumage with no special pattern within their frizzled feathers. They have yellow skin, shanks and feet and white egg shells. Adult males weigh on average 6.5 kg and females 5 kg. An *in situ* conservation programme is operational. Breeding stocks are located at the Institute for Small Animal Research and at the Debrecen University of Agricultural Science.

RÉZPULYKA*CRITICAL-MAINTAINED***Local names or syn.:** Copper (eng.)**Population data:** 50 • 40 ♀ • 10 ♂ • 1994**Population trend:** increasing**Range of uses:** meat**HUNGARY**

The Rézpulyka is found in Bugac, Kiskunság, central Hungary, the original population having been imported from Bosnia in the 18th century. The original turkeys were crossed with the imported Bronze turkey resulting in the creation of the Copper turkey breed. The pure-bred population is now considered to be the Hungarian indigenous breed. Rézpulyka have black, red or white coloured plumage with barred, autosomal patterns within the feathers, white skin, grey shanks and feet and cream white to pale greyish egg shells. Adult males weigh on average 8 kg and females 6 kg. All of the 50 registered turkeys are kept in Bugac as a closed breed. In 1999 financial support of 1 500 HUF/breeding female/year was paid by the State to stock breeders. Breeding stocks are located at the Institute for Small Animal Research and at the Debrecen University of Agricultural Science.

BRONZPULYKA*ENDANGERED-MAINTAINED***Local names or syn.:** Bronze (eng.)**Population data:** 340 • 270 ♀ • 70 ♂ • 1999**Population trend:** -**Range of uses:** meat**HUNGARY**

The Bronzpulyka was imported from England in the 18th century. The pure-bred population is now considered a native breed in Hungary. They have self-black and bronze coloured plumage with no special pattern within the feathers, white skin, grey shanks and feet and cream white to pale greyish egg shells. Adult males weigh on average 8 kg and females 6 kg. By ministerial order the breed has been included in the list of indigenous domestic animal breeds in Hungary and it is therefore protected. Financial support is paid by the State to stock breeders (250 HUF/breeding female/year). Additional support of 1 000 HUF/breeding female/year can be obtained by applying to the Agricultural Development Fund (Ministry of Agriculture). Breeding stocks are now located at the Institute for Small Animal Research and at the Debrecen University of Agricultural Science.

GALLOWAY*CRITICAL***Local names or syn.:** -**Population data:** 20 ♀ • 1994**Population trend:** stable**Range of uses:** meat**ICELAND**

Galloway cattle are found country-wide and were imported from Scotland. The animals are black or grey in colour and some are belted. Adult males weigh on average 780 kg and females 560 kg, males having a mean wither height of 123 cm. All animals are polled. They produce flavoursome meat and are known for their hardiness. Only one herd remains. There are 20 females registered in the herd book, of which 100% are bred to males of the same breed.

ICELANDIC GOAT*ENDANGERED-MAINTAINED***Local names or syn.:** Islenska geitin (icl.)**Population data:** 100 - 1 000 • 200 ♀ • 85 ♂ • 1992**Population trend:** stable**Range of uses:** hobby**ICELAND**

The Icelandic goat, found country-wide, was established in 1900. The animals are black, grey or white, and most non-white goats are spotted. The goats may be either polled or horned but are infertile if polled and fertile horned animals only have knobs. Adult males weigh on average 65 kg and females 42 kg. This breed produces a very fine cashmere wool. Of females, 100% are bred to males of the same breed.

ISLANSKI HÆNSNASTOFNINN*ENDANGERED***Local names or syn.:** Icelandic Coloured Poultry (eng.)**Population data:** 100 - 1 000 • 1994**Population trend:** increasing**Range of uses:** eggs, fancy, meat**ICELAND**

The Islanski hæsnastofninn is a probably of Norwegian origin and has been known since the settlement of Iceland 1 100 years ago.

AYRSHIRE*ENDANGERED***Local names or syn.:** -**Population data:** 1 000 - 10 000 • 1 000 ♀ • 26 ♂ • 1998**Population trend:** stable**Range of uses:** milk, meat**IRELAND**

The Ayrshire, found country-wide, was imported from the United Kingdom in 1778. The animals are red and white in colour. Adult males weigh on average 800 kg and females 550 kg with an average wither height of 140 cm and 127 cm respectively. There are 500 females registered in the herd book, of which 60% are bred to males of the same breed.

BELGIAN BLUE*ENDANGERED***Local names or syn.:** Blanc-Bleu Belge (fr.)**Population data:** 100 - 1 000 • 200 ♀ • 85 ♂ • 1997**Population trend:** increasing**Range of uses:** meat**IRELAND**

The Belgian Blue is found country-wide and was imported from Belgium. The animals are black, blue or white in colour and are double muscled. Adult males weigh on average 1 200 kg and females 800 kg with an average wither height of 150 cm and 134 cm respectively. There are 200 females registered in the herd book, of which 99% are bred to males of the same breed. The semen of 20 males is stored.

IRISH BLONDE D'AQUITAINE*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 350 ♀ • 45 ♂ • 1998**Population trend:** increasing**Range of uses:** meat**IRELAND**

The Irish Blonde d'Aquitaine is found country-wide and was imported from France. As their name suggests, they are blond in colour. Adult males weigh on average 1 100 kg and females 800 kg with an average wither height of 152 cm and 145 cm respectively. There are 350 females registered in the herd book, of which 99% are bred to males of the same breed. The semen of 20 males is stored.

MONTBÉLIARDE*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 600 ♀ • 1998**Population trend:** increasing**Range of uses:** milk, meat**IRELAND**

The Montbéliarde is found country-wide and was imported from France in the 1990s. The animals are red and white with a white head. Adult males weigh on average 950 kg and females 680 kg with an average wither height of 148 cm and 139 cm respectively. There are 600 females registered in the herd book, of which 100% are bred to males of the same breed. The semen of 30 males is stored.

KERRY



ENDANGERED-MAINTAINED

Local names or syn.: Kerry Cattle (eng.)

Population data: 100 - 1 000 • 500 ♀ • 30 ♂ • 1998

Population trend: increasing

Range of uses: milk, meat

IRELAND

Kerry cattle are found in Co. Kerry, south-western Ireland. The Kerry is an indigenous breed, the precise origin of which is unknown. The animals are black and are occasionally found with white markings on the udders. Adult males weigh on average 570 kg and females 360 kg with an average wither height of 140 cm and 125 cm respectively. The horns are white tipped with black, and are upright and lyre-shaped. The breed is well adapted to live in the wet hilly country and is considered a hardy breed with low feeding requirements. There are 472 females registered in the herd book, of which 80% are bred to males of the same breed. The semen of 6 males is stored in two locations.

ARAB



CRITICAL

Local names or syn.: -

Population data: 115 ♀ • 21 ♂ • 1994

Population trend: increasing

Range of uses: sport, general crossbreeding

IRELAND

The Arab, found in eastern and south-eastern Ireland, was imported from the United Kingdom and the United States of America. The animals are grey, chestnut or bay in colour and have a long fine mane and tail. Adult males weigh on average 400 kg and females 350 kg with an average wither height of 150 cm and 145 cm respectively. There are 12 herds remaining and 50 females registered in the herd book, 50% of which are bred to males of the same breed.

KERRY BOG PONY



CRITICAL

Local names or syn.: -

Population data: 12 ♀ • 2 ♂ • 1994

Population trend: -

Range of uses: -

IRELAND

The Kerry Bog Pony seems to be a unique and ancient breed. The animals are very small (10 hands high).

IRISH PONY



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 500 ♀ • 33 ♂ • 1998

Population trend: stable

Range of uses: sport, hobby

IRELAND

The Irish Pony, found country-wide, is a composite of Arab, Welsh, Connemara Pony and Thoroughbred and was established around 1970. The animals can be black, bay, isabelle, dark to light chestnut, palomino or white and may also be white intermixed with black, bay or chestnut and pied. Adult males and females have an average wither height of 137 cm. There are 100 females registered in the herd book, of which 20% are bred to males of the same breed.

PIEBALD AND SKEWBALD



ENDANGERED

Local names or syn.: -

Population data: < 1 100 • 1 000 ♀ • 67 ♂ • 1998

Population trend: stable

Range of uses: sport, hobby

IRELAND

Piebald and Skewbald horses are found country-wide. They are a composite of Irish Cob and Irish Sport Horses and were established around 1900. The animals are black or brown with white patches in colour. Adult males weigh on average 600 kg and females 550 kg with an average wither height of 150 cm and 148 cm respectively. There are 200 females registered in the herd book, of which 10% are bred to males of the same breed.

IRISH DRAUGHT



ENDANGERED-MAINTAINED

Local names or syn.: Irish Draught Horse (eng.)

Population data: 100 - 1 000 • 730 ♀ • 65 ♂ • 1997

Population trend: decreasing

Range of uses: sport, draught power

IRELAND

The Irish Draught, found country-wide, is a composite of Norman (France), Spanish (Spain) and Thoroughbred (United Kingdom) and was established in the 19th century. The animals are predominantly grey, goltured by bay and chestnut. Adult males weigh on average 750 kg and females 600 kg with an average wither height of 165 cm and 160 cm respectively. These are hardy animals and there are no cold-blooded horses. There are 697 females registered in the herd book, of which 49% are bred to males of the same breed. The *in situ* conservation programme involves 65 reproducing males and 650 herds or breeders. The semen of 7 males is stored.

DUROC



CRITICAL

Local names or syn.: -

Population data: < 100 • 40 ♀ • 1998

Population trend: -

Range of uses: meat

IRELAND

The Duroc, found country-wide, has been imported from Canada since 1983. The animals are brown in colour. Adult males weigh on average 260 kg and females 230 kg with an average wither height of 120 cm and 110 cm respectively. There are 40 females registered in the herd book.

LARGE WHITE



ENDANGERED

Local names or syn.: -

Population data: 1 000 - 10 000 • 1 000 ♀ • 180 ♂ • 1998

Population trend: increasing

Range of uses: meat

IRELAND

The Large White, found country-wide, was imported from the United Kingdom and Sweden. The animals are white in colour and have erect ears. Adult males weigh on average 250 kg and females 200 kg with an average wither height of 110 cm and 105 cm respectively. There are 1 000 females registered in the herd book, of which 40% are bred to males of the same breed.

BELCLARE*ENDANGERED*

Local names or syn.: -

Population data: 1 000 - 10 000 • 1 000 ♀ • 30 ♂ • 1997**Population trend:** increasing**Range of uses:** meat, wool**IRELAND**

The Belclare, found country-wide, was established around 1980 and is a composite of Galway, Cheviot, Texel and various other crosses from Ireland. The animals are white in colour, have medium fibred wool and are polled. Adult males weigh on average 90 kg and females 70 kg. Very high prolificacy is reported for this breed. There are 800 females registered in the herd book, of which 90% are bred to males of the same breed.

BELTEX*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 272 ♀ • 52 ♂ • 1998**Population trend:** increasing**Range of uses:** meat, milk, wool**IRELAND**

The Beltex, found country-wide, was imported from Belgium in 1996. The animals are white in colour, have medium fibred wool and are polled. They are a highly muscled animal. Adult males weigh on average 90 kg and females 70 kg with an average wither height of 60 cm and 55 cm respectively. There are 272 females registered in the herd book, of which 100% are bred to males of the same breed. The semen of 2 males is stored in one location.

BERRICHON DU CHER*ENDANGERED*

Local names or syn.: -

Population data: 130 • 120 ♀ • 10 ♂ • 1998**Population trend:** increasing**Range of uses:** meat**IRELAND**

Berrichon du Cher sheep are found country-wide. The animals are white in colour, have medium fibred wool and are polled. Adult males weigh on average 95 kg and females 75 kg with an average wither height of 72 cm and 68 cm respectively. There are 120 females registered in the herd book, of which 100% are bred to males of the same breed.

BLEU DU MAINE*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 900 ♀ • 45 ♂ • 1998**Population trend:** stable**Range of uses:** general crossbreeding, meat, wool**IRELAND**

The Bleu du Maine, found country-wide, is a composite of Leicester Longwool, Wensleydale and Choletais and was established around 1860. The animals are white with a slate blue head and legs. They have fine fibred wool and are polled. Adult males weigh on average 100 kg and females 75 kg. High prolificacy and ease of lambing is reported for this breed. There are 300 females registered in the herd book, of which 70% are bred to males of the same breed.

BLUEFACED LEICESTER*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 200 ♀ • 100 ♂ • 1997**Population trend:** increasing**Range of uses:** meat, wool, general crossbreeding**IRELAND**

The Bluefaced Leicester was imported from the United Kingdom around 1900 and is now found country-wide. It is a composite of the English Longwool and Border Leicester breeds. The animals are white with a blue head and have tightly purred, fine fibred long wool. Adult males weigh on average 105 kg and females 80 kg. All animals are polled. There are 132 females registered in the herd book, of which 30% are bred to males of the same breed.

L'ILE DE FRANCE*ENDANGERED***Local names or syn.:** Ile de France (fr.)**Population data:** 100 - 1 000 • 200 ♀ • 10 ♂ • 1998**Population trend:** stable**Range of uses:** meat, wool**IRELAND**

The L'Ile de France, found country-wide, is a composite of Dishley Leicester and Merino. The breed, established around 1824, was imported from the United Kingdom in 1978 and from France in 1987. The animals are white in colour, have medium fibred wool and are polled. Adult males weigh on average 130 kg and females 90 kg with an average wither height of 80 cm and 70 cm respectively. There are 150 females registered in the herd book, of which 80% are bred to males of the same breed.

ROUGE DE L'OUEST*ENDANGERED***Local names or syn.:** -**Population data:** 1 000 - 10 000 • 850 ♀ • 203 ♂ • 1998**Population trend:** increasing**Range of uses:** meat, general crossbreeding**IRELAND**

Rouge de L'Ouest sheep, imported from the United Kingdom and France in 1988, are found country-wide. The animals are brown with a red head and legs, medium fibred wool and no horns. Adult males weigh on average 90 kg and females 70 kg. There are 650 females registered in the herd book, of which 80% are bred to males of the same breed. The semen of 3 males is stored.

VENDEEN*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 860 ♀ • 100 ♂ • 1998**Population trend:** increasing**Range of uses:** meat, milk, wool**IRELAND**

Vendeen sheep, found country-wide, were imported from France and the United Kingdom in 1985. The animals are white in colour, have fine fibred wool and are polled. Adult males weigh on average 90 kg and females 70 kg with an average wither height of 70 cm and 60 cm respectively. A high prolificacy is reported for this breed. There are 860 females registered in the herd book, of which 75% are bred to males of the same breed.

ASINO DELL'ASINARA*CRITICAL***Local names or syn.:** Asinara (eng.)**Population data:** < 100 • 6 ♀ • 5 ♂ • 1999**Population trend:** -**Range of uses:** draught power**ITALY**

The Asino dell'Asinara, a local population, is found in Asinara Island, Sardinia Region. The animals are white with a rosy muzzle and pink-light blue eyes. The breed is known to be well adapted to the locally prevailing marginal conditions and a general disease resistance is reported for animals of this breed. Only one herd remains. There are 6 females registered in the herd book and in total, 36% of males are used for breeding.

ASINO SARDO*CRITICAL***Local names or syn.:** -**Population data:** 340 • 197 ♀ • 28 ♂ • 1998**Population trend:** -**Range of uses:** draught power**ITALY**

The Asino Sardo is found in Sardinia and descends from Phenigan and Nubian asses. The animals are grey with striped shoulders and limbs (it. = riga mulina crociata) and males and females have an average wither height of 125 cm and 110 cm respectively. The breed is known to be well adapted to the locally prevailing marginal conditions and an unspecified general disease resistance is reported for animals of this breed. There are 74 herds remaining.

ROMAGNOLO*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 1998**Population trend:** -**Range of uses:** -**ITALY**

No further information available.

ASINO DELL'AMIATA*ENDANGERED***Local names or syn.:** Amiatina (eng.)**Population data:** 100 - 1 000 • 149 ♀ • 9 ♂ • 1998**Population trend:** stable**Range of uses:** pack / baggage, draught power**ITALY**

The Asino dell'Amiata is a local population found in Amiata Mountain, Grosseto, Toscana Region. The animals are grey with striped limbs and shoulder belt and males and females have an average wither height of 136 cm and 134 cm respectively. The breed is known for its adaptation to the local marginal conditions and an unspecified disease resistance is reported for animals of this breed. There are 62 herds remaining with 149 females registered in the herd book. In total, 4% of males are used for breeding.

MARTINA FRANCA*ENDANGERED*

Local names or syn.: Asino di Martina Franca (it.), Apulian (eng.), Martinese (it.)

Population data: 100 - 1 000 • 88 ♀ • 30 ♂ • 1998

Population trend: -

Range of uses: draught power, riding (sports)

ITALY

The Martina Franca is a local population found in Murgia, south-east of Martina Franca, the Provinces of Bari, Taranto and Brindisi, southern Italy. The animals are blackish with a grey abdomen, internal thigh and muzzle. Males and females have an average wither height of 153 cm and 148 cm respectively. The breed is known for its adaptation to marginal areas and an unspecified disease resistance is reported for animals of this breed. There are 27 herds remaining and 88 females are registered in the herd book. In total, 13% of males are used for breeding.

RAGUSANA*ENDANGERED*

Local names or syn.: Asino Cagusano (it.), Sicilian (eng.), Ragusan (eng.)

Population data: 296 • 192 ♀ • 27 ♂ • 1998

Population trend: increasing

Range of uses: pack / baggage, interspecies crossing

ITALY

The Ragusana is found in Ragusa, Modica, Scilli and south Croce Camerina, Sicily Region, southern Italy and is a composite of Sicilian and Pantelleria. The animals are dark bay with a stag-like abdomen and an average wither height of 145 cm and 138 cm for males and females respectively. The breed is known for its adaptation to the local marginal conditions and an unspecified disease resistance is reported for animals of this breed. There are 53 herds remaining.

CHIANINO-MAREMMANA*CRITICAL*

Local names or syn.: Cecinese (from Cecina), Improved Maremmana (eng.)

Population data: < 100 • 1999

Population trend: decreasing

Range of uses: meat, draught power

ITALY

The Chianino-Maremmana, originating from Chianina x Maremmana crosses, is found in Toscana. The animals are grey-white in colour.

VARZESE OTTONESE*CRITICAL*

Local names or syn.: -

Population data: 73 • 59 ♀ • 3 ♂ • 1998

Population trend: -

Range of uses: -

ITALY

There are 13 Varzeese Ottonese herds remaining.

CALVANA*CRITICAL-MAINTAINED***Local names or syn.:** -**Population data:** 120 • 68 ♀ • 5 ♂ • 1998**Population trend:** increasing**Range of uses:** meat**ITALY**

The Calvana, a small variety of Chianina, is found in the Province of Florence. These cattle are white with dark hooves, horn tips and tail switch and dark pigmented skin and mucosae. Adult males weigh on average 1 025 kg and females 700 kg with an average wither height of 155 cm and 145 cm respectively. The breed is adapted to the local environment (mountains, marginal areas). There are 7 herds remaining with 68 females registered in the herd book. In total, 4% of males are used for breeding.

MONTANA*CRITICAL-MAINTAINED***Local names or syn.:** Tortonese (it.), Varzese (it.), Ottonese (i.), Cabellotta (it.), Red Mountain (eng.)**Population data:** < 100 • 1998**Population trend:** -**Range of uses:** milk, meat**ITALY**

The Montana is found in Alessandria, Pavia and Piacenz. The animals are yellow with a light muzzle. Adult males weigh on average 700 kg and females 500 kg with an average wither height of 140 cm and 130 cm respectively. The breed is adapted to the local environment (hills and mountains). The semen of 20 males is stored and embryos are also stored.

PONTREMOLESE*CRITICAL-MAINTAINED***Local names or syn.:** -**Population data:** 50 • 22 ♀ • 2 ♂ • 1998**Population trend:** stable**Range of uses:** milk, meat**ITALY**

The Pontremolese is found in the Province of Lucca. The animals are yellow and corn coloured. Adult males weigh on average 750 kg and females 500 kg with an average wither height of 145 cm and 125 cm respectively. The breed is adapted to the local environment (mountains, pastures, woods). There are 3 herds remaining and 22 females are registered in the herd book. In total, 4% of males are used for breeding.

MODICANA*ENDANGERED***Local names or syn.:** -**Population data:** > 1 000 • 1998**Population trend:** -**Range of uses:** milk, meat**ITALY**

The Modicana is found in Sicily, southern Italy. It is an indigenous breed. The animals are uni coloured brown with dark muzzle and dark-tipped horns. Adult males weigh on average 900 kg and females 550 kg with an average wither height of 155 cm and 140 cm respectively. The animals are reported to be resistant to anaplasmosis, piroplasmosis and tuberculosis. The semen of 3 males is stored.

AGEROLESE*ENDANGERED-MAINTAINED***Local names or syn.:** Agerose (eng.)**Population data:** 100 - 500 • 1998**Population trend:** -**Range of uses:** milk, meat**ITALY**

The Agerolese is found in the Province of Naples, Campania Region. It is a composite of Italian Brown, Jersey, Friesian and Podolian and was established in 1950. The animals are brown, chestnut to almost black and have a light rim around a dark muzzle. Adult males weigh on average 650 kg and females 450 kg with an average wither height of 135 cm and 125 cm respectively. The breed is known for its adaptation to the local marginal conditions (mountains, hills). Embryos are stored.

BURLINA*ENDANGERED-MAINTAINED***Local names or syn.:** Asiago (it.), Binda (it.), Boccarda (it.), Pezzata degli altipiani (it.= Pied Highland)**Population data:** 100 - 1 000 • 420 ♀♂ • 1999**Population trend:** -**Range of uses:** milk, meat**ITALY**

The Burlina is an indigenous local breed found in the Province of Vicenza, Treviso. The animals are black, white, blond and red and have a light rim around a black muzzle. Adult males weigh on average 625 kg and females 525 kg with an average wither height of 130 cm and 120 cm respectively. The breed is known for its adaptation to the local marginal conditions and has good production qualities. There are 13 herds remaining with 272 females registered in the herd book. In total, 2% of males are used for breeding. The semen of 12 males is stored and embryos are also stored.

CABANNINA*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 298 • 193 ♀ • 17 ♂ • 1998**Population trend:** decreasing**Range of uses:** milk**ITALY**

The Cabannina is found in the Province of Genova. The animals are brown with a pale dorsal stripe. Adult males weigh on average 500 kg and females 375 kg with an average wither height of 125 cm and 120 cm respectively. The animals are tolerant to roughage and show a high coarse-feed efficiency (mountain, marginal areas). There are 54 herds remaining and 193 females are registered in the herd book. In total, 6% of males are used for breeding. The semen of 8 males is stored.

GARFAGNINA*ENDANGERED-MAINTAINED***Local names or syn.:** Grigia appenninica (it. = Grey Apennine), Modenese di monte (it.), Montanara (it.), Nostrana (it.)**Population data:** 410 • 151 ♀ • 6 ♂ • 1998**Population trend:** increasing**Range of uses:** milk, meat**ITALY**

The Garfagnina is found in the Province of Lucca. These cattle are blue in colour. Adult males weigh on average 600 kg and females 425 kg with an average wither height of 140 cm and 125 cm respectively. The breed is adapted to the local environment (hills and mountains). There are 51 herds remaining with 151 females registered in the herd book. The semen of 6 males is stored.

MODENESE*ENDANGERED-MAINTAINED***Local names or syn.:** Carpigiana (it.), Bianca val padana (it.)**Population data:** 100 - 1 000 • 418 ♀ • 4 ♂ • 1998**Population trend:** -**Range of uses:** milk, meat**ITALY**

The Modenese is found in the Province of Modena. The animals are white with black hooves, black muzzle and black-tipped white horns. Adult males weigh on average 1 050 kg and females 650 kg with an average wither height of 155 cm and 145 cm respectively. The breed is adapted to the local environment (hills and plains). There are 117 herds remaining and 418 females are registered in the herd book. The semen of 28 males is stored.

PISANA*ENDANGERED-MAINTAINED***Local names or syn.:** Mucca Pisana**Population data:** 241 • 107 ♀ • 5 ♂ • 1998**Population trend:** -**Range of uses:** milk, meat**ITALY**

The Pisana is found in the Province of Pisa, Toscana and is a composite of Italian Brown and Chianina. These cattle are brown, chestnut to black in colour. Adult males weigh on average 800 kg and females 525 kg with an average wither height of 150 cm and 145 cm respectively. There are 19 herds remaining and 107 females are registered in the herd book. In total, 2% of males are used for breeding. The semen of 21 males is stored.

PUSTERTALER SPRINZEN*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 167 • 68 ♀ • 6 ♂ • 1998**Population trend:** -**Range of uses:** milk, meat**ITALY**

The Pustertaler Sprinzen is found in the Province of Bolzano. The animals are black, red, white, with red or black pied sides in colour. Adult males weigh on average 800 kg and females 500 kg with an average wither height of 140 cm and 130 cm respectively. The breed is adapted to the local environment (mountains, poor pastures). There are 25 herds remaining and 68 females are registered in the herd book. In total, 4% of males are used for breeding. The semen of 2 males is stored.

REGGIANA*ENDANGERED-MAINTAINED***Local names or syn.:** Fromentina (it.)**Population data:** > 1 000 • 1998**Population trend:** -**Range of uses:** milk**ITALY**

The Reggiana is found in the Province of Reggio Emilia. The animals are red, brown or yellow with a light muzzle and black-tipped horns. Adult males weigh on average 650 kg and females 500 kg with an average wither height of 145 cm and 140 cm respectively. The breed is known for its adaptation to the local marginal conditions. Good reproductive and productive qualities are reported for this breed. The semen of 635 males is stored and embryos are also stored.

DI BENEVENTO*CRITICAL*

Local names or syn.: Bastarda (it.), Capra del Fortore (it.),
Benevento (eng.)

Population data: 100 ♀♂ • 1994

Population trend: decreasing

Range of uses: milk, meat

ITALY

The Di Benevento is found in Benevento Province, Campania Region, southern Italy. It is a composite of local breeds, Maltese and Garganica Alpina. The animals are red and white in colour and all animals are polled. Adult males weigh on average 70 kg and females 60 kg with an average wither height of 85 cm and 75 cm respectively. The animals are well adapted to their arid hilly environment.

ISTRIANA*CRITICAL*

Local names or syn.: Istrian (eng.)

Population data: < 100 • 1998

Population trend: -

Range of uses: milk, meat

ITALY

The Istriana, a local population, is found in the Province of Gorizia, Friuli Region. The animals are white in colour and are polled. Adults weigh on average 55 kg with an average wither height of 65 cm and 60 cm for males and females respectively. The breed is adapted to live on karst soils.

POMELLATA*CRITICAL*

Local names or syn.: -

Population data: < 100 • 1998

Population trend: -

Range of uses: -

ITALY

No further information available.

SARDA DI TAVOLARA*CRITICAL*

Local names or syn.: -

Population data: < 100 • 1999

Population trend: decreasing

Range of uses: -

ITALY

The Sarda di Tavolara is found in ConSDABI (Consortium for Experimentation, Divulcation and Application of Innovative Biotechniques), Circello and Benevento and originated from *Capra aegagrus*. The animals are brown in colour with scimitar horns. Adult males weigh on average 60 kg and females 40 kg with an average wither height of 65 cm and 55 cm respectively.

SCREZIATA*CRITICAL*

Local names or syn.: -

Population data: < 100 • 1998

Population trend: -

Range of uses: -

ITALY

No further information available.

SEMPIONE*CRITICAL*

Local names or syn.: -

Population data: 100 ♀♂ • 1994

Population trend: stable

Range of uses: meat

ITALY

The Sempione is found in Province of Vercelli, Piedmont Region. It is a composite of local populations and is a highly heterogenous breed. The animals are white in colour. Adult males weigh on average 62 kg and females 52 kg with an average wither height of 75 cm and 60 cm respectively. The goats are well adapted to the local environment (mountains).

VALLESANA*CRITICAL*

Local names or syn.: -

Population data: 200 ♀ • 3 ♂ • 1994

Population trend: decreasing

Range of uses: meat, milk

ITALY

The Vallesana is found in the Province of Novara, Piedmont Region and was originally imported as a breed (Walliser Schwarzhalsziege) from Switzerland. The animals have black forequarters and white hindquarters. Adult males weigh on average 72 kg and females 55 kg with an average wither height of 82 cm and 65 cm respectively. The breed is adapted to the local environment (hills).

ARGENTATA DELL'ETNA*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1999

Population trend: -

Range of uses: -

ITALY

The Argentata dell'Etna is found in Sicilia, southern Italy. The animals are grey in colour. Adult males weigh on average 55 kg and females 45 kg with an average wither height of 70 cm and 60 cm respectively.

BIONDA DELL'ADAMELLO*ENDANGERED***Local names or syn.:** -**Population data:** 500 - 1 000 • 1998**Population trend:** -**Range of uses:** -**ITALY**

No further information available.

CILENTANA FULVA*ENDANGERED***Local names or syn.:** Del Cilento (it.)**Population data:** 100 - 500 • 1998**Population trend:** -**Range of uses:** milk**ITALY**

The Cilentana Fulva is found in Salerno, Potenza in Campania and Basilicata Regions, southern Italy. It is a local population with Red Syrian blood. The animals are red in colour and may be either polled or horned. The breed is known for its adaptation to the local marginal conditions (hills and arid soils).

CILENTANA NERA*ENDANGERED***Local names or syn.:** Del Cilento (it.)**Population data:** 100 - 500 • 1998**Population trend:** -**Range of uses:** milk**ITALY**

The Cilentana Nera is a local population with Garganica blood. The animals are black in colour.

DI CAMPOBASSO*ENDANGERED***Local names or syn.:** Campobasso (eng.)**Population data:** 800 ♀♂• 1994**Population trend:** stable**Range of uses:** milk, meat**ITALY**

The Di Campobasso is found in the Province of Campobasso, Molise Region and is a composite of local breeds, Maltese, Garganica and Alpina. The animals may be brown, white or other colours. Adult males weigh on average 60 kg and females 47 kg with an average wither height of 70 cm and 60 cm respectively. These animals are well adapted to their local environment (mountains).

DI POTENZA*ENDANGERED***Local names or syn.:** Potenza (eng.)**Population data:** 1 000 ♀♂ • 1994**Population trend:** decreasing**Range of uses:** milk, meat**ITALY**

The Di Potenza, a composite of local breeds, Maltese (Italy) and Alpina (Italy), is found in the Province of Potenza, Basilicata Region. The animals are black, brown and other colours. Adult males weigh on average 75 kg and females 50 kg with an average wither height of 80 cm and 70 cm respectively. The breed is adapted to the local environment (hills, where arid soils are predominant).

DI SALERNO*ENDANGERED***Local names or syn.:** Cilentana Grigia (it.), Salerno (eng.)**Population data:** 100 - 500 • 1998**Population trend:** -**Range of uses:** milk, meat**ITALY**

The Di Salerno is a local population found in the Province of Salerno, Campania Region. The animals are either black or brown in colour. Adult males weigh on average 60 kg and females 40 kg with an average wither height of 65 cm and 55 cm respectively. The breed is adapted to the local environment (hills).

DI TERAMO*ENDANGERED***Local names or syn.:** Teramo (eng.)**Population data:** 100 - 500 • 1998**Population trend:** -**Range of uses:** milk**ITALY**

The Di Teramo is a local population found in the Province of Teramo, Abruzzi Region. The animals are mainly black or brown but many colours are also possible. Adult males weigh on average 70 kg and females 45 kg with an average wither height of 72 cm and 65 cm respectively. The breed is adapted to the local environment (hills).

GIRGENTANA*ENDANGERED***Local names or syn.:** -**Population data:** 500 - 1 000 • 1998**Population trend:** -**Range of uses:** milk, meat**ITALY**

The Girgentana is an indigenous breed from Markhor, now found in the Province of Agrigento, Sicily Region, southern Italy. The animals are white, occasionally having a brown spotted face, and they have big screw-shaped horns. Adult males weigh on average 65 kg and females 50 kg with an average wither height of 80 cm and 70 cm respectively. The breed is adapted to the local environment (hills), is a good milk producer and is highly prolific.

GRIGIA MOLISANA*ENDANGERED*

Local names or syn.: -

Population data: 100 - 500 • 1998

Population trend: -

Range of uses: -

ITALY

No further information available.

NAPOLETANA*ENDANGERED*

Local names or syn.: -

Population data: 100 - 500 • 1998

Population trend: -

Range of uses: milk

ITALY

The Napoletana is found in Napoli, Salerno and Benevento, southern Italy. Males and females may be either polled or horned. The breed is well adapted to live under local marginal conditions and an unspecified disease resistance is reported for animals of this breed.

POTENTINA*ENDANGERED*

Local names or syn.: -

Population data: > 1 000 • 1998

Population trend: -

Range of uses: -

ITALY

No further information available.

ROCCAVERANO*ENDANGERED*

Local names or syn.: -

Population data: 500 - 1 000 • 1998

Population trend: -

Range of uses: milk, meat

ITALY

The Roccaverano, a local population, is found in the Province of Asti, Piedmont Region. The animals are brown or white in colour and are polled. Adult males weigh on average 75 kg and females 57 kg with an average wither height of 82 cm and 72 cm respectively. The breed is adapted to the local environment (hills).

SARDA*ENDANGERED***Local names or syn.:** Sardinian (eng.)**Population data:** > 1 000 • 1998**Population trend:** -**Range of uses:** milk, meat**ITALY**

The Sarda is found in Sardinia. Adult males weigh on average 60 kg and females 47 kg with an average wither height of 67 cm and 60 cm respectively. The breed is adapted to the local environment (hills where arid soils are predominant).

VALFORTORINA*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 500 • 1998**Population trend:** -**Range of uses:** -**ITALY**

No further information available.

CAVALLINO DI MONTERUFOLI*CRITICAL***Local names or syn.:** Monterufoli Pony (eng.)**Population data:** < 100 • 29 ♀ • 8 ♂ • 1998**Population trend:** -**Range of uses:** sport**ITALY**

The Cavallino di Monterufoli is found in Pisa, Livorno and Grosseto Provinces. It is a local population and is a variety of Maremmana. The animals are dark bay in colour and are well adapted to the locally prevailing marginal conditions. There are 15 herds remaining and 29 females are registered in the herd book. In total, 10% of males are used for breeding.

LIPIZZANO*CRITICAL***Local names or syn.:** -**Population data:** 6 ♂ • 1992**Population trend:** increasing**Range of uses:** sport, draught power, Spanish horse school**ITALY**

The Lipizzano is found in Tormancina, Roma, Latium Region, central Italy. Lipitsa horses descend from Spanish and Arab horses at Lipitsa Stud near Trieste which was founded in 1580. The animals are grey or white with a sleek coat and silky mane and tail. The foals are born black. Adult males weigh on average 550 kg and females 500 kg with an average wither height of 158 cm and 156 cm respectively. There are 54 females registered in the herd book, of which 100% are bred to males of the same breed.

SAMOLACO*CRITICAL***Local names or syn.:** Samolaca (eng.)**Population data:** < 100 • 1998**Population trend:** -**Range of uses:** -**ITALY**

The Samolaco is found in Sondrio, Lombardia Region. It is a composite of a local population and the Andalusian. The animals are sorrel, dark sorrel, bay or 'riga mulina' in colour.

CAVALLO BARDIGIANO*ENDANGERED***Local names or syn.:** Bardigiana (eng.)**Population data:** > 1 000 • 1998**Population trend:** -**Range of uses:** meat, sport**ITALY**

The Cavallo Bardigiano, found in the Emilia Romagna and Liguria Regions is an indigenous breed. The animals are bay, brown and black in colour with an average wither height of 143 cm and 142 cm for males and females respectively.

CAVALLO DEL CATRIA*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 368 ♀ • 15 ♂ • 1999**Population trend:** -**Range of uses:** sport, meat**ITALY**

The Cavallo Del Catria is found in Pesaro, Ancona and Perugia Provinces and is a composite of local horse and Maremmana. The animals are bay in colour with a few white areas. The breed is adapted to the local environment and marginal conditions. There are 82 herds remaining and 368 females are registered in the herd book. In total, 3% of males are used for breeding.

CAVALLO DEL VENTASSO*ENDANGERED***Local names or syn.:** -**Population data:** 266 • 187 ♀ • 7 ♂ • 1998**Population trend:** -**Range of uses:** sport**ITALY**

The Cavallo Del Ventasso is found in Reggio Emilia. The breed is adapted to the local environment and marginal conditions and an unspecified disease resistance is reported for animals of this breed. There are 73 herds remaining.

CAVALLO DELLA GIARA*ENDANGERED***Local names or syn.:** Giara Pony (eng.)**Population data:** 100 - 1 000 • 236 ♀ • 38 ♂ • 1998**Population trend:** -**Range of uses:** sport, meat**ITALY**

The Cavallo della Giara, a native local breed, is found in the Tableland of Giara, Sardinia Region. The animals are bay, brown or black in colour and have an average wither height of 135 cm and 130 cm for males and females respectively. The breed is adapted to the local environment (dry climate and harsh marginal conditions). There are 46 herds remaining and 236 females are registered in the herd book. In total, 9% of males are used for breeding.

CAVALLO NORICO*ENDANGERED***Local names or syn.:** Noric (eng.), Norico**Population data:** 100 - 1 000 • 214 ♀♂ • 1999**Population trend:** -**Range of uses:** draught power, sport, meat**ITALY**

The Cavallo Norico, a native local breed, is found in Alto Adige, Alps, northern Italy. The horses are bay, chestnut, brown and grey in colour with an average wither height of 155 cm and 153 cm for males and females respectively. The breed is adapted to the local environment (mountains). Good reproductive qualities and an unspecified disease resistance are reported for these horses. There are 64 herds remaining and 135 females are registered in the herd book. In total, 6% of males are used for breeding.

PERSANO*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 500 • 1998**Population trend:** -**Range of uses:** sport**ITALY**

Persano horses are found on the plains of the river Sele, Salerno and Toscana Region. The breed is a composite of predominantly Sardinian but also Salernitana, Arab and Thoroughbred horses. They are bay, light bay, dark bay, sorrel, light sorrel, dark sorrel or grey in colour.

PONY DELL'ESPERIA*ENDANGERED***Local names or syn.:** Esperia Pony (eng.)**Population data:** 100 - 1 000 • 376 ♀ • 16 ♂ • 1998**Population trend:** -**Range of uses:** sport, draught power**ITALY**

The Pony dell'Esperia is found in the Lepini and Aurunci mountains, Frosinone, central Italy. The animals are blackish in colour. The breed is adapted to the local environment and marginal conditions. An unspecified disease resistance is reported for animals of this breed. There are 32 herds remaining and 376 are females registered in the herd book. In total, 3% of males are used for breeding.

SALERNITANO



ENDANGERED

Local names or syn.: Salernitana (eng.)

Population data: 100 - 500 • 1998

Population trend: -

Range of uses: sport

ITALY

Salernitano horses are found on the plains of the river Sele, Salerno Province. The breed was established in the early 1900s and descends from local horses with Andalusian, Arab and Thoroughbred blood. The animals are blackish with round lighter patches.

CASERTANA



CRITICAL

Local names or syn.: Pelatella (it. = plucked, i.e. hairless),
Napolitana (it.)

Population data: < 100 • 1998

Population trend: -

Range of uses: meat

ITALY

The Casertana is found in Napoli, Caserta, Benevento, Salerno Provinces, Campania Region, southern Italy. It is of Roman origin with Thai or Indo-Chinese blood. The animals are grey in colour and males and females weigh on average 190 kg and 130 kg respectively. These animals produce high quality meat.

MORA ROMAGNOLA



CRITICAL

Local names or syn.: Mora (it.), Bologna Castagnana (it. = chestnut), Moor (ger.), Romagnola (eng.)

Population data: < 100 • 1998

Population trend: -

Range of uses: meat

ITALY

The Mora Romagnola is found in the Romagna Region and is known for its adaptation to the local living conditions and marginal conditions.

SUINO DELLE NEBRODI E MADONIE



CRITICAL

Local names or syn.: Nero delle Madonie (it.)

Population data: 40 ♀ • 10 ♂ • 1994

Population trend: decreasing

Range of uses: meat

ITALY

The Suino delle Nebrodi e Madonie is a wild type pig found in Messina e Catania Provinces, Sicily Region. The animals are black and sometimes have a white dorsal stripe (cresta cinghialina). Their fore legs are well developed. Adult males weigh on average 230 kg and females 130 kg. The breed is adapted to the local environment and marginal conditions and is known for good reproductive and productive qualities.

CINTA SENESE*ENDANGERED*

Local names or syn.: Cinta (it.), Cinta Italiana (it.), Siena Belted (eng.)

Population data: 100 - 500 • 1998

Population trend: -

Range of uses: meat

ITALY

The Cinta Senese is found in Toscana Region, central Italy. The animals are black with a white belt and have lop ears. Adult males weigh on average 280 kg and females 150 kg. The breed is adapted to the local environment and marginal conditions and females are known for their good reproductive qualities.

HAMPSHIRE*ENDANGERED*

Local names or syn.: -

Population data: 10 ♂ • 1991

Population trend: -

Range of uses: meat

ITALY

The Hampshire is found country-wide. The pigs are black with a white belt and have erect ears. There are 24 females registered in the herd book.

SICILIANO*ENDANGERED*

Local names or syn.: -

Population data: 100 - 500 • 1998

Population trend: -

Range of uses: -

ITALY

No further information available.

CALABRESE*ENDANGERED-MAINTAINED*

Local names or syn.: Calabrian (eng.)

Population data: 100 - 500 • 1998

Population trend: -

Range of uses: meat

ITALY

The Calabrese, descended from old Pugliese, is found in Calabria Region, southern Italy. The animals are black in colour with a long head, front lop ears and strong fore legs. Adult males weigh on average 280 kg and females 150 kg. The breed is adapted to the local climate and marginal conditions and has good reproductive qualities.

BELLUNESE*CRITICAL***Local names or syn.:** -**Population data:** 20 ♀♂ • 1994**Population trend:** decreasing**Range of uses:** milk, meat**ITALY**

The Bellunese, a composite of Alpagota and Lamon, is found in Treviso and Venezia Provinces. The animals are white and occasionally have a dark spotted face, have coarse/carpet type wool and are polled. They are a lop-eared Alpine Group. Adult males weigh on average 52 kg and females 42 kg with an average wither height of 65 cm and 57 cm respectively.

CORNELLA BIANCA*CRITICAL***Local names or syn.:** Cornella White (eng.)**Population data:** < 100 • 1998**Population trend:** -**Range of uses:** milk, meat**ITALY**

The Cornella Bianca is a native local breed found in Bologna Province, Emilia Romagna Region, northern Italy. The animals are white in colour and have coarse/carpet type wool. Adult males weigh on average 82 kg and females 67 kg with an average wither height of 87 cm and 77 cm respectively. The breed is adapted to the local environment (hills and plains).

DI CORNIGLIO*CRITICAL***Local names or syn.:** Cornigliese (eng.)**Population data:** < 100 • 1998**Population trend:** -**Range of uses:** -**ITALY**

The Di Corniglio is a local population descended from Vissana with some Merino and Bergamasca blood, now found in Corniglio, Emilia Region. These sheep have coarse/carpet type wool and are known for their adaptation to the local marginal conditions.

ISTRIANA*CRITICAL***Local names or syn.:** Carsulina (it.), Istriana (eng.)**Population data:** 20 ♀ • 8 ♂ • 1994**Population trend:** decreasing**Range of uses:** milk, meat**ITALY**

The Istriana is found in Udine, Gorizia and Trieste and is thought to be a composite of the Lamon and Istriana breeds. The animals are white in colour and have coarse/carpet type wool. Adult males weigh on average 65 kg and females 52 kg with an average wither height of 80 cm and 65 cm respectively. The breed is well adapted to the local environment (karst soils and hilly).

ROSSET*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 1999**Population trend:** -**Range of uses:** meat, wool**ITALY**

The Rosset is found in the Aosta Valley. It is an indigenous breed and has a common origin with the Savoiarda. The sheep are yellow with dark spots on their face and legs. Adult males weigh on average 57 kg and females 47 kg with an average wither height of 62 cm and 55 cm respectively. These sheep have coarse/carpet type wool and may be either polled or horned. The breed is known for its adaptation to the local environment (hills and mountains).

SAVOIARDA*CRITICAL***Local names or syn.:** Cuogné**Population data:** < 100 • 1998**Population trend:** -**Range of uses:** milk, meat, wool**ITALY**

The Savoiarda is an indigenous local population found in the Province of Turin, Piedmont. The animals are white and have black spots on their face and legs. Adult males weigh on average 67 kg and females 60 kg with an average wither height of 77 cm and 67 cm respectively. These sheep have coarse/carpet type wool and are adapted to the local environment (plains and hills).

ALPAGOTA*ENDANGERED***Local names or syn.:** Pagota (it.)**Population data:** 100 - 500 • 1998**Population trend:** -**Range of uses:** meat, milk, wool**ITALY**

The Alpagota, found in Belluno and Venezia Provinces, is a composite of Lamon, Vicentina and Istriana. These sheep are white in colour with dark spots on the face and legs, coarse/carpet type wool and no horns. Adult males weigh on average 52 kg and females 42 kg with an average wither height of 67 cm and 57 cm respectively. The breed is adapted to the local environment (hills and mountains).

BRIGASCA*ENDANGERED***Local names or syn.:** -**Population data:** 1 000 ♀♂ • 1994**Population trend:** stable**Range of uses:** milk, wool, meat**ITALY**

The Brigasca is a native local population found in Imperia Province, Liguria Region. The animals are white in colour with coarse/carpet type wool. Adult males weigh on average 67 kg and females 57 kg with an average wither height of 80 cm and 67 cm respectively. The breed is adapted to the local environment (mountains).

CIAVENASCA*ENDANGERED***Local names or syn.:** -**Population data:** 300 ♀♂ • 1994**Population trend:** decreasing**Range of uses:** meat**ITALY**

The Ciavenasca is a native local population found in Sondrio Province, Lombardy Region, northern Italy. The animals are white in colour, have coarse/carpet type wool and are polled. Adult males weigh on average 50 kg and females 42 kg with an average wither height of 60 cm and 52 cm respectively. The breed is adapted to the local environment (highlands/mountains).

FRABOSANA*ENDANGERED***Local names or syn.:** Roaschina (it.), Roascia (it.)**Population data:** > 1 000 • 1998**Population trend:** -**Range of uses:** meat, milk, wool**ITALY**

The Frabosana, an indigenous local population, is found in Ligurian Alps, Province of Cuneo. The animals are white and sometimes brown in colour and have coarse/carpet type wool. Adult males weigh on average 70 kg and females 62 kg with an average wither height of 77 cm and 70 cm respectively. The breed is adapted to the local environment (hills and mountains).

MARRANE*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 500 • 1998**Population trend:** -**Range of uses:** meat, wool**ITALY**

The Marrane, a composite of different breeds of the Appennin group, is found in the Ligurian Alps, Genova. The animals are yellow and sometimes light brown in colour. Adult males weigh on average 52 kg and females 42 kg with an average wither height of 65 cm and 60 cm respectively. They have coarse/carpet type wool and all animals are polled. The animals live in a hilly environment.

MATESINA*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 500 • 1998**Population trend:** -**Range of uses:** meat, wool**ITALY**

The Matesina is an indigenous breed, descended from the Gentile di Puglia, found in the Province of Caserta, Campania, southern Italy. The animals are brown in colour, have coarse/carpet type wool and females are polled. Adult males weigh on average 70 kg and females 60 kg with an average wither height of 65 cm and 60 cm respectively. The breed is known for its adaptation to the local marginal conditions (hills).

NOBILE DI BADIA*ENDANGERED*

Local names or syn.: Pusteria Gigante (it.), Tedesca di Pusteria (it.), Val di Pusteria (it.), Pusterese (eng.)

Population data: 250 ♀♂ • 1994

Population trend: decreasing

Range of uses: meat, milk

ITALY

The Nobile di Badia, a composite of Tirolese and Lamon, is found in the Province of Bolzano. The animals are yellow in colour, have coarse/carpet type wool and are polled. Adult males weigh on average 57 kg and females 50 kg with an average wither height of 75 cm and 67 cm respectively. The breed is known for its adaptation to the local environment (hills and mountains).

POMARANCINA*ENDANGERED*

Local names or syn.: -

Population data: > 1 000 • 1998

Population trend: -

Range of uses: milk, meat, wool

ITALY

The Pomarancina is found in the Province of Pisa, Toscana. It is a composite of different breeds of the Appennine Group. The sheep are white in colour, have coarse/carpet type wool and are polled. Adult males weigh on average 57 kg and females 47 kg with an average wither height of 72 cm and 60 cm respectively. The breed is adapted to the local environment (hills).

QUADRELLA*ENDANGERED*

Local names or syn.: -

Population data: 500 - 1 000 • 1998

Population trend: -

Range of uses: meat

ITALY

The Quadrella is found in Benevento and Avellino in the Campania Region, southern Italy. It is a local population descended from the Appenninica and Barbaresca breeds. The animals are white in colour, have coarse/carpet type wool and may be either polled or horned. Adult males weigh on average 90 kg and females 65 kg with an average wither height of 85 cm and 65 cm respectively. The breed is known for its adaptation to the local marginal conditions.

RAZZA DI GARESSIO*ENDANGERED*

Local names or syn.: Muma (it.), Garescina (eng.)

Population data: 500 - 1 000 • 1998

Population trend: -

Range of uses: meat, wool

ITALY

The Razza di Garescio is found in Ligurian Alps, Piedmont and is a composite of Appenninica and a local breed. The animals are white in colour, have coarse/carpet type wool and are polled. Adult males weigh on average 52 kg and females 47 kg with an average wither height of 62 cm and 57 cm respectively. The breed is adapted to the local hilly environment.

SALTASASSI*ENDANGERED***Local names or syn.:** -**Population data:** > 1 000 • 1998**Population trend:** -**Range of uses:** meat**ITALY**

The Saltasassi is an indigenous local population found in the Province of Novara, Piedmont Region. The animals are white in colour, have coarse/carpet type wool and are polled. Adult males weigh on average 60 kg and females 46 kg with an average wither height of 62 cm and 55 cm respectively. The breed is adapted to the local environment (hills and mountains).

SAMPEIERINA*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 500 • 1998**Population trend:** -**Range of uses:** -**ITALY**

No further information available.

TACOLA*ENDANGERED***Local names or syn.:** -**Population data:** 300 ♀♂ • 1994**Population trend:** decreasing**Range of uses:** meat**ITALY**

The Tacola is an indigenous breed, descended from Biellese (Alpine group), and is found in the Province of Vercelli, Piedmont Region. The animals are white in colour, have coarse/carpet type wool and are polled. The breed is adapted to the local environment (hills).

TURCHESSA*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 500 • 1998**Population trend:** -**Range of uses:** -**ITALY**

No further information available.

VARESINA*ENDANGERED***Local names or syn.:** -**Population data:** > 1 000 • 1998**Population trend:** -**Range of uses:** meat, wool**ITALY**

The Varesina is an indigenous breed, descended from Bergamo, found in the Province of Varese, Lombardy Region. These sheep are white in colour, have coarse/carpet type wool and are polled. Adult males weigh on average 87 kg and females 73 kg with an average wither height of 82 cm and 77 cm respectively. The breed is known for its adaptation to the local marginal conditions.

VISSANA*ENDANGERED***Local names or syn.:** -**Population data:** > 1 000 • 1998**Population trend:** -**Range of uses:** milk, meat, wool**ITALY**

The Vissana is a composite of different breeds of the Appenine Group and is found in Marche. The animals are white in colour and have coarse/carpet type wool. Adult males weigh on average 52 kg and females 42 kg with an average wither height of 70 cm and 60 cm respectively. Males may be either polled or horned and females are always polled. The breed is adapted to the local environment (hills).

ALTAMURANA*ENDANGERED-MAINTAINED***Local names or syn.:** Delle Murge (it.)**Population data:** 471 ♀ • 12 ♂ • 1994**Population trend:** decreasing**Range of uses:** milk, wool**ITALY**

The Altamura, a native local breed, is found in Bari and Foggia Provinces, Apulia Region, southern Italy. The animals are white and occasionally have dark spots on the face. Adult males weigh on average 52 kg and females 37 kg with an average wither height of 70 cm and 65 cm respectively. These sheep have coarse/carpet type wool and all animals are polled. The breed is adapted to live on arid soils.

BAGNOLESE*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** > 1 000 • 1998**Population trend:** -**Range of uses:** meat, wool, milk**ITALY**

The Bagnolese is found in the Avellino Province and the Campania Region. It is a composite of Comisana and a local breed. The animals are brown and white in colour, have coarse/carpet type wool and all animals are polled. Adult males weigh on average 85 kg and females 60 kg with an average wither height of 70 cm and 50 cm respectively. The breed is adapted to the local environment (hills and mountains).

DI CORTENO*ENDANGERED-MAINTAINED***Local names or syn.:** Corteno (eng.)**Population data:** > 1 000 • 1998**Population trend:** -**Range of uses:** meat**ITALY**

The Di Corteno is found in Brescia Province, Lombardy Region. It is a local derivative of Bergamasca and belongs to the Alpine group. These sheep are white in colour, have coarse/carpet type wool and are polled. Adult males weigh on average 67 kg and females 57 kg with an average wither height of 70 cm and 60 cm respectively. The breed is adapted to the local environment (hills and plains).

GARFAGNINA WHITE*ENDANGERED-MAINTAINED***Local names or syn.:** Garfagnina bianca (it.)**Population data:** 100 - 500 • 1998**Population trend:** -**Range of uses:** milk**ITALY**

The Garfagnina White is found in north-western Toscana. It is a composite of different breeds of the Appennine group. The animals are white in colour and have coarse/carpet type wool. Adult males weigh on average 52 kg and females 42 kg with an average wither height of 67 cm and 62 cm respectively. The breed is adapted to the local environment (hills).

LAMON*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 100 - 500 • 1998**Population trend:** -**Range of uses:** meat, milk**ITALY**

The Lamon is an indigenous breed, descended from Bergamasca, found in Belluno, Venetia, northern Italy. The animals are white with dark spots on their face and legs. Adult males weigh on average 77 kg and females 67 kg with an average wither height of 82 cm and 72 cm respectively. These sheep have coarse/carpet type wool and all animals are polled. The breed is well adapted to the local environment (hills and mountains).

PADOVANA*ENDANGERED***Local names or syn.:** Polish (eng.), Padoue (fr.), Paduan Fowl (eng.)**Population data:** 100 - 1 000 • 1994**Population trend:** stable**Range of uses:** fancy**ITALY**

The Padovana is a very old breed, the origin of which has been claimed by many European countries, but most likely it originated in either Poland or Italy. It has probably been crossed with Polverara chickens and is selected by fancy breeders all over Europe. In the past the stock has been used for production purposes. They have self-black white, gold, silver and buff coloured plumage with laced patterns within the feathers. They have white skin and the shanks and feet are blue. The comb is of duplex or V-shaped type and egg shells are white in colour. They are crested with a very pronounced protuberance of the skull, muffs and a beard. Adult males weigh on average 2 kg and females 1.8 kg. The major gene for sex-linked bantam dwarfism (dwb) is present in this breed.

POLVERARA-SCHIATTA*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1994**Population trend:** increasing**Range of uses:** fancy**ITALY**

The Polverara-Schiatta, an old breed named after the village of Polverara near Padua, is now found in Veneto. It was once used for both meat and egg production. The chickens have self-black (50%) or self-white (50%) coloured plumage. They have white skin and the shanks and feet are green. The comb is of duplex or V-shaped type and egg shells are white in colour. They have a crest on a rather small protuberance of the skull and muffs and beards are present. Adult males weigh on average 3 kg and females 2 kg.

VALDARNO*ENDANGERED*

Local names or syn.: -

Population data: 200 • 150 ♀ • 50 ♂ • 1994**Population trend:** increasing**Range of uses:** fancy**ITALY**

The Valdarno is an indigenous chicken found in the Toscana Region (Arno river valley), central Italy. In the last century it was kept for egg and meat production (both very good) but has now all but disappeared. The Valdarno has never been selected abroad. The chickens have self-black coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are black. The comb is of single type and egg shells are white in colour. No bantam dwarfism is observed. Adult males weigh on average 3 kg and females 2.6 kg. This breed should not be confused with the so-called Valdarnese, a local unimportant strain with white plumage.

ANGELN*ENDANGERED-MAINTAINED*

Local names or syn.: Angler (ger.)

Population data: 375 • 350 ♀ • 11 ♂ • 1990**Population trend:** -**Range of uses:** milk, meat**LATVIA**

Angeln cattle are red-brown in colour. Adult males weigh on average 917 kg and females 350 kg with an average wither height of 148 cm and 127 cm respectively. Of females, 100% are bred to males of the same breed. The semen of 11 males is stored.

DANISH RED*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 474 • 460 ♀ • 14 ♂ • 1990**Population trend:** decreasing**Range of uses:** milk, meat**LATVIA**

Danish Red cattle are red in colour. Adult males weigh on average 973 kg and females 460 kg with an average wither height of 153 cm and 131 cm respectively. Of females, 100% are bred to males of the same breed. The semen of 14 males is stored.

LATVIAN*ENDANGERED-MAINTAINED*

Local names or syn.: Latviiskaya (ru.), Latviiskii Upryazhnyi (ru.), Latvian Carriage (eng.), Latvian Coach (eng.), Latvian Draft (eng.), Latvijas Zirgi (ru.)

Population data: 12 000 • 1 000 ♀ • 300 ♂ • 1994

Population trend: increasing

Range of uses: draught power, sport

LATVIA

Latvian horses are found country-wide. The first attempts to generate this breed began in 1856 by crossing local Latvian northern horses with western European horses. Planned pedigree work was initiated in 1890 using 10 breeds. In the first half of this century Trakenes, Oldenburg, Hannover and Holstein stallions were used to create two principal types of Latvian horses: traction and sport animals. The Latvian horse breed was formally formed in 1952 and the best pure-bred animals are registered in the herd book. The animals are bay, dark bay or black and are sometimes chestnut. Adult males weigh on average 600 kg and females 500 kg with an average wither height of 160 cm and 158 cm respectively. There are 3 458 females registered in the herd book, of which 90% are bred to males of the same breed. The semen of 30 males is stored.

DUROC*ENDANGERED-MAINTAINED*

Local names or syn.: Lad

Population data: 4900 • 490 ♀ • 95 ♂ • 1993

Population trend: increasing

Range of uses: meat

LATVIA

Duroc pigs are brown in colour. Adult males weigh on average 330 kg and females 255 kg. Of females, 100% are bred to males of the same breed. The semen of 6 males is stored. The population size is decreasing because of economic reforms.

LITHUANIAN LIGHT GREY*ENDANGERED-MAINTAINED*

Local names or syn.: Lietuvos šemieji

Population data: 400 • 300 ♀ • 10 ♂ • 1995

Population trend: decreasing

Range of uses: milk, meat

LITHUANIA

The Lithuanian Light Grey is an indigenous breed found in south-western Lithuania. The animals are light grey in colour. Adult males weigh on average 700 kg and females 450 kg with an average wither height of 130 cm and 125 cm respectively. The breed is known for its adaptation to the locally prevailing climate, produces milk of good quality and the animals have a strong constitution. There are 3 herds remaining. Of females, 20% are bred to males of the same breed. The semen of 2 males is stored.

LITHUANIAN WHITE BACK*ENDANGERED-MAINTAINED*

Local names or syn.: Lietuvos Baltnugariai

Population data: > 400 • 350 ♀ • 20 ♂ • 1994

Population trend: stable

Range of uses: milk, meat

LITHUANIA

The Lithuanian White Back is an indigenous breed found in south-western Lithuania. The animals have a characteristic white back. Adult males weigh on average 700 kg and females 400 kg with an average wither height of 135 cm and 128 cm respectively. The breed is known for its adaptation to the locally prevailing climate, produces milk of good quality and the animals have a strong constitution. Of females, 20% are bred to males of the same breed.

ZEMAITUKAI (MODERN TYPE)*CRITICAL***Local names or syn.:** Sustambinto Tipa Zemaitukai (ru.)**Population data:** < 1 000 • 60 ♀ • 25 ♂ • 1994**Population trend:** stable**Range of uses:** draught power, meat**LITHUANIA**

The Zemaitukai (Modern Type) is found country-wide. The animals are bay in colour. Adult males weigh on average 561 kg and females 509 kg with an average wither height of 152 cm and 149 cm respectively.

ZEMAITUKAI*CRITICAL-MAINTAINED***Local names or syn.:** Lithuanian Landrace (eng.), Samogitian, Zmudzki (pol.), Smudisch, Zhemaichu (ru.), Zhmud (ru.), Zhmudka (ru.)**Population data:** < 100 • 25 ♀ • 6 ♂ • 1994**Population trend:** decreasing**Range of uses:** draught power, sport**LITHUANIA**

The Zemaitukai are light ponies, similar to Estonian Natives and Forest Horses, and are found country-wide. They are black, grey or brown in colour. Adult males weigh on average 410 kg and females 400 kg with an average wither height of 136 cm and 135 cm respectively. The breed is known for high fertility, disease resistance, strength, endurance, speed and longevity. This is a universal breed suitable for transport, tourism and amateur equestrian sports. The number of remaining Zemaitukai horses is very low. However, since independence, there has been an increased interest in the breed and the remaining horses are being bought from farmers and will be kept at several breeding centres. Breeding work aimed at the preservation of the breed has recently begun and the rate of disappearance of the breed has declined. Of females, 80% are bred to males of the same breed.

NATIVE LITHUANIAN*ENDANGERED-MAINTAINED***Local names or syn.:** Vietines Kiaules**Population data:** < 1 000 • 200 ♀ • 20 ♂ • 1994**Population trend:** decreasing**Range of uses:** meat, lard**LITHUANIA**

The Native Lithuanian is found in south-western Lithuania. It is a local Lithuanian breed developed by folk selection. The animals are white, black and tan in colour and are bearded animals. Adult males weigh on average 180 kg and females 150 kg with an average wither height of 79 cm and 71 cm respectively. Tolerance against high sun radiation and adaptation to the local environment are reported for this breed. Only one herd remains. Of females, 15% are bred to males of the same breed.

NATIVE COARSEWOOLED*CRITICAL***Local names or syn.:** Vietines šiurkšciavilnes**Population data:** 100 • 70 ♀ • 4 ♂ • 1993**Population trend:** decreasing**Range of uses:** wool, meat, skins and hides**LITHUANIA**

The Native Coarsewooled is found in south-eastern Lithuania and is a local Lithuanian breed. The animals are grey, white, black and light brown in colour and may be either polled or horned. They have thin legs and coarse/carpet type wool. Adult males weigh on average 40 kg and females 30 kg with an average wither height of 62 cm and 60 cm respectively. These sheep have an unspecified disease resistance. Only one herd remains and, of females, only 5% are bred to males of the same breed.

VISHTINES*CRITICAL***Local names or syn.:** -**Population data:** 86 • 66 ♀ • 20 ♂ • 1994**Population trend:** increasing**Range of uses:** downs, meat**LITHUANIA**

The Vishtines is the result of crossing local Lithuanian and Prussian geese. They have self-white (90%) or silver-columbian (10%) coloured plumage with barred, autosomal patterns within the feathers. They have yellow skin and the shanks and feet are orange. The comb is of single type and egg shells are white in colour. Adult males weigh on average 5.2 kg and females 6.2 kg.

HOLSTEIN-FRIESIAN*ENDANGERED***Local names or syn.:** Black and White (eng.)**Population data:** 30 000 ♀ • 10 ♂ • 1995**Population trend:** -**Range of uses:** milk, meat**LUXEMBOURG**

The Holstein-Friesian, imported from The Netherlands, Germany and the United States of America, is found in southern Luxembourg. The animals are black and white in colour. Adult females weigh on average 700 kg and stand 140 cm tall at the withers. Of females, 90% are bred to males of the same breed.

CHEVAL DE SELLE*ENDANGERED***Local names or syn.:** Saddlebred (eng.)**Population data:** 600 ♀ • 15 ♂ • 1986**Population trend:** stable**Range of uses:** sport**LUXEMBOURG**

The Cheval de Selle, imported from Germany and France, is found country-wide. The animals are bay or chestnut in colour. Adult males weigh on average 600 kg and females 500 kg with an average wither height of 168 cm and 162 cm respectively. There are 300 females registered in the herd book, of which 100% are bred to males of the same breed.

HAFLINGER*ENDANGERED***Local names or syn.:** -**Population data:** 400 ♀ • 30 ♂ • 1986**Population trend:** increasing**Range of uses:** sport, draught power, meat**LUXEMBOURG**

The Haflinger was imported from Austria and Germany and is found country-wide. The animals are light to dark chestnut in colour with a full flaxen mane and tail. Adult males weigh on average 500 kg and females 450 kg with an average wither height of 145 cm and 138 cm respectively. There are 250 females registered in the herd book, of which 100% are bred to males of the same breed.

CHEVAL DE TRAIT ARDENNAIS*ENDANGERED-MAINTAINED***Local names or syn.:** Ardennes (eng.)**Population data:** 350 ♀ • 15 ♂ • 1986**Population trend:** stable**Range of uses:** sport, meat, draught power**LUXEMBOURG**

The Cheval de Trait Ardennais was imported from Belgium since 1950 and is found country-wide.

BAQRA MALTIJA*CRITICAL***Local names or syn.:** Il-Maltija, Maltese Cow (eng.)**Population data:** 11 ♀ • 2 ♂ • 1999**Population trend:** increasing**Range of uses:** milk**MALTA**

Baqra Maltija cattle are very droughty. Adult males weigh on average 800 kg and females 700 kg with an average wither height of 180 cm and 170 cm respectively.

MOLDOVIAN ESTONIAN RED*CRITICAL***Local names or syn.:** Rosie estona**Population data:** 400 • 200 ♀ • 2 ♂ • 1994**Population trend:** decreasing**Range of uses:** milk**MOLDOVA, REPUBLIC OF**

The Moldovian Estonian Red was created through discriminate crossing of local cows with bulls imported from Estonia. Adult males weigh on average 800 kg and females 550 kg with an average wither height of 128 cm and 125 cm respectively. Good milk fat content (3.9 - 4.1%) is reported for this breed. Of females, 90% are bred to males of the same breed.

MOLDAVIAN MEAT TYPE*ENDANGERED***Local names or syn.:** Tipul Moldovenesc de Carne**Population data:** 2 380 • 170 ♀ • 400 ♂ • 1994**Population trend:** decreasing**Range of uses:** meat**MOLDOVA, REPUBLIC OF**

The Moldavian Meat Type, established in 1991, was created for hybridization, being used as a paternal line. The animals are white in colour. Adult males weigh on average 300 kg and females 230 kg. Of females, 100% are bred to males of the same breed.

SOUTH TYPE*ENDANGERED***Local names or syn.:** Tipul Sudic**Population data:** 2 160 • 200 ♀ • 350 ♂ • 1994**Population trend:** decreasing**Range of uses:** meat, dam line**MOLDOVA, REPUBLIC OF**

The South Type pig breed was established in 1990. The animals are white in colour and adult males weigh on average 300 kg and females 230 kg. They have an average litter size of 11 piglets. Of females, 100% are bred to males of the same breed.

DEEP RED*CRITICAL***Local names or syn.:** Brandrode Runderen (dutch)**Population data:** < 100 • 60 ♀ • 5 ♂ • 1998**Population trend:** stable**Range of uses:** vegetation management, meat**NETHERLANDS**

The Deep Red, established in 1976 and descended from the Meuse-Rhine-Yssel (Netherlands), is found in the south. The animals are red with white spots on the head. They have a white tail tip and horizontal horns that stick out a little. Of females, 100% are bred to males of the same breed. The semen of 2 males is stored.

FRIES ROODBONT*CRITICAL-MAINTAINED***Local names or syn.:** Friesian Red and White (eng.), Red Friesian (eng.)**Population data:** < 100 • 65 ♀ • 14 ♂ • 1997**Population trend:** increasing**Range of uses:** milk, meat**NETHERLANDS**

The Fries Roodbont is found in the northern part of Holland (Friesland) and is a Dutch Friesian (carrying red factor). They are dairy type cattle, red and white in colour. Adult males weigh on average 775 kg and females 550 kg with an average wither height of 143 cm and 136 cm respectively. The horns are not too big and are curved shape. The milk is known for the high milk protein percentage. There are 29 herds remaining and 32 females registered in the herd book, 90% of which are bred to males of the same breed. The *in situ* conservation programme involves 19 reproducing males and 29 herds or breeders. The semen of 21 males is stored and embryos are also stored.

AMERICAN DUTCH BELTED*ENDANGERED***Local names or syn.:** Dutch Belt (dutch)**Population data:** < 300 • 1994**Population trend:** decreasing**Range of uses:** milk**NETHERLANDS**

The American population of the American Dutch Belted has been separated from the Dutch foundation population since the mid 1800s and, unlike the Lakenvelders, has always been bred pure. Its genetic distinctiveness is recognized and semen has been imported to The Netherlands to reconstruct the breed there. The animals are black in colour with a white belt and may be either polled or horned. This breed is known for a good forage efficiency. There are 50 females registered in the herd book.

GRONINGER BLAARKOP*ENDANGERED-MAINTAINED***Local names or syn.:** Groningen White-Headed (eng.)**Population data:** 1 000 - 10 000 • 1 000 ♀ • 100 ♂ • 1998**Population trend:** stable**Range of uses:** milk, meat, vegetation management**NETHERLANDS**

The Groninger Blaarkop, an indigenous breed established in 1900, is found in Province Groningen, southern Netherlands, Utrecht and Gelderland. They are black and white or red and white, with a white head, black eye-rings, white socks, belly and tailtip, have strong legs and hooves, long hair and a good feed-efficiency. Adult males weigh on average 850 kg and females 550 kg with a mean wither height of 145 cm and 138 cm. They have medium sized, horizontal or drip/volatile horns. Good quality meat, calving ease, high fertility and longevity (mean 5.04 yrs) are reported. There is a strong influence of HE. A pure-breeding programme is resulting in the slow increase of pure-bred females. 750 females are registered in the herd book (80% bred pure). The *in situ* conservation programme involves 100 reproducing males, an additional 30 males with semen for AI, and 10 herds or breeders.

LAKENVELDER*ENDANGERED-MAINTAINED***Local names or syn.:** Dutch Belted (eng.)**Population data:** 100 - 1 000 • 900 ♀ • 27 ♂ • 1998**Population trend:** increasing**Range of uses:** hobby, vegetation management, milk**NETHERLANDS**

The Lakenvelde is found country-wide, but most populations are found in Gelderland and north Brabant. It is an indigenous original Dutch Belted (Lakenvelde) established in 1700. The animals are black or red with a white belt. Adult males weigh on average 500 kg and females 450 kg with an average wither height of 133 cm and 127 cm respectively. They have little volatile horns but there is the occurrence of rare polled animals. The breed is well adapted to the local climate, females are known for calving ease and the breed is known for hoof quality. There are 900 females registered in the herd book, of which 90% are bred to males of the same breed. The *in situ* conservation programme involves 6 reproducing males and additional 11 males with semen for AI. Six herds are involved in the programme.

GRONINGER PAARD*CRITICAL-MAINTAINED***Local names or syn.:** Groningen (eng.)**Population data:** 90 ♀ • 12 ♂ • 1994**Population trend:** stable**Range of uses:** sport, draught power, general cross-breeding**NETHERLANDS**

The Groninger Paard is found country-wide. It is a composite of local Friesian Horse, Thoroughbred, Cleveland (United Kingdom) and Oldenburger and was established in the 19th century. The animals are preferentially black or brown in colour. Adult males weigh on average 650 kg and females 600 kg with an average wither height of 165 cm and 160 cm respectively. There are 10 herds remaining and there are 60 females registered in the herd book, of which 75% are bred to males of the same breed. The semen of one male is stored.

GELDERS PAARD*ENDANGERED-MAINTAINED***Local names or syn.:** Gelderland (eng.)**Population data:** 100 - 1 000 • 700 ♀ • 18 ♂ • 1998**Population trend:** decreasing**Range of uses:** sport, draught power**NETHERLANDS**

The Gelders Paard is found scattered country-wide. It is a composite of the original local Gelderland Horse, Anglo-Norman (France), Holstein, Oldenburger and East Friesian (Germany) and was established in 1890. The animals are black, light black, bay, dark to light chestnut or grey and are commonly chestnut or grey with white markings. Adults weigh on average 600 kg and males and females have an average wither height of 168 cm and 165 cm respectively. There are 150 herds remaining. Six hundred females are registered in the herd book, of which 50% are bred to males of the same breed. The semen of 5 males is stored.

CLUN FOREST*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 700 ♀ • 80 ♂ • 1998**Population trend:** stable**Range of uses:** vegetation management, meat, hobby**NETHERLANDS**

The Clun Forest was imported from the United Kingdom in 1980 and is found country-wide. It is a composite of Kerry Hill, Shropshire and Black Welsh Mountain (United Kingdom). The animals are cream or yellow with black/brown legs and have erect ears (vertical). Males and females have an average wither height of 95 cm and 65 cm respectively. These sheep have medium fibred wool and there is an occurrence of rare polled animals. The animals are very well adapted to the local climate. This hardy breed is known for its longevity. There are 250 herds remaining and 300 females are registered in the herd book, of which 90% are bred to males of the same breed.

BLACK BLAZED SHEEP*ENDANGERED-MAINTAINED***Local names or syn.:** Zwartbles (dutch)**Population data:** 100 - 1 000 • 394 ♀ • 59 ♂ • 1998**Population trend:** increasing**Range of uses:** meat**NETHERLANDS**

The Black Blazed Sheep is found country-wide. It is a composite of Schoonebeker, Texel and Friesian Milkshopeep and was established in 1920. The animals are black in colour with a blaze on the head, white socks and tailtip. They have a long peaked head, curved nosebone and raised front. Adult males weigh on average 90 kg and females 80 kg with an average wither height of 85 cm and 77 cm respectively. These sheep have fine fibred wool and there is an occurrence of rare polled animals. They produce excellent lean meat and an easy lambing, good fertility and motherhood and high milk production is reported for this breed. They are sober animals that are easy to handle. There are 36 herds remaining and 394 females are registered in the herd book, 100% of which are bred to males of the same breed. The *in situ* conservation programme involves 36 herds or breeders.

DRENTSE HEIDESCHAAP*ENDANGERED-MAINTAINED***Local names or syn.:** Drenthe Heath Sheep (eng.)**Population data:** 100 - 1 000 • 75 ♂ • 1997**Population trend:** stable**Range of uses:** vegetation management, meat, wool**NETHERLANDS**

The Drentse Heideschaap, established in 1800, is found in eastern Netherlands, Province Drente. It is of local origin being a composite of Drente Heath Sheep and Schoonebeker. The animals are white with black, grey, brown or yellow spots with a reddish brown or black head. Adult males weigh on average 50 kg and females 45 kg with an average wither height of 52 cm and 47 cm respectively. These sheep have coarse/carpet type wool and are horned, although there may be an occurrence of rare polled animals. This breed is reported to have mostly one lamb and is the only horned heather sheep breed in Netherlands. There are 804 females registered in the herd book, of which 90% are bred to males of the same breed. The *in situ* conservation programme involves 8 reproducing males and 2 herds.

MERGELLAND SCHAAP*ENDANGERED-MAINTAINED***Local names or syn.:** Mergelland (eng.)**Population data:** 500 ♀ • 80 ♂ • 1994**Population trend:** stable**Range of uses:** socio-cultural, hobby, wool**NETHERLANDS**

The Mergelland Schaap is found in the Province of Limburg, mainly southern Netherlands. It is an indigenous Meuse sheep and was established in 1800. Adult animals are white and lambs have brown spots on the neck. Adult males weigh on average 70 kg and females 65 kg with an average wither height of 70 cm and 65 cm respectively. These sheep have coarse/carpet type wool and are polled. The animals are very well adapted to their production environment and produce good lean meat which is served in hotels as Mergelland-meat. Animals of this breed transport plant seeds in their wool, hooves and dung and contribute to the re-introduction of the typical vegetation in Mergelland. There are 10 herds remaining and 450 females registered in the herd book, of which 90% are bred to males of the same breed.

SCHOONEBEKER*ENDANGERED-MAINTAINED***Local names or syn.:** Schoonebeker Heideschaap (dutch)**Population data:** 100 - 1 000 • 27 ♂ • 1997**Population trend:** increasing**Range of uses:** vegetation management, meat, wool**NETHERLANDS**

The Schoonebeker is found mainly in the Province of Drente, north-eastern Netherlands. It is an indigenous local breed of Nord Holland crossed with Drente Heath sheep and was established in 1900. The animals are white with black, grey or brown spots, have coarse/carpet type wool and a long tail. Adult males weigh on average 80 kg and females 50 kg with an average wither height of 77 cm and 72 cm respectively. There may be an occurrence of rare polled animals. The animals are well adapted to extensive conditions. There are 134 females registered in the herd book, of which 70% are bred to males of the same breed. The *in situ* conservation programme involves 8 reproducing males and 2 herds.

DØLEFE*CRITICAL-MAINTAINED***Local names or syn.:** Døle (Doele) Cattle (eng.)**Population data:** 160 • 120 ♀ • 3 ♂ • 1998**Population trend:** increasing**Range of uses:** milk, meat**NORWAY**

The dølefe was developed in the south-east (1880s) from local cattle, Ayrshire and Telemark Cattle. They are brown, black, red, dun dilution, solid or white marked. Cows have a mean weight and height of 500 kg and 124 cm. Naturally polled animals occur (15%). Traditionally, this is the most beefy type of the old Norwegian breeds. It is registered in the Nordic Gene Bank Database, 120 females registered in the herd book (99% bred pure). The *in situ* conservation programme involves registration of animals and production traits, maintenance of preservation herds, monitoring the breed, AI programmes and informing the public and decision-makers about the need and importance of the conservation work. The semen of 16 males is stored. Embryos are also stored. Semen is collected from 2 new AI-bulls/year. Embryos are collected when donor cows are available.

ØSTLANDSK RØDKOLLE*CRITICAL-MAINTAINED***Local names or syn.:** Eastern Red Polled Cattle (eng.)**Population data:** 90 • 70 ♀ • 1998**Population trend:** increasing**Range of uses:** milk, meat**NORWAY**

The østlandsk rødkolle, found in eastern Norway, was developed from local south-eastern cattle and from some imports of Scottish Ayrshire and Black Pied Dutch. The breed was established in 1923. They are solid red, some having white markings on the head like a headscarf. They are polled. Females have a mean weight and height of 500 kg and 133 cm. The breed is registered in the Nordic Gene Bank Database. 60 females are registered in the herd book (97% bred pure). The *in situ* conservation programme involves registration of animals and production traits, maintenance of preservation herds, monitoring the breed, AI programmes and informing the public and decision-makers about the need and importance of the conservation work. The semen of 13 males is stored. Embryos are also stored. Semen is collected from 2 new AI-bulls/year. Embryos are collected when donor cows are available.

VESTLANDSK FJORDFE*ENDANGERED***Local names or syn.:** Western Fjord Cattle (eng.)**Population data:** 370 • 270 ♀ • 10 ♂ • 1998**Population trend:** increasing**Range of uses:** milk, meat**NORWAY**

The vestlandsk fjordfe, found in fjord areas in western Norway, was developed from local animals in the late 19th century. The cattle are black, red, brown, brindle, have white markings, a dun dilution and are coloursided. Females have a mean weight and height of 400 kg and 120 cm respectively. Animals may be polled (60%) or horned (40%). The breed is registered in the Nordic Gene Bank Database. 270 females are registered in the herd book (97% bred pure). The *in situ* conservation programme involves registration of animals and production traits, maintenance of preservation herds, monitoring of the breed, AI programmes and informing the general public and decision-makers about the need and importance of the conservation work. The semen of 14 males is stored. Embryos are also stored. Semen is collected from 2 new AI-bulls/year. Embryos are collected when donor cows are available.

VESTLANDSK RAUDKOLLE*ENDANGERED*

Local names or syn.: Western Red Polled Cattle (eng.) sør- og vestlandsfe (nor.)

Population data: 320 • 240 ♀ • 1998

Population trend: increasing

Range of uses: milk, meat

NORWAY

The vestlandsk raudkolle, developed in the eastern part of Norway (1880-90), is found in the south-west. The cattle are solid red with some white markings. Females weigh on average 450 kg and stand 121 cm tall. As the breed's name indicates, the animals are all polled. The breed is registered in the Nordic Gene Bank Database, administrated by The Norwegian Museum of Agriculture. 240 females are registered in the herd book, 97% of which are bred to males of the same breed. The *in situ* conservation programme involves registration of animals and production traits, maintenance of preservation herds, monitoring of the breed, AI programmes and informing the general public and decision-makers about the need and importance of the conservation work. The semen of 15 males is stored and embryos are also stored. Semen is collected from 2 new AI-bulls/year. Embryos are collected when donor cows are available.

SIDET TRØNDERFE OG NORDLANDSFE*ENDANGERED-MAINTAINED*

Local names or syn.: rørosfe (nor.), STN (nor.), Sided Trønder and Nordland Cattle (eng.)

Population data: 1 000 • 10 ♂ • 1998

Population trend: increasing

Range of uses: milk, meat

NORWAY

The sidet trønderfe og nordlandsfe, developed during the 1880-90s from local breeds from central and northern Norway, is found in the County of Oppland, Hedmark, Nordland, Sør-Trøndelag, Møre og Romsdal and Nord-Trøndelag. They are black sided with a white back and red animals can occur. Females weigh on average 500 kg and males and females have a mean wither height of 140 cm and 119 cm respectively. The breed is 100% polled. Of females, 95% are bred to males of the same breed. The *in situ* conservation programme involves registration of animals and production traits, maintenance of preservation herds, monitoring of the breed, AI programmes and informing the general public and decision-makers about the need and importance of the conservation work. The semen of 65 males is stored. Semen is collected from five AI-bulls/year. Embryos are collected when donor cows are available.

TELEMARKFE*ENDANGERED-MAINTAINED*

Local names or syn.: Telemark Cattle (eng.)

Population data: 600 • 500 ♀ • 1998

Population trend: increasing

Range of uses: milk, meat

NORWAY

The telemarkfe is an indigenous breed established in 1856. The animals are red sided with a white back, red muzzle and they are brindled. Adult males weigh on average 700 kg and females 450 kg with an average wither height of 140 cm and 121 cm respectively. There are 500 females registered in the herd book, of which 97% are bred to males of the same breed. The *in situ* conservation programme involves the registration of animals and production traits, the maintenance of preservation herds, monitoring of the breed, AI programmes and informing the general public and decision-makers about the need and importance of the conservation work. The semen of 53 males is stored. Embryos are also stored. Semen is collected from four new AI-bulls/year. Embryos are collected when donor cows are available.

UTEGANGARGEIT*CRITICAL-MAINTAINED*

Local names or syn.: Ranging Goat (eng)

Population data: 100 • 1998

Population trend: stable

Range of uses: meat

NORWAY

The utegangargeit (nor) is found in Selje in the county of Sogn og Fjordane. It is a local breed kept for meat-production on the islands of the western coast of Norway, the main product being meat from four-year-old castrates. The year of origin is unknown, but it is believed that this kind of management system may be several hundreds of years old. The animals are white with brown or black markings in colour. This breed lives outdoors the whole year around, except for a couple of months just after kidding. During this period the goats and kids are kept indoors during the night and the goats are let out during the day for grazing. Local people are encouraged to continue the tradition of keeping these goats. Males are bought for semen production. The semen of one male is stored.

NORDLANDSHEST*ENDANGERED-MAINTAINED*

Local names or syn.: Lyngshest (nor.), Lyngen (nor.), Nordland (eng.)

Population data: 154 ♀ • 27 ♂ • 1993

Population trend: increasing

Range of uses: sport, socio-cultural

NORWAY

The Nordlandshest is found in northern Norway. It is a composite of Lyngshest, Nordlandshest and other small breeds from northern Norway. The animals can be all solid colours but are usually dark in colour. Adults weigh on average 275 kg with an average wither height of 130 cm. There are 10 herds remaining and there are 300 females registered in the herd book, of which 100% are bred to males of the same breed.

TYNGRE DØLEHEST*ENDANGERED-MAINTAINED*

Local names or syn.: Døle-Gudbrandsdal (nor.), Gudbrandsdal (nor.), Østland (nor.), Døle Draught (eng.)

Population data: 284 ♀ • 27 ♂ • 1994

Population trend: decreasing

Range of uses: sport, socio-cultural

NORWAY

The Tyngre Dølehest, a local Doele Hest, is found in south-eastern Norway. The animals are black, bay or brown in colour with a profuse mane and tail. Adults weigh on average 425 kg with an average wither height of 151 cm. There are 350 females registered in the herd book, of which 100% are bred to males of the same breed.

NORSK YORKSHIRE*ENDANGERED*

Local names or syn.: Norwegian Yorkshire (eng.)

Population data: 300 ♀ • 25 ♂ • 1992

Population trend: decreasing

Range of uses: meat

NORWAY

Norsk Yorkshire pigs weigh on average 200 kg and 165 kg with an average wither height of 100 cm and 80 cm for males and females respectively. The semen of 75 males is stored.

NORSK YORKSHIRE*ENDANGERED*

Local names or syn.: Large White (eng.)

Population data: 300 ♀ • 25 ♂ • 1994

Population trend: stable

Range of uses: meat

NORWAY

The Norsk Yorkshire is found in south-eastern Norway and is a composite of Landrace and Yorkshire from the United Kingdom, Finland and Sweden. The animals are white in colour with erect ears. Adult males weigh on average 200 kg and females 165 kg with an average wither height of 100 cm and 80 cm respectively. The animals produce good quality meat. There are 10 herds remaining and 300 females are registered in the herd book, 85% of which are bred to males of the same breed. The semen of 75 males is stored.

GJERMUNDUES 1*ENDANGERED***Local names or syn.:** White Leghorn (eng.)**Population data:** 500 • 400 ♀ • 100 ♂ • 1994**Population trend:** stable**Range of uses:** eggs**NORWAY**

The Gjermundues 1 is a pure line, imported from the United States of America in 1957. This is a typical White Leghorn as described in Scandinavian standard. Adult males weigh on average 2.7 kg and females 1.7 kg. It is used as a maternal line for producing white-egg cross-breeds.

GJERMUNDUES 2*ENDANGERED***Local names or syn.:** White Leghorn (eng.)**Population data:** 470 • 370 ♀ • 100 ♂ • 1994**Population trend:** stable**Range of uses:** eggs**NORWAY**

The Gjermundues 2 is a pure line, imported from Sweden in 1979. This is a typical White Leghorn as described in Scandinavian standard. Adult males weigh on average 2.7 kg and females 1.7 kg. It is used as a paternal line in cross-breeding. It has a high frequency of B21 haploids in blood typing.

GJERMUNDUES 3*ENDANGERED***Local names or syn.:** White Leghorn (eng.)**Population data:** 540 • 440 ♀ • 100 ♂ • 1994**Population trend:** -**Range of uses:** eggs**NORWAY**

The Gjermundues 3 is a very old pure line in Norway. This is a typical White Leghorn as described in Scandinavian standard. Adult males weigh on average 2.8 kg and females 1.8 kg. This line produces good heterosis effects when used in cross-breeding and is mostly used as a paternal line in white-egg cross-breeding.

KALNES 1*ENDANGERED***Local names or synonyms:** Brown Egg Layer (eng.)**Population data:** 470 • 398 ♀ • 72 ♂ • 1994**Population trend:** stable**Range of uses:** eggs**NORWAY**

The Kalnes 1 was imported from Ross (Scotland) in 1989. They have brown coloured plumage. Adult males weigh on average 3.1 kg and females 2.1 kg. Chick sexing in cross-breeds (producing Kalnes 13) chickens is possible. The Kalnes 1 is used as a paternal breeding line.

KALNES 2*ENDANGERED***Local names or syn.:** Brown Egg Layer (eng.)**Population data:** 414 • 354 ♀ • 60 ♂ • 1994**Population trend:** stable**Range of uses:** eggs**NORWAY**

The Kalnes 2 was imported from Ross (Scotland) in 1989. They have brown coloured plumage and males weigh on average 3.2 kg and females 2.2 kg. Chick sexing in cross-breeds (producing Kalnes 24) is possible. This line is used as a paternal line.

KALNES 3*ENDANGERED***Local names or syn.:** Brown Egg Layer (eng.)**Population data:** 474 • 407 ♀ • 67 ♂ • 1994**Population trend:** stable**Range of uses:** eggs**NORWAY**

The Kalnes 3 was imported from Ross (Scotland) in 1989. They have self-white coloured plumage and males weigh on average 2.8 kg and females 1.8 kg. Chick sexing in cross-breeds (producing Kalnes 31) is possible. This line is used as a maternal line.

KALNES 4*ENDANGERED***Local names or syn.:** Brown Egg Layer (eng.)**Population data:** 407 • 340 ♀ • 67 ♂ • 1994**Population trend:** stable**Range of uses:** eggs**NORWAY**

The Kalnes 4 was imported from Ross (Scotland) in 1987. They have self-white coloured plumage and males weigh on average 3.1 kg and females 2.1 kg. Chick sexing in cross-breeds (producing Kalnes 24) is possible. The line is used as a maternal line.

KALNES 5*ENDANGERED***Local names or syn.:** Brown Egg Layer (eng.)**Population data:** 172 • 135 ♀ • 37 ♂ • 1994**Population trend:** stable**Range of uses:** eggs**NORWAY**

The Kalnes 5 was imported from Warren (Isa) in Ireland in 1982. They have self-white coloured plumage and males weigh on average 3.1 kg and females 2.1 kg. The line is used as a maternal line in brown eggs cross-breed.

NOR. BRID 1*ENDANGERED***Local names or syn.:** White Leghorn (eng.)**Population data:** 961 • 855 ♀ • 106 ♂ • 1994**Population trend:** stable**Range of uses:** eggs**NORWAY**

The Nor. brid 1 is a synthetic selected line produced in a breeding experiment in 1977. It has the same origin as Roko Hóns 4. It is a typical White Leghorn as described in Scandinavian standard. Adult males weigh on average 2.7 kg and females 1.7 kg. The females are known as good layers and the line is one of the most used in commercial egg production in Norway. The animals are known for their quiet temper and are used as a maternal line in two-breed cross.

NOR. BRID 3*ENDANGERED***Local names or syn.:** White Leghorn (eng.)**Population data:** 638 • 538 ♀ • 106 ♂ • 1994**Population trend:** stable**Range of uses:** eggs**NORWAY**

The Nor. brid 3 was imported in 1965 and has the same origin as Gjermundues 1. This is a typical White Leghorn as described in Scandinavian standard. Adult males weigh on average 2.7 kg and females 1.7 kg. This line has a relatively nervous temper. It is used as a paternal line in two-breed cross (Nor. Brid 31).

NOR. BRID 4*ENDANGERED***Local names or syn.:** White Leghorn (eng.)**Population data:** 738 • 638 ♀ • 100 ♂ • 1994**Population trend:** stable**Range of uses:** eggs**NORWAY**

The Nor. brid 4, established in 1972, was imported from an old Norwegian line, C-Nilson, and has the same origin as Gjermundues 1. This is a typical White Leghorn as described in Scandinavian standard and the birds have a quiet temper. Adult males weigh on average 2.8 kg and females 1.8 kg. This line is one of the most used lines in Norway and it is used as a paternal line in breed cross (Nor. Brid 41).

NOR. BRID 7*ENDANGERED***Local names or syn.:** Brown Egg Layer (eng.)**Population data:** 760 • 662 ♀ • 98 ♂ • 1994**Population trend:** stable**Range of uses:** eggs**NORWAY**

The Nor. brid 7 was imported from Hisex in Sweden in 1981. They have self-white coloured plumage. Adult males weigh on average 3 kg and females 2 kg. This line has a quiet temper. This is one of the most used lines in Norway and is used as a maternal line in commercial brown egg layer production (Nor. Brid 87).

NOR. BRID 8*ENDANGERED***Local names or syn.:** Brown Egg Layer (eng.)**Population data:** 713 • 628 ♀ • 85 ♂ • 1994**Population trend:** stable**Range of uses:** eggs**NORWAY**

The Nor. brid 8 was imported from Sweden in 1981 and derives originally from a Hisex type. They have brown coloured plumage and males weigh on average 3 kg and females 2 kg. The females are good layers. The line is used as a paternal line in commercial brown egg layer production (Nor. Brid 87).

ROKO HÓNS 1*ENDANGERED***Local names or syn.:** White Leghorn (eng.)**Population data:** 909 • 809 ♀ • 100 ♂ • 1994**Population trend:** stable**Range of uses:** eggs**NORWAY**

The Roko hóns 1 is one of the oldest pure lines of White Leghorn in Norway. This is a typical White Leghorn as described in Scandinavian standard. Adult males weigh on average 2.4 kg and females 1.4 kg. The line is used as a maternal line in two-way cross-breeding

ROKO HÓNS 2*ENDANGERED***Local names or syn.:** White Leghorn (eng.)**Population data:** 957 • 857 ♀ • 100 ♂ • 1994**Population trend:** stable**Range of uses:** eggs**NORWAY**

The Roko hóns 2 was imported from Nilson-Line in 1984. This is a typical White Leghorn as described in Scandinavian standard. Adult males weigh on average 2.5 kg and females 1.5 kg. The line is used as a paternal line in two-way cross-breeding.

ROKO HÓNS 4*ENDANGERED***Local names or syn.:** White Leghorn (eng.)**Population data:** 668 • 568 ♀ • 100 ♂ • 1994**Population trend:** stable**Range of uses:** eggs**NORWAY**

The Roko hóns 4 is a synthetic selected line produced in a breeding experiment in 1977. This is a typical White Leghorn as described in Scandinavian standard. Adult males weigh on average 2.3 kg and females 1.3 kg. The line is used both as a paternal and maternal line in two-way cross-breeding.

SOVE 1*ENDANGERED***Local names or syn.:** White Leghorn (eng.)**Population data:** 240 • 195 ♀ • 45 ♂ • 1994**Population trend:** stable**Range of uses:** eggs**NORWAY**

The Sove 1 was imported from Sweden in 1982 and placed in a gene bank. This is a typical White Leghorn as described in Scandinavian standard. Adult males weigh on average 3 kg and females 2 kg. Sove 1 is a maternal line of Lohmann (LSL). All the cocks were lost in 1988 and the line was crossed with cocks of line Nor. Brid 4 to Sove line.

SAMVIRKEKULLING L1*ENDANGERED-MAINTAINED***Local names or syn.:** Broiler Parentel (eng.)**Population data:** 694 • 594 ♀ • 100 ♂ • 1994**Population trend:** stable**Range of uses:** meat**NORWAY**

The Samvirkekulling l1 was imported from Sweden (Hybro and Ross type) in 1973. It is a heavy breed based on White Plymouth Rock and White Cornish and is used as a maternal line in cross-breeding. Adult males weigh on average 4.7 kg and females 3.7 kg.

SAMVIRKEKULLING L2*ENDANGERED-MAINTAINED***Local names or syn.:** Broiler Parentel (eng.)**Population data:** 978 • 878 ♀ • 100 ♂ • 1994**Population trend:** stable**Range of uses:** meat**NORWAY**

The Samvirkekulling l2 was imported from Sweden (Hybro and Ross type) in 1973. It is a heavy breed based on White Plymouth Rock and White Cornish and is used as a maternal line in cross-breeding. Adult males weigh on average 4.2 kg and females 3.2 kg.

SAMVIRKEKULLING L3*ENDANGERED-MAINTAINED***Local names or syn.:** Broiler Parentel (eng.)**Population data:** 609 • 509 ♀ • 100 ♂ • 1994**Population trend:** stable**Range of uses:** meat**NORWAY**

The Samvirkekulling l3 was imported from Sweden (Hybro and Ross type) in 1973. It is a heavy breed based on White Plymouth Rock and White Cornish and is used as a maternal line in cross-breeding. Adult males weigh on average 4.7 kg and females 3.7 kg.

SAMVIRKEKULLING L5*ENDANGERED-MAINTAINED***Local names or syn.:** Broiler Parentel (eng.)**Population data:** 670 • 570 ♀ • 100 ♂ • 1994**Population trend:** stable**Range of uses:** meat**NORWAY**

The Samvirkekulling 15 was imported from France in 1983. It is a heavy breed based on White Plymouth Rock and White Cornish and is used as a maternal line in cross-breeding. Adult males weigh on average 4.3 kg and females 3.3 kg.

JERSEY*CRITICAL-MAINTAINED***Local names or syn.:** -**Population data:** < 1 000 • 500 ♀ • 3 ♂ • 1993**Population trend:** decreasing**Range of uses:** milk**POLAND**

Jersey cattle were imported to Poland. They are uniform fawn, yellowish grey or bay often with a dark dorsal stripe and black muzzle and they have an extremely refined and lean head. Adult males weigh on average 750 kg and females 400 kg with an average wither height of 139 cm and 124 cm respectively. A high milk fat content is reported for this breed. There are 31 herds remaining with 492 females registered in the herd book, 90% of which are bred to males of the same breed. The semen of one male is stored.

POLSKA CZERWONA*ENDANGERED***Local names or syn.:** pc (pol.), Polish Red (eng.)**Population data:** 1 000 • 300 ♀ • 20 ♂ • 1998**Population trend:** decreasing**Range of uses:** milk, meat**POLAND**

The Polska Czerwona, found in the Polish highlands and the north-east, is an old indigenous breed descended from *Bos taurus brachyceros*, and is red to dark-red with a dark muzzle and hooves. Males and females weigh on average 770 kg and 500 kg and stand 139 cm and 128 cm tall. The horns are grey at the base and dark-tipped. They perform well in extremely poor environmental conditions and produce milk of extremely good quality (high fat, protein and dry matter %) that is very valuable for cheese production. High prolificity, disease resistance, easy calving, longevity, high vitality and calf fitness are reported. There are 16 herds remaining, 220 females in the herd book (85% bred pure) and 80% of males used for breeding. In 1999 the support for conservation herds was provided by the Biological Development Fund. The semen of 108 males is stored. Embryos are also stored.

CZARNO BIALA ODMIANA HF*ENDANGERED-MAINTAINED***Local names or syn.:** Holstein Friesian (eng.)**Population data:** < 1 000 • 600 ♀ • 462 ♂ • 1993**Population trend:** increasing**Range of uses:** milk**POLAND**

Czarno biala odmiana hf (cbhf) cattle were imported to Poland. The animals are black and white spotted, piebald in colour. Adult males weigh on average 980 kg and females 675 kg with an average wither height of 150 cm and 142 cm respectively. As well as being adapted to harsh field conditions this breed is known for an outstanding milk yield. There are 14 herds remaining with 592 females registered in the herd book, 100% of which are bred to males of the same breed. The semen of 462 males is stored. Embryos are also stored.

KOZA KARPACKA*CRITICAL***Local names or syn.:** Carpathian Goat (eng.)**Population data:** 150 • 100 ♀ • 1994**Population trend:** decreasing**Range of uses:** milk**CZYSTA KREW ARABSKA (00)***ENDANGERED-MAINTAINED***Local names or syn.:** Araby (oo) (pol.), Arab (PASP) (eng.), Arabian Horse (PASP) (eng.)**Population data:** 600 • 314 ♀ • 72 ♂ • 1996**Population trend:** stable**Range of uses:** racing**POLAND**

The Koza Karpacka is found in the Carpathian Highlands and is an indigenous Carpathian breed. The animals are white in colour, have coarse/carpet type hair and light, thin horns. Adult males weigh on average 52 kg and females 42 kg with an average wither height of 60 cm and 50 cm respectively. The animals are very hardy and are extremely well adapted to live under severe highland conditions having dense, long hair as well as some underfur. This breed is not yet separately recorded but rather, it is recorded with improved white goats.

POLAND

The Czysta Krew Arabska (oo) is found country-wide but mostly in the south-east. The first stud was established in 1795 by Sanguszko and was followed by imports from Saudi Arabia by Dzieduszycki in 1845 continuing until 1930-31. The animals are grey, bay, chestnut and occasionally black in colour and are extremely refined and beautiful animals. Adult males weigh on average 450 kg and females 420 kg with an average wither height of 152 cm and 148 cm respectively. The horses perform well in poor environmental conditions, utilising fodder very efficiently, are late maturers but are known for their longevity and are active, yet docile in temperament. There are 4 herds remaining. There are 314 females registered in the herd book, of which 95% are bred to males of the same breed. A selection programme has been implemented.

HUCUL*ENDANGERED-MAINTAINED***Local names or syn.:** Konie Huculskie (pol.), Hutsul (eng.), Hucul Horse (eng.)**Population data:** 530 • 253 ♀ • 59 ♂ • 1997**Population trend:** stable**Range of uses:** riding (sports), medical, vegetation management**POLAND**

The Hucul, found in mountainous regions including Bieszczady National Park, is a native old local saddle breed developed in the Carpathian Mountains. Breeding animals have been imported from East Carpathian Mountains since 1950. They are bay, brown, dun or piebald and are medium sized with primitive features. On average males and females weigh 420 kg and 370 kg and stand 137 cm and 135 cm tall. They have low feeding requirements and are hardy, docile, easy to handle, willing animals making them ideal family horses. Six herds remain and single horses are also raised at private farms and 253 females are registered in the herd book (95% bred pure). In 1997, 170 mares kept in 3 studs were provided with support from the Biological Development Fund. The semen of 2 males is stored but AI is used only on the experimental farms. This is one of the best breeds for hippotherapy.

KONIK POLSKI*ENDANGERED-MAINTAINED***Local names or syn.:** Panjepferd (ger.), Polish Konik (eng.)**Population data:** 600 • 415 ♀ • 125 ♂ • 1997**Population trend:** stable**Range of uses:** riding (sports), draught power, vegetation management**POLAND**

The Konik Polski, found in the west and north-east, is an old native local breed originating from Tarpan horses (1790). They are medium sized, mouse coloured with a dark dorsal stripe, sometimes with striped legs and primitive features. Adult males and females weigh on average 380 kg with a mean wither height of 135 cm and 134 cm respectively. The breed is well adapted to the local poor environmental conditions. High resistance to disease is reported for animals kept in forest reserves. They are intelligent and robust with a compact constitution, especially suited to small scale farming. There are 6 herds remaining and single horses are also raised on private farms. 415 females are registered in the herd book, 80% of which are bred to males of the same breed. An *in situ* conservation programme is operational. Support for conservation studs is provided through the Biological Development Fund.

BELGIJSKA ZWISLOUCHA*CRITICAL-MAINTAINED***Local names or syn.:** Belgian Landrace (eng.)**Population data:** 130 • 70 ♀ • 60 ♂ • 1996**Population trend:** increasing**Range of uses:** meat, sire line**ZLOTNICKA BIALA***CRITICAL-MAINTAINED***Local names or syn.:** Zlotniki White (eng.)**Population data:** 30 • 22 ♀ • 6 ♂ • 1998**Population trend:** increasing**Range of uses:** dam line, meat**PULAWSKA***ENDANGERED-MAINTAINED***Local names or syn.:** Golebska (pol.), Pulawy (eng.)**Population data:** 1 800 • 306 ♀ • 14 ♂ • 1998**Population trend:** increasing**Range of uses:** meat**ZLOTNICKA PSTRA***ENDANGERED-MAINTAINED***Local names or syn.:** Zlotniki Spotted (eng.)**Population data:** 165 • 1998**Population trend:** increasing**Range of uses:** meat**POLAND**

The Belgijska zwisloucha, imported from Germany (1992) and France (1995 and 1996), is found in the Opole, Sieradz, Wloclawek and Olsztyn regions. The animals are white in colour, are lop eared and develop a long carcass. Adult males weigh on average 325 kg and females 300 kg. This breed is known for its high meat percentage, although the meat is of low quality. The breed is highly stress sensitive (PSS). In 1996 there were 3 herds recorded. There are 54 females registered in the herd book, of which 70% are bred to males of the same breed. In total, 12% of males are used for breeding. A selection programme has been established.

POLAND

The Zlotnicka Biala, established 1946-1962 and found in central Poland, was developed from primitive erect and lop eared pigs introduced from the Vilnius region. It was initially selected for meat and the Swedish Landrace has been used for upgrading. They are white with lop ears. Males weigh on average 325 kg and females 275 kg. They perform well in poor environmental conditions, produce extremely good quality meat (with a relatively high fat %) and are reported to be resistant to diseases and stress. The decrease in population numbers may be explained by the high fat content and the culling of the pure-bred herd due to severe health problems. Only one herd remains, 20 females are in the herd book (90% bred pure) and 100% of males are used for breeding. The support for *in situ* conservation herds will be provided by the Biological Development Fund.

POLAND

The Pulawska, a native breed found in eastern Poland, was developed by crossing primitive local breeds with Berkshire boars (English Large White used for upgrading). They are black and white spotted with erect ears. Adult males weigh on average 325 kg and females 250 kg with mean heights of 78 cm and 64 cm. They perform well in poor environmental conditions, have the highest reported litter size among Polish pig breeds are halothane negative and highly resistant to diseases. The poor economic situation, high fat percentage resulting in low prices and the lack of interest in the breed have influenced the decrease in population size. 32 herds remain with 270 females in the herd book (60% bred pure) and 100% of males used for breeding. A conservation programme, supported by the Biological Development Fund, planned to increase the number of breeding sows to 340 in 1998.

POLAND

The Zlotnicka Pstra, found in north-west and central Poland, was developed from primitive erect and lop eared pigs introduced from the Vilnius region (1950s). They are black and white spotted with lop ears. Initially selected for meat and fat, males and females weigh on average 280 kg and 240 kg and stand 85 cm and 75 cm tall. They perform well in poor environmental conditions, produce extremely good quality meat (with a relatively high fat %) and are reported to be halothane negative and resistant to diseases. Very good results in cross-breeding are reported. The decrease in population numbers may be explained by the poor economics of pig farms, the lower price meat due to the high fat content, and the lack of interest from breeders. In total 100% of males are used for breeding. The support for *in situ* conservation herds will be provided by the Biological Development Fund.

OLKUSKA*CRITICAL-MAINTAINED***Local names or syn.:** Owca Olkuska (pol.), Olkusz (eng.)**Population data:** 100 • 58 ♀ • 20 ♂ • 1997**Population trend:** stable**Range of uses:** wool, meat, pelt / fur**POLAND**

The Olkuska, found in the Cracow Region, southern Poland, is a composite of Pomeranian and Friesian. The animals are white, polled and have medium fibred wool. Adult males weigh on average 110 kg and females 62 kg. They are highly prolific and may carry a single gene for increased ovulation rate (1 to 10) and litter size (1 to 6). Research projects on the physiology and genetics of high prolificacy are carried out at Cracow and Warsaw Agricultural Universities. One includes semen freezing: 2 800 doses from 19 rams are stored at the National Research Institute of Animal Husbandry. Embryos are also stored. From 1992-94 a conservation project was operational for the newly created Zelazna flock at Warsaw Agricultural University. Five flocks remain and 58 females are registered in the herd book (100% bred pure). In total, 50% of males are used for breeding.

BIALOGLOWA OWCA MIGSMA*ENDANGERED-MAINTAINED***Local names or syn.:** Polish Whiteheaded Mutton Synthetic Line (eng.)**Population data:** 1 200 • 700 ♀ • 160 ♂ • 1993**Population trend:** stable**Range of uses:** meat**POLAND**

The Bialogłowa Owca Migsma is found in the Pormani Region and was developed at Pormani Agricultural University from local Polish breeds (Polish Merino and Wielkopolska Sheep), East Friesian and meat breeds (Berrichon du Cher, Ile de France, Texel). The animals are white in colour, have small ears, coarse/carpet type wool and are polled. Adult males weigh on average 120 kg and females 75 kg. Early sexual maturity is reported for this breed. This breed has well-filled thighs as well as a well developed back and loin. There are 6 herds remaining and 571 females are registered in the herd book, 100% of which are bred to males of the same breed.

CZARNOGLOWKA OWCA MIGSNA*ENDANGERED-MAINTAINED***Local names or syn.:** Polish Blackheaded Mutton Synthetic Line (eng.)**Population data:** 500 • 300 ♀ • 60 ♂ • 1993**Population trend:** stable**Range of uses:** meat**POLAND**

The Czarnogłowka Owca Migsna is found in the Pormani Region and was developed in Pormani Agricultural University. The animals are white in colour, have coarse/carpet type wool and are polled. Adult males weigh on average 130 kg and females 85 kg. These sheep are well adapted to their local environment. There are 3 herds remaining. There are 274 females registered in the herd book, of which 100% are bred to males of the same breed.

LEINE*ENDANGERED-MAINTAINED***Local names or syn.:** Leineschaf (ger.)**Population data:** 530 • 332 ♀ • 32 ♂ • 1997**Population trend:** stable**Range of uses:** wool, meat**POLAND**

Leine sheep, found in the Szczecin region, north-western Poland, were first imported from Germany in 1950 and then again in 1954 and 1960 and have been maintained as a pure breed. The animals are white with a long, narrow unwoolled head, dropping ears, coarse/carpet type wool and no horns. Adult males weigh on average 90 kg and females 67 kg. This hardy breed is well adapted to poor environmental conditions, produces meat of good quality and specific taste and is remarkably resistant to diseases, in particular foot rot caused by *Bacteroides* (Fusiformis) *nodosus*. There are 2 herds remaining and 332 females are registered in the herd book, 100% of which are bred to males of the same breed. In total, 100% of males are used for breeding. The support for a conservation flock is provided by the Biological Development Fund (Ministry of Agriculture and Food Economy).

POLSKI KORIDEIL*ENDANGERED-MAINTAINED*

Local names or syn.: Polish Corriedale (eng.); Anglomerynos (pol.)

Population data: 2 000 • 872 ♀ • 18 ♂ • 1997

Population trend: decreasing

Range of uses: wool, meat

SWINIARKA*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 174 • 144 ♀ • 8 ♂ • 1998

Population trend: increasing

Range of uses: -

UHRUSKA*ENDANGERED-MAINTAINED*

Local names or syn.: Uhrusk Sheep (eng.)

Population data: 700 • 550 ♀ • 30 ♂ • 1997

Population trend: decreasing

Range of uses: -

ZELAZNIENSKA*ENDANGERED-MAINTAINED*

Local names or syn.: Zelazna Sheep (eng.)

Population data: 270 • 207 ♀ • 10 ♂ • 1998

Population trend: stable

Range of uses: -

POLAND

The Polski Korideil, a Polish Lowland Sheep established 1955, is found in the Sieradz region, central Poland, and was created by crossing Polish Merino ewes with Lincoln rams. The animals are white in colour, are polled and the whole body, including the head down to the eyes, is well covered with medium fibred wool. Adult males weigh on average 105 kg and females 65 kg. They are not very hardy and show lower performance in poorer environmental/feeding conditions. The poor economic situation of sheep farms in Poland has influenced the decrease in population size. There are 5 herds remaining and 872 females are registered in the herd book, 40% of which are bred to males of the same breed. In total, 100% of males are used for breeding. An *in situ* conservation programme is being developed, a flock being supported by the Biological Development Fund (Ministry of Agriculture and Food Economy).

POLAND

The Swiniarka, found in the Kielce region, is an old indigenous breed. They are medium sized, have coarse/carpet white wool, primitive features and numerous conformation defects. Rams often have a crest of medullated fibres, weigh 45 kg and have white, sometimes with dark bonds, twice twisted (spiral), widely set horns. Females weigh 30 kg and may be polled or have short, straight horns. This hardy breed is very well adapted to poor local conditions and can utilize poor fodder. They produce mixed wool with a high % of kemps, show resistance to disease, in particular foot rot and are late maturing slow growing animals. One herd remains, 144 females are in the herd book (100% bred pure) and 100% of males are used for breeding. The conservation flock, established 1986, is supported by the Biological Development Fund. The semen of 4 males is stored. Embryos are also stored.

POLAND

The Uhruska is found in Lublin region, central-eastern Poland. This variety of Polish Lowland Sheep was created at the end of the 1950s by cross-breeding Merino ewes with Leine and Romney Marsh rams. They are white in colour, polled and have a good covering of wool on the head and legs. Adult males weigh on average 100 kg and females 65 kg with an average wither height of 80 cm and 70 cm respectively. The animals are well adapted to the local environmental conditions. The ewes are known for good results in cross-breeding with meat breed rams. In 1998 there were 8 recorded flocks. 500 females are registered in the herd book, of which 70% are bred to males of the same breed. In total, 100% of males are used for breeding. An *in situ* conservation programme is being developed. The support for conservation flocks is provided by the Biological Development Fund (Ministry of Agriculture and Food Economy).

POLAND

The Zelaznienska is found in the Skierniewice region, central Poland. This variety of Polish Lowland Sheep, established in 1954, was created on the basis of local Lowicz ewes crossbred with Leicester and Polish Merino rams. The animals are white in colour and are polled. Adult males weigh on average 95 kg and females 65 kg. The variety is well adapted to the local poor environmental conditions. There are 207 females registered in the herd book, of which 70% are bred to males of the same breed. In total, 100% of males are used for breeding. An *in situ* conservation programme is being developed involving the only remaining flock. This flock is provided with the support of the Biological Development Fund (Ministry of Agriculture and Food Economy).

POLBAR*CRITICAL-MAINTAINED***Local names or syn.:** -**Population data:** 175 • 63 ♀ • 9 ♂ • 1998**Population trend:** stable**Range of uses:** eggs, meat, research**POLAND**

The Polbar, established 1946, is found in the Lublin region and was developed from Green-Legged Partridge cross-bred with Plymouth Rock cocks. They have greyish brown (females) and creamy white (males) coloured plumage with barred, sex-linked patterns within the feathers, yellow skin, shanks and feet, single comb and cream white to pale greyish egg shells. Adult males weigh on average 2.5 kg and females 2 kg. They perform well in poor environmental conditions, produce excellent flavoured eggs and meat, show general resistance to diseases and can be auto-sexed. Decreasing of population size in this strain is due to lower performance compared to commercial hybrids. Their existence is possible due to governmental subsidies. When the number of birds eligible to support diminished, the flock size decreased. There is 1 conservation flock, supported by the Biological Development Fund.

LEGHORN G99*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 661 • 523 ♀ • 138 ♂ • 1996**Population trend:** stable**Range of uses:** eggs, research**POLAND**

The Leghorn G99, imported in 1960 from the United Kingdom, is found in the Rzeszow region. They have self-white coloured plumage with no special pattern within the feathers, white skin and yellow shanks and feet. The comb is of single type and egg shells are white in colour. Adult males weigh on average 2 kg and females 1.5 kg. These birds are known for their high reproduction rate and are reported to be resistant to diseases. The decrease in the population size is connected with a lower performance compared to commercial hybrids. The existence of the strain is possible thanks to governmental subsidies. However, when the number of birds within the strain eligible to such support diminished, the flock size decreased. In 1996 there was one conservation flock, supported by the Biological Development Fund (Ministry of Agriculture and Food Economy).

LEGHORN H22*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 623 • 584 ♀ • 75 ♂ • 1996**Population trend:** stable**Range of uses:** eggs, research, hobby**POLAND**

The Leghorn H22, found in the Rzeszow region, was imported from the United Kingdom before 1939 and later kept as a closed population. They have self-white coloured plumage with no special pattern within the feathers, yellow skin, shanks and feet, a single comb type and white egg shells. Adult males weigh on average 2.5 kg and females 1.7 kg. These birds are known for their high reproduction rate and are reported to be resistant to diseases. The decrease in the population size is connected with a lower performance compared to commercial hybrids. The existence of the strain is possible thanks to governmental subsidies. However, when the number of birds within the strain eligible to such support diminished, the flock size decreased. In 1996 there was one conservation flock, supported by the Biological Development Fund (Ministry of Agriculture and Food Economy).

RHODE ISLAND RED R11*ENDANGERED-MAINTAINED***Local names or syn.:** Karmazyn (pol.)**Population data:** 620 • 510 ♀ • 110 ♂ • 1996**Population trend:** stable**Range of uses:** eggs, meat, research**POLAND**

The Rhode Island Red R11, bred in Poland as a closed population since 1936, is found in the Rzeszow region. They have red-brown coloured plumage with no special pattern within the feathers, white skin, yellow shanks and feet, a single comb and brown egg shells. Adult males weigh on average 2.5 kg and females 1.7 kg. The breed performs well in poor environmental conditions, shows high resistance to disease and females are known for good reproductive performance. This is a dual purpose breed. The decrease in the population size is connected with a lower performance compared to commercial hybrids. The existence of the strain is possible thanks to governmental subsidies. However, when the number of birds within the strain eligible to such support diminished, the flock size decreased. In 1996 there was one conservation flock, supported by the Biological Development Fund.

SUSSEX S66*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 524 • 454 ♀ • 70 ♂ • 1996**Population trend:** stable**Range of uses:** eggs, research, meat**POLAND**

The Sussex S66 was imported from Denmark (1946) and is kept as a closed population in the Rzeszow region. They have silver-columbian coloured plumage with no special pattern within the feathers, white skin, shanks and feet, single comb and cream white to pale greyish egg shells. Adult males weigh on average 2.3 kg and females 1.7 kg. They are resistant to diseases. The major gene dominant fast (K) or recessive slow (k) feathering can be used for chick sexing. The decrease in the population size is connected with a lower performance compared to commercial hybrids. The existence of the strain is possible thanks to governmental subsidies. However, when the number of birds within the strain eligible to such support diminished, the flock size decreased. In 1996 there was one conservation flock, supported by the Biological Development Fund (Ministry of Agriculture and Food Economy).

ZIELONONOZKA KUROPATWIANA**/Z11/***ENDANGERED-MAINTAINED***Local names or syn.:** Green-Legged Partridge (eng.)**Population data:** 624 • 534 ♀ • 61 ♂ • 1998**Population trend:** stable**Range of uses:** eggs, meat, research**POLAND**

The Zielononozka Kuropatwiana /Z11/, established 1923, is found in the Rzeszow region and is a strain of the old indigenous breed. Hens are partridge coloured, cocks ginger-brown with dark golden head and hackle, golden-orange saddle, black chest with green sheen, black-grey flight feathers, black sickles and abdomen, blue-black skin, green shanks and feet, single comb and cream white to pale grey eggs. Adult males weigh on average 2.3 kg, females 1.7 kg. They are well adapted to poor environmental conditions, resistant to disease, have a good scraping instinct, low egg yolk cholesterol level, excellent flavoured meat, broody females and auto-sexing is possible. Their existence is possible due to governmental subsidies. When the number of birds eligible to support diminished, the flock size decreased. There is 1 conservation flock, supported by the Biological Development Fund.

ZIELONONOZKA KUROPATWIANA**/ZK/***ENDANGERED-MAINTAINED***Local names or syn.:** Green-Legged Partridge (eng.)**Population data:** 500 • 140 ♀ • 10 ♂ • 1998**Population trend:** stable**Range of uses:** eggs, meat, research**POLAND**

The Zielononozka Kuropatwiana /ZK/, a dual purpose breed established in 1923, is found in the Lublin region, central eastern Poland, and is a strain of the old indigenous breed described in 1879 by Bronislaw Obsydowicz. Hens are partridge coloured, cocks ginger-brown with dark golden head and hackle, golden-orange saddle, black chest with green sheen, black-grey flight feathers, black sickles and abdomen, blue-black skin, green shanks and feet, single comb and cream white to pale grey eggs. Adult males weigh on average 2.2 kg, females 1.8 kg. They are well adapted to poor environmental conditions, resistant to disease, have a good scraping instinct, low egg yolk cholesterol level, excellent flavoured meat and broody females. There is one conservation flock, supported by the Biological Development Fund (Ministry of Agriculture and Food Economy).

ZOLTONOZKA KUROPATWIANA**/Z33/***ENDANGERED-MAINTAINED***Local names or syn.:** Yellow-Legged Partridge (eng.)**Population data:** 585 • 529 ♀ • 62 ♂ • 1998**Population trend:** stable**Range of uses:** eggs, meat, research**POLAND**

The Zoltonozka Kuropatwiana /Z33/, found in the Rzeszow region, was developed by crossing Green-Legged Partridge with New Hampshire and has been bred as a closed population since 1960. Hens are dark brown with light brown speckles, brown-orange heads and hackle. Cocks are dark brown with ginger-brown head, ginger-golden hackle, ginger-orange saddle, almost black chest, black wings and tail. They have blue-black skin, yellow shanks and feet, single comb type, brown egg shells with red speckles and strong green sheened feathers. Males and females weigh on average 2.4 kg and 1.8 kg. They are adapted to harsh environmental conditions, are known for good reproductive performance, show resistance to disease, have a low cholesterol level in the egg yolk and meat of excellent flavour. In 1996 there was one conservation flock supported by the Biological Development Fund.

MINIKACZKA*CRITICAL-MAINTAINED*

Local names or syn.: Kaczka pomniejszona (K-2) (pol.), Mini Duck (eng.)

Population data: 132 • 96 ♀ • 36 ♂ • 1998

Population trend: stable

Range of uses: research, meat, eggs, feathers

POLAND

The Minikaczka, established in 1982, is found in the Poznan region, central Poland and was developed in the western-central part of Poland from wild ducks and Pekin ducks. They have self-white coloured plumage with no special pattern within the feathers, white skin, yellow shanks and feet and egg shells that may be greenish (50%) or white (50%) in colour. They are a medium sized duck with adult males weighing on average 1.7 kg and females 1.6 kg. The animals have very well developed muscles and low fat content. There is one conservation flock supported through the Biological Development Fund (Ministry of Agriculture and Food Economy).

POLSKI PEKIN*CRITICAL-MAINTAINED*

Local names or syn.: Kaczka Polska (pol.), Polish Pekin (eng.)

Population data: 108 • 80 ♀ • 28 ♂ • 1998

Population trend: stable

Range of uses: research, meat, eggs, feathers

POLAND

The Polski Pekin, found in the Poznan region, central Poland, is an old indigenous breeding strain that originated in central Poland. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin, shanks and feet and white egg shells. Adult males weigh on average 3.1 kg and females 2.9 kg. The animals are known for good quality feathers, a good musculature, good reproductive performance and low skin and subcutaneous fat content in the carcass. A conservation flock, established in 1978, is supported through the Biological Development Fund (Ministry of Agriculture and Food Economy).

PODKARPACKA*CRITICAL-MAINTAINED*

Local names or syn.: Sub-Carpatian (eng.)

Population data: 126 • 100 ♀ • 26 ♂ • 1998

Population trend: stable

Range of uses: research, meat, downs

POLAND

The Podkarpacka, found in the Poznan region, central Poland, is an indigenous breed that originated from primitive geese in the Karpaty region of southern Poland. They have self-white (95%) or grey and white (5%) coloured plumage with no special pattern within the feathers, white skin, orange shanks and feet and white egg shells. Adult males weigh on average 4.3 kg and females 3.7 kg. The animals are well adapted to poor environmental conditions, are known for a high percentage of breast muscle in the carcass, limited fatness and high carcass dressing percentage. The conservation flock, established in 1972 by purchase of breeding stock from private farms in southern Poland, is supported through the Biological Development Fund (Ministry of Agriculture and Food Economy).

BILGORAJSKA*ENDANGERED-MAINTAINED*

Local names or syn.: Bilgoraj (eng.)

Population data: 250 • 200 ♀ • 50 ♂ • 1998

Population trend: stable

Range of uses: meat, feathers, eggs

POLAND

The Bilgorajska, found in the Olsztyn region, is an indigenous breed descended from primitive geese from north-eastern Poland (Bilgoraj region), kept as a closed population since 1971. They have self-white coloured plumage with no special pattern within the feathers, white skin, orange shanks and feet, short orange or pink beak and white egg shells. They are a small, well-built goose, males weighing on average 6 kg and females 5.5 kg. Very good quality feathers and a high dressing percentage are reported for this breed. Down content varies from 28% to 44%. They are known for their good musculature, low fat content, good general health and a good feed conversion ratio. A conservation flock, supported through the Biological Development Fund (Ministry of Agriculture and Food Economy), was established in 1971-73 by purchase of breeding stock from farms in the Bilgoraj region.

GARBONOSA*ENDANGERED-MAINTAINED***Local names or syn.:** Labedziowa (pol.)**Population data:** 184 • 130 ♀ • 54 ♂ • 1998**Population trend:** stable**Range of uses:** research, meat, eggs, feathers**POLAND**

The Garbonosa is found in the Poznan region, central Poland. It is an indigenous breed that originated from primitive geese in southern Poland. They have self-white (70%) or grey and white (30%) coloured plumage with no special pattern within the feathers, white skin, orange shanks and feet and white egg shells. They frequently have a knob on the forehead. Adult males weigh on average 4.2 kg and females 3.7 kg. Limited fatness is reported for this variety. The females are known for good reproductive performance. In 1996 there was one conservation flock supported by the Biological Development Fund (Ministry of Agriculture and Food Economy). The flock was established in 1977 by purchasing breeding animals from private farms in southern Poland.

KARTUSKA*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 154 • 124 ♀ • 30 ♂ • 1998**Population trend:** stable**Range of uses:** research, meat, downs, eggs**POLAND**

The Kartuska, found in the Poznan region, central Poland, is an indigenous breed that originated from primitive geese in the Kartuzy region of northern Poland. They have self-white (75%) or grey and white (25%) coloured plumage with no special pattern within the feathers, white skin, orange shanks and feet, white egg shells and a single fold of fat in the lower part of the abdomen. Adult males weigh on average 5.1 kg and females 4.3 kg. The animals are well adapted to poor environmental conditions, have well developed muscles, limited fatness and females are known for their good reproductive performance. The conservation flock, established in 1972 by purchase of breeding stock from private farms in northern Poland, is supported through the Biological Development Fund (Ministry of Agriculture and Food Economy).

KIELECKA*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 140 • 110 ♀ • 30 ♂ • 1998**Population trend:** stable**Range of uses:** research, meat, downs**POLAND**

The Kielecka is an indigenous breed that originated from primitive geese in the Kielce, Przemysl and Rzeszow regions of southern Poland and is now found in the Poznan region, central Poland. They have self-white coloured plumage with no special pattern within the feathers, white skin, orange shanks and feet and white egg shells. Adult males weigh on average 4.3 kg and females 3.7 kg. The animals perform well in poor environmental conditions and a high percentage of breast muscle, limited fatness in the carcass and high quality downs are reported. The conservation flock, established in 1972 by purchase of breeding stock from private farms of southern Poland, is supported through the Biological Development Fund (Ministry of Agriculture and Food Economy).

LUBELSKA*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 143 • 115 ♀ • 28 ♂ • 1998**Population trend:** stable**Range of uses:** research, meat, downs**POLAND**

The Lubelska is found in the Poznan region, central Poland. It is an indigenous breed that originated from primitive geese in the Lublin region of south-eastern Poland. They have self-white coloured plumage with no special pattern within the feathers, white skin, orange shanks and feet and egg shells that are white in colour. Adult males weigh on average 4.4 kg and females 3.8 kg. The animals are very well adapted to poor environmental conditions and high percentage of breast muscle in the carcass and limited fatness are reported. In 1996 there was one conservation flock supported by the Biological Development Fund (Ministry of Agriculture and Food Economy). The flock was established in 1972 by purchase of breeding stock from private farms in southern Poland.

POMORSKA*ENDANGERED-MAINTAINED***Local names or syn.:** Pomeranian (eng.)**Population data:** 186 • 137 ♀ • 49 ♂ • 1998**Population trend:** stable**Range of uses:** research, meat, downs, eggs**RYPINSKA***ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 160 • 124 ♀ • 36 ♂ • 1998**Population trend:** stable**Range of uses:** research, meat, downs, eggs**SUWALSKA***ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 154 • 119 ♀ • 35 ♂ • 1998**Population trend:** stable**Range of uses:** research, meat, downs, eggs**ZATORSKA***ENDANGERED-MAINTAINED***Local names or syn.:** ZD-1 (pol.)**Population data:** 300 • 250 ♀ • 50 ♂ • 1998**Population trend:** stable**Range of uses:** meat, research, downs**POLAND**

The Pomorska, found in the Poznan region, central Poland, is an indigenous breed that originated from primitive geese in northern Poland. They have self-white coloured plumage with no special pattern within the feathers, white skin, orange shanks and feet, egg shells that are white in colour and a single fold of fat in the lower part of the abdomen. Adult males weigh on average 4.6 kg and females 4.1 kg. The breed is well adapted to poor environmental conditions, has very well developed muscles, limited fat content and good female reproductive performance. The conservation flock, established in 1981 by purchase of breeding stock from a pedigree farm, is supported through the Biological Development Fund (Ministry of Agriculture and Food Economy).

POLAND

The Rypinska, found in the Poznan region, central Poland, is an indigenous breed that originated from primitive geese in northern Poland. They have self-white (90%) or grey and white (10%) coloured plumage with no special pattern within the feathers, white skin, orange shanks and feet, egg shells that are white in colour and a single fold of fat in the lower part of the abdomen. Adult males weigh on average 4.5 kg and females 3.8 kg. The variety is well adapted to poor environmental conditions, is known for good muscularity and good female reproductive performance. The conservation flock, established in 1972 by purchase of breeding stock from private farms in northern Poland, is supported through the Biological Development Fund (Ministry of Agriculture and Food Economy).

POLAND

The Suwalska, found in the Poznan region, central Poland, is an indigenous breed that originated from primitive geese in the northern part of Poland. They have self-white (90%) or grey and white (10%) coloured plumage with no special pattern within the feathers, white skin, orange shanks and feet and egg shells that are white in colour. Adult males weigh on average 4.5 kg and females 3.8 kg. The animals are not very hardy and do not perform well in poor environmental conditions but are known for a heavy body weight, easy fattening and good musculature. The conservation flock, established in 1972 by purchase of breeding stock from private farms in northern Poland, is supported through the Biological Development Fund (Ministry of Agricultural and Food Economy).

POLAND

The Zatorska is found in the Krakow region, southern Poland. It is an indigenous breed created in 1961 by crossing four varieties: Sub-Carpatian, Suwalska, Garbonosa and Pomeranian. They have self-white coloured plumage with no special pattern within the feathers, white skin and egg shells and the shanks and feet are orange. Adult males weigh on average 5 kg and females 4.5 kg. The breed shows good performance in poor environmental conditions. Limited fatness, delicate bones, very tasteful and juicy meat as well as very high quality of downs are reported for this breed. A conservation flock is supported by the Biological Development Fund (Ministry of Agriculture and Food Economy).

SORRAIANA*CRITICAL-MAINTAINED***Local names or syn.:** Sorraia (eng.)**Population data:** 60 ♀ • 10 ♂ • 1994**Population trend:** stable**Range of uses:** sport**PORTUGAL**

The Sorraiana is a native breed found near Elias. The animals are dun with zebra-striped legs, similar to Tarpan. Adult males weigh on average 400 kg and females 350 kg with an average wither height of 145 cm and 140 cm respectively. The animals are well adapted to harsh conditions. There are 10 herds remaining and 60 females registered in the herd book, 100% of which are bred to males of the same breed.

GARRANO*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 1 000 ♀ • 30 ♂ • 1994**Population trend:** stable**Range of uses:** draught power, sport**PORTUGAL**

The Garrano is a native breed well adapted to the local environment (mountain areas) of north-western Portugal where it is found. The animals are brown in colour. Adult males weigh on average 350 kg and females 300 kg with an average wither height of 128 cm and 120 cm respectively. Ten herds remain and there are 400 females registered in the herd book, 100% of which are bred to males of the same breed.

BISARO*CRITICAL***Local names or syn.:** -**Population data:** 200 ♀♂ • 1994**Population trend:** decreasing**Range of uses:** meat**PORTUGAL**

The Bisaro, found in northern Portugal, is a native breed of Celtic type (with Large White blood) that produces a quality cured ham. The animals may be white, black or spotted. There are 10 herds remaining with 50 females registered in the herd book, 30% of which are bred to males of the same breed.

PINZGAU DE TRANSILVANIA*ENDANGERED-MAINTAINED***Local names or syn.:** Romanian Pinzgau (eng.)**Population data:** 52 000 ♀ • 7 ♂ • 1993**Population trend:** decreasing**Range of uses:** milk, meat, draught power**ROMANIA**

The Pinzgau de transilvania is found in Siebenbürgen, Transilvania. It is a composite of Pinzgau and Sura de Stepa. The animals are red sided with a broad white back. Adult males weigh on average 900 kg and females 500 kg with an average wither height of 134 cm and 127 cm respectively. The breed is adapted to the local environment (mountains). There are 10 herds remaining and 1 092 females are registered in the herd book, 70% of which are bred to males of the same breed. The semen of 23 males is stored.

SURA DE STEP*ENDANGERED-MAINTAINED*

Local names or syn.: Moldovenesca (rom.), Romanian Steppe (eng.), Moldavian (eng.)

Population data: 350 ♀ • 12 ♂ • 1993

Population trend: decreasing

Range of uses: draught power, meat, milk

ROMANIA

The Sura de stepa, an indigenous *Bos taurus primigenius*, is found in Moldau, Donau-Delta. The animals are grey with a black muzzle and tail-tip and they have huge horns. Adult males weigh on average 600 kg and females 300 kg with an average wither height of 130 cm and 118 cm respectively. The animals are reported to be resistant to tuberculosis and leucosis and are known for their staying power. There are 3 herds remaining. Sixteen females are registered in the herd book, 65% of which are bred to males of the same breed. The semen of 5 males is stored.

PORCUL ALD DE BANAT*CRITICAL*

Local names or syn.: Banat White (eng.)

Population data: 9 ♀ • 1999

Population trend: -

Range of uses: meat

ROMANIA

The Porcul Ald de Banat is found in western and southern Banat, western Romania. It originated in the early 20th century from Middle White and Edelschwein x Mangalitsa with some Small White, Berkshire, Large White and German Improved Landrace blood. The remaining nine sows are not pure-breds, but rather they are crossbreds.

MANGALITA*CRITICAL-MAINTAINED*

Local names or syn.: Mangalitsa (eng.)

Population data: 30 ♀ • 5 ♂ • 1993

Population trend: stable

Range of uses: meat

ROMANIA

The Mangalita, imported from Austria, Hungary and Serbia, is found in Transylvania. These pigs are red or white in colour with a woolly coat and lop ears. Adult males weigh on average 150 kg and females 140 kg with an average wither height of 74 cm and 68 cm respectively. The animals are adapted to adverse conditions of feeding and management. There are 30 females registered in the herd book, of which 100% are bred to males of the same breed.

YORKSHIRE*ENDANGERED*

Local names or syn.: -

Population data: 700 ♀ • 70 ♂ • 1983

Population trend: decreasing

Range of uses: meat

ROMANIA

Yorkshire pigs are found country-wide and were imported from the United States of America. The animals are white in colour and have erect ears. Adult males weigh on average 270 kg and females 220 kg. Of females, 100% are bred to males of the same breed.

PORCUL DE BANAT*ENDANGERED-MAINTAINED***Local names or syn.:** Bazna (eng.)**Population data:** 265 ♀ • 30 ♂ • 1993**Population trend:** stable**Range of uses:** meat**ROMANIA**

The Porcul de Banat, a composite of Berkshire and Mangalitz, is found in central Transylvania. The animals are black and have a white saddle and erect ears. Adult males weigh on average 170 kg and females 150 kg with an average wither height of 74 cm and 72 cm respectively. The animals are adapted to adverse conditions of feeding and management. Only one herd remains. There are 265 females registered in the herd book, of which 100% are bred to males of the same breed.

BANTAM ALB*CRITICAL***Local names or syn.:** White Bantam (eng.)**Population data:** 500 • 45 ♀ • 15 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Bantam alb is found in Constanza. It originated in Muntenia (Sinaia) in 1984 and was developed by one breeder. They have feathered legs and self-white coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are white. The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 1 kg and females 0.7 kg.

BARBOASA DE ANVERS*CRITICAL***Local names or syn.:** Barbu D'anvers**Population data:** 300 • 33 ♀ • 7 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Barboasa de anvers is found in Constanza and was developed in Transylvania in 1970 by one breeder. They have self-black coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are white. The comb is of rose type and egg shells are tinted in colour. Adult males weigh on average 1 kg and females 0.9 kg.

BARNEVELDER DUBLU LOCAT-PITICĂ*CRITICAL***Local names or syn.:** Barnevelder Double Laced-Bantam (eng.)**Population data:** 500 • 100 ♀ • 10 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

Barnevelder dublu locat-pitică chickens originated in Romania and are found in Constanza. They have laced patterns within the feathers, yellow skin, shanks and feet, single comb and egg shells that are tinted in colour. Adult males weigh on average 0.9 kg and females 0.7 kg.

BRAHMA HERMINAT DESCHIS*CRITICAL***Local names or syn.:** Brahma Light Columbian (eng.)**Population data:** 1 000 • 100 ♀ • 15 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Brahma herminat deschis is found in Constanza. This population has been developed by 6 fancy breeders from the Transylvania and Banat regions and was established in 1969-1971. They have silver-columbian coloured plumage with laced patterns within the feathers. They have white skin and the shanks and feet are also white. The comb is of pea type and egg shells are tinted in colour. They are an ornamental bird having feathered legs. Adult males weigh on average 3.5 kg and females 2.3 kg.

COCHIN NEGRU PITIC*CRITICAL***Local names or syn.:** Black Cochin Bantam (eng.)**Population data:** 500 • 62 ♀ • 15 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Cochin negru pitic is an indiggenous breed found in Constanza. The chickens have self-black coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are white. The comb is of single type and egg shells are tinted in colour. They have feathered legs and dwarfism is accepted for this breed. Adult males weigh on average 1.1 kg and females 0.7 kg.

COMBATANT INDIAN*CRITICAL***Local names or syn.:** Indian Game (eng.)**Population data:** 500 • 60 ♀ • 15 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Combatant indian, found in Constanza, is indigenous to Romania but its precise origin is unknown. They have mahogany brown coloured plumage with laced patterns within the feathers, yellow skin, shanks and feet a pea type comb and egg shells that are tinted in colour. Adult males weigh on average 3.6 kg and females 2.7 kg.

COMBATANT MALAEZ ALB*CRITICAL***Local names or syn.:** White Modern Game (eng.)**Population data:** 500 • 34 ♀ • 10 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

Combatant malaez alb chickens, found in Constanza, originated in Banat in 1971 and were created by one breeder. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of walnut type and egg shells are tinted in colour. Adult males weigh on average 3.2 kg and females 2.1 kg.

COMBATANT MALAEZ GALBEN*CRITICAL***Local names or syn.:** Duckwing Modern Game (eng.)**Population data:** 500 • 70 ♀ • 6 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

Combatant malaez galben chickens, found in Constanza, originated in Romania from Mosneni and were developed by segregation. They have self-red and variants coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of walnut type and egg shells are tinted in colour. Adult males weigh on average 3.1 kg and females 2.6 kg.

COMBATANT MALAEZ ROSU INCHIS*CRITICAL***Local names or syn.:** Brown Red Modern Game (eng.)**Population data:** 500 • 75 ♀ • 6 ♂ • 1993**Population trend:** stable**Range of uses:** fancy**ROMANIA**

Combatant malaez rosu inchis chickens are found in Constanza and originated in Banat. They have self-red and variants coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of walnut type and egg shells are tinted in colour. Adult males weigh on average 3.1 kg and females 2.4 kg.

DREZDA*CRITICAL***Local names or syn.:** Drezden (eng.)**Population data:** 1 000 • 100 ♀ • 20 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Drezda, found in Constanza, originated in Transylvania. They have self-red and variants coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of pea type and egg shells are tinted in colour. Adult males weigh on average 3.2 kg and females 2.6 kg.

FAVEROLLES ALB*CRITICAL***Local names or syn.:** Faverolles White (eng.)**Population data:** 500 • 70 ♀ • 13 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Faverolles alb, found in Constanza, was imported from France in 1975. They have self-white coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are white. The comb is of single type and egg shells are tinted in colour. They have multiple spurs, feathered legs and muffling. Adult males weigh on average 3.6 kg and females 2.8 kg.

GAINA DE PORTELAN-PITICA*CRITICAL***Local names or syn.:** Porcelain-Bantam (eng.)**Population data:** 300 • 40 ♀ • 10 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Gaina de portelan-pitica is an indigenous breed of unknown origin found in Constanza. The chickens have mottled patterns within the feathers, white skin, shanks and feet, single comb, feathered legs and egg shells that are tinted in colour. Adult males weigh on average 0.9 kg and females 0.7 kg.

GIT GOLAS DE TRANSILVANIA ALB*CRITICAL***Local names or syn.:** White Transylvania Naked Neck (eng.)**Population data:** 10 000 • 95 ♀ • 19 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Git golas de transilvania alb, found in Constanza, originated in 1968-1969 in Transylvania, and was created by two breeders. They have self-white coloured plumage with no special pattern within the feathers, white skin, shanks and feet, single comb, egg shells that are tinted in colour and a naked neck. Adult males weigh on average 1.8 kg and females 1.4 kg. Tardiness is reported for this breed. This is a non selected breed where the major gene for naked neck (Na) is present.

GIT GOLAS DE TRANSILVANIA BARAT*CRITICAL***Local names or syn.:** Barred Transylvania Naked Neck (eng.)**Population data:** 10 000 • 60 ♀ • 12 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Git golas de transilvania barat is found in Constanza. Originating in Transylvania in 1967-1969, it was developed by five breeders. The chickens have autosomal or barred, sex-linked patterns within the feathers, white skin, shanks and feet, a naked neck, single type comb and egg shells that are tinted in colour. Adult males weigh on average 2 kg and females 1.5 kg. Tardiness is reported for this breed. The birds were not selected.

GIT GOLAS DE TRANSILVANIA NEGRU*CRITICAL***Local names or syn.:** Black Transylvanian Naked Neck (eng.)**Population data:** 10 000 • 70 ♀ • 15 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Git golas de transilvania negru is found in Constanza. It originated in Transylvania in 1967 and was developed by two breeders. They have self-black coloured plumage with no special pattern within the feathers and a naked neck. They have white skin and the shanks and feet are white. The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 1.8 kg and females 1.4 kg. Tardiness is reported for this breed. The birds were not selected.

GIT GOLAS DE TRANSILVANIA NEGRU PITICA



CRITICAL

Local names or syn.: Black Transylvania Naked Neck-Bantam
(eng.)

Population data: 100 - 1 000 • 61 ♀ • 15 ♂ • 1993

Population trend: stable

Range of uses: fancy, research

ROMANIA

The Git golas de transilvania negru pitica is found in Constanza. It originated in Transylvania in 1967 and was developed by two breeders. They have self-black coloured plumage with no special pattern within the feathers. They have white skin, a naked neck and the shanks and feet are white. The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 1.1 kg and females 0.7 kg.

GIT GOLAS DE TRANSILVANIA ROSU



CRITICAL

Local names or syn.: Red Transylvania Naked Neck (eng.)

Population data: 10 000 • 30 ♀ • 10 ♂ • 1993

Population trend: stable

Range of uses: fancy, research

ROMANIA

The Git golas de transilvania rosu is found in Constanza. It originated in Transylvania in 1966 and was created by two breeders. They have self-red and variants coloured plumage with no special pattern within the feathers. They have white skin, shanks and feet, single comb, naked neck and egg shells that are tinted in colour. Adult males weigh on average 2 kg and females 1.5 kg. Tardiness is reported for this breed. The birds are not selected.

HOUDAN PITIC



CRITICAL

Local names or syn.: Houdan Bantam (eng.)

Population data: 500 • 24 ♀ • 8 ♂ • 1993

Population trend: stable

Range of uses: fancy

ROMANIA

The Houdan pitic, found in Constanza, was imported from France in 1975. The chickens have mottled patterns within the feathers and white skin, shanks and feet. The comb is of pea type and egg shells are tinted in colour. In addition, they have multiple spurs and muffling. Adult males weigh on average 0.9 kg and females 0.7 kg.

ITALIANA PÒTARNICHIE PITICA



CRITICAL

Local names or syn.: Partridge Leghorn Bantam (eng.)

Population data: 300 • 65 ♀ • 15 ♂ • 1993

Population trend: stable

Range of uses: fancy, research

ROMANIA

The Italiana pòtarnichie pitica, found in Constanza, was imported from Korea in 1978. They have wild-type and variants coloured plumage with spangled patterns within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are white in colour. They have feathered legs and dwarfism is accepted for this breed. Adult males weigh on average 1.1 kg and females 0.8 kg.

JAPONEZĂ DE MĂTASE ALBĂ*CRITICAL***Local names or syn.:** White Silkie (eng.)**Population data:** 300 • 60 ♀ • 15 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Japoneză de mătase albă is found in Constanza. It originated in Transylvania in 1967-1968 and was created by two breeders. They have self-white coloured plumage with no special pattern within the feathers, blue-black skin and the shanks and feet are also blue. The comb is of rose type and egg shells are tinted in colour. Dwarfism is accepted for this breed that has feathered legs, multiple spurs and is silky. Adult males weigh on average 1.2 kg and females 0.9 kg.

JAPONEZĂ DE MĂTASE GALBENA*CRITICAL***Local names or syn.:** Buff Silkie (eng.)**Population data:** 300 • 20 ♀ • 7 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Japoneză de mătase galbena, found in Constanza, originated in Transylvania in 1967 and has been developed by one breeder. They have self-red and variants coloured plumage with no special pattern within the feathers. They have blue-black skin and the shanks and feet are blue. The comb is of rose type and egg shells are tinted in colour. Dwarfism is accepted for this breed that has feathered legs, multiple spurs and is silky. Adult males weigh on average 1.1 kg and females 0.9 kg.

**JAPONEZĂ DE MĂTASE NEAGRA
PITICA***CRITICAL***Local names or syn.:** Black Silkie-Bantam (eng.)**Population data:** 200 • 30 ♀ • 10 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Japoneză de mătase neagra pitica, found in Constanza, was developed in Transylvania by two breeders. They have self-black coloured plumage with no special pattern within the feathers. They have blue-black skin and the shanks and feet are blue. The comb is of rose type and egg shells are tinted in colour. Dwarfism is accepted for this breed that has feathered legs, multiple spurs and is silky. Adult males weigh on average 1.2 kg and females 0.8 kg.

LA FLÈCHE*CRITICAL***Local names or syn.:** -**Population data:** 500 • 70 ♀ • 15 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The La Flèche is found in Constanza and was imported from France in 1975. The chickens have self-black coloured plumage with no special pattern within the feathers. They have blue-black skin and the shanks and feet are black. The comb is of duplex or V-shaped comb type and egg shells are tinted in colour. Adult males weigh on average 3.2 kg and females 2.6 kg.

LANGSHAM*CRITICAL***Local names or syn.:** -**Population data:** 1 000 • 110 ♀ • 20 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

Langsham chickens, found in Constanza, were created in Banat by two breeders in 1967. They have self-black coloured plumage with no special pattern within the feathers, white skin and the shanks and feet are blue. The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 3 kg and females 2.2 kg.

LEGWELS ALBA*CRITICAL***Local names or syn.:** -**Population data:** 500 • 100 ♀ • 20 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Legwels Alba is found in Constanza. It originates from the Mosneni gene pool and was created by crossing White Leghorn and Welsumer Red Bantam. They have self-white coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are white. The comb is of single type and egg shells are white in colour. Adult males weigh on average 1.4 kg and females 1.1 kg. Males are homozygous for dwarf (dw) and slow-feathering (K) sex-linked genes.

NEGRU PITIC CU CREASTA BATUTA*CRITICAL***Local names or syn.:** Black Rosecomb Bantam (eng.)**Population data:** 300 • 50 ♀ • 10 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Negru pitic cu creasta batuta, found in Constanza, is an indigenous chicken population of unknown origin. The chickens have self-black coloured plumage with no special pattern within the feathers, white skin and the shanks and feet are blue. The comb is of rose type and egg shells are tinted in colour. Adult males weigh on average 1.1 kg and females 0.8 kg.

ORLOFF*CRITICAL***Local names or syn.:** Orloff Spangled (eng.)**Population data:** 300 • 20 ♀ • 6 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Orloff is an indigenous breed found in Constanza. They have spangled patterns within the feathers, white skin and the shanks and feet are yellow. The comb is of rose type and egg shells are tinted in colour. Adult males weigh on average 3.4 kg and females 2.7 kg.

PADUANA AURIE*CRITICAL***Local names or syn.:** Paduan (eng.)**Population data:** 500 • 30 ♀ • 7 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

Paduana aurie chickens, found in Constanza, originated in Transylvania. They have self-red and variants coloured plumage with laced patterns within the feathers. They have white skin and the shanks and feet are white. The comb is of duplex or V-shaped comb type and egg shells are tinted in colour. In addition, they have multiple spurs and muffling. Adult males weigh on average 1.1 kg and females 0.8 kg.

PLYMOUTH ROCK ALB (w)*CRITICAL***Local names or syn.:** Plymouth Rock White (w) (eng.)**Population data:** 1 000 • 100 ♀ • 20 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Plymouth Rock Alb (w) is found in Constanza. Originating in Transylvania in 1967 it was created by four breeders. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells may be tinted in colour. Adult males weigh on average 3.2 kg and females 2.2 kg. This breed is recessive to colour (major gene C: pigment development; c: recessive white) and heterozygous (Cc).

SUSSEX PESTRIT' PITIC*CRITICAL***Local names or syn.:** Speckled Sussex Bantam (eng.)**Population data:** 300 • 90 ♀ • 15 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Sussex pestrit pitic is found in Constanza. It was created by two breeders in Transylvania in 1966. They have self-red and variants coloured plumage with spangled patterns within the feathers, white skin, shanks and feet, single comb and egg shells that are tinted in colour. Adult males weigh on average 1.2 kg and females 0.9 kg.

WELSUMMER MARON*CRITICAL***Local names or syn.:** Welsummer (eng.)**Population data:** 500 • 90 ♀ • 12 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Welsummer Maron, found in Constanza, originated in Transylvania and was developed by five breeders in 1967-1969. They have self-red and variants coloured plumage with mottled patterns within the feathers. They have white skin and the shanks and feet are white. The comb is of single type and egg shells are tinted in colour. Adult males and females weigh on average 1.1 kg and 0.9 kg respectively, the females being dwarfs. In this breed sex-linked dwarfism (dw) is present.

WHITE SULTAN*CRITICAL***Local names or syn.:** Sultana alba (rom.)**Population data:** 300 • 36 ♀ • 6 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The White Sultan, found in Constanza, was created in Transylvania in 1968 by one breeder. They have self-white coloured plumage with no special pattern within the feathers, multiple spurs, white skin and the shanks and feet are blue. The comb is of duplex or V-shaped comb type and egg shells may be tinted in colour. Adult males weigh on average 1.4 kg and females 0.9 kg.

WIANDOTTE ALB PITIC*CRITICAL***Local names or syn.:** White Wyandotte Bantam (eng.)**Population data:** 500 • 100 ♀ • 10 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Wiandotte alb pitic is found in Constanza. Originating in Banat, it was created by two breeders. The chickens have self-white coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are yellow. The comb is of rose type and egg shells are tinted in colour. Adult males weigh on average 0.9 kg and females 0.7 kg.

WYANDOTTE ALB*CRITICAL***Local names or syn.:** Wyandotte White (eng.)**Population data:** 1 000 • 110 ♀ • 12 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Wyandotte alb is found in Constanza. Originating in Banat in 1967-1968 it was developed by two breeders. The birds have self-white coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are white. The comb is of rose type and egg shells may be tinted in colour. Adult males weigh on average 3.2 kg and females 2.6 kg. Tardiness is reported for this breed.

WYANDOTTE ARGINTIU LACAT*CRITICAL***Local names or syn.:** Wyandotte Silver Laced (eng.)**Population data:** 500 • 40 ♀ • 7 ♂ • 1993**Population trend:** increasing**Range of uses:** fancy, research**ROMANIA**

The Wyandotte argintiu lacat is found in Constanza. It originated in Banat in 1967-1968 and was developed by two breeders. They have silver-columbian coloured plumage with laced patterns within the feathers. They have white skin and the shanks and feet are also white. The comb is of rose type and egg shells are tinted in colour. Adult males weigh on average 3.2 kg and females 2.4 kg. Tardiness is reported for this breed.

WYANDOTTE ARGINTIU LOCAT PITIC*CRITICAL***Local names or syn.:** Wyandotte Silver Laced Bantam (eng.)**Population data:** 500 • 50 ♀ • 10 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Wyandotte argintiu locat pitic is found in Constanza. It originated in Banat and was developed by two breeders. They have silver-columbian coloured plumage with laced patterns within the feathers. They have white skin and the shanks and feet are yellow. The comb is of rose type and egg shells are tinted in colour. Adult males weigh on average 0.9 kg and females 0.7 kg.

WYANDOTTE AURIA LACAT*CRITICAL***Local names or syn.:** Wyandotte Gold Laced (eng.)**Population data:** 1 000 • 50 ♀ • 10 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Wyandotte auria lacat originated in Banat in 1969 and was developed by one breeder. The chickens have gold-columbian coloured plumage with laced patterns within the feathers. They have white skin and the shanks and feet are also white. The comb is of rose type and egg shells are tinted in colour. Adult males weigh on average 3.2 kg and females 2.4 kg. Tardiness is reported for this breed.

WYANDOTTE LACAT*CRITICAL***Local names or syn.:** Wyandotte Buff Laced (eng.)**Population data:** 500 • 60 ♀ • 10 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Wyandotte lacat is found in Constanza. It was created from Mosneni and was established in 1972-1974. They have buff brown coloured plumage with laced patterns within the feathers. They have white skin, shanks and feet are white and a rose type comb. Adult males weigh on average 3.2 kg and females 2.4 kg. Tardiness is reported for this breed.

AUSTRALORP*ENDANGERED***Local names or syn.:** -**Population data:** 1 000 • 150 ♀ • 30 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

Australorp chickens, found in Constanza, originated in Romania-Banat in 1967. They have self-black coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are black. The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 3.8 kg and females 2.6 kg.

BRAHMA ALBA*ENDANGERED***Local names or syn.:** Brahma White (eng.)**Population data:** 1 000 • 160 ♀ • 32 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Brahma alba is found in Constanza. This variety was created as a mutant from Brahma Light Columbian in 1975, and since then it has been bred pure. They have self-white coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are white. The comb is of pea type, egg shells are tinted in colour and they have feathered legs. Adult males weigh on average 3.5 kg and females 2.4 kg.

BRAHMA HERMINAT INCHIS*ENDANGERED***Local names or syn.:** Brahma Dark Columbian (eng.)**Population data:** 1 000 • 150 ♀ • 30 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Brahma herminat inchis is found in Constanza. This population has been developed by two fancy breeders from Transylvania and Banat and was established in 1969-1971. They have silver-columbian coloured plumage with laced patterns within the feathers. They have white skin and the shanks and feet are white. The comb is of pea type and egg shells are tinted in colour. Adult males weigh on average 3.5 kg and females 2.4 kg. They are an ornamental bird with feathered legs and it has been proposed that it can be preserved by co-operation amongst fancy breeders.

CHOCHINCHINA GALBENA*ENDANGERED***Local names or syn.:** Cochin Buff (eng.)**Population data:** 1 000 • 150 ♀ • 25 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Chochinchina galbena is found in Constanza. Developed by two fancy breeders from the Banat region, it was established in 1967-1968. They have buff brown coloured plumage with no special pattern within the feathers and feathered legs. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 4.8 kg and females 4 kg. It can be preserved by co-operating with the fancy breeders.

CHOCHINCHINA NEAGRA*ENDANGERED***Local names or syn.:** Cochin Black (eng.)**Population data:** 1 000 • 160 ♀ • 32 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Chochinchina neagra is found in Constanza where it originated in 1970. They have self-black coloured plumage with no special pattern within the feathers, white skin, shanks and feet, a single comb and egg shells that are tinted in colour. They have feathered legs and are an ornamental bird. Adult males weigh on average 4.8 kg and females 4 kg. It can be preserved by co-operating with the fancy breeders.

CORNISH ALB-C*ENDANGERED***Local names or syn.:** White Cornish-c (eng.)**Population data:** 10 000 • 500 ♀ • 50 ♂ • 1993**Population trend:** stable**Range of uses:** meat**ROMANIA**

The Cornish alb-c, imported from Canada in 1970, is found in Tartasesti. The birds have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of pea type and egg shells are brown in colour. Adult males weigh on average 4.2 kg and females 3.1 kg. They are pedigree chickens used as fathers of fathers in a 4-way cross-breeding programme.

CORNISH ALB-CY1*ENDANGERED***Local names or syn.:** White Cornish-cy1 (eng.)**Population data:** 20 000 • 900 ♀ • 90 ♂ • 1993**Population trend:** stable**Range of uses:** meat**ROMANIA**

The Cornish alb-cy1, imported from France in 1969, is found in Tartasesti. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of pea type and egg shells are brown in colour. Adult males weigh on average 4.3 kg and females 3.2 kg. The chickens are pedigreed, and are used as fathers of fathers in a four-way cross-breeding programme.

CORNISH ALB-CY2*ENDANGERED***Local names or syn.:** White Cornish-cy2 (eng.)**Population data:** 30 000 • 900 ♀ • 90 ♂ • 1993**Population trend:** stable**Range of uses:** meat**ROMANIA**

The Cornish alb-cy2, imported from France in 1969, is found in Tartasesti. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are also yellow. The comb is of pea type and egg shells are brown in colour. Adult males weigh on average 4 kg and females 3 kg. They are pedigree chickens used as mothers of fathers in a four-way cross-breeding programme.

CORNISH ALB-W*ENDANGERED***Local names or syn.:** White Cornish-w (eng.)**Population data:** 10 000 • 500 ♀ • 50 ♂ • 1993**Population trend:** stable**Range of uses:** meat**ROMANIA**

The Cornish alb-w, found in Tartasesti, was imported from Canada in 1970. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of pea type and egg shells are brown in colour. Adult males weigh on average 4.2 kg and females 3.1 kg. They are pedigree chickens used as mothers of fathers in a 4-way cross-breeding programme.

CORNISH ROSU-S*ENDANGERED***Local names or syn.:** Red Cornish-S (eng.)**Population data:** 10 000 • 900 ♀ • 90 ♂ • 1993**Population trend:** stable**Range of uses:** meat**ROMANIA**

The Cornish rosu-s is found in Tartasesti where it was created by segregation from White Cornish. The chickens have self-red and variants coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of pea type and egg shells are brown in colour. Adult males weigh on average 4.2 kg and females 3.1 kg. They are pedigree chickens, homozygous for the sex-linked gene (s).

FAVEROLLES SALMON*ENDANGERED***Local names or syn.:** -**Population data:** 1 000 • 150 ♀ • 25 ♂ • 1993**Population trend:** stable**Range of uses:** -**ROMANIA**

Faverolles Salmon chickens, found in Constanza, were imported from France in 1975. They have wild-type and variants coloured plumage with no special pattern within the feathers, white skin, shanks and feet. The comb is of single type and egg shells are tinted in colour. They have multiple spurs, feathered legs and muffling. Adult males weigh on average 3.8 kg and females 2.9 kg.

GOURNAY*ENDANGERED***Local names or syn.:** -**Population data:** 500 • 150 ♀ • 30 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Gournay, found in Constanza, was imported from France in 1975. They have mottled patterns within the feathers, white skin, shanks and feet, single comb and egg shells that are tinted in colour. Adult males weigh on average 2.7 kg and females 1.7 kg.

ITALIANA ARGINTIE*ENDANGERED***Local names or syn.:** Leghorn Silver Duckwing (eng.)**Population data:** 1 000 • 150 ♀ • 30 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Italiana argintie is found in Constanza. Originating in Banat in 1967-1968, these chickens were created by 6 breeders. They have silver-columbian coloured plumage with laced patterns within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are white in colour. Adult males weigh on average 2.8 kg and females 2 kg.

ITALIANA AURIE*ENDANGERED***Local names or syn.:** Leghorn Golden Duckwing (eng.)**Population data:** 1 000 • 200 ♀ • 30 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Italiana aurie, found in Constanza, was created in 1967-1968 in Banat by four breeders. The birds have gold-columbian coloured plumage with laced patterns within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 2.8 kg and females 2 kg.

ITALIANA NEAGRA*ENDANGERED***Local names or syn.:** Leghorn Black (eng.)**Population data:** 1 000 • 230 ♀ • 40 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Italiana neagra is found in Constanza. Originating in Banat in 1971 it was created by one breeder. The chickens have self-black coloured plumage, yellow skin, shanks and feet, single comb and egg shells that are tinted in colour. Adult males weigh on average 2.8 kg and females 1.8 kg.

ITALIANA NEAGRA PITICA*ENDANGERED***Local names or syn.:** Black Leghorn Bantam (eng.)**Population data:** 300 • 150 ♀ • 40 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Italiana neagra pitica, found in Constanza, originated in Banat. They have self-black coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are blue. The comb is of single type and egg shells are white in colour. Adult males weigh on average 1 kg and females 0.7 kg.

LA BRESSE*ENDANGERED***Local names or syn.:** Bresse (eng.)**Population data:** 1 000 • 160 ♀ • 17 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The La bresse, imported from France in 1975, is found in Constanza. They have self-white coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are blue. The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 2.7 kg and females 2 kg.

LEGHORN ALB-10*ENDANGERED***Local names or syn.:** White Leghorn-10 (eng.)**Population data:** 30 000 • 500 ♀ • 80 ♂ • 1993**Population trend:** stable**Range of uses:** eggs**ROMANIA**

The Leghorn alb-10, found in Bucharest Mihailesti, is a pedigree chicken selected from a local population. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are white in colour. Adult males weigh on average 2 kg and females 1.6 kg.

LEGHORN ALB-7*ENDANGERED***Local names or syn.:** White Leghorn-7 (eng.)**Population data:** 30 000 • 500 ♀ • 80 ♂ • 1993**Population trend:** stable**Range of uses:** eggs**ROMANIA**

The Leghorn alb-7, found in Bucharest Mihailesti, was imported from the United States of America in 1967. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are white in colour. Adult males weigh on average 2 kg and females 1.6 kg. They are pedigree chickens used in a recurrent reciprocal selection.

LEGHORN ALB-9*ENDANGERED***Local names or syn.:** White Leghorn-9 (eng.)**Population data:** 30 000 • 500 ♀ • 80 ♂ • 1993**Population trend:** stable**Range of uses:** eggs**ROMANIA**

The Leghorn alb-9, found in Bucharest Mihailesti, is a pedigree chicken selected from a local population. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are white in colour. Adult males weigh on average 2 kg and females 1.6 kg.

LEGHORN ALB-D*ENDANGERED***Local names or syn.:** White Leghorn-d (eng.)**Population data:** 50 000 • 500 ♀ • 80 ♂ • 1993**Population trend:** stable**Range of uses:** eggs**ROMANIA**

The Leghorn alb-d, a pedigree chicken imported from Canada in 1970, is found in Arad. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are white in colour. Adult males weigh on average 2 kg and females 1.6 kg.

LEGHORN ALB-G*ENDANGERED***Local names or syn.:** White Leghorn-g (eng.)**Population data:** 30 000 • 500 ♀ • 80 ♂ • 1993**Population trend:** stable**Range of uses:** eggs**ROMANIA**

The Leghorn alb-g, a pedigree chicken imported from Canada in 1970, is found in Arad. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are white in colour. Adult males weigh on average 2.2 kg and females 1.7 kg.

LEGHORN ALB-J*ENDANGERED***Local names or syn.:** White Leghorn-j (eng.)**Population data:** 30 000 • 500 ♀ • 80 ♂ • 1993**Population trend:** stable**Range of uses:** eggs**ROMANIA**

The Leghorn alb-j, a pedigree chicken imported from Canada in 1970, is found in Arad. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are white in colour. Adult males weigh on average 2.1 kg and females 1.7 kg. Pedigreed.

LEGHORN ALB-K7*ENDANGERED***Local names or syn.:** White Leghorn-k7 (eng.)**Population data:** 30 000 • 500 ♀ • 80 ♂ • 1993**Population trend:** stable**Range of uses:** eggs**ROMANIA**

The Leghorn alb-k7, found in Bucharest Mihailesti, originated in Bucharest. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are white in colour. Adult males weigh on average 1.9 kg and females 1.5 kg. They are pedigree chickens, homozygous for the slow-feathering, sex-linked (K) gene.

LIGHT SUSSEX*ENDANGERED***Local names or syn.:** -**Population data:** 2 000 • 130 ♀ • 20 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Light Sussex (Synthetic) is found in Constanza and was created in 1967 by segregating from a Thornber (UK) population. They have silver-columbian coloured plumage with laced patterns within the feathers. They have white skin and the shanks and feet are white. The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 3.2 kg and females 2.3 kg.

MARANS ALB*ENDANGERED***Local names or syn.:** Marans White (eng.)**Population data:** 500 • 150 ♀ • 20 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Marans alb is found in Constanza. It originates from the Mosneni gene pool, segregated from the original Marans Cuckoo (France). They have self-white coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are white. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 3.2 kg and females 2.4 kg.

MARANS HERMINAT DESCHIS*ENDANGERED***Local names or syn.:** Marans Silver Columbian (eng.)**Population data:** 500 • 120 ♀ • 20 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Marans herminat deschis is found in Constanza. It originates from the Mosneni gene pool, segregated from the original Marans Cuckoo (France). They have silver-columbian coloured plumage with laced patterns within the feathers. They have white skin and the shanks and feet are white. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 3.6 kg and females 2.4 kg. 100% of the population carries the sex-linked (S) gene.

MARANS NEGRU*ENDANGERED***Local names or syn.:** Marans Black (eng.)**Population data:** 500 • 400 ♀ • 60 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Marans negru is found in Constanza. It originates from the Mosneni gene pool, segregated from the original Marans Cuckoo (France). They have self-black coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are white. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 3.2 kg and females 2.4 kg.

MINORCA NEAGRA*ENDANGERED***Local names or syn.:** Black Minorca (eng.)**Population data:** 1 000 • 200 ♀ • 30 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Minorca neagra is found in Constanza. It was developed in Banat in 1967 by one breeder. The chickens have self-black coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are blue. The comb is of single type and egg shells are white in colour. Adult males weigh on average 3 kg and females 2.2 kg.

NEGRU DE FRANTA*ENDANGERED***Local names or syn.:** Black From France (eng.)**Population data:** 1 000 • 120 ♀ • 15 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

Negru de franta chickens, found in Constanza, were imported from France in 1975. They have self-black coloured plumage with no special pattern within the feathers. They have blue-black skin and the shanks and feet are black. The comb is of rose type and egg shells are brown in colour. Adult males weigh on average 3.8 kg and females 2.6 kg.

NEW HAMPSHIRE ROSU*ENDANGERED***Local names or syn.:** New Hampshire Red (eng.)**Population data:** 1 000 • 170 ♀ • 20 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The New hampshire rosu is found in Constanza. It originated in Banat and Transylvania, created by three breeders in 1967-1968. They have self-red and variants coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 3.7 kg and females 2.7 kg.

ORPINGTON ALB*ENDANGERED***Local names or syn.:** Orpington White (eng.)**Population data:** 1 000 • 140 ♀ • 35 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Orpington alb, found in Constanza, originated in 1967 in Transylvania and was created by one breeder. They have self-white coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are blue. The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 4.1 kg and females 3.1 kg.

ORPINGTON GALBEN*ENDANGERED***Local names or syn.:** Buff Orpington (eng.)**Population data:** 1 000 • 180 ♀ • 40 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

Orpington galben chickens, found in Constanza, originated in Banat and were developed by 7 breeders in 1967-1968. They have buff brown coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are white. The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 4.6 kg and females 3.6 kg.

PLYMOUTH ROCK ALB (dw dw)*ENDANGERED***Local names or syn.:** Plymouth Rock White (dw dw) (eng.)**Population data:** 2 000 • 150 ♀ • 30 ♂ • 1993**Population trend:** stable**Range of uses:** meat, research**ROMANIA**

The Plymouth rock alb (dw dw), found in Constanza, was created from the Mosneni gene pool in 1972 by transferring the dw gene from a native New Hampshire Red population to a White Plymouth Rock line (Shaver origin). The chickens have self-white coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are also white. The comb is of single type and egg shells may be tinted in colour. Adult males weigh on average 3.1 kg and females 2.2 kg. This breed is recessive to colour (major gene C: pigment development, c: recessive white) and heterozygous (Cc). Furthermore, the presence of dwarfism (dw: sex-linked dwarfism) is reported for this breed.

**PLYMOUTH ROCK ALB (w),
WHITE SKINNED***ENDANGERED***Local names or syn.:** Plymouth Rock White (W), white skinned (eng.)**Population data:** 1 000 • 200 ♀ • 30 ♂ • 1993**Population trend:** stable**Range of uses:** research, fancy**ROMANIA**

The Plymouth Rock Alb (w), white skinned is found in Constanza. This variety originated in Constanza from the Mosneni gene pool. Obtained by segregation from a yellow skinned White Plymouth Rock the variety was established in 1967. They have self-white coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are also white. The comb is of single type and egg shells may be tinted in colour. Adult males weigh on average 3.8 kg and females 2.6 kg. This breed is dominant white (major gene I: dominant white) and homozygous (II).

PLYMOUTH ROCK ALB-F*ENDANGERED***Local names or syn.:** White Plymouth Rock-f (eng.)**Population data:** 30 000 • 900 ♀ • 90 ♂ • 1993**Population trend:** stable**Range of uses:** meat**ROMANIA**

The Plymouth rock alb-f, found in Tartasesti, was imported from Canada in 1970. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 4 kg and females 3 kg. They are pedigree chickens used as mothers of mothers in a 4-way cross-breeding programme.

PLYMOUTH ROCK ALB-N*ENDANGERED***Local names or syn.:** White Plymouth Rock-n (eng.)**Population data:** 30 000 • 900 ♀ • 90 ♂ • 1993**Population trend:** stable**Range of uses:** meat**ROMANIA**

The Plymouth rock alb-n, imported from France in 1969, is found in Tartasesti. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 4 kg and females 3 kg. They are pedigree chickens used as fathers of mothers in a 4-way cross-breeding programme.

PLYMOUTH ROCK ALB-S(K)*ENDANGERED***Local names or syn.:** White Plymouth Rock-s(k) (eng.)**Population data:** 15 000 • 900 ♀ • 90 ♂ • 1993**Population trend:** stable**Range of uses:** meat**ROMANIA**

The Plymouth rock alb-s(k), found in Tartasesti, was imported from Canada in 1970. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 4 kg and females 3 kg. They are pedigree chickens, used as fathers of mothers in a 4-way cross-breeding programme. This breed is homozygous for the slow-feathering (K) gene.

PLYMOUTH ROCK BARAT*ENDANGERED***Local names or syn.:** Plymouth Rock Barred. (eng.)**Population data:** 5 000 • 175 ♀ • 30 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Plymouth rock barat is found in Constanza. It was created in Transylvania in 1968-1969 by four breeders. The chickens have autosomal or barred, sex-linked patterns within the feathers, white skin, shanks and feet, single comb and egg shells that are tinted in colour. Adult males weigh on average 3.3 kg and females 2.2 kg. Tardiness is reported for this breed.

**PLYMOUTH ROCK BARAT
INFUZAT CU LEGHORN***ENDANGERED***Local names or syn.:** Plymouth Rock Barred (eng.)**Population data:** 1 000 • 300 ♀ • 30 ♂ • 1993**Population trend:** stable**Range of uses:** research, fancy**ROMANIA**

The Plymouth rock barat infuzat cu leghorn is found in Constanza where it was created in 1967 from the Mosneni gene pool by crossing Barred Plymouth Rock and White Leghorn purified for Barred Leghorns. The chickens have sex-linked or barred, autosomal patterns within the feathers, white skin, shanks and feet, single comb and egg shells that are brown in colour. Adult males weigh on average 3.2 kg and females 2.2 kg.

RHODE ISLAND ALB-DB*ENDANGERED***Local names or syn.:** Rhode Island White-db (eng.)**Population data:** 30 000 • 500 ♀ • 80 ♂ • 1993**Population trend:** stable**Range of uses:** eggs**ROMANIA**

The Rhode island alb-db is a pedigree indigenous breed found in Brasov-Codlea. The birds have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 2.6 kg and females 2 kg.

RHODE ISLAND ALB-MURDAR*ENDANGERED***Local names or syn.:** Rhode Island Red-Splashed (Rs) (eng.)**Population data:** 500 • 135 ♀ • 25 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Rhode island alb-murdar, found in Constanza, is an indigenous breed developed from the Mosneni gene pool and created by segregating from a Rhode Island Red population. The chickens have red splashed coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are also yellow. The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 2.9 kg and females 2.1 kg. The population is homozygous for the rs gene.

RHODE ISLAND ROSU-E*ENDANGERED***Local names or syn.:** Rhode Island Red-e (eng.)**Population data:** 30 000 • 500 ♀ • 80 ♂ • 1993**Population trend:** stable**Range of uses:** eggs**ROMANIA**

The Rhode island rosu-e, imported from Canada in 1970, is found in Brasov-Codlea. These pedigree chickens have self-red and variants coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 2.6 kg and females 2 kg.

RHODE ISLAND ROSU-H*ENDANGERED***Local names or syn.:** Rhode Island Red-h (eng.)**Population data:** 30 000 • 500 ♀ • 80 ♂ • 1993**Population trend:** stable**Range of uses:** eggs**ROMANIA**

The Rhode island rosu-h, imported from Canada in 1970, is a pedigree chicken found in Brasov-Codlea. They have self-red and variants coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 2.7 kg and females 2 kg.

RHODE ISLAND ROSU-M*ENDANGERED***Local names or syn.:** Rhode Island Red-m (eng.)**Population data:** 5 000 • 500 ♀ • 50 ♂ • 1993**Population trend:** stable**Range of uses:** eggs**ROMANIA**

The Rhode island rosu-m, imported from Canada in 1970, is a closed population found in Brasov-Codlea. They have self-red and variants coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 2.7 kg and females 2 kg.

RHODE ISLAND ROSU-P*ENDANGERED***Local names or syn.:** Rhode Island Red-p (eng.)**Population data:** 5 000 • 500 ♀ • 500 ♂ • 1993**Population trend:** stable**Range of uses:** eggs**ROMANIA**

The Rhode island rosu-p, imported from Canada in 1970, is a closed population found in Brasov-Codlea. They have self-red and variants coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 2.7 kg and females 2 kg.

RHODE ISLAND ROSU-PITIC*ENDANGERED***Local names or syn.:** Rhode Island Red-Bantam (eng.)**Population data:** 500 • 130 ♀ • 25 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Rhode island rosu-pitic is found in Constanza. It originated in Banat and was created by two breeders. They have self-red and variants coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are white. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 0.9 kg and females 0.7 kg.

SUSSEX HERMINAT*ENDANGERED***Local names or syn.:** Light Sussex Columbian (eng.)**Population data:** 1 000 • 115 ♀ • 25 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Sussex herminat, originating in Banat, is found in Constanza. The birds have silver-columbian coloured plumage with laced patterns within the feathers. They have white skin and the shanks and feet are white. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 3.8 kg and females 3 kg. Tardiness is reported for these rustic animals.

SUSSEX MAMAIA SAT*ENDANGERED***Local names or syn.:** Light Sussex Mamaia Sat (eng.)**Population data:** 1 000 • 120 ♀ • 20 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Sussex mamaia sat is found in Constanza where it was created in 1967 by selecting within a local Sussex population. The chickens have silver-columbian coloured plumage with laced patterns within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 2.9 kg and females 2.1 kg. Tardiness is reported for these rustic animals.

WHITE PLYMOUTH ROCK-dw*ENDANGERED***Local names or syn.:** Plymouth rock alb-dw (rom.)**Population data:** 10 000 • 900 ♀ • 90 ♂ • 1993**Population trend:** stable**Range of uses:** meat**ROMANIA**

The White Plymouth Rock-dw, found in Tartasesti, originated in Constanza from the Mosneni gene pool. The birds have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 3 kg and females 2 kg. Dwarfism is present in these chickens, the dwarf gene having been transferred from the New Hampshire population (Romanian origin).

WHITE PLYMOUTH ROCK-SILVER*ENDANGERED***Local names or syn.:** -**Population data:** 10 000 • 450 ♀ • 45 ♂ • 1993**Population trend:** stable**Range of uses:** meat**ROMANIA**

The White Plymouth Rock-Silver is found in Tartasesti where it was originally selected from White Plymouth Rock. They have silver-columbian coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 4 kg and females 3 kg. They are pedigree chickens, homozygous for the silver (S) gene.

WIANDOTTE NEGRU PITIC*ENDANGERED***Local names or syn.:** Black Wyandotte Bantam (eng.)**Population data:** 500 • 120 ♀ • 20 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Wiandotte negru pitic is found in Constanza. It originated in Banat and was developed by two breeders. They have self-black coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are yellow. The comb is of rose type and egg shells are tinted in colour. Adult males weigh on average 0.9 kg and females 0.7 kg.

WYANDOTTE NEGRU*ENDANGERED***Local names or syn.:** Wyandotte Black (eng.)**Population data:** 1 000 • 130 ♀ • 15 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**ROMANIA**

The Wyandotte negru is found in Constanza. Developed by four breeders, it originated in Banat in 1967-1968. The chickens have self-black coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are white. The comb is of rose type and egg shells may be tinted in colour. Adult males weigh on average 3.2 kg and females 2.6 kg. Tardiness is reported for this breed.

MARANS BARAT



ENDANGERED-MAINTAINED

Local names or syn.: Marans Dark Cuckoo (eng.)

Population data: 1 000 • 300 ♀ • 40 ♂ • 1993

Population trend: stable

Range of uses: fancy, research

ROMANIA

The Marans barat, imported from France in 1975, is found in Constanza. The chickens have black and white coloured plumage with barred, sex-linked patterns within the feathers. They have white skin and the shanks and feet are also white. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 3.4 kg and females 2.8 kg. The presence of the major gene B (sex-linked, barring, dilution) is reported, males being homozygous.

MONGOLIAN BACTRIAN



ENDANGERED

Local names or syn.: -

Population data: 1 000 • 1995

Population trend: -

Range of uses: wool, meat, milk, draught power

RUSSIAN FEDERATION

The Mongolian Bactrian is found in Tuva Republic. Adult males weigh on average 525 kg and females 493.6 kg with an average wither height of 172 cm and 167 cm respectively. The breed is well adapted to the local harsh desert conditions. The animals have no free access to water, but they can quickly put on weight and can store large amounts of fat (100 to 120 kg) in their two humps.

PECHORSKII TIP KHOLMOGORSKOGO SKOTA



CRITICAL

Local names or syn.: Pechora (eng.)

Population data: < 100 • 1987

Population trend: -

Range of uses: milk

RUSSIAN FEDERATION

The Pechorskii tip kholmogorskogo skota is found in Komi, north European Russia. It was established in the 16th-20th century from the Zyryanka and later improved by Kholmogory between 1930-1947. The animals are black and white or red and white in colour.

YURINSKAYA



CRITICAL

Local names or syn.: Yurino (eng.), Nizhegorod (ru.)

Population data: 1 000 • 200 ♀ • 4 ♂ • 1990

Population trend: decreasing

Range of uses: milk, meat

RUSSIAN FEDERATION

The Yurinskaya is found in Mariskaya. A composite of Gorbatov Red, Tyrolean, Swiss Brown, Chuvash Mari and Simmental, it was established in 1812-1880. The animals have a large dewlap, small thin horns and are red or brown in colour, occasionally having white markings on the lower barrel. Adult males weigh on average 750 kg and females 480 kg with an average wither height of 132 cm and 123 cm respectively. The Yurinskaya is reported to show resistance to tuberculosis, leucosis and brucellosis. In 1989 the breed was vanishing rapidly due to upgrading with sires of other breeds. Of females, 50% are bred to males of the same breed.

BELIY SIBIRSKIY SKOT*ENDANGERED***Local names or syn.:** Siberian White (eng.)**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** -**RUSSIAN FEDERATION**

The Belyi sibirskiy skot is found in Novosibirsk. The animals are white in colour with black ears.

KHEVSURSKAYA GRUPPA*ENDANGERED***Local names or syn.:** Khevsurian (eng.)**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** -**RUSSIAN FEDERATION**

The Khevsurskaya gruppa is a variety of Georgian Mountain cattle.

KURGANSKAYA*ENDANGERED***Local names or syn.:** Kurgan (eng.)**Population data:** 3 000 • 2 000 ♀ • 10 ♂ • 1990**Population trend:** decreasing**Range of uses:** milk, meat**RUSSIAN FEDERATION**

The Kurganskaya is found in south-western Siberia. It is a composite of Shorthorn, Simmental, Dutch, Bestuzhev, Tagil, Red Steppe and local cattle and was established in 1890. The animals are red, brown or red and white in colour and have a well developed dewlap. Adult males weigh on average 800 kg and females 500 kg with an average wither height of 139 cm and 129 cm respectively. Of females, 50% are bred to males of the same breed.

YAKUTSKII SKOT*ENDANGERED-MAINTAINED***Local names or syn.:** Yakut (eng.), East Siberian (eng.)**Population data:** 458 • 1994**Population trend:** -**Range of uses:** meat, milk**RUSSIAN FEDERATION**

The Yakutskii Skot is found in Yakutia. It is a last remaining variety of the indigenous local breed, the Siberian. The animals are black, red or spotted in colour with a white back-line and they have thick hair with numerous guard hairs. Adult males weigh on average 525 kg and females 375 kg with an average wither height of 122 cm and 112 cm respectively. The breed is adapted to live under extreme cold northern climatic conditions and is highly adapted to very difficult feeding conditions, being able to thrive on poor feeding. The udder and body are covered with thick hair to protect them from the cold and midges. They are reported to demonstrate resistance to tuberculosis, leucosis and brucellosis. This breed has been conserved at the Lenin state farm in the Verkhoyansk district.

DAGESTANSKAYA*ENDANGERED***Local names or syn.:** East Caucasian (eng.), Dagestan (eng.)**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** meat, milk**RUSSIAN FEDERATION**

The Dagestanskaya variety is similar to the Karachai. When long haired they are black, white or grey and when short haired they may be red or blue in colour.

KARACHAEVSKAYA*ENDANGERED***Local names or syn.:** Karachai (eng.), North Caucasian (eng.)**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** meat, milk, wool**RUSSIAN FEDERATION**

The Karachaevskaia is found in northern Caucasus. The animals may be black, grey, red, white or pied in colour.

VOLGOGRAD WHITE*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** -**RUSSIAN FEDERATION**

The Volgograd White is a white variety of Don and all animals are white in colour.

CHARYSH*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** -**RUSSIAN FEDERATION**

The Charysh is a local horse variety found in Siberia.

CHISTOKOVNAYA ARABSKAYA*ENDANGERED***Local names or syn.:** Russian Arab (eng.)**Population data:** 2442 • 861 ♀ • 136 ♂ • 1990**Population trend:** stable**Range of uses:** -**RUSSIAN FEDERATION**

The Chistokovnaya Arabskaya has existed since 1936. The breeding of Arab horses in the former USSR started in 1925. Since then they have been upgraded with animals imported from Hungary and France in 1930 and from Britain and Poland in 1936. Male and female Chistokovnaya Arabskaya have an average wither height of 154 cm and 151 cm respectively. This breed is known for fertility and longevity. The breed has been separated into a number of varieties and is now concentrated in 5 studs and 2 horse breeding farms. Of females, 67% are bred to males of the same breed.

CHISTOKROVNAYA ARABSKAYA*ENDANGERED***Local names or syn.:** Arab (eng.)**Population data:** > 2 442 • 861 ♀ • 136 ♂ • 1990**Population trend:** stable**Range of uses:** -**RUSSIAN FEDERATION**

The Chistokrovnaya Arabskaya originated in the 4-8th century in the hot arid steppes of the Arabian Peninsula. They are light animals with an average wither height of 154 cm and 151 cm for males and females respectively. Of females, 67% are bred to males of the same breed.

DAGESTANSKII PONI*ENDANGERED***Local names or syn.:** Dagestan Pony (eng.)**Population data:** 456 • 186 ♀ • 43 ♂ • 1990**Population trend:** decreasing**Range of uses:** milk**RUSSIAN FEDERATION**

The Dagestanskii Poni is found in northern Caucasus. Of females, 100% are bred to males of the same breed.

ESTONSKII TYAZHELOVOZ*ENDANGERED***Local names or syn.:** Estonian Draft (eng.), Estonian Ardens (eng.)**Population data:** 400 • 120 ♀ • 15 ♂ • 1994**Population trend:** decreasing**Range of uses:** draught power**RUSSIAN FEDERATION**

The Estonskii Tyazhelovoz is found in Rakvereast. Adult males weigh on average 750 kg and females 700 kg with an average wither height of 160 cm and 158 cm respectively.

KUZNETSKAYA PORODNAYA GRUPPA



ENDANGERED

Local names or syn.: Kuznetsk (eng.)

Population data: 100 - 1 000 • 1988

Population trend: -

Range of uses: -

RUSSIAN FEDERATION

The Kuznetskaya Porodnaya Gruppya is found in Kemerovo and Novosibirsk, western Siberia. It is a lightly built Siberian Pony type that has been improved with Trotter, Saddle and Draft.

MEZENSKAYA



ENDANGERED

Local names or syn.: Mezen (eng.)

Population data: 1339 • 556 ♀ • 45 ♂ • 1990

Population trend: decreasing

Range of uses: -

RUSSIAN FEDERATION

The Mezenskaya, found in north-eastern Archangel and Komi, is part of the North Russian Pony group. On average, males stand 138 cm tall at the withers. Of females, 60% are bred to males of the same breed.

NARYM



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1988

Population trend: -

Range of uses: -

RUSSIAN FEDERATION

The Narym, a variety of Siberian Pony, is found in Tomsk, Siberia.

PECHORSKAYA



ENDANGERED

Local names or syn.: Pechora (eng.)

Population data: 100 - 1 000 • 1988

Population trend: -

Range of uses: -

RUSSIAN FEDERATION

The Pechorskaya is found in Komi. It is a part of the North Russian Pony group.

PRIOBSKAYA*ENDANGERED***Local names or syn.:** Ob (eng.), Ostyak-Vogul (ru.)**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** -**RUSSIAN FEDERATION**

The Priobskaya, part of the North Russian Pony group, is found in western Siberia.

PRZEWALSKI HORSE*ENDANGERED***Local names or syn.:** Asiatic Wild Horse (eng.), Mongolian Wild Horse (eng.), Mongolian Tarpan (eng.), Taki**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** -**RUSSIAN FEDERATION**

The Przewalski Horse is an *Equus ferus przewalskii*. The animals are red-brown in colour with light underparts, leg bars and a back stripe and an erect mane.

TAVDINSKAYA*ENDANGERED***Local names or syn.:** Tavda (eng.)**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** -**RUSSIAN FEDERATION**

The Tavdinskaya is found in western Siberia. It is a part of the Northern Russian Pony group.

TUVINSKAYA*ENDANGERED***Local names or syn.:** Tuva (eng.)**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** -**RUSSIAN FEDERATION**

The Tuvinskaya, found in Siberia, is a part of the Siberian Pony group. They are now rare due to crossing with Don and Budyonny.

VERKHNE-ENISEISKAYA*ENDANGERED***Local names or syn.:** Upper Yenisei (eng.)**Population data:** 983 • 294 ♀ • 20 ♂ • 1990**Population trend:** decreasing**Range of uses:** -**RUSSIAN FEDERATION**

The Verkhne-Eniseiskaya, found in Tuva Republic, is a composite of local Tuva (male) and Mongolian (female) horses, improved by Russian Trotter and Draft, established in 1893. They are light animals. Of females, 29% are bred to males of the same breed.

TERSKAYA*ENDANGERED-MAINTAINED***Local names or syn.:** Tersk (eng.)**Population data:** 1 198 • 250 ♀ • 1990**Population trend:** decreasing**Range of uses:** -**RUSSIAN FEDERATION**

The Terskaya is found in northern Caucasus. It is a composite of Strelets, Arab, Don and Kabarda and was established in the 19th century. The animals are silver-grey, bay or chestnut in colour. They are light animals with an average wither height of 160 cm and 157 cm for males and females respectively. Of females, 50% are bred to males of the same breed. The pedigree nucleus is concentrated at Stravropol and is very small (250 mares) requiring protective management.

SIBIRSKAYA CHERNOPESTRAYA*ENDANGERED***Local names or syn.:** Siberian Black Pied (eng.), Novosibirsk Spotted (eng.), Siberian Spotted (eng.)**Population data:** < 5 300 • 166 ♀ • 258 ♂ • 1980**Population trend:** decreasing**Range of uses:** -**RUSSIAN FEDERATION**

The Sibirskaya Chernopestraya is found in northern Omsk and Novosibirsk. It is a composite of the Black and White variety of North Siberian White. The animals are black pied in colour. Of females, 45% are bred to males of the same breed.

MIKHNOVSKAYA*CRITICAL***Local names or syn.:** Mikhnov (eng.)**Population data:** 100 • 1989**Population trend:** decreasing**Range of uses:** -**RUSSIAN FEDERATION**

The Mikhnovskaya, descended from Russian Long-Tailed, is found in the Evdakov District of Voronezh Region. The face is chestnut, sometimes black or speckled in colour. Adult males weigh on average 80 kg and females 59 kg with an average wither height of 70 cm and 67 cm respectively. Rams have coiled horns whereas ewes are polled and all animals are long tailed (35-49 cm).

VALAKHISKAYA*CRITICAL*

Local names or syn.: Steppe Voloshian (eng.), Voloshskaya (ru.), Vagas, Valachian (eng.), Vala(k)hian, Volosh, Walachian, Woloschian

Population data: 100 • 1989

Population trend: decreasing

Range of uses: meat, wool

RUSSIAN FEDERATION

The Valakhskaya, found in northern Caucasus and south-western Siberia, is a typical variety of Voloshian and is descended from Zackel with some fat-tail blood. The animals are white and rarely black in colour. Rams may be either polled or horned and ewes are always polled. Adult males weigh on average 50 kg and females 44 kg. These sheep have coarse/carpet type wool with a long fat tail that is occasionally found to touch the ground.

BAKUR*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1988

Population trend: -

Range of uses: wool

RUSSIAN FEDERATION

No further information available.

PECHORSKAYA PORODNAYA GRUPPA*ENDANGERED*

Local names or syn.: Pechora (eng.), Pechorskaya Polutonkorunnaya (ru.)

Population data: 100 - 1 000 • 1988

Population trend: -

Range of uses: wool, meat

RUSSIAN FEDERATION

The Pechorskaya Porodnaya Gruppya, a composite of Romney and local Russian Northern Short-Tailed, was established in 1937-1950 and is now found in Komi. These sheep are white in colour and have medium fibred long wool.

HNEĎÀ KRÀTKOSRSTÀ KOZA*ENDANGERED*

Local names or syn.: Brown Shorteared (eng.)

Population data: 650 • 442 ♀ • 13 ♂ • 1994

Population trend: increasing

Range of uses: milk

SLOVAKIA

The Hnedà Krátkosrstà Koza is an indigenous breed found in submountainous areas. The animals are brown in colour. Adult males weigh on average 80 kg and females 50 kg with an average wither height of 75 cm and 70 cm respectively. Of females, 100% are bred to males of the same breed.

ARABSKÝ KÔN*CRITICAL***Local names or syn.:** Shagya (eng.), Shagya-Arabian (eng.)**Population data:** 72 ♀ • 16 ♂ • 1998**Population trend:** -**Range of uses:** sport**SLOVAKIA**

The Arabský Kôn is an Arabian Halfbred found in Topol'cianky, Veľký Ari, Liptovský Ondrej. The animals are grey/white in colour. Adult males weigh on average 490 kg and females 480 kg with an average wither height of 156 cm and 154 cm respectively. Good reproductive qualities and an unspecified disease resistance are reported for this breed.

ARABSKÝ PLNOKRVNIK*CRITICAL***Local names or syn.:** Arab (eng.), Arabian Thouroughbred (eng.)**Population data:** 132 • 25 ♀ • 13 ♂ • 1994**Population trend:** stable**Range of uses:** sport, general crossbreeding**SLOVAKIA**

The Arabský Plnokrvnik is a pure-bred Arab found in Topol'cianky. The horses are white in colour. Adult males weigh on average 486 kg and females 480 kg with an average wither height of 156 cm and 153 cm respectively. They are frugal animals for whom an unspecified disease resistance is reported. Only one herd remains. There are 15 females registered in the herd book, of which 33% are bred to males of the same breed.

FURIOSO*CRITICAL***Local names or syn.:** -**Population data:** 85 ♀ • 11 ♂ • 1999**Population trend:** -**Range of uses:** -**SLOVAKIA**

No further information available.

HUCULSKÉ PLEMENO*CRITICAL***Local names or syn.:** Hucul, Hutsul (eng.)**Population data:** 50 • 23 ♀ • 6 ♂ • 1994**Population trend:** stable**Range of uses:** draught power, sport**SLOVAKIA**

The Huculské Plemeno, found in Topol'cianky, Muràn, is a native Carpatian type of Tarpan horse. The animals are usually dun or bay but are sometimes found to be chestnut in colour. Adult males weigh on average 460 kg and females 445 kg with an average wither height of 144 cm and 142 cm respectively. The breed is well adapted to the locally prevailing marginal conditions. There are 2 herds remaining and 23 females registered in the herd book, 46% of which are bred to males of the same breed.

LIPICAN*CRITICAL***Local names or syn.:** Lipitsa (eng.), Lipizzaner (ger.)**Population data:** 48 ♀ • 14 ♂ • 1998**Population trend:** -**Range of uses:** draught power**SLOVAKIA**

The Lipican is found in Topol'cianky, Vel'kýari. The animals are grey or white in colour. Adult males weigh on average 495 kg and females 500 kg with an average wither height of 155 cm and 154 cm respectively. This breed has a light, easy and extended movement.

NONIUS*CRITICAL***Local names or syn.:** -**Population data:** 42 ♀ • 8 ♂ • 1998**Population trend:** -**Range of uses:** draught power, sport**SLOVAKIA**

The Nonius, found in Nový Tekov, descends from Anglo-Norman horses. The animals are usually dun or bay in colour. Adult males weigh on average 600 kg and females 580 kg with an average wither height of 170 cm and 168 cm respectively. The breed is a frugal, surefooted breed, well adapted to live under the locally prevailing marginal conditions.

SLOVENSKÝ SPORTOVÝ PONY*CRITICAL***Local names or syn.:** Slovak Sport Pony (eng.)**Population data:** 145 • 34 ♀ • 6 ♂ • 1994**Population trend:** stable**Range of uses:** sport, draught power**SLOVAKIA**

The Slovenský Sportový Pony, found in Vel'ké Pole, Nitra, was created by crossing light mares with the Welsh Pony breed. The animals are dun or bay and may sometimes be white in colour. Adult males weigh on average 354 kg and females 248 kg with an average wither height of 143 cm and 140 cm respectively. An unspecified disease resistance is reported for animals of this breed. The animals have a light, easy and extended movement. There are 2 herds remaining and 34 females registered in the herd book, 25% of which are bred to males of the same breed.

SLOVGAL 03A*CRITICAL***Local names or syn.:** -**Population data:** 100 • 88 ♀ • 12 ♂ • 1993**Population trend:** stable**Range of uses:** meat**SLOVAKIA**

The Slovgal 03a is a synthetic male line of chicken bred in Slovak Republic. They have self-white coloured plumage, yellow skin, shanks and feet, single comb and egg shells that are brown in colour. Adult males weigh on average 5 kg and females 3.9 kg. The line is reared in the Poultry Breeding Station, 900 28 Ivanka pri Dunaji of Research Institute of Animal Production, Nitra, Slovakia.

SLOVGAL 05A*CRITICAL*

Local names or syn.: -

Population data: 400 • 30 ♀ • 1993

Population trend: stable

Range of uses: meat

SLOVAKIA

The Slovgal 05a was imported from Arbor Acres in 1970. They have self-white coloured plumage, yellow skin, shanks and feet, single comb and egg shells that are brown in colour. Adult males weigh on average 4.6 kg and females 3.4 kg. These chickens have been bred since 1973 at the Poultry Breeding Station, 900 28 Ivanka pri Dunaji of Research Institute of Animal Production, Nitra, Slovakia. They have been selected for body weight and they are the grandparental lines for broiler production (female line).

NEW HAMPSHIRE*ENDANGERED*

Local names or syn.: -

Population data: 280 • 250 ♀ • 30 ♂ • 1993

Population trend: stable

Range of uses: meat, eggs

SLOVAKIA

The New Hampshire chicken was imported from England in 1970. They have gold-columbian or self-red and variants coloured plumage, yellow skin, shanks and feet, single comb and egg shells that are brown in colour. Adult males weigh on average 4 kg and females 2.8 kg. These chickens are reared in the Poultry Breeding Station, 900 28 Ivanka pri Dunaji of Research Institute of Animal Production, Nitra, Slovakia.

RHODE ISLAND RED*ENDANGERED*

Local names or syn.: -

Population data: 170 • 150 ♀ • 20 ♂ • 1993

Population trend: stable

Range of uses: eggs

SLOVAKIA

The Rhode Island Red is an indigenous population. They have self-red and variants coloured plumage, yellow skin, shanks and feet, single comb and egg shells that are brown in colour. Adult males weigh on average 2.4 kg and females 1.7 kg. Reared in the Poultry Breeding Station, 900 28 Ivanka pri Dunaji of Research Institute of Animal Production, Nitra, Slovakia.

SLOVGAL 06A*ENDANGERED*

Local names or syn.: -

Population data: 300 • 270 ♀ • 30 ♂ • 1993

Population trend: stable

Range of uses: meat

SLOVAKIA

The Slovgal 06a was imported from Arbor Acres in 1970. They have self-white coloured plumage, yellow skin, shanks and feet, a single comb and egg shells that are brown in colour. Adult males weigh on average 4.4 kg and females 3.5 kg. These chickens have been bred since 1973 at the Poultry Breeding Station, 900 28 Ivanka pri Dunaji of Research Institute of Animal Production, Nitra, Slovakia. They have been selected for body weight and they are the grandparental lines for broiler production (female line).

SUSSEX WHITE*ENDANGERED*

Local names or syn.: -

Population data: 220 • 200 ♀ • 20 ♂ • 1993

Population trend: stable

Range of uses: eggs

SLOVAKIA

The Sussex White was imported from England in 1973. They have silver-columbian coloured plumage, white skin, shanks and feet, single comb and egg shells that are brown in colour. Adult males weigh on average 2.7 kg and females 1.9 kg. These chickens are reared in the Poultry Breeding Station, 900 28 Ivanka pri Dunaji of Research Institute of Animal Production, Nitra, Slovakia.

BRITISH RANGE (E/e)*CRITICAL*

Local names or syn.: -

Population data: 45 • 30 ♀ • 15 ♂ • 1993

Population trend: stable

Range of uses: hobby, research

SLOVAKIA

The British Range (E/e) was imported from Poland. They are a dark-feather coloured variety of quail, males and females being similarly pigmented. The individual feather pattern is similar to that of the dorsal surface of the pharaoh quail. Their egg shells are tinted in colour. Adult males weigh on average 0.115 kg and females 0.13 kg. These quails are reared in the Poultry Breeding Station, 900 28 Ivanka pri Dunaji of Research Institute of Animal Production, Nitra, Slovakia.

ENGLISH WHITE (WH/wh)*CRITICAL*

Local names or syn.: -

Population data: 60 • 40 ♀ • 20 ♂ • 1993

Population trend: stable

Range of uses: hunting, research

SLOVAKIA

The English White (Wh/wh) was imported from Poland. They have self-white coloured plumage and egg shells may be tinted in colour. Adult males weigh on average 0.115 kg and females 0.13 kg. Reared in the Poultry Breeding Station, 900 28 Ivanka pri Dunaji of Research Institute of Animal Production, Nitra, Slovakia.

MANCHURIAN GOLDEN (Y/y+)*CRITICAL*

Local names or syn.: -

Population data: 45 • 30 ♀ • 15 ♂ • 1993

Population trend: stable

Range of uses: hunting, research

SLOVAKIA

The Manchurian Golden (Y/y+) quail was imported from Poland. Their plumage is a mixture of colours that results in an overall appearance of a rich, gold wheat-straw coloured bird. The back and hackle feathers are dark brown with a very wide wheat-straw coloured shafting and they have tinted egg shells. Adult males weigh on average 0.11 kg and females 0.125 kg. The quails are reared in the Poultry Breeding Station, 900 28 Ivanka pri Dunaji of Research Institute of Animal Production, Nitra, Slovakia.

TUXEDO (E/e, Wh+)*CRITICAL***Local names or syn.:** -**Population data:** 45 • 30 ♀ • 15 ♂ • 1993**Population trend:** stable**Range of uses:** hunting, research**SLOVAKIA**

The Tuxedo (E/e, Wh+) was imported from Poland. Adult males weigh on average 0.115 kg and females 0.13 kg and they have tinted egg shells. Reared in the Poultry Breeding Station, 900 28 Ivanka pri Dunaji of Research Institute of Animal Production, Nitra, Slovakia.

CIKASTO GOVEDO*CRITICAL***Local names or syn.:** Cika (eng.), Bohinjska cika (sloven.)
Tolminska cika (sloven.)**Population data:** < 100 • 50 ♀ • 5 ♂ • 1994**Population trend:** decreasing**Range of uses:** milk, meat**SLOVENIA**

The Cikasto govedo was developed from a local breed of Buša type some time after 1960. The majority of cows are mated to bulls of Pinzgau (Salzburg). They are reddish in colour with a white stripe broadening from the middle of the back backwards and they have white markings on the hind legs. The animals are very similar to Pinzgau cattle but they have a smaller frame. Adult males weigh on average 770 kg and females 500 kg with an average wither height of 136 cm and 128 cm respectively. Of females, 40% are bred to males of the same breed.

DOMACA KRIZANA KOZA*ENDANGERED***Local names or syn.:** Domaèa bela koza (sloven.)**Population data:** 3 000 • 156 ♀ • 20 ♂ • 1993**Population trend:** increasing**Range of uses:** milk**SLOVENIA**

Domaca krizana koza goats are white in colour and have erect ears. Adult males weigh on average 75 kg and females 50 kg. Of females, 15% are bred to males of the same breed.

SRNASTA PASMA*ENDANGERED***Local names or syn.:** Alpine (eng.)**Population data:** 14 000 • 700 ♀ • 30 ♂ • 1993**Population trend:** -**Range of uses:** milk**SLOVENIA**

Srnasta pasma goats are grey in colour and have erect ears. Adult males weigh on average 67 kg and females 46 kg. Of females, 50% are bred to males of the same breed.

LJUTOMERSKI KASAC*CRITICAL***Local names or syn.:** Ljutomer Trotter (eng.)**Population data:** < 100 • 1995**Population trend:** -**Range of uses:** -**SLOVENIA**

The Ljutomerski Kasac is found country-wide. It is a composite of American Trotter and Anglo-Arab.

PIETRAIN*CRITICAL***Local names or syn.:** -**Population data:** 80 ♀ • 40 ♂ • 1994**Population trend:** stable**Range of uses:** meat**SLOVENIA**

The Pietrain pigs are black and white in colour and have erect ears. Adult males weigh on average 240 kg and females 150 kg. Of females, 80% are bred to males of the same breed. The semen of 35 males is stored.

BELA ZLAHTNA*ENDANGERED***Local names or syn.:** Slovenian White (eng.), Yorkšir (sloven.)**Population data:** 650 ♀ • 100 ♂ • 1994**Population trend:** stable**Range of uses:** meat**SLOVENIA**

The Bela Zlahtna descends from imported Edelschwein from Germany and Austria. The animals are white in colour and have erect ears. Adult males weigh on average 220 kg and females 180 kg with an average wither height of 80 cm and 70 cm respectively. Of females, 90% are bred to males of the same breed. The semen of 80 males is stored.

DUROC*ENDANGERED***Local names or syn.:** -**Population data:** 200 ♀ • 45 ♂ • 1994**Population trend:** increasing**Range of uses:** meat**SLOVENIA**

Duroc pigs are red in colour and have lop ears. Adult males weigh on average 350 kg and females 220 kg. Of females, 95% are bred to males of the same breed. The semen of 40 males is stored.

NEM KA LANDRACE*ENDANGERED*

Local names or syn.: -

Population data: 1 100 • 900 ♀ • 130 ♂ • 1994

Population trend: stable

Range of uses: meat

SLOVENIA

The Nem Ka Landrace are white in colour and have lop ears. Adult males weigh on average 280 kg and females 200 kg. Of females, 65% are bred to males of the same breed. The semen of 120 males is stored.

KRSKOPOLJSKI CRNOPASASTI PRASIC*ENDANGERED-MAINTAINED*

Local names or syn.: Krkopolje Saddleback (eng.), Krkopolka
Cerno Pasasta Prastica (sloven.)

Population data: 150 ♀ • 10 ♂ • 1994

Population trend: decreasing

Range of uses: meat

SLOVENIA

The Krskopoljski Crnopasasti Prasic is a native breed. The animals are black in colour with a white saddle and lop ears. Adult males weigh on average 185 kg and females 170 kg with an average wither height of 70 cm and 62 cm respectively. Of females, 50% are bred to males of the same breed.

BELOKRANJSKA PRAMENKA*ENDANGERED*

Local names or syn.: Belokranjka (sloven.)

Population data: 100 - 1 000 • 1999

Population trend: increasing

Range of uses: -

SLOVENIA

The Belokranjska pramenka was included, in 1996, in a conservation programme in Slovenia called Genbank.

BOVŠKA OVCA*ENDANGERED-MAINTAINED*

Local names or syn.: Trentarka (sloven.)

Population data: 100 - 1 000 • 980 ♀ • 70 ♂ • 1998

Population trend: stable

Range of uses: milk, meat, wool

SLOVENIA

The Bovška ovca, found country-wide, is a native local breed (Steinschaf). The animals may be white or black and white in colour. They have small ears, a woolless belly and medium fibred wool. Adult males weigh on average 58 kg and females 45 kg with an average wither height of 65 cm and 58 cm respectively. They have short, thin legs that sometimes resemble stumps, the back legs being inclined forward so that animals can walk on steep meadows. Since 1990, the breed has been included in a conservation programme called Slovenian Genbank.

BARRED PLYMOUTH ROCK*ENDANGERED*

Local names or syn.: -

Population data: 600 • 460 ♀ • 140 ♂ • 1994

Population trend: stable

Range of uses: research, eggs

SLOVENIA

The Barred Plymouth Rock was imported from the United States of America and was established in 1980. These chickens have barred, sex-linked patterns within the feathers, yellow skin, shanks and feet, a single comb and egg shells that are brown in colour. Adult males weigh on average 3.8 kg and females 2.8 kg.

SILVER*ENDANGERED*

Local names or syn.: -

Population data: 560 • 480 ♀ • 80 ♂ • 1994

Population trend: stable

Range of uses: research, eggs

SLOVENIA

Silver chickens have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 3.5 kg and females 2.5 kg.

SYNTHETIC SLOVENIAN LINE*ENDANGERED*

Local names or syn.: -

Population data: 245 • 220 ♀ • 25 ♂ • 1994

Population trend: stable

Range of uses: research, meat

SLOVENIA

Synthetic Slovenian Line chickens have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 4.8 kg and females 3.5 kg.

WHITE ROCK (LINE B)*ENDANGERED*

Local names or syn.: -

Population data: 220 • 200 ♀ • 20 ♂ • 1994

Population trend: stable

Range of uses: research, meat

SLOVENIA

White Rock (Line B) chickens are rapid feathering and have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 4.4 kg and females 3.4 kg.

WHITE ROCK (LINE P)*ENDANGERED***Local names or syn.:** -**Population data:** 160 • 145 ♀ • 15 ♂ • 1994**Population trend:** stable**Range of uses:** research, meat**SLOVENIA**

White Rock (Line P) chickens are slow feathering and have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 4.2 kg and females 3.2 kg.

ASNO DE LAS ENCARTACIONES*CRITICAL***Local names or syn.:** -**Population data:** 50 ♀ • 5 ♂ • 1995**Population trend:** decreasing**Range of uses:** draught power**SPAIN**

The Asno De Las Encartaciones, found in Bizkaia, Basque Country, is an indigenous breed. These hardy animals may be black, white, grey or chestnut in colour. Adult males weigh on average 200 kg and females 180 kg. There are 6 herds remaining. Of females, 80% are bred to males of the same breed.

ASE MALLORQUÍ*ENDANGERED***Local names or syn.:** Majorcan (eng.)**Population data:** 100 - 1 000 • 1997**Population trend:** stable**Range of uses:** socio-cultural, hobby**SPAIN**

The Ase Mallorquí, found in Mallorca, is a Mediterranean western branch. The animals are black and white-greyish in colour with an average wither height of 142 cm and 138 cm for males and females respectively. The breed is known for its rusticity and the longevity of this breed is remarkable.

MAJORERA*ENDANGERED***Local names or syn.:** Burro Majorero (sp.), Majorero ass (eng.)**Population data:** 350 • 1999**Population trend:** stable**Range of uses:** -**SPAIN**

Majorera asses, found on the Canary Islands are animals from the north-western area of Africa. The animals are a number of different variations of grey, are light weight, sub-concave and have a short body length. On average the animals stand 110 cm tall at the withers. Adapted to difficult arid conditions and volcanic ground, they are capable of surviving with little food and water. The breed is very vital and healthy and the animals are known for their longevity.

RAZA ASININA CATALANA*ENDANGERED-MAINTAINED***Local names or syn.:** Catalanian Donkey Breed (eng.)**Population data:** 100 - 1 000 • 40 ♂ • 1995**Population trend:** stable**Range of uses:** socio-cultural, interspecies crossing, tourist attraction**SPAIN**

The Raza Asinina Catalana, found in Catalonia, belongs to the species *Equus asinus somaliensis* or *Equus asinus europeus*. This breed has contributed to the formation and improvement of several European breeds and has had a great and decisive influence in the formation of the American Mammoth ass. The animals are black with characteristic fading in the muzzle, orbital zone of the eye, belly and internal face of the extremities. They are large-sized, elongated animals with a concave profile. Adult males weigh on average 400 kg and females 350 kg with an average wither height of 142 cm and 136 cm respectively. The breed is known for its longevity and sexual prowess, is very rustic and is used for mule production. Of females, 95% are bred to males of the same breed.

BETIZU*CRITICAL***Local names or syn.:** -**Population data:** 150 ♀ • 7 ♂ • 1995**Population trend:** decreasing**Range of uses:** meat, socio-cultural, tourist attraction / touristic potential**SPAIN**

The Betizu, found in Gipuzkoa, Basque country and Navarra, is an indigenous breed. The animals are corn coloured. Adult males weigh on average 250 kg and females 200 kg with an average wither height of 115 cm and 110 cm respectively. This rustic, hardy and aggressive breed is known for its longevity. There are 25 herds remaining. Of females, 20% are bred to males of the same breed.

MALLORQUINA*CRITICAL***Local names or syn.:** Majorcan (eng.)**Population data:** 105 • 90 ♀ • 15 ♂ • 1999**Population trend:** increasing**Range of uses:** meat**SPAIN**

The Mallorquina, found in Mallorca, is an indigenous Red Convex Iberic. The animals are a mixture of red, blond and chestnut. Adult males weigh on average 400 kg and females 300 kg. The breed is suitable for living in a Mediterranean climate with marginal vegetation. There are 12 herds remaining.

PALLARESA*CRITICAL***Local names or syn.:** -**Population data:** 15 • 15 ♀♂ • 1996**Population trend:** decreasing**Range of uses:** meat**SPAIN**

The Pallaresa is found in Pallars Sobina Region, Catalonia and is a *Bos taurus turdetanus* type. The animals are white in colour, are of medium size and have a straight profile. The breed is known for its rusticity and the animals show good maternal abilities. Only one herd remains.

SERRANA NEGRA*CRITICAL***Local names or syn.:** Negra iberica (sp.), Serrana Black (eng.)**Population data:** 660 ♀ • 4 ♂ • 1991**Population trend:** -**Range of uses:** meat, sire line**SPAIN**

The Serrana negra, found in Teruel, is a composite of Serrana Iberique and Avilena-Negra. The animals are black or black and brown in colour and are rustic animals. Adult males weigh on average 825 kg and females 475 kg. The breed is well adapted to the local environment (extreme continental climate with little rain, semi desert, steep zones). There are 26 herds remaining. Of females, 15% are bred to males of the same breed.

CARDENA ANDALUZA*CRITICAL-MAINTAINED***Local names or syn.:** Andalusian Grey (eng.)**Population data:** 20 ♀ • 3 ♂ • 1991**Population trend:** decreasing**Range of uses:** meat, to handle fighting bulls**SPAIN**

The Cardena Andaluza, found in Cordoba, Huelva and Andalusia Region, is a local Iberic variety. The animals are black with white abdomen, a big dewlap and strong horns. Adult males weigh on average 900 kg and females 500 kg with an average wither height of 165 cm and 160 cm respectively. This breed produces excellent meat and the animals are known for quick apprenticeship. There are 4 herds remaining. Eleven females are registered in the herd book, 100% of which are bred to males of the same breed. The semen of 14 males is stored.

LIMIANA*CRITICAL-MAINTAINED***Local names or syn.:** -**Population data:** 46 ♀ • 14 ♂ • 1994**Population trend:** decreasing**Range of uses:** meat, draught power, milk**SPAIN**

The Limiana, found in Ourense, Galicia, is an indigenous breed, *Bos primigenius strepsicurus*. The animals are chestnut-brown, the front third of the body being darker. They have a whitish border around the muffle, a long face, broad front, are lightly sunk and have great, hairy ears. Adult males weigh on average 925 kg and females 490 kg with mean wither heights of 143 cm and 137 cm. Males have short hook-like horns and females have long, spiral horns, the tips pointing outwards. Adapted to hilly countryside and a continental climate (cold winters, hot summers) with high temperatures during the summer period, they are known for their suitable meat conformation, docility, rusticity and being able to make use of thickets resources. Fifteen herds remain with 40 females registered in the herd book (80% bred pure). The semen of 21 males is stored. Embryos are also stored.

MURCIANA*CRITICAL-MAINTAINED***Local names or syn.:** Levantina (sp.= eastern), Murcian (eng.)**Population data:** 65 ♀ • 5 ♂ • 1991**Population trend:** stable**Range of uses:** meat, socio-cultural**SPAIN**

The Murciana, found in Granada and Almeria in Andalusia, is an indigenous *Bos taurus frontosus*. The animals are red or brown with black dorsal line and a big dewlap. Adult males weigh on average 800 kg and females 550 kg with an average wither height of 141 cm and 131 cm respectively. The horns are found sometimes touching cheeks. These hardy animals are well suited to a dry, hot climate, are adapted to very poor lands and are known for their rusticity. There are 15 herds remaining. There are 14 females registered in the herd book, of which 40% are bred to males of the same breed. The semen of 3 males is stored.

ALBERA*ENDANGERED***Local names or syn.:** Massanaise (fr.), Alberes (eng.)**Population data:** 1 000 - 10 000 • 900 ♀ • 6 ♂ • 1991**Population trend:** decreasing**Range of uses:** socio-cultural**SPAIN**

The Albera, an Iberian branch, is found in the Natural Park of the Albera Massif, Alt Emporda Region. There is a black colour variety (Black Alberes) and a fawn colour variety (Fagina Alberes). Adult males weigh on average 350 kg and females 275 kg. The cattle have a big head and short, half-moon shaped horns. This very rustic breed is known for longevity. There are 6 herds remaining. Of females, 50% are bred to males of the same breed.

BERRENDO EN NEGRO*ENDANGERED***Local names or syn.:** Berrenda Negra Andaluza (sp. = black pied), Black Berrendo (eng.)**Population data:** 389 ♀ • 34 ♂ • 1991**Population trend:** decreasing**Range of uses:** meat, to handle fighting bulls, draught power**SPAIN**

The Berrendo en Negro, found in Huelva and Sevilla in Andalusia, is a composite of *Bos primigenius* and *Bos desertorum hispanicus*. The animals are black pied in colour, similar to Pinzgauer cattle. Adult males weigh on average 950 kg and females 600 kg with an average wither height of 143 cm and 138 cm respectively. The breed is well adapted to an arid climate with strong sunshine. There are 5 herds remaining. Of females, 90% are bred to males of the same breed. The semen of one male is stored.

BLANCA CACEREÑA*ENDANGERED***Local names or syn.:** Blanca Guadianese (sp.), White Caceres (eng.)**Population data:** 390 • 249 ♀ • 36 ♂ • 1999**Population trend:** increasing**Range of uses:** meat**SPAIN**

The Blanca Cacereña, found in Caceres and Badajoz, Extremadura, is an indigenous breed. The animals are white in colour and have horns like short hooks. Adult males weigh on average 900 kg and females 500 kg. The breed is well adapted to an arid climate with strong sunshine. There are 13 herds remaining. There are 249 females registered in the herd book, of which 95% are bred to males of the same breed. The semen of 30 males is stored and embryos are also stored.

DOÑANA*ENDANGERED***Local names or syn.:** Mostrenca (sp.), Palurda (sp.)**Population data:** 100 - 1 000 • 1997**Population trend:** increasing**Range of uses:** meat**SPAIN**

The Doñana, found in Marismas de Hinojos (Parque Nacional de Doñana), marshes of Donana in Andalusia, is a composite of Negra de las Campinas and Fighting Bull. The animals are solid red or a mixture of black, grey, blue, red, brown, white and blond. They have long, variably shaped horns. Adult males weigh on average 700 kg and females 450 kg with an average wither height of 145 cm and 135 cm respectively. The breed is adapted to marshes and humid lands and can fast for long periods of time.

FRIEIRESA*ENDANGERED*

Local names or syn.: -

Population data: 381 ♀ • 1 000 • 81 ♂ • 1997

Population trend: decreasing

Range of uses: meat, draught power, milk

TERREÑA*ENDANGERED*

Local names or syn.: -

Population data: 200 ♀ • 8 ♂ • 1991

Population trend: decreasing

Range of uses: draught power, meat, socio-cultural

BERRENDA ROJA ANDALUZA*ENDANGERED-MAINTAINED*

Local names or syn.: Capriote (sp.), Red Berrendo (eng.)

Population data: 971 ♀ • 90 ♂ • 1991

Population trend: increasing

Range of uses: to handle fighting bulls, meat, draught power

CACHENA*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 373 • 260 ♀ • 113 ♂ • 1997

Population trend: -

Range of uses: meat, draught power, milk

SPAIN

The Frieiresa, found in Ourense, Galicia, is an indigenous breed, *Bos primigenius strepsicerus*. The animals are brown or chestnut in colour, the males sometimes being darker. They have a small short head, long horns, long hair on the breast and a broad front with a long golden-blond fringe. Adult males weigh on average 865 kg and females 490 kg with average wither heights of 141 cm and 131 cm respectively. Well adapted to a continental climate (cold winter, hot summer), these hardy animals are known for their rusticity and ability to make use of thickets resources. The females of this breed are known for calving ease. There are 31 herds remaining. There are 140 females registered in the herd book, of which 100% are bred to males of the same breed. In total, 100% of males are used for breeding. The semen of 20 males is stored. Embryos are also stored.

SPAIN

The Terreña, found in Alava and Bizkaia, Basque country, is an indigenous breed. The animals are brown in colour, have many hairs on the udder and ears and are rustic. This breed is known for longevity and the females are used for crossing. There are 50 herds remaining with 70 females registered in the herd book, 5% of which are bred to males of the same breed. The semen of 4 males is stored and embryos are also stored.

SPAIN

The Berrenda roja andaluza, found in Sevilla, Cadiz and Saen in Andalusia, is a composite of *Bos taurus ibericus* red and *Bos desertorum hispanicus*. The animals are red and white in colour and have big open horns. Adult males weigh on average 1 000 kg and females 600 kg with an average wither height of 143 cm and 138 cm respectively. The breed is well adapted to Mediterranean conditions and long marshes and the animals live together with fighting bulls. There are 13 herds remaining. Of females, 90% are bred to males of the same breed. The semen of 2 males is stored.

SPAIN

The Cachena, found in Ourense, Galicia, is an indigenous breed, *Bos taurus primigenius mauritanicus*. The animals are chestnut with black mucous membranes, hooves and horn tips. They are very small animals, adult males weighing on average 585 kg, females 380 kg with mean wither heights of 122 cm and 117 cm respectively. The horns are large high-lyred horns. Well adapted to hot and dry summers as well as cold and wet winters, the animals are known for their rusticity and thrive in mountainous areas on poor soils. In addition, they are able to make use of thicket resources and produce good quality meat. There are 19 herds remaining and 220 females are registered in the herd book, 100% of which are bred to males of the same breed. The semen of 58 males is stored. Embryos are also stored.

CALDELANA*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 100 - 1 000 • 300 ♀ • 81 ♂ • 1997**Population trend:** decreasing**Range of uses:** meat, draught power**SPAIN**

The Caldelana, found in Ourense, Galicia, is an indigenous breed, *Bos taurus primigenius strepsicerus*. The animals are black with a silvery border around the muzzle, a red ribbon on the dorsum-humber line and hook shaped horns. Adult males weigh on average 650 kg and females 450 kg with an average wither height of 132 cm and 128 cm respectively. Well adapted to a cold and humid country, this is a docile and hardy breed. There are 31 herds remaining and 140 females are registered in the herd book, 100% of which are bred to males of the same breed. In total, 100% of males are used for breeding. The semen of 39 males is stored. Embryos are also stored.

MENORQUINA*ENDANGERED-MAINTAINED***Local names or syn.:** Mahonesa (sp.), Minorcan (eng.)**Population data:** 100 - 1 000 • 250 ♀ • 18 ♂ • 1999**Population trend:** increasing**Range of uses:** milk, meat, herding**SPAIN**

The Menorquina, found in Menorca, is a composite of Red Convex Iberic and Marinera. The animals are red in colour. Adult males weigh on average 800 kg and females 475 kg. Females may be either polled (90%) or horned and males are always polled. This hardy breed is well adapted to an extreme Mediterranean climate and is known for longevity. There are 16 herds remaining. There are 250 females registered in the herd book, of which 95% are bred to males of the same breed.

**NEGRA DE LAS CAMPINAS
ANDALUZAS***ENDANGERED-MAINTAINED***Local names or syn.:** Serrana Negra (sp.), Negra Iberica (sp.), Serrana (sp.), Andalusian Black (eng.)**Population data:** 897 ♀ • 21 ♂ • 1991**Population trend:** decreasing**Range of uses:** meat, dam line**SPAIN**

The Negra de las Campinas Andaluzas, found in Sierra Morena, Campina De Cordoba and Sevilla, Huelva, is a local *Bos taurus ibericus*. These cattle are black in colour and some animals have a white abdomen. Adult males weigh on average 875 kg and females 600 kg with an average wither height of 140 cm and 135 cm respectively. They have big open horns with smooth hook. Well adapted to high temperatures during the summer and cold winter, these animals are very well suited for living in the marginal so-called Dehesa land. There are 10 herds remaining with 150 females registered in the herd book, 30% of which are bred to males of the same breed. The semen of one male is stored.

PAJUNA*ENDANGERED-MAINTAINED***Local names or syn.:** Serrana (sp.= mountain)**Population data:** 310 ♀ • 11 ♂ • 1991**Population trend:** stable**Range of uses:** draught power, meat**SPAIN**

The Pajuna, found in Almeria, Granada and Saen in Andalusia, is a composite of African Atlas branch with a possible influence from Retinta cattle. The animals are black or blond with a white fringe around the muzzle, long legs, open hook horns and a big head. Adult males weigh on average 600 kg and females 375 kg with an average wither height of 165 cm and 160 cm respectively. The breed is well adapted to a cold mountain climate and the local marginal conditions and produces exquisite meat. There are 15 herds remaining. Twenty females are registered in the herd book, 10% of which are bred to males of the same breed.

PALMERA*ENDANGERED-MAINTAINED***Local names or syn.:** Palmera (sp.), de la tierra (sp.)**Population data:** 100 - 1 000 • 450 ♀ • 50 ♂ • 1999**Population trend:** increasing**Range of uses:** meat, draught power, milk**SPAIN**

The Palmera, found on La Palma Island, was developed from indigenous Rubia Gallega cattle and other Spanish breeds. The animals are blond in colour, very well footed, very strong, with a good udder and rustic sub-hypermetric. Adult males weigh on average 800 kg and females 500 kg with an average wither height of 140 cm and 134 cm respectively. The breed is well adapted to the local environment (mountain areas with high rainfalls). There are 110 herds remaining with 300 females registered in the herd book, 80% of which are bred to males of the same breed. The semen of 3 males is stored.

VIANESA*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 2 190 ♀ • 7 ♂ • 1994**Population trend:** stable**Range of uses:** meat, draught power, milk**SPAIN**

The Vianesa, found in Ourense, Galicia, is an indigenous local breed, *Bos primigenius strepsicerus*. The cattle are chestnut, sires being darker and calves being lighter in colour. They have a small head, large ears with long hairs and a long fringe. Adult males weigh on average 910 kg and females 590 kg with an average wither height of 138 cm and 133 cm respectively. Males have hook shaped or half moon shaped horns, female horns being longer and spiral shaped. The animals are well adapted to a continental climate (cold winter, hot summer), show a great rusticity (perfectly adapted to mountain conditions), are reported to have a docile character and have great tractive power. There are 41 herds remaining with 190 females registered in the herd book, 70% of which are bred to males of the same breed. The semen of 20 males is stored and embryos are also stored.

PITIÛSA*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1997**Population trend:** decreasing**Range of uses:** milk, meat**SPAIN**

The Pitiüsa, found in Ibiza and Formentera, belongs to the Mediterranean western trunk. This breed is highly variable in its morphology. Adult males weigh on average 60 kg and females 40 kg. Pitiüsa goats are known for their longevity and rusticity.

CABALLO LOSINO*CRITICAL-MAINTAINED***Local names or syn.:** Jaca Burgalesa**Population data:** 200 • 100 ♀ • 20 ♂ • 1999**Population trend:** stable**Range of uses:** -**SPAIN**

The Caballo Losino, found north-east of Burgos, is an autochthonous breed. The animals are black in colour. Adult males weigh on average 350 kg and females 300 kg with an average wither height of 135 cm and 133 cm respectively. Perfectly adapted to their environment, animals of this breed are known for their high prolificity and are very resistant to diseases. Females foal every year and have a high colostrum output. The animals have a good aptitude for juvenile horseback riding and are therefore used in rural tourism and field work (harnessing, light weight). There are 120 females registered in the herd book, of which 100% are bred to males of the same breed. In total, 4% of males are used for breeding.

CAVALL MALLORQUÍ*CRITICAL-MAINTAINED***Local names or syn.:** Majorcan (eng.)**Population data:** 75 • 1997**Population trend:** decreasing**Range of uses:** riding (sports), socio-cultural**SPAIN**

The Cavall Mallorquí is found in Mallorca. The animals are black in colour with an average wither height of 162 cm and 160 cm for males and females respectively. The breed is especially adapted to the Mediterranean climate and is known for its longevity.

CAVALL MENORQUÍ*ENDANGERED***Local names or syn.:** Minorcan (eng.)**Population data:** 1 000 • 1999**Population trend:** stable**Range of uses:** riding (sports)**SPAIN**

The Cavall Menorquí is found in Menorca. The animals are black in colour and have an average wither height of 160 cm and 155 cm for males and females respectively.

JACA NAVARRA*ENDANGERED***Local names or syn.:** -**Population data:** 240 • 10 ♂ • 1997**Population trend:** decreasing**Range of uses:** -**SPAIN**

The Jaca Navarra is found in Navarra.

POTTOKA*ENDANGERED***Local names or syn.:** Pottok (eng.)**Population data:** 400 ♀ • 170 ♂ • 1995**Population trend:** decreasing**Range of uses:** draught power**SPAIN**

The Pottoka is found in the Basque Country. The animals are black, chestnut or piebald in colour with small ears. Adult males weigh on average 225 kg and females 185 kg with an average wither height of 130 cm. There are 150 herds remaining. Of females, 100% are bred to males of the same breed.

IBICENCO*ENDANGERED***Local names or syn.:** Conill Pages(sp.), Conill Eivissenc(sp.)**Population data:** 1 000 • 1996**Population trend:** decreasing**Range of uses:** meat**SPAIN**

The Ibicenco is found on the island of Ibiza. These medium sized rabbits are mottled white in colour and are rustic animals.

CHATO-MURCIANO*CRITICAL***Local names or syn.:** Chato de Murcia (sp.), Murcian (eng.)**Population data:** 20 - 30 • 1997**Population trend:** -**Range of uses:** meat**SPAIN**

The Chato-Murciano is found in Murcia and was established in 1913. The animals are black in colour and are snub-nosed. Adult males weigh on average 250 kg and females 150 kg with an average wither height of 85 cm and 60 cm respectively. There are around 20-30 breeding animals distributed on 2 farms (1 official and 1 private). The *in situ* conservation programme involves 3 reproducing males. The semen of 3 males is stored.

IBÉRICO*CRITICAL***Local names or syn.:** Iberian Swine (eng.)**Population data:** 25 - 100 • 25 ♀ • 1997**Population trend:** decreasing**Range of uses:** meat**SPAIN**

The Ibérico (Dorado Gaditano) is found in Extremadura, Andalucia, Castilla y León and Castilla La Mancha and was established in 1300. The animals are copper-red in colour. Adult males weigh on average 120 kg and females 100 kg with an average wither height of 70 cm and 55 cm respectively. The breed is very well adapted to continental and semi-desert conditions and can exploit natural resources such as montanera (acorns of cork oak and holm oak and grass). Animals of this breed are used to produce elaborate products such as ham.

CELTA*CRITICAL-MAINTAINED***Local names or syn.:** Celtic pigs (eng.), Galician (sp.)**Population data:** 8 - 100 • 50 ♀ • 8 ♂ • 1997**Population trend:** stable**Range of uses:** meat**SPAIN**

The Celta, found in Galicia, is a breed of *Sus scrofa ferus* and is similar to the Normand, Créole, Flamenc, Gesbignon, Ardenese, Jutland, Seeland, Schwyzoise, Porco Bizaro and Pulawska breeds. The animals are white or white and black and are sometimes spotted. Animals of this breed have a straight profile, large ears, a convex back and large limbs. Adult males weigh on average 200 kg and females 170 kg with an average wither height of 82 cm and 78 cm respectively. The animals are well adapted to mountainous regions. This breed is known for its meat quality, prolificity and rusticity. There are 2 herds remaining. Of females, 100% are bred to males of the same breed.

CERDO NEGRO CANARIO*CRITICAL-MAINTAINED***Local names or syn.:** Cochino Negro (sp.), Black Canary Pig (eng.)**Population data:** 350 • 63 ♀ • 21 ♂ • 1999**Population trend:** stable**Range of uses:** meat**SPAIN**

The Cerdo negro canario is found in Tenerife, Islas Canarias. It is a composite of prehispanic, English and Spanish black pigs. The animals are black in colour and are short, ultra-concave and thick with long ears. Adult males weigh on average 170 kg and females 130 kg with an average wither height of 85 cm and 80 cm respectively. Resistant to heat and dry conditions, animals of this breed are very rustic and very well adapted to semi-extensive and extensive management systems. The breed is known for its good meat quality and good behaviour and is free of Classical Swine Fever and African Swine Fever. There are 18 herds remaining. Of females, 90% are bred to males of the same breed. The *in situ* conservation programme involves 4 reproducing males.

MANCHADA DE JABUGO*CRITICAL-MAINTAINED***Local names or syn.:** Andaluza Manchada (sp.), Andalusian Spotted (eng.), Jabugo Spotted (eng.)**Population data:** 14 ♀ • 1 ♂ • 1994**Population trend:** decreasing**Range of uses:** meat**SPAIN**

The Manchada de Jabugo is found in Huelva, Andalusia, Extremadura, Castilla Y Leon and Castilla la Mancha. It was established in 1920 and is a hybrid of Iberico Negro and Iberico Retingo, with pigs imported from the United Kingdom. The animals are black, red and blond with black spots and they have semi-erect ears. Adult males weigh on average 250 kg and females 140 kg with an average wither height of 55 cm and 48 cm respectively. This breed is especially adapted to graze in so-called Dehesa land. Particularly good ham is produced from this breed. Only one herd remains.

IBÉRICO*ENDANGERED***Local names or syn.:** Iberian Swine (eng.)**Population data:** 100 - 1 000 • 700 ♀ • 1997**Population trend:** increasing**Range of uses:** meat**SPAIN**

The Ibérico (Negro Entrepelado), found in Extremadura, Andalusia, Castilla y León and Castilla La Mancha, is a variety of Iberian pig established in 1300. Mature pigs are black in colour and piglets are red and black. Adult males weigh on average 140 kg and females 120 kg with an average wither height of 90 cm and 75 cm respectively. The breed is especially adapted to a continental and semi-desert Mediterranean climate and can exploit natural resources like montanera where they subsist on acorns of cork oak and holm oak and grass. This breed is used to produce speciality products like ham. Of females, 50% are bred to males of the same breed.

IBÉRICO*ENDANGERED***Local names or syn.:** Iberian Swine (eng.)**Population data:** 100 - 1 000 • 100 ♀ • 1997**Population trend:** stable**Range of uses:** meat**SPAIN**

The Ibérico (Mamellado), found in Extremadura, Andalusia, Castilla y León and Castilla La Mancha, is a variety of Iberian pig established in 1300. The animals are black in colour, have very little hair and carry tassels. Adult males weigh on average 140 kg and females 120 kg with an average wither height of 90 cm and 75 cm respectively. The breed is especially adapted to a continental and semi-desert climate and can exploit natural resources like montanera where they subsist on acorns of cork oak and holm oak and grass. The breed is used to produce speciality products like ham. Of females, 50% are bred to males of the same breed.

PORC NEGRE MALLORQUÍ*ENDANGERED***Local names or syn.:** Majorcan Black (eng.)**Population data:** 840 • 1999**Population trend:** increasing**Range of uses:** meat**SPAIN**

The Porc Negre Mallorquí, found in Mallorca, is a Iberian branch of pig. The animals are black in colour. This very rustic breed is well adapted to the Mediterranean climate.

IBÉRICO*ENDANGERED-MAINTAINED***Local names or syn.:** Iberian Swine (eng.), Black Hairless (eng.)**Population data:** 100 - 1 000 • 250 ♀ • 1997**Population trend:** increasing**Range of uses:** meat**SPAIN**

The Ibérico (Negro Lampiño), found in Extremadura, Andalucía, Castilla y León and Castilla La Mancha, is a variety of Iberian pig established in 1300. The animals are hairless and black with spots around the muzzle. Adult males weigh on average 130 kg and females 110 kg with an average wither height of 80 cm and 70 cm respectively. The breed is especially adapted to continental and semi-desert Mediterranean climate and can exploit natural resources like montanera where they subsist on acorns of cork oak and holm oak and grass. This breed is used to produce speciality products like ham. Of females, 75% are bred to males of the same breed.

IBÉRICO*ENDANGERED-MAINTAINED***Local names or syn.:** Iberian Swine (eng.)**Population data:** 100 - 1 000 • 750 ♀ • 1997**Population trend:** stable**Range of uses:** meat**SPAIN**

The Ibérico (Torbiscal), found in Extremadura, Andalucía, Castilla y León and Castilla La Mancha, is a variety of Iberian pig established in 1300. The animals are red and sometimes white and may have grey-hair on the coronary groove. The hooves have long coloured lines of different intensity. Adult males weigh on average 150 kg and females 130 kg with an average wither height of 95 cm and 80 cm respectively. The breed is especially adapted to a continental and semi-desert Mediterranean climate and can exploit natural resources like montanera where they subsist on acorns of cork oak and holm oak and grass. This breed is used to produce speciality products like ham. Of females, 50% are bred to males of the same breed. The *in situ* conservation programme involves 25 reproducing males.

CANARIA DE PELO*ENDANGERED***Local names or syn.:** Canaria Hair Breed (eng.)**Population data:** 100 - 1 000 • 1999**Population trend:** stable**Range of uses:** -**SPAIN**

The Canaria De Pelo, found on the Canary Islands, is a hair-type sheep that has been re-introduced to the islands. The animals are dark red or bleached red in colour and are polled. They have a convex or subconvex profile with meat format constitution. This breed is well adapted to arid conditions, is highly rustic, is free from Brucellosis and the incidence of mastitis is very scarce. Very few animals experience problems at birth. Of females, 50% are bred to males of the same breed.

CHURRA LEBRIJANA*ENDANGERED*

Local names or syn.: Atlantica (sp.), Lebrijana (sp.), Marismeña (sp.), Andalusian Churro (eng.)

Population data: 100 - 1 000 • 13 ♂ • 1997

Population trend: decreasing

Range of uses: meat

SPAIN

The Churra Lebrijana, found in Hinojos (Huelva) Marshes of Hinojo (Parque Nacional de Doñana) in Andalusia, is an autochthonous Churra Branch with Celtic origin. The animals are white with brown or black ears, have medium fibred wool and a characteristic tuft on the head. Adult males weigh on average 80 kg and females 60 kg with an average wither height of 78 cm and 74 cm respectively. Males and females may be either polled or horned. When horned, males have spiral shaped horns whereas females have short horns that sometimes point backwards. The breed is adapted to low Guadalquivir marshes (dump) and is reported to be resistant to foot rot caused by *Bacteroides* (Fusiformis) *nodosus* and Fascioliasis. There are 4 herds remaining. Ninety percent of females are bred to males of the same breed.

IBICENCA*ENDANGERED*

Local names or syn.: Ibiza (eng.)

Population data: 256 • 250 ♀ • 6 ♂ • 1999

Population trend: decreasing

Range of uses: milk

SPAIN

The Ibicenca is found in Ibiza and Formentera. The animals are white in colour and sometimes have pigmentation on the head. They have medium fibred wool, a big head and ears and are rustic animals. All animals are polled. The breed is adapted to a Mediterranean climate and the average litter size is reported as 1.5. There are 36 herds remaining. Of females, 10% are bred to males of the same breed.

MENORQUINA*ENDANGERED*

Local names or syn.: Minorcan (eng.)

Population data: 100 - 1 000 • 1999

Population trend: stable

Range of uses: milk, meat

SPAIN

The Menorquina is found in Menorca. The animals are white in colour with a small head, long tail and medium fibred wool. Adult males weigh on average 60 kg and females 43 kg, lambs weighing between 25 kg and 30 kg. Males and females may be either polled or horned. These are rustic animals well adapted to the local Mediterranean climate and tolerant of strong winds.

PALMERA*ENDANGERED*

Local names or syn.: Palmera sheep breed (eng.)

Population data: 148 • 1999

Population trend: increasing

Range of uses: meat, milk

SPAIN

The Palmera, found in La Palma, is a composite of autochthonous sheep with Churro and others. The animals are white and are occasionally black, sometimes having black spots. Animals of this breed are well footed and longilinous. These sheep have coarse/carpet type wool. This very rustic breed is very well adapted to marginal lands and steep slopes and the animals subsist on poor quality agricultural by-products (e.g. bananas). The breed is known for its high prolificity and the animals are free of many diseases e.g. Tuberculosis and Brucellosis.

ROJA MALLORQUINA*ENDANGERED***Local names or syn.:** Coete (sp.), Red Majorcan (eng.)**Population data:** 100 - 1 000 • 650 ♀ • 24 ♂ • 1999**Population trend:** decreasing**Range of uses:** meat**SPAIN**

The Roja Mallorquina, found in Majorca, is a composite of North African breeds and indigenous breeds of Mallorca. Mature sheep are white with a red head and feet and lambs are born red in colour. They have a big tail, medium fibred wool and the head and legs are woolless. Adult males weigh on average 75 kg and females 55 kg. Males may be either polled or horned and females are always polled. These animals live in bushed desert regions, have a long sexual activity and are rustic animals. There are 12 herds remaining. Of females, 100% are bred to males of the same breed.

VASCA CARRANZANA*ENDANGERED***Local names or syn.:** Carranzana (sp.= Black Face)**Population data:** 300 ♀ • 20 ♂ • 1995**Population trend:** decreasing**Range of uses:** milk, meat**SPAIN**

The Vasca Carranzana, found in Bizkaia, Basque Country, is an indigenous breed. These hardy animals are black in colour and have coarse/carpet type wool. Adult males weigh on average 95 kg and females 65 kg. There are 4 herds remaining. Of females, 100% are bred to males of the same breed.

MERINA*ENDANGERED-MAINTAINED***Local names or syn.:** Spanish Merino (eng.)**Population data:** 788 ♀ • 49 ♂ • 1994**Population trend:** decreasing**Range of uses:** meat, wool, pelt / fur**SPAIN**

The Merina, an historically important breed found in Extremadura (50%), Andalusia (20%), Castilla León (12%) and Castilla La Mancha (Alcudia Valley) (10%), is a composite of Primitive Graunch and *Ovis aries vignei*. The animals are white in colour, have medium fibred wool and are rustic. Adult males weigh on average 83 kg and females 52 kg with an average wither height of 82 cm and 70 cm respectively. Females are polled but males have spiral shaped horns with a triangular section. The breed is well adapted to the local environment (extreme temperatures and marginal conditions). Pedroches cheeses are produced with the milk of these animals. There are 10 herds remaining. All females are bred to males of the same breed.

EMPORDANESA BLANCA*CRITICAL***Local names or syn.:** Ampurdanesa blanca (castellano)**Population data:** 160 • 100 ♀ • 20 ♂ • 1994**Population trend:** increasing**Range of uses:** eggs**SPAIN**

The Empordanesa Blanca, found in Cataluña, Emporda, is a white variety obtained through selection within a heterogeneous population of Emporada (Cataluña, Spain) in 1986. They have self-white coloured plumage, yellow skin, shanks and feet, a single comb and egg shells that are brown in colour. About 70% of the individuals carry appendices in the rear-lateral part of the comb. Adult males weigh on average 2.5 kg and females 2 kg.

EMPORDANESA ROSSA*CRITICAL***Local names or syn.:** Ampurdanesa rubia (castellano)**Population data:** 160 • 100 ♀ • 20 ♂ • 1994**Population trend:** increasing**Range of uses:** meat, eggs**SPAIN**

The Empordanesa Rossa, found in Cataluña, Emporda, is a rosa variety obtained through selection within a heterogeneous population of Emporada (Cataluña, Spain) in the period 1986-1988. They have self-red and variants coloured plumage, yellow skin, shanks and feet, a single comb and egg shells that are brown in colour. About 70% of the individuals carry appendices in the rear-lateral part of the comb. Adult males weigh on average 2.5 kg and females 2 kg.

PENEDESENCA APERDIZADA*CRITICAL***Local names or syn.:** -**Population data:** 340 • 100 ♀ • 20 ♂ • 1994**Population trend:** increasing**Range of uses:** eggs**SPAIN**

The Penedesenca Aperdizada, found in Cataluña, Penedes, is a variety obtained through selection within a heterogeneous population of Penedes (Cataluña, Spain) in the period 1986-1988. They have wild-type and variants coloured plumage, white skin and the shanks and feet are blue. The comb is of single type and egg shells are brown in colour. About 90-100% of the individuals carry appendices in the rear-lateral part of the comb. Adult males weigh on average 2.2 kg and females 1.8 kg.

PENEDESENCA BARRADA*CRITICAL***Local names or syn.:** -**Population data:** 420 • 100 ♀ • 20 ♂ • 1994**Population trend:** increasing**Range of uses:** eggs**SPAIN**

The Penedesenca Barrada, found in Cataluña, Penedes, is a barred variety obtained through selection within a heterogeneous population of Penedes (Cataluña, Spain) in the period 1986-1988. They have wild-type and variants coloured plumage with barred, sex-linked patterns within the feathers. They have white skin, blue shanks and feet and egg shells that are brown in colour. The comb is of single type with appendices in the rear-lateral part. Adult males weigh on average 2.2 kg and females 1.8 kg.

PENEDESENCA TRIGUEÑA*CRITICAL***Local names or syn.:** Penedesenca color blat (sp.)**Population data:** 340 • 100 ♀ • 20 ♂ • 1994**Population trend:** increasing**Range of uses:** eggs**SPAIN**

The Penedesenca Trigueña, found in Cataluña, Penedes, is a variety obtained through selection within a heterogeneous population of Penedes (Cataluña, Spain) in the period 1986-1988. They have wild-type and variants coloured plumage, white skin, blue shanks and feet and egg shells that are brown in colour. The comb is of single type with appendices in the rear-lateral part. Adult males weigh on average 2.2 kg and females 1.8 kg.

ANDALUZA



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1997

Population trend: decreasing

Range of uses: hobby

SPAIN

The Andaluza (Azul) is found in Andalucía. They have self-blue (50%), black (25%) or white (25%) coloured plumage and, except for the white and black varieties, they have laced patterns within the feathers. They have white skin and the shanks and feet are blue. The comb is of single type and egg shells are white in colour. Adult males weigh on average 2.25 kg and females 2 kg.

CASTELLANA NEGRA



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 25 ♂ • 1999

Population trend: stable

Range of uses: fancy, eggs, meat, household pest control

SPAIN

The Castellana Negra, found in Extremadura, is an indigenous breed. They have self-black coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are black. The comb is of single type. Adult males weigh on average 2.1 kg and females 1.8 kg.

CATALANA DEL PRAT



ENDANGERED

Local names or syn.: -

Population data: 1 000 • 560 ♀ • 56 ♂ • 1994

Population trend: increasing

Range of uses: meat

SPAIN

The Catalana Del Prat is found in Cataluña, Baix Llobregat where it originated. These chickens have self-red and variants coloured plumage, white skin and the shanks and feet are blue. The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 2.5 kg and females 2 kg.

EMPORDANESA ROJA



ENDANGERED

Local names or syn.: Ampurdanesa rubia (castellano)

Population data: 350 • 120 ♀ • 20 ♂ • 1994

Population trend: increasing

Range of uses: meat, eggs

SPAIN

The Empordanesa Roja, found in Cataluña, Penedes, is a Roja variety obtained through selection within a heterogeneous population of Emporada (Cataluña, Spain) in the period 1986-1988. They have self-red and variants coloured plumage, yellow skin, shanks and feet, a single comb and egg shells that are brown in colour. About 70% of the individuals carry appendices in the rear-lateral part of the comb. Adult males weigh on average 2.5 kg and females 2 kg.

EUSKAL OILOA-BELTZA*ENDANGERED*

Local names or syn.: -

Population data: 900 • 600 ♀ • 300 ♂ • 1995**Population trend:** decreasing**Range of uses:** meat, eggs, feathers for fishing**SPAIN**

Euskal Oiloa-Beltza chickens found in Basque Country are Atlantic poultry. These hardy birds have self-black coloured plumage, yellow shanks and feet and a single type comb. Adult males weigh on average 3.5 kg and females 2.5 kg.

EUSKAL OILOA-ZILLARA*ENDANGERED*

Local names or syn.: -

Population data: 290 • 200 ♀ • 90 ♂ • 1995**Population trend:** decreasing**Range of uses:** meat, eggs**SPAIN**

The Euskal Oiloa-Zillara, found in Basque Country, descends from Atlantic poultry. These hardy birds have silver-columbian coloured plumage, yellow shanks and feet and a single type comb. Adult males weigh on average 3.5 kg and females 2.5 kg.

EXTREMEÑA AZUL*ENDANGERED*

Local names or syn.: -

Population data: 1 000 - 10 000 • 20 ♂ • 1996**Population trend:** increasing**Range of uses:** fancy, meat, eggs, household pest control**SPAIN**

The Extremeña Azul, found in Extremadura, is an indigenous breed. These chickens have white and blue coloured plumage with no special pattern within the feathers. They may have blue-black (75%) or yellow (25%) skin and the shanks and feet may be black (75%), yellow (15%) or green (10%). The comb is of single type and egg shells may be tinted (70%) or white (30%) in colour. Adult males weigh on average 2.4 kg and females 4 kg.

GALLINA MALLORQUINA*ENDANGERED*

Local names or syn.: Majorcan (eng.)

Population data: 100 - 1 000 • 25 ♂ • 1997**Population trend:** increasing**Range of uses:** eggs, meat, fancy**SPAIN**

The Gallina Mallorquina, found in Mallorca, is an indigenous breed. These chickens have various colours (70%), wild-type and variants (20%) or self-black (10%) coloured plumage with barred, sex-linked (20%) patterns within the feathers. They have white skin and the shanks and feet are also white. The comb is of single type and egg shells are cream white to pale greyish in colour. Adult males weigh on average 3 kg and females 2 kg.

PENEDESENCA NEGRA*ENDANGERED***Local names or syn.:** Vilafranquina negra (spa.)**Population data:** 450 • 170 ♀ • 20 ♂ • 1994**Population trend:** increasing**Range of uses:** meat, eggs**SPAIN**

The Penedesenca Negra, found in Cataluña, Penedes, is a black variety obtained through selection within a heterogeneous population of Penedes (Cataluña, Spain) in 1986. They have self-black coloured plumage, white skin and the shanks and feet are black. The comb is of single type and egg shells are brown in colour. About 90-100% of the individuals carry appendices in the rear-lateral part of the comb. Adult males weigh on average 2.5 kg and females 2 kg. The animals are reported to show resistance to *Eimeria necatrix*.

UTRERANA*ENDANGERED***Local names or syn.:** -**Population data:** 600 - 1 000 • 600 ♀♂ • 1997**Population trend:** increasing**Range of uses:** -**SPAIN**

The Utrerana, found in Andalucía, was selected from Andaluza Rustica and was established in 1950. They have wild-type and variants (60%), various colours (20%), white (10%) or black (10%) coloured plumage with barred, autosomal (20%) patterns within the feathers. They have white skin and the shanks and feet may be white (50%) or black (50%). The comb is of single type and egg shells are white in colour. Adult males and females weigh on average 2.25 kg.

MOS*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 100 - 1 000 • 40 ♂ • 1997**Population trend:** increasing**Range of uses:** meat, eggs**SPAIN**

The Mos is an autochthonous breed of chicken found in Lugo, Galicia. The shanks and feet are yellow and the comb is of walnut type. The breed is kept on the farmyard, is well adapted to marginal land and is used for capon production, the hatching season for which is from February to October.

ANNERA MALLORQUINA*CRITICAL***Local names or syn.:** -**Population data:** 12 - 100 • 12 ♂ • 1996**Population trend:** decreasing**Range of uses:** meat, eggs, household pest control**SPAIN**

The Annera Mallorquina, found in Mallorca, is an indigenous breed. These ducks have wild-type and variants coloured plumage, yellow skin, shanks and feet and egg shells that are blue in colour. Adult males weigh on average 3 kg and females 2.5 kg.

OCA DE L'EMPORDA*ENDANGERED***Local names or syn.:** Emporda Goose (eng.)**Population data:** 170 • 50 ♂ • 1995**Population trend:** stable**Range of uses:** meat, guard**SPAIN**

Oca de l'Emporda geese have self-white coloured plumage, a single comb and egg shells that are white in colour. This breed has a double ventral sack and a big toupee (over a cranial protuberance). Adult males weigh on average 5 kg and females 4.5 kg.

COLOM BORINO*ENDANGERED***Local names or syn.:** -**Population data:** 200 - 1 000 • 200 ♂ • 1996**Population trend:** decreasing**Range of uses:** hobby**SPAIN**

The Colom Borino, found in Mallorca, is an indigenous breed.

COLOM DE PINTA*ENDANGERED***Local names or syn.:** -**Population data:** 300 - 1 000 • 300 ♂ • 1996**Population trend:** decreasing**Range of uses:** hobby**SPAIN**

The Colom de Pinta, found in Mallorca, is an indigenous breed. Their plumage can be variously coloured and they have white skin.

PAVO NEGRO EXTREMEÑO*CRITICAL***Local names or syn.:** Extremenian Black Turkey (eng.)**Population data:** 20 - 100 • 20 ♂ • 1996**Population trend:** decreasing**Range of uses:** fancy, meat, eggs, household pest control**SPAIN**

The Pavo Negro Extremeño is an indigenous breed found in Extremadura. They have self-black coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet may be black (70%) or reddish (30%).

INDIOT MALLORQUI*ENDANGERED***Local names or syn.:** Majorcan Turkey (eng.)**Population data:** 100 - 1 000 • 20 ♂ • 1996**Population trend:** decreasing**Range of uses:** meat, eggs, feathers for fishing, fancy**SPAIN**

The Indiot Mallorqui, found in Mallorca, is an indigenous breed. They have self-black coloured plumage, white skin, black shanks and feet and egg shells that are red spotted in colour. Adult males weigh on average 6.5 kg and females 4 kg. This breed shows good maternal abilities.

BOHUSKULLA*CRITICAL-MAINTAINED***Local names or syn.:** -**Population data:** < 100 • 9 ♀ • 2 ♂ • 1999**Population trend:** decreasing**Range of uses:** savings / security, milk**SWEDEN**

The Bohuskulla is found in the south-western regions of the country. This breed is regarded as a remnant of the Swedish Mountain cattle which formerly grazed the barren land in the western parts of southern Sweden. The animals are black, brown and white in colour. All animals are polled. There are 11 females registered in the herd book, of which 100% are bred to males of the same breed. It is intended to keep animals of the breed in a great number of herds. A gene bank has been established and semen is stored from males of every age. The semen of 5 males is stored. The population data is based on the Nordic Gene Bank recording system.

ABERDEEN ANGUS*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1999**Population trend:** stable**Range of uses:** meat**SWEDEN**

The Aberdeen Angus is found in southern and central Sweden and was imported in 1946 mainly from the United Kingdom. The animals are black in colour and all animals are polled.

ALLMOGEKOR*ENDANGERED***Local names or syn.:** Peasantry cows (eng.)**Population data:** 140 • 90 ♀ • 20 ♂ • 1995**Population trend:** increasing**Range of uses:** milk, meat**SWEDEN**

The Allmogekor, found in the southern parts of Sweden, is an old, locally adapted breed. The animals are various colours, there is no homogeneous exterior. Adult males weigh on average 650 kg and females 475 kg. Generally these cattle have a good temperament and they are good roughage converters. There are 23 herds remaining. Ninety females are registered in the herd book, 90% of which are bred to males of the same breed.

BLONDE D'AQUITAINE*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1999**Population trend:** stable**Range of uses:** meat**SWEDEN**

The Blonde d' Aquitaine is found in southern and central Sweden and was imported from France in 1975. The animals are blond in colour.

RINGAMÅLAKO*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 100 - 1 000 • 1999**Population trend:** increasing**Range of uses:** savings / security, socio-cultural, milk**SWEDEN**

The Ringamålako is found predominantly in the southern part of the country where it originated in 1993. The animals strongly resemble SRB cattle of the 1940s and the population of Ringamåla cattle can therefore be regarded as a very important living gene bank for the SRB breed. Population data is based on gene bank recording. The intention is to preserve many small herds in their original environment. The semen of 5 males is stored. A gene bank has been established and semen is collected and stored from males of every age group.

RÖDKULLA*ENDANGERED-MAINTAINED*

Local names or syn.: Swedish Red Polled (eng)

Population data: 100 - 1 000 • 1999**Population trend:** increasing**Range of uses:** savings / security, milk**SWEDEN**

The Rödkulla, found in central Sweden, is a native breed related to some other Nordic breeds. The animals are red in colour and are polled. Adult males weigh on average 900 kg and females 500 kg. Population data is based on the number of milk recorded cows. The intention is to keep animals of the population in a large number of herds. The semen of 50 males is stored. Semen is collected and stored from males of every age group.

SVENSK KULLIG BOSKAP (skb)*ENDANGERED-MAINTAINED*

Local names or syn.: Röd kullig lantras (swed.), Swedish Red Polled (eng.)

Population data: 175 ♀ • 15 ♂ • 1994**Population trend:** increasing**Range of uses:** milk, meat, socio-cultural**SWEDEN**

The Svensk kullig boskap (skb) is found in central and northern Sweden. It is an indigenous north Swedish breed imported from Norway and Sweden. The animals may be red or red and white in colour. Adult males weigh on average 650 kg and females 400 kg with an average wither height of 130 cm and 120 cm respectively. All animals are polled. The breed is well adapted to the local environment (mountain areas). There are 10 herds remaining. There are 10 females registered in the herd book, of which 100% are bred to males of the same breed.

VÄNEKO*ENDANGERED-MAINTAINED***Local names or syn.:** Väne cattle (eng.)**Population data:** 100 - 1 000 • 1999**Population trend:** increasing**Range of uses:** savings / security, milk, meat**SWEDEN**

The Väneko is found in the south-west part of the country and is named after a village (Väne-Ryr) in the province Västergötland. Väne cattle are remnant of the old South Swedish peasant breed and are connected to Allmogekor. The breed was discovered at the beginning of the 1990s. The animals are red, white and black in colour. Animals of this breed are well adapted to all kinds of climate. The population data is based on gene bank recording. The intention is to preserve the breed in a great number of small herds. The semen of 15 males is stored. A gene bank has been established and semen is collected and stored from sires of every age group.

ALLMOGEGETTER*CRITICAL***Local names or syn.:** Peasantry goats (eng.)**Population data:** 60 • 45 ♀ • 15 ♂ • 1995**Population trend:** increasing**Range of uses:** milk, meat, pelt / fur**SWEDEN**

The Allmogegetter is found in the central and northern regions of the country. The animals are white with black and brown signs. Adult males weigh on average 72 kg and females 55 kg. The horns are of variable size. There are 25 herds remaining. Of females, 100% are bred to males of the same breed.

EXMOOR PONNY*CRITICAL***Local names or syn.:** Exmoor Pony (eng.)**Population data:** < 100 • 1999**Population trend:** stable**Range of uses:** riding (by children)**SWEDEN**

The Exmoor pony is found country-wide. The population data is based on registered horses.

SHAGYA ARABIAN HORSE*CRITICAL***Local names or syn.:** Shagya Arab (eng.)**Population data:** < 100 • 1999**Population trend:** increasing**Range of uses:** riding (sports)**SWEDEN**

The Shagya Arabian Horse is found country-wide having been imported from Germany in 1980.

DARTMOOR PONNY*ENDANGERED***Local names or syn.:** Dartmoor Pony (eng.)**Population data:** 100 - 1 000 • 1999**Population trend:** stable**Range of uses:** riding (by children)**SWEDEN**

The Dartmoor pony is found country-wide. The population data is based on registered horses.

GOTLANDRUSS*ENDANGERED***Local names or syn.:** Skogsruss (swed.), Skogsbagge (swed.), Skogshäst (swed.), Gotland Pony (eng.)**Population data:** 6 000 • 650 ♀ • 100 ♂ • 1999**Population trend:** stable**Range of uses:** sport**SWEDEN**

The Gotlandruss is found in central and southern Sweden. It is a native old Swedish Pony breed from Gotland. The animals are mainly bay and black but other standard colours may also be found. Adult males and females weigh on average 250 kg with an average wither height of 124 cm and 123 cm respectively. This breed is known as very good pony trotter. There are 10 herds remaining with 600 females registered in the herd book, 100% of which are bred to males of the same breed.

HAFLINGERHÄST*ENDANGERED***Local names or syn.:** Haflinger (eng.)**Population data:** 100 - 1 000 • 1999**Population trend:** increasing**Range of uses:** riding (sports), carting**SWEDEN**

The Haflingerhäst, found country-wide, was imported in 1980 from Italy and Austria. The population data is based on registered horses.

KNABSTRUPPERHÄST*ENDANGERED***Local names or syn.:** Knabstrupper Horse (eng)**Population data:** 100 - 1 000 • 1999**Population trend:** increasing**Range of uses:** riding (sports)**SWEDEN**

The Knabstrupperhäst, found country-wide, was imported in 1990 from Denmark. The population data is based on registered horses.

LIPIZZANERHÄST*ENDANGERED***Local names or syn.:** Lipizzanian Horse (eng.)**Population data:** 100 - 1 000 • 1999**Population trend:** stable**Range of uses:** riding (sports), carting**SWEDEN**

The Lipizzanerhäst is found country-wide. It was imported in 1960 from Austria and Hungary. Population data is based on registered Lipizzanian horses.

MORGAN HORSE*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1999**Population trend:** stable**Range of uses:** riding (sports)**SWEDEN**

The Morgan Horse is found in mostly in the province Dalarna.

NORDSVENSK HÄST*ENDANGERED***Local names or syn.:** North Swedish (eng.)**Population data:** 8 500 • 1 000 ♀ • 115 ♂ • 1994**Population trend:** decreasing**Range of uses:** draught power, sport**SWEDEN**

The Nordsvensk Häst is a local old Swedish native horse found country-wide. The horses are bay, brown, chestnut, black or dun with black points and they have very few white markings. Adult males weigh on average 700 kg and females 600 kg with an average wither height of 157 cm and 154 cm respectively. There are 10 herds remaining. There are 900 females registered in the herd book, of which 100% are bred to males of the same breed.

PAINTHORSE*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1999**Population trend:** increasing**Range of uses:** riding (sports)**SWEDEN**

The Painthorse, established in 1980, is found country-wide. Population data is based on registered horses.

QUARTERHÄST*ENDANGERED***Local names or syn.:** Quarter Horse (eng.)**Population data:** 100 - 1 000 • 1999**Population trend:** increasing**Range of uses:** riding (work), riding (sports)**SWEDEN**

The Quarterhäst is found country-wide. It was imported in 1970 from the United States of America. The population data is based on registered horses.

DUROC*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1999**Population trend:** stable**Range of uses:** production of offspring for slaughter as young animals**SWEDEN**

The Duroc, found country-wide, was imported in 1972 from Canada. The animals are reddish brown in colour. Since 1970 cross-breeds, first between Swedish Landrace and Swedish Yorkshire, and later including also a third breed, Hampshire or Duroc, have been completely predominant. The Swedish fattening pigs are mainly sired by Hampshire or Duroc boars.

HAMPSHIRE*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 500 ♀ • 1999**Population trend:** stable**Range of uses:** production of offspring for slaughter as young animals**SWEDEN**

The Hampshire, found country-wide, was imported in 1972 from the United States of America and Canada. The animals are black and white in colour. Since 1970 cross-breeds, first between Swedish Landrace and Swedish Yorkshire, and later including also a third breed, Hampshire or Duroc, have been completely predominant. The Swedish fattening pigs are mainly sired by Hampshire or Duroc boars. There are about 500 recorded pure-bred females in reproductive age.

LINDRÖDSSVIN*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1999**Population trend:** increasing**Range of uses:** savings / security, production of offspring for slaughter as young animals**SWEDEN**

The Lindrödssvin, found in the southern parts of Sweden, is a local native breed from the province of Skåne. The animals are light grey or brown and they have black spots.

STEIGAR*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 1999**Population trend:** stable**Range of uses:** meat**SWEDEN**

The Steigar, found in central Sweden, has been imported from Norway since 1930. The animals are grey in colour, have coarse/carpet type wool and are polled. Adult males weigh on average 80 kg and females 65 kg. The population data is based on the Swedish sheep recording scheme.

OSTFRIESISKA MJÖLKFÅR*ENDANGERED***Local names or syn.:** East Friesian Milk Sheep (eng.)**Population data:** 100 - 1 000 • 1999**Population trend:** stable**Range of uses:** milk, meat**SWEDEN**

The Ostfriesiska mjölkfår, found in southern Sweden, has been imported from Switzerland since 1980. The animals are white in colour, have coarse/carpet type wool and are polled. Adult males weigh on average 100 kg and females 80 kg. Animals of this breed produce a very high milk yield. The population data is based on the Swedish sheep recording scheme.

OXFORDDOWN*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1999**Population trend:** stable**Range of uses:** meat**SWEDEN**

The Oxforddown has been imported from the United Kingdom since 1870 and is found in central Sweden. The animals are grey in colour, have coarse/carpet type wool and are polled. Adult males weigh on average 110 kg and females 85 kg.

RYGGJA*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1999**Population trend:** stable**Range of uses:** meat**SWEDEN**

The Ryggja, found in central Sweden, has been imported from Norway since 1930. The animals are grey in colour, have medium fibred wool and are polled. Adult males weigh on average 90 kg and females 70 kg.

SHROPSHIRE*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 200 • 1999**Population trend:** stable**Range of uses:** meat**SWEDEN**

The Shropshire, imported in 1870 from the United Kingdom, is found in southern Sweden. The animals are white in colour, have medium fibred wool and are polled. Adult males weigh on average 100 kg and females 80 kg. The population data is based on the Swedish sheep recording scheme.

SPELSAU*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1999**Population trend:** stable**Range of uses:** meat, vegetation management**SWEDEN**

The Spelsau, found in central Sweden, has been imported from Norway since 1985. The animals are white in colour, have coarse/carpet type wool and are polled. Adult males weigh on average 85 kg and females 60 kg. The population data is based on the Swedish sheep recording scheme.

SUFFOLK*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1999**Population trend:** stable**Range of uses:** meat, vegetation management**SWEDEN**

The Suffolk, found in central Sweden, has been imported from Norway since 1870. The animals are grey in colour, have coarse/carpet type wool and are polled. Adult males weigh on average 115 kg and females 90 kg. Population data is based on the Nordic Gene Bank recording system.

ALLMOGEFÅR*ENDANGERED-MAINTAINED***Local names or syn.:** Peasantry sheep (eng.)**Population data:** 300 - 400 • 1999**Population trend:** increasing**Range of uses:** savings / security, meat, vegetation management**SWEDEN**

The Allmogefår is found in central Sweden and southern parts of northern Sweden. It is a remainder of an old Swedish landrace and was established in 1992. The animals are various colours, short tailed and females are polled. Adult males weigh on average 75 kg and females 55 kg. Adapted to all kinds of environments, animals of this breed are good grazing animals and feed searchers. The intention is to preserve many herds in original breeding environments. The semen of 5 males is stored. An *ex situ* programme has been implemented and semen from males of every age is stored. The population data is based on the Nordic Gene Bank recording system.

RYAFÅR*ENDANGERED-MAINTAINED***Local names or syn.:** Rya sheep (eng.)**Population data:** 100 - 1 000 • 1999**Population trend:** stable**Range of uses:** meat, wool, savings / security**SWEDEN**

The Ryafår is found in central and northern Sweden and descends from Swedish and Norwegian native breeds. The animals are white in colour, have long and wavy coarse/carpet type wool and are polled. Adult males weigh on average 80 kg and females 50 kg with an average wither height of 65 cm and 60 cm respectively. This breed is adaptable to all kinds of environments and is highly fertile. It was developed with the aim of producing long, wavy and shiny so-called rya wool. The intention is to preserve herds in their original environments.

ÖLÄNSK DVÄRGHÖNA*CRITICAL***Local names or syn.:** -**Population data:** 100 - 1 000 • 1999**Population trend:** decreasing**Range of uses:** eggs**SWEDEN**

The Öländsk Dvärghöna, found in the south, is a old local population. These chickens have wild-type and variants coloured plumage with mottled patterns within the feathers. They have white skin and the shanks and feet are white. The comb may be of single (95%) type and egg shells are white in colour. They have feathered legs and silky plumage. Adult males weigh on average 0.9 kg and females 0.7 kg. 450 breeding animals are recorded in the Nordic Gene Bank.

ÅSBOHÖNA*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1999**Population trend:** increasing**Range of uses:** meat, eggs**SWEDEN**

The Åsbohöna, found in southern and western Sweden, is a local, indigenous breed. These chickens have wild-type and variants (50%), self-black (25%) or self-blue (25%) coloured plumage with mottled patterns within the feathers. They have white skin, the comb is of single type and egg shells are white in colour. About one percent of the population demonstrates dwarfism and one percent has feathered legs. Adult males weigh on average 2 kg and females 1.4 kg. The breed consists of 990 breeding animals, the population data being based on the Nordic Gene Bank recording system.

GOTLANDSHÖNA*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1999**Population trend:** increasing**Range of uses:** meat, eggs**SWEDEN**

The Gotlandshöna, found in southern Sweden, is a old local population. These chickens have wild-type and variants (60%), self-black (30%) or self-blue (10%) coloured plumage with no special pattern (75%), mottled (10%) or barred, autosomal (5%) patterns within the feathers. They have white skin, the comb may be of single (90%) or rose (10%) type and egg shells are white in colour. Adult males weigh on average 2.8 kg and females 2.1 kg. According to the Nordic Gene Bank recording system there are, in total, 410 breeding animals.

HEDEMORAHÖNA*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1999**Population trend:** stable**Range of uses:** meat, eggs**SWEDEN**

The Hedemorahöna, found in central Sweden, is a local landrace population. They have self-black (40%), self-blue (40%) or wild-type and variants (20%) coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are various colours. The comb is of single type and egg shells are white in colour. They have feathered legs and silky plumage, and there is a northern breed with very thick plumage. Adult males weigh on average 2.5 kg and females 1.8 kg. The Nordic Gene Bank records 1 000 breeding animals.

ÖLANDSHÖNS*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1999**Population trend:** decreasing**Range of uses:** meat, eggs**SWEDEN**

The Ölandshöns is found in southern Sweden and is a local breed. These chickens have wild-type and variants (90%) or self-black (10%) coloured plumage with barred, autosomal patterns within the feathers. They have white skin, a single comb and egg shells that are white in colour. Adult males weigh on average 2.9 kg and females 2 kg. According to the Nordic Gene Bank recording system there are 272 breeding animals registered.

ORUSTHÖNA*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1999**Population trend:** stable**Range of uses:** meat, eggs**SWEDEN**

The Orusthöna is found in central Sweden and is a local population. They have self-black coloured plumage with spotted patterns within the feathers. The shanks and feet are various colours, the comb is of single type and egg shells are white in colour. Adult males weigh on average 2 kg and females 1.4 kg. In 1999, 161 breeding animals were registered in the Nordic Gene Bank recording system.

SVENSK DVÄRGHÖNA*ENDANGERED-MAINTAINED***Local names or syn.:** Swedish Dwarf-Hen (eng.)**Population data:** 100 - 1 000 • 1999**Population trend:** stable**Range of uses:** fancy**SWEDEN**

The Svensk dvärghöna is found throughout the country. Adult males weigh on average 0.75 kg and females 0.6 kg. 450 breeding animals are registered in the Nordic Gene Bank.

SVENSK GUL ANKA*CRITICAL-MAINTAINED*

Local names or syn.: -

Population data: 0 - 100 • 1999**Population trend:** stable**Range of uses:** fancy, meat**SWEDEN**

The Svensk Gul Anka, found in southern Sweden, was collected and standardized in the 1920s. Adult males weigh on average 3.5 kg and females 3 kg.

BLEKINGEANKA*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1999**Population trend:** stable**Range of uses:** meat**SWEDEN**

The Blekingeanka is found in south-eastern Sweden. Adult males weigh on average 3 kg and females 2.5 kg. 55 breeding animals are registered within the Nordic Gene Bank recording system.

SVENSK BLÅ ANKA*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 100 - 200 • 1999**Population trend:** stable**Range of uses:** meat, fancy**SWEDEN**

The Svensk Blå Anka is found in southern Sweden, having been collected and standardized in the 1920s. They have white and blue, self-black or self-blue coloured plumage. Adult males weigh on average 3.5 kg and females 3 kg. The population consists of 130 breeding animals. Population data is based on the Nordic Gene Bank recording system.

ÖLANDSGÅS*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 135 ♀♂ • 1999**Population trend:** -**Range of uses:** meat**SWEDEN**

The Ölandsgås, found in southern Sweden, is a local landrace population. They have white and brown coloured plumage, orange shanks and feet and egg shells that are white in colour. Adult males weigh on average 5.5 kg and females 4.5 kg. The population data is based on the Nordic Gene Bank recording system.

SKÅNEGÅS*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1999**Population trend:** stable**Range of uses:** meat**SWEDEN**

The Skånegås is found in southern Sweden. These geese have white and brown coloured plumage, orange shanks and feet and egg shells that are white in colour. Adult males weigh on average 9.5 kg and females 8 kg. Population data is based on the Nordic Gene Bank recording system.

SVENSK MYSKANKA*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1999**Population trend:** -**Range of uses:** fancy**SWEDEN**

The Svensk myskanka, found in southern and central Sweden was established in 1748. They have self-white, self-black or black and white coloured plumage. Adult males weigh on average 4 kg and females 2.5 kg. 450 breeding animals are registered within the Nordic Gene Bank recording system.

EVOLÈNER*CRITICAL-MAINTAINED***Local names or syn.:** Evolènarde (fr.), Evolene (eng.)**Population data:** < 100 • 81 ♀ • 5 ♂ • 1997**Population trend:** increasing**Range of uses:** milk, meat, fighting**SWITZERLAND**

The Evolèner, found in Upper and Under Wallis, is an indigenous breed established in 1859. Closely related to Herens, the breed developed in parallel to the Eringer until the selection criteria of one colour only was no longer used. The animals have a short head and are mainly red, rarely black, with white spots on the belly, tail and often also on the back and the forehead. Adult males weigh on average 600 kg and females 400 kg with an average wither height of 130 cm and 120 cm respectively. Well adapted to alpine climate and pastures, the animals are very hardy and vital. In relation to the body weight, the milk yield and dressing percentage are very good. The breed has an aggressive temperament. 81 females are registered in the herd book (100% bred pure). The *in situ* conservation programme involves 5 reproducing males and 24 herds or breeders. The semen of 3 males is stored.

HINTERWÄLDER*ENDANGERED-MAINTAINED***Local names or syn.:** Hinterwald (eng.)**Population data:** 73 ♂ • 1998**Population trend:** increasing**Range of uses:** milk, meat, vegetation management**SWITZERLAND**

The Hinterwälder, found country-wide, was imported from Germany. The animals are red with a white head and legs and lyre-shaped horns. Adult males weigh on average 550 kg and females 400 kg with an average wither height of 122 cm and 115 cm respectively. The breed, adapted to the local environment (mountains), is known for longevity and vitality. No occurrence of infectious bovine rhinotracheitis (IBR) disease has been reported for animals of this breed. There are 828 females registered in the herd book, of which 100% are bred to males of the same breed. The *in situ* conservation programme involves 68 reproducing males and an additional 5 males with semen for AI. 163 herds or breeders are involved in the programme.

RÄTISCHES GRAUVIEH*ENDANGERED-MAINTAINED***Local names or syn.:** Raetian Grey (eng.)**Population data:** 542 ♀ • 32 ♂ • 1999**Population trend:** increasing**Range of uses:** milk, meat, vegetation management**SWITZERLAND**

The Rätisches Grauvieh is found in the mountainous regions of Switzerland. It is a composite of Bündener Bergviehschläge, descended from Bündner mountain cattle strains, imported from Austria. The animals are grey in colour. Adult males weigh on average 600 kg and females 425 kg with an average wither height of 125 cm and 120 cm respectively. They are well adapted to mountainous environments and produce a high quality meat (fine fibre), the high proportion of valuable meat parts is remarkable. For this breed, a low occurrence of step damage is reported. There are 261 herds remaining. There are 542 females registered in the herd book, of which 95% are bred to males of the same breed. The *in situ* conservation programme, established in 1985, involves 32 reproducing males and an additional 6 males with semen for AI. 261 herds or breeders are involved in the programme. The semen of 2 males is stored.

APPENZELLERZIEGE*ENDANGERED***Local names or syn.:** Appenzell (eng.), Züricher Ziege (ger.)**Population data:** 793 • 741 ♀ • 52 ♂ • 1998**Population trend:** increasing**Range of uses:** milk, meat, hobby**SWITZERLAND**

The Appenzellerziege is found mainly in north-eastern Switzerland, especially the two Appenzell cantons. It is an indigenous breed. The animals are white in colour. They have long hair on the back and hind parts and are similar to the Saanen goat, but smaller. Adult males weigh on average 65 kg and females 45 kg with an average wither height of 75 cm and 70 cm respectively. All animals are polled. There are 120 herds remaining. There are 741 females registered in the herd book. An *in situ* conservation programme is planned. The semen of 4 males is stored.

PFAUENZIEGE*ENDANGERED-MAINTAINED***Local names or syn.:** Grau-schwarze Gebirgsziege (ger.), Peacock Goat (eng.)**Population data:** 395 • 346 ♀ • 49 ♂ • 1999**Population trend:** stable**Range of uses:** vegetation management, milk, meat**SWITZERLAND**

The Pfauenziege is found in Graubünden and Ticino and is a local Mountain Goat. The animals have black legs, a white tail and forehead with peacock markings on the head and body. Adult males weigh on average 75 kg and females 55 kg with an average wither height of 80 cm and 75 cm respectively. The animals are well adapted to mountainous regions. There are 40 herds remaining. There are 346 females registered in the herd book, of which 95% are bred to males of the same breed. The *in situ* conservation programme involves 51 reproducing males and 79 herds or breeders. The semen of one male is stored.

STIEFELGEIß*ENDANGERED-MAINTAINED***Local names or syn.:** Sardonaziege (ger.), Booted Goat (eng.)**Population data:** 228 • 198 ♀ • 30 ♂ • 1999**Population trend:** stable**Range of uses:** vegetation management, meat, milk**SWITZERLAND**

The Stiefelgeiß is found in German speaking Switzerland and descends from local mountain goat breeds. The animals may be black or brown with a black dorsal stripe and markings on the legs, feet and head. Adult males weigh on average 70 kg and females 40 kg with an average wither height of 80 cm and 73 cm respectively. The breed is well adapted to the local high mountain environment. There are 73 herds remaining. There are 198 females registered in the herd book, of which 95% are bred to males of the same breed. The *in situ* conservation programme involves 31 reproducing males and 64 herds or breeders.

HAFLINGER*ENDANGERED***Local names or syn.:** -**Population data:** 598 ♀ • 32 ♂ • 1997**Population trend:** decreasing**Range of uses:** hobby, draught power, vegetation management, meat**SWITZERLAND**

The Haflinger, found country-wide, was imported from Austria and Germany in 1952. The animals are light to dark chestnut in colour and they have a full flaxen mane and tail. Adult males weigh on average 400 kg and females 350 kg with an average wither height of 148 cm and 145 cm respectively. There are 598 females registered in the herd book, of which 100% are bred to males of the same breed. The semen of 5 males is stored.

SCHWALBENBAUCH MANGALITZA*ENDANGERED-MAINTAINED***Local names or syn.:** Wollschwein (ger.), Swallow-Bellied Mangalitsa (eng.)**Population data:** 225 • 165 ♀ • 63 ♂ • 1999**Population trend:** increasing**Range of uses:** hobby, meat, pelt / fur, tourist attraction / touristic potential**SWITZERLAND**

The Schwalbenbauch Mangalitzka, found country-wide, was imported from Hungary. The animals are exceptionally black and blond in colour, are swallow-bellied, have wool, thick hair and lop ears. Piglets are striped like wild pigs. Adult males weigh on average 180 kg and females 140 kg with an average wither height of 75 cm and 72 cm respectively. The breed is known for its resistance to cold. There are 177 herds remaining and 165 females registered in the herd book, of which 100% are bred to males of the same breed. The *in situ* conservation programme involves 46 reproducing males and an additional 3 males with semen for AI. 50 herds or breeders are involved in the programme.

BÜNDNER OBERLÄNDERSCHAF*ENDANGERED-MAINTAINED***Local names or syn.:** Graubiinden (ger.), Grisons (fr.)**Population data:** 262 • 225 ♀ • 37 ♂ • 1999**Population trend:** increasing**Range of uses:** vegetation management, hobby, meat**SWITZERLAND**

The Bündner Oberländerschaf is found in eastern Switzerland, mainly Graubünden and Raeto-Romania. It descended from local Vrinerschaf, Medelserschaf and Tavetscherschaf breeds in 1880. The animals are mainly white, may be black, grey, brown or spotted and have coarse/carpet type wool. Adult males weigh on average 72 kg and females 50 kg with an average wither height of 72 cm and 68 cm respectively. Rams always have horns, ewes have either small horns or no horns. The breed is well adapted to the local mountain pastures. High twinning rates are reported for this breed. The animals rarely contract foot rot caused by *Bacteroides* (*Fusiformis*) *nodosus*. The animals have a wild character. There are 54 herds remaining. There are 225 females registered in the herd book, 100% are bred to males of the same breed. The *in situ* conservation programme involves 18 reproducing males and 54 herds or breeders.

ENGADINER FUCHSSCHAF*ENDANGERED-MAINTAINED***Local names or syn.:** Paterschaf (ger.), Besch da Pader (Raeto-Romanian), Engadine Red (eng.), Fuchsfarbenes Engadinerschaf (ger.)**Population data:** 729 • 645 ♀ • 84 ♂ • 1999**Population trend:** increasing**Range of uses:** hobby, vegetation management, meat**SWITZERLAND**

The Engadiner Fuchsschaf is found in the German and Italian speaking parts of Switzerland. It is a composite of Landschläge, Steinschaf and Bergamaskerschaf. The animals are red-brown or black in colour with lop ears and coarse/carpet type wool. Adult males weigh on average 85 kg and females 63 kg with an average wither height of 75 cm and 68 cm respectively. All animals are polled. The breed is known for its tolerance to hot and cold climate and produces good quality meat. These sheep produce 3 lambs per year. The animals are rarely reported to suffer from foot rot caused by *Bacteroides* (*Fusiformis*) *nodosus*. There are 174 herds remaining. There are 645 females registered in the herd book, of which 95% are bred to males of the same breed. The *in situ* conservation programme involves 63 reproducing males and 143 breeders or herds.

SKUDDE*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 100 - 1 000 • 180 ♀ • 23 ♂ • 1999**Population trend:** increasing**Range of uses:** vegetation management, hobby, meat, wool**SWITZERLAND**

The Skudde, found country-wide, is a composite of local breeds from Balticum and East Russia and was imported from Germany in 1980. The animals may be black, brown or white in colour and have medium fibred wool, a very small V-shaped tail and short legs. Adult males weigh on average 45 kg and females 30 kg with an average wither height of 60 cm and 52 cm respectively. Females are polled and in males the horns are very small and rolled. This breed is very resistant to a harsh climate and is well adapted to wetland. There are 180 females registered in the herd book, of which 100% are bred to males of the same breed. The *in situ* conservation programme involves 73 reproducing males and 53 herds or breeders.

SPIEGELSCHAF*ENDANGERED-MAINTAINED***Local names or syn.:** Spiegel (eng.), Mouton Mirroir (fr.), Mirror Sheep (eng.)**Population data:** 345 • 305 ♀ • 40 ♂ • 1999**Population trend:** increasing**Range of uses:** vegetation management, hobby, meat**SWITZERLAND**

The Spiegelschaf is found all over the German speaking part of Switzerland. It originated in Graubünden, central Switzerland and is a composite of different landraces (Landschläge). The animals are white with black around eyes and black ear tips and lambs have brown markings. Adult males weigh on average 70 kg and females 60 kg with an average wither height of 75 cm and 68 cm respectively. These sheep have medium fibred wool, the head and belly being woolless. All animals are polled. This modest breed is adapted to the local environment (hilly country-side). There are 79 herds remaining. There are 305 females registered in the herd book, of which 100% are bred to males of the same breed. The *in situ* conservation programme involves 37 reproducing males and 63 herds or breeders.

WALLISER LANDSCHAF*ENDANGERED-MAINTAINED***Local names or syn.:** Roux du Valais (fr.), Roux de Pays (fr.), Valais Red (eng.)**Population data:** 220 • 184 ♀ • 36 ♂ • 1999**Population trend:** increasing**Range of uses:** vegetation management, hobby, meat**SWITZERLAND**

The Walliser Landschaf is an indigenous breed found in Wallis and western Switzerland. The animals are brown, some having white markings on the head and tail-tip. They have semi-lop ears, coarse/carpet type wool and spiral shaped horns that stick out sideways. Adult males weigh on average 75 kg and females 62 kg with an average wither height of 65 cm and 60 cm respectively. Well adapted to live under mountain conditions and in a cold climate, the animals can endure poor food and are known for aseasonal breeding. There are 53 herds remaining. There are 184 females registered in the herd book, of which 95% are bred to males of the same breed. The *in situ* conservation programme involves 37 reproducing males and 50 herds or breeders.

APPENZELLER BARTHUHN*ENDANGERED***Local names or syn.:** -**Population data:** 1 070 • 870 ♀ • 200 ♂ • 1996**Population trend:** increasing**Range of uses:** hobby, eggs**SWITZERLAND**

The Appenzeller Barthuhn was selected, in the mid 1860s, from local landraces in two colour variants. Black and partridge with golden neck (9 flocks, 6 breeders); crossing with Andalusian gives a blue colour variety; also dwarfs in black and wild-type colour exist. They have wild-type and variants (54%), black (33%) or self-blue (13%) coloured plumage. The comb is of rose type, they are bearded and egg shells are white in colour. Adult males weigh on average 2.2 kg and females 1.7 kg. Because of the beard and the small rose comb, they are well adapted to cold winters.

APPENZELLER SPITZHAUBEN*ENDANGERED***Local names or syn.:** Spitzhauben (eng.)**Population data:** 356 • 253 ♀ • 103 ♂ • 1995**Population trend:** -**Range of uses:** fancy, eggs**SWITZERLAND**

The Appenzeller Spitzhauben, found in the Alpes, has been bred since the 15th century in monasteries. At the beginning of the 1950s only a few individuals were left. More than ten colour varieties existed last century of which only three remain: most birds are silver-black spotted, there are rare occurrences of golden-black spotted and very rarely are uniformly black chickens found. Incrossing of Brakel (Netherlands) and Hamburger Silberlack (Germany) has taken place. They have self-blue (15%), black (10%), white (5%) or gold and silver coloured plumage, egg shells are white in colour and they are plume-crested. Adult males weigh on average 1.7 kg and females 1.3 kg. The breed is adapted to live in a mountain climate and animals of this breed are good climbers and flyers.

SCHWEIZER HUHN*ENDANGERED***Local names or syn.:** -**Population data:** 228 • 194 ♀ • 34 ♂ • 1998**Population trend:** increasing**Range of uses:** hobby, eggs, meat**SWITZERLAND**

The Schweizer Huhn, similar to Deutsches Reichshuhn, was created by crossing White Orpington and Wyandotte in Amriswil village in 1905. It was widespread before laying hybrids were developed because of their high production. They have self-white coloured plumage and the shanks and feet are reddish. The comb is of rose type and egg shells are cream white to pale greyish in colour. They are well muscled animals. Adult males weigh on average 3 kg and females 2.5 kg.

DIEPHOLZER*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 320 • 1999**Population trend:** stable**Range of uses:** eggs, meat, hobby**SWITZERLAND**

The Diepholzer, found in the German speaking part of Switzerland, has been imported from Germany. They have self-white coloured plumage, reddish shanks and feet and egg shells that are white in colour. Adult males weigh on average 7 kg and females 6 kg.

DJUMAJLISKA*ENDANGERED***Local names or syn.:** -**Population data:** > 447 • 1994**Population trend:** decreasing**Range of uses:** meat, lard**THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA**

The Djumajliska is found in Ovce Pole, V. Lozovo, eastern Macedonia. The animals are white with black spots in colour and have lop ears. Adult males weigh on average 110.75 kg and females 92 kg with an average wither height of 66 cm and 64 cm respectively.

MALAKAN*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** -**TURKEY**

The Malakan is found in north-eastern Turkey. It is a composite of Native Russian, Orlov, Bityug and other breeds. They are light-heavy animals.

CINE CAPARI*ENDANGERED***Local names or syn.:** -**Population data:** 300 • 300 ♀♂ • 1998**Population trend:** decreasing**Range of uses:** -**TURKEY**

The Cine Capari is found in Aydin Province. The animals are white and sometimes have light brown to dark black spots on the feet and stomach. On average females weigh 38 kg. These sheep have coarse/carpet type wool. The animals are reported to be resistant to diseases.

UKRAINIAN GREY*ENDANGERED***Local names or syn.:** Seraya Ukrainskaya (ru.),
Seroukrainskaya (ru.),
Ukrainian Grey Steppe**Population data:** 1 500 • 684 ♀ • 13 ♂ • 1990**Population trend:** decreasing**Range of uses:** meat, milk, draught power**UKRAINE**

The Ukrainian Grey, found in central Ukraine, originated from indigenous Grey Steppe cattle from southern Europe. The animals are grey or light-grey in colour and are tall and leggy. Adult males weigh on average 780 kg and females 480 kg with an average wither height of 137 cm and 129 cm respectively. The horn tips are black and the milk has a high butterfat content. These are hardy animals with low nutritional requirements, good viability and tolerance to a number of diseases. In 1980, 372 heads were kept at the Polivanovka experimental farm. Of females, 73% are bred to males of the same breed.

UKRAINIAN WHITEHEADED*ENDANGERED***Local names or syn.:** Ukrainskaya belogolovaya (ru.),
Belogolovokolonistskaya (ru.),
Whiteheaded Colonist,**Population data:** 6600 • 4100 ♀ • 10 ♂ • 1990**Population trend:** decreasing**Range of uses:** milk**UKRAINE**

The Ukrainian Whiteheaded is found in Kiev, Zhitomir and Khmel'nitski, north-western Ukraine. It is a composite of Groningen Whiteheaded, Ukrainian Grey and Polesian and was established in the late 18th century. The animals are red or black in colour with a white head, feet and belly and black spectacles around the eyes. Adult males weigh on average 750 kg and females 460 kg with an average wither height of 136 cm and 127 cm respectively. These animals are reported to have a high feed-conversion efficiency. Of females, 59% are bred to males of the same breed.

UKRAINIAN SPOTTED STEPPE*ENDANGERED***Local names or syn.:** Ukrainskaya Stepnaya Ryabaya (ru.)**Population data:** < 5 000 • 329 ♀ • 297 ♂ • 1990**Population trend:** decreasing**Range of uses:** lard, meat**UKRAINE**

The Ukrainian Spotted Steppe is found in southern Ukraine. It is a composite of Ukrainian White Steppe, Berkshire and Mangalitsa and was recognized as a breed in 1961. The animals are occasionally black and may also be spotted black and white or black and tan in colour. They have bristles and semi-lop ears and are similar to Ukrainian White Steppe pigs. Adult males weigh on average 322 kg and females 238 kg. The breed is well adapted to the hot climate in southern Ukraine. Of females, 100% are bred to males of the same breed.

BLACK DWARF STRAIN 52*CRITICAL-MAINTAINED***Local names or syn.:** -**Population data:** 100 • 80 ♀ • 20 ♂ • 1993**Population trend:** stable**Range of uses:** research**UKRAINE**

The Black Dwarf Strain 52 is found in the Kharkov Region and was developed at the Crimean branch of Poultry Research Institute, Simferopol, Ukraine in 1976 by crossing the White Dwarf Strain 53 and Rhode Island Red Line 02. They have self-black coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are tinted in colour. They carry the dwarfism (dw) gene. On average females weigh 1.3 kg. This strain is maintained as a random-bred library stock strain.

PARTRIDGE DWARF STRAIN 23*CRITICAL-MAINTAINED***Local names or syn.:** -**Population data:** 100 • 80 ♀ • 20 ♂ • 1993**Population trend:** stable**Range of uses:** research**UKRAINE**

The Partridge Dwarf Strain 23 is found in the Kharkov Region. This strain was produced at the Poultry Research Institute, Borki, Ukraine in 1986 by crossing the Red Dwarf Strain 54 and the Single Comb Light Brown Leghorn. These chickens have wild-type and variants coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are white in colour. They carry the gene for dwarfism (dw). On average females weigh 1.3 kg. This strain has been maintained as a random bred library stock strain.

WHITE DWARF STRAIN 53*CRITICAL-MAINTAINED***Local names or syn.:** -**Population data:** 120 • 100 ♀ • 20 ♂ • 1993**Population trend:** stable**Range of uses:** research**UKRAINE**

The White Dwarf Strain 53 is found in the Kharkov Region and was developed from strains B11, B22 and B33 which were imported from the All-Russian Poultry Research and Technological Institute, Serghiyev Posad, Moscow region, Russia in 1974. The strain was supplemented with white coloured progeny by crossing the White Dwarf Strain and Rhode Island Red Strain 02. It has been developed at the Crimean branch of the Poultry Research Institute, Simferopol, Ukraine. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are white in colour. They carry the gene for dwarfism (dw). On average females weigh 1.2 kg. This strain is maintained as a random-bred closed flock.

POLTAVA CLAY-EXPERIMENTAL LINE 6*ENDANGERED*

Local names or syn.: -

Population data: 720 • 600 ♀ • 120 ♂ • 1993**Population trend:** stable**Range of uses:** research, eggs, meat**UKRAINE**

The Poltava Clay-Experimental Line 6 is found in the Kharkov Region. It is a synthetic dual purpose line that has been developed since 1989 at the Poultry Research Institute, Borki, Ukraine by crossing several Poltava Clay and Rhode Island Red lines. They have gold-columbian coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb may be of rose (60%) or single (40%) type.

POLTAVA CLAY-EXPERIMENTAL LINE P5*ENDANGERED*

Local names or syn.: -

Population data: 680 • 560 ♀ • 120 ♂ • 1993**Population trend:** stable**Range of uses:** research, eggs, meat**UKRAINE**

The Poltava Clay-Experimental Line P5, found in the Kharkov Region, was developed at the Poultry Research Institute, Borki, Ukraine in 1989. They have gold-columbian coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb may be of single or rose type and egg shells are brown in colour. This is a dual purpose strain.

BARRED DWARF STRAIN 55*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 580 • 500 ♀ • 80 ♂ • 1993**Population trend:** stable**Range of uses:** research**UKRAINE**

The Barred Dwarf Strain 55, found in the Kharkov Region, was produced in 1976 by crossing the White Dwarf Strain 53 and the Rhode Island Red Strain 02 at the Crimean branch of the Poultry Research Institute, Simferopol, Ukraine. These chickens have barred, sex-linked patterns within the feathers and the same plumage pattern as barred Plymouth Rock. They have yellow skin, shanks and feet, a single comb and egg shells that are tinted in colour. They carry the gene for dwarfism (dw). On average females weigh 1.2 kg. This strain is maintained as a random-bred library stock strain.

BLACK AUSTRALORP-LINE 101*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 515 • 450 ♀ • 65 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**UKRAINE**

The Black Australorp-Line 101, found in the Kharkov Region, was developed in 1983 at the Poltava Agricultural Institute, Poltava, Ukraine. They have self-black coloured plumage with no special pattern within the feathers. They have white skin, grey shanks and feet, a single comb and egg shells that are brown in colour. On average females weigh 2.2 kg. This line has been maintained as a closed flock since 1983.

BLACK SPECKLED AUSTRALORP MARBLED-LINE 102



ENDANGERED-MAINTAINED

Local names or syn.: -

Population data: 570 • 500 ♀ • 70 ♂ • 1993

Population trend: stable

Range of uses: research, fancy

UKRAINE

The Black Speckled Australorp Marbled-Line 102 is found in the Kharkov Region. This variety was produced from Black Australorp at the Institute of Farm Animal Breeding and Genetics, St. Petersburg, Puskin, Russian Federation. They have black coloured plumage with irregular white markings, white skin and the shanks and feet are grey. The comb is of single type and egg shells are brown in colour. On average females weigh 2 kg. This line has been maintained as a closed flock since 1983.

BLACK YEREVAN-LINE 99



ENDANGERED-MAINTAINED

Local names or syn.: -

Population data: 285 • 250 ♀ • 35 ♂ • 1993

Population trend: stable

Range of uses: fancy, research

UKRAINE

The Black Yerevan-Line 99, found in the Kharkov Region, was imported in 1983 from Yerevan Agricultural Institute, Yerevan, Armenia. They have self-black coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. They have feathered legs and vulture hocks (v). On average females weigh 2.4 kg. It has been maintained as a closed flock since 1983.

CALIFORNIA GREY-LINE 91



ENDANGERED-MAINTAINED

Local names or syn.: -

Population data: 685 • 600 ♀ • 85 ♂ • 1993

Population trend: stable

Range of uses: eggs, research

UKRAINE

The California Grey-Line 91 is found in the Kharkov Region. It has been derived from the California Grey Paternal Line B-9(4) of Byelarus-9-Cross-2 which was selected on the base of Shaver-444-Line-X imported from Canada in 1963. These chickens have barred, sex-linked patterns within the feathers, yellow skin and the shanks and feet are also yellow. The comb is of single type and egg shells are brown in colour. On average females weigh 1.9 kg. The California Grey-Line 91 has been maintained as a closed flock since 1981.

LIGHT SUSSEX-LINE 100



ENDANGERED-MAINTAINED

Local names or syn.: -

Population data: 265 • 230 ♀ • 35 ♂ • 1993

Population trend: stable

Range of uses: fancy, research

UKRAINE

The Light Sussex-Line 100 is found in the Kharkov Region and was imported in 1983 from Poltava Agricultural Institute Poltava, Ukraine. They have silver-columbian coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. On average females weigh 2.2 kg. It has been maintained as a closed flock since 1983.

LINE 27*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 420 • 350 ♀ • 70 ♂ • 1993**Population trend:** stable**Range of uses:** research, eggs, meat**UKRAINE**

The Line 27 is found in the Kharkov Region. This breed was developed in 1976 at the Poultry Research Institute, Borki, Ukraine by crossing three Rhode Island Red and three Pottava Clay Lines. They have gold-columbian coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are also yellow. The comb may be of rose (50%) or single (50%) type and egg shells are brown in colour. On average females weigh 2.2 kg. This breed was maintained between 1976 and 1985 as a closed random-bred flock, and since 1988 it has been maintained with artificial insemination by polysperm.

LINE 69*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 300 • 250 ♀ • 50 ♂ • 1993**Population trend:** stable**Range of uses:** eggs, research**UKRAINE**

The Line 69, found in the Kharkov Region, is a synthetic line descending from the Hisex Brown Maternal Line B8 and imported from The Netherlands in 1978. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. On average females weigh 1.9 kg. Late feathering is prevailing in this line. The breed is homozygous for several plumage colour genes (c: recessive white, I: dominant white, Co, S: silver, sex-linked) and has been maintained, by family selection, as a closed flock since 1988.

LINE 70*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 580 • 500 ♀ • 70 ♂ • 1993**Population trend:** stable**Range of uses:** eggs, research**UKRAINE**

The Line 70, imported from The Netherlands in 1978, is found in the Kharkov Region. It is a synthetic line, developed from the Hisex Brown Maternal Line T5. They have gold-columbian coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. On average females weigh 1.9 kg. Early feathering is prevailing in this line. Several major genes determining plumage colour (ey: recessive black and Co, Mh, s+: recessive gold, sex-linked) are present. The Line 70 has been maintained by family selection as a closed flock since 1986.

LINE 71*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 460 • 400 ♀ • 60 ♂ • 1993**Population trend:** stable**Range of uses:** eggs, research**UKRAINE**

The Line 71, found in the Kharkov Region, was imported from The Netherlands in 1978. It is a synthetic line descended from the Hisex Brown Maternal Line T8. They have gold-columbian coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are also yellow. The comb is of single type and egg shells are brown in colour. On average females weigh 1.9 kg. Early feathering prevails in this line. Several major genes determining plumage colour (ey: recessive black, Co, Mh, s+: recessive gold, sex-linked) are present. This line has been maintained, by family selection, as a closed flock since 1986.

NAKED NECK-LINE 93*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 205 • 180 ♀ • 25 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**UKRAINE**

The Naked Neck-Line 93 is found in the Kharkov Region and was imported in 1981 from Poltava Agricultural Institute Poltava, Ukraine. Their plumage can be variously coloured. They have yellow skin, shanks and feet and egg shells are brown in colour. They carry the gene for naked neck (na). On average females weigh 1.7 kg. The Naked Neck-Line 93 has been maintained as a closed flock since 1981.

POLTAVA CLAY-LINE 37*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 240 • 200 ♀ • 40 ♂ • 1993**Population trend:** stable**Range of uses:** research, eggs, meat**UKRAINE**

The Poltava Clay-Line 37 is found in the Kharkov Region and was developed at the Poultry Research Institute, Borki, Ukraine. They have gold-columbian coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb may be of rose or single type and egg shells are brown in colour. On average females weigh 2.2 kg. It is a dual purpose strain and since 1987 has been kept as a library stock strain. It is maintained as a closed flock with both artificial insemination by polysperm and random-breeding.

POLTAVA CLAY-LINE 41*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 300 • 250 ♀ • 50 ♂ • 1993**Population trend:** stable**Range of uses:** research, eggs, meat**UKRAINE**

The Poltava Clay-Line 41 is found in the Kharkov Region and was developed at the Poultry Research Institute, Borki, Ukraine. They have gold-columbian coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. On average females weigh 1.8 kg. It is a dual purpose strain and, since 1989, has been kept as a library stock strain. It is maintained as a closed flock with both artificial insemination by polysperm and random-breeding.

RED DWARF STRAIN 54*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 180 • 150 ♀ • 30 ♂ • 1993**Population trend:** stable**Range of uses:** research**UKRAINE**

The Red Dwarf Strain 54, found in the Kharkov Region, was produced in 1976 by crossing White Dwarf Strain 53 and Rhode Island Red Strain 02 at the Crimean branch of the Poultry Research Institute, Simferopol, Ukraine. They have gold-columbian coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are also yellow. The comb is of single type and egg shells are white in colour. They carry the gene for dwarfism (dw). On average females weigh 1.2 kg. This strain is maintained as a random-bred library stock strain.

RED YEREVAN-LINE 98*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 300 • 260 ♀ • 40 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**UKRAINE**

The Red Yerevan-Line 98 is found in the Kharkov Region. It was imported in 1983 from Yerevan Agricultural Institute Yerevan, Armenia. They have gold-columbian coloured plumage with no special pattern within the feathers. They have white skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. They have feathered legs and vulture hocks (v). On average females weigh 2 kg. It has been maintained as a closed flock since 1983.

RHODE ISLAND RED-LINE 39*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 180 • 150 ♀ • 50 ♂ • 1993**Population trend:** stable**Range of uses:** research, eggs, meat**UKRAINE**

The Rhode Island Red-Line 39 is found in the Kharkov Region. It was imported from Ivaya, Japan in 1968 and descends from Sky Hybrid Maternal Line S. They have gold-columbian coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are also yellow. The comb is of single type and egg shells are brown in colour. On average females weigh 2.1 kg. It is a dual purpose strain and, since 1987, has been used as a library stock strain. It is maintained as a closed flock with artificial insemination by polysperm.

RUSSIAN WHITE-LINE 61*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 320 • 280 ♀ • 50 ♂ • 1993**Population trend:** stable**Range of uses:** eggs, research**UKRAINE**

The Russian White-Line 61 is found in the Kharkov Region and was imported in 1970. These chickens have self-white coloured plumage with barred, sex-linked patterns within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are white in colour. On average females weigh 1.65 kg. This line has been maintained as a closed flock and has been both random-bred and artificially inseminated.

SINGLE COMB BROWN LEGHORN*ENDANGERED-MAINTAINED***Local names or syn.:** Italian partridge - line 90**Population data:** 445 • 390 ♀ • 55 ♂ • 1993**Population trend:** stable**Range of uses:** fancy, research**UKRAINE**

The Single Comb Brown Leghorn is found in the Kharkov Region. It was imported from Poltava Agricultural Institute Poltava, Ukraine in 1981. These chickens have wild-type and variants coloured plumage. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are white in colour. On average females weigh 1.8 kg. The Single Comb Brown Leghorn has been maintained as a closed flock since 1982.

**SINGLE COMB WHITE LEGHORN-
LINE 01***ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 1 200 • 1 000 ♀ • 200 ♂ • 1993**Population trend:** stable**Range of uses:** research, eggs**UKRAINE**

The Single Comb White Leghorn-Line 01 is found in the Kharkov Region. It was imported from Eniya, Japan in 1964 and descends from HP Hybrid chickens. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are white in colour. On average females weigh 1.7 kg. This line has been maintained as a closed flock under family selection since 1965.

**SINGLE COMB WHITE LEGHORN-
LINE 08***ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 300 • 250 ♀ • 50 ♂ • 1993**Population trend:** stable**Range of uses:** research, eggs**UKRAINE**

The Single Comb White Leghorn-Line 08 is found in the Kharkov Region. It was imported from Canada in 1967 and descends from the Shaver 288 Maternal Line C. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are also yellow. The comb is of single type and egg shells are white in colour. On average females weigh 1.75 kg. It has been maintained, by family selection, as a closed flock for 15 generations.

**SINGLE COMB WHITE LEGHORN-
LINE 26***ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 240 • 200 ♀ • 40 ♂ • 1993**Population trend:** stable**Range of uses:** research, eggs**UKRAINE**

The Single Comb White Leghorn-Line 26 is found in the Kharkov Region. It was imported from Ivaya, Japan in 1963 and descends from the Echo and Sky Hybrids Paternal Line R. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are also yellow. The comb may be of rose (50%) or single (50%) type and egg shells are brown in colour. On average females weigh 1.9 kg. It has been maintained as a closed flock since 1985 with both random breeding and artificial insemination by polysperm.

**SINGLE COMB WHITE LEGHORN-
LINE 273***ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 320 • 270 ♀ • 50 ♂ • 1993**Population trend:** stable**Range of uses:** eggs, research**UKRAINE**

The Single Comb White Leghorn-Line 273 is found in the Kharkov Region. It is a strain of Japanese origin imported in 1978. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are white in colour. On average females weigh 1.65 kg. The Single Comb White Leghorn-Line 273 is maintained as a closed flock.

**SINGLE COMB WHITE LEGHORN-
LINE 31***ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 600 • 500 ♀ • 100 ♂ • 1993**Population trend:** stable**Range of uses:** research, eggs**UKRAINE**

The Single Comb White Leghorn-Line 31 is found in the Kharkov Region. It was imported from The Netherlands in 1977 and descends from the Hisex White Paternal Line C1. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are also yellow. The comb is of single type and egg shells are white in colour. On average females weigh 1.65 kg. This line is maintained as a closed flock by combined selection including stabilizing selection on character complex.

**SINGLE COMB WHITE LEGHORN-
LINE 32***ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 320 • 270 ♀ • 50 ♂ • 1993**Population trend:** stable**Range of uses:** research, eggs**UKRAINE**

The Single Comb White Leghorn-Line 32 is found in the Kharkov Region. It was imported from The Netherlands in 1977 and descends from the Hisex White Paternal Line C2. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are also yellow. The comb is of single type and egg shells are white in colour. On average females weigh 1.6 kg. This line is maintained as a closed flock with both random breeding and artificial insemination by polysperm.

**SINGLE COMB WHITE LEGHORN-
LINE 34***ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 300 • 250 ♀ • 50 ♂ • 1993**Population trend:** stable**Range of uses:** research, eggs**UKRAINE**

The Single Comb White Leghorn-Line 34 is found in the Kharkov Region. It was imported from The Netherlands in 1977 and descends from the Hisex White Maternal Line L4. These chickens have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are also yellow. The comb is of single type and egg shells are white in colour. On average females weigh 1.65 kg. This line is maintained as a closed flock, with both random breeding and artificial insemination by polysperm.

**SINGLE COMB WHITE LEGHORN-
LINE D4 OR O4***ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 300 • 250 ♀ • 50 ♂ • 1993**Population trend:** stable**Range of uses:** research, eggs**UKRAINE**

The Single Comb White Leghorn-Line D4 or O4, descends from Line D and is found in the Kharkov Region, imported from Eniya, Japan in 1963. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are also yellow. The comb is of single type and egg shells are white in colour. On average females weigh 1.65 kg. It has been a library stock since 1988 and is maintained as a closed flock with artificial insemination by polysperm.

WHITE PLYMOUTH ROCK-LINE 97*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 570 • 500 ♀ • 70 ♂ • 1993
Population trend: stable
Range of uses: meat, research

UKRAINE

The White Plymouth Rock-Line 97 is found in the Kharkov Region. Derived from White Plymouth Rock Maternal Line B-6(9) of Cross Broiler 6 which was selected on the base of Hybro Line B1. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin and the shanks and feet are yellow. The comb is of single type and egg shells are brown in colour. On average females weigh 2.4 kg. Delivered in 1984 from the Collective Farm Iskra, Kharkov Region, Ukraine, it has been maintained as a closed flock since 1978.

YURLOVO CROWER-LINE 92*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 205 • 180 ♀ • 25 ♂ • 1993
Population trend: stable
Range of uses: fancy, research

UKRAINE

The Yurlovo Crower-Line 92, found in the Kharkov Region, was imported in 1981 from Poltava Agricultural Institute Poltava, Ukraine. They have gold-columbian coloured plumage with no special pattern within the feathers. They have white skin, the shanks and feet may be grey or yellow and egg shells are brown in colour. They have a long crowing. On average females weigh 2.3 kg. The Yurlovo Crower-Line 92 has been maintained as a closed flock since 1981.

UKRAINIAN WHITE*ENDANGERED*

Local names or syn.: -

Population data: 720 • 600 ♀ • 120 ♂ • 1993
Population trend: stable
Range of uses: research, meat

UKRAINE

The Ukrainian White is found in the Kharkov Region. This breed was developed between 1948-1953 at the Ukrainian Poultry Research Station, Borki from segregating individuals of Ukrainian Grey ducks. There are three selected lines of Ukrainian White ducks. They have black and white coloured plumage with spotted patterns within the feathers. They may have white or yellow skin, orange shanks and feet and egg shells that are white in colour. Adult males weigh on average 3.4 kg and females 3.3 kg.

BLACK WHITE-BREASTED*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 180 • 150 ♀ • 30 ♂ • 1993
Population trend: stable
Range of uses: research

UKRAINE

The Black White-Breasted is found in the Kharkov Region. It was developed between 1948-1954 at the Ukrainian Poultry Research Station from native Black (or Black-Grey) White-breasted ducks that were paired to a Black White-breasted drake produced by segregating offspring from crossing the Pekin duck and a Khaki Campbell drake. They have black and white coloured plumage with spotted patterns within the feathers. They have yellow skin, black shanks and feet and egg shells that are white in colour. Adult males weigh on average 3.6 kg and females 3.3 kg. The Black White-Breasted duck is maintained as a germplasm flock.

PEKIN-LINE P3*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 300 • 250 ♀ • 50 ♂ • 1993**Population trend:** stable**Range of uses:** research, meat**UKRAINE**

The Pekin-Line P3 is found in the Kharkov Region and was produced in 1970 from the Pekin bred at the Poultry Research Institute, Borki, Ukraine. They have self-white coloured plumage with no special pattern within the feathers. They have yellow skin, orange shanks and feet are orange and egg shells that are white in colour. Adult males weigh on average 3.6 kg and females 3.5 kg. It is used as a paternal line of Kharkovsky 37 cross to develop a strain with increased meat performances. It is maintained as a closed flock.

UKRAINIAN CLAY*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 170 • 140 ♀ • 30 ♂ • 1993**Population trend:** stable**Range of uses:** research**UKRAINE**

The Ukrainian Clay is found in the Kharkov Region. This breed was developed between 1948-1953 at the Ukrainian Poultry Research Station, Borki, Ukraine by the segregation of Ukrainian Grey individuals. They have brown coloured plumage, white skin and the shanks and feet are reddish. Adult males weigh on average 3.1 kg and females 2.8 kg. The Ukrainian Clay, maintained as a germplasm flock, is also being used to produce a new synthetic duck population.

UKRAINIAN GREY*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 290 • 250 ♀ • 40 ♂ • 1993**Population trend:** stable**Range of uses:** research**UKRAINE**

The Ukrainian Grey, found in the Kharkov Region, was developed between 1948-1953 at the Ukrainian Poultry Research Station, Borki, Ukraine using the native Grey ducks bred inter-se and single-mated with several wild Mallard drakes. They have wild-type and variants coloured plumage. They have white skin, orange shanks and feet and egg shells that are white in colour. Adult males weigh on average 3.2 kg and females 3 kg. This breed is maintained as a germplasm flock.

UKRAINIAN WHITE-LINE UB 4*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 360 • 300 ♀ • 60 ♂ • 1993**Population trend:** stable**Range of uses:** research, meat**UKRAINE**

The Ukrainian White-Line Ub 4 is found in the Kharkov Region. This line with reduced fat content (25.9%), was developed in 1990 from Ukrainian White, Line 7. These ducks have self-white coloured plumage with no special pattern within the feathers. They have white skin, orange shanks and feet and egg shells that are white in colour. Adult males weigh on average 3.4 kg and females 3.3 kg. It is maintained as a closed flock by individual and group selection.

UKRAINIAN WHITE-LINE UB 5*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 180 • 150 ♀ • 30 ♂ • 1993**Population trend:** stable**Range of uses:** research, meat**UKRAINE**

The Ukrainian White-Line Ub 5, found in the Kharkov Region, has been developed since 1970 by selecting Ukrainian White. They have self-white coloured plumage with no special pattern within the feathers. They may have white or yellow skin, the shanks and feet are orange and egg shells are white in colour. Adult males weigh on average 3.3 kg and females 3.2 kg. It is maintained as a closed flock.

UKRAINIAN WHITE-LINE UB 7*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 180 • 150 ♀ • 30 ♂ • 1993**Population trend:** stable**Range of uses:** research, meat**UKRAINE**

The Ukrainian White-Line Ub 7, found in the Kharkov Region has been developed since 1970 from Ukrainian White ducks crossed once with Pekin drakes of American origin (combination 13 cross). This line has been used as a maternal line for the Kharkovsky 37 cross. They have self-white coloured plumage with no special pattern within the feathers. They may have yellow or white skin, the shanks and feet are orange and egg shells are white in colour. Adult males weigh on average 3.5 kg and females 3.4 kg. This line has been maintained as a closed flock since 1970.

SYNTHETIC UKRAINIAN POPULATION*ENDANGERED***Local names or syn.:** -**Population data:** 1 030 • 800 ♀ • 230 ♂ • 1993**Population trend:** stable**Range of uses:** research, meat**UKRAINE**

The Synthetic Ukrainian Population, found in the Kharkov Region, was developed between 1986-1990 from Rhenish White and Large Grey geese at the Ukrainian Poultry Research Station, Borki, Ukraine. They have self-white coloured plumage, white skin and egg shells that are white in colour. Adult males weigh on average 6 kg and females 5.4 kg. Maintaining the parent strain as a closed flock with a sex ratio 1: 3-4 under individual selection will be worthwhile.

RHENISH WHITE*ENDANGERED-MAINTAINED***Local names or syn.:** Synthetic population**Population data:** 980 • 800 ♀ • 180 ♂ • 1993**Population trend:** stable**Range of uses:** research, meat**UKRAINE**

The Rhenish White, imported in 1975, is found in the Kharkov Region. They have self-white coloured plumage with no special pattern within the feathers. They have white skin, orange shanks and feet and egg shells that are white in colour. They have a dual lobed abdomen. Adult males weigh on average 5.3 kg and females 4.5 kg. The Rhenish White is maintained as a library stock.

LINE 5*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 1 000 ♀ • 1993**Population trend:** stable**Range of uses:** meat, research**UKRAINE**

The Line 5 is found in the Kharkov Region. It is a paternal line of medium weight imported in 1961. It is a cross Kharkovsky 56, descended from broad breasted white turkeys and partly from Hydon Line A. They have self-white coloured plumage with no special pattern within the feathers. This line is maintained under individual and family selection.

BLUE ALBION*CRITICAL***Local names or syn.:** Blue English (eng.), Derbyshire Blue (eng.)**Population data:** 63 ♀ • 6 ♂ • 1999**Population trend:** -**Range of uses:** milk, meat**UNITED KINGDOM**

The Blue Albion is found in northern Derbyshire, England. It stems originally from white Shorthorn and Welsh Black and possibly Friesian. The current so-called Blue Albions are probably crosses. A herd book was maintained between 1916-40 and a breed society existed between 1920-66. The animals are blue roan or blue roan and white in colour.

NORMANDE*CRITICAL***Local names or syn.:** -**Population data:** 100 ♀ • 8 ♂ • 1999**Population trend:** -**Range of uses:** -**UNITED KINGDOM**

No further information available.

CHILLINGHAM*CRITICAL-MAINTAINED***Local names or syn.:** -**Population data:** 17 ♀ • 15 ♂ • 1999**Population trend:** -**Range of uses:** hobby**UNITED KINGDOM**

The Chillingham is found in Northumberland. It is an autochthonous breed. The animals are white with coloured points in colour. Adult males weigh on average 395 kg and females 280 kg.

KERRY*CRITICAL-MAINTAINED***Local names or syn.:** -**Population data:** 90 ♀ • 4 ♂ • 1999**Population trend:** -**Range of uses:** milk, vegetation management**UNITED KINGDOM**

The Kerry was imported from Ireland. The animals are black in colour. Adult males weigh on average 560 kg and females 375 kg with an average wither height of 136 cm and 122 cm respectively. The breed is suitable for marginal land. Ease of parturition is reported and it is a breed with high longevity. The Kerry has been listed as a vulnerable priority breed by the Rare Breeds Survival Trust. The semen of 5 males is stored.

VAYNOL*CRITICAL-MAINTAINED***Local names or syn.:** -**Population data:** 21 ♀ • 2 ♂ • 1999**Population trend:** -**Range of uses:** hobby, vegetation management**UNITED KINGDOM**

The Vaynol originated in 1878 in North Wales from White park cattle with a little Highland influence and maybe some zebu animals. The animals are white in colour. This breed has been listed as a critical priority breed by the Rare Breeds Survival Trust. The semen of 7 males is stored.

AMERICAN BROWN SWISS*ENDANGERED***Local names or syn.:** Brown Swiss (eng.)**Population data:** 1 170 ♀ • 19 ♂ • 1999**Population trend:** -**Range of uses:** milk**UNITED KINGDOM**

The American Brown Swiss was imported in 1869-1906.

BAZADAISE*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 238 ♀ • 12 ♂ • 1999**Population trend:** -**Range of uses:** -**UNITED KINGDOM**

No further information available.

LINCOLN RED*ENDANGERED*

Local names or syn.: -

Population data: 740 ♀ • 60 ♂ • 1999

Population trend: -

Range of uses: meat

UNITED KINGDOM

The Lincoln Red breed, established in 1896, is found in Lincolnshire. These cattle are a composite of Shorthorn descendants with some incrossing from Maine-Anjou and other breeds. The animals are red in colour and all animals are polled. Adult males weigh on average 990 kg and females 700 kg with an average wither height of 145 cm and 135 cm respectively. This docile breed is able to finish on grass and performs a rapid daily gain. The semen of 2 males is stored.

MONTBELLARDE*ENDANGERED*

Local names or syn.: -

Population data: 925 ♀ • 21 ♂ • 1999

Population trend: -

Range of uses: -

UNITED KINGDOM

No further information available.

PIEDMONTESE*ENDANGERED*

Local names or syn.: -

Population data: 337 ♀ • 34 ♂ • 1999

Population trend: -

Range of uses: -

UNITED KINGDOM

No further information available.

SALERS*ENDANGERED*

Local names or syn.: -

Population data: 570 ♀ • 70 ♂ • 1999

Population trend: -

Range of uses: -

UNITED KINGDOM

No further information available.

SHETLAND*ENDANGERED***Local names or syn.:** -**Population data:** 300 ♀ • 24 ♂ • 1999**Population trend:** -**Range of uses:** meat, vegetation management, milk**UNITED KINGDOM**

The Shetland is found country-wide and is an autochthonous breed. The animals are black and white or red and white in colour. Adult males weigh on average 663 kg and females 470 kg with an average wither height of 132 cm and 120 cm respectively. This hardy breed is adapted to marginal land and has been listed as a critical priority breed by the Rare Breeds Survival Trust. The semen of 18 males is stored.

GLOUCESTER*ENDANGERED-MAINTAINED***Local names or syn.:** Gloucestershire (eng.), Old Gloucester (eng.)**Population data:** 726 ♀ • 37 ♂ • 1999**Population trend:** -**Range of uses:** hobby, milk, meat**UNITED KINGDOM**

The Gloucester breed, found in England, is a composite of Gloucester and Glamorgan breeds incrossed with Shorthorn, Friesian and others. The animals are brown or white in colour with black spots and a white dorsal line and underline. Adult males weigh on average 857 kg and females 583 kg with an average wither height of 143 cm and 129 cm respectively. Twin births are reported for this breed, which produces milk very suitable for cheese production. This breed has been listed as a vulnerable priority breed by the Rare Breeds Survival Trust. The semen of 6 males is stored.

HEREFORD, TRADITIONAL*ENDANGERED-MAINTAINED***Local names or syn.:** Hereford (old type) (eng.)**Population data:** 403 ♀ • 31 ♂ • 1999**Population trend:** -**Range of uses:** meat, vegetation management**UNITED KINGDOM**

The Hereford, Traditional is an autochthonous, traditional native breed. These cattle are red in colour with a white head. Adult males weigh on average 1050 kg and females 662 kg with an average wither height of 135 cm and 120 cm respectively. This breed, known for docility, produces very high quality meat and is reported to have a very high grazing efficiency. The semen of 8 males is stored.

IRISH MOILED*ENDANGERED-MAINTAINED***Local names or syn.:** Irish Polled (eng.)**Population data:** 229 ♀ • 20 ♂ • 1999**Population trend:** -**Range of uses:** tourist attraction / touristic potential, meat, milk**UNITED KINGDOM**

The Irish Moiled breed is predominantly found in the counties of Down and Antrim. It is an indigenous breed and has been incrossed with Shorthorn and Lincoln Red breeds. These cattle are red, white or brown in colour and often have a spotted face and a white line or flinching on their back. Adult males weigh on average 635 kg and females 496 kg with an average wither height of 136 cm and 130 cm respectively. All animals are polled. The females are known for ease of parturition. This breed has been listed as a critical priority breed by the Rare Breeds Survival Trust. The semen of 8 males is stored.

RED POLL*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 920 ♀ • 32 ♂ • 1999**Population trend:** -**Range of uses:** milk, meat**UNITED KINGDOM**

The Red Poll breed, found country-wide, is a composite of Suffolk Dun and Norfolk Red breeds and was established in 1700. The animals are red in colour. Adult males weigh on average 374 kg and females 227 kg with an average wither height of 150 cm and 132 cm respectively. All animals are polled. The animals are adapted to drought and a cold climate which are features of their local environment. This breed produces high quality meat. This breed has been listed as a vulnerable priority breed by the Rare Breeds Survival Trust. The semen of 15 males is stored.

WHITE PARK*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 429 ♀ • 38 ♂ • 1999**Population trend:** -**Range of uses:** meat, vegetation management, hobby**UNITED KINGDOM**

The White Park breed is an ancient, indigenous breed. These cattle are white in colour with black points on their ears, muzzle, eyelids, teats and feet. Adult males weigh on average 990 kg and females 649 kg with an average wither height of 146 cm and 132 cm respectively. Males are polled. This breed produces low cholesterol meat and lean carcasses and it is reported to have a growth rate 5% greater than that of Limousin cattle. This breed has been listed as a critical priority breed by the Rare Breeds Survival Trust. The semen of 22 males is stored.

WHITEBRED SHORTHORN*ENDANGERED-MAINTAINED***Local names or syn.:** Cumberland White (eng.)**Population data:** 200 ♀ • 30 ♂ • 1999**Population trend:** -**Range of uses:** meat, general crossbreeding**UNITED KINGDOM**

The indigenous Whitebred Shorthorn is found in Scotland, England and Wales and originates from the Cumberland Dairy Shorthorn. These cattle are white in colour with clear pink noses. Adult males weigh on average 895 kg and females 600 kg. The breed is easy to keep as the cattle are able to live outdoors. The semen of one male is stored.

ANGORA GOAT*ENDANGERED***Local names or syn.:** -**Population data:** 7 000 ♀ • 15 ♂ • 1997**Population trend:** decreasing**Range of uses:** wool, vegetation management, meat**UNITED KINGDOM**

Angora Goats, imported from New Zealand and Australia, are white in colour. Adult males weigh on average 90 kg and females 45 kg with an average wither height of 76 cm and 71 cm respectively. Of females, 100% are bred to males of the same breed. The semen of 12 males is stored.

BRITISH TOGGENBURG*ENDANGERED***Local names or syn.:** Pure Toggenburg (eng.)**Population data:** 300 ♀ • 60 ♂ • 1997**Population trend:** increasing**Range of uses:** milk**UNITED KINGDOM**

The British Toggenburg breed was imported from Switzerland. These goats are brown or blond in colour with white facial stripes and are white around their ears and tail, below their knees and hocks. Adult males weigh on average 70 kg and females 60 kg with an average wither height of 80 cm and 70 cm respectively. All horned kids are disbudded at one week of age. Of females, 95% are bred to males of the same breed. The semen of 10 males is stored.

BAGOT*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 171 ♀ • 38 ♂ • 1999**Population trend:** -**Range of uses:** hobby**UNITED KINGDOM**

Bagot goats are found country-wide and are descended from animals imported from France or Switzerland in 13th century. The goats have black forequarters and white hindquarters and on average, adult females weigh 25 kg.

GOLDEN GUERNSEY*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 403 ♀ • 97 ♂ • 1999**Population trend:** -**Range of uses:** milk, hobby**UNITED KINGDOM**

Golden Guernsey goats are found in the southern half of England. The breed is a native of central Ireland and may possibly have a Mediterranean influence. These goats are yellow-brown in colour and are adapted to British conditions. The semen of one male is stored.

CASPIAN*CRITICAL***Local names or syn.:** Caspian Miniature (eng.)**Population data:** 52 ♀ • 27 ♂ • 1999**Population trend:** -**Range of uses:** -**UNITED KINGDOM**

Caspian ponies are usually bay, grey or chestnut and are occasionally black in colour.

ERIKSAY*CRITICAL*

Local names or syn.: -

Population data: 22 ♀ • 10 ♂ • 1999

Population trend: -

Range of uses: -

UNITED KINGDOM

No further information available.

LIPIZZANER*CRITICAL*

Local names or syn.: -

Population data: 16 ♀ • 3 ♂ • 1999

Population trend: -

Range of uses: -

UNITED KINGDOM

No further information available.

LUSITANO*CRITICAL*

Local names or syn.: -

Population data: 65 ♀ • 62 ♂ • 1999

Population trend: -

Range of uses: -

UNITED KINGDOM

No further information available.

MORGAN*CRITICAL*

Local names or syn.: -

Population data: 48 ♀ • 22 ♂ • 1997

Population trend: stable

Range of uses: sport

UNITED KINGDOM

The Morgan breed is found in Hereford, Yorkshire and Lancashire. These horses were developed from Thoroughbred and local breeds around 1783 and were later reimported from the United States of America in 1975. Since then there have been a number of inputs from the United States of America (1981, 1984, 1986). The animals are usually bay in colour, but may also be black, chestnut, isabelle or palomino. Animals of this breed have a profuse mane and tail. Adult males weigh on average 540 kg and females 450 kg with an average wither height of 143 cm and 142 cm respectively. There are 48 females registered in the herd book. The semen of 6 males is stored.

SUFFOLK*CRITICAL-MAINTAINED***Local names or syn.:** Suffolk Punch (eng.)**Population data:** 69 ♀ • 22 ♂ • 1999**Population trend:** -**Range of uses:** draught power**UNITED KINGDOM**

The Suffolk, a native breed found in East Anglia, is the oldest breed of Draught horse in the world. These horses are chestnut in colour. Adult males weigh on average 800 kg and females 680 kg with an average wither height of 170 cm and 160 cm respectively.

CLYDESDALE*ENDANGERED***Local names or syn.:** -**Population data:** 500 ♀ • 70 ♂ • 1999**Population trend:** -**Range of uses:** draught power**UNITED KINGDOM**

The Clydesdale breed, found in Scotland, is a composite of a native Scottish breed, Flemish and Shire breeds. These horses may be bay, brown, black or occasionally chestnut with large areas of white on their face, legs and occasionally body. Adult males weigh on average 850 kg and females 750 kg with an average wither height of 172 cm and 162 cm respectively.

CONNEMARA*ENDANGERED***Local names or syn.:** -**Population data:** 400 ♀ • 80 ♂ • 1999**Population trend:** -**Range of uses:** -**UNITED KINGDOM**

No further information available.

DALES*ENDANGERED***Local names or syn.:** -**Population data:** 802 ♀ • 99 ♂ • 1999**Population trend:** -**Range of uses:** -**UNITED KINGDOM**

No further information available.

FELL PONY*ENDANGERED***Local names or syn.:** -**Population data:** 400 ♀ • 122 ♂ • 1999**Population trend:** -**Range of uses:** sport, herding**UNITED KINGDOM**

The Fell Pony, established in 1850, is found in northern England. It is a composite of ponies from northern and southern England and the Friesian Horse breed from the Netherlands. These horses are predominantly black in colour, but may also be brown, bay or grey with very few white markings. Adult males and females weigh on average 460 kg and have an average wither height of 142 cm. The breed is very hardy and is well adapted to the local mountainous environment.

HAFLINGER*ENDANGERED***Local names or syn.:** -**Population data:** 350 ♀ • 13 ♂ • 1999**Population trend:** -**Range of uses:** sport, draught power**UNITED KINGDOM**

The Haflinger breed, found in the Midlands, was imported from Austria. These horses are light to dark chestnut in colour and have a full flaxen mane and tail. Adult males weigh on average 600 kg and females 500 kg with an average wither height of 150 cm and 148 cm respectively.

IRISH DRAUGHT*ENDANGERED***Local names or syn.:** -**Population data:** 120 ♀ • 81 ♂ • 1999**Population trend:** -**Range of uses:** -**UNITED KINGDOM**

No further information available.

SHIRE*ENDANGERED***Local names or syn.:** -**Population data:** 1 000 ♀ • 90 ♂ • 1999**Population trend:** -**Range of uses:** draught power, sport**UNITED KINGDOM**

The Shire breed, found in England, is a Native Old English breed of Cart Horse. The animals are black, bay or grey in colour with white markings. Registered breeding stallions must not be roan in colour. Adult males weigh on average 1 000 kg and females 900 kg with an average wither height of 183 cm and 173 cm respectively. The semen of 6 males is stored.

CLEVELAND BAY*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 150 ♀ • 60 ♂ • 1999**Population trend:** -**Range of uses:** draught power, riding (sports)**UNITED KINGDOM**

The Cleveland Bay breed, established in 1800, is found in England and is a composite of Cleveland Bay, Thoroughbred and Chapman Horse breeds. These horses are bay coloured with black points and the only acceptable marking is a small star. Adult males and females weigh on average 700 kg and have an average wither height of 161 cm.

DARTMOOR PONY*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 330 ♀ • 61 ♂ • 1999**Population trend:** -**Range of uses:** sport**UNITED KINGDOM**

The Dartmoor Pony, an indigenous breed established in 1800, is found in Dartmoor, Devon. The animals may be bay, brown or black in colour. Piebald and skewbald ponies are not accepted as part of the breed. Adult males weigh on average 225 kg and females 212 kg with an average wither height of 127 cm and 127 cm respectively. These are hardy animals.

EXMOOR PONY*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 390 ♀ • 63 ♂ • 1999**Population trend:** -**Range of uses:** sport, hobby**UNITED KINGDOM**

The Exmoor Pony is a native breed found in Exmoor. Research has shown that this breed has remained unchanged since the Ice Age. The ponies may be bay, brown or dun in colour with mealy patches on their muzzle, belly, around their eyes and on the inside of their thighs. Adult males weigh on average 227 kg and females 227 kg with an average wither height of 130 cm and 127 cm respectively. The animals are extremely hardy, agile and intelligent and are capable of thriving outdoors on meagre rations.

HAMPSHIRE*CRITICAL***Local names or syn.:** -**Population data:** 12 ♂ • 1997**Population trend:** stable**Range of uses:** meat**UNITED KINGDOM**

The Hampshire breed, found in England, was imported from Canada (1972) and the United States of America (1967). These pigs are black in colour with a white saddle and they have erect ears. The breed is reported to be heat tolerant. There are 21 females registered in the herd book.

DUROC*ENDANGERED***Local names or syn.:** -**Population data:** 398 ♀ • 57 ♂ • 1999**Population trend:** -**Range of uses:** meat**UNITED KINGDOM**

The Duroc breed, found in England, was imported from the United States of America (1980) and Canada (1968). These pigs are red in colour and have short lop ears. They are able to live outdoors.

OXFORD SANDY AND BLACK*ENDANGERED***Local names or syn.:** -**Population data:** 120 ♀ • 30 ♂ • 1999**Population trend:** -**Range of uses:** meat**UNITED KINGDOM**

The Oxford Sandy and Black is an old breed that became extinct around 1969 and was revived in the 1970s. The animals are sand coloured with black patches and lop ears.

TAMWORTH*ENDANGERED***Local names or syn.:** Staffordshire (eng.)**Population data:** 239 ♀ • 69 ♂ • 1999**Population trend:** -**Range of uses:** meat, hobby**UNITED KINGDOM**

The Tamworth is an indigenous breed found in England. These pigs are red in colour and have a long snout and erect ears. Adult males weigh on average 280 kg and females 250 kg with an average wither height of 97 cm and 92 cm respectively. These hardy pigs are adapted to a wide range of climates and are reported to produce very good quality meat. This breed has been listed as a critical priority breed by the Rare Breeds Survival Trust. The semen of 7 males is stored.

WELSH*ENDANGERED***Local names or syn.:** Old Glamorgan (eng.)**Population data:** 312 ♀ • 89 ♂ • 1999**Population trend:** -**Range of uses:** -**UNITED KINGDOM**

The Welsh pig is found in England. This local breed is white in colour and has lop ears.

BERKSHIRE*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 296 ♀ • 92 ♂ • 1999**Population trend:** -**Range of uses:** meat, hobby**UNITED KINGDOM**

The Berkshire pig, found in England, is a local breed established around 1830 and is descended from Cantonese and Old English (around 1830) with some contribution from Neapolitan (1830) breeds. These pigs are black in colour with white on their face, feet and tail-tip. They have erect ears.

BRITISH LOP*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 199 ♀ • 48 ♂ • 1999**Population trend:** -**Range of uses:** -**UNITED KINGDOM**

The British Lop is found in south-west England. It is an autochthonous breed.

BRITISH SADDLEBACK*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 352 ♀ • 67 ♂ • 1999**Population trend:** -**Range of uses:** meat, hobby**UNITED KINGDOM**

The British Saddleback pig, found in England, is a composite of local Essex and Wessex Saddleback breeds. The animals are black in colour with a white saddle and lop ears. This breed has a territorial instinct for outdoor farrowing.

GLOUCESTERSHIRE OLD SPOT*ENDANGERED-MAINTAINED***Local names or syn.:** Gloucester (eng.)**Population data:** 383 ♀ • 81 ♂ • 1999**Population trend:** -**Range of uses:** meat, general crossbreeding**UNITED KINGDOM**

The Gloucestershire Old Spot breed is found in England. These pigs are white with black spots and have lop ears. Adult males weigh on average 270 kg and females 218 kg with an average wither height of 101 cm and 88 cm respectively. This hardy, docile breed produces very good quality meat and sows are reported to have good maternal abilities. This breed has been listed as an endangered priority breed by the Rare Breeds Survival Trust. The semen of 5 males is stored.

LARGE BLACK*ENDANGERED-MAINTAINED*

Local names or syn.: Cornwall (eng.), Devon (eng.), Lop-Eared Black (eng.)

Population data: 244 ♀ • 58 ♂ • 1999

Population trend: -

Range of uses: meat, hobby

UNITED KINGDOM

The Large Black pig, found in England, is a composite of Small Suffolk, Black Dorset and Large Black (Devon/Cornwall) breeds. The animals are black in colour and have lop ears. Adult males weigh on average 306 kg and females 250 kg with an average wither height of 100 cm and 90 cm respectively. This docile and hardy breed produces very good quality meat and the sows are known to be good mothers. This breed has been listed as a critical priority breed by the Rare Breeds Survival Trust. The semen of 6 males is stored.

MIDDLE WHITE*ENDANGERED-MAINTAINED*

Local names or syn.: Coleshill (eng.), Middle White Yorkshire (eng.), Middle Yorkshire (eng.), Windsor (eng.)

Population data: 243 ♀ • 73 ♂ • 1999

Population trend: -

Range of uses: meat, socio-cultural

UNITED KINGDOM

The Middle White breed, found in England, is a composite of Large White and Small White and was established in 1850. The animals are white in colour and have erect ears. Adult males weigh on average 275 kg and females 225 kg with an average wither height of 90 cm and 80 cm respectively. It has been reported that these pigs produce very good quality meat. This breed has been listed as a critical priority breed by the Rare Breeds Survival Trust. The semen of 6 males is stored.

BORERAY*CRITICAL*

Local names or syn.: -

Population data: 74 ♀ • 10 ♂ • 1999

Population trend: -

Range of uses: -

UNITED KINGDOM

Population data for the Boreray breed excludes feral animals.

GALWAY*CRITICAL*

Local names or syn.: -

Population data: 94 ♀ • 14 ♂ • 1999

Population trend: -

Range of uses: -

UNITED KINGDOM

No further information available.

BRITISH FRIESLAND*ENDANGERED***UNITED KINGDOM**

No further information available.

Local names or syn.: -

Population data: 360 ♀ • 40 ♂ • 1999

Population trend: -

Range of uses: -

CHARMOISE*ENDANGERED***UNITED KINGDOM**

No further information available.

Local names or syn.: -

Population data: 240 ♀ • 27 ♂ • 1999

Population trend: -

Range of uses: -

EST À LAINE MÉRINO*ENDANGERED***UNITED KINGDOM**

The Est à laine Mérino was imported from France. The animals are white in colour. Adult males weigh on average 110 kg and females 80 kg with an average wither height of 90 cm and 80 cm respectively. All animals are polled. The breed is known for its tolerance of heat. A long breeding season is reported for the females. Of females, 100% are bred to males of the same breed.

Local names or syn.: Est à Laine Mérino (eng.)

Population data: 300 ♀ • 100 ♂ • 1997

Population trend: stable

Range of uses: wool, meat

ICELANDIC SHEEP*ENDANGERED***UNITED KINGDOM**

No further information available.

Local names or syn.: -

Population data: 208 ♀ • 50 ♂ • 1999

Population trend: -

Range of uses: -

LLANWENOG*ENDANGERED*

Local names or syn.: -

Population data: 1 000 ♀ • 300 ♂ • 1999

Population trend: -

Range of uses: -

UNITED KINGDOM

No further information available.

ROUGH FELL*ENDANGERED*

Local names or syn.: -

Population data: 10 ♂ • 1996

Population trend: stable

Range of uses: meat, wool

UNITED KINGDOM

The Rough Fell, an autochthonous local breed, is found in Kendal and Sedbergh, Cumbria. The animals are white with a black face and legs. Adult males weigh on average 77 kg and females 50 kg with an average wither height of 79 cm and 65 cm respectively. These sheep produce long, medium fibred wool and are known for their hardiness.

SOAY*ENDANGERED*

Local names or syn.: -

Population data: 689 ♀ • 76 ♂ • 1999

Population trend: -

Range of uses: meat, wool, hobby

UNITED KINGDOM

The Soay breed, found country-wide, is a very old, original indigenous breed. These sheep are brown (mouflon pattern) in colour and have a short tail. Adult males weigh on average 36 kg and females 25 kg. These sheep have medium fibred wool and produce lean meat. Females may be either polled or horned and males are always horned. The animals of this breed are reported to be resistant to foot rot caused by *Bacteroides* (Fusiformis) *nodosus*. Population data for these sheep exclude feral individuals. This breed has been listed as a vulnerable priority breed by the Rare Breeds Survival Trust.

TEESWATER*ENDANGERED*

Local names or syn.: -

Population data: 650 ♀ • 250 ♂ • 1999

Population trend: -

Range of uses: meat, wool

UNITED KINGDOM

The Teeswater breed is found mainly in northern England, Wales and the border region. It is an indigenous breed, native to Teesdale and was established in 1798. The sheep are white with a brown or blue face and legs. They have long, lustrous, fine fibred wool and all animals are polled. Adult males weigh on average 115 kg and females 86 kg with an average wither height of 86 cm and 78 cm respectively. This breed, which is known for its high prolificacy, has been listed as a minority breed by the Rare Breeds Survival Trust.

VENDEEN*ENDANGERED***Local names or syn.:** -**Population data:** 500 ♀ • 500 ♂ • 1997**Population trend:** stable**Range of uses:** meat, wool, sire line**UNITED KINGDOM**

The Vendeen breed, found country-wide, was imported from France in 1982. The animals are white in colour with a brown face and legs. Adult males weigh on average 105 kg and females 67 kg with an average wither height of 75 cm and 69 cm respectively. These sheep have fine fibred wool and all animals are polled. There are 500 females registered in the herd book, of which 100% are bred to males of the same breed.

ZWARTBLES*ENDANGERED***Local names or syn.:** -**Population data:** 783 ♀ • 166 ♂ • 1999**Population trend:** -**Range of uses:** -**UNITED KINGDOM**

No further information available.

CASTLEMILK MOORIT*ENDANGERED-MAINTAINED***Local names or syn.:** Castlemilk Shetland (eng.), Moorit Shetland (eng.)**Population data:** 439 ♀ • 32 ♂ • 1999**Population trend:** -**Range of uses:** hobby, wool, meat**UNITED KINGDOM**

The Castlemilk Moor breed is found in small flocks is well distributed through the country. It is a composite of Shetland, Manx Loghtan and Moufflon breeds, developed in the early 20th century. The animals are brown with a white belly (Moufflon pattern). Adult males weigh on average 55 kg and females 40 kg with an average wither height of 77 cm and 70 cm respectively. These sheep produce a special light brown, medium fibred wool. The breed is easy to manage. This breed has been listed as a critical priority breed by the Rare Breeds Survival Trust.

COTSWOLD*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 769 ♀ • 98 ♂ • 1999**Population trend:** -**Range of uses:** meat, wool, hobby**UNITED KINGDOM**

The Cotswold breed is found in Gloucestershire, southern England. This native fine wool breed has had some input from Leicester sheep, and from 1800 to 1980 the breed changed to become a longwool type. The animals are white in colour, producing coarse/carpet type wool. Adult males weigh on average 117 kg and females 80 kg with an average wither height of 83 cm and 75 cm respectively. All animals are polled. This breed has been listed as a vulnerable priority breed by the Rare Breeds Survival Trust. The semen of one male is stored.

LEICESTER LONGWOOL*ENDANGERED-MAINTAINED*

Local names or syn.: Bakewell Leicester, (eng.) Dishley Leicester (eng.), Improved Leicester (eng.), New Leicester (eng.), Leicester (eng.)

Population data: 521 ♀ • 86 ♂ • 1999

Population trend: -

Range of uses: meat, wool

UNITED KINGDOM

The Leicester Longwool breed, established in 1800, is found in eastern England. It is an indigenous original breed, descended from Dishley sheep. The animals are white in colour and have coarse/carpet type wool. Adult males weigh on average 112 kg and females 82 kg. All animals are polled. This breed has been listed as a vulnerable priority breed by the Rare Breeds Survival Trust.

LINCOLN LONGWOOL*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 924 ♀ • 84 ♂ • 1999

Population trend: -

Range of uses: meat, wool, hobby

UNITED KINGDOM

The Lincoln Longwool, found in Lincolnshire, is an indigenous longwool breed from eastern the United Kingdom, established in 1750. The animals are white in colour, have a blue or white face and coarse/carpet type wool. Adult males weigh on average 118 kg and females 85 kg with an average wither height of 89 cm and 80 cm respectively. All animals are polled. This very large sheep breed, which is adapted to the harsh local climate produces an extremely long, heavy fleece. This breed has been listed as a at risk priority breed by the Rare Breeds Survival Trust.

NORFOLK HORN*ENDANGERED-MAINTAINED*

Local names or syn.: Blackface (eng.), Norfolk Horned (eng.), Old Norfolk (eng.)

Population data: 807 ♀ • 66 ♂ • 1999

Population trend: -

Range of uses: meat, wool

UNITED KINGDOM

The Norfolk Horn breed is found in East Anglia. This indigenous breed is the parent of the Suffolk breed. The animals are white in colour with a black face and legs. Adult males weigh on average 90 kg and females 69 kg with an average wither height of 77 cm and 69 cm respectively. These sheep have medium fibred wool. This breed has been listed as a critical priority breed by the Rare Breeds Survival Trust.

PORTLAND*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 981 ♀ • 72 ♂ • 1999

Population trend: -

Range of uses: meat, hobby, wool

UNITED KINGDOM

The Portland, an indigenous breed established in 1800, is found in southern England. These sheep are red in colour and have medium fibred wool. On average, adult females weigh 40 kg. This breed is known for low fertility (maximum of 1 lamb) but the sheep breed all year round. This breed has been listed as a vulnerable priority breed by the Rare Breeds Survival Trust.

WHITEFACED WOODLAND*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** 948 ♀ • 76 ♂ • 1999**Population trend:** -**Range of uses:** meat, wool**UNITED KINGDOM**

The Whitefaced Woodland breed is found in the Pennine Mountains. It is a composite of native Pennines, Cheviot and Merino breeds. These sheep are white in colour and have coarse/carpet type wool. Adult males weigh on average 89 kg and females 61 kg. The breed is adapted to the local mountainous environment.

GOLD LEGBAR*CRITICAL***Local names or syn.:** Cream Legbar (eng.), Welbar (eng.), Rhodebar (eng.)**Population data:** < 100 • 1996**Population trend:** stable**Range of uses:** fancy, eggs**UNITED KINGDOM**

The Gold Legbar, found in Shropshire, was created by Cambridge University, the United Kingdom. These chickens have barred, sex-linked patterns within the feathers, white skin and yellow shanks and feet. The comb is of single type and egg shells may be white in colour. Adult males weigh on average 3.1 kg and females 2.3 kg. The Wernlas Collection Shropshire is developing its own strain of Gold Legbar.

IXWORTH*CRITICAL***Local names or syn.:** -**Population data:** < 100 • 1996**Population trend:** decreasing**Range of uses:** meat, fancy**UNITED KINGDOM**

The Ixworth breed, created by the breeder R. Apleyard, Ixworth, Suffolk, is found in Shropshire. These chickens have self-white coloured plumage with no special pattern within the feathers and have white skin, shanks and feet. The comb is of pea type and egg shells are tinted in colour. Adult males weigh on average 3.9 kg and females 3 kg.

MARSH DAISY*CRITICAL***Local names or syn.:** -**Population data:** < 50 • 1996**Population trend:** decreasing**Range of uses:** eggs, fancy**UNITED KINGDOM**

The Marsh Daisy breed is found in Shropshire and has white skin and green shanks and feet. The comb is of rose type and egg shells are tinted in colour. Adult males weigh on average 2.7 kg and females 2.3 kg.

BUFF ORPINGTON*ENDANGERED*

Local names or syn.: Black Orpington (eng.), Blue Orpington (eng.), White Orpington (eng.)

Population data: 100 - 1 000 • 1996

Population trend: increasing

Range of uses: eggs, meat, fancy

UNITED KINGDOM

The Buff Orpington breed, which originated in Kent, is found in Shropshire. These chickens have no special pattern within the feathers and have white skin, shanks and feet. The comb is of single type and egg shells are tinted in colour. The breed has short, strong legs. Adult males weigh on average 4.3 kg and females 3.2 kg.

BUFF SUSSEX*ENDANGERED*

Local names or syn.: -

Population data: 100 - 1 000 • 1996

Population trend: increasing

Range of uses: meat, eggs, fancy

UNITED KINGDOM

The Buff Sussex breed is currently found in Shropshire but originated in Sussex. These chickens have white plumage, skin, shanks and feet. The comb is of single type and egg shells are be tinted in colour.

CORNISH GAME*ENDANGERED*

Local names or syn.: Indian Game (eng.), Jubilee Game (eng.)

Population data: 500 - 1 000 • 1994

Population trend: stable

Range of uses: meat, fancy

UNITED KINGDOM

The Cornish Game (Large) was imported from India to Cornwall by early traders and was the foundation of the modern broiler chicken. The comb is of pea type and egg shells are tinted in colour. They are broad breasted with thick, short legs. Adult males weigh on average 3.7 kg and females 3.7 kg. This breed is considered as a heavy breed with poor liveability. It is not kept for production purpose, but as a showbreed for exhibitions. The stock can be classified as industrial.

CROAD LANGSHAN*ENDANGERED*

Local names or syn.: -

Population data: 800 • 650 ♀ • 1993

Population trend: increasing

Range of uses: fancy, eggs, meat

UNITED KINGDOM

The Croad Langshan was imported by Major Croad in 1904 from Langshan, China. They have self-black (75%) or self-white (25%) coloured plumage. The comb is of single type and egg shells are tinted in colour. They have feathered legs. Adult males weigh on average 4.5 kg and females 3.6 kg. This breed is adapted to numerous different environments and is a hardy, heavy breed. The numbers are increasing due to the Rare Breeds Survival Trust Poultry Support Programme and an active club. A strain unbroken from the original importation exists.

DERBYSHIRE REDCAP*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1996**Population trend:** stable**Range of uses:** meat, eggs, fancy**UNITED KINGDOM**

The Derbyshire Redcap is a farmyard fowl from Derbyshire, the United Kingdom. These chickens have spangled patterns within the feathers, white skin, a rose type comb and egg shells that are white in colour. For exhibition purposes they have been bred for massive cap shaped combs. Adult males weigh on average 2.7 kg and females 2.3 kg. A generous amount of breast meat and poor fertility is reported for this breed. There may be a link in this respect to comb size. This is originally a very hardy farmyard bird and is a light breed.

DORKING SILVER-GREY*ENDANGERED***Local names or syn.:** Silver-Grey Surrey Fowl (eng.)**Population data:** 100 - 1 000 • 1996**Population trend:** increasing**Range of uses:** meat, eggs, fancy**UNITED KINGDOM**

The Dorking Silver-Grey was described by a Roman writer in AD 47 and without doubt was found in England by the Romans under Julius Caesar. They have silver-columbian coloured plumage. They have white skin and the shanks and feet are white. The comb may be of single or rose type and egg shells may be white or tinted in colour. They have five toes. Adult males weigh on average 5.3 kg and females 4.1 kg. This is a heavy breed. Essentially it is a table bird also used for crossing purposes. It is difficult to find examples of birds retaining true utility characteristics.

INDIAN GAME*ENDANGERED***Local names or syn.:** Cornish Game (eng.)**Population data:** 100 - 1 000 • 1996**Population trend:** stable**Range of uses:** meat, fancy**UNITED KINGDOM**

The Indian Game breed originated in Cornwall and is found in Shropshire. These chickens have laced patterns within the feathers and yellow skin, shanks and feet. The comb is of pea type and egg shells are tinted in colour. Adult males weigh on average 3.6 kg and females 2.7 kg. This breed, which can be classified as indigenous, has a poor reproductive ability.

OLD ENGLISH PHEASANT FOWL*ENDANGERED***Local names or syn.:** Yorkshire Pheasant (prior to 1914) (eng.), Old Fashioned Pheasant (eng.)**Population data:** 100 - 1 000 • 1996**Population trend:** stable**Range of uses:** eggs, fancy**UNITED KINGDOM**

The Old English Pheasant Fowl is found in Shropshire. These birds have spangled patterns within the feathers, white skin and the shanks and feet are blue. The comb may be of rose type and egg shells are white in colour. Adult males weigh on average 2.9 kg and females 2.3 kg. This is considered a light breed.

SCOTS GREY*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1996**Population trend:** stable**Range of uses:** eggs, fancy**UNITED KINGDOM**

The Scots Grey has been known as a farmyard fowl for about 200 years. The birds have cuckoo or barred, autosomal patterns within the feathers. They have white skin and the shanks and feet may be white or various colours. The comb is of single type and egg shells are white in colour. Adult males weigh on average 3.2 kg and females 2.3 kg. This is a light breed. A small nucleus flock is soon to be evaluated as part of the Rare Breeds Survival Trust Poultry Support Programme.

SEBRIGHT BANTAMS*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1996**Population trend:** increasing**Range of uses:** fancy**UNITED KINGDOM**

The Sebright Bantams breed, originating in the West Midlands, is found in Shropshire. These dwarf chickens have laced patterns within the feathers and have white skin and blue shanks and feet. The comb is of rose type and egg shells may be cream white to pale greyish in colour. Adult males weigh on average 0.6 kg and females 0.5 kg.

SPECKLED SUSSEX*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1996**Population trend:** increasing**Range of uses:** meat, eggs, fancy**UNITED KINGDOM**

The Speckled Sussex breed, originating from Sussex, is found in Shropshire. These chickens have white skin, shanks and feet. The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 4.1 kg and females 3.2 kg.

DORKING*ENDANGERED-MAINTAINED***Local names or syn.:** Surrey Fowl (eng.)**Population data:** 500 • 400 ♀ • 1993**Population trend:** -**Range of uses:** fancy, eggs, meat**UNITED KINGDOM**

The Dorking was described by a Roman writer in AD 47 and was without doubt found in England by the Romans under Julius Caesar. They have red-brown or silver-columbian coloured plumage. The comb may be of single or rose type and egg shells are tinted in colour. They have five spurs. Adult males weigh on average 4.5 kg and females 3.6 kg. This is a heavy breed. Essentially it is a table bird also used for crossing purposes. It is difficult to find examples of birds retaining true utility characteristics. This breed is supported by the Rare Breeds Survival Trust Poultry Support Programme.

DORKING DARK*ENDANGERED-MAINTAINED***Local names or syn.:** Dark Surrey Fowl (eng.)**Population data:** < 500 • 1993**Population trend:** stable**Range of uses:** fancy, eggs, meat**UNITED KINGDOM**

The Dorking Dark was described by a Roman writer in AD 47 and without doubt was found in England by the Romans under Julius Caesar. The comb may be of rose or single type and egg shells are tinted in colour. They have five spurs and are dark in colour. Adult males weigh on average 4.5 kg and females 3.6 kg. This is a heavy breed. Essentially it is a table bird also used for crossing purposes. It is difficult to find examples retaining true utility characteristics. This breed is supported by the Rare Breeds Survival Trust Poultry Support Programme.

DORKING RED*ENDANGERED-MAINTAINED***Local names or syn.:** Red Surrey Fowl (eng.)**Population data:** < 500 • 1993**Population trend:** decreasing**Range of uses:** fancy, eggs, meat**UNITED KINGDOM**

The Dorking Red was described by a Roman writer in AD 47 and without doubt was found in England by the Romans under Julius Caesar. They have red coloured plumage. The comb may be of rose or single type and egg shells are tinted in colour. They have five spurs. Adult males weigh on average 4.5 kg and females 3.6 kg. This is a heavy breed. Essentially it is a table bird also used for crossing purposes. It is difficult to find examples retaining true utility characteristics. This breed is supported by the Rare Breeds Survival Trust Poultry Support Programme.

LANGSHAN BLACK CROAD*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** < 800 • 1993**Population trend:** stable**Range of uses:** fancy, eggs, meat**UNITED KINGDOM**

The Langshan Black Croad was imported by Major Croad in 1904 from Langshan, China. They have self-black coloured plumage. The comb is of single type and egg shells are tinted in colour. They have feathered legs. Adult males weigh on average 4.5 kg and females 3.6 kg. This heavy and hardy breed is a good table bird and a good layer. The animals thrive in most conditions. Population numbers are increasing due to the Rare Breeds Survival Trust Poultry Support Programme and active Club. They have a strain unbroken from the original importation.

LANGSHAN WHITE CROAD*ENDANGERED-MAINTAINED***Local names or syn.:** -**Population data:** < 800 • 1993**Population trend:** increasing**Range of uses:** fancy, eggs, meat**UNITED KINGDOM**

The Langshan White Croad was imported by Major Croad in 1904 from Langshan, China. They have self-white coloured plumage. The comb may be of single type and egg shells are tinted in colour. They have feathered legs. Adult males weigh on average 4.5 kg and females 3.6 kg. This heavy and hardy breed is a good table bird and a good layer. The animals thrive in most conditions. Population numbers are increasing due to the Rare Breeds Survival Trust Poultry Support Programme and active Club. They have a strain unbroken from the original importation.

SCOTS DUMPY*ENDANGERED-MAINTAINED***Local names or syn.:** Crawlers, Creepers, Bakies**Population data:** 900 - 1 100 • 750 ♀ • 250 ♂ • 1993**Population trend:** increasing**Range of uses:** fancy, eggs, meat**UNITED KINGDOM**

The Scots Dumpy was described as early as 1678 and raised on farm yards in Scotland. They have self-black (42%) or self-white (7%) coloured plumage with barred, autosomal (43%) patterns within the feathers. The comb may be of single or rose type and egg shells are white in colour. They demonstrate some dwarfism and part of the population is red-golden-brown in colour. Adults weigh on average 2.3 kg. The animals are reported to show resistance to Marek's disease. These very hardy animals are considered as a light breed. Furthermore, they were always known as a docile breed. The breed benefits from an active Club and support from the Rare Breeds Survival Trust Poultry Support Programme.

NORFOLK BLACK*CRITICAL***Local names or syn.:** -**Population data:** 120 • 100 ♀ • 20 ♂ • 1996**Population trend:** -**Range of uses:** -**UNITED KINGDOM**

The Norfolk Black turkey, found in Essex, originated in Norfolk and Essex. The breed's egg shells may be cream white to pale greyish in colour. Adult males weigh on average 8.5 kg and females 5.5 kg. Birds of this species are mated naturally.

NORFOLK BRONZE*ENDANGERED***Local names or syn.:** -**Population data:** > 500 • 400 ♀ • 80 ♂ • 1996**Population trend:** -**Range of uses:** -**UNITED KINGDOM**

The Norfolk Bronze turkey is found in Essex.

BUŠA*CRITICAL***Local names or syn.:** Red Metohian**Population data:** 93 • 57 ♀ • 2 ♂ • 1999**Population trend:** -**Range of uses:** milk, meat, draught power**YUGOSLAVIA**

Buša cattle are an indigenous native breed and may be grey, yellow, red, or black in colour. Adult males weigh on average 400 kg and females 300 kg with an average wither height of 115 cm and 110 cm respectively. These cattle have fine, upward and forward curving horns. This breed is known for maturing late, being adaptable and hardy, for having a strong constitution and is reported to have an unspecified disease resistance.

KOLUBARSKA*CRITICAL*

Local names or syn.: Kolubara (yug.),
Colubarska (yug.),
Colubara (yug.)

Population data: < 100 • 1993

Population trend: decreasing

Range of uses: draught power, meat, milk

YUGOSLAVIA

Kolubarska cattle are a composite of Podolyan and Buša breeds. The animals are grey in colour and males are darker than the females. Adult males weigh on average 550 kg and females 400 kg with an average wither height of 127 cm and 124 cm respectively. This breed is adapted to harsh field conditions and is reported to have an unspecified disease resistance. This is a typical draft animal, known for its strong constitution, hardiness and good adaptability.

SIVA RASA*CRITICAL*

Local names or syn.: Yugoslav Grey (eng.)

Population data: 28 250 • 58 ♀ • 28 ♂ • 1993

Population trend: stable

Range of uses: milk, meat, draught power

YUGOSLAVIA

The Siva rasa breed is a composite of Wipptaler and Oberinntaler breeds. The animals are grey in colour and males have a white line on their back. Adult males weigh on average 700 kg and females 450 kg with an average wither height of 130 cm and 125 cm respectively. The breed is adapted to the local mountainous environment and is easy to handle. The females are known for ease of calving and for having a high calving rate.

YUGOSLAV PODOLIAN*CRITICAL*

Local names or syn.: Slavonian podolian (yug.),
Podolska (yug.), Sivo-stepska (yug.),
Yugoslav Steppe (eng.)

Population data: 95 • 70 ♀ • 5 ♂ • 1999

Population trend: -

Range of uses: draught power, meat, milk

YUGOSLAVIA

The Yugoslav podolian horse is an indigenous native breed. The animals are grey, although males are darker and calves are reddish in colour. Adult males weigh on average 800 kg and females 500 kg with an average wither height of 150 cm and 135 cm respectively. These cattle have huge, long horns (up to 100 cm in length). The breed is known for its adaptability to extreme conditions and is reported to have an unspecified disease resistance. This is a typical draft animal, known for its strong constitution and hardiness.

MRKO-SMEDA RASA*ENDANGERED*

Local names or syn.: Yugoslav Brown (eng.)

Population data: 14 050 • 727 ♀ • 112 ♂ • 1993

Population trend: stable

Range of uses: milk, meat, draught power

YUGOSLAVIA

Mrko-smeda rasa cattle are brown in colour. Adult males weigh on average 800 kg and females 500 kg with an average wither height of 140 cm and 130 cm respectively. The breed is adapted to the local mountainous environment and is known for being easy to handle. The females are known for calving ease and for having a good calving rate.

ALPINE*ENDANGERED***Local names or syn.:** -**Population data:** 475 • 450 ♀ • 25 ♂ • 1993**Population trend:** increasing**Range of uses:** milk, meat**YUGOSLAVIA**

The Alpine breed was imported from France. These goats are brown in colour and adapted to living in high mountains. Adult males weigh on average 75 kg and females 60 kg with an average wither height of 85 cm and 75 cm respectively.

DOMACA SANSKA*ENDANGERED***Local names or syn.:** Yugoslav Saanen (eng.)**Population data:** 950 ♀ • 45 ♂ • 1993**Population trend:** increasing**Range of uses:** milk, meat**YUGOSLAVIA**

The Domaca Sanska goat is a composite of native breeds and Saanen from Switzerland and Bulgaria. The animals are white in colour and all animals are polled. Adult males weigh on average 55 kg and females 45 kg with an average wither height of 75 cm and 67 cm respectively. The breed is adapted to high mountain conditions. The females are known for having good udders.

ARAPSKA RASA*CRITICAL***Local names or syn.:** Arab (eng.)**Population data:** 25 • 20 ♀ • 5 ♂ • 1993**Population trend:** decreasing**Range of uses:** sport, racing**YUGOSLAVIA**

Arapska Rasa horses are grey, bay, brown or occasionally black in colour, often with white markings. Adult males weigh on average 400 kg and females 350 kg with an average wither height of 153 cm and 148 cm respectively.

DOMACI BRDSKI KONJ*CRITICAL***Local names or syn.:** Yugoslav Mountain Pony (eng.)**Population data:** 12 • 6 ♀ • 2 ♂ • 1999**Population trend:** -**Range of uses:** pack / baggage, draught power**YUGOSLAVIA**

The Domaci Brdski Konj is a composite of a native and Arab breed. The horses may be bay (45%), black (22%), grey (19%), light chestnut (13%) or dun (1%) in colour. They have a straight head profile. Adult males weigh on average 380 kg and females 327 kg with an average wither height of 130 cm and 127 cm respectively. This horse is well adapted to extreme conditions and is a good mountain horse, hardy and docile.

NONIUS*CRITICAL***Local names or syn.:** -**Population data:** 64 • 19 ♀ • 23 ♂ • 1999**Population trend:** -**Range of uses:** draught power**YUGOSLAVIA**

The Nonius breed is a composite of Anglo-Norman, English Thoroughbred, Arab, Lipizzan and Kladruby breeds. The animals are bay, black or light chestnut in colour with a convex head profile. Adult males weigh on average 600 kg and females 550 kg with an average wither height of 170 cm and 165 cm respectively. This breed is known as a good work horse due to its draught power, stamina and handling ease.

YUGOSLAV DRAFT*CRITICAL***Local names or syn.:** Domac Hladnokrvan (yug.), Croatian Coldblood (eng.), Yugoslavian Draft (eng.)**Population data:** 100 ♀ • 55 ♂ • 1986**Population trend:** stable**Range of uses:** draught power, meat**YUGOSLAVIA**

The Yugoslav Draft horse is descended from Belgian and Pinzgau breeds and was established around 1820. The horses may be chestnut or brown in colour. Adult males weigh on average 700 kg and females 625 kg with an average wither height of 165 cm and 160 cm respectively. There are 45 females registered in the herd book, of which 80% are bred to males of the same breed.

ENGLESKI PUNOKRVNJAK*ENDANGERED***Local names or syn.:** Thoroughbred (eng.)**Population data:** 193 • 146 ♀ • 47 ♂ • 1993**Population trend:** increasing**Range of uses:** sport, racing**YUGOSLAVIA**

The Engleski Punokrvnjak breed was imported from the United Kingdom and the United States of America. These horses may be bay (60%), light chestnut (30%), black (9%) or grey (1%) in colour and often have white markings. Adult males weigh on average 550 kg and females 500 kg with an average wither height of 170 cm and 167 cm respectively.

JUGOSLOVENSKI KASAC*ENDANGERED***Local names or syn.:** Yugoslav Trotter (eng.)**Population data:** 530 • 500 ♀ • 30 ♂ • 1993**Population trend:** increasing**Range of uses:** racing, sport, draught power**YUGOSLAVIA**

The Jugoslovenski Kasac breed is a composite of Anglo-Arab and American Trotter. The animals are bay coloured and often have white markings. Adult males weigh on average 500 kg and females 400 kg with an average wither height of 167 cm and 165 cm respectively. This breed is known for its draught power and trotting speed.

LIPICANSKA RASA*ENDANGERED***Local names or syn.:** Lipizzan (fr.), Lipitsa (eng.)**Population data:** 600 • 450 ♀ • 150 ♂ • 1993**Population trend:** stable**Range of uses:** sport, draught power, carting**YUGOSLAVIA**

The Lipicanska Rasa breed is a composite of Spanish and Neapolitan breeds with some Arab blood. Foals are born dark or black and become white at 8 years of age. These horses have a swan neck, silky mane and tail. Adult males weigh on average 500 kg and females 450 kg with an average wither height of 165 cm and 160 cm respectively. This breed is known for docility, gentleness, intelligence, being good in dressage and for having a high action.

CRNA SLAVONSKA*CRITICAL***Local names or syn.:** Black Slavonian (eng.)**Population data:** < 100 • 1993**Population trend:** decreasing**Range of uses:** meat, lard**YUGOSLAVIA**

The Crna Slavonka breed is a composite of Mangalitsa, Berkshire and Poland China breeds. The animals are black in colour and have lop ears. Adult males weigh on average 180 kg and females 150 kg with an average wither height of 79 cm and 70 cm respectively. This breed produces good quality meat and is reported to have an unspecified disease resistance. These pigs are adapted to adverse management and feeding conditions and are known for soundness, vitality and longevity.

MANGULICA*CRITICAL***Local names or syn.:** Mangalitsa (eng.)**Population data:** 55 • 19 ♀ • 9 ♂ • 1999**Population trend:** -**Range of uses:** lard, meat**YUGOSLAVIA**

There are two strains of Mangulica pig: White Mangalitsa (Beli Soj Mangulice) and Sirmium Mangalitsa (Lasasti Soj Mangulice). The animals are white in colour with a reddish brown-silvery belly and have curly hair and lop ears. Adult males weigh on average 180 kg and females 150 kg with an average wither height of 76 cm and 68 cm respectively. The breed is adapted to a continental climate (dry and hot summers, severe winter) and produces good quality meat and fat. This breed is known for maturing late and for its soundness, vitality, resistance and longevity. Population data is comprised from figures from White and Weasel Mangalitsa strains.

SUBOTICKA MANGULICA*CRITICAL***Local names or syn.:** Bikovacka Mangulica (jug.), Suboticka Mangalitsa (eng.)**Population data:** < 100 • 1993**Population trend:** decreasing**Range of uses:** lard, meat**YUGOSLAVIA**

The Suboticka Mangulica breed is a composite of Mangalitsa, Lincoln and Large White breeds. The animals are white in colour and have curly hair and lop ears. Adult males weigh on average 180 kg and females 150 kg with an average wither height of 78 cm and 69 cm respectively. The breed is adapted to hot, dry summers and severe winters and produces good quality fat and meat. This breed is known for its soundness, vitality, resistance and longevity.

BELGIJISKI LANDRAS*ENDANGERED***Local names or syn.:** Belgian Landrace (eng.)**Population data:** 1 900 • 225 ♀ • 18 ♂ • 1993**Population trend:** decreasing**Range of uses:** meat**YUGOSLAVIA**

The Belgijiski Landras breed was imported from Belgium. These pigs are white in colour and have lop ears. Adult males weigh on average 275 kg and females 240 kg with an average wither height of 93 cm and 82 cm respectively. This muscular breed is adapted to living in large units and is reported to produce carcasses with a high lean meat content. Of females, 90% are bred to males of the same breed.

DUROC*ENDANGERED***Local names or syn.:** -**Population data:** > 3 500 • 480 ♀ • 84 ♂ • 1993**Population trend:** increasing**Range of uses:** meat**YUGOSLAVIA**

The Duroc breed was imported from England. These pigs may be red or brown in colour and have short, lop ears. Adult males weigh on average 290 kg and females 240 kg with an average wither height of 98 cm and 88 cm respectively. High intramuscular fat content is reported for this breed. This breed is known for its rapid growth, soundness and longevity. Of females, 70% are bred to males of the same breed.

HEMPIR*ENDANGERED***Local names or syn.:** Hampshire (eng.)**Population data:** 2 600 • 219 ♀ • 110 ♂ • 1993**Population trend:** increasing**Range of uses:** meat**YUGOSLAVIA**

The Hempir breed was imported from England. These pigs are black with a white saddle and white fore legs and they have erect ears. Adult males weigh on average 280 kg and females 230 kg with an average wither height of 96 cm and 84 cm respectively. This breed is muscular and produces good quality, lean meat. Of females, 90% are bred to males of the same breed.

MORAVKA*ENDANGERED***Local names or syn.:** Morava (eng.)**Population data:** 1 000 • 1993**Population trend:** decreasing**Range of uses:** meat, lard**YUGOSLAVIA**

The Moravka breed, found in Srbija, is a composite of Umandinka, Mangalitsa, Berkshire and Yorkshire breeds. The animals are black in colour and have lop ears. Adult males weigh on average 135 kg and females 120 kg with an average wither height of 71 cm and 65 cm respectively. These pigs are adapted to harsh field conditions and are known for their soundness, vitality, resistance, longevity as well as their adaptation to adverse management conditions and feeding. The breed produces good quality meat.

NEMACKI LANDRAS*ENDANGERED***Local names or syn.:** German Landrace (eng.)**Population data:** 3 100 • 340 ♀ • 52 ♂ • 1993**Population trend:** increasing**Range of uses:** meat**YUGOSLAVIA**

The Nemacki Landras pig was imported from Germany. The animals are white in colour and have lop ears. Adult males weigh on average 300 kg and females 250 kg with an average wither height of 97 cm and 86 cm respectively. This breed is known for its rapid growth and muscularity. Of females, 90% are bred to males of the same breed.

RESAVKA*ENDANGERED***Local names or syn.:** Resava (eng.)**Population data:** < 1 000 • 1993**Population trend:** decreasing**Range of uses:** meat, lard**YUGOSLAVIA**

The Resavka breed is a composite of Šumadinka and Berkshire breeds. The animals white with black spots and have lop ears. Adult males weigh on average 160 kg and females 140 kg with an average wither height of 70 cm and 65 cm respectively. This breed is produces good quality meat. These pigs are known for their soundness, vitality, resistance and longevity. The animals are adapted to adverse management and feeding conditions.

YUGOSLAV SPOTTED*ENDANGERED***Local names or syn.:** Oplemenjena šarena Mesnata Rasa (yug.)**Population data:** 350 • 150 ♀ • 15 ♂ • 1993**Population trend:** increasing**Range of uses:** meat**YUGOSLAVIA**

The Yugoslav Spotted pig was developed from Mangalitsa, Large White, Swedish, Dutch Landrace and Pietrain breeds. The animals are white with black spots and have lop ears. Adult males weigh on average 250 kg and females 200 kg with an average wither height of 89 cm and 78 cm respectively. This breed is known for its soundness, vitality and resistance. Of females, 100% are bred to males of the same breed.

VITOROGA ZACKEL*CRITICAL***Local names or syn.:** -**Population data:** 6 • 3 ♀ • 3 ♂ • 1999**Population trend:** -**Range of uses:** -**YUGOSLAVIA**

No further information available.

PIROTSKA*CRITICAL-MAINTAINED***Local names or syn.:** Eastern Serbia (eng.)**Population data:** 96 • 92 ♀ • 3 ♂ • 1999**Population trend:** -**Range of uses:** -**YUGOSLAVIA**

The Pirotska breed, found in central and southern Yugoslavia, is an indigenous native breed of the Balkans. The sheep may be white, black or grey in colour with black spots on their face and legs. Males and females may be either polled or horned. Adult males weigh on average 60 kg and females 45 kg with an average wither height of 65 cm and 60 cm respectively. These sheep have a small body and coarse/carpet type wool.

SVRLJIŠKA*CRITICAL-MAINTAINED***Local names or syn.:** Yugoslav Zackel (eng.), Pramenka**Population data:** 131 • 95 ♀ • 5 ♂ • 1999**Population trend:** -**Range of uses:** -**YUGOSLAVIA**

The Svrljiška breed, found in eastern Serbia, is an indigenous native breed of the Balkans. The animals may be white, black or grey in colour with black spots on their face and legs. Males and females may be either polled or have large horns. Their head is naked with some wool on the forehead. Adult males weigh on average 60 kg and females 45 kg with an average wither height of 65 cm and 60 cm respectively. These sheep have coarse/carpet type wool.

IL D'FRANS*ENDANGERED***Local names or syn.:** Ile-de-France (fr.)**Population data:** > 794 • 710 ♀ • 84 ♂ • 1993**Population trend:** increasing**Range of uses:** meat, wool, general crossbreeding**YUGOSLAVIA**

The Il d'Frans breed was imported from France. The animals are white in colour. Adult males weigh on average 83 kg and females 65 kg with an average wither height of 74 cm and 68 cm respectively. These sheep have coarse/carpet type wool. All animals are polled.

BARDOKA*ENDANGERED-MAINTAINED***Local names or syn.:** Yugoslav Zackel (eng.), Pramenka, White Methonian (eng.)**Population data:** 290 • 284 ♀ • 6 ♂ • 1999**Population trend:** -**Range of uses:** -**YUGOSLAVIA**

The Bardoka breed, found in Methonia and Montenegro, is an indigenous native breed of the Balkans. The sheep may be white, black or grey in colour with black spots on their face and legs. They have a naked head with some wool on the forehead. Males and females may be either polled or horned. Adult males weigh on average 60 kg and females 45 kg with an average wither height of 65 cm and 60 cm respectively. These sheep have coarse/carpet type wool.

TSIGAI*ENDANGERED-MAINTAINED*

Local names or syn.: -

Population data: 402 • 330 ♀ • 19 ♂ • 1999

Population trend: -

Range of uses: milk, meat, wool

YUGOSLAVIA

Tsigai sheep, of which there are two varieties (Cokanski and Pvinicki), are found in Vojvodina, northern Serbia having been originally imported from Romania. The animals are white with a black head and legs and have semi- or lop ears. Adult males weigh on average 85 kg and females 60 kg with an average wither height of 75 cm and 67 cm respectively. These sheep have coarse/carpet type wool. Males and females may be either polled or horned.

NAKED NECK*CRITICAL*

Local names or syn.: -

Population data: 115 • 110 ♀ • 5 ♂ • 1999

Population trend: -

Range of uses: -

YUGOSLAVIA

No further information available.

SVRLJIG BLACK*CRITICAL*

Local names or syn.: -

Population data: 115 • 105 ♀ • 10 ♂ • 1999

Population trend: -

Range of uses: -

YUGOSLAVIA

No further information available.

SOMBOR CRESTED*ENDANGERED*

Local names or syn.: -

Population data: 262 • 242 ♀ • 20 ♂ • 1999

Population trend: -

Range of uses: -

YUGOSLAVIA

No further information available.

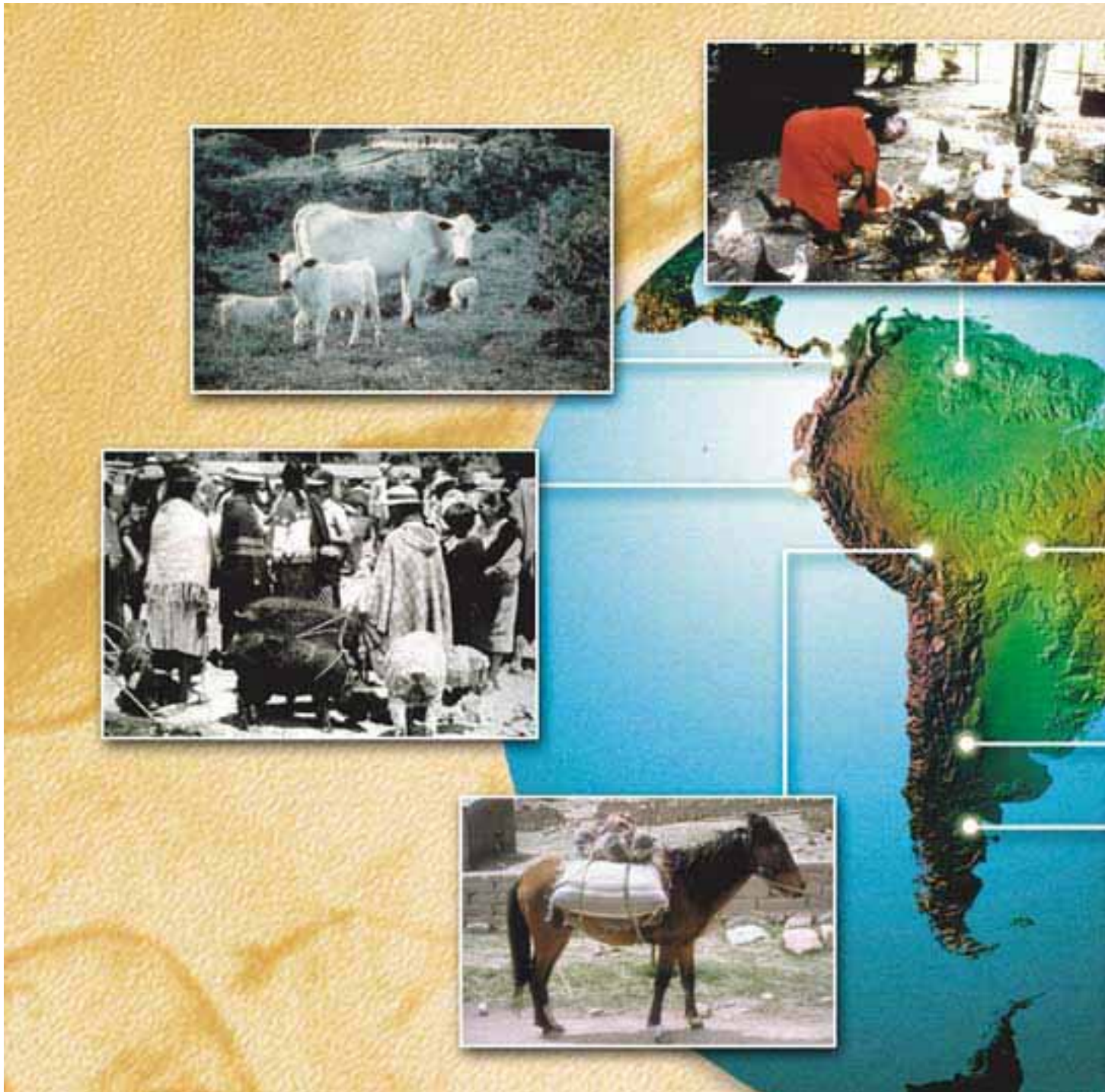
The Latin America and the Caribbean region, which includes 47 countries, dependent territories, overseas departments, entities and areas (listed in table 2.2.5.1), contains an immense variety of wild plant and animal species. Consequently, this area has been the focus of numerous conservation efforts directed at preserving indigenous varieties. In terms of agriculture, the region differs from others in several important aspects: large tracts of land remain in their original state; the region has large populations of domestic animals; and is characterized by a very skewed distribution of resources, with most agricultural land in relatively large units. Most countries in the region are heavily urbanized, with an estimated 75 percent of the human population living in cities. Due to increasing urbanization, this population is expected to increase by 50 percent in the next decade.

In 1998 the total human population size of the Latin America and the Caribbean region was estimated as 504 million, of which 23 percent were directly dependent on agriculture as a source of income. A seven percent increase in population size, from 469 million in 1994, has not been reflected in the agricultural sector, the proportion of which decreased in that time by one percent. The proportion of the population involved in agriculture is much lower than in other developing regions yet this sector accounts for a considerable proportion of the region's gross domestic product, and livestock make up almost a third of this. Meat produced from beef cattle accounts for the largest share of livestock production, almost 20 percent of the world's total.

Unlike domesticated plants, most domesticated livestock species were introduced to the region by successive waves of early exploration and colonization. Few domesticated animals existed in pre-colonial times, although indigenous peoples did domesticate a number of species. These include guinea pigs, dogs, llamas, alpacas, muscovy ducks, turkeys and black chickens. This lack of domestic animal diversity in this region prior to European settlement is indicated in a letter sent to the King of Portugal by Pero Vaz de Caminha, the official scribe of the first European expedition to Brazil 500 years ago. He described the land by saying:

"The people of this place do not plough, nor raise animals, nor are there oxen, nor cows, nor goats, nor sheep, nor hens, nor other animal species which would normally share man's life. These people do not eat, if not for this yam, of which there are lots, and these seeds and fruits, that the land and the trees throw from themselves, and with this, they walk so strong and so vigorous that we are not as such, with all the wheat and vegetables that we eat".

Due to the lack of extensive trading links with other regions, the few pre-colonial domesticated species, although of regional importance, have tended to remain in



from top left clockwise:

- Blanco Orejinegro cattle in Colombia are known for their longevity and prolificity.
- Owner feeding Poule Creole chickens (endangered) and other fowl in French Guiana.
- The Repartida breed is one of Brazil's four local goat breeds.
- Pantaneiro horses are adapted to the harsh, flooded environment of the Pantanal region of Brazil, and are reported to be resistant to Equine Infectious Anaemia.

RANGE OF PRODUCTION ENVIRONMENTS IN THE LATIN AMERICA



- *Brazilian Caracu cattle are reported to be heat resistant.*
- *Sheep in La Puna, Jujuy Province, Argentina, are adapted to withstand the harsh, high altitude environment.*
- *Group of young, male Argentinian Llamas.*
- *The Bolivian Sunicho horse, here used as a pack animal, is well adapted to high altitudes - critical.*
- *Indigenous pigs - market scene in Guaranda-Bolivar, Ecuador.*

TABLE 2.2.5.1

THE 47 COUNTRIES, DEPENDENT TERRITORIES, OVERSEAS DEPARTMENTS, ENTITIES AND AREAS IN THE LATIN AMERICA AND THE CARIBBEAN REGION

ANGUILLA	•	DOMINICAN REPUBLIC	•	NICARAGUA
ANTIGUA AND BARBUDA	•	ECUADOR	•	PANAMA
ARGENTINA	•	EL SALVADOR	•	PARAGUAY
ARUBA	•	FALKLAND ISLANDS (MALVINAS)*	•	PERU
BAHAMAS	•	FRENCH GUIANA	•	PUERTO RICO
BARBADOS	•	GRENADA	•	SAINT KITTS AND NEVIS
BELIZE	•	GUADELOUPE	•	SAINT LUCIA
BERMUDA	•	GUATEMALA	•	SAINT VINCENT AND THE
BOLIVIA	•	GUYANA	•	GRENADINES
BRAZIL	•	HAITI	•	SURINAME
BRITISH VIRGIN ISLANDS	•	HONDURAS	•	TRINIDAD AND TOBAGO
CAYMAN ISLANDS	•	JAMAICA	•	TURKS & CAICOS ISLANDS
CHILE	•	MARTINIQUE	•	URUGUAY
COLOMBIA	•	MEXICO	•	US VIRGIN ISLANDS
COSTA RICA	•	MONTSERRAT	•	VENEZUELA
CUBA	•	NETHERLANDS ANTILLES (CURAÇAO,	•	
DOMINICA	•	•	•	
		BONAIRE, ETC.)		

* A dispute exists between the Government of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

their native environments and, apart from turkeys and muscovy ducks, have not been extensively used in other regions of the world. This situation is changing as the potential of species such as llamas and alpacas is realized.

Most livestock introductions occurred during the first 50 years of colonization. This process, which began almost 450 years ago with the Spanish and Portuguese settlements, established populations of most of the major domesticated species found in Iberia at the time. On his second voyage in 1493, Columbus unloaded a number of animals of different species onto the island of Santo Domingo. From there they were introduced to Mexico by Don Gregorio de Villalobos. Similar importations were carried out by other explorers leading to the establishment of horses, pigs, cattle, goats, sheep, asses, rabbits, chickens and ducks in the region - first in Central America and later in the South.

Slaves brought from West Africa to the West Indies were sometimes accompanied by livestock, which contributed further to the gene pool. An example of this is the West African Dwarf goat, thought to have contributed considerably to some local goat breeds. Introduced species soon adapted to one or other of the large range of environments and these early introductions now represent recognized, well-adapted breeds. Later introductions of animals such as zebu cattle, imported from Asia during the middle of the

nineteenth century, have also contributed to the region's animal genetic resources.

Latin America and the Caribbean may be subdivided into six quite different agro-ecological zones based on rainfall, altitude and soil type. The largest of these, the humid tropics, represents over 30 percent of the region's agricultural land, covering half of Brazil and more than half of the Caribbean and Central America. The semi-arid tropics and subtropics, which cover approximately 14 percent of the agricultural land, are particularly important in Mexico where they account for a quarter of the territory. The sub-humid tropics and subtropics with acid soil cover approximately 10 percent of the total land area and are mainly found around central Brazil, Colombia and Venezuela. Wetlands occupy 11 percent of the region, having a larger incidence in Central America and the Southern Cone. Steep lands describe approximately 18 percent of the region and are particularly important in the Andean zone, Central America and Mexico. Arid zones are found in Patagonia, north-western Argentina, the Atacama Desert on the Pacific coast and north-eastern Brazil.

Only a very small proportion of the land in Latin America (three percent) is considered to have no major limitations to agricultural production. These areas, which are highly suited to intensification and mechanization, are widely dispersed. They are generally found around rivers or in areas

TABLE 2.2.5.2

TOTAL POPULATION SIZE AND NUMBER OF BREEDS OF THE MAJOR LIVESTOCK SPECIES IN THE LATIN AMERICA AND THE CARIBBEAN REGION AND THEIR SHARE OF THE WORLD TOTAL

	POPULATION SIZE ('000)	NUMBER OF BREEDS	SHARE OF WORLD TOTAL	
			POPULATION (%)	BREEDS (%)
Buffalo	1 711	9	1	10
Cattle	356 069	107	27	9
Goat	40 752	34	6	6
Sheep	89 372	42	8	3
Pig	79 013	30	8	6
Ass	8 164	5	19	5
Horse	25 766	31	42	4
Camelids	5 400	19	100	100
Chicken	2 238 306	35	16	5
Duck ¹	20 979	6	3	6
Turkey	16 021	4	6	12
Goose (domestic)	345	5	0.2	8

¹ Domestic Duck and Muscovy Duck

n/a — not available

Source: FAOSTAT (estimates of 1999 live animal populations) and DAD-IS

of volcanic origin, mainly in the Southern Cone. In general the region has very favourable conditions for agriculture. In particular, it is abundant in water resources with an average annual precipitation over 1 500 mm, almost double the world's average.

In addition to a large variety of climatic and agricultural conditions, animals are challenged by many endemic diseases, especially in the warm humid regions. Foot-and-Mouth disease poses a major threat to cattle populations in large parts of the region, although it is not a great threat in Central America and the Southern Cone. Tick-borne infections such as babesiosis and anaplasmosis are becoming more widespread and pose particular problems for newly imported breeds. A number of bacterial and viral diseases can cause mortality, reproductive disorders or chronic loss of productivity in cattle and sheep - for example, anthrax, brucellosis, blackleg, mastitis, tuberculosis and rabies. Among pig populations Classical Swine Fever is enzootic. Its incursion between 1978 and 1980 into Brazil, the Dominican Republic, Haiti and Cuba caused major losses. Venezuelan Equine Encephalomyelitis is also prevalent in the region resulting in considerable losses among horses and donkeys.

Toxicity both by minerals and plants represents a serious problem for some species: for example, the shrub *Cestrum parqui* (Green Cestrum) in Argentina, Uruguay and the

southern regions of Brazil can be fatally toxic to cattle, sheep, horses, pigs and poultry.

The wide range of challenges faced by animals in the region has stimulated the development of a range of breeds and species, each specifically adapted to a different set of conditions. The region has also drawn upon a broader species range than most others to meet these demands. The locally developed breeds could also be of particular use in other similar regions of the world.

The American camelids, native to the highland regions, play an important role in the rural communities of the Andes, providing food, wool and transport. They are the most efficient users of the grazing lands in the very high Andean plateaux (> 4 000 m) that are unsuitable for cattle. Llamoids, which suffer from most ruminant diseases, appear to be particularly resistant to Foot-and-Mouth disease. Other breeds of interest include the Barbados Blackbelly and the White Sheep of the Virgin Islands, both known for their prolificity. Also, hairless sheep breeds, besides being adapted to cope with the hot humid climate encountered in some parts of the region, provide a useful source of meat, milk and a very soft skin, which produces a fine leather used for garments.

Apart from the major domesticated species, Latin America is host to a large number of micro-livestock which include a

FIGURE 2.2.5.1A

RISK STATUS OF MAMMALIAN BREEDS RECORDED IN THE LATIN AMERICA AND THE CARIBBEAN REGION UP TO DECEMBER 1999: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

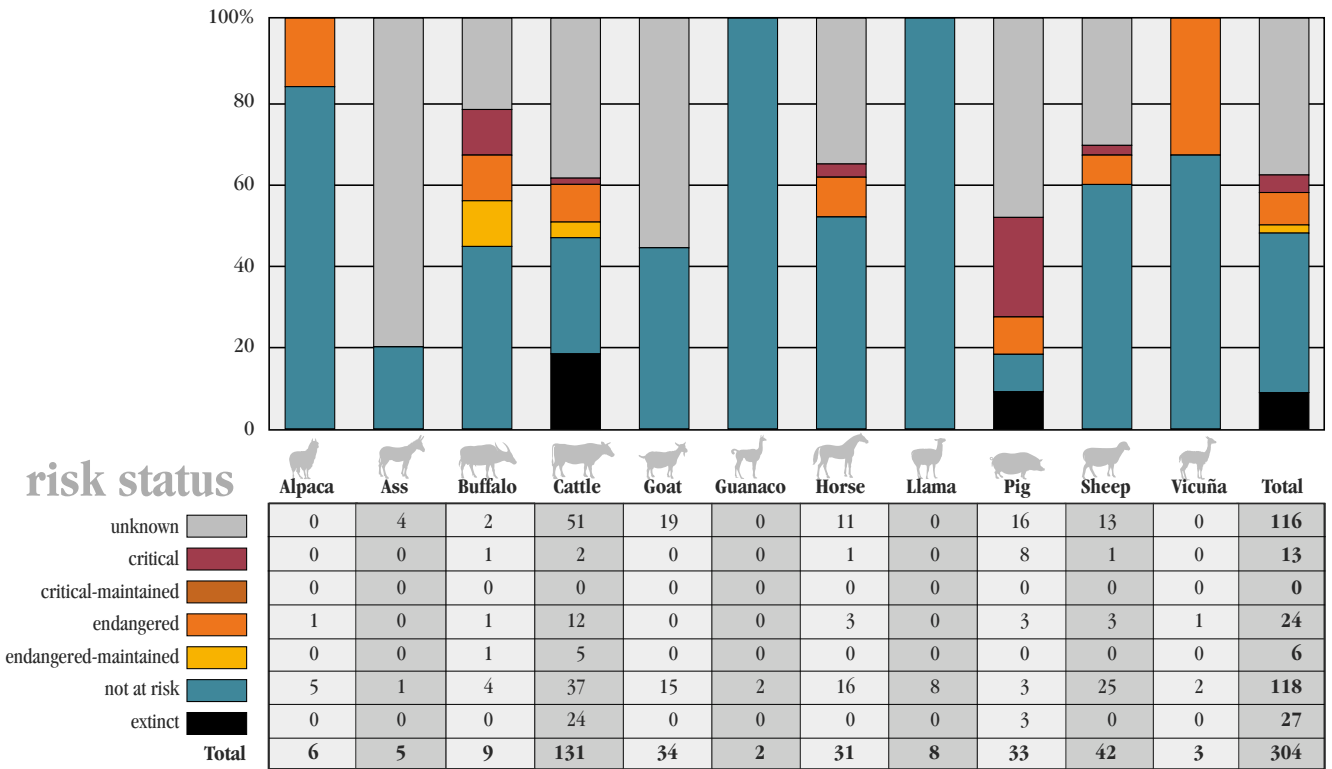


FIGURE 2.2.5.1B

RISK STATUS OF MAMMALIAN BREEDS RECORDED IN THE LATIN AMERICA AND THE CARIBBEAN REGION UP TO MAY 1995: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

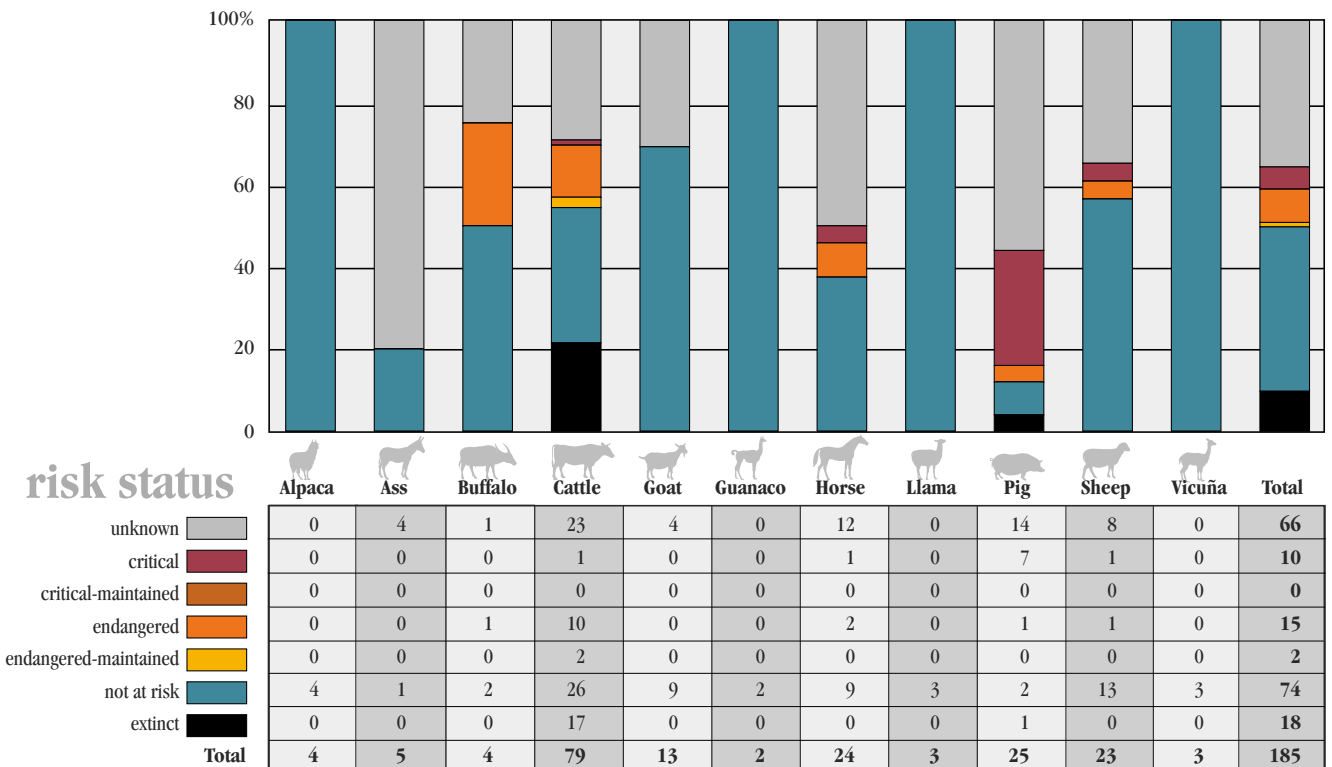


FIGURE 2.2.5.2A

RISK STATUS OF AVIAN BREEDS RECORDED IN THE LATIN AMERICA AND THE CARIBBEAN REGION UP TO DECEMBER 1999: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

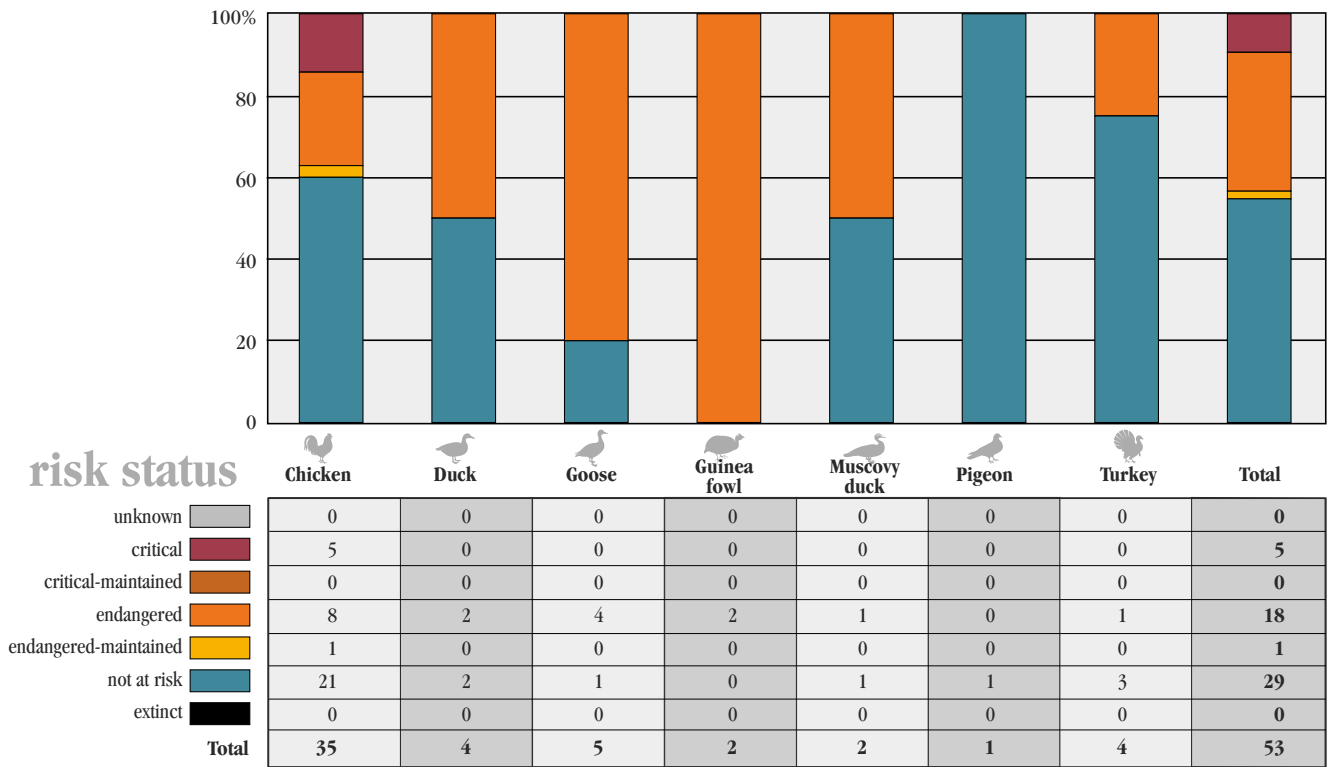


FIGURE 2.2.5.2B

RISK STATUS OF AVIAN BREEDS RECORDED IN THE LATIN AMERICA AND THE CARIBBEAN REGION UP TO MAY 1995: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

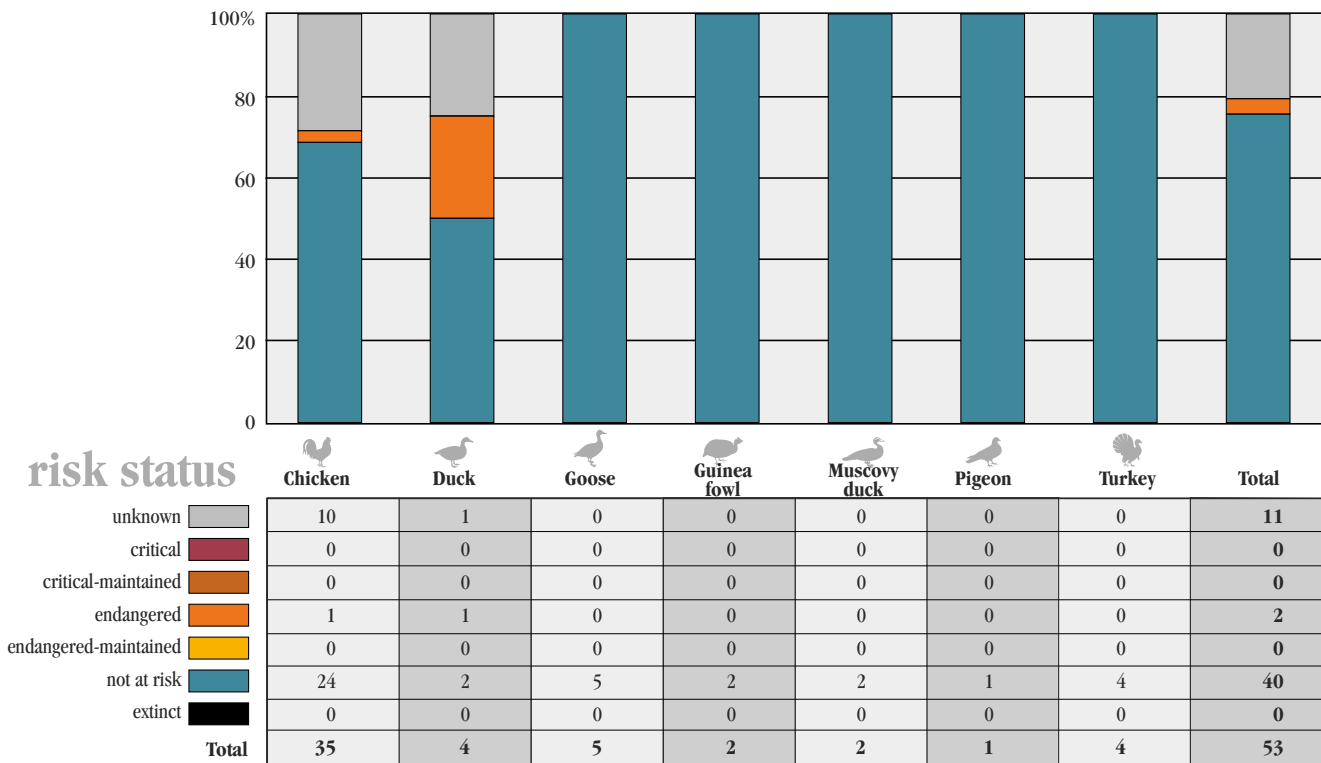
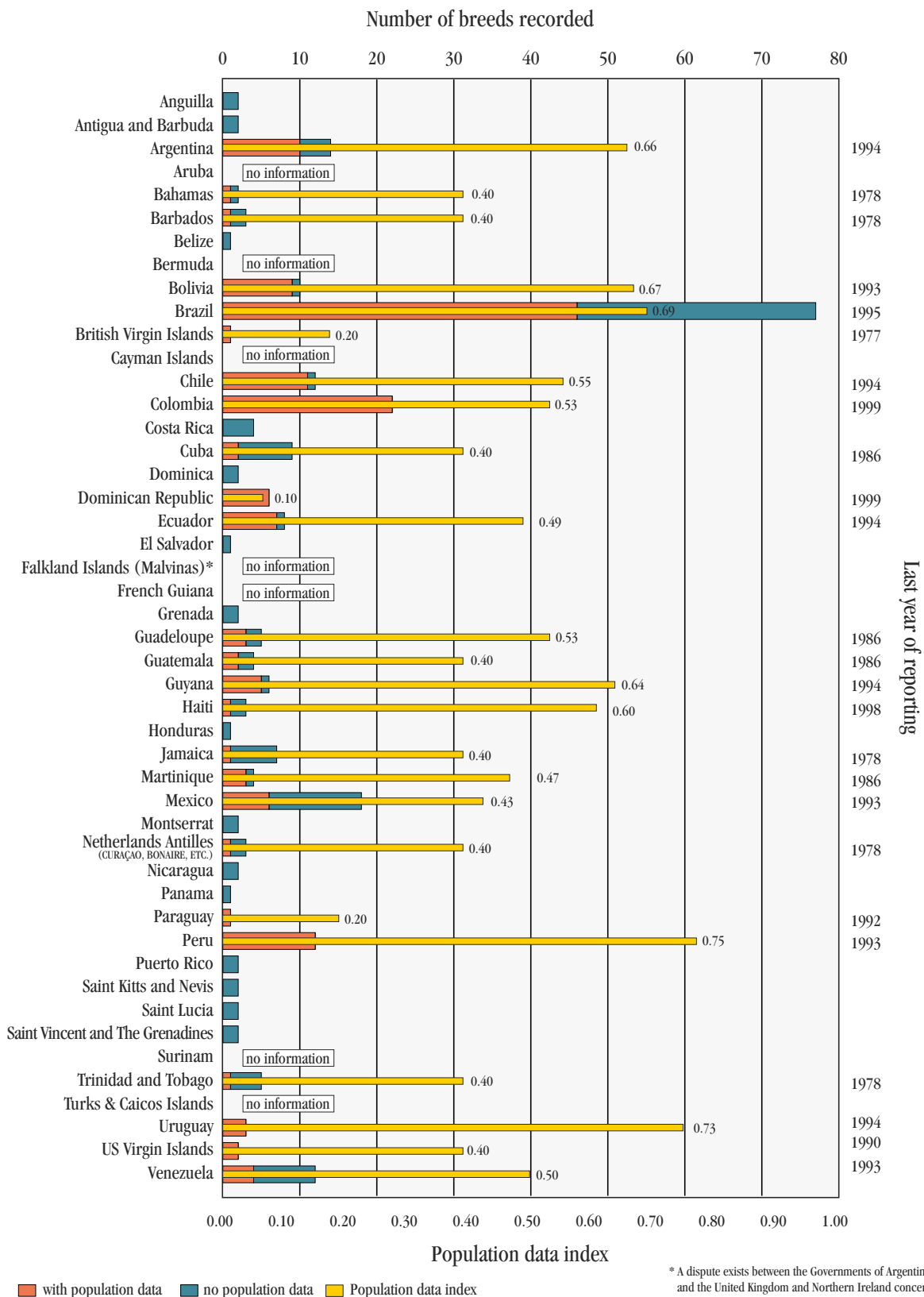


FIGURE 2.2.5.3

POPULATION DATA STATUS AND INDEX FOR MAMMALIAN BREEDS RECORDED BY COUNTRIES, DEPENDENT TERRITORIES, OVERSEAS DEPARTMENTS, ENTITIES AND AREAS OF THE LATIN AMERICA AND THE CARIBBEAN REGION UP TO DECEMBER 1999



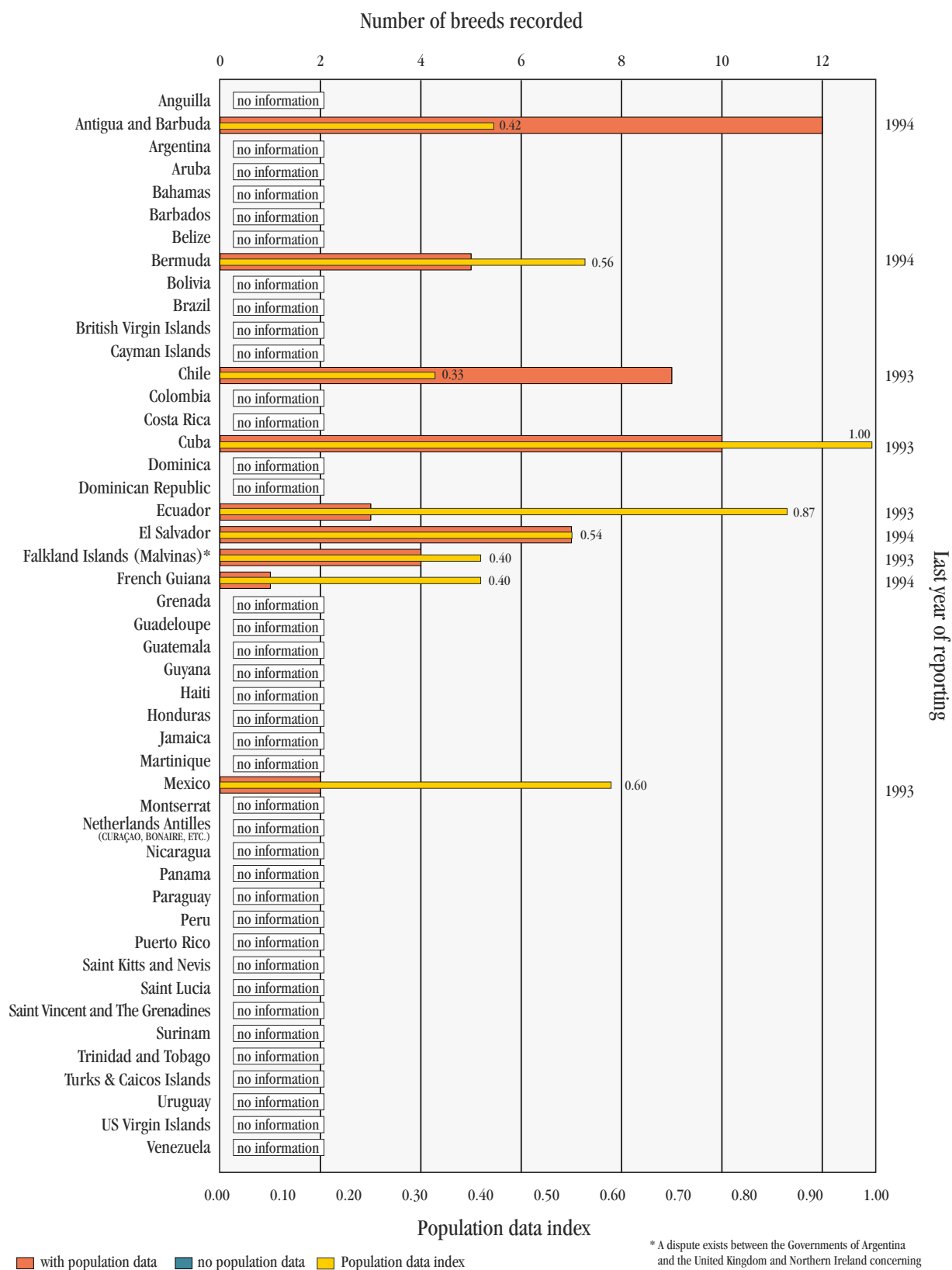
With population data Those breeds with information recorded in one or more of the 16 population data fields.

No population data Those breeds with no information recorded in any of the 16 population data fields.

Population Data Index (PDI) For each country the PDI was calculated only for those breeds recorded with population data. The PDI is the fraction of selected population data fields (population size, number of breeding females, number of breeding males and the percentage of females bred to males of the same breed) that contain information, averaged across breeds.

FIGURE 2.2.5.4

POPULATION DATA STATUS AND INDEX FOR AVIAN BREEDS RECORDED BY COUNTRIES, DEPENDENT TERRITORIES, OVERSEAS DEPARTMENTS, ENTITIES AND AREAS OF THE LATIN AMERICA AND THE CARIBBEAN REGION UP TO DECEMBER 1999



* A dispute exists between the Governments of Argentina and the United Kingdom and Northern Ireland concerning the sovereignty over the Falklands Islands (Malvinas)

With population data Those breeds with information recorded in one or more of the 16 population data fields.

No population data Those breeds with no information recorded in any of the 16 population data fields.

Population Data Index (PDI) For each country the PDI was calculated only for those breeds recorded with population data. The PDI is the fraction of selected population data fields (population size, number of breeding females, number of breeding males and the percentage of females bred to males of the same breed) that contain information, averaged across breeds.

variety of ungulates as well as rodents and reptiles. Paca is a prolific rodent species which provides a valuable source of meat without destroying the forest regions. The capybara, also a prolific species, is noted for its meat and leather. This large rodent can be used to graze swampy grasslands, areas generally rejected by cattle. Other rodents such as the coypu, guinea pigs, agoutis and hutia also represent valuable sources of food. Among the ungulates, the collared and the white-lipped peccaries are prolific animals appreciated for their meat and leather. These species, as well as the capybara, are already being raised in captivity for commercial purposes. The iguana, an indigenous reptile, represents a popular source of meat, especially in areas of Central America and the northern parts of South America. These micro-livestock species are described in Part 3.

As a result of rising incomes and the growing pace of urbanization in the region, a large demand has been created for animal products. This cannot be met under traditional systems of agriculture alone and more intensified systems are being utilized. These tend to select breeds solely on production and consequently focus on a small number of exotic breeds. Much of the genetic base of indigenous breeds is now being eroded by upgrading with exotics that have not always been adequately tested for suitability to the local environment. However, data are beginning to accumulate in a number of countries which clearly show the value of including at least some of the indigenous, adapted genetic material when aiming to improve the value of production, productivity and sustainability of many of the production environments of the Latin America and the Caribbean region.

For example, many of the criollo breeds of cattle (*Bos taurus*) are being crossed with zebus (*Bos indicus*) to improve performance. These criollo, or native breeds, have adapted to the highlands and lowlands and to the dry and swampy regions by evolving physiologically and morphologically in order to cope with the local conditions. In the lowland regions adaptations to heat include short hair with few follicles per surface area, pigmented skin and wrinkles around the eyes, cheeks and neck. The thick hide found on these cattle confers increased tolerance to biting insects making the animals less susceptible to many diseases.

Table 2.2.5.2 gives the total population sizes and the number of breeds of each of the major domestic animal species recorded in the Latin America and the Caribbean region and the share of the world's population sizes and number of breeds. Some 15 percent of the world's recorded domestic animals and six percent of the world's breeds have been recorded in the Latin America and the Caribbean region. All of the world's camelid species and over a quarter of the world's cattle population are confined to this region. The large number of cattle reflects the overwhelming importance of this species whereas goats, buffaloes and asses tend to be only of local importance. The relatively large number of horses is also of note, being of great value as a means of transport and draught, particularly in the mountainous regions. Much of this domestic animal diversity is now under threat of extinction as a result of the breeding

policies being pursued in the region. More immediate action is required if many of the minor breeds in the region are not to become extinct.

In 1995, 185 mammalian and 53 avian breeds (including extinct) were recorded in the Global Databank for Farm Animal Genetic Resources. Since then, 119 mammalian breeds have been added, increasing the amount of data recorded by 64 percent. No further avian breeds have been added since 1995. Figures 2.2.5.1 to 2.2.5.2 illustrate the structure of the data recorded in the Global Databank for Farm Animal Genetic Resources, showing the risk status of the mammalian and avian breeds recorded for each species in the Latin America and the Caribbean region up to 1995 and up to 1999.

Surprisingly, only twenty percent (67 of 330) of extant breeds on file are categorized as at risk (for definition see section 1.6). This is believed to be a gross underestimate of the actual situation, primarily due to lack of information. For example, of the 330 mammalian and avian breeds recorded in this region, population data is available for only 214 or 65 percent. As outlined in section 2.2.1, those most at risk of extinction are usually the most difficult to obtain accurate census information on.

Very few (only 13 percent of mammalian; four percent of avian) breeds at risk in the Latin America and the Caribbean region are recorded as being maintained (for definition see section 1.6).

It is difficult to make solid statements about the changes in the proportion of breeds recorded in each risk status category between 1995 and 1999, because with the large amount of additional data recorded and the manner of the recording method, the 1995 data is not a random subset of the 1999 data and direct comparisons between data sets would be biased by considering proportional changes.

Despite such biases, when the complete data sets are indirectly compared, some trends are clear. As percentages of the total number of existing breeds that have population data (and therefore risk status known), the proportion of mammalian breeds recorded in the Latin America and the Caribbean region at risk of extinction has not changed since 1995 - 27 percent of 101 and 161 breeds were categorized as being at risk in 1995 and 1999 respectively. The situation with avian breeds is more serious, however. Although the total number of avian breeds recorded in the Global Databank for Farm Animal Genetic Resources has not increased since 1995 (53 breeds recorded up until 1995 and again up until 1999), the structure of the data has changed, due to the recording of population size data for those breeds for which previously population size data was not known. Thus, most likely as a result of better data recording, the total proportion of breeds at risk of being lost seems to have increased dramatically from five percent (of 42) in 1995 to 45 percent (of 53) in 1999. Although these figures may not truly reflect the situation, they are indeed alarming

and efforts must be made to encourage maintenance of these domestic animal genetic resources at risk

Figures 2.2.5.3 and 2.2.5.4 provide general overviews of the quantity and quality of the population data provided by each country for their animal genetic resources. A list of all contributors of information to the Global Databank for Farm Animal Genetic Resources is given in Annex 2.2 and 2.3. The last year of reporting refers to the date of the most recent entry of population data in the Global Databank for Farm Animal Genetic Resources. Potentially, this means that even if the data for only one breed is updated then that year will be indicated. The total number of breeds recorded by each country is shown. **No information** is displayed for those countries for which no breeds are recorded in the Global Databank for Farm Animal Genetic Resources. For each other country, breeds are split into those **with population data** and those with **no population data** (risk status unknown). When one or more fields in the Global Databank for Farm Animal Genetic Resources are completed then that breed is identified with population data. For an overview of the population data fields see tables 1.7.1 and 1.7.2.

For those breeds recorded with population data, a population data index (PDI) is calculated, which provides an indication of the completeness of the data provided by the country. Selected basic population data fields, regarded to be the most important and used in the calculation of risk status, are considered - population size (absolute or range), number of breeding females, number of breeding males and the percentage of females bred to males of the same breed. The PDI is calculated for each breed as the fraction of the selected fields that contain information. This is then averaged across all breeds for which the index is calculated.

For example (see figure 2.2.5.3), by 1995 Brazil had recorded 77 mammalian breeds in the Global Databank for Farm Animal Genetic Resources and has, to date, recorded the most mammalian breeds in this region. Of those, 46 had information contained in one or more of the 16 population data fields, and were therefore identified as those breeds with population data. The PDI for Brazil was calculated as 0.69, indicating that of the 46 breeds recorded to date with population data, on average 69 percent of the most important population fields were completed. By comparison, by 1999 Colombia had recorded 22 mammalian breeds, all of which were recorded with population data. However, for these breeds, on average only 53 percent of the important population data fields were completed.

Overall, figures 2.2.5.3 and 2.2.5.4 highlight some serious deficiencies in population data and stress the fundamental challenge for countries to overcome these for better decision-making both nationally and internationally. For mammalian breeds (figure 2.2.5.3), of the 47 countries, dependent territories, overseas departments, entities and areas in the Latin America and the Caribbean region, seven recorded no breed information at all for their genetic

resources. For the 85 percent of the countries that did record mammalian genetic resources, the average PDI was only 0.30. Of these countries only 28 percent (11 of 40) recorded more than 50 percent of the basic population data used for the calculation of risk status. In summary, although the majority of the countries in this region recorded their mammalian genetic resources, 70 percent of the required data for the FAO designation of risk status has not yet been recorded.

Much less data again has been recorded for avian breeds (figure 2.2.5.4), with only nine (19 percent) of the 47 countries, dependent territories, overseas departments, entities and areas having recorded their avian genetic resources. The average PDI for these few countries was 0.57. Thus, 81 percent of countries in this region recorded no avian breeds at all, but of those countries that did, almost 60 percent of the most important data was recorded. For the remaining countries, for which no breed information is recorded, the state of their animal genetic resources is unknown.

Of note is the relatively little data recorded for avian species. Although the recording of avian breeds was initiated after the recording of mammalian breeds, little more data has recently been added by countries for avian breeds. Avian breeds should not be neglected as they make important contributions to food, especially in the developing world, and represent an important component of global animal genetic resources.

For a complete list of breeds and their risk status, recorded by each country, see section 2.4.2.

Under the Convention on Biological Diversity (CBD), which became international law in December 1993, countries that have ratified this convention are not only recognized as having sovereignty over all genetic resources within their boundaries, but are also obliged to report data on these genetic resources, including their animal genetic resources. Each country is responsible for validating and maintaining current data describing the status and characteristics of these resources and for reporting on this internationally. FAO is the UN agency responsible for assisting countries to develop and maintain this reporting responsibility. Under Decision III/11 of the Conference of the Parties (COP) of the CBD, FAO also has the mandate to develop, as a priority activity, the Global Strategy for the Management of Farm Animal Genetic Resources for country use. In order to do this, countries should comply, and provide complete, high-quality breed data which should be regularly updated. Country inventories within the Global Databank for Farm Animal Genetic Resources assist the management of animal genetic resources. Management includes the identification of those breeds at risk of extinction using a consistent approach. This information is crucial in order to develop the Global Early Warning System for Animal Genetic Resources and for the conservation of these resources. Breed data must be available in order to further develop methodologies, to consistently define

risk status across countries, regions and the world and to share the benefits of animal genetic resources.

DESCRIPTION LIST

The following pages provide brief summary descriptions for all mammalian and avian breeds recorded as critical (C), endangered (D), critical-maintained (CM) and endangered-maintained (DM) in the Latin America and the Caribbean region. Within these description lists breeds are sorted by country, by species group (see table 1.3.1), by risk status (critical followed by critical-maintained, endangered and endangered-maintained) and finally alphabetically by the most common name, as identified by the country. Whenever more than one breed name is provided, that used by the major ethnic group (in terms of numbers) is used to denote the most common name for the breed. Colour varieties, especially of avian species, are listed as one breed. For each breed a list of names or synonyms, the total population size (absolute or range), the number of breeding males and females, the population size trend and the range of uses are highlighted when available. This is followed by a brief description of the breed indicating its origins, current location, phenotype (particularly any unusual visible traits), adaptability to local stressors such as environmental pressures, population information (such as the

proportion of females being bred to males of the same breed) and any *in situ* and *ex situ* conservation efforts that are operational.

All data submitted to FAO before 31/11/99 has been validated and considered. In some cases information for the breed is not available or was not provided and validated prior to preparation of WWL-DAD:3. Consequently, some sections will read **No further information available** (see Annex 2.1 for details on how to assist overcoming such information deficiencies.).

Breeds recorded as extinct in this region are listed in section 2.3.1. For a complete list of all breeds and their risk status recorded by each country in each region, see section 2.4.2.

It should be noted that risk status is assigned for a breed whenever the population size of a country population has been reported according to the criteria given in section 1.6. This may not be a true reflection of the status of the breed regionally or globally, for the breed may also be represented in one or more other countries.

The following list describes the 67 documented breeds at risk in the Latin America and the Caribbean region.

RHODE ISLAND RED



CRITICAL

Local names or syn.: -

Population data: 24 • 1994

Population trend: increasing

Range of uses: fancy, eggs, meat

ANTIGUA AND BARBUDA

The Rhode Island Red chicken was imported from the United States of America. Egg shells are brown in colour. Females weigh on average 2.2 kg.

ANTIGUA & BARBUDA DUCK



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1994

Population trend: increasing

Range of uses: meat, fancy, hunting

ANTIGUA AND BARBUDA

The Antigua & Barbuda Duck is an imported population. The shanks and feet may be black (70%).

AFRICAN GOOSE



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1994

Population trend: increasing

Range of uses: fancy, eggs, meat, hunting

ANTIGUA AND BARBUDA

The African Goose was imported from the United States of America. These geese have brown coloured plumage.

WHITE CHINESE



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1994

Population trend: increasing

Range of uses: fancy, eggs, meat, hunting

ANTIGUA AND BARBUDA

White Chinese geese were imported from the United States of America. These geese have self-white coloured plumage.

WHITE EMDEN



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1994

Population trend: increasing

Range of uses: fancy, hunting

ANTIGUA AND BARBUDA

The White Emden goose was imported from the United States of America. These geese have self-white coloured plumage.

PEARL GUINEA FOWL



ENDANGERED

Local names or syn.: Guinea Bird (eng.)

Population data: 100 - 1 000 • 1994

Population trend: increasing

Range of uses: fancy, hunting, eggs

ANTIGUA AND BARBUDA

The Pearl Guinea Fowl was imported from the United States of America. They have grey and white coloured plumage and a keratinized comb.

PURPLE GUINEA FOWL



ENDANGERED

Local names or syn.: Guinea Bird

Population data: 100 - 1 000 • 1994

Population trend: increasing

Range of uses: fancy, hunting, tourist attraction / touristic potential

ANTIGUA AND BARBUDA

The Purple Guinea Fowl is an imported breed with red coloured plumage and a keratinized comb.

MUSCOVY DUCK



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1994

Population trend: increasing

Range of uses: fancy, meat, hunting

ANTIGUA AND BARBUDA

The Muscovy Duck is an imported breed. These ducks have self-white (90%) coloured plumage and the shanks and feet may be black (70%) or white (30%).

WHITE GIANT



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1994

Population trend: increasing

Range of uses: meat, fancy, hunting

ANTIGUA AND BARBUDA

In 1994 White Giant turkey chicks were imported from Barbados and the United States of America for commercial purposes, particularly for the Christmas season. They have self-white coloured plumage, white skin, shanks and feet. Some turkeys are kept on farms for breeding.

CHAQUEÑO



ENDANGERED

Local names or syn.: -

Population data: 1205 • 200 ♀ • 42 ♂ • 1992

Population trend: increasing

Range of uses: meat

ARGENTINA

Chaqueño cattle are found in the semi-arid thorn forest of the Chaco, Sauzalito. They are Criollo type cattle and are found in all colours. Adult males weigh on average 690 kg and females 425.8 kg. The breed is adapted to the harsh environment of the semi-arid thorn forest of the Chaco and remain very fertile. The cattle are kept on an experimental station and there is good demand for bulls to cross with Criollo cattle. Of females, 100% are bred to males of the same breed.

FALABELLA PONY



ENDANGERED

Local names or syn.: Argentine Dwarf (eng.), Miniature Horse (eng.), Toy Horse (eng.)

Population data: 500 ♀ • 100 ♂ • 1993

Population trend: increasing

Range of uses: -

ARGENTINA

The Falabella Pony, one of the smallest horse breeds, is probably descended from the Shetland Pony. Adult males weigh on average 80 kg and females 70 kg with an average wither height of 85 cm and 70 cm respectively. These ponies have been sold to many people from many different parts of the world. Of mares, 90% are bred to males of the same breed.

COCHINS



CRITICAL

Local names or syn.: -

Population data: 100 ♀ • 100 ♂ • 1994

Population trend: stable

Range of uses: fancy

BERMUDA

Cochins chickens have self-black (50%) or self-white (50%) coloured plumage. They may have white (50%) or yellow (50%) skin and the shanks and feet may be yellow (25%), white (25%) or black (25%). The comb may be of rose (50%) or single (50%) type and egg shells may be brown (50%) or white (50%) in colour.

OLD ENGLISH GAME BANTAM



CRITICAL

Local names or syn.: -

Population data: 85 ♀ • 100 ♂ • 1994

Population trend: increasing

Range of uses: fancy

BERMUDA

Old English Game Bantam chickens may have white (50%) skin and the shanks and feet may be yellow (50%), white (25%) or black (25%). The comb may be of single (75%) or rose (25%) type and egg shells may be white (50%) or brown (50%) in colour. 17 varieties exist.

WAYDOLLES



CRITICAL

Local names or syn.: -

Population data: 100 ♀ • 100 ♂ • 1994

Population trend: stable

Range of uses: fancy

BERMUDA

Waydolles chickens have self-white (50%), self-black (25%) or brown (25%) coloured plumage. They may have white (50%) or yellow (50%) skin and the shanks and feet may be yellow (50%) or white (50%). The comb is of single type and egg shells may be white (50%) or brown (50%) in colour.

WHITE-DARK BROWN LEGHORN



CRITICAL

Local names or syn.: -

Population data: 75 ♀ • 95 ♂ • 1994

Population trend: increasing

Range of uses: eggs, fancy

BERMUDA

White-Dark Brown Leghorn chickens have self-white (75%) or brown (25%) coloured plumage. They may have yellow (50%) or white (50%) skin and the shanks and feet may be yellow (50%), white (25%) or black (25%). The comb may be duplex or V-shaped comb (40%), single (40%) or rose (20%) type and egg shells may be white (50%) or brown (50%) in colour.

CHAQUEÑO



ENDANGERED

Local names or syn.: -

Population data: 1 205 • 200 ♀ • 42 ♂ • 1992

Population trend: increasing

Range of uses: meat

BOLIVIA

Chaqueño cattle are found in the semi-arid thorn forest of the Chaco. They are Criollo type cattle and are found in all colours. Adult males weigh on average 690 kg and females 425.8 kg. The breed is adapted to the harsh environment of the semi-arid thorn forest of the Chaco and remain very fertile. The cattle are kept on an experimental station and there is good demand for bulls to cross with Criollo cattle. Of females, 100% are bred to males of the same breed.

SAAVEDREÑO



ENDANGERED

Local names or syn.: Santa Cruz (sp.)

Population data: 960 • 320 ♀ • 160 ♂ • 1992

Population trend: increasing

Range of uses: milk

BOLIVIA

Saavedreño cattle, in the tropical lowlands of Santa Cruz, get their name from Saavedra experimental station where the breed has been selected for milk yield corrected for fertility in a humid tropical environment. Local Criollo cows were purchased with a small number of bulls thought to have above average performance (no milk records existed). Semen was imported from Criollo herds selected for milk yield in similar environments in Cuba, Nicaragua, Costa Rica and Brazil. Although highly heterozygous, the herd is physically uniform (colour ranges from Guernsey, minus white patches, to Jersey colour). Mean adult male weight is 730 kg and 426 kg for females. The third generation of bulls was tested in 1992. 70 bulls are sold for breeding each year and demand is great. Animals can be registered with the Bolivian Criollo Breeders Society. All cows are bred to males of the same breed.

YACUMEÑO



ENDANGERED

Local names or syn.: Crioulo Yacumeño (sp.)

Population data: 1 120 • 420 ♀ • 25 ♂ • 1992

Population trend: stable

Range of uses: meat

BOLIVIA

Yacumeño cattle are found in one ranch near the Yacuma river in Beni, eastern Bolivia. The cattle have been selected from the almost extinct Beni Criollo breed. The animals are light brown, similar to Jerseys in colour. Adult males weigh on average 600 kg and females 400 kg. The animals are well adapted to the seasonally flooded plains. Since 1966 the herd has been selected on only one property and this is the only remaining herd. Of females, 100% are bred to males of the same breed.

SUNICHO



CRITICAL

Local names or syn.: Bolivian Pony (eng.)

Population data: < 100 • 1993

Population trend: stable

Range of uses: -

BOLIVIA

The Sunicho horse has been described as a dwarf variety of Criollo. However, the name Sunicho is not commonly used and it has been suggested that the breed should not be described as 'Dwarf'. Physically it is a typical American horse of Spanish descent and this variety existed before the agricultural reform of the 1950s. These horses were very important in the high Altiplano areas of Bolivia where they were ridden and were distinguished by their small size. This breed, which lives at very high altitudes and has a long winter coat, has now been replaced by donkeys which are used extensively as pack animals. The breed may be genetically identical to the Criollo pony still common in Bolivia.

TIPO BAIO



ENDANGERED-MAINTAINED

Local names or syn.: Vermelho (port.)

Population data: 800 - 1 000 • 220 ♀ • 8 ♂ • 1991

Population trend: stable

Range of uses: -

BRAZIL

Tipo Baio buffaloes (*Bubalus bubalis fulvus*) are found in the Amazon region. Adult males weigh on average 750 kg and females 520 kg, with an average wither height of 139 cm and 133 cm respectively. The breed is well adapted to the locally adverse conditions. It has been confirmed that the Tipo Baio is the only breed of *fulvus* subspecies present in Brazil, and the breed will disappear if the conservation work being done with the EMBRAPA herd of 80 animals is not extended to other herds. Of females, 10% are bred to males of the same breed.

FRANQUEIRO



CRITICAL

Local names or syn.: -

Population data: < 100 • 1995

Population trend: -

Range of uses: -

BRAZIL

The Franqueiro breed is found in the north of Sao Paulo. The breed is descended from the Southern Criollo and was established in the late 19th century. These cattle have long horns.

CRIOULO LAGEANO



ENDANGERED

Local names or syn.: Franqueiro (port.)

Population data: 100 - 1 000 • 280 ♀ • 20 ♂ • 1988

Population trend: increasing

Range of uses: meat, milk

BRAZIL

Crioulo Lageano cattle, found in Lages, Santa Caterina, are descended from animals brought by Spanish Jesuits. The animals may be black, brown or white, or a combination of these colours and have long, lyre shaped horns. On average, adult females weigh 429 kg and are known for easy calving and for having good maternal abilities. There are 280 adult females and 20 bulls on one private estate near Lages in the state of Santa Catarina and the herd is reported to be inbred and to contain some zebu blood.

LAVINIA



ENDANGERED

Local names or syn.: -

Population data: 1 000 • 300 ♀ • 30 ♂ • 1992

Population trend: increasing

Range of uses: meat, milk

BRAZIL

The Lavinia breed is found in western region of Sao Paulo. It is a composite of Brown Swiss (5/8) and Guzera (3/8) breeds and was established in 1954. Adult males weigh on average 800 kg and females 600 kg with an average wither height of 160 cm and 155 cm respectively. Of females, 100% are bred to males of the same breed.

POLLED CRIOULO PEREIRA CAMARGO



ENDANGERED

Local names or syn.: -

Population data: 300 • 1992

Population trend: -

Range of uses: milk, meat

BRAZIL

Polled Crioulo Pereira Camargo cattle are found in southern Brazil. This breed probably evolved spontaneously in Polled Criollo cattle populations in the southern Brazilian regions. The Polled Criollo cattle were themselves originally imported from Portugal, Spain and Asia. Adult males weigh on average 720 kg and females 463 kg and all animals are polled. Animals of this breed are reportedly rustic and known for longevity, having a good fertility rate and a good body conformation. They are also well adapted to local conditions. In Brazil there are about 300 Polled Criollo Pereira Camargo cattle in 4 different herds: Ponte Alta-SC Santa Cecilia-SC, Campos Novos-SC and Uberaba-MG.

CURRALEIRO



ENDANGERED-MAINTAINED

Local names or syn.: Pe-duro (port.), Crioulo nordestino (port.), Goias (port.), Sertanejo (port.), Corral crioulo (port.), Hard Hoof Criollo (eng.)

Population data: 300 - 500 • 1988

Population trend: stable

Range of uses: meat, milk, draught power

BRAZIL

The Curraleiro breed, found in Piaui, Maranhao and Goias, north-eastern Brazil, descends directly from the Beiroa type of Mirandesa cattle. In the north-east the breed is more commonly known as Pe-Duro. The animals may be red, fawn or dun with a pale belly, similar to tropical dairy Criollo breeds. Adult males weigh on average 337 kg and females 228 kg with a mean wither height of 110 cm and 108 cm respectively. They have short horns. Adapted to live under semi-desert conditions, they can tolerate low quality grazing. No reliable population survey of this breed has been carried out but there are some small herds in the north-east. The Curraleiro is endangered not only because of cross-breeding with zebu cattle, but also due to the systematic castration of males.

MOCHO NACIONAL



ENDANGERED-MAINTAINED

Local names or syn.: Brazilian Polled (eng.), Caracu (variedade Mocho) (port.), Caracu (polled variety) (eng.)

Population data: 400 • 300 ♀ • 35 ♂ • 1991

Population trend: increasing

Range of uses: meat

BRAZIL

The Mocho Nacional, found in Goias, is a southern Criollo type that probably evolved naturally in Polled Criollo cattle populations in southern Brazil. Polled Criollo cattle were themselves originally imported from Portugal, Spain and Asia. The animals are red and are polled. Males weigh on average 700 kg and females 420 kg with mean heights of 132 cm and 131 cm. Females have excellent maternal abilities and good fertility rates. Males have a very high libido. They are rustic, well adapted to local conditions, longeval and have good body conformation. Of females, 80% are bred to males of the same breed. A conservation project, initiated by EMBRAPA-CENARGEN, started in 1982-83 at an experimental station near Brasilia with some pure animals provided by a private breeder. Semen and embryo cryo-conservation is very important and embryo transfer has aided the population increase.

LAVRADEIRO



ENDANGERED

Local names or syn.: Wild Horse of Roraima (eng.)

Population data: 1 200 • 850 ♀ • 100 ♂ • 1992

Population trend: decreasing

Range of uses: -

BRAZIL

Lavradeiro horses are found in Roraima State, northern Brazil. About 300 animals are still wild and the other 900 are scattered around different farms in Roraima State. A great number of horses are cross-breeds of Lavradeiro with exotic breeds. Of mares, 50% are bred to males of the same breed.

CANASTRA



CRITICAL

Local names or syn.: -

Population data: 80 • 15 ♀ • 10 ♂ • 1992

Population trend: decreasing

Range of uses: lard

BRAZIL

Canastra pigs are possibly descended from the Alentejana breed. The animals are of the Iberian type and black in colour. Adult males weigh on average 150 kg and females 120 kg. Of sows, 100% are bred to boars of the same breed.

CANASTRÃO



CRITICAL

Local names or syn.: -

Population data: 50 • 10 ♀ • 5 ♂ • 1992

Population trend: decreasing

Range of uses: -

BRAZIL

The Canastrão breed is found in Minas Gerais State and Rio de Janeiro. It is probably descended from the Bisaro breed. The pigs may be black or red in colour and are often curly coated. They are of the Celtic type and adult males weigh on average 180 kg and females 120 kg. Of females, 100% are bred to males of the same breed.

CANASTRINHA



CRITICAL

Local names or syn.: -

Population data: 50 • 10 ♀ • 5 ♂ • 1992

Population trend: decreasing

Range of uses: -

BRAZIL

Adult male Canastrinha pigs weigh on average 90 kg and females 70 kg. Of females, 100% are bred to males of the same breed.

CARUNCHO



CRITICAL

Local names or syn.: Carunchinho (port.)

Population data: < 100 • 30 ♀ • 10 ♂ • 1992

Population trend: decreasing

Range of uses: lard

BRAZIL

The Caruncho pigs may be white or sandy coloured with black spots. Adult males weigh on average 130 kg and females 80 kg. Of females, 100% are bred to males of the same breed.

MUNDI



CRITICAL

Local names or syn.: -

Population data: 180 • 30 ♀ • 10 ♂ • 1992

Population trend: stable

Range of uses: -

BRAZIL

The Mundi breed is found in Minas Gerais State. It is a closed herd currently in formation at the State School of Agriculture. Adult males weigh on average 120 kg and females 75 kg. Of females, 100% are bred to males of the same breed.

PIRAPITINGA



CRITICAL

Local names or syn.: -

Population data: 150 • 40 ♀ • 15 ♂ • 1992

Population trend: decreasing

Range of uses: lard

BRAZIL

Pirapitinga pigs are found in Minas Gerais State. The breed is of Chinese origin and may be a variety of Tatu. The animals may be black or violet in colour. Adult males weigh on average 120 kg and females 75 kg. Of females, 100% are bred to males of the same breed.

TATÚ



CRITICAL

Local names or syn.: Bahia (port.), Macao (port.), Tatzinho (port.), Baé (port.)

Population data: 150 • 20 ♀ • 10 ♂ • 1992

Population trend: decreasing

Range of uses: lard

BRAZIL

The Tatú breed, found in southern Brazil, is of Chinese origin. The animals are black in colour and are hairless, similar to Pirapitinga pigs. Adult males weigh on average 90 kg and females 75 kg. Of females, 100% are bred to males of the same breed.

PIAU



ENDANGERED

Local names or syn.: Carioca (port.)

Population data: 2 000 • 300 ♀ • 50 ♂ • 1992

Population trend: stable

Range of uses: meat, lard

BRAZIL

The Piau is found in Paranaíba river basin, south-western Brazil. It is descended from Canastra and/or Canastra. The animals are white, grey or sandy in colour with black spots. They are of Iberian Type. Adult males weigh on average 180 kg and females 120 kg. Of females, 100% are bred to males of the same breed.

CRIOULO PRETO



CRITICAL

Local names or syn.: Black Criollo (eng.), Criollo Negro (sp.)

Population data: < 100 • 1987

Population trend: -

Range of uses: meat, wool, skins and hides

BRAZIL

Crioulo Preto sheep, a variety of Criollo, are found in southern Brazil. Adult males weigh on average 80 kg and females 42 kg. These sheep have medium fibred wool. The breed is rapidly heading towards extinction.

SANTA INES



ENDANGERED

Local names or syn.: Pelo de Boi de Bahia (port. = Bahia Ox-Haired)

Population data: 1 040 000 - 1 080 000 • 525 ♀ • 35 000 ♂ • 1992

Population trend: increasing

Range of uses: meat

BRAZIL

The Santa Ines breed is found in Bahia, north-eastern Brazil. It is a composite of Bergamasca and Brazilian Woolless breeds and was established in the late 1940s. The animals may be black, red, white or pied in colour. They are part of the American hair sheep group and have lop ears. Adult males weigh on average 70 kg and females 55.6 kg. These animals have medium fibred hair and all animals are polled. This breed represents approximately 52-54% of the total population of Woolless sheep in Brazil. The population size was estimated by assuming that 4% of sheep in the north-eastern region were of this breed. For 1988, the numbers of breeding males and females were calculated by assuming that they make up 2.5% and 55% of the population respectively. Of females, 100% are bred to males of the same breed.

CHILENOS



ENDANGERED

Local names or syn.: Chilean (eng.)

Population data: 1 000 • 700 ♀ • 300 ♂ • 1994

Population trend: stable

Range of uses: -

CHILE

Chilenos horses were first imported in 1541, and the breed was revived in 1913. They are light animals, of the Criollo type. Of females, 100% are bred to males of the same breed.

CHINO SANTANDEREANO



ENDANGERED-MAINTAINED

Local names or syn.: Chino (sp.)

Population data: 368 • 1999

Population trend: decreasing

Range of uses: meat, milk, draught power

COLOMBIA

The Chino Santandereano breed, found in the Lebrija Valley, Santander, was established in 1950, but originates from animals introduced by the Spanish Conquistadores in the 16th century and developed in the Oriental Andes. The animals are tan to chestnut in colour and similar to the Costeno con Cuernos breed. Adult males weigh on average 658 kg and females 487 kg with an average wither height of 145 cm and 141 cm respectively. The breed is adapted to the hot valley zone of Santander, has great heat resistance and high fertility. The Livestock Fund and the Spanish Association of Rubia Gallega breeders began an experiment crossing Rubio bulls with China cows, making the extinction of the China breed more imminent. The Santander Livestock Fund has a conservation nucleus of 150 animals and stores the frozen semen of 11 males. Recently Corpoica began an embryo transfer programme.

COSTEÑO CON CUERNOS



ENDANGERED-MAINTAINED

Local names or syn.: CCC (sp.), Sinuano de Cuernos (sp.)

Population data: 416 • 1999

Population trend: decreasing

Range of uses: milk, meat

COLOMBIA

Costeño con Cuernos cattle are found in Atlantic Coast, Valle Del Sinu, Cordoba Province. It is a Llanos Orientales, Colombian Criollo cattle breed. The animals are red and blond in colour. Adult males weigh on average 584 kg and females 426 kg with an average wither height of 134 cm and 125 cm respectively and lyre shaped horns. Animals of this breed are adapted to the hot, arid savannahs of the north coast of Colombia. An *in situ* conservation programme to establish a semen bank has been implemented under the authority of the Ministry of Agriculture and Rural Development of Colombia, administered by the Colombian Agriculture and Livestock Research Corporation, CORPOICA and supervised by the Colombian Agriculture and Livestock Institute (ICA). The semen of 11 males is currently stored.

VELÁSQUEZ



ENDANGERED-MAINTAINED

Local names or syn.: Velasquez (eng.)

Population data: 662 • 1999

Population trend: decreasing

Range of uses: meat

COLOMBIA

The Velásquez breed is found in the Magdalena Medio valley in the department of Caldas, la Dorada municipality. It is a composite of Red Poll (50%), Red Brahman (25%) and Romo-Sinuano (25%) and was established in 1955. The animals are red in colour. Adult males weigh on average 750 kg and females 500 kg. All animals are polled. The founders and owners of the breed maintain the largest herd.

CASCO DE MULA



ENDANGERED

Local names or syn.: Mule Foot (eng.)

Population data: 100 - 1 000 • 1999

Population trend: decreasing

Range of uses: lard

COLOMBIA

Casco de Mula pigs is found in the Llanos Orientales region. The animals are black in colour, of the Iberian Type and their toes are fused like those of a mule.

SAMPEDREÑO



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1999

Population trend: decreasing

Range of uses: -

COLOMBIA

No further information available.

CRIOLLA MORA



ENDANGERED

Local names or syn.: Chusco (sp.)

Population data: 100 - 1 000 • 1999

Population trend: increasing

Range of uses: meat, wool

COLOMBIA

The Criolla Mora is found in the Highlands of Columbia. It is descended from Spanish Churro and probably also Spanish Merino and was established in 1548-1812. The animals are black in colour and their dark wool is used for crafts. These sheep have coarse/carpet type wool. This breed is known for low prolificacy but good fertility and is reported to be resistant to endoparasite infestation.

BARRED PLYMOUTH ROCK



ENDANGERED

Local names or syn.: -

Population data: 5 000 • 500 ♀ • 50 ♂ • 1993

Population trend: stable

Range of uses: eggs

CUBA

Barred Plymouth Rock chickens have barred, autosomal patterns within the feathers. They have white skin and the shanks and feet are white. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 2.1 kg and females 1.7 kg.

CATALANA DEL PRAT



ENDANGERED

Local names or syn.: -

Population data: 1 000 - 10 000 • 500 ♀ • 50 ♂ • 1993

Population trend: stable

Range of uses: eggs

CUBA

The Catalana Del Prat breed. Their plumage is self-red and variants and they have white skin and black shanks and feet. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 1.65 kg and females 1.3 kg.

NEW HAMPSHIRE



ENDANGERED

Local names or syn.: -

Population data: 1 000 - 10 000 • 500 ♀ • 50 ♂ • 1993

Population trend: stable

Range of uses: eggs

CUBA

New Hampshire chickens have self-red and variants coloured plumage. They have white skin, shanks and feet. The comb is of single type and egg shells are brown in colour.

RHODE ISLAND RED-Y1



ENDANGERED

Local names or syn.: -

Population data: 1 000 - 10 000 • 900 ♀ • 50 ♂ • 1993

Population trend: increasing

Range of uses: eggs

CUBA

The Rhode Island Red-Y1 breed was imported from Mexico. They have self-red and variants coloured plumage and white skin, shanks and feet. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 2.4 kg and females 2.1 kg.

WHITE LEGHORN-Ñ



ENDANGERED

Local names or syn.: -

Population data: 1 000 • 200 ♀ • 70 ♂ • 1993

Population trend: stable

Range of uses: eggs

CUBA

The White Leghorn-Ñ breed has barred, sex-linked (80%) patterns within the feathers. They have white skin and the shanks and feet are white. The comb is of single type and egg shells are white in colour. Adult males weigh on average 1.7 kg and females 1.4 kg.

WHITE PLYMOUTH ROCK DWARF-Mb



ENDANGERED

Local names or syn.: -

Population data: 7 600 • 1 000 ♀ • 100 ♂ • 1993

Population trend: stable

Range of uses: meat

CUBA

White Plymouth Rock Dwarf-Mb chickens are a dwarf species with self-white coloured plumage, white skin, shanks and feet. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 2.8 kg and females 2.4 kg.

LLAMINGOS-PUCUNGOS



ENDANGERED

Local names or syn.: Ecuadorian Alpaca (eng.)

Population data: 2 000 - 2500 • 2 000 ♀ • 10 ♂ • 1994

Population trend: increasing

Range of uses: -

ECUADOR

The Llamingos-pucungos breed was imported from Peru. Adult males weigh on average 70 kg and females 65 kg. It is reported that this breed is adapted to grazing on natural pasture at 3 500 m asl. Of females, 90% are bred to males of the same breed.

MURRAH



ENDANGERED

Local names or syn.: -

Population data: 200 ♀ • 100 ♂ • 1994

Population trend: increasing

Range of uses: meat, draught power

ECUADOR

Murrah buffaloes (*Bubalus bubalis*, subspecies *bubalis*) have a massive body and long tail. Adult males weigh on average 1 000 kg and females 950 kg with an average wither height of 150 cm and 140 cm respectively. They have short, coiled horns. Of females, 30% are bred to males of the same breed.

LATIN AMERICA AND THE CARIBBEAN

CRIOLLO ECUATORIANO



ENDANGERED

Local names or syn.: Ecuador Criollo (eng.)

Population data: 200 • 1988

Population trend: decreasing

Range of uses: meat

ECUADOR

Cattle of the Criollo ecuatoriano breed may be no longer found on the coastal plains of Ecuador and is rapidly disappearing through cross-breeding. A herd of 200 individuals is maintained at the Tropical Agricultural Experiment Station of Pilchilínque, Quevedo.

LLAMINGOS



ENDANGERED

Local names or syn.: Ecuadorian Vicuña (eng.)

Population data: 550 • 1994

Population trend: increasing

Range of uses: -

ECUADOR

Adult Llamings vicuña males weigh on average 40 kg and females 35 kg. It is reported that they are adapted to grazing on natural pasture at 4 000 m asl. The species of vicuña was extinct in Ecuador and a population has been re-established with donations of animals from Chile, Peru and Bolivia. These animals are raised in Fauna Chiamborazo reserve but no information is available on the population structure as the animals are wild.

ASA BROWN



ENDANGERED

Local names or syn.: -

Population data: 500 • 1993

Population trend: -

Range of uses: -

FALKLAND ISLANDS (MALVINAS)*

The Asa Brown breed was imported from the United Kingdom.

*A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

TAME DUCK



ENDANGERED

Local names or syn.: -

Population data: 400 • 1993

Population trend: -

Range of uses: eggs, meat

FALKLAND ISLANDS (MALVINAS)*

Tame Duck eggs were originally imported from the United Kingdom. Egg shells may be greenish (50%) or white (50%) in colour.

*A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

LATIN AMERICA AND THE CARIBBEAN

TAME GOOSE



ENDANGERED

Local names or syn.: -

Population data: 800 • 1993

Population trend: -

Range of uses: eggs, meat

FALKLAND ISLANDS (MALVINAS)*

The Tame Goose breed was imported from South America and the United Kingdom. These geese have white, grey or brown coloured plumage and their egg shells may be tinted (50%) or white (50%) in colour. Some have long ribbon feathers.

*A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

POULE CREOLE



ENDANGERED

Local names or syn.: -

Population data: 1 000 • 1994

Population trend: -

Range of uses: meat, eggs, fighting

FRENCH GUIANA

Poule Creole chickens are a mixture of several breeds. Morphological characteristics are highly variable within the population.

BARROSO



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1 000 ♀ • 1986

Population trend: stable

Range of uses: meat, milk

GUATEMALA

Barroso cattle, of the Criollo type, are dun in colour. Adult males weigh on average 800 kg and females 475 kg with an average wither height of 150 cm and 145 cm respectively.

BUFFALYPSO



CRITICAL

Local names or syn.: -

Population data: 100 • 1994

Population trend: -

Range of uses: -

GUYANA

100% of Buffalypso females are bred to males of the same breed.

SALERS



CRITICAL

GUYANA

100% of female Salers cattle are bred to males of the same breed.

Local names or syn.: -

Population data: 73 • 20 ♀ • 1994

Population trend: -

Range of uses: -

NORMANDE



ENDANGERED

GUYANA

100% of female Normande cattle are bred to males of the same breed.

Local names or syn.: -

Population data: 160 • 59 ♀ • 1994

Population trend: -

Range of uses: -

SANTA GERTRUDIS



ENDANGERED

GUYANA

100% of female Santa Gertrudis cattle are bred to males of the same breed. 100% of males are used for breeding.

Local names or syn.: -

Population data: 315 • 1994

Population trend: -

Range of uses: -

CUINO



CRITICAL

MEXICO

Cuino pigs are found in Highlands of Mexico. The breed was established in the 16th century and is probably of Chinese origin. The animals may be black, yellow or spotted in colour. The breed is nearly extinct.

Local names or syn.: Mexican Dwarf (eng.)

Population data: < 100 • 1988

Population trend: -

Range of uses: lard

BUCHE PELÓN



ENDANGERED-MAINTAINED

Local names or syn.: Pelonas (sp.), Nacked Neck Fowl (eng.)

Population data: 360 • 160 ♀ • 20 ♂ • 1993

Population trend: increasing

Range of uses: research, eggs, meat

MEXICO

Buche pelón chickens probably descend from fowls introduced by the Spaniards during the colonial era. They have self-red and variants (32%), wild-type and variants (29%), self-black (28%), various colours (10%) or self-white (1%) plumage, with no special pattern within the feathers. They may have yellow (74%) or white (26%) skin and the shanks and feet may be yellow (70%), white (24%) or black (6%). The comb may be of single (77%) or rose (23%) type and egg shells are brown. Plumage characteristics are as follows: 50% naked neck, 10% frizzled plumage, 7% feathered legged. Males weigh on average 2.6 kg and females 1.7 kg. The breed shows a good adaptation to tropical conditions, is heat tolerant and fairly resistant to Newcastle disease. In 1990 the University of Colima began *in situ* conservation of an experimental population of indigenous chickens to repopulate rural areas.

CHAQUEÑO



ENDANGERED

Local names or syn.: -

Population data: 1 205 • 200 ♀ • 42 ♂ • 1992

Population trend: increasing

Range of uses: meat

PARAGUAY

Chaqueño cattle are found in the semi-arid thorn forest of the Chaco. They are Criollo type cattle, and are found in all colours. Adult males weigh on average 690 kg and females 425.8 kg. The breed is adapted to the harsh conditions of the semi-arid thorn forest of the Chaco. Performance data were measured under very extensive stationary conditions with no housing and browsing in the semi-arid Chaco. The animals are able to withstand the harsh environment and remain very fertile. The cattle are kept on an experimental station and there is good demand for bulls to cross with Criollo cattle. Of females, 100% are bred to males of the same breed.

URUGUAYAN CRIOLLO



ENDANGERED

Local names or syn.: -

Population data: < 1 000 • 1994

Population trend: decreasing

Range of uses: wool

URUGUAY

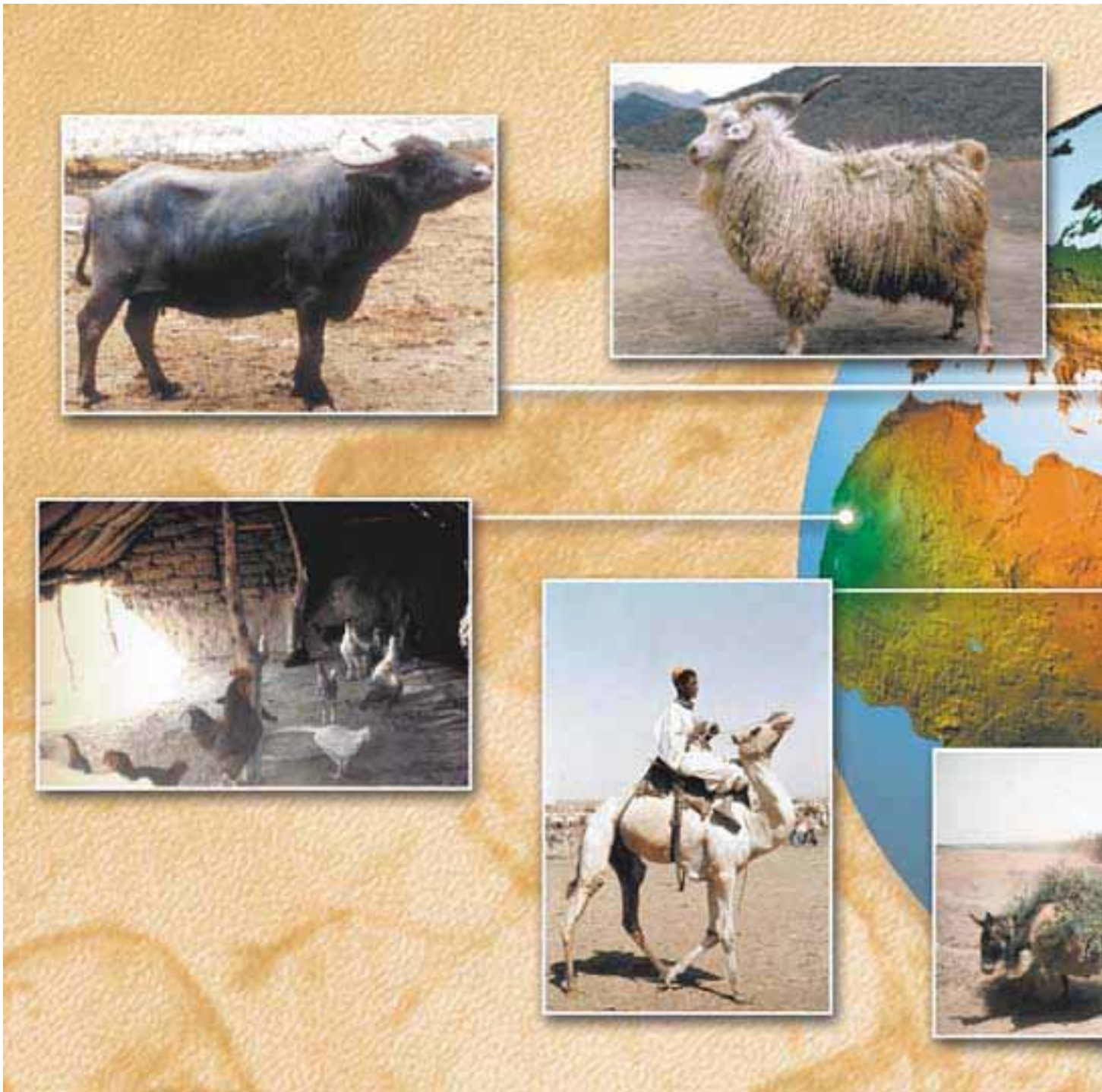
The Uruguayan Criollo breed is found in the temperate and mountainous regions of Uruguay. The animals are white in colour. Adult males weigh on average 55 kg and females 37 kg. These sheep have strong, coarse/carpet type wool and females are polled. It was estimated that there were 50 000 Criollo sheep in Uruguay, but while it was still the dominant breed in the mountainous tropical regions it was almost extinct in the temperate zones. Of females, 25% are bred to males of the same breed.

The Near East region includes 29 countries, dependent territories, overseas departments, entities and areas that have been grouped together on the basis of agro-ecological and climatic similarity (listed in table 2.2.6.1). These countries share similarities in culture and, in many cases, language. The region is characterized by a large disparity in the distribution of both economic and agricultural resources, the more developed countries having access to vast oil reserves, the poorer ones being regularly subjected to drought and famine. For example, the Gross National Product (GNP) per capita ranges from less than US \$300 in Afghanistan and Somalia to more than US \$20 000 in Saudi Arabia, Qatar and United Arab Emirates.

In 1998 the total population size of the Near East was estimated to be 418 million, an increase of almost 90 million people since 1994. The population size is expected to continue to increase with long-term projections to year 2015 indicating a population of over 500 million. Currently over 33.5 percent of the population rely on agriculture as a source of income. This has decreased from 46.5 percent in 1980 and is expected to decrease even further to 21 percent by 2015. The decrease may be principally attributed to increasing urbanization, especially in high-income countries where in some cases over 80 percent of the population live in cities, and to some degree industrialization. For example, in Kuwait 97 percent of the population live in cities and in Saudi Arabia and United Arab Emirates over 85 percent of the population are urban dwellers. This has resulted in a corresponding increase in the demand for agricultural products and has posed a challenge for future generations to meet this demand, given the less than ideal agricultural conditions.

Much of the land in the Near East receives less than 400 mm of rain annually and there is little prospect of bringing it under irrigation. Four major agro-ecological zones may be distinguished: hyper-arid (60 percent), arid (20 percent), semi-arid (15 percent) and sub-humid (5 percent). Limitations imposed by climate, poor and rocky soils, rough topography and other factors preclude use of the land for sustained cropping or development for other purposes. Rainfall is extremely erratic and may frequently fall in heavy storms of short duration, thus contributing to erosion. Consequently the only use to which a large proportion of the land can be put is for grazing by animals (rangelands).

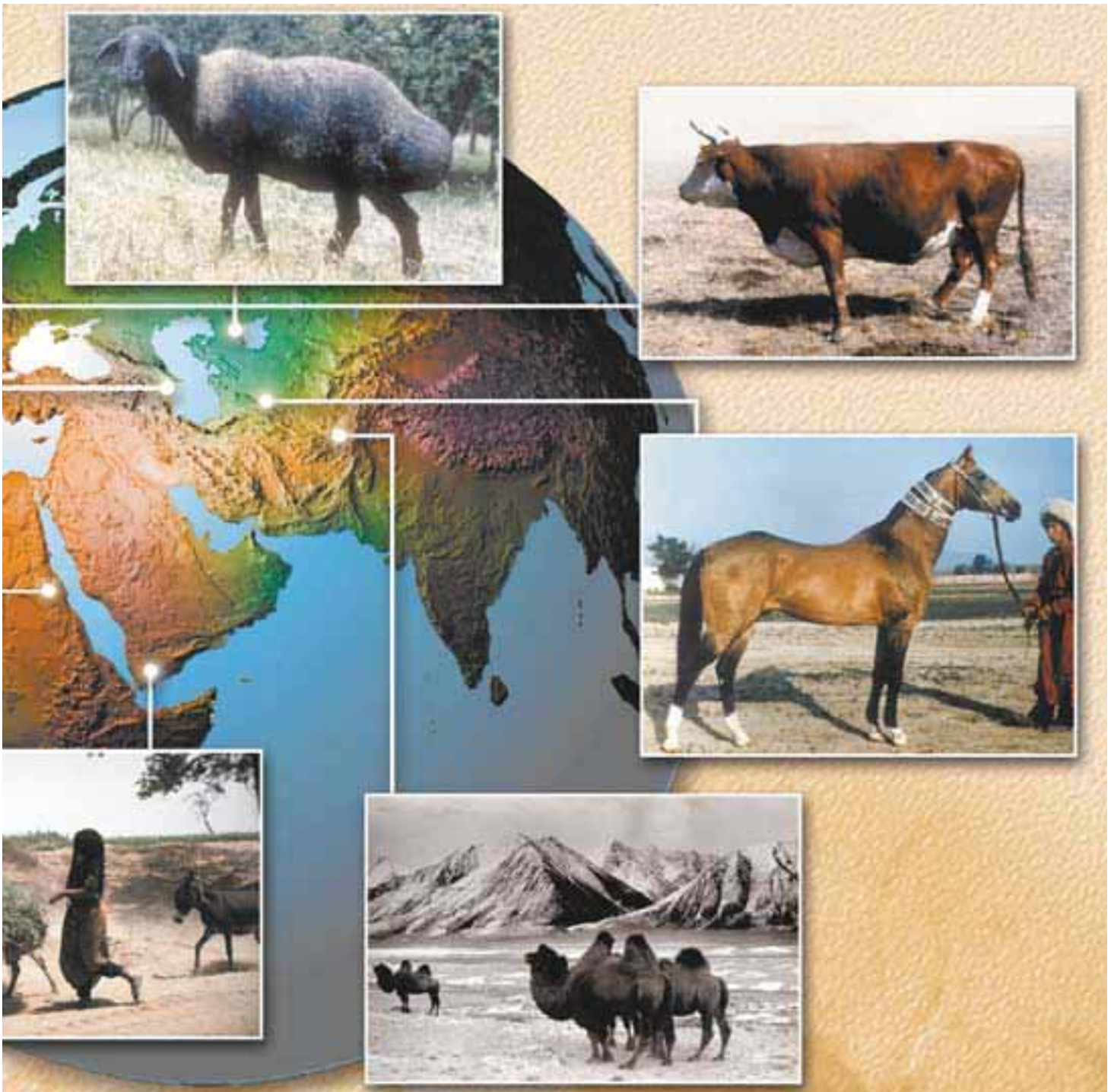
Rangelands, which account for approximately 62 percent of the total land area in the region, have been grazed continuously for millennia. However, the delicate agro-ecological balance that exists on ranges is under threat due to mismanagement and the heavy demands made as a result of increased urbanization. The introduction of mechanized transport has allowed the rapid movement of animals and the overgrazing of many areas. This has also resulted in a decline in the use of the dromedary, an animal perfectly adapted to harsh desert conditions.



from top left clockwise:

- *Caucasian buffalo cow in Azerbaijan.*
- *Soviet Mobair goats in Kazakhstan can withstand long distance drives and have strong constitutions.*
- *Fat-tailed sheep, such as this Edil' Baevskaya ewe, utilise the fat stored in their tail when forage is scarce.*
- *Kazakh Whiteheaded cattle can tolerate hot and cold climatic extremes.*

RANGE OF PRODUCTION ENVIRONMENTS IN THE NEAR EAST REGION



- *Akbal-Tekinskaya stallion, Turkmenistan.*
- *Bactrian camel in the Small Pamir mountains of Afghanistan at 13 580 feet.*
- *Donkeys are an invaluable means of transportation in Yemen and in many other countries of the region.*
- *Red Sea Hills camel, a breed of Sudanese racing camel.*
- *Mauritanian Local Chickens reared using traditional husbandry techniques.*

TABLE 2.2.6.1

THE 29 COUNTRIES, DEPENDENT TERRITORIES, OVERSEAS DEPARTMENTS, ENTITIES AND AREAS IN THE NEAR EAST REGION

AFGHANISTAN	KUWAIT	SOMALIA
ALGERIA	KYRGYZ REPUBLIC	SUDAN
AZERBAIJAN	LEBANON	SYRIAN ARAB REPUBLIC
BAHRAIN	LIBYA ARAB JAMAHIRIYA	TAJIKISTAN
DJIBOUTI	MAURITANIA	TUNISIA
EGYPT	MOROCCO	TURKMENISTAN
IRAN, ISLAMIC REPUBLIC OF	OMAN	UNITED ARAB EMIRATES
IRAQ	PALESTINE	UZBEKISTAN
JORDAN	QATAR	YEMEN
KAZAKHSTAN	SAUDI ARABIA, KINGDOM OF	

The Near East is considered to be the cradle of domestication where most of the major livestock species were first husbanded. The confluence of the Tigris and Euphrates basins, which was very fertile 10 000 years ago, would have provided early herders with an ideal environment to domesticate many of the local wild species. Because of their amenability to herding, sheep and goats are believed to have been domesticated first, followed by horses, pigs and cattle. Later dromedary camels and asses (North Africa) were brought under human control. From their centres of domestication these species expanded to other regions of the world facilitated by the continuous flux of peoples such as the Vedic Aryans, Semitic and Hametic and the Ural Altaics.

Early livestock herders, in addition to selecting for environmental and nutritional factors, placed considerable emphasis on the cultural and religious merits of animals. This led to the generation of great morphological diversity within species, some of which can be seen in early reliefs from Palestine and Lower Egypt.

Similar farming systems to those practised in ancient times are still in evidence today among the Bedouin, the “people of the desert”. These tribes represent the contemporary Arab tribal society that has retained traditional attitudes and concepts of life. They have developed an animal husbandry system that remains the only possible basis of subsistence and means of utilizing the arid areas, an important and valuable resource. Their herds and flocks are moved seasonally over great distances in search of food and water and have evolved both morphologically and physiologically to suit this lifestyle.

Intensified farming is also practised in the region. However, this requires large capital investment and tends to be confined to the more developed countries. Moreover, such systems tend to use high-producing exotic breeds that are physiologically ill-equipped for the harsh conditions in the arid zones.

In addition to the considerable climatic stress imposed on animals, the large number of endemic diseases pose a further threat. For example, epidemics of Foot-and-Mouth disease are not uncommon and may cause deaths in cattle and small ruminants. Other infections such as brucellosis, anthrax, rabies, sheep and goat pox and African horsesickness, which resulted in heavy losses of horses and donkeys between 1958 and 1965, may cause massive losses especially in times of drought when the animals’ resistance is reduced. The constant movements of herders in the region facilitate the rapid spread of such diseases. The main ectoparasite in the Near East is mange which affects camels, and to a lesser extent sheep and goats. Although this may not cause many deaths, it may result in a chronic reduction in the productivity of animals.

Breeds respond quite differently to infection and there can be very heavy losses when exotic breeds are introduced into infected areas. For example, the protozoan parasite *Theileria annulata* is endemic and may cause some losses of indigenous animals, but it results in dramatic losses of introduced exotics.

Probably the most serious cause of loss amongst the region’s animals is malnutrition and starvation. The periods of drought, which may last three to four years, often occur in cycles of eight to ten years and can reduce the ruminant population by as much as 50 percent. These are especially prevalent in African countries such as the Sudan and Somalia where famines and crop failures are regular features of the life cycle.

Some sheep breeds have developed a fat tail that is thought to act as a source of energy during such times of famine. Other animals, such as the dromedary can tolerate relatively long periods without food or water. Breeds such as the Barki and Barbari sheep and Shami goats are also well adapted to harsh conditions. They are generally taller than breeds found in the humid and sub-humid tropics. Animals may often be required to travel long distances in search of feed, which results in the build-up of body heat. The larger

TABLE 2.2.6.2 TOTAL POPULATION SIZE AND NUMBER OF BREEDS OF THE MAJOR LIVESTOCK SPECIES IN THE NEAR EAST REGION AND THEIR SHARE OF THE WORLD TOTAL

	POPULATION SIZE ('000)	NUMBER OF BREEDS	SHARE OF WORLD TOTAL	
			POPULATION (%)	BREEDS (%)
Buffalo	3 998	10	2	11
Cattle	71 913	86	5	7
Yak	n/a	3		23
Goat	114 572	94	16	16
Sheep	242 770	201	23	15
Pig	1 120	2	0	0
Ass	9 220	40	21	41
Horse	2 549	62	4	9
Camel	12 692	34	67	54
Chicken	991 075	27	7	4
Duck ¹	10 795	2	1	2
Turkey	7 839	1	3	3
Goose (domestic)	10 183	n/a	5	n/a

¹ Domestic Duck and Muscovy Duck

n/a — not available

Source: FAOSTAT (estimates of 1999 live animal populations) and DAD-IS

surface area may help in the dissipation of heat. Similarly, fewer hair follicles per surface area and thinner skin also help in the dissipation of heat. These breeds often feed or browse where taller animals are at a distinct advantage.

Although the diversity of livestock breeds in the Near East is generally not as great as in other areas (largely due to the relatively homogenous environment), the harsh environment coupled with poor quality nutrition have fashioned different genetic resources and breeds to perform under conditions inaccessible to most other livestock.

Table 2.2.6.2 gives the total population sizes and the number of breeds of each of the major domestic animal species recorded in the Near East region and the share of the world's population sizes and number of breeds. The relative proportions of dromedaries and asses are greater than in other regions, two-thirds of the world's dromedaries and one-fifth of the world's asses being found in this region. It is of note that there are only two pig breeds in the Near East, principally due to Islam rejection of this species. Much of the domestic animal diversity in this region is now under threat of extinction due to the need for specialization and intensification.

In 1995, 361 mammalian and 33 avian breeds (including extinct) were recorded in the Global Databank for Farm Animal Genetic Resources. Since then, 201 mammalian

breeds and one avian breed have been added, increasing the amount of data recorded by 56 percent and three percent, respectively. Figures 2.2.6.1 to 2.2.6.2 illustrate the structure of the data recorded in the Global Databank for Farm Animal Genetic Resources, showing the risk status of the mammalian and avian breeds recorded for each species in the Near East region up to 1995 and up to 1999.

Surprisingly, only eight percent (44 of 571) of extant breeds on file are categorized as at risk (for definition see section 1.6). This is believed to be a gross underestimate of the true situation. Population data is available for only 293 or 51 percent of all breeds and current data is not available for many countries, particularly those experiencing recent unrest and drought. The data are further biased as population data is more easily provided for breeds least at risk. No breeds are recorded as maintained in the Near East region.

It is difficult to make solid statements about the changes in the proportion of breeds recorded in each risk status category between 1995 and 1999, because with the large amount of additional data recorded and the manner of the recording method, the 1995 data is not a random subset of the 1999 data and direct comparisons between data sets would be biased by considering proportional changes.

Despite such biases, when the complete data sets are indirectly compared, some trends are clear. As percentages of

FIGURE 2.2.6.1A

RISK STATUS OF MAMMALIAN BREEDS RECORDED IN THE NEAR EAST REGION UP TO DECEMBER 1999: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

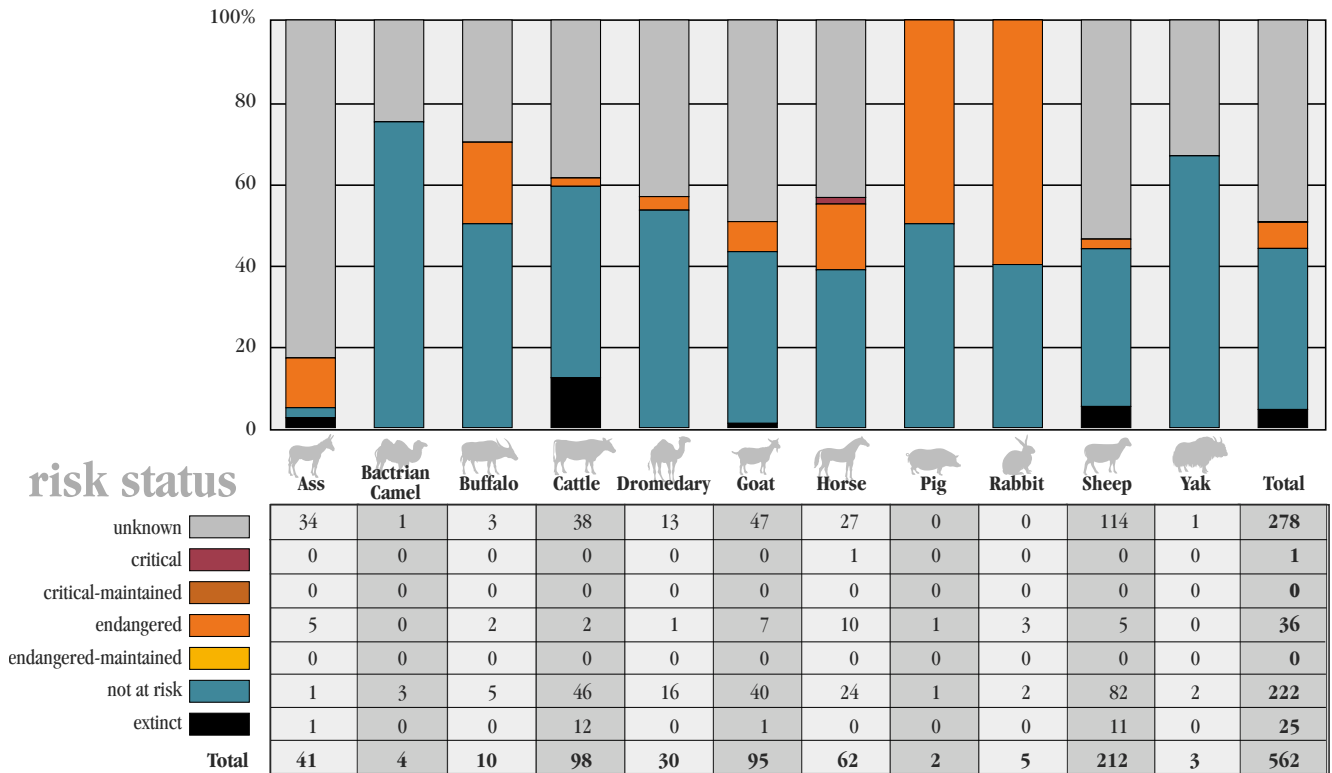


FIGURE 2.2.6.1B

RISK STATUS OF MAMMALIAN BREEDS RECORDED IN THE NEAR EAST REGION UP TO MAY 1995: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

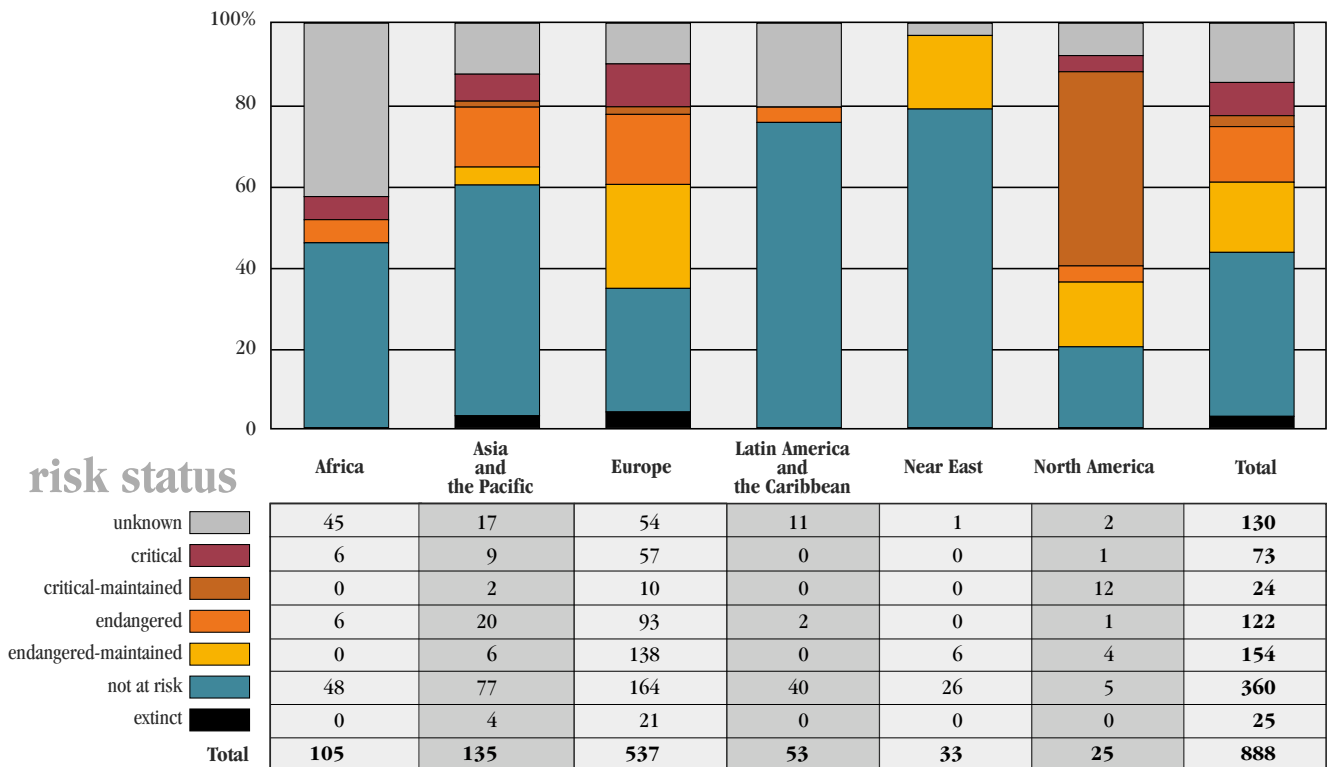


FIGURE 2.2.6.2A

RISK STATUS OF AVIAN BREEDS RECORDED IN THE NEAR EAST REGION UP TO DECEMBER 1999: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

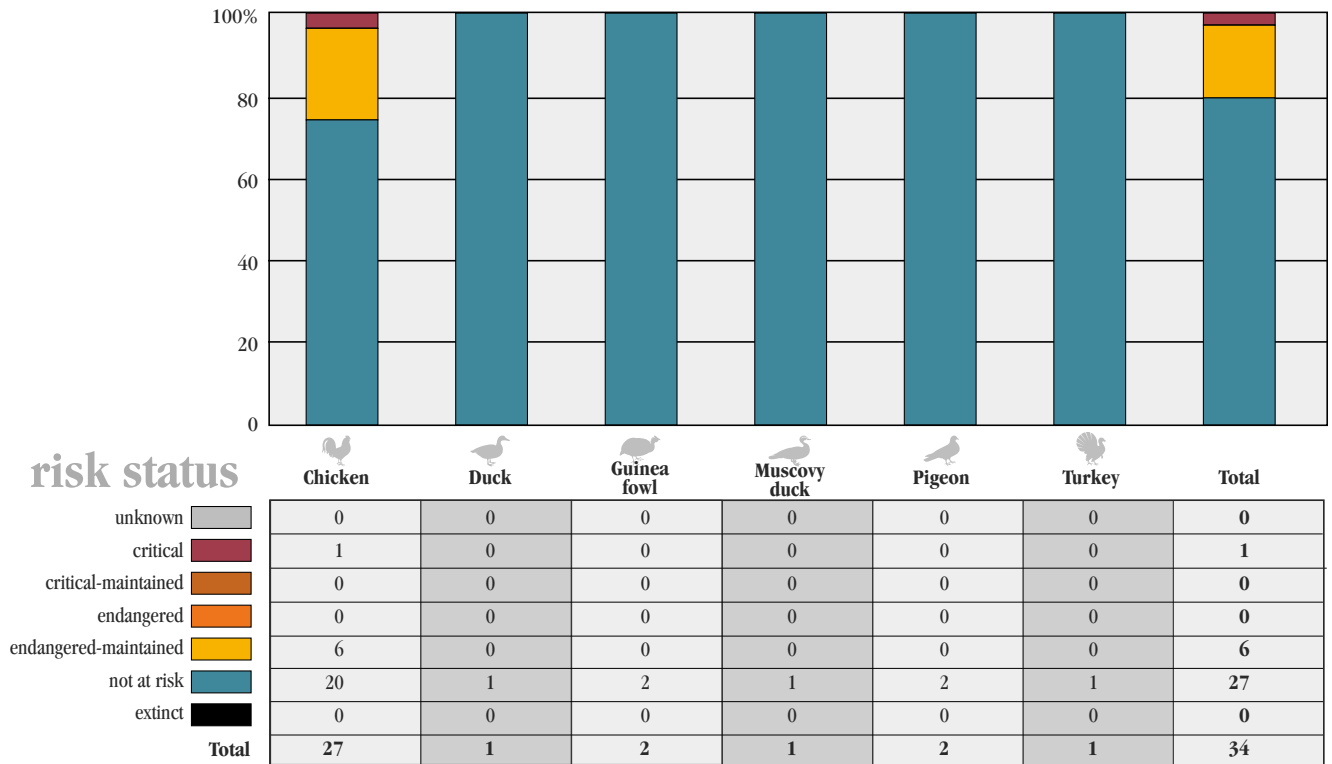


FIGURE 2.2.6.2B

RISK STATUS OF AVIAN BREEDS RECORDED IN THE NEAR EAST REGION UP TO MAY 1995: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

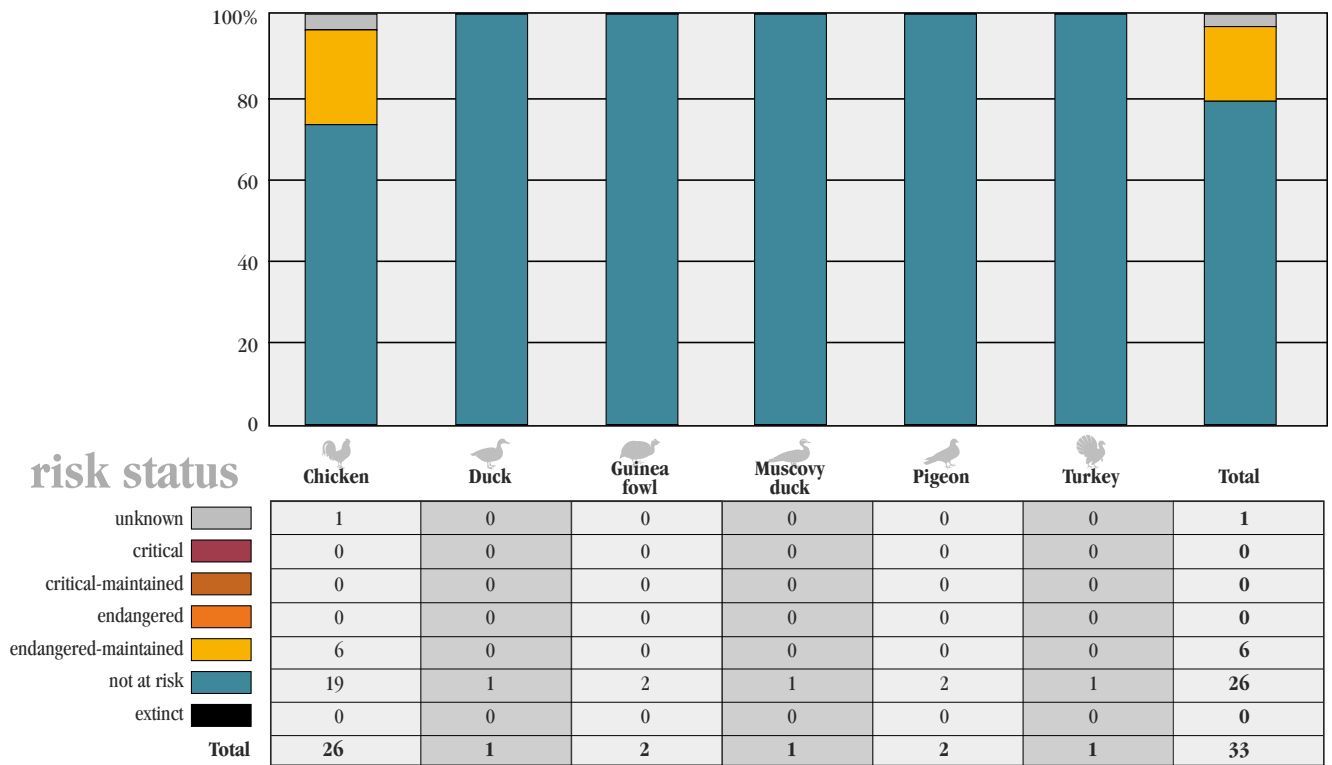
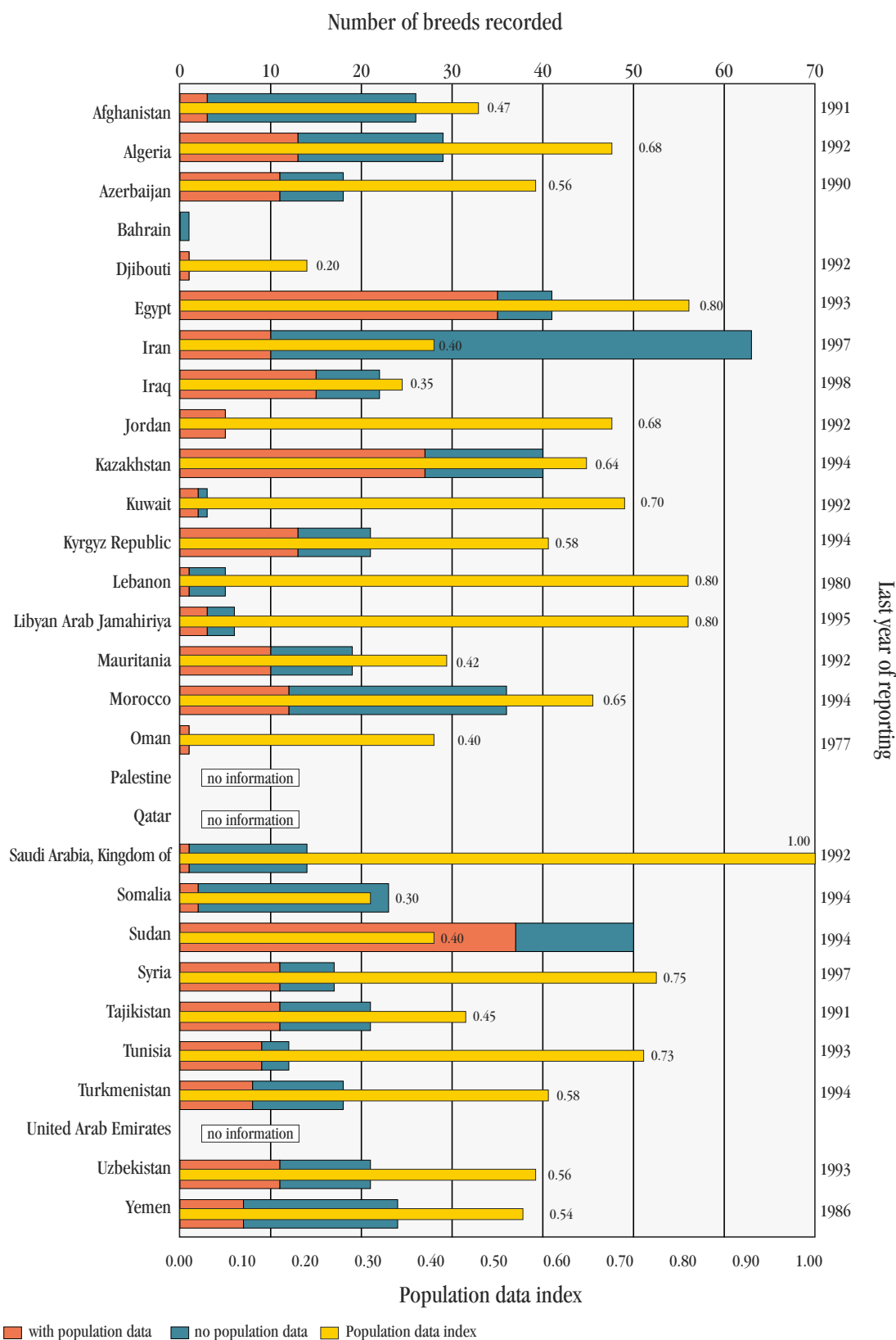


FIGURE 2.2.6.3

POPULATION DATA STATUS AND INDEX FOR MAMMALIAN BREEDS RECORDED BY COUNTRIES, DEPENDENT TERRITORIES, OVERSEAS DEPARTMENTS, ENTITIES AND AREAS OF THE NEAR EAST REGION UP TO DECEMBER 1999



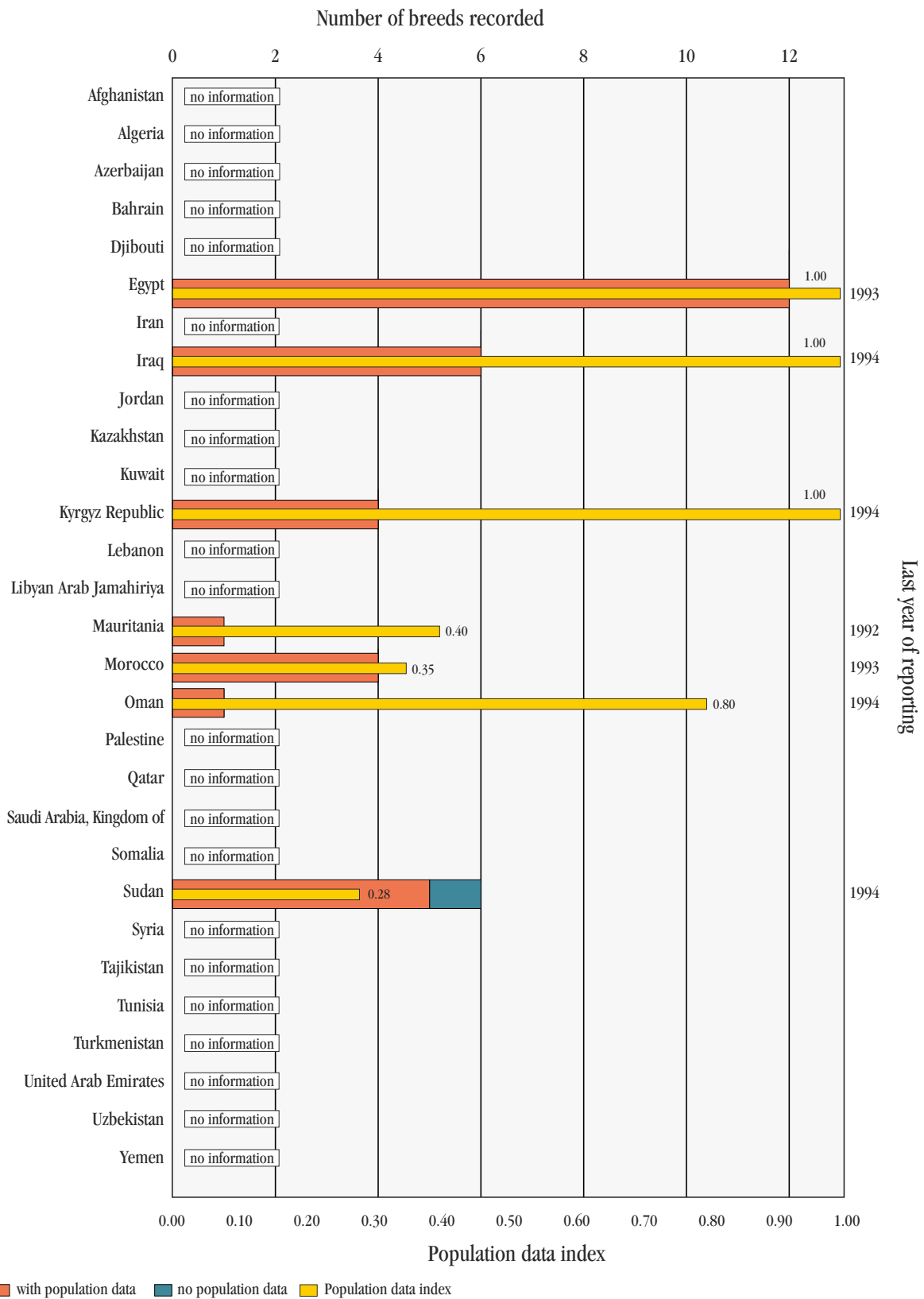
With population data Those breeds with information recorded in one or more of the 16 population data fields.

No population data Those breeds with no information recorded in any of the 16 population data fields.

Population Data Index (PDI) For each country the PDI was calculated only for those breeds recorded with population data. The PDI is the fraction of selected population data fields (population size, number of breeding females, number of breeding males and the percentage of females bred to males of the same breed) that contain information, averaged across breeds.

FIGURE 2.2.6.4

POPULATION DATA STATUS AND INDEX FOR AVIAN BREEDS RECORDED BY COUNTRIES, DEPENDENT TERRITORIES, OVERSEAS DEPARTMENTS, ENTITIES AND AREAS OF THE NEAR EAST REGION UP TO DECEMBER 1999



With population data Those breeds with information recorded in one or more of the 16 population data fields.

No population data Those breeds with no information recorded in any of the 16 population data fields.

Population Data Index (PDI) For each country the PDI was calculated only for those breeds recorded with population data. The PDI is the fraction of selected population data fields (population size, number of breeding females, number of breeding males and the percentage of females bred to males of the same breed) that contain information, averaged across breeds.

the total number of existing breeds that have population data (and therefore risk status known), the number of mammalian breeds recorded in the Near East region at risk of extinction has increased from five percent (of 182) to 14 percent (of 259) since 1995. The situation with avian breeds is also serious with the total percentage of breeds at risk of being lost increasing from 19 percent (of 32) in 1995 to 21 percent (of 34) in 1999. These figures are alarming and efforts must be made to encourage maintenance of these domestic animal genetic resources at risk

Figures 2.2.6.3 and 2.2.6.4 provide general overviews of the quantity and quality of the population data provided by each country for their animal genetic resources. A list of all contributors of information to the Global Databank for Farm Animal Genetic Resources is given in Annex 2.2 and 2.3. The last year of reporting refers to the date of the most recent entry of population data in the Global Databank for Farm Animal Genetic Resources. Potentially, this means that even if the data for only one breed is updated then that year will be indicated. The total number of breeds recorded by each country is shown. **No information** is displayed for those countries for which no breeds are recorded in the Global Databank for Farm Animal Genetic Resources. For each other country, breeds are split into those **with population data** and those with **no population data** (risk status unknown). When one or more fields in the Global Databank for Farm Animal Genetic Resources are completed then that breed is identified with population data. For an overview of the population data fields see tables 1.7.1 and 1.7.2.

For those breeds recorded with population data, a population data index (PDI) is calculated, which provides an indication of the completeness of the data provided by the country. Selected basic population data fields, regarded to be the most important and used in the calculation of risk status, are considered - population size (absolute or range), number of breeding females, number of breeding males and the percentage of females bred to males of the same breed. The PDI is calculated for each breed as the fraction of the selected fields that contain information. This is then averaged across all breeds for which the index is calculated.

For example (see figure 2.2.6.3), by 1993 Egypt had recorded 41 mammalian breeds in the Global Databank for Farm Animal Genetic Resources. Of those, 35 had information contained in one or more of the 16 population data fields, and were therefore identified as those breeds with population data. The PDI for Egypt was calculated as 0.8, indicating that of the 35 breeds reported to date with population data, on average 80 percent of the most important population fields were completed. By comparison, by 1992 the Kingdom of Saudi Arabia had recorded 14 mammalian breeds, only one of which was recorded with population data. All of the required fields for designation of risk status were completed for this breed and therefore the PDI for the Kingdom of Saudi Arabia is given as 1.00.

Overall, figures 2.2.6.3 and 2.2.6.4 highlight some serious

deficiencies in population data and stress the fundamental challenge for countries to overcome these for better decision-making both nationally and internationally. For mammalian breeds (figure 2.2.6.3), of the 29 countries in the Near East region, 3 reported no breed information at all for their genetic resources. For the countries that did report mammalian genetic resources, the average PDI was 0.58. Of these countries, 62 percent (16 of 26) reported more than 50 percent of the basic population data used for the calculation of risk status. Much less data again has been recorded for avian breeds (figure 2.2.6.4), with only 7 (24 percent) of the 29 countries having reported on their avian genetic resources and the average PDI for these countries being 0.69. In summary, for both mammalian and avian breeds recorded to date and for those countries that have recorded breed data, more than one-quarter of the data required for the FAO designation of risk status, have not yet been recorded. For the remaining countries, for which no breed information is recorded, the state of their animal genetic resources is unknown.

Of note is the relatively little data recorded for avian species. Although the recording of avian breeds was initiated after the recording of mammalian breeds, little more data has recently been added by countries for avian breeds. Avian breeds should not be neglected as they make important contributions to food, especially in the developing world, and represent an important component of global animal genetic resources.

For a complete list of breeds and their risk status, recorded by each country, see section 2.4.2.

Under the Convention on Biological Diversity (CBD), which became international law in December 1993, countries that have ratified this convention are not only recognized as having sovereignty over all genetic resources within their boundaries, but are also obliged to report data on these genetic resources, including their animal genetic resources. Each country is responsible for validating and maintaining current data describing the status and characteristics of these resources and for reporting on this internationally. FAO is the UN agency responsible for assisting countries to develop and maintain this reporting responsibility. Under Decision III/11 of the Conference of the Parties (COP) of the CBD, FAO also has the mandate to develop, as a priority activity, the Global Strategy for the Management of Farm Animal Genetic Resources for country use. In order to do this, countries should comply, and provide complete, high-quality breed data which should be regularly updated. Country inventories within the Global Databank for Farm Animal Genetic Resources assist the management of animal genetic resources. Management includes the identification of those breeds at risk of extinction using a consistent approach. This information is crucial in order to develop the Global Early Warning System for Animal Genetic Resources and for the conservation of these resources. Breed data must be available in order to further develop methodologies, to consistently define risk status across countries, regions and the world and to share the benefits of animal genetic resources.

DESCRIPTION LIST

The following pages provide brief summary descriptions for all mammalian and avian breeds recorded as critical (C), endangered (D), critical-maintained (CM) and endangered-maintained (DM) in the Near East region. Within these description lists breeds are sorted by country, by species group (see table 1.3.1), by risk status (critical followed by critical-maintained, endangered and endangered-maintained) and finally alphabetically by the most common name, as identified by the country. Whenever more than one breed name is provided, that used by the major ethnic group (in terms of numbers) is used to denote the most common name for the breed. Colour varieties, especially of avian species, are listed as one breed. For each breed a list of names or synonyms, the total population size (absolute or range), the number of breeding males and females, the population size trend and the range of uses are highlighted when available. This is followed by a brief description of the breed indicating its origins, current location, phenotype (particularly any unusual visible traits), adaptability to local stressors such as environmental pressures, population information (such as the proportion of

females being bred to males of the same breed) and any *in situ* and *ex situ* conservation efforts that are operational. All data submitted to FAO before 31/11/99 has been validated and considered. In some cases information for the breed is not available or was not provided and validated prior to preparation of WWL-DAD:3. Consequently, some sections will read **No further information available** (see Annex 2.1 for details on how to assist overcoming such information deficiencies).

Breeds recorded as extinct in this region are listed in section 2.3.1. For a complete list of all breeds and their risk status recorded by each country in each region, see section 2.4.2.

It should be noted that risk status is assigned for a breed whenever the population size of a country population has been reported according to the criteria given in section 1.6. This may not be a true reflection of the status of the breed regionally or globally, for the breed may also be represented in one or more other countries.

The following list describes the 43 documented breeds at risk in the Near East region.

MARCO POLO'S SHEEP*ENDANGERED*

Local names or syn.: Great Tibetan Sheep (eng.), Pamir Argali, Great Pamir Sheep (eng.)

Population data: < 200 • 1991

Population trend: -

Range of uses: -

AFGHANISTAN

Marco Polo's Sheep (*Ovis ammon polii*) is a variety of Argali sheep. Adult males weigh on average 126 kg and females 76 kg with an average wither height of 113 cm and 100 cm respectively. These sheep have coarse/carpet type wool. In 1973 the reported population was 290 rams, 472 females and 498 lambs and yearlings.

AZERBAIDZHANSKAYA*ENDANGERED*

Local names or syn.: Azerbaijan (eng.), Long-Haired Caucasian (eng.), South Caucasian (eng.), Transcaucasian (eng.)

Population data: 100 - 1 000 • 1988

Population trend: -

Range of uses: meat, milk

AZERBAIJAN

Azerbaijdzhanskaya goats may be black, red or grey, but are usually pied, black dappled with red, in colour.

DELIBOZSKAYA*CRITICAL*

Local names or syn.: Deliboz (eng.)

Population data: 209 • 91 ♀ • 3 ♂ • 1990

Population trend: stable

Range of uses: -

AZERBAIJAN

The Delibozskaya breed is found in west Azerbaijan. It is a composite of Turkish Arab, Karabakh and Azerbaijan established in the early 20th century. These light ponies are grey or brown in colour and the tongue looks forked. Males and females have an average wither height of 152 cm and 150 cm respectively. The breed shows a good working capacity. Of females, 47% are bred to males of the same breed.

AZERBAIDZHANSKAYA*ENDANGERED*

Local names or syn.: Azerbaijan (eng.)

Population data: 1 824 • 699 ♀ • 73 ♂ • 1990

Population trend: stable

Range of uses: -

AZERBAIJAN

The Azerbaijdzhanskaya breed was established in 1927-1929 by improving with Saddle breeds between 1927-1929 and in the 1940s. These light ponies are grey in colour.

KARABAKHSKAYA*ENDANGERED***Local names or syn.:** Karabakh (eng.)**Population data:** 1 824 • 699 ♀ • 73 ♂ • 1989**Population trend:** stable**Range of uses:** -**AZERBAIJAN**

The Karabakhskaya was established in the 18th century by crossing with Arab and Turkmen horses. The animals are chestnut or bay in colour, are lightly built with an average wither height of 150 cm and 146 cm respectively. Efforts are underway to regenerate the Karabakhskaya. Of females, 9% are bred to males of the same breed.

BOZAKHSKAYA*ENDANGERED***Local names or syn.:** Bozakh (eng.)**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** -**AZERBAIJAN**

The Bozakhskaya is a Caucasian fat-tailed sheep. The animals may be white (36%), yellow-white (23%), tan (13%), grey (10%) or red (9%) in colour. Adult males weigh on average 65 kg and females 50 kg. Females have an average wither height of 64 cm. Males and females may be either polled or horned.

SHIRVANSKAYA*ENDANGERED***Local names or syn.:** Shirvan**Population data:** 100 - 1 000 • 1989**Population trend:** -**Range of uses:** -**AZERBAIJAN**

The Shirvanskaya breed, similar to the Karabakh, is found in eastern and central Azerbaijan. It is a Caucasian fat-tailed sheep, off-white (73%), brown, black or pied in colour with medium fibred wool. Adult males weigh on average 50.7 kg and females 43 kg. The breed is well adapted to the hot summers of the Mugan-Salyany area. Reports from 1989 suggest that most of the sheep (up to 80%) are being crossed with the Azerbaijan Mountain Merino and as a result pure-breds are only raised on individual holdings in the following regions: Apsheron, Lenkoran, Masalli and Sumagit.

MINUFI*ENDANGERED***Local names or syn.:** Baladi (= local)**Population data:** 360 000 • 190 ♀ • 4 000 ♂ • 1993**Population trend:** increasing**Range of uses:** milk, meat**EGYPT**

Minufi buffaloes, a variety of Baladi, are found in southern and central parts of the Delta. The animals are dark grey in colour and have long, curved horns. Adult males weigh on average 600 kg and females 570 kg with an average wither height of 150 cm and 145 cm respectively.

ARAB*ENDANGERED***Local names or syn.:** Hamdani, Saklawi, Kuhailan**Population data:** 1 500 - 2 000 • 800 ♀ • 1993**Population trend:** decreasing**Range of uses:** riding (sports)**EGYPT**

The Arab breed originated and was established in the 4-8th century in the hot, arid steppes of the Arabian Peninsula. The data pertain to the Egyptian Arab horse bred mainly on one governmental farm (El-Zahraa Arab horse stud farm, Cairo) belonging to the Egyptian Agricultural Organization (EAO), and a few private farms. Surplus horses and culled animals go mainly into the local Baladi pool. Of females, 100% are bred to males of the same breed.

BALADI WHITE*ENDANGERED***Local names or syn.:** -**Population data:** 2 000 • 500 ♀ • 100 ♂ • 1992**Population trend:** decreasing**Range of uses:** -**EGYPT**

The Baladi White is the product of several generations of cross-breeding between Baladi (native) rabbits and Giant Flander (exotic breed) at the Ministry of Agriculture's Poultry Breeding stations. Heavily does (50% Giant / 50% Baladi) were backcrossed with Giant Flander bucks for several generations, animals being selected for pure white colour. The animals are white in colour. Adult males weigh on average 1.95 kg and females 1.9 kg. Of females, 50% are bred to males of the same breed.

GALABI*ENDANGERED***Local names or syn.:** -**Population data:** 1 200 - 5 000 • 1 000 ♀ • 200 ♂ • 1992**Population trend:** decreasing**Range of uses:** -**EGYPT**

The Galabi is found in the Western Desert and Sinai. The animals are medium sized, grey in colour and well adapted to desert conditions. Adult males weigh on average 3.2 kg and females 3.4 kg. In 1992 the Desert Research Institute carried out a project in Maryout (north-western coast of Egypt) to characterize this breed. Of females, 100% are bred to males of the same breed.

GIZA WHITE*ENDANGERED***Local names or syn.:** -**Population data:** 1 500 - 10 000 • 1 000 ♀ • 500 ♂ • 1992**Population trend:** decreasing**Range of uses:** meat, milk**EGYPT**

The Giza White breed was established in 1932 when a native stock of rabbits of different colours and sizes was bred by the Animal Breeding Department, Cairo University, Giza, attempting to construct a breed of uniform characteristics. Colours were isolated and black and albino colours were genetically segregated. Selection was carried out using a recording system. Around 1937 systematic breeding took place with the objective of obtaining an albino type with a higher growth rate and larger litter size. This population is known as Giza White and the rabbits are albino white in colour with soft, silky fur. Adult males weigh on average 2.8 kg and females 2.75 kg. Of females, 50% are bred to males of the same breed.

ANGER



ENDANGERED

Local names or syn.: Asian Wild Ass (eng.), Half-Ass (eng.), Hemione

Population data: 100 - 1 000 • 1988

Population trend: -

Range of uses: -

IRAN, ISLAMIC REPUBLIC OF

Anger asses (*Equus hemionus*) are pale yellowish-brown with paler underparts and a darker mane and back-stripe.

IRANIAN ONAGER



ENDANGERED

Local names or syn.: Ghor-Khar, Persian Onager (eng.), Persian Wild Ass (eng.)

Population data: 100 - 1 000 • 1988

Population trend: -

Range of uses: -

IRAN, ISLAMIC REPUBLIC OF

The Iranian Onager (*Equus hemionus onager*) is found in northern desert plateau, central Iran. Between 200 and 400 individuals survive in the northern desert plateau of Iran, the main threat to their survival being over-hunting and competition with domestic stock for forage and water. Onagers breed freely in captivity and are well represented in zoos.

KURDI



ENDANGERED

Local names or syn.: Karadi

Population data: 100 - 1 000 • 1997

Population trend: decreasing

Range of uses: meat

IRAN, ISLAMIC REPUBLIC OF

Kurdi cattle, of the Brachyceros type, are black in colour, often with light markings. Adult males weigh on average 300 kg and females 220 kg cm with an average wither height of 106 cm.

CASPIAN



ENDANGERED

Local names or syn.: Caspian Miniature (eng.)

Population data: 100 - 1 000 • 1988

Population trend: -

Range of uses: -

IRAN, ISLAMIC REPUBLIC OF

Caspian horses, found in Golan and Mazandaran, are usually bay, grey, chestnut or occasionally black in colour.

MIRIZ*ENDANGERED***Local names or syn.:** Miraz**Population data:** < 1 000 • 1986**Population trend:** stable**Range of uses:** -**IRAQ**

Miriz goats are found in northern Iraq. They are of the angora type and black in colour. Adult males weigh on average 50 kg and females 30 kg. There is no accurate population data available on the breed. However, numbers are very small in comparison to other breeds of black goat and the number of females is decreasing. Between 3 and 5% of the herd is made up of males used for breeding.

ABAEDH*ENDANGERED***Local names or syn.:** White Native Iraqi (eng.)**Population data:** 575 • 500 ♀ • 75 ♂ • 1994**Population trend:** stable**Range of uses:** research**IRAQ**

The Abaedh breed originated in the country-side of Iraq. These chickens may have self-white (98%) coloured plumage with no special pattern (90%) within the feathers. They have white skin and the shanks and feet may be yellow (90%). The comb is of single type and egg shells may be white (90%) in colour. On average females weigh 1.5 kg. The breed is frugal and rustic and is reported to be heat tolerant. The birds at the IPA experimental station were developed as a pure line by selecting according to feather colour.

ARREE EL- RAKABA ABAEDH*ENDANGERED***Local names or syn.:** White Naked Neck Iraqi (eng.)**Population data:** 230 • 200 ♀ • 30 ♂ • 1994**Population trend:** increasing**Range of uses:** research**IRAQ**

The Arree El- Rakaba Abaedh breed originated in the country-side of Iraq. These chickens may have self-white (90%) coloured plumage with no special pattern (90%) within the feathers. They have white skin and the shanks and feet may be yellow (80%). The comb may be of single (90%) type and egg shells are white in colour. They have a naked neck. On average females weigh 1.4 kg. The breed is frugal and rustic and is reported to be heat resistant, probably due to the presence of the naked neck gene (Na). The birds at the IPA experimental station were developed as a pure line by selecting according to feather colour.

ARREE EL- RAKABA BUNNI*ENDANGERED***Local names or syn.:** Brown Naked Neck Iraqi (eng.)**Population data:** 230 • 200 ♀ • 30 ♂ • 1994**Population trend:** stable**Range of uses:** research**IRAQ**

The Arree El- Rakaba Bunni breed originated in the country-side of Iraq. These chickens may have self-red and variants (90%) coloured plumage with no special pattern (90%) within the feathers. They have white skin and the shanks and feet may be white (80%) or yellow (20%). The comb may be of single (90%) type and egg shells are brown in colour. On average females weigh 1.3 kg. The breed is frugal and rustic and is reported to be heat tolerant. The birds at the IPA experimental station were developed as a pure line by selecting according to feather colour.

ASSWAD*ENDANGERED***Local names or syn.:** Black Native Iraqi (eng.)**Population data:** 575 • 500 ♀ • 75 ♂ • 1994**Population trend:** stable**Range of uses:** research**IRAQ**

The Asswad breed originated in the country-side of Iraq. These chickens have self-black (98%) coloured plumage with no special pattern (90%) within the feathers. They may have yellow (90%) skin and the shanks and feet may be black (70%) or yellow (30%). The comb is of single type and egg shells are tinted in colour. On average females weigh 1.4 kg. The breed is frugal and rustic and is reported to be heat tolerant. The birds at the IPA experimental station were developed as a pure line by selecting according to feather colour.

BUNNI*ENDANGERED***Local names or syn.:** Brown Native Iraqi (eng.)**Population data:** 575 • 500 ♀ • 75 ♂ • 1994**Population trend:** stable**Range of uses:** research**IRAQ**

The Bunni breed originated in the country-side of Iraq. These chickens have self-red and variants (98%) coloured plumage with no special pattern (90%) within the feathers. They have white skin and the shanks and feet may be yellow (90%). The comb is of single type and egg shells are tinted in colour. On average females weigh 1.4 kg. The breed is frugal and rustic and is reported to be heat tolerant. The birds at the IPA experimental station were developed as a pure line by selecting according to feather colour.

MUKHATAT*ENDANGERED***Local names or syn.:** Barred Native Iraqi (eng.)**Population data:** 575 • 500 ♀ • 75 ♂ • 1994**Population trend:** stable**Range of uses:** research**IRAQ**

The Mukhatat breed originated in the country-side of Iraq. These chickens have barred autosomal patterns within the feathers, white skin and the shanks and feet may be yellow (90%). The comb is of single type and egg shells are tinted in colour. On average females weigh 1.8 kg. It is reported that this breed is heat resistant and they can be raised in harsh environments with a minimal nutritional requirement. The birds at the IPA experimental station were developed as a pure line by selecting according to feather colour.

KULAN*ENDANGERED***Local names or syn.:** Transcaspian Onager (eng.)**Population data:** < 500 • 1994**Population trend:** -**Range of uses:** -**KAZAKHSTAN**

The Kulan (*Equus hemionus kulan*) is a variety of Onager. It survives in small, isolated herds and total numbers are probably under 500. Excessive hunting and competition with domestic stock are the main causes of the Kulan's decline.

ARVANA-KAZAKH TYPE*ENDANGERED***Local names or syn.:** -**Population data:** < 1 000 • 250 ♀ • 10 ♂ • 1993**Population trend:** decreasing**Range of uses:** milk**KAZAKHSTAN**

The Arvana-Kazakh Type dromedary is found in southern Kazakhstan. The breed was established by crossing hybrid Kurt camels with sires of the Arvana Turkmen breed. Adult males weigh on average 700 kg and females 520 kg with an average wither height of 180 cm and 174 cm respectively. The breed is adapted to the local climatic conditions (harsh continental desert climate). The animals are able to endure water and fodder shortages. The best camels are reared in southern Kazakhstan, Mangystau and Atyrau regions. Of females, 100% are bred to males of the same breed.

RUSSIAN CENTRAL ASIAN LOCAL COARSE-HAIRED*ENDANGERED***Local names or syn.:** Mestnye Grubosherstnye Kozy Srednei Azii (ru.)**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** meat, milk, wool**KAZAKHSTAN**

The Russian Central Asian Local Coarse-Haired goat is found in the Altai region. This native mountain goat is usually black, may occasionally be grey, tan or pied in colour and has large horns. Adult males weigh on average 60 kg and females 45 kg. The breed is considered a valuable resource for the creation of new breeds. It is difficult to obtain an estimate of population size for these goats as they are found primarily on individual holdings.

AKSAI BLACK PIED*ENDANGERED***Local names or syn.:** Askaiskaya Cherny Pestraya (ru.)**Population data:** < 5 000 • 450 ♀ • 96 ♂ • 1990**Population trend:** stable**Range of uses:** meat, lard**KAZAKHSTAN**

The Aksai Black Pied pig is found in Alma Ata, south-eastern Kazakhstan. It is a composite of Large White, Berkshire and local pigs and was established in 1952. The animals are black and white pied in colour and have erect ears. Adult males weigh on average 317 kg and females 245 kg. Of females, 100% are bred to males of the same breed.

RUSSIAN CENTRAL ASIAN LOCAL COARSE-HAIRED*ENDANGERED***Local names or syn.:** Mestnye Grubosherstnye Kozy Srednei Azii (ru.)**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** meat, milk, wool**KYRGYZ REPUBLIC**

The Russian Central Asian Local Coarse-Haired goat is found in the Altai region. This native mountain goat is usually black, may occasionally be grey, tan or pied in colour and has large horns. Adult males weigh on average 60 kg and females 45 kg. The breed is considered a valuable resource for the creation of new breeds. It is difficult to obtain an estimate of population size for these goats as they are found primarily on individual holdings.

KIRGIZ*ENDANGERED***Local names or syn.:** Kirgizskaya (ru.), Kirgiz Mountain (eng.)**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** herding, meat, milk**KYRGYZ REPUBLIC**

The Kirgiz breed is a Mongolian type pony.

MARCO POLO'S SHEEP*ENDANGERED***Local names or syn.:** Great Tibetan Sheep (eng.), Pamir Argali, Great Pamir Sheep (eng.)**Population data:** < 200 • 1991**Population trend:** -**Range of uses:** -**KYRGYZ REPUBLIC**Marco Polo's Sheep (*Ovis ammon polii*) are a variety of Argali. Adult males weigh on average 126 kg and females 76 kg with an average wither height of 113 cm and 100 cm respectively. These sheep have coarse/carpet type wool.**BARBE***ENDANGERED***Local names or syn.:** Barb (eng.)**Population data:** 2 500 • 400 ♀ • 50 ♂ • 1992**Population trend:** increasing**Range of uses:** sport**MOROCCO**

Barbe horses may be chestnut, grey or bay in colour and are light animals. Adult males weigh on average 450 kg and females 420 kg with an average wither height of 155 cm and 150 cm respectively. This breed is a good saddle horse and a good jumper. Of females, 100% are bred to males of the same breed.

SOMALI WILD ASS*ENDANGERED***Local names or syn.:** -**Population data:** < 300 • 1994**Population trend:** -**Range of uses:** -**SOMALIA**The Somali Wild Ass (*Equus africanus somaliensis*) is found in northern Somalia and is a variety of African Wild Ass. The animals are reddish-grey in colour with a dark mane and seldomly have a dorsal stripe or shoulder cross-stripe. In Somalia the fat is used as a cure for TBC. Current numbers are probably less than 300. This ass is difficult to breed in captivity and the only two captive herds of pure Somali wild asses are at Basle Zoo in Switzerland and Hai Bar in Israel.

SOMALI PONY*ENDANGERED***Local names or syn.:** -**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** -**SOMALIA**

Somali Ponies are usually chestnut or grey in colour.

GHAB*ENDANGERED***Local names or syn.:** Syrian (eng.), Palestinian (obsolete synonym)**Population data:** 100 - 1 000 • 1995**Population trend:** -**Range of uses:** milk, meat**SYRIA**

Ghab buffaloes are found on the Ghab plains. The breed was established in 1200 and originated in India but resembles Mediterranean buffalo breeds. The animals are black in colour.

ARAB*ENDANGERED***Local names or syn.:** Keheilan, Saglawi**Population data:** > 36 927 • 441 ♀ • 128 ♂ • 1989**Population trend:** increasing**Range of uses:** riding (sports)**SYRIA**

The Arab breed originated and was established in the 4-8th century in the hot, arid steppes of the Arabian Peninsula. They are light animals, adult males weighing on average 325 kg and females 275 kg with an average wither height of 155 cm and 152 cm respectively. There are no distinct horse breeds, but registered animals come under Arabian Horse with its seven lines: Keheilat, Saglawi, Muanqiat, Shuwaimat, Duhamat, Hamadaniah and Obaiat. There are 441 females registered in the herd book, of which 100% are bred to males of the same breed.

**MESTNYE GRUBOSHERSTNYE
KOZY SREDNEI AZII***ENDANGERED***Local names or syn.:** Russian Central Asian Local Coarse-Haired (eng.)**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** meat, milk, wool**TAJIKISTAN**

The Mestnye Grubosherstnye Kozy Srednei Azii goat is found in the Altai region. This native mountain goats is usually black, may be occasionally grey, tan or pied in colour and has large horns. Adult males weigh on average 60 kg and females 45 kg. The breed is considered a valuable resource for the creation of new breeds. It is difficult to obtain an estimate of population size for these goats as they are found primarily on individual holdings.

MARCO POLO'S SHEEP*ENDANGERED*

Local names or syn.: Great Tibetan Sheep (eng.), Pamir Argali,
Great Pamir Sheep (eng.)

Population data: < 200 • 1991

Population trend: -

Range of uses: -

TAJIKISTAN

Marco Polo's Sheep (*Ovis ammon polii*) is a variety of Argali sheep. Adult males weigh on average 126 kg and females 76 kg with an average wither height of 113 cm and 100 cm respectively. These sheep have coarse/carpet type wool.

BRUNE DE L' ATLAS*ENDANGERED*

Local names or syn.: Brown Atlas (eng.)

Population data: 914 • 1983

Population trend: -

Range of uses: -

TUNISIA

Brune de l'Atlas cattle may be brown or blond in colour. They are an Iberian type, similar to Libyan cattle. Adult males weigh on average 420 kg and females 335 kg with an average wither height of 135 cm and 118 cm respectively. The breed is adapted to the arid environment.

BARBE*ENDANGERED*

Local names or syn.: Barb (eng.)

Population data: > 500 • 1987

Population trend: -

Range of uses: -

TUNISIA

Barbe horses may be chestnut, grey or bay in colour and are light animals. Adult males weigh on average 450 kg and females 420 kg with an average wither height of 155 cm and 150 cm respectively. The fecundity rate of this breed is very low (about 35%). This breed is a good saddle horse and a good jumper. The actual population size declined considerably between 1960 and 1987 due to the improvement in modern agricultural practices. Since 1988 there has been an increased interest in the breed because of greater tourist demand for horse shows and related activities. This has regenerated government interest and led to the establishment of breeding centres. Approximately 500 animals are registered in the national stud book.

HAMDANI*ENDANGERED*

Local names or syn.: Arab (eng.), Saklawi, Kuhailan

Population data: > 1 300 • 400 ♀ • 30 ♂ • 1992

Population trend: increasing

Range of uses: -

TUNISIA

The Hamdani breed originated and was established in the 4-8th century in hot arid steppes of the Arabian Peninsula. Adult males weigh on average 420 kg and females 400 kg with an average wither height of 150 cm and 148 cm respectively. The breeding numbers are controlled by the relevant officials in the Ministry of Agriculture. Almost 85% of matings are carried out on State stud farms and standards are set by the Ministry of Agriculture. Of females, 100% are bred to males of the same breed.

KULAN*ENDANGERED***Local names or syn.:** Transcaspian Onager (eng.)**Population data:** < 500 • 1994**Population trend:** -**Range of uses:** -**TURKMENISTAN**

The Kulan (*Equus hemionus kulan*) is a variety of Onager. It survives in small isolated herds and total numbers are probably under 500. Excessive hunting and competition with domestic stock are the main causes of the Kulan's decline.

**MESTNYE GRUBOSHERSTNYE
KOZY SREDNEI AZII***ENDANGERED***Local names or syn.:** Russian Central Asian Local Coarse-Haired (eng.)**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** meat, milk, wool**TURKMENISTAN**

The Mestnye Grubosherstnye Kozy Srednei Azii goat is found in Altai. This native mountain goats is usually black, may be occasionally grey, tan or pied in colour and has large horns. Adult males weigh on average 60 kg and females 45 kg. The breed is considered a valuable resource for the creation of new breeds. It is difficult to obtain an estimate of population size for these goats as they are found primarily on individual holdings.

**MESTNYE GRUBOSHERSTNYE
KOZY SREDNEI AZII***ENDANGERED***Local names or syn.:** Russian Central Asian Local Coarse-Haired (eng.)**Population data:** 100 - 1 000 • 1988**Population trend:** -**Range of uses:** meat, milk, wool**UZBEKISTAN**

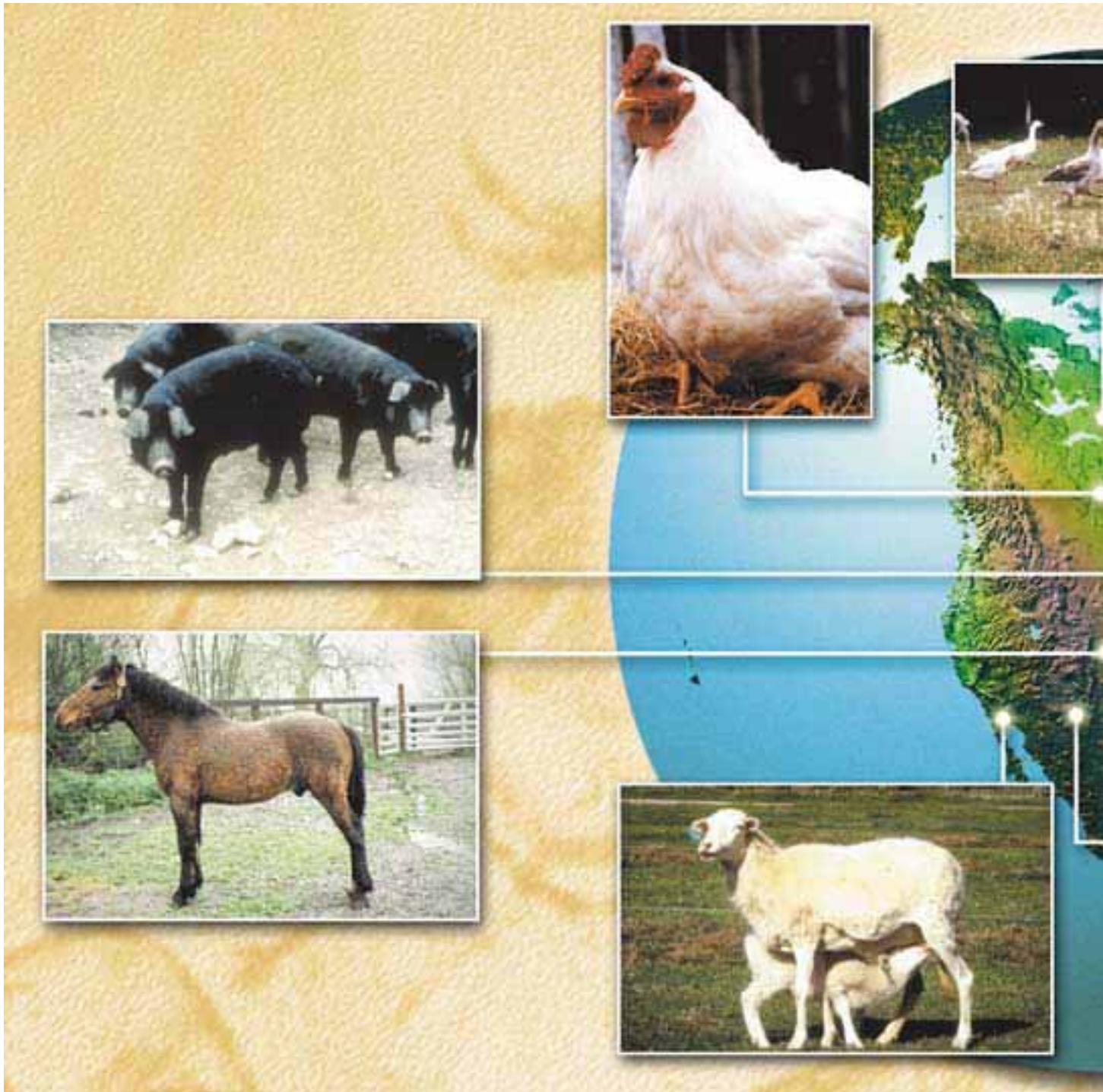
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One of the most developed regions of the world, Canada and the United States of America enjoy an average food intake nearly a third greater than that for Asia and a per capita consumption of energy five times as great as the average of all other continents. In 1998 the human population size estimate for these two countries was 305 million, or five percent of the world's population, an increase from 290 million people in 1994. Agriculture is no longer a principal economic activity (less than 2.5 percent of the population are directly employed in agriculture) but is still very important. Since the 1950s agriculture has become more intensive, requiring fewer farms. For example, in the period 1950-80 the number of farms dropped by 57 percent. This trend has continued throughout the 1980s and 1990s but has been partly compensated by a steady increase in farm size.

The region's agriculture is characterized by considerable diversity, which reflects both variations in natural conditions i.e. topography, climate, soil type, etc. and the influence of people from many different cultures. Livestock and their products are a major source of food in the region's diet, contributing almost 40 percent of the total food energy. Large tracts of land, especially in northern Canada are unsuitable for the production of crops and livestock may be the best means of utilizing these resources.

With the exception of turkeys, most major livestock species were imported to the region. In pre-colonial times indigenous peoples, primarily hunters and gatherers, survived predominantly by hunting large herds of the then ubiquitous native bison. Although they utilized turkeys (domesticated circa 2 000 BC) there are little or no accounts of indigenous peoples husbanding animals. Native Inuits, however, used domestic dogs for transport. Analogous to Latin America, most of the region's livestock breeds were imported by European explorers. On his second voyage to the Americas in 1493, Columbus brought a number of livestock species to the island of Santo Domingo. Similar introductions were made on subsequent voyages and also by other early explorers to the West Indies. Introduced animals were later transported to Central America and finally north across the Rio Grande into the area that would become the western USA.

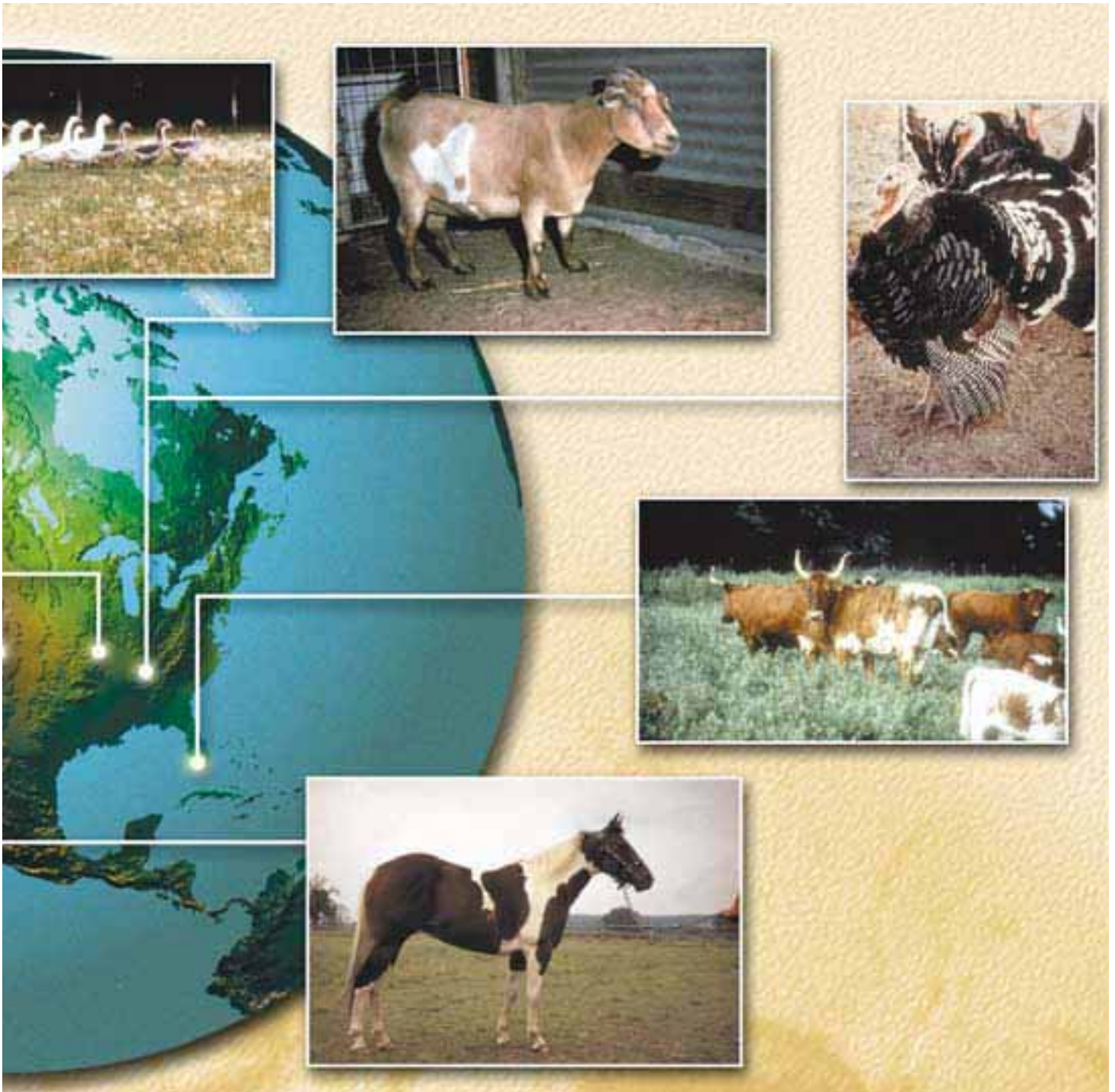
Some of the introduced species may have had influences from other regions. For example, many of the introduced Iberian pig breeds are thought to include some Chinese pig genes. Additionally, slaves brought from West Africa were often accompanied by their livestock, which led to the introduction of breeds such as the West African Dwarf Goat. This is thought to have contributed considerably to the gene pool of American common goats. During the seventeenth century the eastern part of the USA and Canada was colonized by people of European origin who brought with them northern European breeds - many of the region's goats, sheep and cattle came from Britain and France at this time. This process continued throughout the eighteenth century, a period that saw many Europeans coming to the New World in search of



from top left clockwise:

- *Canadian White Wyandotte hen - critical.*
- *Flock of Canadian Pilgrim geese, males (white) and females (grey) - critical.*
- *Tennessee Fainting goats, USA, suffer from hereditary myotonia and as a result are heavily muscled - endangered.*
- *Bronze turkey, one of the few species domesticated in North America.*

RANGE OF PRODUCTION ENVIRONMENTS IN THE NORTH AMERICA REGION



- *Florida Cracker cattle from the USA tolerate heat and humidity, are parasite resistant and very fertile - endangered.*
- *North American Paint horse.*
- *St. Croix sheep, developed at Utah State University in the 1970s, are popular in the USA for grassland management and agro-forestry - endangered.*
- *Curled Bashkir stallion, USA.*
- *The last remaining herd of Mulefoot pigs in the USA has been conserved by an individual farmer - critical.*

prosperity. Other more recent importations such as zebu cattle from Asia and Arabian horses from the Near East have also made extensive contributions to the region's animal genetic resources.

Much of the early breed improvement was based on visual appraisal, with breeders selecting for characteristics that they felt might lead to more efficient production. Although some selected for milk and beef conformation, many focused on colour patterns, shape of horns and other superficial markings that had an exaggerated influence in selection programmes. The introduction of herd books and breed societies led to a standardization of selection goals and consequently revolutionized livestock breeding. This eventually led to the establishment of many native American breeds such as the American Brahman or Canadienne cattle and the Duroc pig, developed earlier this century.

In general, the livestock industry in Canada and the USA has been quite dynamic. Introduced animals have been used to upgrade existing stock leading to the formation of new breeds. More recently, political decisions and economic forces have contributed to the region's breeding programmes. The United States Department of Agriculture and Agriculture Canada closely monitor both the quantity and quality of livestock products in their respective countries. They provide funding for research and are involved in genetic resources monitoring programmes. Consumer trends such as the desire to eat leaner meat or eggs with less cholesterol have also had significant impacts on breeding policy in North America.

A very small number of national and multinational breeding companies now dominate the poultry industry in North America and are becoming more important in the swine industry. Performance recording programmes are in place for most meat and fibre producing species, although participation remains modest for meat cattle and low for small ruminants.

The USA and Canada have among the highest animal health standards in the world. Many livestock diseases such as contagious bovine pleuropneumonia, Foot-and-Mouth disease and piroplasmiasis have been all but eradicated. Mastitis, Newcastle disease, internal parasites and biting insects may cause decreases in the productivity of animals, but these are generally well controlled by vigilant animal health care programmes and do not affect breeding to a significant degree. Sophisticated management systems have, in many cases, standardized the animals' environment and consequently less attention has been given to traits such as disease resistance, adaptability to climate, etc. In general, the primary focus of the region's breed development programmes has been to increase levels of production for systems that incorporate high feed and management inputs.

Despite the relatively recent history of the region's livestock, much genetic variation has accumulated, as evidenced by the large number of North American breeds and by the continued establishment of breeding populations of imported breeds. However, the continued drive towards intensifica-

tion and specialization has, as in other regions, resulted in the increased reliance on a small number of these to meet the demand for food.

Many breeds that were once considered quite valuable have now been confined to the genetic wastebasket. For example, Navajo-Churro sheep, bred by indigenous peoples for their superior wool quality, have only survived in isolated pockets. Others, such as the Florida Cracker cattle are in danger of extinction despite adaptations to heat, parasites, insect scourges and low level nutrition requirements. Many such breeds are kept only for their novelty value or in marginal areas where factors are not conducive to intensification. Less fortunate breeds have become extinct before being fully documented (see section 2.3 on Extinct Breeds).

Changing consumer requirements, the possibility of epidemics from unknown pathogens and an unpredictable environment require a dynamic livestock industry. The American bison, almost extinct at the turn of the century, had until recently been crossbred with domesticated cattle to generate a more diverse range of meat products. These animals (cattalo or beefalo) were quite hardy and could forage on upland winter range during periods of low ambient air temperatures and high wind velocity (often encountered in Alaska and northern Canada).

The Texas Longhorn, aside from its novelty value, is thought to be relatively immune to piroplasmiasis and screwworm, diseases known to cause considerable problems in other regions of the world. This was the first livestock breed to become protected by law in the USA as its numbers were dangerously low in the 1920s. It has now become a stable contributor to the region's beef industry.

Table 2.2.7.1 gives the total population sizes and the number of breeds of each of the major domestic animal species recorded in the North America region and the share of the world's population sizes and number of breeds. Although this table does not provide details on the number of animals in each of the breeds it does give some indication of the region's diversity. Turkeys, cattle, pigs and chickens account for the bulk of North American livestock. Horses, used extensively for draught at the turn of the century, have recently declined in number due to mechanization. Most are now used as hobby animals or in the racing industry. The large number of chickens and turkeys reflects the American consumers' growing desire for poultry meat.

The plight of many of the region's minor breeds is now being documented by organizations such as the American Livestock Breeds Conservancy, the Canadian Foundation for the Conservation of Farm Animal Genetic Resources and Rare Breeds Canada. These associations have been quite successful in maintaining small herds of many of the rarer breeds. However, many others are still under threat and unless greater action is taken these breeds will be irretrievably lost.

In 1995, 199 mammalian and 25 avian breeds (including extinct) were recorded in the Global Databank for Farm

TABLE 2.2.7.1 TOTAL POPULATION SIZE AND NUMBER OF BREEDS OF THE MAJOR LIVESTOCK SPECIES IN THE NORTH AMERICA REGION AND THEIR SHARE OF THE WORLD TOTAL

	POPULATION SIZE ('000)	NUMBER OF BREEDS	SHARE OF WORLD TOTAL	
			POPULATION (%)	BREEDS (%)
Cattle	111 481	62	8	5
Goat	1 428	20	0	4
Sheep	7 891	61	1	5
Pig	74 609	32	8	6
Ass	52	5	0	5
Horse	6 508	53	11	7
Chicken	1 865 000	10	14	1
Duck ¹	7640	n/a	1	n/a
Turkey	100 400	1	40	3
Goose (domestic)	300	1	0	2

¹ Domestic Duck and Muscovy Duck

n/a — not available

Source: FAOSTAT (estimates of 1999 live animal populations) and DAD-IS

Animal Genetic Resources. Since then, 90 mammalian breeds have been added, increasing the amount of mammalian data recorded by 45 percent. No further avian breeds have been recorded in the North America region. Figures 2.2.7.1 to 2.2.7.2 illustrate the structure of the data recorded in the Global Databank for Farm Animal Genetic Resources, showing the risk status of the mammalian and avian breeds recorded for each species in the Africa region up to 1995 and up to 1999.

Thirty-five percent (91 of 259) of extant breeds on file are categorized as at risk (for definition see section 1.6). This is most likely an underestimate of the true situation. Population data is available for only 154 or 59% of the breeds. Very few breeds at risk are recorded as being maintained despite the actions of the above mentioned organizations.

It is difficult to make solid statements about the changes in the proportion of breeds recorded in each risk status category between 1995 and 1999, because with the large amount of additional data recorded and the manner of the recording method, the 1995 data is not a random subset of the 1999 data and direct comparisons between data sets would be biased by considering proportional changes.

Despite such biases, when the complete data sets are indirectly compared, some trends are clear. As percentages of the total number of existing breeds that have population data (and therefore risk status known), the proportion of mammalian breeds recorded in the North region at risk of extinction has increased from 44 percent (of 94) in 1995 to 53 percent (of 131) in 1999. The situation with avian breeds

is more serious, however. Although the total number of avian breeds recorded in the Global Databank for Farm Animal Genetic Resources has not increased since 1995 (25 breeds recorded up until 1995 and again up until 1999), the structure of the data has changed, due to the recording of population size data for those breeds for which, previously population size data was not known. Thus, most likely as a result of better data recording, the total proportion of breeds at risk of being lost seems to have increased dramatically from 78 percent (of 23) in 1995 to 96 percent (of 23) in 1999. Although these figures may not truly reflect the situation, they are indeed alarming and efforts must be made to encourage maintenance of these domestic animal genetic resources at risk

Figures 2.2.7.3 and 2.2.7.4 provide general overviews of the quantity and quality of the population data provided by each country for their animal genetic resources. A list of all contributors of information to the Global Databank for Farm Animal Genetic Resources is given in Annex 2.2 and 2.3. The last year of reporting refers to the date of the most recent entry of population data in the Global Databank for Farm Animal Genetic Resources. Potentially, this means that even if the data for only one breed is updated then that year will be indicated. The total number of breeds recorded by each country is shown. **No information** is displayed for those countries for which no breeds are recorded in the Global Databank for Farm Animal Genetic Resources. For each other country, breeds are split into those **with population data** and those with **no population data** (risk status unknown). When one or more fields in the Global Databank for Farm Animal Genetic Resources are completed then that breed is

FIGURE 2.2.7.1A

RISK STATUS OF MAMMALIAN BREEDS RECORDED IN THE NORTH AMERICA REGION UP TO DECEMBER 1999: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

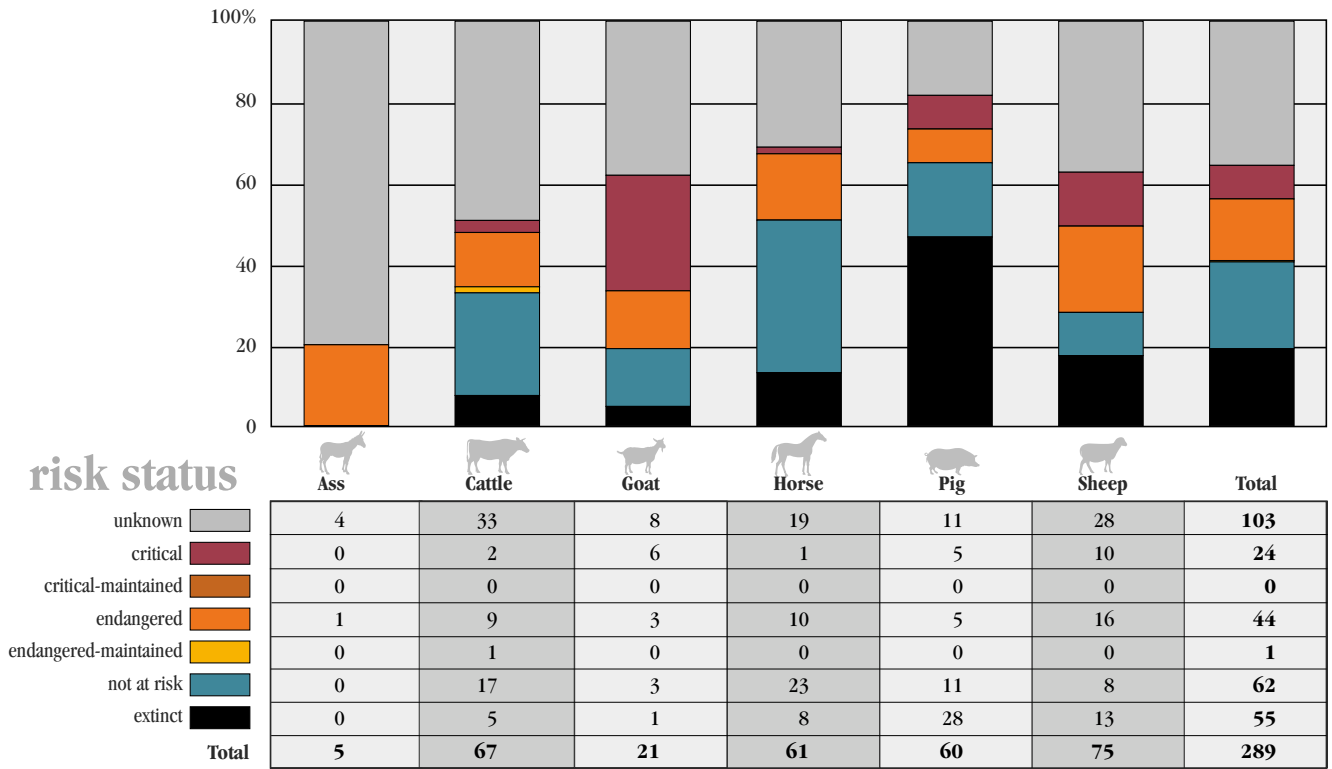


FIGURE 2.2.7.1B

RISK STATUS OF MAMMALIAN BREEDS RECORDED IN THE NORTH AMERICA REGION UP TO MAY 1995: ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

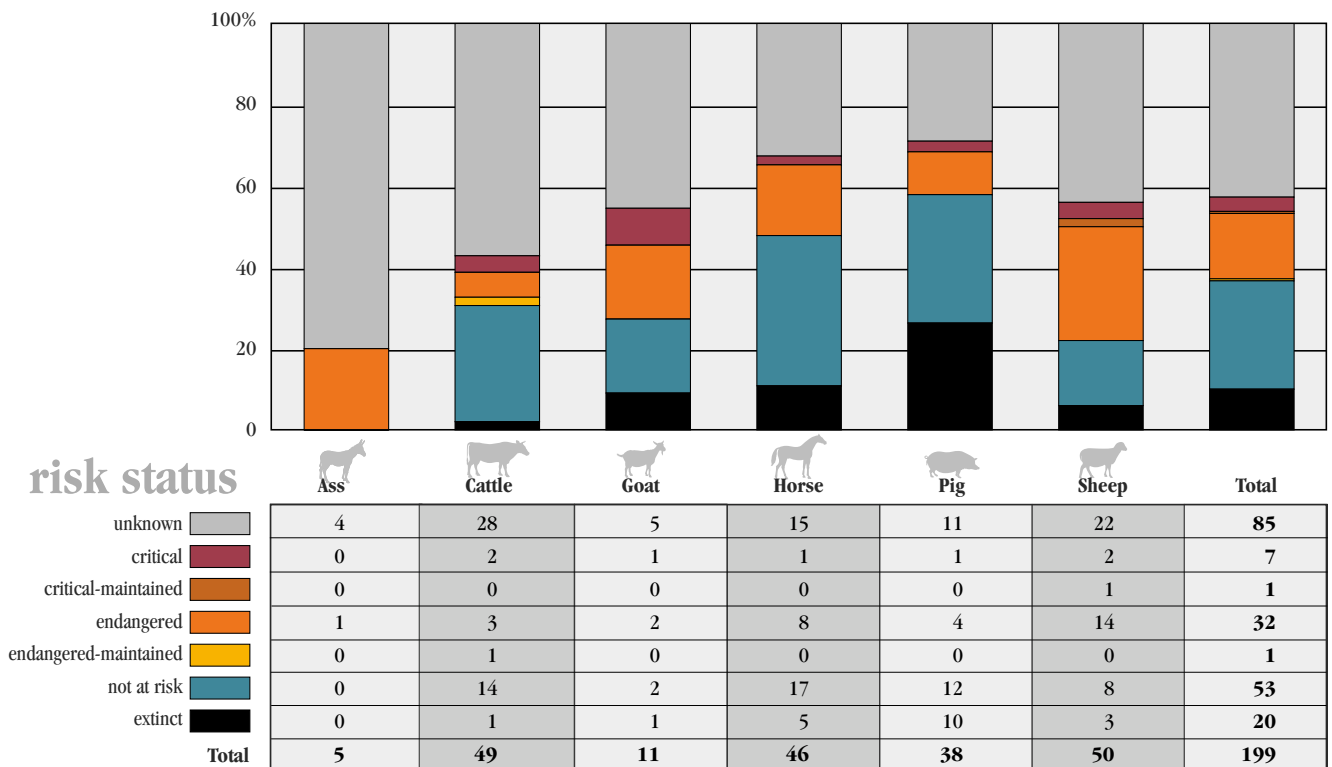


FIGURE 2.2.7.2A

RISK STATUS OF AVIAN BREEDS RECORDED IN THE NORTH AMERICA REGION UP TO DECEMBER 1999:ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

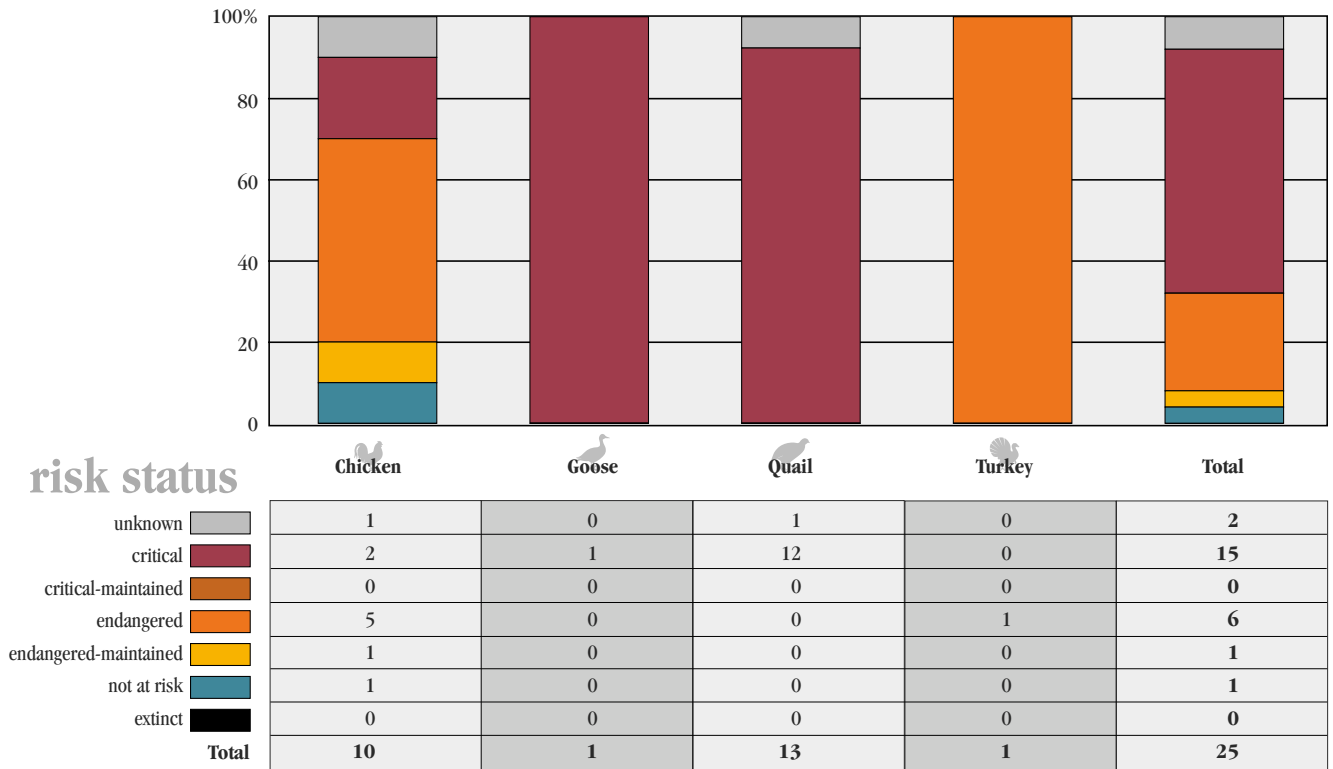


FIGURE 2.2.7.2B

RISK STATUS OF AVIAN BREEDS RECORDED IN THE NORTH AMERICA REGION UP TO MAY 1995:ABSOLUTE (TABLE) AND PERCENTAGE (CHART) FIGURES

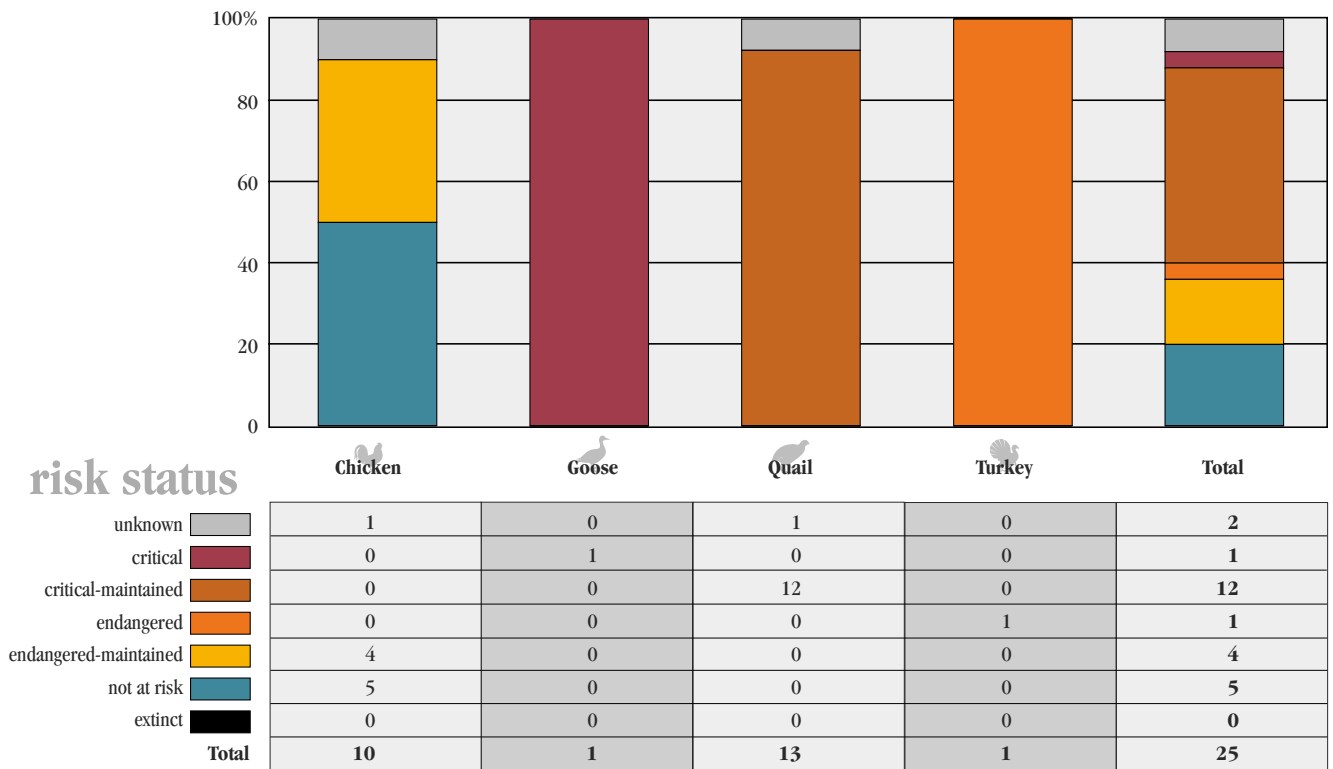


FIGURE 2.2.7.3

POPULATION DATA STATUS AND INDEX FOR MAMMALIAN BREEDS RECORDED BY COUNTRIES, DEPENDENT TERRITORIES, OVERSEAS DEPARTMENTS, ENTITIES AND AREAS OF THE NORTH AMERICA REGION UP TO DECEMBER 1999

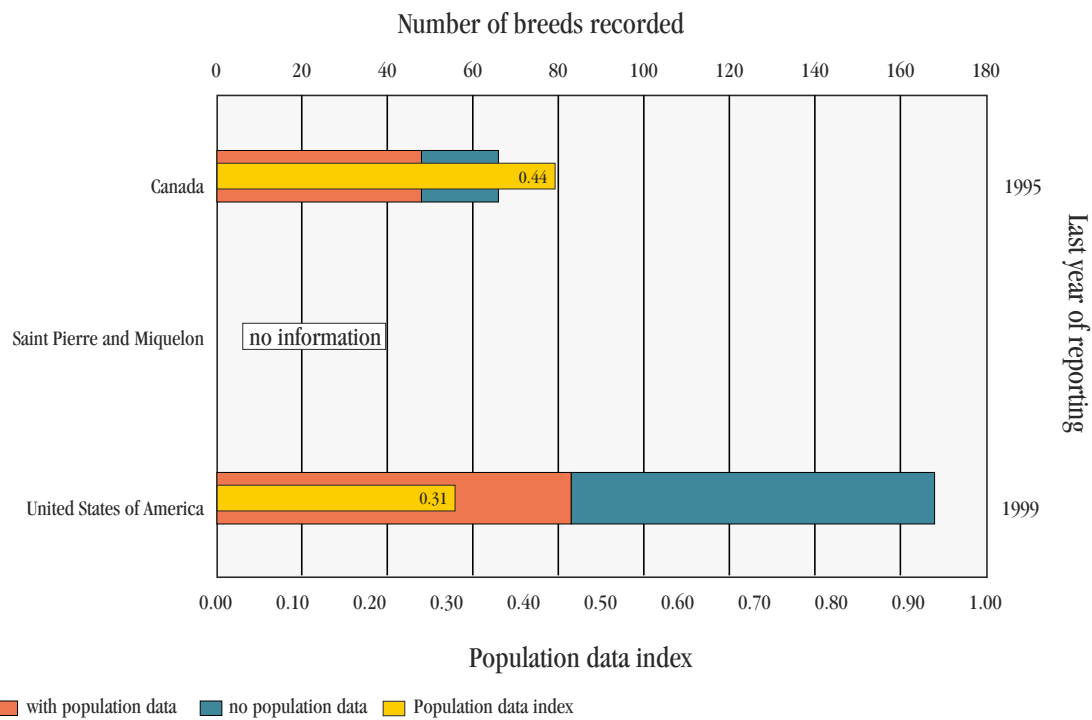
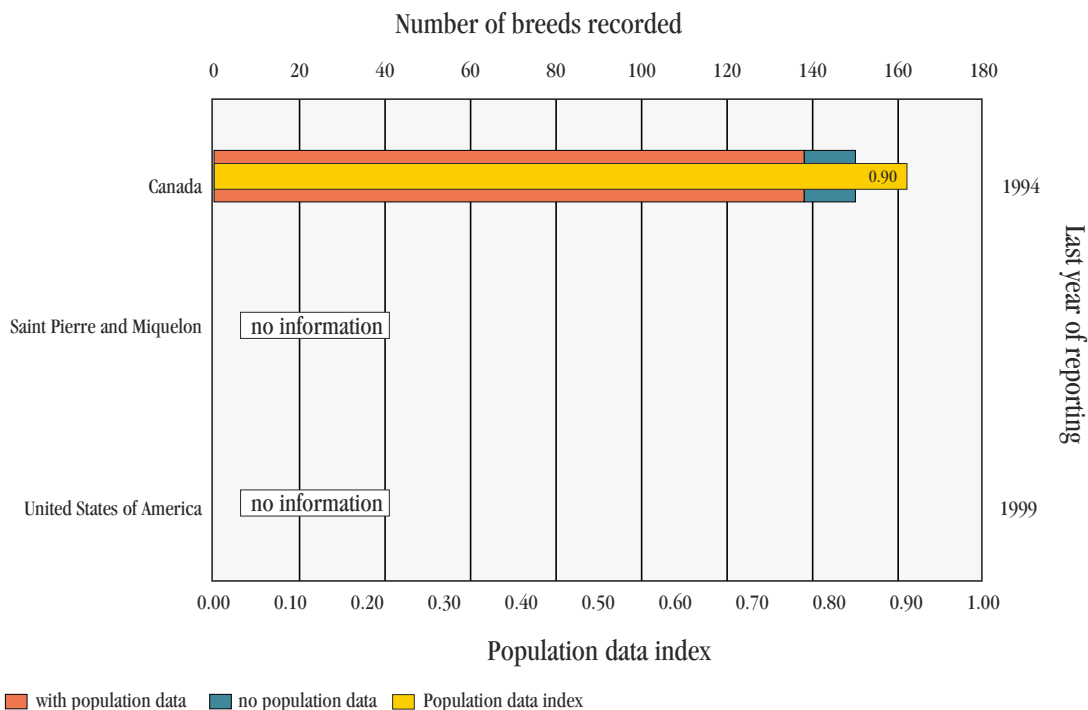


FIGURE 2.2.7.4

POPULATION DATA STATUS AND INDEX FOR AVIAN BREEDS RECORDED BY COUNTRIES, DEPENDENT TERRITORIES, OVERSEAS DEPARTMENTS, ENTITIES AND AREAS OF THE NORTH AMERICA REGION UP TO DECEMBER 1999



With population data Those breeds with information recorded in one or more of the 16 population data fields.

No population data Those breeds with no information recorded in any of the 16 population data fields.

Population Data Index (PDI) For each country the PDI was calculated only for those breeds recorded with population data. The PDI is the fraction of selected population data fields (population size, number of breeding females, number of breeding males and the percentage of females bred to males of the same breed) that contain information, averaged across breeds.

identified with population data. For an overview of the population data fields see tables 1.7.1 and 1.7.2.

For those breeds recorded with population data, a population data index (PDI) is calculated, which provides an indication of the completeness of the data provided by the country. Selected basic population data fields, regarded to be the most important and used in the calculation of risk status, are considered - population size (absolute or range), number of breeding females, number of breeding males and the percentage of females bred to males of the same breed. The PDI is calculated for each breed as the fraction of the selected fields that contain information. This is then averaged across all breeds for which the index is calculated.

The population data for breeds recorded in this developed region are poor. Figures 2.2.7.3 and 2.2.7.4 highlight the serious deficiencies in population data and stress the fundamental challenge for these countries to overcome these for better decision-making nationally and internationally. The United States of America last reported mammalian data in 1999. For the breeds that have been reported less than half have been recorded with population data. For those breeds that have at least some population data, the PDI was calculated as only 0.31. The United States of America has reported no avian breeds at all. Therefore the state of their avian genetic resources can not be determined. Canada has reported some population data for 72 percent (48 of 66) of mammalian breeds, however the PDI for these breeds has been calculated as only 0.44. The PDI for avian breeds reported in Canada is much higher, at 0.90, calculated for the 23 of 25 breeds that were recorded with at least some population data.

Of note is the relatively little data recorded for avian species. Although the recording of avian breeds was initiated after the recording of mammalian breeds, little more data has recently been added by countries for avian breeds. Avian breeds should not be neglected as they make important contributions to food, especially in the developing world, and represent an important component of global animal genetic resources.

For a complete list of breeds and their risk status, recorded by each country, see section 2.4.2.

Under the Convention on Biological Diversity (CBD), which became international law in December 1993, countries that have ratified this convention are not only recognized as having sovereignty over all genetic resources within their boundaries, but are also obliged to report data on these genetic resources, including their animal genetic resources. Each country is responsible for validating and maintaining current data describing the status and characteristics of these resources and for reporting on this internationally. FAO is the UN agency responsible for assisting countries to develop and maintain this reporting responsibility. Under Decision III/11 of the Conference of the Parties (COP) of the CBD, FAO also has the mandate to develop, as a priority activity, the Global Strategy for the Management of Farm Animal Genetic Resources for country use. In order to do

this, countries should comply, and provide complete, high-quality breed data which should be regularly updated. Country inventories within the Global Databank for Farm Animal Genetic Resources assist the management of animal genetic resources. Management includes the identification of those breeds at risk of extinction using a consistent approach. This information is crucial in order to develop the Global Early Warning System for Animal Genetic Resources and for the conservation of these resources. Breed data must be available in order to further develop methodologies, to consistently define risk status across countries, regions and the world and to share the benefits of animal genetic resources.

DESCRIPTION LIST

The following pages provide brief summary descriptions for all mammalian and avian breeds recorded as critical (C), endangered (D), critical-maintained (CM) and endangered-maintained (DM) in the North America region. Within these description lists breeds are sorted by country, by species group (see table 1.3.1), by risk status (critical followed by critical-maintained, endangered and endangered-maintained) and finally alphabetically by the most common name, as identified by the country. Whenever more than one breed name is provided, that used by the major ethnic group (in terms of numbers) is used to denote the most common name for the breed. Colour varieties, especially of avian species, are listed as one breed. For each breed a list of names or synonyms, the total population size (absolute or range), the number of breeding males and females, the population size trend and the range of uses are highlighted when available. This is followed by a brief description of the breed indicating its origins, current location, phenotype (particularly any unusual visible traits), adaptability to local stressors such as environmental pressures, population information (such as the proportion of females being bred to males of the same breed) and any *in situ* and *ex situ* conservation efforts that are operational.

All data submitted to FAO before 31/11/99 has been validated and considered. In some cases information for the breed is not available or was not provided and validated prior to preparation of WWL-DAD:3. Consequently, some sections will read **No further information available** (see Annex 2.1 for details on how to assist overcoming such information deficiencies).

Breeds recorded as extinct in this region are listed in section 2.3.1. For a complete list of all breeds and their risk status recorded by each country in each region, see section 2.4.2.

It should be noted that risk status is assigned for a breed whenever the population size of a country population has been reported according to the criteria given in section 1.6. This may not be a true reflection of the status of the breed regionally or globally, for the breed may also be represented in one or more other countries.

The following list describes the 91 documented breeds at risk in the North America region.

RANDALL BLUE LINEBACK



CRITICAL

Local names or syn.: Lineback (eng.)

Population data: < 100 • 1994

Population trend: stable

Range of uses: milk, draught power, meat

CANADA

The Randall Blue Lineback breed is a remnant of a landrace type known as American Lineback which was popular in New England in the 19th century.

AMERICAN DUTCH BELTED



ENDANGERED

Local names or syn.: Dutch Belt (eng.)

Population data: < 300 • 1994

Population trend: decreasing

Range of uses: milk

CANADA

The American Dutch Belted breed has been separated from the Dutch foundation since the breed's establishment in the mid 1800s and has always bred pure, unlike the Lakenvelders. Its genetic distinctiveness is recognized by importation of semen to The Netherlands to reconstruct the breed there. The animals are black in colour with a white belt. This breed is known for good forage use efficiency. There are 50 females registered in the herd book. Males and females may be either polled or horned.

AMERICAN MILKING DEVON



ENDANGERED

Local names or syn.: Red Devon (eng.)

Population data: < 400 • 1994

Population trend: increasing

Range of uses: draught power, milk, meat

CANADA

The American Milking Devon breed is a variety of Devon. The cattle are known as good browsers. There are 120 females registered in the herd book.

AMERICAN WHITE PARK



ENDANGERED

Local names or syn.: -

Population data: < 250 • 1994

Population trend: -

Range of uses: meat

CANADA

The first animals of the American White Park breed came from the United Kingdom to the Riverdale Zoo in Toronto (1938), then through the New York Zoological Society. Four were established at the King Ranch in Texas (1941) and another four were sent to the Washington Zoo (1941). In 1987, White Park cattle from the United States of America were re-introduced to Canada. The animals are white in colour with black (occasionally red) points. On average adult females weigh 560 kg. Males and females may either be polled or horned.

CANADIAN



ENDANGERED-MAINTAINED

Local names or syn.: Canadien (fr.), Black Jersey (eng.), Black Canadian (eng.), Quebec Jersey (eng.)

Population data: 681 ♀ • 1993

Population trend: decreasing

Range of uses: milk

CANADA

The Canadian breed, found in Quebec, was imported from Normandy and Brittany (France) in the 16th and 17th centuries. The cattle, which may be black or brown in colour, are known for their exceptional rusticity. Adult males weigh on average 750 kg and females 475 kg. Their milk is very good for cheese production due to its high Kappa-casein B variant content. The number of Canadiennes is now estimated to be less than 2 000 animals in 13 herds. *In situ* programmes involving the Centre d'insemination artificielle du Quebec (CIAQ), the Rare Breed Conservancy (RBC) and the Canadian Cattle Breeders Association (CCBA) are operational. The semen of 28 males is stored. Embryos are also stored.

NIGERIAN DWARF



CRITICAL

Local names or syn.: -

Population data: > 83 • 63 ♀ • 20 ♂ • 1994

Population trend: -

Range of uses: -

CANADA

The Nigerian Dwarf goat is descended from the West African Dwarf breed. The animals may be brown or black and white in colour. This breed is smaller than the American Pygmy.

OBERHASLI



CRITICAL

Local names or syn.: Swiss Alpine (obsolete)

Population data: > 31 • 27 ♀ • 4 ♂ • 1994

Population trend: -

Range of uses: milk

CANADA

Oberhasli goats are chamois or occasionally black in colour. All animals are polled.

SAN CLEMENTE



CRITICAL

Local names or syn.: -

Population data: > 3 • 2 ♀ • 1 ♂ • 1994

Population trend: stable

Range of uses: meat, socio-cultural

CANADA

The San Clemente breed is from islands off the coast of California. These goats have black forequarters and tan hindquarters. Both sexes are bearded and males have a shaggy mane. Adult males weigh on average 22 kg and females 13 kg with an average wither height of 65 cm for males. Females have scimitar shaped horns while those of the males curve upward and backwards.

TENNESSEE FAINTING



CRITICAL

Local names or syn.: Nervous Goats (eng.), Epileptic Goats (eng.), Stiff-Legged Goats (eng.)

Population data: > 12 • 8 ♀ • 4 ♂ • 1994

Population trend: increasing

Range of uses: meat, hobby

CANADA

The Tennessee Fainting goat was imported from Asia (probably India) in the early 1880s when the breed was established. The breed's mutation of suffering from hereditary myotonia, resulting in heavy muscling and varying degrees of muscle stiffness when startled, was discovered in the early 1880s in Tennessee. These goats may be black or white or piebald in colour and adult males have an average wither height of 70 cm.

AMERICAN PYGMY



ENDANGERED

Local names or syn.: -

Population data: 160 ♀ • 42 ♂ • 1994

Population trend: -

Range of uses: meat, milk

CANADA

The American Pygmy is descended from the West African Dwarf. The animals are often agouti coloured with dorsal and face-stripes.

LAC LA CROIX INDIAN PONY



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 333 ♀ • 1994

Population trend: -

Range of uses: -

CANADA

The Lac La Croix Indian Pony is a Eastern Canadian Native Indian Pony, probably of French ancestry.

NEWFOUNDLAND PONY



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 333 ♀ • 1994

Population trend: -

Range of uses: -

CANADA

The exact origin of the Newfoundland Pony is unknown. However, the breed was probably developed and established from stock brought to Newfoundland around the 1600s from the United Kingdom or Europe. The animals may be bay, black, brown or red in colour with black forelocks, although the colour of their coat changes seasonally. Adult males weigh on average 337 kg. The horses' good temperament makes them good workers, easy keepers and wonderful pets.

SABLE ISLAND PONY



ENDANGERED

Local names or syn.: -

Population data: 300 • 1994

Population trend: stable

Range of uses: -

CANADA

The Sable Island Pony is found in Nova Scotia. This breed has been feral since its establishment in 1739, although with an input of males from various breeds from 1800-1945. The animals are bay, brown, black or sorrel in colour.

CHESTER WHITE



CRITICAL

Local names or syn.: -

Population data: 10 ♀ • 1 ♂ • 1994

Population trend: -

Range of uses: meat

CANADA

The Chester White breed originated and was established in the early 19th century from imports from the United Kingdom. These pigs are white in colour.

AMERICAN BERKSHIRE



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1995

Population trend: -

Range of uses: meat

CANADA

The American Berkshire breed is a variety of Berkshire pig.

LACOMBE



ENDANGERED

Local names or syn.: -

Population data: 250 ♀ • 27 ♂ • 1994

Population trend: -

Range of uses: meat

CANADA

The Lacombe breed is found in Alberta. It is a composite of Danish Landrace (55%), Chester White (22%) and Berkshire (23%) and was established in 1947-1958. These pigs have lop ears.

BLACK WELSH MOUNTAIN



CRITICAL

Local names or syn.: -

Population data: 100 - 1 000 • 19 ♀ • 9 ♂ • 1994

Population trend: -

Range of uses: meat

CANADA

The Black Welsh Mountain breed is descended from the Tan Faced sheep found all over southern Britain throughout the middle ages which were themselves derived from Marsh and Hill Sheep. These small sheep are black in colour, have medium fibred wool and females are polled. There are 3 herds remaining.

COTSWOLD



CRITICAL

Local names or syn.: -

Population data: 67 ♀ • 12 ♂ • 1994

Population trend: increasing

Range of uses: -

CANADA

Cotswold sheep have medium fibred wool. There are 9 herds remaining.

MONTDALE



CRITICAL

Local names or syn.: -

Population data: 48 • 44 ♀ • 4 ♂ • 1994

Population trend: -

Range of uses: wool, meat

CANADA

The Montdale breed is a composite of Cheviot (40%) and Columbia (60%) breeds and was established in 1933. The sheep are white in colour and have medium fibred wool.

NEWFOUNDLAND



CRITICAL

Local names or syn.: -

Population data: 9 ♀ • 1 ♂ • 1994

Population trend: -

Range of uses: meat, wool

CANADA

The Newfoundland breed, which was established between the late 19th to early 20th century, is a composite of North Country Cheviot, Dorset Horn and other breeds. The animals are white in colour, occasionally having a dark or black face. Adult males weigh on average 70 kg and females 65 kg. These sheep have medium fibred wool and both males and females may be polled or horned. The animals are known for their hardiness and longevity.

SANTA CRUZ



CRITICAL

Local names or syn.: -

Population data: 50 ♀ • 1 ♂ • 1994

Population trend: decreasing

Range of uses: wool, hobby

CANADA

The Santa Cruz breed is descended from Merino and Rambouillet breeds and has been feral most of the 20th century. These sheep have coarse/carpet type wool.

TARGHEE



CRITICAL

Local names or syn.: -

Population data: 3 ♀ • 2 ♂ • 1994

Population trend: -

Range of uses: wool, meat

CANADA

The Targhee breed is a composite of Rambouillet, Lincoln and Corriedale breeds and was established in 1926. These sheep have medium fibred wool and all animals are polled.

BARBADOS BLACKBELLY



ENDANGERED

Local names or syn.: -

Population data: 129 ♀ • 28 ♂ • 1994

Population trend: -

Range of uses: meat

CANADA

The Barbados Blackbelly breed was introduced from Africa and established over 300 years ago. The animals may be red, brown or black and brown in colour, with a black nose, ears, eyebrows, belly and lower legs. They are medium-sized, leggy animals, with coarse/carpet type hair, and the male has a mane. All animals are polled. This is a hardy breed which breeds all year round and which is known for prolificacy. There are 12 herds remaining.

CANADIAN ARCOTT



ENDANGERED

Local names or syn.: -

Population data: 575 ♀ • 89 ♂ • 1994

Population trend: -

Range of uses: meat, general crossbreeding

CANADA

The Canadian Arcott breed, established in 1977, is a composite of Suffolk, Ile de France, Leicester, Cheviot and Romnelet breeds. In 1986 the Animal Research Center for Agriculture Canada developed a mandate to evaluate technology and management strategies for high output lamb production systems which could operate efficiently and profitably under Canadian conditions. In 1988 and 1989 the Arcott sheep (Canadian, Outaouais, Rideau) were released to nucleus flock owners assigned by the Canadian Sheep Breeders Association. Twenty three flocks across Canada received 1 160 ewes and 89 rams (400 Canadian ewes, 480 Rideau ewes and 280 Outaouais). The animals are white in colour. Adult males weigh on average 90 kg and females 85 kg with an average wither height of 73 cm and 65 cm respectively. These sheep have medium fibred wool and all animals are polled. There are 12 herds remaining.

CANADIAN CORRIEDALE



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 296 ♀ • 28 ♂ • 1994

Population trend: -

Range of uses: wool

CANADA

The Canadian Corriedale breed is found in Alberta. It is a composite of Corriedale and Lincoln x Rambouillet and was established in 1919-1934. These sheep are white in colour and have medium fibred wool.

DLS



ENDANGERED

Local names or syn.: -

Population data: 208 ♀ • 40 ♂ • 1989

Population trend: -

Range of uses: meat, wool

CANADA

The DLS breed was established in 1968 and is found in Quebec. It originated at Lennoxville Research Station and is a composite of Australian Dorset x Leicester Longwool and Australian Dorset x Suffolk. The animals are white in colour. Adult males weigh on average 95 kg and females 65 kg. These sheep have medium fibred wool and all animals are polled. The tenderness, juiciness and flavour of meat from DLS lambs compares favourably with meat type breeds such as Suffolk. The total population of DLS sheep in Canada is 12 males and 46 females. There are 208 females registered in the herd book.

KATAHDIN



ENDANGERED

Local names or syn.: -

Population data: 825 • 1994

Population trend: increasing

Range of uses: meat

CANADA

The Katahdin breed is found country-wide. It is a composite of Suffolk, Wiltshire Horn and Virgin Island White breeds created by M. Piel in Maine. The sheep are white in colour, with a 20-25 cm long tail and coarse/carpet type hair. Adult males weigh on average 79 kg and females 64 kg. All animals are polled. This breed is known for prolificacy.

NAVAJO-CHURRO



ENDANGERED

Local names or syn.: Navajo (eng.), Navajo Four-Horned (eng.), American Four-Horned (eng.)

Population data: < 543 • 1994

Population trend: increasing

Range of uses: -

CANADA

The Navajo-Churro breed is descended from the Spanish Churro breed, but has been distinct for more than three centuries. The animals are usually white with colour on their face and legs. Their tail is long and thin and they have horizontal ears. Males and females may be either polled or horned and males may have four horns. Adult males weigh on average 55 kg and females 45 kg. These sheep have coarse/carpet type wool. The sheep of the Navajo Indians were being up-graded to Rambouillet and consequently pure Navajo sheep were becoming rare in the reserve. It is not clear whether this breed exists outside these reserves. The only Canadian flock of Navajo-Churro Sheep is owned by Peter and Faye Vido in Brunswick.

OUTAOUAIS ARCOTT



ENDANGERED

Local names or syn.: -

Population data: 274 ♀ • 33 ♂ • 1989

Population trend: -

Range of uses: meat, general crossbreeding

CANADA

The Outaouais Arcott breed, established in 1977, is a composite of Finnish Landrace, Shropshire and Suffolk breeds. The animals are white in colour. Adult males weigh on average 87 kg and females 80 kg with an average wither height of 71 cm and 64 cm respectively. These sheep have medium fibred wool and all animals are polled.

RIDEAU ARCOTT



ENDANGERED

Local names or syn.: -

Population data: 436 ♀ • 61 ♂ • 1989

Population trend: -

Range of uses: meat, general crossbreeding

CANADA

The Rideau Arcott breed, established in 1977, is a composite of Finnish Landrace, Suffolk, East Friesian, Shropshire and Dorset Horn breeds developed by Agriculture Canada at the Animal Research Centre (ARC), now called Centre for Food and Animal Research in Ottawa, Ontario. The animals are white in colour, with medium fibred wool and both males and females are polled. Adult males weigh on average 90 kg and females 80 kg with an average wither height of 71 cm and 65 cm respectively. This is a rapid growing, fecund-type breed.

ST. CROIX



ENDANGERED

Local names or syn.: -

Population data: < 1 000 • 1994

Population trend: increasing

Range of uses: meat, socio-cultural

CANADA

The St. Croix breed, found in St. Croix, is unique to the United States of America and Canada. It was developed from Virgin Islands Whites at Utah State University and was established in 1970s. The sheep are white in colour with medium fibred hair and all animals are polled. This very docile breed is known for being very prolific and aseasonal and is reported to be heat tolerant and resistant to various parasites. In St. Croix there used to be about 3 000 sheep but due to depredation by dogs and drought the number has been reduced to between 1 000 - 1 500 individuals.

WHITE LEGHORN-MONROG STRAIN



CRITICAL

Local names or syn.: -

Population data: 100 - 1 000 • 100 ♀ • 24 ♂ • 1994

Population trend: increasing

Range of uses: eggs, research

CANADA

White Leghorn-Monrog Strain chickens have self-white coloured plumage with no special pattern within the feathers. They have yellow skin, shanks and feet. The comb is of single type and egg shells are white in colour. Adult males weigh on average 2.2 kg and females 1.8 kg.

WHITE WYANDOTTE



CRITICAL

Local names or syn.: -

Population data: < 100 • 50 ♀ • 12 ♂ • 1994

Population trend: stable

Range of uses: eggs, meat

CANADA

The White Wyandotte breed was developed by Dr. R. D. Crawford, Saskatchewan. These chickens have self-white coloured plumage with no special pattern within the feathers. They have yellow skin, shanks and feet. The comb is of rose type and egg shells may be tinted in colour. Adult males weigh on average 3.6 kg and females 2.8 kg.

BROWN LEGHORN



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 500 ♀ • 100 ♂ • 1994

Population trend: stable

Range of uses: eggs, research

CANADA

The Brown Leghorn breed was developed by Dr. R. D. Crawford, Saskatchewan. These chickens have yellow skin, shanks and feet. The comb is of single type and egg shells are white in colour. Adult males weigh on average 2.5 kg and females 1.9 kg.

LIGHT SUSSEX



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 500 ♀ • 100 ♂ • 1994

Population trend: increasing

Range of uses: eggs, meat

CANADA

The Light Sussex breed was created by Dr. R. D. Crawford, Saskatchewan, and Dr. Donald Shaver, Ontario. These chickens have silver-columbian coloured plumage with laced patterns within the feathers. They may have white (99%) or yellow (1%) skin and the shanks and feet may be white (99%) or yellow (1%). The comb is of single type and egg shells are tinted in colour. Adult males weigh on average 3.7 kg and females 2.9 kg.

NEW HAMPSHIRE RED



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 250 ♀ • 125 ♂ • 1994

Population trend: decreasing

Range of uses: meat, eggs, research

CANADA

The New Hampshire Red breed is of commercial origin. These chickens have self-red and variants coloured plumage with no special pattern within the feathers. They have yellow skin, shanks and feet. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 3.5 kg and females 2.7 kg.

RHODE ISLAND RED



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 150 ♀ • 25 ♂ • 1994

Population trend: stable

Range of uses: meat, eggs

CANADA

The Rhode Island Red breed was created by Dr. R. D. Crawford from 20 males and 50 females in 1985. These chickens have self-red and variants coloured plumage with no special pattern within the feathers. They have yellow skin, shanks and feet. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 3.6 kg and females 2.7 kg.

WHITE LEGHORN-HOLYWOOD STRAIN



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1994

Population trend: stable

Range of uses: eggs, research

CANADA

The White Leghorn-Hollywood Strain was developed by Dr. Donald Mcqueen for Shaver. These chickens have self-white coloured plumage with no special pattern within the feathers. They have yellow skin, shanks and feet. The comb is of single type and egg shells are white in colour. Adult males weigh on average 2.2 kg and females 1.8 kg.

HUNGARIAN YELLOW



ENDANGERED-MAINTAINED

Local names or syn.: -

Population data: 100 - 1 000 • 250 ♀ • 125 ♂ • 1994

Population trend: increasing

Range of uses: -

CANADA

The Hungarian Yellow breed was imported from Hungary. These chickens have no special pattern within the feathers and have yellow skin, shanks and feet. The comb is of single type and egg shells are brown in colour. Adult males weigh on average 2.7 kg and females 2.1 kg. Dr. R.D. Crawford maintained this breed for 20 years between 1971 and 1991, with an initial population of 7 males and 9 females.

PILGRIM



CRITICAL

Local names or syn.: -

Population data: < 100 • 1994

Population trend: stable

Range of uses: -

CANADA

Pilgrim geese have self-white (males) or grey and white (females) coloured plumage and orange shanks and feet. Adult males weigh on average 6 kg and females 5.2 kg.

JAPANESE QUAIL UBC-A



CRITICAL

Local names or syn.: -

Population data: 150 • 100 ♀ • 50 ♂ • 1993

Population trend: stable

Range of uses: research

CANADA

The Japanese Quail Ubc-A (ubc-wild type) breed is found in British Columbia Province. It was imported from Japan by the University of California at Davis and in 1968 these quails were crossed with birds imported from Korea to form the present closed population. These birds have wild-type and variants coloured plumage and egg shells are light brown in colour. Adult males weigh on average 0.09 kg and females 0.12 kg.

JAPANESE QUAIL UBC-B



CRITICAL

Local names or syn.: -

Population data: 150 • 100 ♀ • 50 ♂ • 1993

Population trend: stable

Range of uses: research

CANADA

The Japanese Quail Ubc-B (alberta wild-type) breed is found in British Columbia Province. The breed was acquired from the University of Alberta in 1977, and since then it has been a closed, random mating population. These birds have wild-type and variants coloured plumage and light brown egg shells. Adult males weigh on average 0.09 kg and females 0.12 kg.

JAPANESE QUAIL UBC-G



CRITICAL

Local names or syn.: -

Population data: > 75 • 50 ♀ • 25 ♂ • 1993

Population trend: stable

Range of uses: meat, research

CANADA

The Japanese Quail Ubc-G (giants) breed is found in British Columbia Province. It is commercial stock imported from Marsh Farm, California. These birds have wild-type and variants (70%) or white coloured plumage and egg shells may be light brown in colour. Adult males weigh on average 0.3 kg and females 0.3 kg.

JAPANESE QUAIL UBC-N



CRITICAL

Local names or syn.: -

Population data: 75 • 50 ♀ • 25 ♂ • 1993

Population trend: stable

Range of uses: research

CANADA

The Japanese Quail Ubc-N (nagoya, Random bred) breed is found in British Columbia Province. It is a domestic strain acquired from the University of Nagoya, Japan in 1988. These quails have wild-type and variants coloured plumage and their egg shells may be light brown (98%) or white (2%) in colour. Adult males weigh on average 0.1 kg and females 0.15 kg. The birds are very docile.

JAPANESE QUAIL UBC-NCSU



CRITICAL

Local names or syn.: -

Population data: 75 • 50 ♀ • 25 ♂ • 1993

Population trend: stable

Range of uses: -

CANADA

The Japanese Quail Ubc-Ncsu (North Carolina wild type) breed is found in British Columbia Province. The breed was obtained by North Carolina State University from wild quail imported from Japan in 1972 by the University of California at Davis. These birds have wild-type and variants coloured plumage and their egg shells are light brown in colour. Adult males weigh on average 0.09 kg and females 0.12 kg. The birds are sensitive to photoperiod changes. Stock was acquired by University of Bristol, United Kingdom, and later returned to North Carolina State University.

JAPANESE QUAIL UBC-QF



CRITICAL

Local names or syn.: -

Population data: 150 • 100 ♀ • 50 ♂ • 1993

Population trend: stable

Range of uses: meat, eggs, research

CANADA

The Japanese Quail Ubc-Qf (Quebec female line) breed is found in British Columbia Province. The breed was acquired from the Deschambault Agriculture Experiment Station, Quebec in 1990. These quails have wild-type and variants coloured plumage and their egg shells are light brown in colour. Adult males weigh on average 0.22 kg and females 0.26 kg. The birds were selected for a heavy body weight for meat production and are used as commercial breeding stock.

JAPANESE QUAIL UBC-QM



CRITICAL

Local names or syn.: -

Population data: 150 • 100 ♀ • 50 ♂ • 1993

Population trend: stable

Range of uses: meat, research

CANADA

The Japanese Quail Ubc-Qm (Quebec male line) breed is found in British Columbia Province. The breed was acquired from the Deschambault Agriculture Experiment Station, Quebec in 1990. These quails have wild-type and variants coloured plumage and their egg shells are light brown in colour. Adult males weigh on average 0.26 kg and females 0.28 kg. The birds were selected for a heavy body weight for meat production and are used as commercial breeding stock.

JAPANESE QUAIL UBC-RES



CRITICAL

Local names or syn.: -

Population data: 150 • 100 ♀ • 50 ♂ • 1993

Population trend: stable

Range of uses: -

CANADA

The Japanese Quail Ubc-Res (resistant line) breed is found in British Columbia Province. The breed was acquired from the North Carolina State University in 1988. These quails have wild-type and variants coloured plumage and their egg shells are light brown in colour. Adult males weigh on average 0.09 kg and females 0.12 kg. The animals are reported to show resistance to atherosclerotic plaque formation when challenged with a high cholesterol diet. The breed is the same as the RES line of North Carolina State University, but has undergone further divergent selection after its arrival at UBC.

JAPANESE QUAIL UBC-S



CRITICAL

Local names or syn.: -

Population data: 150 • 100 ♀ • 50 ♂ • 1993

Population trend: stable

Range of uses: research

CANADA

The Japanese Quail Ubc-S (Saskatchewan wild-type) breed, established in 1983, is found in British Columbia Province. It was originally imported from Japan by Auburn University (Dr. Howe), taken to Guelph University by Dr. Friars and to the University of Saskatchewan by Dr. Crawford, and was acquired by UBC in 1983. These quails have wild-type and variants coloured plumage and light brown egg shells. Adult males weigh on average 0.09 kg and females 0.12 kg.

JAPANESE QUAIL UBC-SUS



CRITICAL

Local names or syn.: -

Population data: 150 • 100 ♀ • 50 ♂ • 1993

Population trend: stable

Range of uses: research

CANADA

The Japanese Quail Ubc-Sus (susceptible) breed is found in British Columbia Province. It was acquired from North Carolina State University in 1988. These birds have wild-type and variants coloured plumage and egg shells are light brown in colour. Adult males weigh on average 0.09 kg and females 0.12 kg. The animals are susceptible to atherosclerosis when challenged with a high cholesterol diet. These birds are the same as the SUS line of North Carolina State University and have undergone further divergent selection after arrival at UBC.

JAPANESE QUAIL UBC-W



CRITICAL

Local names or syn.: -

Population data: 150 • 100 ♀ • 50 ♂ • 1993

Population trend: stable

Range of uses: research

CANADA

The Japanese Quail Ubc-W (ubc white) breed is found in British Columbia Province. A closed population has been established and developed at UBC since 1976. Their egg shells are light brown in colour. Adult males weigh on average 0.09 kg and females 0.12 kg.

JAPANESE QUAIL UBC-WILD



CRITICAL

Local names or syn.: -

Population data: 150 • 100 ♀ • 50 ♂ • 1993

Population trend: stable

Range of uses: research

CANADA

The Japanese Quail Ubc-Wild (feral line) breed, established in 1985, is found in British Columbia Province. The breed has developed from feral Japanese quails, captured in Hawaii in 1985. These birds have wild-type and variants coloured plumage and egg shells are light brown in colour. Adult males weigh on average 0.08 kg and females 0.1 kg. The strain carries a rare Histone H5 mutation.

RIDLEY BRONZE



ENDANGERED

Local names or syn.: -

Population data: 100 - 1 000 • 1994

Population trend: stable

Range of uses: meat

CANADA

The Ridley Bronze breed originated from a commercial hatchery in Saskatchewan, disposing of stock. Egg shells are tinted in colour. Adult males weigh on average 13.8 kg and females 8.2 kg.

MAMMOTH JACK STOCK



ENDANGERED

Local names or syn.: -

Population data: < 1 000 • 1994

Population trend: stable

Range of uses: draught power, interspecies crossing

UNITED STATES OF AMERICA

The Mammoth Jack Stock breed is a composite of Andalusian, Catalan, Majorcan, Maltese and Poitou asses.

RANDALL BLUE LINEBACK



CRITICAL

Local names or syn.: Lineback (eng.)

Population data: < 100 • 1994

Population trend: stable

Range of uses: milk, draught power, meat

UNITED STATES OF AMERICA

The Randall Blue Lineback breed is a remnant of a landrace type known as American Lineback which was popular in New England during the 19th century.

AMERICAN DUTCH BELTED



ENDANGERED

Local names or syn.: Dutch Belt (eng.)

Population data: < 300 • 1994

Population trend: decreasing

Range of uses: milk

UNITED STATES OF AMERICA

The American Dutch Belted breed has been separated from the Dutch foundation since the breed's establishment in the mid 1800s and has always bred pure, unlike the Lakenvelders. Its genetic distinctiveness is recognized by importation of semen to The Netherlands to reconstruct the breed there. The animals are black in colour with a white belt. This breed is known for good forage use efficiency. There are 50 females registered in the herd book. Males and females may be either polled or horned.

AMERICAN MILKING DEVON



ENDANGERED

Local names or syn.: Red Devon (eng.)

Population data: < 400 • 1994

Population trend: increasing

Range of uses: draught power, milk, meat

UNITED STATES OF AMERICA

The American Milking Devon breed is a variety of Devon, and was first imported and established in 1623. These cattle are known as good browsers. There are 120 females registered in the herd book.

AMERICAN WHITE PARK



ENDANGERED

Local names or syn.: -

Population data: 357 • 1990

Population trend: -

Range of uses: meat

UNITED STATES OF AMERICA

The American White Park breed descends from British White cattle that were imported in 1941 and from 1976 to 1984. The first animals came from England to the Riverdale Zoo in Toronto (1938), then through the New York Zoological Society. Four were established at the King Ranch in Texas (1941) and another four were sent to the Washington Zoo (1941). In 1987, White Park cattle from the United States of America were re-introduced to Canada. The animals are white in colour with black (occasionally red) points. On average adult females weigh 560 kg. Males and females may either be polled or horned.

DEVON



ENDANGERED

Local names or syn.: Beef Devon, Red Devon

Population data: 1 000 • 1999

Population trend: -

Range of uses: -

UNITED STATES OF AMERICA

The Devon breed originates from the United Kingdom.

FLORIDA CRACKER



ENDANGERED

Local names or syn.: Florida Native (eng.), Pineywoods (eng.), Florida Scrub (eng.)

Population data: < 1 000 • 1994

Population trend: increasing

Range of uses: meat

UNITED STATES OF AMERICA

The Florida Cracker breed, found in Florida, is of Spanish origin, and was established in the 16th century. These cattle may be any colour. This small, low input range beef breed is reported to be heat and humidity tolerant and parasite resistant, and is known for its good fertility and longevity. There are at least two reasonably pure herds left.

WHITE PARK



ENDANGERED

Local names or syn.: -

Population data: 140 • 1998

Population trend: -

Range of uses: -

UNITED STATES OF AMERICA

The White Park breed originated in the United Kingdom and is distantly related to other British breeds. The breed is known for its hardiness.

KINDER



CRITICAL

Local names or syn.: -

Population data: 121 • 1990

Population trend: -

Range of uses: milk, meat

UNITED STATES OF AMERICA

The Kinder breed is a composite of Pygmy (United States of America) and Nubian breeds and was established during the 1980s. Adult males and females have an average wither height of 60 cm.

SAN CLEMENTE



CRITICAL

Local names or syn.: -

Population data: < 100 • 1994

Population trend: stable

Range of uses: meat, socio-cultural

UNITED STATES OF AMERICA

The San Clemente breed is from islands off the coast of California, but is now limited to the mainland. These goats have black forequarters and tan hindquarters. Both sexes are bearded and males have a shaggy mane. Adult males weigh on average 22 kg and females 13 kg with an average wither height of 65 cm for males. Females have scimitar shaped horns while those of the males curve upward and backwards.

PYGORA



ENDANGERED

Local names or syn.: -

Population data: 350 • 1990

Population trend: -

Range of uses: wool

UNITED STATES OF AMERICA

The Pygora breed is a composite of Pygmy (United States of America) and Angora breeds, established during the 1980s. Adult males and females have an average wither height of 67 cm and 55 cm respectively.

TENNESSEE FAINTING



ENDANGERED

Local names or syn.: Nervous Goats (eng.), Epileptic Goats (eng.), Stiff-Legged Goats (eng.)

Population data: < 1 000 • 1994

Population trend: increasing

Range of uses: meat, hobby

UNITED STATES OF AMERICA

The Tennessee Fainting goat was imported from Asia (probably India) in the early 1880s when the breed was established. The breed's mutation of suffering from hereditary myotonia, resulting in heavy muscling and varying degrees of muscle stiffness when startled, was discovered in the early 1880s in Tennessee. These goats may be black or white or piebald in colour and adult males have an average wither height of 70 cm.

AMERICAN CREAM DRAFT



CRITICAL

Local names or syn.: American Cream (eng.)

Population data: < 100 • 1994

Population trend: increasing

Range of uses: draught power, sport

UNITED STATES OF AMERICA

The American Cream Draft breed descended from a Cream-Coloured Draft mare in the early 20th century. These heavy horses are cream in colour with a white mane and tail and pink skin. Adult males and females weigh on average 650 kg with an average wither height of 160 cm.

AKHAL-TEKE



ENDANGERED

Local names or syn.: -

Population data: < 1 000 • 1994

Population trend: stable

Range of uses: -

UNITED STATES OF AMERICA

The Akhal-Teke horses are light animals, similar to Iomud but larger in size. Adult males weigh on average 465 kg and females 425 kg with an average wither height of 158 cm and 157 cm respectively.

AMERICAN SHETLAND PONY



ENDANGERED

Local names or syn.: -

Population data: 700 ♀ • 1990

Population trend: -

Range of uses: -

UNITED STATES OF AMERICA

There are 700 females registered in the American Shetland Pony herd book.

CASPIAN



ENDANGERED

Local names or syn.: Caspian Miniature (eng.)

Population data: 100 - 1 000 • 1988

Population trend: -

Range of uses: -

UNITED STATES OF AMERICA

Caspian ponies are usually bay, grey, chestnut or occasionally black in colour. The American herd consists of a few horses recently brought from a herd in the United Kingdom. Some animals were imported from Iran in the 1960s, specifically several mares and a stallion (named Juhan). The stallion died a few years ago without ever having sired any pure Caspians, only crosses. The only remaining Caspian horses are the few in Texas, originally imported from the United Kingdom, the larger herd in the United Kingdom which came from Iran in the 1960s, and a herd still in Iran that is held by an American.

CLEVELAND BAY



ENDANGERED

Local names or syn.: -

Population data: < 500 • 1994

Population trend: stable

Range of uses: riding (sports), carting

UNITED STATES OF AMERICA

No further information available.

EXMOOR



ENDANGERED

Local names or syn.: -

Population data: < 800 • 1994

Population trend: stable

Range of uses: riding (sports), carting

UNITED STATES OF AMERICA

No further information available.

SABLE ISLAND PONY



ENDANGERED

Local names or syn.: -

Population data: 300 • 1994

Population trend: stable

Range of uses: -

UNITED STATES OF AMERICA

The Sable Island Pony has been feral since its establishment in 1739, although with an input of males from various breeds from 1800-1945. The animals are bay, brown, black or sorrel in colour.

SUFFOLK



ENDANGERED

UNITED STATES OF AMERICA

The Suffolk breed was developed in the United Kingdom.

Local names or syn.: -

Population data: < 800 • 1994

Population trend: increasing

Range of uses: draught power

GLOUCESTERSHIRE OLD SPOTS



CRITICAL

UNITED STATES OF AMERICA

No further information available.

Local names or syn.: -

Population data: 30 ♀ • 1999

Population trend: -

Range of uses: -

LARGE BLACK



CRITICAL

UNITED STATES OF AMERICA

The Large Black breed was recently imported from the United Kingdom. It is distantly related to US commercial stock. Pigs of this breed, which are known for their excellent maternal traits and for being good milkers, are raised on pasture. Due to the breed's recent importation, a breeding programme has been established.

Local names or syn.: -

Population data: < 100 • 1998

Population trend: increasing

Range of uses: -

MULEFOOT



CRITICAL

UNITED STATES OF AMERICA

The Mulefoot breed is found in Missouri, Iowa. They are similar to Poland China pigs with fused digits. It has been reported that a breeder in Arkansas had 25 of these pigs and that they breed true for fused digits. This breed should not be confused with Mule Footed Swine.

Local names or syn.: -

Population data: < 50 • 1994

Population trend: stable

Range of uses: meat

POLAND CHINA



CRITICAL

Local names or syn.: -

Population data: 65 ♀ • 22 ♂ • 1994

Population trend: -

Range of uses: meat

UNITED STATES OF AMERICA

Poland China pigs are black in colour with white spots. Adult males weigh on average 290 kg and females 240 kg.

GUINEA HOG



ENDANGERED

Local names or syn.: African Guinea (eng.)

Population data: < 1 000 • 1994

Population trend: -

Range of uses: meat

UNITED STATES OF AMERICA

The origin of the Guinea Hog breed, found in Alabama State, is not known. At one time the breed was found throughout south-eastern United States of America. This breed is used for snake control.

HEREFORD



ENDANGERED

Local names or syn.: White-Faced (eng.)

Population data: < 1 000 • 1994

Population trend: stable

Range of uses: meat

UNITED STATES OF AMERICA

The Hereford breed, found in Missouri, is a composite of Chester White, Duroc, Poland China and Hampshire breeds and was established in the period 1902-1920. The animals are red in colour with a white head, legs, belly and tail.

RED WATTLE



ENDANGERED

Local names or syn.: -

Population data: 200 ♀ • 1994

Population trend: -

Range of uses: -

UNITED STATES OF AMERICA

Pigs of the Red Wattle breed have tassels. There are 200 females registered in the herd book.

GULF COAST NATIVE



CRITICAL

Local names or syn.: Florida Native (eng.), Louisiana Native (eng.), Georgia Native (eng.), Pinewoods Sheep (eng.)

Population data: > 100 • 1994

Population trend: decreasing

Range of uses: wool, meat

UNITED STATES OF AMERICA

The Gulf Coast Native breed is of local origin, descended from sheep introduced by the Spanish. These sheep may be white, or tan to dark brown in colour. They have a bald face, belly and legs, and coarse/carpet type wool. This breed is reported to be resistant to unspecified parasites and diseases.

HOG ISLAND



CRITICAL

Local names or syn.: -

Population data: > 12 • 1994

Population trend: stable

Range of uses: wool, meat, socio-cultural

UNITED STATES OF AMERICA

Hog Island sheep have coarse/carpet type wool. These animals are used within low input production systems.

MONTADALE



CRITICAL

Local names or syn.: -

Population data: 48 • 44 ♀ • 4 ♂ • 1994

Population trend: -

Range of uses: wool, meat

UNITED STATES OF AMERICA

The Montadale breed is found in Missouri. It is a composite of Cheviot (40%) and Columbia (60%) breeds and was established in 1933. These sheep are white in colour and have medium fibred wool.

SANTA CRUZ



CRITICAL

Local names or syn.: -

Population data: 50 • 1994

Population trend: decreasing

Range of uses: wool, hobby

UNITED STATES OF AMERICA

The Santa Cruz breed, found on Santa Cruz Island, California, is descended from Merino and Rambouillet breeds and has been feral most of the 20th century. These sheep have coarse/carpet type wool.

AMERICAN TUNIS



ENDANGERED

Local names or syn.: -

Population data: 500 ♀ • 1994

Population trend: increasing

Range of uses: meat, milk, wool

UNITED STATES OF AMERICA

The American Tunis breed, brought to the United States of America in 1799 from northern Africa, was successfully bred until the 1860s, but was almost destroyed during the civil war. Modern animals are a Tunis ram and improved Leicester ewe cross. A Southdown-Leicester cross was introduced to correct the breed's big fat tail and to improve its wool. They are white creamy coloured, their face and legs range from brick red to various shades of tan. Males weigh on average 80 kg and females 56 kg. They have medium fibred wool used in handspinning, produce tender, delicately flavoured meat and are polled. Tunis ewes are able to breed year round, are good mothers and produce large volumes of milk used for the production of feta cheese. Known for their productivity on marginal land and for their disease resistance, they are hardy and longeval and can tolerate warm and cold climates.

COTSWOLD



ENDANGERED

Local names or syn.: -

Population data: < 1 000 • 1994

Population trend: increasing

Range of uses: -

UNITED STATES OF AMERICA

Cotswold sheep have medium fibred wool.

DELAINE MERINO



ENDANGERED

Local names or syn.: -

Population data: 650 ♀ • 1990

Population trend: -

Range of uses: wool

UNITED STATES OF AMERICA

The Delaine Merino breed is a variety of American Merino (C type). These sheep have fine fibred wool. There are 650 females registered in the herd book.

KATAHDIN



ENDANGERED

Local names or syn.: -

Population data: 825 • 1994

Population trend: increasing

Range of uses: meat

UNITED STATES OF AMERICA

The Katahdin breed is a composite of Suffolk, Wiltshire Horn and Virgin Island White sheep, created by M. Piel in Maine. The animals are white in colour with coarse/carpet type hair. Their tail is 20-25 cm long and all animals are polled. Adult males weigh on average 79 kg and females 64 kg. This breed is known for prolificacy.

NAVAJO-CHURRO



ENDANGERED

Local names or syn.: Navajo (eng.), Navajo Four-Horned (eng.), American Four-Horned (eng.)

Population data: < 543 • 1994

Population trend: increasing

Range of uses: wool, meat

UNITED STATES OF AMERICA

The Navajo-Churro breed, found in Arizona, New Mexico and Utah, is descended from the Spanish Churro breed, but has been distinct for more than three centuries. The animals are usually white with colour on their face and legs. Their tail is long and thin and they have horizontal ears. Males and females may be either polled or horned and males may have four horns. Adult males weigh on average 55 kg and females 45 kg. These sheep have coarse/carpet type wool. The sheep of the Navajo Indians were being up-graded to Rambouillet and consequently pure Navajo sheep were becoming rare in the reserve. It is not clear whether this breed exists outside these reserves.

ST. CROIX



ENDANGERED

Local names or syn.: -

Population data: < 1 000 • 1994

Population trend: increasing

Range of uses: meat, socio-cultural

UNITED STATES OF AMERICA

The St. Croix breed is unique to the United States of America and Canada. It was developed from Virgin Islands Whites at Utah State University and was established in 1970s. The sheep are white in colour with medium fibred hair and all animals are polled. This very docile breed is known for being very prolific and aseasonal and is reported to be heat tolerant and resistant to various parasites.

WILTSHIRE HORN



ENDANGERED

Local names or syn.: -

Population data: < 1 000 • 1994

Population trend: decreasing

Range of uses: -

UNITED STATES OF AMERICA

Wiltshire Horn sheep have medium fibred wool.



Durham ox in 1802

WHY THE INTEREST?

Redistribution of genetic differences within and between breeds is integral to the continual processes involved in utilizing and maintaining the genetic diversity within a domestic animal species. In these ongoing processes some new breeds will be formed, existing breeds lost and others changed. During this rearrangement over time, the total amount of genetic variation, or diversity, should not deteriorate, i.e. diversity should be conserved. Further, plans should be developed and implemented to maintain unique combinations of complex genetic traits contributing to adaptation and to production and productivity.

When the loss of breeds outpaces their generation in a way that total diversity for the species deteriorates there is cause for concern. Hence, monitoring the rate of extinction and formation of breeds provides useful information on the status of genetic diversity in each domestic animal species. It also serves as an indicator of the dynamic nature of requirements made on breeds and illustrates the need to maintain breed diversity in order to meet these requirements.

Finally, data describing separately the loss of indigenous breeds, of recently imported exotic breeds and of specialized laboratory and other lines of farm animal genetic resources form important elements of a comprehensive knowledge base on domestic animal diversity.

HOW GOOD IS THE INFORMATION?

There are few past records of breed loss and formation, nor has there been an inventory of breeds maintained for each domestic animal species used for the production of food and agriculture. Consequently, it is not possible to firmly establish past trends in the breed resources of each of these species.

The World Watch List for Domestic Animal Diversity initiates the global collation and regular reporting of this breed information for each species by listing those breeds which are categorized as endangered and critical, and those which current information indicates have become extinct.

The information used to compile the lists is incomplete. This is particularly the case for the Extinct Breeds List because, until very recently, very few records have been maintained. Nor are good records easy to maintain as the process of a breed's extinction is often completed some time before the loss is recognized. However, the data on FAO's Databank for Farm Animal Genetic Resources will become more detailed over time and as the WWL-DAD is regularly updated from this databank the trends in breed status should become apparent for each domestic species.

This Extinct Breeds List gives some indication of the number and types of breeds being lost. Where possible the

reasons for these past extinctions are included. However, in most cases such information is not available and further analysis of this first list will not be particularly informative. Current records show that the former USSR has lost a large number of breeds. This situation has surely resulted from a combination of events, viz. more information on extinctions being reported for this region, the extensive amount of cross-breeding on many of the indigenous breeds and the socio-political developments.

WHY DO BREEDS BECOME EXTINCT?

Human and novel environmental pressures during the domestication of animal species have been principally responsible for the generation of inter-breed genetic variation and for the formation of many unique breeds. Human pressures are now creating the potential for much of this between-breed component of diversity to be lost completely. Circumstantial evidence suggests that excessive extinction is now under way, and FAO is implementing a programme to monitor, globally and more objectively, changes in the level of genetic diversity in each domestic species.

The altered human pressures that are resulting in the loss of genetic variation and overwhelming the regeneration of diversity are primarily human population pressures and inefficient and ineffective policies and management. These pressures also often interact with natural disasters. A more specific list includes:

- Unbalanced assessments. Many breeds can be lost when undue emphasis is given to a specific product or trait - for example, milk quantity without proper consideration of the quality. A specific trait or product is often emphasized by political and/or economic measures which creates an unforeseen reaction and a rapid dissemination of one variety/breed of animal to the exclusion and loss of others. This has been the primary reason for reduction in the number of breeds in many developed countries over the last 20 to 50 years.
- Indiscriminate cross-breeding. Cross-breeding can be an important positive procedure in breed development and in making the best use of between-breed genetic differences via continuous systematic crossing of two or more breeds. However, the original breeds can be quickly lost, particularly when cross-breeding is combined with rapid reproduction, e.g. the often indiscriminate use of artificial insemination. With them, potentially crucial genetic differences, which may not currently be recognized as important, also disappear. Official policies may even exacerbate this problem, further increasing the loss rate.
- No market incentive to utilize so-called old breeds. Generally farmers utilize those breeds which maximize yield, produce the particular quality of product currently in demand and maximize profit in the short term - or those breeds being promoted as capable of














realizing these objectives. This understandable but immediate-term strategy causes farmers in a region supplying a particular market to concentrate on one or a very small number of breeds at the expense of the majority. When there is little farmer interest in utilizing particular breeds, and these breeds are considered to harbour unique and potentially important genetics for future use, an adequate sample of the diversity involved may be conserved by introducing incentives. These incentives would involve a method of compensation for the production loss incurred to ensure that some farmers continue to utilize and maintain the breed; and/or samples of semen and embryos should be frozen.












- Failure of the freezing equipment currently storing genetic material (semen and/or embryos) of breeds not presently represented in the form of animals in the field. Frozen samples should be stored at two or more separate locations to substantially reduce the risk of loss from equipment failure. Some countries and regions have implemented such gene banks for some species, but at this point these banks generally contain samples from only a few breeds.
- Technology change, particularly the introduction of machinery, can dramatically change farming systems resulting in the replacement of indigenous breeds that were originally developed as specialist animals for draught and transport. It can even remove the animal component and its range of contributions from farming systems. This is currently having an impact on many breeds of horses, asses, oxen and dromedaries. As a further example, biotechnology innovations such as artificial insemination and embryo transfer may encourage the rapid replacement of indigenous breeds by repeated use of semen from the high input-output breeds of developed countries. This development alone is one of the primary factors currently threatening many indigenous breeds of pigs and milk-producing cattle.
- Unrest, wars and other socio-political instability in a region. Local breed populations, that may be in smaller numbers at the time, quickly become extinct.
- Natural disasters such as floods, drought and, particularly where population is dense, famine can result in the rapid loss of less populous breeds.

Below is a list of the breeds known to be extinct, listed by region, by country and by species (mammalian species followed by avian species). For each entry the origin of the breed is given followed by the reason for its extinction, if available. There are 740 breeds listed as extinct in this World Watch List. Of these, 119 breeds are confirmed as extinct by National Co-ordinators and 37

by Informal Contacts. The following symbols are used to indicate the status of the record:












? awaiting confirmation by country
 √ confirmed by National Co-ordinator
 √ confirmed by Informal Contact

COUNTRY	SPECIES	MOST COMMON NAME	LOCAL NAMES OR SYNONYMS	ORIGIN AND REASON FOR EXTINCTION	STATUS		
A F R I C A							
BENIN		Pabli		Variety of West African Savannah Shorthorn, absorbed by Borgou;	?		
CAMEROON		Bamileke		Variety of West African Savannah Shorthorn;	?		
		Préwakwa		Brahman x Adamawa; original of Wakwa;	?		
		Yola	<i>Tattabareji (Fulani), Foulbé de Yola, Mayne</i>	Variety of Adamawa with Muturu blood;	?		
ETHIOPIA		Nubian Wild Ass		Variety of African Wild Ass; origin of domestic ass;	?		
GAMBIA		Gambia Dwarf		Variety of West African Dwarf Shorthorn;	?		
LESOTHO		Basuto Pony		Originated from Cape Horse; disappeared in early 20th century by export and crossing with Arab and Thoroughbred;	?		
MALAWI		North Malawi Zebu		Former variety of Malawi Zebu with sanga blood;	?		
NIGERIA		Biu		Muturu (Shorthorn) x White Fulani (zebu); absorbed by zebu;	?		
		Yola	<i>Tattabareji (Fulani), Foulbé de Yola, Mayne</i>	Variety of Adamawa with Muturu blood;	?		
RWANDA		Inyambo		Variety of Watusi Ankole;	?		
SOUTH AFRICA		Bolowana	<i>Izankaya</i>	Upgraded to Africander;	?		
		Highland		Recently extinct;	√		
		Hottentot	<i>Namaqua</i>	Origin of Africander;	?		
		Kemp		Variety of Drakensberger; originated from Friesian x Africander (1911-47);	?		
		North Devon				√	
		Ondongolo				?	
		Uys			Early variety of Drakensberger; originated from Black Friesian x Africander with Zulu blood in late 19th century (by Dys) or from Vaderlander (Groningen) x local;	?	
				Calvinia		Originated from Boer x Thoroughbred, Hackney, Cleveland Bay; breed has now been replaced by Cape Boer horse;	?
				Cape Harness		Established from Anglo-Arab, Friesian and Hackney; Breed has been replaced by Friesian and Flemish;	?
				Cape Horse	<i>Boer (old), Hantam</i>	Originated from Oriental (1652-1778), Thoroughbred (1782- 1860) and Hackney (1860-1891); Origin of Basuto Pony, Boer (new), Namaqua Pony; Originated from Cape Horse in early 19th century;	√
				Namaqua Pony		Originated from Near East Fat-tailed and Ancient Egyptian (long-tailed); varieties: Namaqua, Cape; origin of Africander;	?
				Large Black			√
				Hottentot		Originated from Near East Fat-tailed and Ancient Egyptian (long-tailed); varieties: Namaqua, Cape; origin of Africander;	?
				Meatmaster		This breed was an attempt by the University of Pretoria to develop a mutton breed which was not commercially viable and the breed disappeared.	?
				Polled Dorset			√
				Rambouillet			√
				Walrich Vleis Merino	<i>Walrich Mutton Merino, Walrich</i>	Originated from South African Merino x polled Mérino Precoco in 1930; breed society 1960; recognised 1965; became extinct after the breed society decided to merge with the Döhne Merino;	√
		White Woolled Mountain		Origin by A.D; Tentworth, Trompsburg, from German Mutton Merino x (Dorset Horn x Blackhead Persian, 1942); the composite was never formally recognised as a breed;	?		
		Wiltshire Horn			√		
		Woolled Persian	<i>Russian Perseair, Persian Red</i>	Originated from Arabi imported from Iran by Moss and Wardrop in 1915; never had a breed society;	?		




COUNTRY	SPECIES	MOST COMMON NAME	LOCAL NAMES OR SYNONYMS	ORIGIN AND REASON FOR EXTINCTION	STATUS
A F R I C A					
TANZANIA		Iringa Red Mkalama Dun Singida White Taurindicus		Local strain of Small East African Zebu; Local strain of Small East African Zebu; Local strain of Small East African Zebu; Composite of European dairy cattle x East African Zebu; created in 1946;	? ? ? ?
TOGO		Avétonou		Created and bred at Avétonou; composite of Brown Mountain (25%), N'Dama (50%) and local breeds (Somba, Lagune, Borgou); was created for meat production, but it could not survive the trypanosomiasis challenge;	√
ZIMBABWE		Binga Govuvu Pecanite	<i>Kavuvu, Kwavovu</i>	Dwarf forest cattle of sanga type; Contains some Dexter blood.	? ? ?
A S I A A N D T H E P A C I F I C					
AUSTRALIA		Darbalara Tasmanian Grey		Strain of Australian Milking Shorthorn, latter now absorbed by Illawarra; Composite Aberdeen-Angus x White Shorthorn (1938), absorbed by Murrah Grey by 1979;	? ?
BANGLADESH		Australian Waler	<i>Waler</i>	Absorbed by Australian Stock Horse;	?
		Romsdown		Originated from Southdown x Romney;	?
		Dacca-Faridpur	<i>Dhaka-Faridpur</i>	Similar to the Hariana breed, distinctiveness disappeared after cross-breeding with Sahiwal, Sindhi & Friesian; small number of animals with dominant characteristics of the Hariana breed existed in Faridpur; distinctiveness disappeared shortly after introduction of cross breeding programmes with Sahiwal;	?
		Kamdhino		Local Bangladeshi variety; Mason (1988) describes Kamdhino as a local variety of Bangladeshi cattle; local sources consider these animals not as separate variety;	?
		Munshiganj		Probably originated from local Bengali x Red Sindhi; disappeared after crossing with Sahiwal and Friesian; animals probably became extinct after indiscriminate crossing with Sahiwal and Friesian;	?
				Zebu; name for small or dwarf cattle in ancient China;	√√
CHINA INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA		Bainiu Dangjiao Gaotai Jiniu Meiniu Shangai Taiwan Yellow Wanniu Yangba		Name for small or dwarf cattle in ancient China; Dwarf cattle in ancient China;	√√ √√ √√ √√ √√ √√ √√ √√
		Fa Yuen Kwangchow Wan Mi-nung Shenxian Taichung	<i>Hua-Hsien Kuang-Chou Wan Meinung, Mino Sbenzhou</i>	Variety of Cantonese; Variety of Cantonese;	√√ √√ √√ √√ √√
		Taiwan Small Red Taiwan Small-ear Tingshuanghsi		Variety of Huang-Huai-Hai Black; Originated in 1960s at Taichung District from Taoyuan x Tingshuanghsi;	√√ √√ √√
		Wai Chow Xiangcheng	<i>Wei-chou, Lung Kong</i>	Originated from local Taiwan Wild x South China; Probably originated from local Taiwan Wild x South China;	√√ √√
		Han-yang Improved Mongolian	<i>Han, Shandong</i>	Variety of Cantonese; Originated from Mongolian; Originated from American Rambouillet x Mongolian in 1920's and 1930s; superseded by North-east China Finewool;	√√ √√ √√
		K'u-ch'e	<i>Kucbe, Kucharskaya, Kucherskaya, Kucze</i>	Originated from Karakul x Mongolian and Kazakh Fat-rumped in late 19th century; graded to Karakul since 1960s to form Chinese Karakul;	√√
		Shouyang Zaobei Large Tail Guping Jiujin Yellow Lintao Wuwei	<i>Wuwei Fighting Chicken</i>	Local variety of Mongolian origin, crossed with fine-wool breeds;	√√ √√ √√ √√ √√ √√





































COUNTRY	SPECIES	MOST COMMON NAME	LOCAL NAMES OR SYNONYMS	ORIGIN AND REASON FOR EXTINCTION	STATUS
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ASIA AND THE PACIFIC





JAPAN		Kairyō-washu	<i>Japanese Improved,</i> <i>Nipponese Improved</i> <i>Japanese Native</i>	Composite of Japanese Native and European breeds; Created 1868-1910;	√ √
		Wagyu Nanbu		Variety of Japanese Native;	?
MALAYSIA		Malay Banteng	<i>Sapi Utan (babasa mal),</i> <i>Borneo Banteng,</i> <i>Bos javanicus butleri</i>	Variety of Banteng: <i>Bos (Bibos) javanicus butleri</i> (Lydekker);	√
NEPAL		Morang		Hill type; similar to Purnea; Morang is a district in Nepal and probably represents a local name for native cattle rather than a separate breed;	?
NEW ZEALAND		Lincoln Red		Large White x Tamworth, created 1940-59, breeding programme terminated in 1959;	?
PAKISTAN		Chevlin		Originated from Lincoln x Cheviot in 1950s;	?
		Jattal	<i>Desi</i>	Possibly composite of Pothohari and local goats;	√
PHILIPPINES		Philamin		Hereford (1/2) x Ongole (3/8) x Philippine Native (1/8); extinct around 1945;	?
VIET NAM		Diani		Originated from Berkshire and Poland China x Philippine Native;	?
		Kaman		Originated from Duroc x Philippine Native;	?
		Boxu		Origin 1920 from Craonnais x (Chinese x local).	?


EUROPE








ARMENIA		Lorii		Lesser Caucasian x Brown Swiss; created 1934-40; Absorbed by Caucasian Brown;	?
AUSTRIA		Bergscheck	<i>Enns,</i> <i>Ennstaler Bergscheck,</i> <i>Ennstaler Scecken,</i> <i>Helmete (= helmet),</i> <i>Kampete (=collared,</i> <i>from German Kummet</i> <i>= collar, i.e. white head),</i> <i>Mountain Spotted</i>	Local breed improved since 1900 by Pinzgauer and Simmental and finally absorbed by Austrian Simmental circa 1950, grade was termed Alpenfleckvieh;	?
		Donau	<i>Danube</i>	Former variety of Austrian Simmental;	?
		Innviertler	<i>Innviertel</i>	Former variety of Austrian Simmental;	?
		Lechtaler	<i>Lechtal</i>	Intermediate between Allgäuer (Brown Mountain) and Tyrol Grey absorbed in Tyrol Brown;	?
		Mölltaler	<i>Mölltal,</i> <i>Pezzata rossa norica,</i> <i>Mölltal-Pinzgau,</i> <i>Norica-Pinzgau</i>	Former variety of Pinzgauer in south-west Kärnten till 1925 and North-east Udine; distinct from Pinzgauer and Pustertaler Sprinzen in Salzburg and north-east Bolzano;	?
		Mürztal		Original (with Bergscheck) of Murboden in 19th century; recombined with Murboden in 1913;	?
		Österreichisches Gelbvieh	<i>Austrian Yellow</i> <i>Synonyms: Light (or pale)</i> <i>Alpine, Lichtes Alpenvieh,</i> <i>Light Mountain,</i> <i>Lichtes Höbenvieh,</i> <i>Pale Higbland</i>	Name used 1960 for Austrian Blond, Murboden, Waldviertel, breed society existed;	?
		Öststeirisches Fleckvieh	<i>East Styrian Spotted</i>	Former variety of Austrian Simmental;	?
		Steirisches Braunvieh	<i>Styrian Brown</i>	Former variety of Austrian Brown;	?
		Tiroler Braunvieh	<i>Tyrol Brown</i>	Former variety of Austrian Brown; originated from Montafon, Lechtal and Swiss Brown;	?
		Unterinntaler Fleckvieh	<i>Tyrol Spotted,</i> <i>Tiroler Fleckvieh</i>	Former variety of Austrian Simmental;	?
		Wipptaler	<i>Wipptal</i>	Absorbed in Tyrol Grey;	?
		Zillertaler	<i>Zillertal</i>	Variety of Tux-Zillertal; originated from Gorbatov Red, Tambov Red and Yurino;	?
		Pinkafeld	<i>Pinkafö</i>	Original variety of Hungarian Draft;	?
Austrian Negretti			Originated from Negretti strain of Spanish Merino x local breeds;	?	
Bleiburger			Former variety of Carinthian;	?	
Bschlabser			Local variety;	?	
Gurktaler			Former local variety of Carinthian probably with English Longwool blood;	?	
Kanaltaler		<i>Canaltaler, Uggowitz</i>	Former variety of Carinthian;	?	
Öztaler		<i>Oetztaler</i>	Local variety similar to Tyrol Mountain;	?	
Petzen		Former strain of Carinthian;	?		
Seeländer		Local variety of Carinthian;	?		





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EUROPE					
AUSTRIA		Steiner Zillertal		Former variety of Carinthian; Local variety of Steinschaf;	? ?
BELARUS	 	Polesian Chausy	<i>Polish Grey</i> <i>Chausskaya</i> <i>porodnaya grupp</i> <i>Slutsk Black Pied, Slusker</i>	Originated from imported x native; created before 1919;	? ?
BELGIUM		Chernopestraya slutskaya porodnaya grupp Polesskaya Kempense ras Pie rouge de l'Est de la Belgique Pie-noire (du Pays) de Herve Zwartbont ras van de Polders Vlaamse Paard Huttegem Huttegem Posavina	<i>Polesian, Sarny</i> <i>Campinoise</i> <i>Eastern Red Pied,</i> <i>Pie rouge Ardennes-Liège,</i> <i>Pie rouge du Pays de Herve</i> <i>Herve Black Pied,</i> <i>Zwartbont ras van het</i> <i>Land van Herve, Eastern</i> <i>Black Pied,</i> <i>Pie-noire de l'Est</i> <i>de la Belgique,</i> <i>Zwartbont ras van Oost-België</i> <i>Polders Black Pied,</i> <i>Pie-noire des Polders</i> <i>Cheval Flamand,</i> <i>Flanders, Flemish</i>	Formerly variety of Small Polish Prick-eared; origin of Krolevets; Former name for Red Pied (Meuse-Rhine-Yssel) in Eupen and Malmédy; included in Belgian Red Pied; Originated from Dutch Friesian x local Red Pied since 1860; herd book 1919; used with Polders Black Pied 1966 to form Belgian Black Pied; Joined with Hervé Black Pied 1966 to form Belgian Black Pied; Origin of Belgian, Dutch, and other breeds; Originated in the meadows of Scheldt river, west of Belgium, near Andenarde; Originated in the Scheldt region, around Andenarde; Small variety of Serbian Steppe;	? √ √ √ √ ?
BOSNIA AND HERZEGOVINA	   	Buša Pony Šiška		Originated from Bosnian Pony and Posavina; Origin of Šumadija, Turopolje;	? ?
BULGARIA	                  	Chervena sadovska Staroplaninska k'soroga Bessarabian Bulgarian Native Deli-Orman Dolny-Iskar Rila Mountain Stara Planina Beloslatinska Kyustendilska Plovdivsko-P'rvomaiska Rilomonastirska South Bulgarian Finewool	<i>Schischka</i> <i>Red Sadovo,</i> <i>Rotes Sadowo</i> <i>Stara Planina</i> <i>Bulgarian Colonist</i> <i>Belaslatina</i> <i>Kyustendil</i> <i>Plovdiv-Purvomai,</i> <i>Plovdiv, Purvomai</i> <i>Rila Monastery,</i> <i>Rilskii Monastir,</i> <i>Rilokloster, Rila</i> <i>Stara Zagora Finewool</i>	Originated in 1883 from Angeln x Simmental and Friesian at Sadovo Agricultural School; absorbed in Bulgarian Red circa 1960; Smaller mountain variety of Bulgarian Grey with more brachyceros blood; Originated from Bulgarian, Moldavian and Ukrainian; Different varieties: Deli-Orman, Dolny-Iskar, Karakachan, Rila Mountain, Stara Planina existed; Variety of Bulgarian Native; Variety of Bulgarian Native; Variety of Bulgarian Native; Variety of Bulgarian Native; Local, improved variety of Bulgarian Native; Local unimproved variety of Bulgarian Native; Variety of White South Bulgarian; Originated from Tsigai x local Bulgarian with Merino blood; partially origin of Thrace Finewool; Local Bulgarian Native improved by Tsigai; Originated 1943-67 from Merino x Stara Zagora; included in Thrace Finewool; Small variety of Serbian Steppe; Originated from Bosnian Pony and Posavina;	? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?
CROATIA	       	Posavska gulja Buša Pony Krcki konj Bagun Šiška Túmerzö	<i>Posavina, Sava</i> <i>Krk Island Pony, Veglia</i> <i>Baguner</i> <i>Schischka</i> <i>Turmezei</i>	Disappeared by crossing with Middle White; Origin of Šumadija, Turopolje; Ancient variety; Former variety of Czech Pied;	? ? ? ? ? ?
CZECH REPUBLIC		Cesky cervenostrakaty	<i>Bohemian Red,</i> <i>Bohemian Berne,</i> <i>Bernsko-Cesky,</i> <i>Bohemian-Simmental,</i> <i>Bohemian Red Spotted</i> <i>Cheb, Egerländer</i> <i>Lisna Red</i>	Larger variety of Bohemian Red; Variety of Moravian Red;	? ?

COUNTRY	SPECIES	MOST COMMON NAME	LOCAL NAMES OR SYNONYMS	ORIGIN AND REASON FOR EXTINCTION	STATUS	
EUROPE						
CZECH REPUBLIC		Moravský červenostrakatý	<i>Moravian Red Pied, Bernese-Hanna, Berno-Hana, Bernskobanacky, Haná-Berner, Hanna-Berne, Haáckobernsky, Moravian Red Spotted, Spotted Moravian</i>	Former variety of Czech Pied;	?	
		Moravský červený	<i>Moravian Red, Moravian Carpathian, Moravian Land</i>	Central European Red type, variety of Lisna Red;	?	
		Sudetský	<i>Sudeten, Moravian Sudeten</i>	Original from Central European Red; varieties: Sudeten Pied (often coloursided), Sudeten Red; origin of Klodzka (Glatz Mountain);	?	
		Sumavský	<i>Sumava, Budejovice, Budejovický, Budweiser</i>	Similar to Bergschreck;	?	
		Rychnovské	<i>Rychnov, Reichenau</i>	Originated 1865 from Large and Middle Whites and Poland China x local; extinct by crossing with Edelschwein;	?	
DENMARK		Ballum	<i>Slesvig Marsh, Schleswigsche Marschrasse</i>	Part original of Danish Red;	√√	
		Nord Slesvig Rod	<i>North Slesvig Red, Rotes Nordschleswiger</i>	Similar to Angeln but with Shorthorn blood; absorbed in Danish Red;	√√	
		Sortbroget Jydsk Malkekvaeg	<i>Jutland Black Pied, Black Pied Jutland, Black Spotted Jutland Milk, Black and White Jutland</i>	Joined in 1949 with local Friesian to form Danish Black Pied; revived as Jutland Grey in 1980s;	√√	
		Hedefår	<i>Danish Heath</i>	Originated from Heidschnucke x Northern Short-tailed; origin of Danish Landrace;	√√	
ESTONIA		Australorp	<i>Shaver starcross 288</i>	Imported from Australia in 1950; not reproduced and raised any more in enterprises; importation has been terminated in 1998;	√√	
		Hisex Brown		Imported from Euribrid in The Netherlands in 1993; not reproduced and raised any more in enterprises; importation has been terminated in 1998;	√√	
		Hisex White		Imported from Euribrid in The Netherlands in 1993; not reproduced and raised any more in enterprises; importation has been terminated in 1998;	√√	
		New Hampshire		Imported from USA in 1950; not reproduced and raised any more in enterprises; importation has been terminated in 1998;	√√	
		White Leghorn	<i>Shaver starcross 288</i>	Imported from Canada in 1968; not reproduced and raised any more in enterprises; importation has been terminated in 1998;	√√	
		Italy		Imported from Italy; not reproduced and raised any more in enterprises; importation has been terminated in 1998;	√√	
		Rein Germany		Imported from Hungary; not reproduced and raised any more in enterprises; importation has been terminated in 1998;	√√	
FRANCE		Hidon		Imported from Euribrid, The Netherlands in 1982; not reproduced and raised any more in enterprises; importation has been terminated in 1998;	√√	
			Alpha 16		Composite of Limousin and Charolais; extinct due to termination of programme;	√√
			Blonde des Pyrénées à muqueuses roses	<i>Pyrenean Blond, Basque</i>	Crossed extensively with Limousin and Garonnais and absorbed by Blonde d'Aquitaine in 1960s; pure-bred remnants remain as Béarnais;	?
			Bordelais		Dutch and Breton blood; replaced by Friesian; being reconstituted in 1992 as Bordelais Nouveau (from Bordeaux);	?
			Bressane		Absorbed in Pie Rouge de l'Est (now French Simmental) in early 20th century, not Bressanne (from Bresse);	?
			Côtentin		Absorbed by Normande;	?
			Fémeline		Similar to Tourache but more of lowland, refined, dairy type; crossed with Shorthorn at end of 19th century and graded to Simmental in early 20th century to form part of Pie Rouge de l'Est (now French Simmental);	?
			Garonnais		Synonym Garonnais de Plaine till 1922 when Garonnais de Côteau separated as Quercy; Garonnais and Quercy rejoined in 1961 to form Blonde d'Aquitaine;	?
			Gex	<i>Gessien</i>	Original from Swiss Simmental; herd book fused with Pie Rouge de l'Est (now French Simmental) in 1945;	?
			INRA 9		Selected strain of double-muscled Charolais at INRA; replaced by INRA 95;	?










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EUROPE					
FRANCE		Isigny			?
		Mancelle	<i>Le Mans, Maine</i>	Original (with Shorthorn) of Maine-Anjou;	?
		Marchois		Absorbed by Limousin and Charolais;	?
		Maroilles	<i>Maroillais, Marollais</i>	Former variety of Flemish;	?
		Meymac	<i>Maurine</i>	Original from Limousin x Marchois;	?
		Meysac		Former variety of Limousin;	?
		Mézenc			?
		Morvanelle	<i>Morvan</i>	Replaced by Charolais;	?
		Picarde	<i>Picardy</i>	Former variety of Flemish;	?
		Quercy	<i>Garonnais du Coteau</i>	Original from Garonnais with Limousine blood in late 19th century and early 20th century; recognized as a breed in 1920; re-united with Garonnais in 1961 to form Blonde d'Aquitaine;	?
		Rouge de l'Ouest		Federation 1962-70 of Armorican and Maine-Anjou;	?
		Simmenthal d'Alsace	<i>Alsatian Simmental</i>	Original from Swiss Simmental; herd book fused with Pie rouge de l'Est (now French Simmental) in 1945;	?
		Tourache	<i>Comtois, Taurache</i>	Absorbed by Montbeliard in late 19th century;	?
		Treignac		Former variety of Limousin;	?
		Vendonnais		Former variety of Limousin;	?
		Blanche des Cévennes	<i>Cévennes White</i>		?
		Catalan	<i>chèvre des Albères</i>		?
		Cou-Clair de Berry	<i>Race mantelée de Berry-Touraine</i>	Originated from French Alpine x Poitou;	?
		Sundgau		Former variety of French Alpine; originated from Toggenburg;	?
		Anglo-Normand	<i>Anglo-Norman, Norman</i>	Origin in 20th century from Norman Coach Horse with more Thoroughbred blood; origin of Charentais, Charolais, Vendée;	?
		Augeron		Origin with Norman blood;	?
		Berrichon			?
		Bourbonnais			?
		Carrossier normand	<i>Norman Coach Horse, Norman, Normandy Carriage Horse, Old Norman</i>	Originated from Hackney and Thoroughbred x native; origin of Anglo-Norman, Norman Cob, French Trotter;	?
		Charentais		Include in French Saddlebred; derivative of Anglo-Norman and Anglo-Arab;	?
		Charolais		Include in French Saddlebred; originated from Anglo-Norman x local;	?
		Corlais	<i>Breton Saddle Horse</i>	Originated from Thoroughbred (and Arab) x local created in 19th century;	?
		Corse	<i>Corsican Pony</i>		?
		Flanders	<i>Flemish</i>	Origin of Belgian, Dutch, and other breeds;	?
		Loire			?
		Maine	<i>Mayenne, Mayennais</i>		?
	Morvandeaux	<i>Morvan</i>	Origin of Auxois;	?	
	Nivernais			?	
	Saône-et-Loire			?	
	Tarbésan	<i>Tarbes, Tarbeux, Bigourdan, Navarre</i>	Originated from Arab and Thoroughbred x Andalusian;	?	
	Vendéen		Originated from Anglo-Norman and Thoroughbred x local; included in French Saddlebred;	?	
		Amélioré de l'Est		Disappeared 1960s by crossing with French Landrace and by spread of Large White;	?
		Béarn	<i>Béarnais</i>	Variety of Basque Black Pied;	?
		Bigourdain	<i>Bigourdan</i>		?
		Bleu de Bologne		Variety of Gascony;	?
		Boulonnais		Flemish origin with Craonnais and Large White blood; included in West French White in 1955;	?
Bourdeaux				?	
Bresse		<i>Bressane, Bresane</i>	Absorbed by Large White;	?	
Breton			Crossed with Craonnais and Large White and absorbed by West French White in 1955;	?	
Cazères		<i>de Cazères, de Cazèrien</i>	Origin (1860 on) from Large White or Lauragais x Gascony;	?	
Charolais				?	
Corrèze		<i>Corrèzien</i>	Local population of Craonnais x Limousin; recently crossed with Large White;	?	
Craonnais			Included in West French White in 1955;	?	
Dauphiné	<i>Dauphinois</i>		?		
Flamand	<i>Flemish, Flandrin</i>	Included in West French White in 1955; herd book 1937-55;	?		
Lauragais		Originated with Gascony of Cazères;	?		
Loches		Absorbed by Large White;	?		





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EUROPE					
FRANCE		Marseillais	<i>Marseilles</i>	Iberian type with English blood; created 1850; absorbed by Large White;	?
		Miélan		Originated from Large White x Gascony about 1850; variety: Piégut;	?
		Montmorillonnais	<i>Montmorillon, Poitou</i>	Originated in late 19th century from Large White x Craonnais;	?
		Piégut		Local variety of Miélan since early 20th century;	?
		Tournayais		Variety of Gascony;	?
		Alfort	<i>Disbley Merino, Grignon</i>	Originated 1833-1900 from Leicester Longwool x Merino; renamed to Ile-de-France in 1922;	?
		Ardes		Composite of local sheep and Lacaune;	√
		Artois	<i>Artésien</i>	Variety of Flemish Marsh; origin of Boulonnais;	?
		Boischaud	<i>Bourges</i>	Former variety of Berrichon;	?
		Brenne		Former variety of Berrichon;	?
		Cambrai		Variety of Flemish Marsh;	?
		Campan		Former variety of Aure-Campan;	?
		Cauchois		Originated from Oxford Down, Cotswold and other breeds;	?
		Causseard de la Lozère	<i>Lozère Causses</i>	Roquefort breed; now absorbed by Blanc du Massif Central;	?
		Champagne		Former variety of Berrichon;	?
		Châtillonnais	<i>Mérinos précoce du Châtillonnais, Burgundy Merino, Mérinos bourguignon, Mérinos de la Bourgogne</i>	Former variety of Précoce; herd book 1924-29;	?
		Choletais		Origin of Bluefaced Maine;	?
		Corbières		Absorbed by Lacaune in 1950s;	?
		Crevant		Former variety of Berrichon;	?
		Flamand	<i>Flemish Marsh, Flandrin</i>	Varieties: Artois, Cambrai, Picardy, St Quentin;	?
	Franconie			?	
	Gascon		Local variety to Landais and Lauraguais;	?	
	Larzac		Variety of Causseard; original Roquefort breed; now absorbed by Lacaune;	?	
	Lauraguais	<i>Toulousain, Toulouse</i>	Absorbed by Lacaune in 1940s;	?	
	Maine à tête blanche	<i>Maine à face blanche, Mayenne White, Whitefaced Maine, Whiteheaded Maine</i>	Originated from Leicester Longwool (imported 1855-90) x local and improved by Côtentin; disappeared in 1950s by spread of Bleu du Maine;	?	
	Marchois		Small variety of Limousin (probably with blood of Berrichon de l'Indre);	?	
	Mérinos champenois	<i>Champagne Merino, Mérinos de la Champagne</i>	Former variety of Précoce; herd book 1925-29;	?	
	Mérinos de la Camargue	<i>Camargue Merino</i>	Former grey variety of Arles Merino;	?	
	Mérinos de Mauchamp		Former variety of French Merino with silky wool;	?	
	Mérinos du Naz		Former variety of French Merino with very fine wool;	?	
	Morvande			?	
	Moutons à tête noire	<i>French Blackbeaded</i>	Originated from Suffolk, Hampshire Down, Oxford Down, Southdown and (since 1945) German Blackheaded Mutton; breed society 1959;	?	
	Picard	<i>Picardy</i>	Variety of Flemish Marsh;	?	
	Roussillon Merino		Originated from Spanish Merino in late 18th century; extinct by crossing with Central Pyrenean;	?	
	Ruthenois		Absorbed by Lacaune;	?	
	Ségala	<i>Ségala - Levézou</i>	Roquefort breed; absorbed by Lacaune;	?	
	Soissonais	<i>Mérinos précoce du Soissonais</i>	Former variety of Précoce; herd book 1925-29;	?	
	St. Quentin		Variety of Flemish Marsh;	?	
	Trun	<i>Trunier, Trunois</i>	Originated from Cauchois x Solognot;	?	
	Ardeale			√	
	Blanzac		One of the many French breeds with black plumage and a single comb; developed at the end of 19th century;	√	
Chrisanthème		Recent creation which has never existed as a breed; was used for the creation of the Lyonnaise breed;	√		
Cocherelle		Created by Ivanov about 1950;	√		
Contres		Originated in Contres, Loir-et-Cher region (France);	√		
Contres Blanc		Originated in Contres, Loir-et-Cher region (France);	√		
Herminé Noire			√		
Coucou de France	<i>French Cuckoo</i>	Similarities with the Coucou De Picarde, Cocou De Rennes and Coucou Des Flanders; originated in Département de Sarthe and Département de Orne (France);	√		
Coucou Picarde		Was common poultry in Picardie;	√		







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EUROPE					
FRANCE		Coucou Soie		Created from Negre Soie and Bantam de Pekin; presented at the Agriculture Exhibitions in 1989 - 1990; seems extinct since;	√
		Favoris		Created by crossing Orpington and Faverolles at the beginning of the 20th century;	√
		Hergnies		Descended from Brackel Argenteè (silver), an Belgian breed created in 1896; Breed Standard was adopted in 1898;	√
		Ivanaise		Created around 1960 from Negre Soie; Breed Standard was adopted in 1898; Dwarf fowls never approved as a Breed Standard;	√
		Malgache		Bred by Henri Calemar in Saint-Etienne in 1950s; used for the creation of the Lyonnaise breed;	√
		Normande		Related to Houdan, Crevecoeur, Gournay and Mantes;	?
		Poule De Caux		Old local breed; never had a large distribution;	√
		Poule De Marquise		Created on a poultry farm in Marquise (between Calais and Boulogne) in 19th century;	√
		Poule De Saint-Omer		Created by Marguerite Sudron on the castle of Serres at the beginning of this century; same origin as the Dorking breed;	√
		Poule Des Courrières		Created by crossing Bresse and Langshan in late 19th century;	√
Poule Lorraine		Created between 1900 and 1914 on the poultry farm of Haroue Orphanage; Breed Standard was adopted in 1898;	√		
GEORGIA		Provençale			√
		Imeretinskaya	<i>Imeretian</i>	Local pigs with Polish White Lop-eared blood;	?
GREECE		Kartolinskaya	<i>Kartolinian</i>	Local with Large White blood;	?
		Svanka			?
HUNGARY		Tinos		Composite of Brachyceros and Zebu cattle;	√
		Gekika		Ruda type;	?
HUNGARY		Bonyhadi		Former variety of Hungarian Pied, not Bonyhadi;	?
		Hungarian Brown		Small variety of Swiss Brown similar to Carpathian Brown; origin (with Jersey) of Dairy Hungarian Brown; graded to Holstein or Hungarofries;	?
		Tejelo magyar-barna	<i>Dairy Hungarian Brown, Hungarian Brown Dairy, New Hungarian Brown</i>	Originated in 1950s from (Danish Jersey x Hungarian Brown) x (Danish Jersey x Hungarian Pied), graded to Hungarofries or Holstein;	?
		Tejelo magyar-tarka	<i>Dairy Hungarian Pied, Hungarian Dairy Fleckvieh, Hungarian Spotted Dairy</i>	Originated in 1950s from Danish Jersey x Hungarian Pied backcrossed to Hungarian Pied, graded to Hungarofries or Holstein;	?
		Hungarian	<i>Hungarian Native</i>	Mongolian and Oriental origin; improved by Arab, Spanish and Thoroughbred; origin of Hungarian Draft, Hungarian Dun;	?
		Pinkafő	<i>Pinkafeld</i>	Original variety of Hungarian Draft;	?
		Ancient Alföldi		Absorbed by Mangalitsa in early 19th century;	?
		Bakony		Absorbed into Mangalitsa in early 19th century;	?
		Lincolitsa		Originated from Curly Coat x Magnalitsa in 1920s;	?
		Surány			?
IRELAND		J-AKI-1		Swedish Landrace x Hungarian Merino first generation in early 1980s; prolific dam line used in crossing with Suffolk;	?
		J-AKI-2		Finnish Landrace x Hungarian Merino first generation in early 1980s; prolific dam line used in crossing with Suffolk;	?
		Coloursided variety of Kerry;			√√
		Drimmon			√√
ITALY		Irish Longhorn			√√
		Irish Hobby		Origin of Connemara Pony and Irish Draught;	√√
		Greyhound			√√
		Cladore	<i>Cladagh, Cottagh</i>		√√
		Cariovilli			?
		Grigio viterbese	<i>Viterbo Grey</i>		?
		Romagnola			?
		Sant'Alberto			?
		Abruzzese	<i>Podolica abruzzese di montagna</i>	Former variety of Apulian Podolian;	?
		Bardigiana		Variety of Pontremolese; subvarieties: Cornigliese and Valtarese;	?
Calabrese	<i>Calabrian, Cotrone, Crotonese</i>	Former variety of Apulian Podolian;	?		
Camandona		Local variety absorbed by Italian Brown;	?		
Carniella		Absorbed by Italian Brown in early 20th century;	?		
Demonte		Variety of Piedmont in Stura valley;	?		
Friuli	<i>Friulana, Friauler, Red Friuli</i>	Original (with Simmental) of Italian Red Pied;	?		
Grigia di Val d'Adige	<i>Grey Adige, Etschtaler, Ulten or Ultinger, Ultimo</i>	Breed standard 1931; absorbed by Grey Alpine;	?		
Grigia di Val di Fiemme	<i>Grey Val di Fiemme</i>	Graded to Italian Brown in 20th century; grade called Sorcino;	?		


















COUNTRY	SPECIES	MOST COMMON NAME	LOCAL NAMES OR SYNONYMS	ORIGIN AND REASON FOR EXTINCTION	STATUS
EUROPE					
ITALY		Grossetana		Former variety of Maremmana;	?
		Lucana	<i>Lucanian</i>	Former variety of Apulian Podolian;	?
		Mölltal	<i>Mölltaler, Pezzata rossa norica, Mölltal-Pinzgau, Norica-Pinzgau</i>	Former variety of Pinzgauer in south-western Kärnten (to 1925) and north-east Udine, as distinct from Pinzgauer and Pustertaler Sprinzen in Salzburg and north-east Bolzano;	?
		Ossolana		Local variety absorbed by Italian Brown;	?
		Pasturina		Local variety from Chianina x Podolian;	?
		Perugina		Former variety of Chianina;	?
		Pugliese del basso Veneto	<i>Venetian, Poggese</i>	Former variety of Apulian Podolian;	?
		Romana	<i>Roman</i>	Former variety of Maremmana;	?
		Sicilian		Iberian type decimated 1860 and crossed with Chianina, Reggiana, Calabrian and other breeds; to produce Mezzalina (upland), Modicana (lowland) and Montanara (mountain) varieties; low Sicilian (Modicana) which has absorbed other varieties;	?
		Val di Chiana		Variety of Chianina;	?
	Valdarno		Former variety of Chianina;	?	
		Valtarese	<i>Valle del Tarò</i>	Variety of Bardigiana;	?
		Val Di Livo		Composite of heterogenous populations;	√
		Cremonese	<i>Padana</i>	Originated from Belgian Draft with Brenton and Percheron blood; remnants absorbed by AITPR;	?
		Pugliese	<i>Apulian</i>		?
		Abruzzese			?
		Basilicata	<i>Lucanian</i>	Variety of Apulian;	?
		Bastianella		Strain of inbred Large White (imported in 1875) used for crossing with Romagnola;	?
		Borghigiana	<i>Fidenza, Fidentina</i>		?
		Catanzarese		Former variety of Calabrian;	?
		Chianina	<i>Cappuccia d'Angbiari, Cappuccio, Casentino, Casentino</i>		?
		Cosentina	<i>Orielese</i>	Former variety of Calabrian;	?
		Faentina		Former variety of Romagnola;	?
		Forlivese		Former variety of Romagnola;	?
		Friulana nera	<i>Friuli Black, Nera del Friuli, San Daniele, Sandanielese</i>	Nearly extinct in 1951 by crossing with Edelschwein (1908-40), Large White, and other breeds;	?
	Fumati	<i>Brinati, Fumati di San Lorenzo di Faenza</i>	Originated from Bastianella or San Lazzaro (inbred Large White) x Romagnola;	?	
	Gargano		Variety of Apulian;	?	
	Garlasco			?	
	Lagonegrese		Former variety of Calabrian;	?	
	Maremmana	<i>Macchiaiola, Nera umbra, Black Umbrian, Roman</i>	Semi-wild;	?	
	Murgese		Variety of Apulian;	?	
	Parmense		<i>Black Emilian, Emiliana negra, Black Parma, Parmigiana, Reggio, Reggiana</i>		?
		Perugina			?
Pugliese	<i>Apulian, Appulo-luccana, Apulo-Lucanian, Mascherina</i>	Former varieties in: north-eastern Lucania and Capitanata (Foggia), Murge, south-eastern Lucania, Gargano;	?		
Reggitana		Former variety of Calabrian;	?		
Riminense		Former variety of Romagnola;	?		
Rossa modenese	<i>Modena Red</i>		?		
Samólaco			?		
San Lazzaro		Strain of inbred Large White (imported 1875) used for crossing with Romagnola;	?		
	Valtellina			?	
	Borgotarese			?	
	Brianzola		Descended from Bergamasca or Varesina;	√	
	Cadorina		Extinct in 1970s by crossing with Lamon and other breed; lop-eared Alpine group;	?	
Carapellese	<i>Gentile moretta, Gentile a vello nero, Merinos a vello, Black Merino, Moretta</i>		?		






COUNTRY	SPECIES	MOST COMMON NAME	LOCAL NAMES OR SYNONYMS	ORIGIN AND REASON FOR EXTINCTION	STATUS	
EUROPE						
ITALY		Carnica			?	
		Cinta			?	
		Ciuta			Composite of Ciavenasca and local breed;	√
		Cornetta				?
		Friulana	<i>Furlana</i>		Originated from Lamon and absorbed by it; lop-eared Alpine group;	?
		Gentile di Lucania	<i>Basilicata,</i> <i>Improved Lucanian</i>		Former variety of Gentile di Puglia with medium wool; originated from Gentile di Puglia x local;	?
		Gentile di Calabria	<i>Improved Calabrian</i>		Former variety of Gentile di Puglia with medium wool; originated from Calabrian improved by Gentile di Puglia;	?
		Livo				√
		Maremmana	<i>Spanish Mongrel,</i> <i>Bastarda Spagnola,</i> <i>Bastarda maremmana</i>		Former variety of Sopravissana;	?
		Noventana	<i>Monselesana</i>		Variety of Padun, larger and with finer wool;	?
		Paduan	<i>Padovana</i>		Lop-eared Alpine group; variety: Novetana; origin of Carinthian and Solcava; crossed with Lamon;	?
		Pavullese	<i>Appenino-Modenese,</i> <i>Balestra, Modenese</i>		Variety of Garfagnina White with Bergamasca blood;	?
		Sciara	<i>Moscia Calabrese</i>			√
		Urbascia			Variety of Calabrian (now Sciara);	?
		Zucca Modenese			Composite of different breeds of the Appenine Group;	√
MOLDOVA, REPUBLIC OF		Bessarabian Red		Name used for Red Steppe in Moldova from 1918-45 when it was part of Romania;	?	
		Chernaya moldavskaya porodnaya gruppa	<i>Moldavian Black</i>	Breed group; originated in 1948 from Berkshire x local black;	?	
NETHERLANDS		Groningse melkschaap	<i>Groningen Milk</i>	Marsh type;	?	
NORWAY		Gudbrandsdal		Variety of Dole;	?	
		Hedmark		Local type of Swedish Red-and-White origin; included in Norwegian Red since 1939;	?	
		Hordaland		Original (with More and Ramsdal) of Vestland Fjord;	?	
		Jarlsberg		Coloursided variety of Red Polled Ostland;	?	
		Lyngdal		Joined with Vestland Red Polled, and then with Vestland Fjord (1947) to form South and West Norwegian;	?	
		More and Ramsdal		Original (with Hordaland) of Vestland Fjord;	?	
		Norsk rodt og hvitt fe	<i>Norwegian Red and White, NRF</i>		Originated from Swedish Red-and-White x local Ayrshire, Red Trondheim and Hedmark; breed society 1923, named 1939; finnish Ayrshire blood in 1950s; absorbed Red Trondheim in 1960; joined with Red Polled Ostland in 1961 to form Norwegian Red;	?
		Osterdal		Variety of Dole;	?	
		Rodt (or Rautt)	<i>Red Trondheim,</i>		Originated 1850-91 from Ayrshire x local; graded to Norwegian	?
		tronderfe og malselvf	<i>Rautt tronderfe og malselvf</i>		Red-and-White and finally absorbed 1960;	?
		Sor og vestlandsfe	<i>South and West Norwegian, South and Westland cattle</i>		Origin 1947 by joining Lyngdal and Vestland Red Polled with Vestland Fjord; absorbed by Norwegian Red 1968;	?
		POLAND		Lofoten		
Rawicka				Former variety of Polish Red;	√	
Slaska czerwona	<i>Silesian Red,</i> <i>Schlesisches Rotvieh</i>				Variety of Polish Red; with Danish Red blood;	√
Tur	<i>Aurochs, Bos (Bos) primigenius Bojanus, Ur, urus, reem, rimu (hebrew), wild ox (synonym), B.p. primigenius (Europe), B.p. opisthonomus (North Africa), B.p. namadicus (Asia)</i>				Origin of domestic cattle;	√
Tarpan	<i>European Wild Horse, Russian tarpan</i>				Origin of domestic horse;	√
Fagas					Marsh type brought by Dutch settlers in 17-18th century; partially origin of Pomeranian;	√
Karnowka						√
Krukowka						√
Owca lowicka	<i>Lowicz</i>		Polish Lowland group; originated 1924-39 from Romney x local (White Swiniarka with Merino blood); partially origin of Zelazna;	√		
		Leghorn, L44		Originated from United Kingdom (Sykes Breeding); bred in Poland since 1960; L44 strain had the poorest performance results in comparison with all conservation Leghorn flock; was not utilised in any commercial cross-breeding; was only one flock of this very strain; kept at private farm in 1996; when the flock was affected with serious health problems, the owner decided to liquidate it;	√	

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EUROPE					
POLAND		Rhode Island Red RIR	<i>Karmazyn</i>	Indigenous breed descended from breeding chicken kept in Poland before World War II; bred as closed population since 1955; developed towards general purpose type; conservation flock was the only flock left in 1996; maintenance of these birds was not profitable so the owner decided to liquidate the flock;	√√
PORTUGAL		Algarvia		Up-graded to Limousine;	√√
		Minhota Portugese ibex	<i>cabra montez de Portugal,</i> <i>cabra do Gerez,</i> <i>cabra montés portuguesa,</i> <i>bouquetin du Gerez</i>	Up-graded to Gelbvieh; extinct in 1970's; Variety of Spanish ibex;	?
ROMANIA		Bucsana	<i>Buksbaner, not Boucsan,</i> <i>Buksban</i>	Former variety of Romanian Steppe;	√√
		Ialomita	<i>Ialomiteana, Jalomitzaner</i>	Former variety of Romanian Steppe; composite of Moldavian x Transylvanian;	√√
		Transylvâneană	<i>Transylvanian,</i> <i>Siebenburgisch,</i> <i>Grey Transylvanian,</i> <i>Transylvanian Steppe</i>	Former variety of Romanian Steppe;	√√
		Banat		Originated from Nonius, Noric, Ardennes, Oldenburg and Lipitsa;	√√
		Dobrogeana	<i>Dobrogea</i>	Former variety of Romanian;	√√
		Ialomita		Variety of Transylvanian;	√√
		Moldovenesca	<i>Moldavian</i>	Former variety of Romanian;	√√
		Romanian Mountain	<i>Calul românesc de munte</i>	Former variety of Romanian;	√√
		Transylvaneana	<i>Transylvanian,</i> <i>Siebenburgisch</i>	Originated from Bessarabian x Hungarian; former variety of Romanian; Subvariety: Ialomita;	√√
		Palatin			√√
RUSSIAN FEDERATION		Porcul negru de Dobrogea	<i>Dobrogea Black</i>	Originated 1949-67 from Large Black x Russian Large White;	√√
		Stocli	<i>Transylvanian</i>	Variety of Romanian Native;	?
		Strei		Originated 1877 from Large Black and Mangalitsa x local;	√√
		Altayskaya	<i>Altai, South Siberian</i>	Variety of Siberian;	?
		Babaev		German Brown (Allgäuer) x local cattle; original (with Miskov and crossed with Swiss Brown) of Kostroma;	?
		Dagestanskaya Buraya	<i>Dagestan Brown</i>	Originated from Swiss Brown x Dagestan Mountain with some Carpathian Brown blood; absorbed by Caucasian Brown;	?
		Karelian		Equivalent to the East Finnish Breed;	?
		Kemerovskaya	<i>Kemerovo</i>	Siberian crossed with Simmental, Kholmogory, Ukrainian Red, East Friesian; created in 1930s; absorbed by Black Pied;	?
		Kubano-Chernomorskaya	<i>Kuban-Black Sea,</i> <i>Krasnodarsk</i>	Composite of Brown Swiss & Simmental x Ukrainian Grey; created in 19th century;	?
		Menno-Friesian		Originated from East Prussian Black Pied Lowland in late 1700s;	?
		Miskov		Local cattle with Yaroslavl, Kholmogory and Ayrshire blood;	?
		Priokskaya chernopestraya	<i>Oka Black Pied</i>	From East Friesian or Kholmogory x Simmental, Swiss Brown and Jersey; absorbed by Black Pied;	?
		Priorskaya	<i>Oka</i>	Original of Gorbatov Red;	?
		Russo-Siberian		Variety of Siberian;	?
		Sibirskii skot	<i>Siberian</i>	Turano-Mongolian type;	?
		Vychegodsko-vymskaya	<i>Vychegda-Vym</i>		?
		West Siberian		Variety of Siberian;	?
		Angoro-Pridonskaya	<i>Angora-Don</i>	Cross-bred Angora x Don;	?
		Bashkirskaya	<i>Bashkir, Cis-Ural</i>	Variety of North Russian;	?
		koza reduralya	<i>Bashkir goat</i>		?
	Severorusskaya	<i>North Russian, Tatar</i>	Origin of Russian White;	?	
	Amurskaya	<i>Amur</i>	Originated from Transbaikal x Tomsk; extinct due to crossing with Orlov and Russian Trotters, Don and Budyonny;	?	
	Bitrug	<i>Bitrug, Bitrugskaya, Biçuk</i>	Originated from Heavy Trotter x local horses in 19th century; origin of Voronezh Heavy Draft;	?	
	Chernomorskaya	<i>Black Sea</i>	Originated from Nogai x saddle horse in 18th century; then crossed with mountain horses, Thoroughbred, Don, Karabakh and other breeds in 19th - 20th century; absorbed by Budyonny, Don and Ukrainian Saddle Horse;	?	
	Chilkovskaya	<i>Chilkov</i>	Originated from heavy draft x Buryat in 17th century;	?	
	Chuvashskaya	<i>Chuvash</i>	Local forest type improved by Trotter, Soviet, Vladimir and Heavy Draft;	?	
	Cossack	<i>Old Don</i>	Developed from Nogai x Mongolian and Kalmyk in 18th century; origin of Don;	?	
	Karel'skaya	<i>Karelian</i>	Part of North Russian Pony group; variety: Onega;	?	

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EUROPE							
RUSSIAN FEDERATION		Lovetskaya	<i>Lovets</i>	Basically Kalmyk or Kazakh breed used to draw fish carts; recently crossed with Don or Orlov Trotter;	?		
		Minusinsk		Extinct by crossing with Don, Thoroughbred and Trotter;	?		
		Obva	<i>Obvinskaya</i>			?	
		Onega	<i>Onezbskaya</i>	Variety of Karelian;		?	
		Orlovskaya verkhovaya	<i>Orlov Saddle Horse, Orlov Riding Horse</i>	Anglo-Arab originated in the late 18th century; origin of Russian Saddle Horse;		?	
		Rostopchin		Anglo-Arab origin in early 19th century; origin of Russian Saddle Horse;		?	
		Russkaya krovnyaya verkhovaya	<i>Orlov-Rostopchin, Orlovo-Rostopchinskaya, Russian Saddle Horse</i>	Originated from Orlov Saddle Horse x Rostopchin in late 1800s; Absorbed by Ukrainian Saddle horse since 1945;			
		Tomskaya	<i>Tomsk</i>	Originated from local horses improved by Trotter or West European draft breeds;		?	
		Tuvinskaya upryazhnaya	<i>Tuva Coach, Tuva Harness Horse</i>	Originated from Tuva improved by Kutznetsk, Chumysh from 1870 onwards and by Heavy Orlov Trotter and Don;		?	
		Voronezhskaya upryazhnaya	<i>Voronezh Coach, Voronezh Draft</i>	Originated from Clydesdale x Heavy Trotter or from Bitung in 20th century;		?	
			Alabuzinskaya porodnaya gruppa	<i>Alabuzin</i>	Originated late 19th century from Large White, Middle White, Large Black x local lop-eared pigs; extinct by 1984;		?
			Dobrinskaya porodnaya gruppa	<i>Dobrinka</i>	Originated from Large White x local; created 1932 onwards;		?
			Ievlevskaya porodnaya gruppa	<i>Ievlev, Jewlewsker</i>	Originated from Large White, Large Black, Middle Black, Black Spotted x local;		?
	Kalikinskaya		<i>Kalikin</i>	Originated from Large White, Berkshire x local lop-eared pigs;		?	
	Kama		<i>Prikamskaya porodnaya gruppa</i>	Originated from Large White and Breiitov x local short-eared pigs;		?	
	Lesogornaya porodnaya gruppa		<i>Lesogor</i>	Breed group of the European-Short-Eared type pigs;		?	
	Meshchovskaya porodnaya gruppa		<i>Meshchovsk</i>	Originated from Large White x local pigs;		?	
	Omskaya seraya porodnaya gruppa		<i>Omsk Grey</i>	Created 1949-63 from Kemerovo, Siberian Spotted, Large White x local pigs (Tara);		?	
	Pridonskaya		<i>Don</i>	Originated from Cornwall, Large Black, long-eared-white x local Large White;		?	
	Rossoshanskaya chernopestraya corodnaya gruppa		<i>Rossosb Black Pied</i>	Originated 1943 from Berkshire x (Large White x local pigs); crossed with Berkshire x Mirgorod blood in 1949;		?	
			Avar	<i>Avarsкая</i>	Variety of Tlyarota with Lezgian and Tushin blood;		?
			Bitug	<i>Bitugskaya</i>	Variety of Russian Long-tailed;		?
		Bokino		Variety of Russian Long-tailed;		?	
		Danadara		Possible origin of Karakul;		?	
		Gedek	<i>Gedek</i>	Variety of Tabasaran;		?	
		Kalmytskaya	<i>Kalmyk</i>			?	
		Karanogaiskaya	<i>Karanogai, Manych, Manychskaya, Nogai</i>	Similar to Kalmyk;		?	
		Kumytskaya	<i>Kumyk</i>	Caucasian Fat-tailed type;		?	
		Kusman		Variety of Tabasaran;		?	
		Mennonite		Originated from East Friesian;		?	
		Minusinsk		Variety of Siberian;		?	
	Nolinskaya	<i>Nolinsk</i>	Variety of Russian Northern-Short-tailed;		?		
	Novokavkazskii Merinos	<i>Novocaucasian Merino, New Caucasian, New Caucasian Mazaev</i>	Originated from Mazaev Merino; improved by German Merino and Rambouillet; created in late 19th century;		?		
	Prostaya derevenskaya dlinno-toshchekhvostaya	<i>Common Russian, Common Long-tailed, Russian Long-Tailed</i>	Varieties: Bitug, Bokino, Cherkassy; origin of: Chushka, Kuchugury, Mikhnov, Reshetilovka and Sokolki;		?		
	Severnaya korotkokhvostaya	<i>Russian Northern Short-Tailed</i>	Variety: Nolinsk; origin of Romanov;		?		
	Sibirskaya	<i>Siberian</i>	Local varieties: Minusinsk, Tuva;		?		
Sovetskiy Korridel'	<i>Soviet Corriedale</i>	Originated from Lincoln x Rambouillet; created 1926-36;		?			
Tabasaranskaya	<i>Tabasaran, Samur</i>	Caucasian Fat-tailed type; varieties: Gedek, Kusman;		?			
Tlyarotinskaya	<i>Tlyarota</i>	Variety of Avar;		?			
Tuva		Variety of Siberian;		?			
Volokolamsk		Originated 1936 from (Hampshire Down x Tsigai) x Northern Short Tailed; cross-bred group;		?			
SLOVAKIA		Slovensky cerveny	<i>Slovakian Red</i>	Central European Red type; similar to Polish Red;	?		
		Valašský	<i>Valachian Dwarf</i>		?		



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EUROPE						
SPAIN		Almanzoreña		Former variety of Murcian;	?	
		Avilena	<i>Barco-Piedrabita, Barqueña (from Barco), Black Carpetiana, Piedrabitense (from Piedrabita)</i>	Joined with Black Iberian in 1980 to form Avileña-Black Iberian, breed society 1974;	?	
		Calasparrena		Former variety of Murcian;	?	
		Campurriana		Larger, valley variety of Santander; absorbed by Swiss Brown and Tudanca in 1940s;	?	
		Eo	<i>Agrupación Eo</i>	Local variety of North Spanish type;	?	
		Lebaniega	<i>Picos de Europa</i>	Smaller, highland variety of Santander; absorbed by Tudanca in 1940s;	?	
		Leonese	<i>Mantequera, leonesa</i>	North Spanish type; displaced by Swiss Brown;	?	
		Lorquina		Former variety of Murcian with Spanish Mountain blood;	?	
		Marinera		Original of Minorcan;	?	
		Pasiega		Upland variety of Santander; absorbed or displaced by Swiss Brown in 1940s;	?	
	Santander	<i>Montaña</i>	North Spanish type; former varieties: Campurriana, Lebaniega, Pasiega; only Tudanca survived;	?		
		Azpi Gorri			?	√√
		Andaluza rubia (campieñesa)	<i>Andalusian Blond, Andaluza campieñesa</i>			?
		Asturian			Originated from Celtic x Iberian; extinct by crossing with Large White;	?
		Baztanes				√√
		Chato Vitoriano	<i>Vitoriana, Chato De Vitoria</i>		Descended from local Celtic type improved by Large White;	√√
		Gallega	<i>Galician, Celta, Céltica, Santiaguesa</i>			?
		Lermeña				?
		Mallorquina	<i>Majorcan, Agrupación balear, Balearic</i>			?
		Vich	<i>Catalan</i>			?
		Guadelupe			Former strain of Spanish Merino;	?
	Infantado			Former strain of Spanish Merino;	?	
	Negretti	<i>Negrete</i>		Former strain of Spanish Merino;	?	
	Paular			Former strain of Spanish Merino;	?	
	Perales			Former strain of Spanish Merino;	?	
	Tudelana			Variety of Castilian;	?	
	SWEDEN		Herrgard		Local variety absorbed into Red Pied Swedish;	?
			Rödbrokgig Svensk Boskap	<i>Red Pied Swedish, RSB</i>	Originated in late 19th century from Ayrshire and Shorthorn x local (Herrgard and Smaland); breed society and herd book 1892 - 1928; joined with Swedish Ayrshire in 1928 to form Swedish Red-and-White;	?
			Skane	<i>Scanian</i>	Originated from Red Pied Holstein and Dutch x local; absorbed by Red Pied Swedish;	?
			Smaland		Local cattle absorbed into Red Pied Swedish;	?
Old Swedish Spotted Svenskt finullsfår			<i>Black-White-Red Spotted Swedish Finewool</i>		Swedish Finewool sheep originated from the Swedish old native breeds with some influence from the Finnish Finewools sheep; created in 1920;	√√
SWITZERLAND		Fribourgeois	<i>Fribourg, Freiburger</i>	Breed society; since 1966 crossed with Holstein to Swiss Holstein; last pure-bred bull died 1973;	√√	
		Burgdorfer		Originated from Ardennes x Jura; regional variety and heavier strain of the original Freiburger;	√√	
		Erlenbach	<i>Simmental</i>	Variety of Swiss Warmblood; originated from Mecklenburg x Danish; disappeared in original form mid 18th century;	√√	
		Berne		Black variety of Jura;	?	
		Roux-De-Bagnes	<i>Bagnes, Bagnerschaf</i>			?
		Schwyz	<i>Uri, Urner Landschaft</i>		Partially origin of Swiss White;	?
		Simmental		Partially origin of Swiss Black-Brown Mountain;	?	
Solothurn		Brown variety of Jura;	?			
TURKEY		Tavetscher Schaf			√√	
		Çukurova		Variety of South Anatolian Red; composite of Anatolian Black and Aleppo (Damascus); reasons for extinction: cross-breeding with exotic breeds (economic), decreasing number of farmer, difficult adaptation to other regions;	√√	
		Diyarbakir		Reasons for extinction: cross-breeding with exotic breeds (economic), decreasing number of farmer, difficult adaptation to other regions;	√√	

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EUROPE						
TURKEY		Dörtyol		Small variety of South Anatolian Red, similar to Baladi in Syria;	√√	
		Eleskirt		Reasons for extinction: cross-breeding with exotic breeds (economic), decreasing number of farmer, difficult adaptation to other regions;	√√	
		Kalmuk		Reason for extinction: cross-breeding with exotic breeds (economic), decreasing number of farmer, difficult adaptation to other regions;	√√	
		Karacadang		Reason for extinction: cross-breeding with exotic breeds (economic), decreasing number of farmer, difficult adaptation to other regions;	√√	
		Karaisali		Reason for extinction: cross-breeding with exotic breeds (economic), decreasing number of farmer, difficult adaptation to other regions;	√√	
		Malakan	<i>Okranya</i>	Descended from Ukrainian Grey; reasons for extinction: cross-breeding with exotic breeds (economic), decreasing number of farmer, difficult adaptation to other regions;	√√	
		Seferihisar		Local variety; maybe composite of Simmental and Aleppo; reasons for extinction: cross-breeding with exotic breeds (economic), decreasing number of farmer, difficult adaptation to other regions;	√√	
		Urla		Reason for extinction: cross-breeding with exotic breeds (economic), decreasing number of farmer, difficult adaptation to other regions;	√√	
			Karacabey-Nonius		Originated from Karacabey Halfbred Arab;	√√
			Rumelian Pony			√√
			Halkali		Reason for extinction: cross-breeding with exotic breeds (economic), decreasing number of farmer, difficult adaptation to other regions;	√√
			Karacabey-Kivircik	<i>Kirma</i>	Originated from German Mutton Merino x Kivircik crosses at Karacabey studfarm;	√√
			Karakaçan		Reason for extinction: cross-breeding with exotic breeds (economic), decreasing number of farmer, difficult adaptation to other regions;	√√
		UKRAINE		Chernopestraya podol'skaya	<i>Podolian Black Pied, Ukrainian Oldenburg Gutsul'skaya</i>	Originated from Oldenburg x local cattle in late 19th century; absorbed by Black Pied;
Hutsul				Moldavian x Carpathian Brown; extinct by crossing with Simmental;	?	
	Ukrainian Whitebacked				?	
	Askanian Mohair				?	
	Krymskaya		<i>Crimean</i>		?	
	German Bessarabian		<i>German Colonist</i>	Mixed origin;	√√	
	Nogai			Origin of Cossak (Old Don) and Black Sea;	?	
	Strelets			Originated from crossing Arab x Thoroughbred in late 19th century; origin of Tersk;	?	
	Tarpan		<i>European Wild Horse, Russian tarpan</i>	Origin of domestic horse;	?	
	Dneprovskaya porodnaya gruppa		<i>Dnieper, Pridneprovskaya porodnaya gruppa</i>	Originated from Mirgorod, Berkshire (1911) and Large White (1937-38) x local short-eared;	?	
	Krolevetskaya porodnaya gruppa		<i>Krolevets, Polesian Lard, Polesskaya salnaya</i>	Originated from English breeds x local Polesian;	?	
	Podol'skaya porodnaya gruppa		<i>Podolian,</i>	Originated from Berkshire, Middle White, Large White x local pigs;	?	
	Ukrainian		<i>Podolian Black Pied, Podol'skaya chernopestraya</i>	Local population of European Short-Eared; origin of Dniepr, Mirgorod, Podolian, Ukrainian Spotted Steppe and Ukrainian White Steppe;	?	
	Chuntutk				?	
	Mazaevskii Merinos	<i>Mazaev Merino</i>	Origin in mid 19th century (by P.Dazaev) by improving of Russian Infantado; origin of Novocaucasian and other Russian Merinos;	?		
UNITED KINGDOM		Reshetilovka	<i>Resbetilovskaya</i>	Originated from Russian Long-tailed;	?	
		Angus Doddie		Origin of Aberdeen-Angus;	?	
		Beevbilde		Developed in 1960s; 65% Lincoln Red, 30% Beef Shorthorn and 5% Aberdeen-Angus;	?	
		Broadlands		Imported from the Netherlands to Moor Park, Sheen, Richmond by Sir William Temple;	?	
		Buchan Humlie	<i>Polled Aberdeenshire</i>	Original of Aberdeen-Angus;	?	
		Castle Martin	<i>Castro Caldelas</i>	Variety of South Wales Black;	?	
		Cornish			?	
		Dewsland		Variety of South Wales Black;	?	
		Five Horned	<i>Falkland</i>		?	
		Glamorgan		Similar to Gloucester but light red and light brindle with white finching;	?	
		Holderness	<i>Yorkshire</i>	Similar to Teeswater; dutch origin; origin (with Teeswater) of Shorthorn;	?	
		Lord Caernarvon's breed	<i>Galway</i>		?	

COUNTRY	SPECIES	MOST COMMON NAME	LOCAL NAMES OR SYNONYMS	ORIGIN AND REASON FOR EXTINCTION	STATUS	
EUROPE						
UNITED KINGDOM		Montgomeryshire			?	
		Norfolk Horned	<i>Old Norfolk, Red Norfolk</i>	Original (with Suffolk Polled) of Red Poll;	?	
		North Wales Black	<i>Anglesey</i>	Herd book 1883-1904; original (and South Wales Black) of Welsh Black;	?	
			Old Marlborough Red			?
			Orkney		Variety of Shetland;	?
			Polled Derby		Original of Mulley;	?
			Sheeted Somerset	<i>Somerset, Somersetshire Sheeted, White-sheeted Somerset</i>		?
			South Wales Black	<i>Pembroke</i>	Origin (and North Wales Black) of Welsh Black; herd book 1874-1904; varieties: Castle Martin, Dewsland;	?
			Suffolk Polled	<i>Suffolk Dun</i>	Origin (with Norfolk Horned) of Red Poll;	?
			Teeswater	<i>Sbothorn</i>	Dutch origin;	?
			Old English		Origin of Anglo-Nubian and British; breed society 1920-30;	?
			Welsh			?
			Barra Pony		Variety of Hebridean Pony;	?
			Cushendale			?
			Devon Pack Horse			?
			Galloway Pony			?
			Gocan	<i>Mull</i>		?
			Goonhilly			?
			Great Horse	<i>Old English Black Horse, Old English War Horse</i>	Origin of Clydesdale and Shire;	?
			Hebridean Pony	<i>Western Isles Pony</i>	Smaller original variety of Highland pony; different varieties: Barra, Mull, Rhum, Skye, Uist; extinct by crossing;	?
			Long Mynd			?
			Manx			?
			Tiree		Variety of Hebridean Pony;	?
			Vardy	<i>Bakewell, Northumberland Chapman</i>	Originated from Shire x Cleveland Bay and Fell Pony in late 18th century;	?
			Yorkshire Coach Horse	<i>New Cleveland Bay</i>	Variety of Cleveland Bay from Thoroughbred cross in early 19th century; breed society 1886-1937 then absorbed;	?
			Black Essex	<i>Old Essex</i>	Variety of Small Black; origin of American Essex;	?
			Black Suffolk		Variety of Small Black;	?
			Chester White		Imported from USA in 1978 and 1981;	√
			Cumberland		Breed society 1917; last boar licensed 1955-56; last sow licensed 1960;	?
			Dorset Gold Tip		Originated from Tamworth x Berkshire with Gloucester Old Spot blood; last boar licensed 1955-56;	?
			Essex	<i>Essex Half-black, Sheeted Essex, White-shouldered Essex</i>	Originated from Old English; breed society 1918-67; combined with Wessex in 1967 to form British Saddleback;	?
			Lincolnshire Curly Coat	<i>Baston, Lincoln, Lincoln Curly Coat, Lincoln Curly Coated White, Lincolnshire Curly-Coated</i>	Last boar licensed 1963-64; breed society 1906-60;	?
			Manx Purr			?
		Old English		Origin of Essex, Hampshire and Wessex Saddleback;	?	
		Small Black		Varieties: Black Essex and Black Suffolk; origin of Suffolk-and-Essex; variety of Large Black and American Essex with Neapolitan (1830) and Chinese blood;	?	
		Small White	<i>Middlesex, Small Yorkshire</i>	Chinese (Cantonese) blood 1780 on;	?	
		Wessex Saddleback	<i>Belted, Sheeted Wessex</i>	Originated from Old English; herd book and breed society 1918-67; in 1967 combined with Essex to British Saddleback;	?	
		Yorks Blue and White	<i>Bilsdale Blue</i>	Originated from Large White x Large Black; last boar licensed 1963-64; local variety;	?	
		Anglesey			?	
		Anglo-Merino	<i>English Merino</i>	Negretti and Paular strains of Spanish Merino x various English breeds (especially Southdown and Ryeland); created early 18th century;	?	
		Bampton Nott		Origin of Devon Longwoolled;	?	
		Berkshire Knot	<i>Old Berkshire</i>	Origin of Hampshire Down;	?	
		Cadzow Improver		Originated in 1960s from Dorset Horn and Finnish Landrace; male line for crossing on hill ewes;	?	
		Cannock Chase		Origin of Shropshire;	?	
		Cobb 101		Originated in 1960s from Finnish Landrace and other breeds; male line for crossing on hill ewes;	?	



















COUNTRY	SPECIES	MOST COMMON NAME	LOCAL NAMES OR SYNONYMS	ORIGIN AND REASON FOR EXTINCTION	STATUS
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EUROPE

UNITED KINGDOM		Devon Longwoolled	<i>Devon Longwool</i>	Originated from Leicester Longwool x Southam Nott and Bampton Nott; recognised 1870s; breed society 1898-1977; combined with South Devon to form Devon and Cornwall Longwool 1977;	?
		Keerie	<i>Rocky</i>	Northern Short-tailed type;	?
		Kent Halfbred		Originated from Southdown x Romney;	?
		Limestone	<i>Cragg, Farleton Knott, Horned Cragg, Limestone Cragg, Silver Dale, Wartan Cragg</i>		?
		Longmynd		Partially origin of Shropshire;	?
		Morfe Common		Partially origin of Ryeland;	?
		Pembroke Hill	<i>Presceley Mountain</i>	Local variety of Welsh Mountain;	?
		Pink-nosed Somerset Prolific	<i>Somerset Horn</i>	Variety of Dorset Horn;	?
				Originated from Bluefaced Leicester, Poll Dorset and Llyen by Gilderson, Haltwhistle, Northumberland;	?
		Rhiw Hill		Local variety similar to Welsh Mountain;	?
		South Devon	<i>South Dum</i>	English Longwoolled type; breed society 1904; herd book 1904; combined with Devon Longwoolled to form Devon and Cornwall Longwool in 1977;	?
		Southam Nott		Partially origin of Devon Longwoolled;	?
		Sussex	<i>Old Southdown</i>	Origin of Southdown;	?
		Tanface	<i>Dun, Dunface, Old Scottish Shortwool, Scottish Soft-wool</i>	Displaced by Blackfaced Mountain in late 18th century in north Scotland;	?
YUGOSLAVIA		Welsh Tanface		Origin of Welsh Mountain;	?
		Yorkshire Halfbreed		Originated from Suffolk x Leicester Longwool;	?
		Belo slovensko govodo	<i>Slovenian White, Slovenacko belo govece</i>		?
		Lasasta	<i>Black Mangalitsa, Sirmian, Sremica</i>	Variety of Mangalitsa;	?
		Šiška Šumadija	<i>Schischka Šumadinka, Šumadinska svinja, Schumadija, Miloš, Miloševa, Milosch</i>	Origin of Šumadija, Turopolje; Origin of Magnalitsa; originated from Šiška;	?



LATIN AMERICA AND THE CARIBBEAN

ARGENTINA		Ñata	<i>Niata</i>	Variety of Criollo with bulldog snout, partially dominant;	?
		Suisbú		Originated from American Brown Swiss x zebu;	?
		Tropical		Originated from Argentine Holstein x zebu in 1959;	?
BRAZIL		Tropicana		Originated from Guernsey x zebu;	?
		Angola		Zebu (probably African) x Curraleiro in 19th century;	?
		China		Southern Criollo x Indian Zebu; imported by Baron de Bom Ritiro in 1855;	?
		Crioulo do Sul	<i>Southern Crioulo, Bruxo or Legittimo (Minas Gerais), Colonia, Mineiro</i>	Portuguese origin (? from Alentejana);	?
		Guademar		Curraleiro x Ongole; created in 1868;	?
		Igarapé		Iberian origin;	?
		Irece	<i>Guarapueva, Nanico</i>	Variety of Curraleiro;	?
		Javanês	<i>Crioulo leiteiro de Irece</i>	Originated by Brito Bastos Formoso from one grey Zebu bull named Javanês crossed on local cows mid 19th century;	?
		Junqueiro		Originated from Southern Criollo in 19th century;	?
		Malabar		Curraleiro x Indian Zebu in 19th century;	?
		Nilo		African Zebu imported and crossed with local cattle; created in 1826;	?
		Patuá		Probably had some zebu blood;	?
		Pedreiro		Variety of Crioulo Lageano;	?
		Quinhentão		(Ongole x Friesian) x Franqueiro; created in 1870;	?
Santa Gabriela		Discontinued experimental breed; Red Pied Friesian x (Red Polled Zebu x Devon-Guzerà) from 1965 on;	?		
Tatu		Developed from crosses of Red Sindhi or Sahiwal bulls imported in 1850;	?		
	Junqueiro		Originated from English breeds x Canastrão;	?	









COUNTRY	SPECIES	MOST COMMON NAME	LOCAL NAMES OR SYNONYMS	ORIGIN AND REASON FOR EXTINCTION	STATUS
L A T I N A M E R I C A A N D T H E C A R I B B E A N					
CHILE		Criollo Chileno	<i>Chilean Criollo, Chilean</i>	Non-nondescript of Criollo origin with Shorthorn, Friesian and Normande blood; pure Criollo Chileno are extinct; the name is being used for non-descripts of Criollo;	?
COSTA RICA		Mysol		Local zebu x Criollo cross;	?
DOMINICAN REPUBLIC		Haitian		Between 1978 and 1982, every domestic pig on the Caribbean island of Hispaniola, which includes both Haiti and the Dominican Republic, was killed to prevent an outbreak of African Swine Fever (Hog Cholera) from spreading to the rest of the Americas; this fact rendered this breed of pig extinct;	√
HAITI		Haitian		Between 1978 and 1982, every domestic pig on the Caribbean island of Hispaniola, which includes both Haiti and the Dominican Republic, was killed to prevent an outbreak of African Swine Fever (Hog Cholera) from spreading to the rest of the Americas; this fact rendered this breed of pig extinct;	?
URUGUAY		Ñata	<i>Niata</i>	Variety of Criollo with bulldog snout, partially dominant;	?
VENEZUELA		Ocampo		Friesian x (Ongole x local Criollo) graded to American Brown Swiss (1950s);	?
		Tipo Carora	<i>Carora, Carorena</i>	Originated from American and European Brown Swiss X Criollo (1/4-1/8) during 1935-75.	?
N E A R E A S T					
ALGERIA		African aurochs	<i>Bos primigenius opisthonomus Pomel, synonym B.p babni Hiltzbeimer, African urus</i>	Origin of Hamitic Longhorn;	?
		Chaouia		Former subvariety of Guelma variety of Brown Atlas;	?
		Cheurfa		Former subvariety of Guelma variety of Brown Atlas;	?
		Kabyle		Dwarf; former subvariety of Guelma; variety of Brown Atlas;	?
		Oran		Former subvariety of Moroccan; variety of Brown Atlas;	?
AZERBAIJAN		Krasnaya azerbaidzhanskaya	<i>Azerbaijan Red</i>	Variety of Caucasian; subvariety of Lesser Caucasian;	?
		Dymykh		Probably originated from Mazekh x Karabakh; Caucasian Fat-tailed type;	?
		Dzharo	<i>Jaro</i>	Caucasian Fat-tailed type;	?
		Gedek	<i>Gedek</i>	Variety of Tabasaran;	?
		Kedabek Merino		Local Merino in Kedabek originated from Mazaev, Novocaucasian and other Merinos in late 19th century; origin of Azerbaijan Mountain Merino;	?
EGYPT		African aurochs	<i>Bos primigenius opisthonomus Pomel, synonym B.p babni Hiltzbeimer, African urus</i>	Origin of Hamitic Longhorn;	?
		Hamitic Longhorn	<i>Bos primigenius opisthonomus, Ancient Egyptian, Egyptian Longhorn</i>	Original from African Aurochs; original of West African longhorns and (with zebu) of sanga;	?
		Ancient Egyptian	<i>Hamitic Longtailed, Ovis longipes palaeoegypticus</i>	Origin of African Long-legged;	?
KYRGYZ REPUBLIC		Kurdyuchnyi Merinos	<i>Fat-rumped Merino, Kurdyukos</i>	Originated from 3 crosses of Précoce x Kirgiz Fat-rumped;	?
LIBYA		African aurochs	<i>Bos primigenius opisthonomus Pomel, synonym B.p babni Hiltzbeimer, African urus</i>	Origin of Hamitic Longhorn;	?
SYRIA		Syrian Wild Ass	<i>Achdari, Akbdari, Mesopotamian Onager, Syrian Onager, Hemippe De Syrie</i>	Variety of Onager (<i>Equus hemionus hemippus</i>); extinct in early 1900s;	√
TAJIKISTAN		Rovmit			?
		Pamirskaya	<i>Pamir</i>		?
TUNISIA		African aurochs	<i>Bos primigenius opisthonomus Pomel, synonym B.p babni Hiltzbeimer, African urus</i>	Origin of Hamitic Longhorn;	?
TURKMENISTAN		Erek	<i>Erek, Geoclan</i>	Variety of Turkmen Fat-rumped;	?
		Iomud		Variety of Turkmen Fat-rumped;	?
		Tekin		Variety of Turkmen Fat-rumped;	?



COUNTRY	SPECIES	MOST COMMON NAME	LOCAL NAMES OR SYNONYMS	ORIGIN AND REASON FOR EXTINCTION	STATUS
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NEAR EAST

TURKMENISTAN		Turkmenskaya kurdyuchnaya	<i>Turkmen Fat-rumped</i>	Varieties: Iomud, Tekin;	?
UZBEKISTAN		Fergana Kuramin	<i>Ferganskii zebu</i> <i>Kuraminskii zebu</i>	Variety of Central Asian Zebu (or Zeboid); Variety of Central Asian Zebu.	?

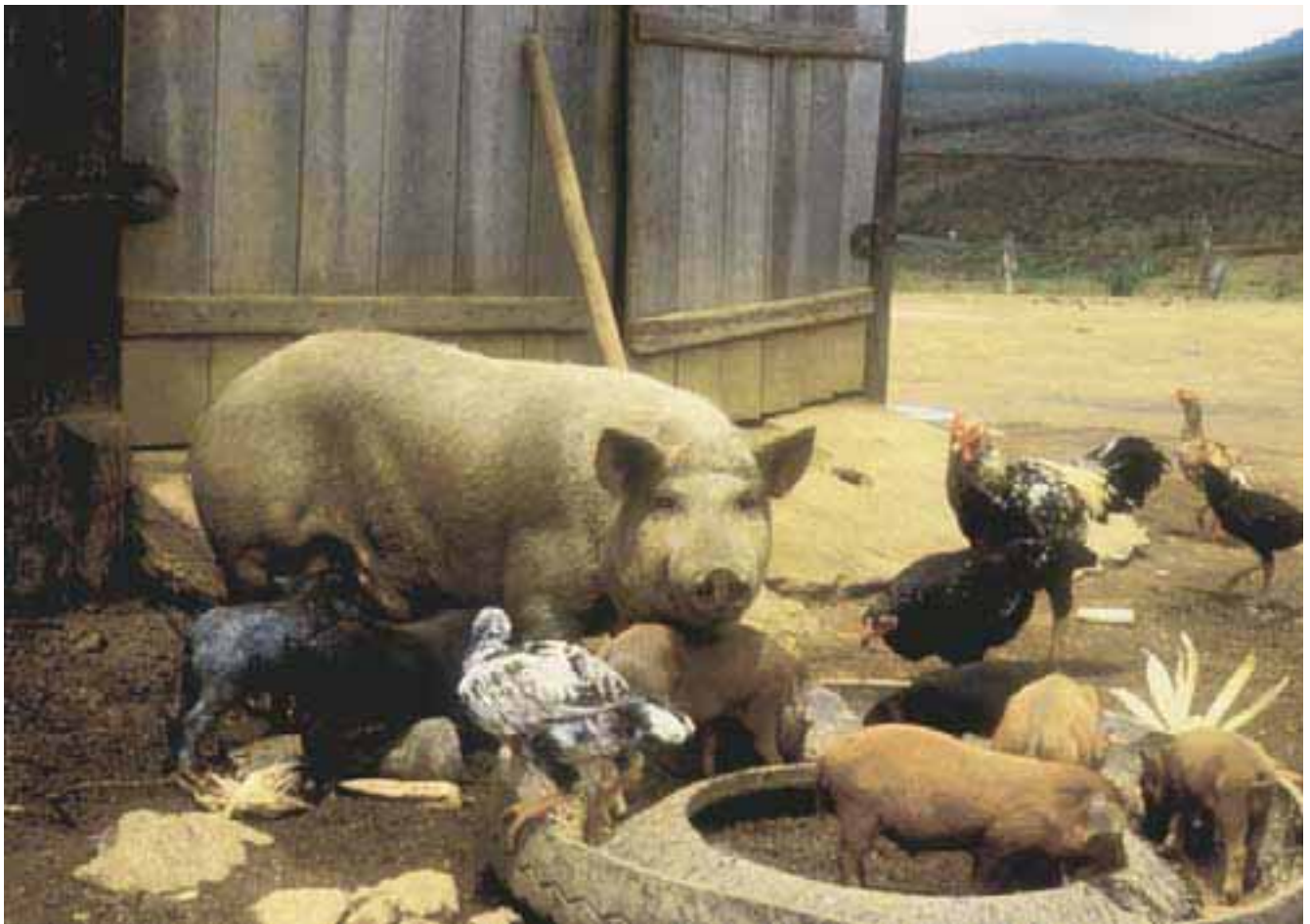
NORTH AMERICA

CANADA		Cattalo		Original from domestic bull x American bison (10-50%); project abandoned 1964 because of infertility;	?	
		Canadian Pacer		Variety of Canadian with Narragansett blood;	?	
		Frencher		Composite of Thoroughbred x Canadian;	?	
		St Lawrence		Originated from Canadian, Shire, Clydesdale and other breeds;	?	
UNITED STATES OF AMERICA		Bell Multinippled		Selected from local sheep in 1890 and bred until 1922; origin of Multinipple;	?	
		Hash Cross		Originated from Milking Shorthorn and Hereford 1950; crossed with Red Angus bulls since 1956 and Highland since 1959; also used in separate line; combined in Ranger breed 1970;	?	
		Hawaiian Wild Polled Albion			Imported from Mexico in 1793 and from UK later on;	?
		Yellow Dane			Originated in late 19th century; breed society;	?
		Rock Alpine				?
		Chickasaw			Originated from Oberhasli x Toggenburg (1935);	?
		Conestoga			Absorbed into Spanish Mustang population;	?
					Draft breed probably descended from Flemish and English foundations; developed in the late 18th century; extinct before 1900;	√
		French Coach				?
		German Coach				?
		Narragansett Pacer			Developed in the 17th century from Irish Hobby, Scottish Galloway, Spanish Jennet and others;	√
			American Essex		English pig breed imported in 1820's; was widely distributed; declined in favour at the beginning of the 1900's; disappeared by 1930;	√
		Beadford	<i>Bedfordshire, Cumberland, Woburn</i>	Originated from Duke of Bedfords Woburn herd;	?	
		Beltsville No. 1		Danish Landrace (75%) and Poland China (25%); inbred origin 1934-51;	?	
		Beltsville No. 2		Danish Large White (58%), Duroc (32%), Danish Landrace (5%), Hampshire(5%); inbred origin 1940-52;	?	
		Big China Byfield	<i>Warren County bog</i>	Origin of Poland China; Origin (1800) from Bedford, Old English and Chinese; origin of Poland China and supplanted by it;	?	
		Cheshire		Originated in New York from pigs imported from Cheshire and Yorkshire; created in 1850s; was the third most popular breed in New York in 1910;	√	
		Curtis Victoria		Originated in 1850 from various improved breeds;	?	
		Irish Grazier		Irish origin in early 19th century; origin of Poland China;	?	
		Jersey Red		Probably developed from African Red Guinea; absorbed by Duroc-Jersey in 1872; in the 1960's the name was shortened to Duroc;	√	
	Kentucky Red Berkshire	<i>Red Berkshire</i>	Originated from Berkshire in the early 19th century; breed society 1923;	?		
	Maryland No. 1		Inbred originated from Danish Landrace and Berkshire; created 1941-51; backcrossed first to Berkshire and then to Danish Landrace and then bred inter se; Danish Landrace (5/8) and Berkshire (3/8);	?		
	Miami	<i>Warren County</i>	Originated from Big China, Byfield, Russian strain and local pigs of Miami valley in early 19th century; origin of Poland China;	?		
	Minnesota Miniature	<i>Hormel Miniature</i>	Composite of Guinea, Pinewoods, Catalina (all feral) and Ras-N-Lansa in 1949;	√		
	Minnesota No. 1		Composite of Tamworth (52%) and Danish Landrace (48%) developed in Minnesota in 1936-1946; extinct due to termination of experiment;	√		
	Minnesota No. 2		Origin (1941-48) from Canadian Yorkshire (40%), Poland China (60%);	?		
	Minnesota No. 3		Originated from Gloucester Old Spot (31%), Poland China (21%), Welsh (13%), Large White (12%), Beltsville No.2 (6%), Minesota No.1 (6%), Minesota No.2 (5%) and San Pierre (5%);	?		
	Minnesota No. 4		Experimental population Minnesota No 2 and 3; experiment ended early 1970s;	?		

COUNTRY	SPECIES	MOST COMMON NAME	LOCAL NAMES OR SYNONYMS	ORIGIN AND REASON FOR EXTINCTION	STATUS	
UNITED STATES OF AMERICA		Montana No.	<i>Black Hamprace</i>	Composite of Danish Landrace (55%) and Black (unbelted) Hampshire (45%) in 1936-1948; extinct due to termination of experiment;	√	
		O.I.C.	<i>Ohio Improved Chester</i>	Originated from Chester White, 1865 - 97; breed society 1897;	?	
		Palouse		Originated 1945-56 from male Danish Landrace (50%) and Shester White (50%);	?	
		Pitman-Moore Miniature		Selected at College Of Medicine, University of Iowa 1967-1973 from Vita Vet Lab Minipig;	?	
		Red Hamprace		Red line occurring during formation of Montana No.1;	?	
		San Pierre		Originated in 1953 from Chester White and Berkshire;	?	
		Suffolk		Developed in New York in 1850s; was a very popular breed;	√	
		Sussex			?	
		Victoria		Composite of Poland China, Chester White, Berkshire and Suffolk; created in 1870s; originally very popular;	√	
		Vita Vet Lab Minipig		<i>Otter</i>	Originated from Florida swamp pigs; 1948 onwards;	?
		Ancon			Achondroplastic mutant occurring in 1791;	?
		Imperial			Descended from British breeds in late 18th century with some input of American Tunis; used to be common in the Imperial Calcasieu Parish but then became very rare;	√
		Minnesota 100			Originated 1941-44 from: Rambouillet (1/2), Border Leicester (1/4), Cheviot (1/4);	?
		Minnesota 101			Inbred Hampshire flock; absorbed by North Star Minnesota 103 in 1953;	?
		Minnesota 102			Originated 1944 onwards from: Border Leicester x Shropshire with some Columbia and Targhee blood;	?
		Minnesota 104			Inbred Hampshire flock; absorbed by North Star Minnesota in 1953;	?
		Minnesota 105			Originated 1949-54 from Columbia, Hampshire and Southdown;	?
		Minnesota 106			Columbia flock;	?
		Minnesota 107			Inbred Shropshire flock; closed since 1937;	?
	North Star Minnesota 103			Origin since 1889 by W.Well of Beaver Creek from Rambouillet, Oxford Down and Lincoln; crossed with Minnesota 101 and Minnesota 104 in 1953;	?	
Southdale			Originated 1930-43 from Southdown x Corriedale; crossed with Columbia to form Columbia-Southdale;	?		
Vermont Merino			Variety of American Merino (A-type); the original breed is extinct, but historic sites are backbreeding to develop a phenotypic equivalent.	√		

Notwithstanding the difficulty of reliably identifying and recording animal genetic resources over the past century, it is surprising that a first attempt at collating this data identified 740 extinctions, equivalent to 12 percent of the total number of breeds recorded to date in the Global Databank for Farm Animal Genetic Resources. The number will increase as further reports and local knowledge are analysed. For example, a recent report by

the United States of America Genetic Resources Conservation Program on the status of poultry genetic resources for the North America region documented the loss of more than 200 mutant, inbred and selected avian genetic stocks over the 15 year period 1985 - 1999. This additional data alone increases the number of extinct animal genetic resources to more than 940.



Tatú pigs in a backyard in Brazil

2.4.1

DEVELOPMENT OF THE GLOBAL DATABANK FOR FARM ANIMAL GENETIC RESOURCES

Following discussions by the Genetics Commission at the 1980 annual meeting of the European Association of Animal Production (EAAP), a small working group was established to recommend what action should be taken by EAAP on animal genetic resources. This group initiated a European breed survey of seven major livestock species: ass, buffalo, cattle, goats, horses, pigs and sheep. Subsequently, EAAP arranged for an initial databank for Europe to be established at the Institute for Animal Breeding and Genetics, Hannover School of Veterinary Science, Hannover.

The first results of the EAAP survey were published by Majjala et al. in 1984, after which further surveys were undertaken to update the database. At the same time, FAO developed Descriptor Lists for the major livestock species. Later a joint EAAP/FAO working group was formed to help guide the development of the EAAP databank.

In 1991, with support from the United Nations Environment Programme (UNEP), FAO initiated the first global surveys for animal genetic resources. Assisted with basic software from EAAP's Hannover operation, The Global Databank for Farm Animal Genetic Resources was initiated at FAO to accommodate the survey data.

First results of these EAAP, FAO and UNEP initiatives were published in "Genetic Diversity of European Livestock Breeds" by the Hannover group in September 1993, focussing on Europe, and, for all regions, in the first edition of the "World Watch List for Domestic Animal Diversity" by FAO and UNEP in November 1993.

Further global surveys on all domestic avian breeds and camels (camelids and llamoids) were initiated by FAO at the end of 1992; and at the end of 1994, a further set of the European data was also transferred to the Global Databank for Farm Animal Genetic Resources, to enable FAO to collate and report to governments globally.

In 1995, the Global Databank for Farm Animal Genetic Resources was included in FAO's Domestic Animal Diversity Information System (DAD-IS) at url: <http://www.fao.org/dad-is/>. In the first major upgrade of DAD-IS in 1998 this functionality enabled direct updating through the Internet. This electronic access to The Global Databank, provided through DAD-IS, facilitated data access and maintenance by countries and other parties involved in the management of the world's remaining animal genetic resources. National Co-ordinators are offered secure rights to enable them to monitor and validate country data. Countries and parties acting on the behalf of countries are encouraged to keep their national databases within DAD-IS continuously up-to-date; and to make this information on Farm Animal Genetic Resources, coming within their sovereignty available to all potential beneficiaries, in accordance with the Convention on Biological Diversity.

2.4.2

BREEDS CURRENTLY IN THE GLOBAL DATABANK FOR FARM ANIMAL GENETIC RESOURCES

Sources reporting breed data are described in section 1.7. Every effort is made to keep this breed list current; but a small number of countries have not yet reported on their animal genetic resources whilst data from others have yet to be validated and entered in the Global Databank; hence this data was not available for the analysis to produce WWL-DAD:3. Some countries may choose to withhold information from public access. In these cases data is referred to as Secured Information. Governments are encouraged to check for completeness the entries for their countries in this edition of WWL-DAD, and to take action where this is not the case.

Breeds are listed alphabetically by country, dependent territory, overseas department, entity and area; with the species sequence list as shown in Table 1.3.1.

Symbols **C** and **D** after the breed name identify CRITICAL and ENDANGERED breeds, and symbols **CM** and **DM** denote the categories CRITICAL-MAINTAINED and ENDANGERED-MAINTAINED. CM and DM populations are being maintained, so are unlikely to be at the same risk of loss. In this edition of the World Watch List extinct breeds have been included in the analyses of the Global Databank. The symbol **X** indicates an EXTINCT breed. These symbols appear whenever the population size of a country population has been reported according to the criteria given in section 1.6, even though the breed may not be at risk worldwide (see also lists 2.1.2 - 2.1.5). Entries marked with a dash (-) indicate that NO POPULATION DATA has been received for the breed and therefore the risk status is unknown. Entries which are not followed by any symbol are classified as NOT AT RISK.







The most common breed names are those identified by the country. Some national or regional varieties of well established breeds are included as separate entries, e.g. Israeli Friesian, as they have been isolated for some period and often are undergoing separate breed development. Commonly the country has separately identified these breeds as distinct. A number of crossbreeds and synthetic or composite breeds, such as the INRA 401 sheep have also been included. In these cases there is enough evidence to suggest they now represent distinct straight-breeding populations.

In this edition of the World Watch List for Domestic Animal Diversity there are 6 379 breeds listed. Of these, 740 breeds are extinct, 569 are critical and 1 125 are endangered.

AFGHANISTAN







	Afghan	-
	Kandahari	-
	Konari	-
	Shakhansurri	-
	Asmari	-
	Markhor	-
	Rahnama	-
	Vatani	-
	Herati	-
	Mazari	-
	Qatgani	-
	Waziri	-
	Yabu	-
	Afghan Arabi	-
	Baluchi	-
	Gadik	-
	Ghiljai	-
	Hazaragie	-
	Kandahari	-
	Karakul	-
	Marco Polo's Sheep	D
	Panjsher Gadik	-
	Turki	-
	Urial	-
	Wakhan Gadik	-
	Yak	-

ALBANIA

	Comune	
	Laramane	
	Lare e Kuge	D
	Sukthi	
	Tarine	C
	Valbona	D
	Alpine	C
	Capore	
	Dragobi	
	Hasit	
	Liqenas	
	Mati	
	Merturi	
	Murme E Zeze	
	Muxhake	
	Muzhake/Lunxheria	
	Muzhake/Vrina	
	Sana	D
	Tranga	
	Vela	
	Vendi	
	Arab	C
	Comune	
	Haflinger	C
	Nonius	C
	Comune	D
	Large White	
	Bardhok	
	Comune	
	Golemi	

	Havasi	C
	Il d'Frans	C
	Kugi	
	Merino	
	Rude	
	Shkodra	
	Tsigai	
	Zagoria	
	Local Black Tropoja Lekbibaj	D
	Local Tirana	C
	Local Tropoja Pac	C

ALGERIA

	Algerian	-
	African aurochs	X
	Brune de l' Atlas	
	Chaouia	X
	Cheurfa	X
	Kabyle	X
	Oran	X
	Chaambi	-
	Chameau De L'afrouh	-
	Chameau De La Steppe	-
	L'ait Khebbach	-
	L'ajjer	-
	Ouled Sid Cheikh	-
	Reguibi	-
	Sahraoui	-
	Targui	-
	Arabia	-
	Berber	-
	Kabyle	-
	Makatia	-
	Mzabite	-
	Sahelian	-
	Tuareg	-
	Arabe Barbe	
	Barbe	
	Algerian Arab	
	Beni Guil	
	Berber	-
	D'man	-
	Hamra	-
	Raimbi	
	Tadmit	
	Tuareg	
	Tunisian Barbarin	

AMERICAN SAMOA

No Information

ANDORRA

No Information

ANGOLA

	Barotse	-
	Damara	C
	Humbi	
	Kwaniama	
	Mucubai	
	Tshilengue	
	Angola Long-Legged	-
	Angola Maned	-
	Mondombes	-
	Zunu	-

ANGUILLA

	Puerto Rican	-
	Creole	-

ANTIGUA AND BARBUDA

	Puerto Rican	-
	Creole	-
	Brown Layer-Hi-Sex	
	Rhode Island Red	C
	Antigua & Barbuda Duck	D
	Pond Duck	
	African Goose	D
	White Chinese	D
	White Emden	D
	Pearl Guinea Fowl	D
	Purple Guinea Fowl	D
	Muscovy Duck	D
	Antigua & Barbuda Pigeon	
	White Giant	D

ARGENTINA

	Brahman	-
	Chaqueño	D
	Criollo Chaqueño	
	Herebu	-
	Ñata	X
	Suisbú	X
	Tropical	X
	Tropicana	X
	Criollo	
	Luan	
	Bagual	-
	Crioulo	
	Falabella Pony	D
	Argentinian Llama	
	Argentine Merino	-
	Corino	
	Cormo Argentino	
	Argentinian Vicuña	

ARMENIA

	Armyanskaya	-
	Lorii	X
	Azerbaidzhanskaya	D
	Forest Mountain	C
	Aragats	-
	Armenian Red	-
	Armenian Semicoursewool	-
	Balbas	-
	Bozakhskaya	D
	Erik	-
	Krasnyi Samukh	-
	Kyas'ma	-
	Martuninskaya	-
	Mazekhskaya	-

ARUBA

No Information

AUSTRALIA

	Africander	-
	Angus	-
	Australian Braford	-
	Australian Charbray	-
	Australian Friesian Sahiwal	-
	Australian Milking Zebu	D
	Australian Sahiwal	-
	Australian Shorthorn	-
	Australian White	-
	Bali Cattle	D
	Beefmaker	-
	Belmont Red	-
	Brahman	-
	Brangus	-
	Cape Cattle	-
	Darbalara	X
	Droughtmaster	-
	Illawarra	-
	Mandalong Special	-
	Murray Grey	-
	Poll Shorthorn	-
	Red Sindhi	-
	Santa Gertrudis	-
	Simford	D
	Tasmanian Grey	X
	Australian Feral Dromedary	-
	Angora Goat	-
	Australian Feral	-
	Appaloosa	-
	Australian Waler	X
	Brumbie	-
	Caspian	D
	Kangaroo Island	-
	Tamworth	-
	Australian Merino	-
	BLM	-
	Booroola Leicester	C
	Booroola Merino	-

	Borino	-
	Bundoran Comeback	-
	Bungaree Merino	-
	Camden Park	DM
	Carpetmaster	C
	Comeback	-
	Coolalee	-
	Coopworth	-
	Cormo	-
	Dormer	-
	Drysdale	-
	Elliotdale	-
	Fonthill Merino	-
	Glen Vale	D
	Gromark	-
	Hyfer	-
	Peppin	-
	Perendale	-
	Poll Dorset	-
	Poll Merino	-
	Polwarth	-
	Romsdown	X
	Siromeat	D
	South Australian Merino	-
	Tasmanian Merino	-
	Trangie Fertility	-
	Tukidale	-
	Waridale	-
	White Suffolk	-
	Zenith	D

AUSTRIA

	Austrian Blond	DM
	Bergscheck	X
	Donau	X
	Fleckvieh	-
	Holstein-Friesian	-
	Innviertel	X
	Jochberger Hummeln	CM
	Lechtaler	X
	Mölltaler	X
	Murboden	DM
	Mürztal	X
	Original Braunvieh	CM
	Österreichisches Braunvieh	-
	Österreichisches Gelbvieh	X
	Öststeierisches Fleckvieh	X
	Pinzgauer	-
	Steierisches Braunvieh	X
	Tiroler Braunvieh	X
	Tiroler Grauvieh	-
	Tux	DM
	Ungarisches Steppenrind	CM
	Unterinntaler Fleckvieh	X
	Waldviertel	DM
	Wipptaler	X
	Zillertaler	X
	Pinzgauer Ziege	DM
	Saannenziege	DM
	Tauernschecken	DM

	Toggenburger Ziege	DM
	Altösterreichisches Warmblut	CM
	Austrian Warmblood	-
	Haflinger	-
	Lipizzaner	CM
	Norisches Kaltblut	-
	Pinkafeld	X
	Shagya-Araber	DM
	Vollblutaraber	DM
	Austrian Negretti	X
	Bleiburger	X
	Braunes Bergschaf	DM
	Bschlabser	X
	Carinthian	D
	Gemsfarbige Gebirgsziege	-
	Gurktaler	X
	Kanaltaler	X
	Krainer Steinschaf	CM
	Öztaler	X
	Petzen	X
	Seeländer	X
	Steiner	X
	Tiroler Steinschaf	-
	Waldschaf	CM
	Zackelschaf	CM
	Zillertal	X

AZERBAIJAN

	Azerbaidzhanskaya	-
	Azerbaidzhanskii Zebu	-
	Kavkazskaya buraya	-
	Krasnaya azerbaidzhanskaya	X
	Azerbaidzhanskaya	D
	Azerbaidzhanskaya	D
	Delibozskaya	C
	Karabakhskaya	D
	Shirvan	-
	Azerbaidzhanskaya Myaso-Sherstnaya	-
	Porodnaya Gruppya	-
	Azerbaidzhanskii Gornyi Merinos	-
	Balbasskaya	-
	Bozakhskaya	D
	Dymykh	X
	Dzharo	X
	Gala	-
	Gedek	X
	Karabakhskaya	-
	Karadolakhskaya	-
	Kedabek Merino	X
	Lezginskaya	-
	Makui	-
	Shirvanskaya	D

AZORES AND MADEIRA

	Ramo Grande	C
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BOSNIA AND HERZEGOVINA

	Buša	
	Posavina	X
	Bosnian	-
	Bosnian Pony	C
	Buša Pony	X
	Šiška	X
	Kupreska	-
	Privor	-
	Vlašić	-

BOTSWANA

	Tswana	
	Africander	
	Bonsmara	
	Botswana Beef Synthetic	-
	Brahman	
	Santa Gertrudis	
	Tswana	
	Tuli	
	Botswana Camel	C
	Boer	
	Tswana	
	Tswana	
	Blackhead Persian	
	Dorper	
	Karakul	
	Tswana	
	Tswana	-

BRAZIL

	Caninde	-
	Cardao	-
	Nordestina	
	Paulista	-
	Pega	-
	Jafarabadi	
	Kalaban	-
	Mediterranean	
	Murrah	
	Rosilho	
	Tipo Baio	DM
	Angola	X
	Brazilian Gir	
	Caldeano	
	Canchim	
	Caracu	
	China	X
	Crioulo do Sul	X
	Crioulo Lageano	D
	Curraleiro	DM
	Dairy Gir	-
	Franqueiro	C
	Gir Mocho	
	Guademar	X
	Guzera	
	Guzera mocho	-
	Ibage	

	Igarapé	X
	Indo-Europeu leiteiro	-
	Indubrasil	
	Irece	X
	Javanês	X
	Junqueiro	X
	Lavinia	D
	Malabar	X
	Mantiqueira	-
	Mestico Leiteiro Brasileiro	-
	Mocho Nacional	DM
	Nelore	
	Nelore mocho	
	Nilo	X
	Pantaneiro	
	Patuá	X
	Pedreiro	X
	Pitangueiras	-
	Polled Crioulo Pereira Camargo	D
	Quinhentão	X
	Red Sindhi	-
	Riopardense	-
	Sahiwal	-
	Santa Gabriela	X
	Santa Gertrudis	-
	Tabapua	
	Tatu	X
	Zebu leiteiro de uberada	-
	Bhuj	
	Caninde	
	Crioulo	-
	Marota	
	Meridional	-
	Moxotó	
	Repartida	
	SRD	-
	Campolino	-
	Crioulo	
	Lavradeiro	D
	Mangalarga	-
	Marajoara	
	Marchador	-
	Nordestino	-
	Pantaneiro	
	Paulista	-
	Canastra	C
	Canastra-Pereira	-
	Canastrão	C
	Canastrinha	C
	Caruncho	C
	Furao	-
	Junqueiro	X
	Mundi	C
	Nilo	-
	Pereira	-
	Piau	D
	Pirapitinga	C
	Tatú	C
	Unhudo De Goias	-
	Crioulo	-
	Crioulo Preto	C

	Deslanado (vermelho or branco)	-
	Morada Nova	
	Rabo Largo	
	Santa Ines	D
	Somali Brasileiro	

BRITISH INDIAN OCEAN TERRITORY

No Information

BRITISH VIRGIN ISLANDS

	Virgin Island White	
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BRUNEI DARUSSALAM








No Information

BULGARIA

	Chervena sadovska	X
	Iskursko Govedo	C
	Rodopska	C
	Staroplaninska k''soroga	X
	Bessarabian	X
	Bulgarian Native	X
	Carakachanski Kon	C
	Deli-Orman	X
	Dolny-Iskar	X
	Rila Mountain	X
	Stara Planina	X
	Istochnobalkanska Svinia	D
	Askaniiskaya	
	Beloslatinska	X
	Carakachanska Ovsta	D
	Copper-Red	D
	Kavkazskaya	
	Kyustendilska	X
	Marshka Ovtsa	
	Panagyurishte	D
	Pleven Blackhead	
	Plovdivsko-P'rvomaiska	X
	Replenska	
	Rilomonastirska	X
	South Bulgarian Finewool	X
	Stara Zagora	

BURKINA FASO











	Bambara	
	Baoulé	
	Lobi	
	N'dama	D
	Maure	-
	Sahelian	-
	Tuareg	-
	Upper Volta	-
	Bobo	-
	Mossi	-
	Yagha	-

	Black Maure	-
	Maure	-
	Mossi	-
	Naine	-
	Naked Neck	-
	Peulh	-
	Poulet Du Djelgodij	-
	Souche Kondé	D
	Burkina Faso Domestic Duck	-
	Burkina Faso Domestic Goose	-
	Burkina Faso Guineafowl	-
	Ninningo	C
	Burkina Faso Turkey	-





BURUNDI

	Watusi	-
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CAMBODIA





	Cambodian	-
	Moi	-
	Burmese Gaur	-
	Cambodian	-
	Kouprey	D
	Moi	C
	Tsine	-
	Indo-Chinese	-
	Cambodian	-
	Cambodian Broiler	-
	Monn Khmer	-
	Tea Ankam	-
	Kangan	-
	Tea Kapa	-
	Preap	-
	Monn Barain	D

CAMEROON

	Adamawa	-
	Bakosi	D
	Bakweri	D
	Bamileke	X
	Banyo	-
	Choa	-
	Doayo	-
	Kapsiki	-
	Kuri	-
	N'dama	-
	N'gaoundere	-
	Préwakwa	X
	Red Bororo	-
	Toupouri	-
	White Bororo	-
	Yola	X
	West African Dwarf	-
	Bakosi	-
	Bornu	-
	Cameroons Dwarf	-
	Uda	-
	Woilá	-

CANADA

	American Angus	-
	American Brown Swiss	-
	American Dutch Belted	D
	American Milking Devon	D
	American White Park	D
	Beef Synthetic	-
	Burwash	-
	Canadian	DM
	Cattalo	X
	Dairy Synthetic	-
	Hays Converter	-
	Holstein	-
	Milking Shorthorn	-
	Pee Wee	-
	Polled Hereford	-
	Randall Blue Lineback	C
	Santa Gertrudis	-
	Texas Longhorn	-
	American Pygmy	D
	Angora Goat	-
	Lamancha	-
	Nigerian Dwarf	C
	Oberhasli	C
	San Clemente	C
	Sudanese Nubian	-
	Tennessee Fainting Horse	C
	American Saddle Horse	-
	American Trotter	-
	Appaloosa	-
	Arab	-
	Canadian	-
	Canadian Hunter	-
	Canadian Pacer	X
	Frencher	X
	Kanata Pony	-
	Lac La Croix Indian Pony	D
	Morgan	-
	Newfoundland Pony	D
	Palomino	-
	Quarter Horse	-
	Sable Island Pony	D
	St Lawrence	X
	American Berkshire	D
	Canadian Yorkshire	-
	Chester White	C
	Lacombe	D
	Managra	-
	Poland China	-
	American Karakul	-
	American Rambouillet	-
	Barbados Blackbelly	D
	Bell Multinippled	X
	Bighorn	-
	Black Welsh Mountain	C
	Canadian Arcott	D
	Canadian Corriedale	D
	Columbia	-
	Cotswold	C
	Dall's Sheep	-

	DLS	D
	Katahdin	D
	Montadale	C
	Navajo-Churro	D
	Newfoundland	C
	Outaouais Arcott	D
	Rideau Arcott	D
	Romnelet	-
	Santa Cruz	C
	St. Croix	D
	Stone's Sheep	-
	Targhee	C
	Barred Plymouth Rock	-
	Brown Leghorn	D
	Hungarian Yellow	DM
	Jersey White Giants	-
	Light Sussex	D
	New Hampshire Red	D
	Rhode Island Red	D
	White Leghorn-Hollywood Strain	D
	White Leghorn-Monrog Strain	C
	White Wyandotte	C
	Pilgrim	C
	Japanese Quail	-
	Japanese Quail Ubc-A (ubc-wild type)	C
	Japanese Quail Ubc-B (alberta wild-type)	C
	Japanese Quail Ubc-G (giants)	C
	Japanese Quail Ubc-N (nagoya, Random bred)	C
	Japanese Quail Ubc-Ncsu (North Carolina wild type)	C
	Japanese Quail Ubc-Qf (Quebec female line)	C
	Japanese Quail Ubc-Qm (Quebec male line)	C
	Japanese Quail Ubc-Res (resistant line)	C
	Japanese Quail Ubc-S (Saskatchewan wild-type)	C
	Japanese Quail Ubc-Sus (susceptible)	C
	Japanese Quail Ubc-W (ubc white)	C
	Japanese Quail Ubc-Wild (feral line)	C
	Ridley Bronze	D

CANTON AND ENDERBURY ISLANDS

No Information

CAPE VERDE

No Information










CAYMAN ISLANDS

No Information

CENTRAL AFRICAN REPUBLIC










	Baoulé	
	N'dama	D
	Red Bororo	
	West African Dwarf	
	West African Dongola	-
	La Race Améliorée	-
	Local Chicken In Central African Republic	-

CHAD

	Arab	
	Fellata	-
	Kilara	-
	Kuri	
	Red Bororo	
	Toupouri	
	Le Chameau	
	Le Chameau du Kanem	
	Mahamid	
	Arab	-
	Chad	-
	Moussoro	-
	Sahelian	
	Sudanese Desert	-
	Tuareg	-
	West African Dwarf	
	Western Goat	-
	Bahr-El-Ghazal	
	Kirdi Pony	
	West African Dongola	-
	Black Maure	
	Bornu	-
	Bororo	
	Fulani	
	Sudan Desert	-
	West African Dwarf	
	Chicken of Karal and Massakory	
	Djided (Gredya, Massakory)	
	Djided (Massaguet)	
	Djided (Pont Beile, N'djamena Rual, Chib)	
	Kindta Gueti	
	Local Chicken of Moulkou and Bongor Seckné	
	Local Duck of Gredaya and Massakory	
	Local Duck of Guelateng	
	Local Duck of Moulkou and Bongor	
	Local Goose of Karal and Massakory	C
	Local Goose of Mandelia	C
	Amssala	D
	Local Guineafowl of Gredaya and Massakory	D
	Local Guineafowl of Gualenteng and Mayo Kebbi	
	Local Guineafowl of Moulkou and Bongor	D
	Local Guineafowl of Port Belilé and N'djamena	D


	Local Muscovy Duck of Karal and Massakory	D
	Chadean Ostrich	C
	Local Partridge of Gredaya and Massakory	C
	Local Pigeon of Gredaya and Massakory	D
	Local Pigeon of Karal and Massakory	D
	Local Pigeon of Port Belilé and N'djamena	D
	Local Turkey of Mandelia	C

CHILE

	Chilian Alpaca	
	Huacaya	
	Chusco	
	Criollo Chileno	X
	Juan Fernandez	
	Guanaco	
	Chilian Guanaco	
	Chilenos	D
	Puno Pony	-
	Chaku	
	Kara	
	Australian Merino	
	Criollo	
	Chilian Vicuña	
	Arbor Acres	
	Dekalb	
	Hubbard	
	Hybro	
	Hyline W-36	
	Ross	
	Shaver	
	Hybrid	
	Nicholas	

CHINA

(INCLUDING HONG KONG SAR, MACAU SAR AND TAIWAN PROVINCE OF CHINA)

	Dezhou	-
	Guanzhong	
	Jiami	-
	Jinnan	
	Tibetan	
	Xinjiang	
	Alshan Bactrian	
	Sunite Bactrian	
	Xinjiang Bactrian	
	Binhu	
	Dechang	
	Dehong	
	Dongliu	
	Fuan	
	Fuling	
	Haizi	
	Jianghan	
	Shanghai	
	Taiwan	-

	Wenzhou	
	Xilin	
	Xinglong	
	Bainiu	X
	Bashan	
	Chinese Black and White	
	Chinese Holstein	-
	Chinese Kazahk	-
	Dabieshan	
	Dangjiao	X
	Dengchuan	
	Dulong	C
	Gaotai	X
	Hainan	
	Huangpo	-
	Jiniu	X
	Jinnan	
	Kazakh	
	Leigiong	
	Luxi	
	Meiniu	X
	Mongolian	-
	Nanyang	
	Panjiang	-
	Panjiang	
	Qinchuan	
	Red Steppe	-
	Sanhe	
	Shangai	X
	Taiwan Yellow	X
	Taiwan Zebu	-
	Tibetan	
	Ujumqin	-
	Wanniu	X
	Wuling	
	Wuzhumuqin	
	Xinjiang Brown	
	Yanbian	
	Yangba	X
	Yunnan Zebu	
	Zaobeivans	
	Banjiao	
	Chengde Polled	
	Chengdu Brown	
	Duan	
	Fuqing	
	Guanzhong Dairy	
	Guizhou White	
	Hailun	
	Haimen	
	Hebei Dairy	-
	Hebei Dairy	-
	Heilongjiang Dairy Goat	
	Hexi Cashmere	
	Huai	
	Huanghuai	
	Inner Mongolian Fine-Hair	-
	Jining Grey	
	Laoshan Dairy	
	Leizhou	
	Liaoning Cashmere	











CROZET ISLANDS

No Information

CUBA

	Cuban Criollo	
	Cuban Zebu	-
	Puerto Rican	-
	Siboney	-
	Taino	-
	Tinima	-
	Creole	-
	Caballo Cubano de Paso	-
	Pelibuey	
	Barred Plymouth Rock	D
	Catalana Del Prat	D
	Cornish-E1	
	New Hampshire	D
	Rhode Island Red-Y1	D
	White Leghorn-L1	
	White Leghorn-L3	
	White Leghorn-N̄	D
	White Plymouth Rock Dwarf-Mb	D
	White Plymouth Rock-S3	


CYPRUS

	Cyprus	
	Cyprus	DM
	Messaoria	-
	Paphos	-
	Cyprus	
	Machaeras	
	Peratiki	-
	Country Breed	
	Thoroughbred	D
	Cyprus Fat-Tailed	
	Cyprus Mouflon	
	Red Sheep	-
	Gallus Gallus	
	Ornithes (Argoparagosis)	
	Pekin	
	Stroutho Camelos	C
	Alectoris Graeca Chukar	
	Ring Neck Pheasant (Phasianus Colchicus)	D
	Peristeria	
	Ortyki	

CZECH REPUBLIC

	Aberdeen Angus	
	Ayrshire	D
	Belgian Blue	C
	Blonde d'Aquitaine	D
	Ceská cervinka	CM
	Ceské Strakaté	
	Cesky cervenostrakaty	X
	Cesky strakaty skot	
	Charolais	

	Chebsky	X
	Galloway	D
	Gasconne	C
	Hereford	
	Hrbinecky	C
	Jersey	
	Kravarsky	C
	Limousin	
	Lisnansky cerveny	X
	Masny Simmental	
	Moravsky cervenostrakaty	X
	Moravsky cerveny	X
	Nizinne cernostrakate	
	Piemontese	D
	Salers	C
	Skotsky náhorni skot	C
	Sudetsky	X
	Sumavsky	X
	Bilá Kratkosrsta Koza	
	Hnedá Kratkosrsta Koza	D
	Arab (pure-bred)	C
	Hutsul	DM
	Kladrubský	DM
	Lipicky	C
	Shagya Arab	C
	Slezský Norik	DM
	Starokladrubsky Belorus	C
	Starokladrubsky Kun	DM
	Starokladrubsky Uranik	D
	Belgická Landrase	D
	Bilé Ušlechtilé	
	Ceské Bílé	
	Ceské Výrazné Masné	
	Duroc	D
	Hampshire	D
	Landrace	
	Pietrain	D
	Preštické Cernostrakaté Prase	
	Rychnovské	X
	Askanijske Merino	-
	Bergschaf	D
	Ceské Merino	
	Charollais	
	Finská ovce	C
	Kavkazské Merino	-
	Kent, Romney Marsh	D
	Merino Longwool	C
	Merinolandschaf	
	Oxford Down	D
	Romanovska Ovce	C
	Stavropolske Merino	-
	Suffolk	D
	Šumava	
	Texel	D
	Tsigai	D
	Východofriškà Ovce	D
	Zirné Merino	D
	Zošl' ačtenà Valaška	C
	Zušlechtenà Valaška	D
	Bohemian Fowl	D
	Bohemian Fowl-Golden Penciled	-

	Bohemian Fowl-Partridge	-
	C-Group of Congenic Lines	D
	P-Line	C
	Bohemian	D

DENMARK

	Aberdeen-Angus	
	Ballum	X
	Belgisk Blåhvidt Kvæg	D
	Blonde d'Aquitaine	
	Charolais	
	Dansk Jersey	
	Dansk Rødbroget Kvæg	
	Gelbvieh	-
	Hereford	
	Jysk Kvæg	DM
	Korthorn	D
	Limousine	
	Nord Slesvig Rod	X
	RDM-1970	DM
	Rod Dansk Malke race	
	SDM-1965	CM
	Sortbroget Dansk Malke race	
	Sortbroget Jysk Malkekvaeg	X
	Boer	D
	Dansk Landrace	CM
	Mohair	D
	Nubisk	CM
	Belgier	D
	Dansk Varmblod	
	Den Islandske Hest	
	Den Jyske Hest	DM
	Fjordhest	
	Frederiksborgheste	DM
	Fuldblod	
	Knabstrupper	D
	New Forest	D
	Oldenborger	D
	Ox-Araber	D
	Shetland Pony	
	Trakehner	D
	Travere	
	Welsh	D
	Dansk Landrace	
	DL-1970	CM
	Duroc	
	Hampshire	D
	Sortbroget	CM
	Yorkshire	
	Dansk Landfår	DM
	Dorset	D
	Finulds får	D
	Gotlandsk Pelsfår	D
	Hedefår	X
	Islandske får	-
	Leicester	D
	Marsh	D
	Oxforddown	
	Rygja	-
	Saane	D

	Shropshire	
	Spel	D
	Suffolk	D
	Texel	
	Danske Land Høns	D
	Sort hvidbrystet dansk and	C
	Grå og Gråbrogede Danske Gæs	CM




DJIBOUTI

	Danakil	
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DOMINICA

	Puerto Rican	-
	Creole	-

DOMINICAN REPUBLIC

	Criollo Lechero Tropical	
	Dominican Criollo	
	Puerto Rican	
	Romana Red	
	Creole	
	Haitian	X
	New Haitian	




EAST TIMOR

No Information

ECUADOR

	Llamingos-pucungos	D
	Murrah	D
	Chusco	
	Criollo ecuatoriano	D
	Galapagos	
	Llamingos	
	Criollo	-
	Llamingos	D
	Pollo	
	Pato	
	Pavos	

EGYPT

	Baladi	-
	Egyptian	-
	Hassawi	-
	Saidi	-
	Baladi	
	Beheri	
	Egyptian	
	Minufi	D
	Saidi	
	African aurochs	X
	Baladi	
	Damietta	
	Egyptian	-
	Hamitic Longhorn	X

	Maryuti	
	Menufi	
	Saidi	
	Fellahi	
	Maghrabi	
	Mowalled	
	Sudani	
	Baladi	
	Barki	
	Saidi	
	Sharkawi	
	Sinai	
	Wahati	
	Zaraibi	
	Arab	D
	Egyptian	
	Baladi Black	
	Baladi Red	
	Baladi White	D
	Galabi	D
	Giza White	D
	Ancient Egyptian	X
	Barki	
	Fellahi	
	Ibeidi	
	Kurassi	
	Ossimi	
	Rahmani	
	Saidi	
	Sanabawi	
	Baladi Beheri	-
	Dandarawi	
	Dokki 4	
	Fayoumi	
	Gimmizah	
	Golden Montazah	
	Kherbis	
	Mandarrah	
	Matrouh	
	Rhode Island Red	
	Silver Montazah	
	Sinai	

EL SALVADOR

	Pelon	
	Arbor Acres Female	
	Hubbard	
	Hyline Brown	
	Hyline W-71	
	Macho Peterson	
	Salvadorean Duck	
	Pato Real	

EQUATORIAL GUINEA

	N'dama	
	West African Dwarf	

ERITREA



	Kassala	-
	Somali Wild Ass	D
	Aden	
	Arado	
	Bambawa	-
	Barka	
	Danakil	
	Shukria	
	Sudanese Desert	-
	Dongola	
	Adali	
	Akele Guzai	
	Arrit	
	Baraka	
	Rashaidi	-
	Sudan Desert, Aral	












ESTONIA

	Eesti holstein	
	Eesti maatõug	DM
	Eesti punane	
	Eesti kits	
	Eesti hobune	DM
	Eesti raskeveohobune	CM
	Estonskii Tyazhelovoz	D
	Russian Trotter	
	Tori hobune	DM
	Eesti peekon	
	Eesti suur valge	
	Eesti tumedapealine	
	Eesti valgepealine	
	Australorp	X
	Hibro-6	D
	Hisex Brown	X
	Hisex White	X
	Hybro N	
	Lohman Brown	
	New Hampshire	X
	White Leghorn	X
	Valge sinikaelpart	CM
	Italy	X
	Rein Germany	X
	Eesti vutt	
	Hidon	X

ETHIOPIA

	Abyssinian	-
	Nubian Wild Ass	X
	Sennar	-
	Somali Wild Ass	D
	Abigar	
	Abyssinian Highland Zebu	
	Abyssinian Shorthorned Zebu	
	Arsi	
	Bambawa	-
	Barka	
	Boran	-

	Barbe	D	DRB	D	Charmoise	
	Berrichon	X	DRC	D	Charollais	
	Boulonnais	DM	Duroc	CM	Châtillonnais	X
	Bourbonnais	X	FH012		Choletais	X
	Breton		FH016	D	Clun Forest	DM
	Camargue	D	FH019	D	Corbières	X
	Carrossier normand	X	FH025		Corse	
	Charentais	X	Flamand	X	Côtentin	
	Charolais	X	Gallia	D	Crevant	X
	Cob		Gasconne	DM	Dorset Down	
	Comtois		Hampshire	D	Est à Laine Mérinos	
	Connemara	D	Jia-Xing	C	Finnois	DM
	Corlais	X	Laconie P77	D	Flamand	X
	Corse	X	Landrace		Franconie	X
	Dartmoor	D	Landrace Belge	C	Gascon	X
	Fjord de Norvege	D	Large White		Grivette	
	Flanders	X	Lauragais	X	Hampshire Down	
	Haflinger	D	Loches	X	Ile-de-France	
	Highland	C	Marseillais	X	Inra 401	
	Islandais	D	Meishan	C	Lacaune	
	Lipizzan	C	Miélan	X	Lacaune Lait	
	Loire	X	Montmorillonais	X	Lacaune Viande	
	Lusitanien	D	Musclor	D	Landaise	DM
	Maine	X	Pen Ar Lan P 77	D	Landes de Bretagne	D
	Morvandeaux	X	Penshire P66	D	Larzac	X
	New Forest Pony	D	Pie Noir du Pays Basque	DM	Lauraguais	X
	Nivernais	X	Piégut	X	Limousin	
	Poitevin	DM	Piétrain	D	Lourdais	DM
	Poney Ariégeois Mérens	D	Porc de Saint Yriex	DM	Maine à tête blanche	X
	Poney Français de Selle		Proligène 121		Manech Tête Noire	
	Poney Landais	D	Proligène 321	D	Manech Tête Rousse	
	Pottok	D	Tia Meslan P44	D	Marchois	X
	Pur-Sang		Tournavais	X	Mérinos champenois	X
	Saône-et-Loire	X	Willebrand	C	Mérinos d'Arles	
	Selle Français		 Alfort	X	Mérinos de la Camargue	X
	Shetland	D	Alpine		Mérinos de Mauchamp	X
	Tarbésan	X	Ardes	X	Mérinos de Rambouillet	DM
	Trait Ardennais		Artois	X	Mérinos du Naz	X
	Trait Auxois	D	Aure-Campan Brigasque		Mérinos Précoces	
	Trait Percheron		Avranchin	D	Morvandelle	X
	Trotteur Français		Barégeois		Mourerous	
	Vendéen	X	Béarnais		Moutons à tte noire	X
	Welsh	D	Belle Ile	C	Noir du Velay	
	Acadie P22		Berrichon de l'Indre		Ouessant	
	Amélioré de l'Est	X	Berrichon Du Cher		Petite Manech	D
	Bayeux	CM	Bizet		Picard	X
	Béarn	X	Blackface	D	Préalpes du Sud	
	Bigourdain	X	Blanc Du Massif Central		Raiole	
	Blanc de l'Ouest	DM	Bleu du Maine		Rava	
	Bleu de Bologne	X	Boischaut	X	Romanov	
	Boulonnais	X	Boulonnais		Rouge De L'ouest	
	Bourdeaux	X	Brenne	X	Rouge Du Roussillon	
	Bresse	X	Brigasque	D	Roussillon Merino	X
	Breton	X	Cambrai	X	Roussin De La Hague	
	Carélie	D	Campan	X	Ruthenois	X
	Cazères	X	Castillonnais		Ségala	X
	Charolais	X	Cauchois	X	Soissonais	X
	Corrèze	X	Causse de la Lozère	X	Solognot	
	Corse		Causse des Garrigues		Southdown	
	Craonnais	X	Causse du Lot		St. Quentin	X
	Dauphiné	X	Champagne	X	Suffolk	

	Tarasconnais		Faverolles foncée (naine)		argenté et poitrine liserée	
	Texel		Favoris	X	Poule des haies noire à camail doré et poitrine liserée	
	Thones et Marthod		Gascogne	D	Poule des haies perdrix argenté	
	Trun	X	Gâtinaise		Poule des haies perdrix doré	
	Vendéen		Gauloise dorée	D	Poule des haies saumon argenté	
	Aquitaine		Géline De Touraine	D	Poule des haies saumon argenté à épaulettes dorées	
	Ardeale	X	Gournay	D	Poule des haies saumon doré	
	Barbezieux	D	Grand Combattant Du Nord		Poule Lorraine	X
	Blanzac	X	Hergnies	X	Provençale	X
	Bourbonnaise		Houdan		Sans-Queue	C
	Bourbour	D	Houdan (naine)	D	 Blanc De L'allier	C
	Bresse		Houdan blanc	-	D'estaires	C
	Bresse blanc	-	Houdan gris perle	-	De Bourbourg	C
	Bresse grise	-	Houdan noir	-	De Challans	D
	Bresse noire	-	Houdan noir caillouté blanc	-	Duclair	C
	Bresse bleue	-	Ivanaise	X	Duclair bleu	
	Caumont	D	Janzé	C	Duclair noire	
	Caussade	D	La Flèche		Rouen Clair	
	Charollaise	D	La Flèche (naine)	D	Rouen foncé	D
	Chrisanthème	X	La Flèche blanche	-	 Blanche De Bourbonnais	C
	Cocherelle	X	La Flèche bleu andalou	-	Blanche Du Poitou	D
	Combattant du nord (grand) argentée a manteau argentée	-	La Flèche coucou	-	De Toulouse A Bavette (type industriel)	
	Combattant du nord (grand) argentée a manteau dorée	-	La Flèche noire	-	De Toulouse Sans Bavette (type agricole)	
	Combattant du nord (grand) blanche	-	Landaise grise	C	Flamande Bicolore	
	Combattant du nord (grand) blanche et rouge	-	Le Mans	C	Flamande Blanche	
	Combattant du nord (grand) dorée	-	Limousine (coq de pêche du limousin) bleue	-	Grise Des Landes	-
	Combattant du nord (grand) mouchetée	-	Limousine (coq de pêche du limousin) noire	-	Normande	D
	Combattant du nord (grand) noire	-	Lyonnaise	C	Oies D'alsace	
	Combattant du nord (grand) noire a manteau dorée	-	Lyonnaise naine	C	Oies D'alsace Blanche	-
	Combattant du nord (nain)	-	Malgache	X	Oies D'alsace Gris Et Blanc	-
	Contres	X	Mantes	D	Oies D'alsace Grise	-
	Contres Blanc Herminé Noire	X	Marans coucou doré	-	 Dindon Rouge Des Ardennes	
	Côtentine	D	Marans de selection anglaise	-	Noir De Sologne	D
	Cou-nu du forez	D	Marans fauve à queue noire	-	Noir Du Bourbonnais	D
	Coucou de France	X	Marans naine	-		
	Coucou de rennes	D	Marans noir cuivré	-		
	Coucou des Flandres	C	Marans-poule aux oeufs d'or			
	Coucou Picarde	X	Merlerault	D	 Poule Creole	D
	Coucou Soie	X	Meusienne	D		
	Courtes-Pattes	C	Noire De Challans	D		
	Courtes-Pattes Black		Noire Du Berry	D		
	Courtes-pattes blanche		Normande	-		
	Courtes-pattes coucou		Normande	X		
	Courtes-pattes noire caillouté blanc		Normande	C		
	Courtes-pattes noire caillouté doré		Pavilly	C		
	Crèvecoeur	D	Petit combattant du nord	D		
	Crèvecoeur blanche		Pictave	D	 Lagune	
	Crèvecoeur bleue		Poule d'alsace	-	N'dama	
	Crèvecoeur coucou		Poule d'alsace blanche	-	 West African Dwarf	
	Crèvecoeur noire		Poule d'alsace bleue	-		
	Estaires	D	Poule d'alsace naine	D		
	Estaires noire		Poule d'alsace noire	-		
	Estaires noire a manteau argenté		Poule De Caux	X	 Gambia Dwarf	X
	Estaires noire a manteau doré		Poule De Marquise	X	Gambian N'dama	
	Faverolles claire		Poule De Saint-Omer	X	 West African Dwarf	-
	Faverolles foncée		Poule Des Courrières	X	 West African Dwarf	
			Poule des haies	C		
			Poule des haies blanche			
			Poule des haies noire à camail			

FRENCH GUIANA

FRENCH POLYNESIA

No Information

GABON



GAMBIA

GEORGIA

	Gruzinskaya	-
	Caucasian	-
	Caucasian	-
	Caucasian Brown	
	Dagestan Mountain	
	Georgian Mountain	
	Greater Caucasus	-
	Lesser Caucasus	-
	Mingrelian Red	D
	Bezoar	-
	Karachai	D
	Mingrelian	
	Anglo-Kabarda	-
	Dagestan Pony	D
	Kabarda	-
	Karachai	-
	Mingrelian	D
	Tersk	-
	Tushin	
	Georgian Mangalitsa	D
	Imeretinskaya	X
	Kakhetian	D
	Kartolinskaya	X
	North Caucasus	
	Bozakh	-
	Georgian Fat-Tailed Finewool	
	Gornyi Merinos	-
	Gruzinskaya Polutonkorunnaya	
	Zhirnokhvostaya	
	Imeretinskaya	
	North Caucasus Merino	-
	North Caucasus Semi-Fine Wool	-
	North Ossetian Semi-Fine Wool	-
	Salsk	
	Soviet Mutton-Wool	
	Stavropol	
	Steppe Voloshian	C
	Svanka	X
	Tonkorunnaya Toshchekhvostaya	
	Ovtsa Gruzii	-
	Tushinskaya	

GERMANY

	Aberdeen Angus	D
	Angler	
	Ansbach-Triesdorfer	C
	Aubrac	D
	Belted Galloway	C
	Blonde d'Aquitaine	D
	Brahman	C
	Brangus	C
	Braunvieh	
	Braunvieh alter Zuchtichtung	D
	Charolais	
	Chianina	C
	Deutsche Angus	
	Deutsche Schwarzbunte alter	
	Zuchtichtung	

	Deutsches Shorthorn	D
	Dexter	C
	Doppelnutzung Rotbunt	
	Fjaell-Rind	C
	Fleckvieh	
	Fleckvieh Fleischnutzung	
	Galloway	
	Gelbvieh	
	Gelbvieh Fleischnutzung	D
	Glanrind	D
	Hereford	
	Highland	
	Hinterwälder	D
	Holstein-Rbt	
	Holstein-Sbt	
	Jersey	
	Limousin	
	Limpurger	D
	Lincoln Red	C
	Longhorn	C
	Luing	D
	Murnau-Werdenfelser	D
	Piemonteser	D
	Pinzgauer	D
	Pinzgauer Fleischnutzung	D
	Pustertaler Schecken	C
	Rotvieh alter Angler Zuchtichtung	C
	Rotvieh Zuchtichtung Höhenvieh	D
	Salers	
	South Devon	C
	Uckermärker	D
	Ungarisches Steppenrind	C
	Vorderwälder	
	Weißblaue Belgier	C
	Welsh Black	D
	White Galloway	C
	White Park	C
	Zwerg-Zebus	D
	Anglo Nubier Ziege	D
	Angoraziege	D
	Braune Harzer Ziege	C
	Bündner Strahlenziege	C
	Bunte Deutsche Edelziege	
	Burenziege	
	Erzgebirgsziege	C
	Holländer Schecke	C
	Kaschmirziege	C
	Owamboziege	C
	Poitevine	C
	Thüringer Wald Ziege	D
	Toggenburger	D
	Walliser Schwarzhals-Ziege	D
	Weiß Deutsche Edelziege	
	Zwergziege	C
	Achal-Tekkiner	C
	Aegidienberger	C
	Alt-Württemberger	C
	Altmärkisches Kaltblut	D
	Andalusier	C
	Anglo-Araber	-
	Appaloosa	D

	Araber	
	Araber (Shagya- / Anglo- / Arabisches	
	Halbblut)	D
	Arabisches Halbblut	-
	Ardenner	C
	Arenberg-Nordkirchner	C
	Bayerisches Warmblut	
	Berber	C
	Bosniaken	C
	Brabanter	-
	Brandenburger Warmblut	
	Camargue	C
	Cob Normand	C
	Comtois	C
	Connemara	D
	Dales	C
	Dartmoor	D
	Deutsches Reitpony	
	Deutsches Shetland Partbred	-
	Dülmener	C
	Exmoor-Pony	C
	Falabella	C
	Fellpony	C
	Finnpferd	C
	Fjordpferd	
	Fox-Trotter (Missouri-Fox-Trott-Hunter)	C
	Freiberger	C
	Friesen	D
	Hackney	C
	Haflinger	
	Hannoveraner Warmblut	
	Hessisches Warmblut	
	Highlandpony	C
	Holsteiner Warmblut	
	Huzule	C
	Island	
	Kabardiner	C
	Karabach	C
	Kladruher	C
	Knabstrupper	D
	Konik	C
	Lehmkuhlener Pony	C
	Lipizzaner	D
	Lusitano	C
	Mangalarga Marchador	C
	Mecklenburger Kaltblut	C
	Mecklenburger Warmblut	
	Merens	C
	Morgan	C
	New Forest	D
	Nonius	C
	Noriker	C
	Oldenburger Warmblut	
	Orlow	C
	Ostpreußisches Warmblut Trakehner	
	Abstammung	
	Paint	C
	Palomino	C
	Paso Peruano	D
	Percheron	C
	Pfalz-Ardenner Kaltblut	C

	Kymi	D
	Mytilini	
	Serrai	
	Sfakia	
	Skopelos	
	Thraki	-
	Thraki	-
	Zakynthos	D

GREENLAND

	Gronlandsk f�ar	
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GRENADA

	Puerto Rican	-
	Creole	-

GUADELOUPE

	Cr�ole	
	Puerto Rican	-
	Cr�ole	
	Guadeloupe Island	-
	Cr�ole	

GUAM

	Marianas	-
	Ras-N-Lansa	-
	Gold Link	D
	Manok	
	Rhode Island Red	
	Domestic Duck of Guam	
	Muscovy Duck	
	Paluma	



GUATEMALA

	Barroso	D
	Chusco	
	Pelon	-
	Criollo	-




GUINEA

	N'dama	
	West African Dwarf	
	West African Dwarf	
	Poule Du Benna	
	Djaoul�s	
	Kami	




GUINEA-BISSAU

	Manjaca	D
	N'dama	
	N'gabou	
	West African Dwarf	

GUYANA

	Buffalypso	C
	Normande	D
	Salers	C
	Santa Gertrudis	D
	Banheco	-
	Barbados Blackbelly	

HAITI

	Puerto Rican	-
	Creole	-
	Haitian	X
	New Haitian	

HOLY SEE

No Information

HONDURAS






	Honduras Switch-Tail	-
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HUNGARY



	Bonyhadi	X
	Charolais	D
	Hereford	D
	Holstein-friz	
	Hungarian Brown	X
	Limousin	D
	Magyar Sz�urke	
	Magyartarka	
	Tejelo magyar-barna	X
	Tejelo magyar-tarka	X
	Furioso-North Star	DM
	Gidr�n	DM
	Hungarian	X
	Kisb�eri-F�elv�er	
	Lipicai	DM
	Magyar Hidegv�eru	DM
	N�oniusz	DM
	Pinkaf�o	X
	Shagya Arab	DM
	Ancient Alf�oldi	X
	Bakony	X
	Belga Lap�ly Sert�s	C
	Duroc Sert�s	D
	Hampshire Sert�s	C
	Lincolitsa	X
	Magyar Lap�ly Sert�s	
	Magyar Nagyfeh�er H�ussert�s	
	Mangalica	DM
	Pietrain Sert�s	D
	Sur�ny	X
	Cig�aja	DM
	Cikta	D
	J-AKI-1	X
	J-AKI-2	X
	Magyar Merino	










	Racka	
	Suffolk	D
	Szopora Merino	D
	Feh�er erd�lyi kopasznyak�	DM
	Feh�er magyar	DM
	Fekete erd�lyi kopasznyak�	DM
	G�d�ll�i New Hampshire	DM
	G�d�ll�i New Hampshire	CM
	Kendermagos erd�lyi kopasznyak�	DM
	Kendermagos magyar	
	S�rga magyar	
	Fodrostoll� l�d	DM
	Landeszi	
	Magyar l�d	
	Bronzpulyka	DM
	R�zpulyka	CM

ICELAND






















	Galloway	C
	Icelandic	
	Icelandic goat	DM
	Islenski Hesturinn	
	Icelandic	
	Icelandic Leader sheep	
	Islanski h�ensnastofninn	D

INDIA




	Indian	-
	Indian Wild Ass	D
	Kiang	-
	Indian Bactrian	C
	Arni	-
	Assam	-
	Bhadawari	
	Jafarabadi	
	Jerangi	-
	Kalahandi	-
	Manda	
	Mehsana	
	Murrah	
	Nagpuri	
	Nili	
	Nili-Ravi	
	Pandharpuri	-
	Sambalpur	-
	South Kanara	-
	Surti	
	Tarai	
	Toda	
	Wild Water Buffalo	D
	Alambadi	
	Amritmahal	
	Bachaur	
	Bargur	
	Bengali	
	Brownsind	-
	Burmese Gaur	
	Cutchi	-
	Dangi	

 Deoni	-	Mewati	-	Ganjam	-
Devarakota	-	 Sindhi	-	Garole	-
Devni	-	Baigani	-	Godavari	-
Gaolao	-	Barbari	-	Gurez	-
Gayal	-	Beetal	-	Hassan	-
Gir	-	Bengal	-	Hissardale	-
Goomsur	-	Bezoar	-	Jaisalmeri	-
Gujamavu	-	Changthangi	-	Jalauni	-
Hallikar	-	Chigu	-	Karnah	-
Hariana	-	Dalua	-	Kashmir Merino	-
Hissar	-	Gaddi	-	Kashmir Valley	-
Jellicut	-	Ganjam	-	Kenguri	-
Jersind	-	Gohilwadi	-	Kilakarsal	-
Kangayam	-	Indian Mohair	-	Madras Red	-
Kankrej	-	Jamnapari	-	Magra	-
Kappiliyan	-	Jhakrana	-	Malpura	-
Karan Fries	-	Kannaiadu	-	Mandya	-
Karan Swiss	-	Kutchi	-	Marathwada	-
Kenkatha	-	Malabari	-	Marwari	-
Khamala	-	Markhor	-	Mecheri	-
Khasi	-	Marwari	-	Munjal	-
Kherigarh	-	Mehsana	-	Muzaffarnagri	-
Khillari	-	Osmanabadi	-	Nali	-
Krishna Valley	-	Pateri	-	Nellore	-
Krishnagiri	-	Ramdhan	-	Nilgiri	-
Kumauni	-	Sangamneri	-	Patanwadi	-
Ladakhi	-	Sirohi	-	Poonchi	-
Malnad Gidda	-	Surti	-	Pugal	-
Malvi	-	Zalawadi	-	Ramnad White	-
Mampati	-	 Arab	-	Rampur Bushair	-
Manapari	-	Bhotia Pony	-	Sangamneri	-
Mewati	-	Chummarti	-	Sardarsamand	-
Mhaswad	-	Deccani	C	Shahabadi	-
Nagori	-	Kathiawari	-	Shapo	D
Nakali	-	Manipuri Pony	-	Sonadi	-
Nimari	-	Marwari	-	Telingana	-
Ongole	-	Spiti Pony	-	Tibetan	-
Ponwar	-	Zaniskari Pony	-	Tiruchy Black	-
Punganur	C	 Ankamali	-	Urial	-
Purnea	-	Deshi	-	Vembur	-
Ramgarhi	-	Ghori	-	 Chour-gau	-
Rath	-	 Argali	-		
Red Kandhari	-	Avikalin	-		
Red Sindhi	-	Avivastra	-		
Sahiwal	-	Bagri	-		
Sanchori	-	Balangir	-	 Secured Information	-
Shahabadi	-	Baruwal	-	 Banteng	-
Siri	-	Bellary	-	Brahman cross	-
Son Valley	-	Berari	-	Brangus	-
Sunandini	-	Bhakarwal	-	FH-hitam-putih	-
Taylor	D	Biangi	-	FH-merah	D
Tharparkar	-	Bonpala	-	Grati	-
Thillari	-	Changthangi	-	Hissar	D
Umblachery	D	Chokla	-	Jawa	-
Vechur	CM	Chotanagpuri	-	Limousin	-
 Bikaneri	-	Coimbatore	-	Peranakan Ongole	-
Jaisalmeri	-	Dakshini	-	Pesisir	-
Kutchi	-	Deccani	-	Sahiwal Cross	-
Malvi	-	Desi	-	sapi-Aceh	-
Marwari	-	Dhamda	-	sapi-Bali	-
Mewari	-	Gaddi	-	sapi-Madura	-
				Simmental cross	-








INDONESIA

 Sumba Ongole				 Alabio	-
Taurindicus				Aylesbury	-
 Bawean	-			Bali	-
Sambar	-			Belibis	-
Timor	-		Saint Croix Blackbelly-Barbados cross	Chery-Valley 2000	-
Totol	-		Kasuari	Jawa	-
 Anglo Nubian			Abror Acres	Khaki-Campbell	-
Angora			Abror Acres Brown	Magelang	-
Boer	D		Abror Acres Hysex	Maros	-
Gembrong	C		Acoblack	Mojosari	-
Holandsche Edelgeit	-		ASA	Roueen	-
Kashmir			Avian	Tegal	-
Katjang			ayam-hutan-hijau Sumatra	Tondano	-
Kosta			ayam-hutan-merah Jawa	White-Peking	-
Maritja			ayam-hutan-merah Sumatra	 angsa-Putih	-
Montgomery	D		Babcock	angsa-Putih	-
Peranakan Ettawah			Balenggek	angsa-Putih	-
Saanen			Bali	angsa-Putih-coklat	-
 kuda-Bali			Bangkok	 Manila	-
kuda-Batak			Banten	 burung-Unta	-
kuda-Bima			Batu	 Merpati	-
kuda-Flores			Bekisar	Perkutut	-
kuda-Gayo			Bromo	 burung-Puyuh	-
kuda-Jawa			Bromo Putri	 Kalkun	-
kuda-Kuningan			Brown-Nick		
kuda-Lombok	-		Bukan-Ras		
kuda-Makasar			burung Ayam-ayam		
kuda-Minahasa	DM		Cemani		
kuda-Pacu Indonesia			Ciparage	 Anger	D
kuda-Sandel			Cobb	Benderi	-
kuda-Sumbawa			Cobb	Hamadan	-
Sumbar-Sandel-Arab			Dekalb Waren	Iranian	-
Thoroughbred racing horse	D		H & N	Iranian Onager	D
 Gekbrong	-		Harco	Kashan	-
kelinci-Persilangan	-		Hubbard Golden Comet	 Gilani	-
Rex	-		Hubbard Golden Comet	Iranian Azari Ecotype	-
 babi-Batak			Hy-line Brown	Khoozestani	-
babi-Hutan	-		Hy-line Brown	 Bami	-
babi-Persilangan	-		Hy-sex Brown	Dashtiari	-
babi-rusa	-		Indian-River	Golpayegani	-
Bali			ISA-Vedette	Kurdi	D
Duroc	-		Kate	Mazandarani	-
Hampshire	-		Kedu	Nejdi	-
Iban	-		Lohmann	Sarabi	-
Jambi	-		Lohmann Brown	Sistani	-
Jawa	-		Merawang	Taleshi	-
Landrace	-		Merawas	 Adany	-
Nias	-		Nagrak	Arab	-
Poland China	-		Nunukan	Bezoar	-
Saddleback	-		Pelung	Kurdi	-
Sulawesi	-		Peterson	Lori	-
Sumatra	-		Ratihah	Nadjdi	-
Sumba	-		Ross	Raini	-
Tamworth	-		Ross Brown	Tali	-
Veredelde Nederlandsch Landvarken	-		Sentul	 Arab	-
Veredeltes Deutsches Landschwein	-		Shaver Starbro	Bakhtiari	-
Yorkshire	-		Shaver Starcross	Basseri	-
 domba-Ekor Gemuk			Sumatra	Caspian	D
domba-Ekor Tipis			Tolaki	Jaf	-
domba-Garut			Tukong	Kurdi	-
Kapstad	D		Wareng	Persian Arab	-
			Yungkilok	Qashqai	-

IRAN, ISLAMIC REPUBLIC OF

	Shirazi	-
	Sistani	-
	Yabu	-
	Afshari	-
	Arabi	-
	Bakhtiari	-
	Bakhtiari-Luri	-
	Baluchi	-
	Calhoor	-
	Grey Shirazi	-
	Herki	-
	Kallakui	-
	Karakul	-
	Khamseh	-
	Khorasan Kurdi	-
	Luri	-
	Makui	-
	Mehraban	-
	Moghani	-
	Qashqai	-
	Red Karaman	-
	Red Sheep	-
	Samhoor	-
	Sangesari	-
	Sanjabi	-
	Shal	-
	Turki	-
	Zandi	-
	Zel	-

IRAQ


	Jimes	-
	Dishti	-
	Iraqi	-
	Jenubi	-
	Kurdi	-
	Rustaqi	-
	Sharabi	-
	Iraqi	-
	Aljabali	-
	Iraqi	-
	Kurdi	-
	Miriz	D
	Arab	-
	Kurdi	-
	Arabi	-
	Awassi	-
	Hamdani	-
	Herki	-
	Iraq Kurdi	-
	Najdi	-
	Ne'imi	-
	Shafali	-
	Abaedh	D
	Arree El- Rakaba Abaedh	D
	Arree El- Rakaba Bunni	D
	Asswad	D
	Bunni	D
	Mukhatat	D

IRELAND



	Aberdeen Angus	-
	Ayrshire	D
	Belgian Blue	D
	Drimmon	X
	Hereford	-
	Holstein-Friesian	-
	Irish Blonde d'Aquitaine	D
	Irish Charolais	-
	Irish Limousin	-
	Irish Longhorn	X
	Irish Shorthorn	-
	Irish Simmental	-
	Jersey	-
	Kerry	DM
	Meuse Rhine Yssel	-
	Montbéliarde	D
	Irish Goat	-
	Arab	C
	Connemara Pony	-
	Irish Draught	DM
	Irish Hobby	X
	Irish Hunter	-
	Irish Pony	D
	Kerry Bog Pony	C
	Piebald and Skewbald	D
	Thoroughbred	-
	Duroc	C
	Greyhound	X
	Irish Landrace	-
	Large White	D
	Belclare	D
	Beltex	D
	Berrichon du Cher	D
	Blackfaced Mountain	-
	Bleu du Maine	D
	Bluefaced Leicester	D
	Charollais	-
	Cladore	X
	Galway	-
	L'Ile de France	D
	Rouge de L'Ouest	D
	Suffolk	-
	Texel	-
	Vendéen	D
	Wicklow Cheviot	-
	Cobb 500	-
	Isa Brown: Tetra	-
	Silverhill Duckling	-
	Legarth Int Denmark	-
	B.U.T. (British United Turkeys Ltd.)	-







ISRAEL

	Damascus	-
	Syrian	-
	Arab	-
	Israeli Friesian	-
	Simford	-
	Israeli Saanen	-



	Mamber	-
	Negev	-
	Sinai	-
	Assaf	-
	Awassi	-
	Israeli Improved Awassi	-

ITALY


	Asino dell'Amiata	D
	Asino dell'Asinara	C
	Asino Sardo	C
	Cariovilli	X
	Grigio viterbese	X
	Martina Franca	D
	Ragusana	D
	Romagnola	X
	Romagnolo	C
	Sant'Alberto	X
	Abruzzese	X
	Agerolese	DM
	Bardigiana	X
	Bruna	-
	Burlina	DM
	Cabannina	DM
	Calabrese	X
	Calvana	CM
	Camandona	X
	Carniella	X
	Chianina	-
	Chianino-Maremmana	C
	Cinisara	-
	Demonte	X
	Frisona	-
	Friuli	X
	Garfagnina	DM
	Grigia alpina	-
	Grigia di Val d'Adige	X
	Grigia di Val di Fiemme	X
	Grossetana	X
	Lucana	X
	Marchigiana	-
	Maremmana	-
	Modenese	DM
	Modicana	D
	Mölltal	X
	Montana	CM
	Oropa	-
	Ossolana	X
	Pasturina	X
	Perugina	X
	Pezzata Rossa Italiana	-
	Piemontese	-
	Pinzgauer	-
	Pisana	DM
	Podolica	-
	Pontremolese	CM
	Pugliese del basso Veneto	X
	Pustertaler Sprinzen	DM
	Reggiana	DM
	Rendena	-

	Romagnola		Lipizzano	C	Carapellese	X
	Romana	X	Persano	D	Carnica	X
	Sarda		Pony dell'Esperia	D	Ciavenasca	D
	Sardo-modicana		Pugliese	X	Cinta	X
	Sicilian	X	Salernitano	D	Ciuta	X
	Val di Chiana	X	Samolaco	C	Comisana	
	Valdarno	X	Sanfratellana		Cornella Bianca	C
	Valdostana Castana		Tolfetana		Cornetta	X
	Valdostana Pezzata Nera		 Abruzzese	X	Delle Langhe	
	Valdostana Pezzata Rossa		Basilicata	X	Di Corniglio	C
	Valtarese	X	Bastianella	X	Di Corteno	DM
	Varzese Ottonese	C	Borghigiana	X	Fabrianese	
	Alpina		Calabrese	DM	Finarda	
	Argentata dell'Etna	D	Casertana	C	Frabosana	D
	Bionda dell'Adamello	D	Catanzarese	X	Friulana	X
	Camosciata delle Alpi		Chianina	X	Garfagnina White	DM
	Cilentana Fulva	D	Cinta Senese	D	Gentila di Lucania	X
	Cilentana Nera	D	Cosentina	X	Gentile di Calabria	X
	Delle Tremiti	-	Duroc		Gentile Di Puglia	
	Derivata di Siria		Faentina	X	Istriana	C
	Di Benevento	C	Forlivese	X	Lamon	DM
	Di Campobasso	D	Friulana nera	X	Leccese	
	Di Cosenza		Fumati	X	Livo	X
	Di L'Aquila		Gargano	X	Locale	
	Di Montecristo	-	Garlasco	X	Maremmana	X
	Di Potenza	D	Hampshire	D	Marrane	D
	Di Salerno	D	Italian Landrace		Massese	
	Di Teramo	D	Lagonegrese	X	Matesina	D
	Garganica		Landrace Belga		Nobile di Badia	D
	Girgentana	D	Large White		Nostrana	
	Grigia molisana	D	Maremmana	X	Noventana	X
	Ionica		Mora Romagnola	C	Paduan	X
	Istriana	C	Murgese	X	Pagliarola	
	Maltese		Parmense	X	Pavullese	X
	Napoletana	D	Perugina	X	Pinzirita	
	Pomellata	C	Pietrain		Pomarancina	D
	Potentina	D	Pugliese	X	Quadrella	D
	Roccoverano	D	Reggitana	X	Razza di Garesio	D
	Saanen		Riminese	X	Rosset	C
	Sarda	D	Rossa modenese	X	Saltassasi	D
	Sarda di Tavolara	C	Samólaco	X	Sambucana	
	Screziata	C	San Lazzaro	X	Sampeierina	D
	Sempione	C	Siciliano	D	Sarda	
	Val Di Livo	X	Spotted	-	Savoiarda	C
	Valfortorina	D	Suino delle Nebrodi e Madonie	C	Sciara	X
	Valgerola		Valtellina	X	Sopravissana	
	Vallesana	C	 Alpagota	D	Tacola	D
	Avelignese		Altamurana	DM	Trimeticcia di Segezia	
	Cavallino di Monterufoli	C	Appenninica		Turchessa	D
	Cavallo Agricolo Italiano		Bagnolese	DM	Tyrol Mountain	
	Cavallo anglo-arabo-sardo		Barbaresca della campania (laticauda)		Urbascia	X
	Cavallo Bardigiano	D	Barbaresca Siciliana		Varesina	D
	Cavallo Del Catria	D	Bellunese	C	Vissana	D
	Cavallo Del Ventasso	D	Bergamasca		Zucca Modenese	X
	Cavallo della Giarra	D	Biellese		 Ancona	
	Cavallo Maremmano		Borgotarese	X	Livorno	
	Cavallo Murgese		Brentegana		Padovana	D
	Cavallo Norico	D	Brianzola	X	Polverara-Schiatta	D
	Cavallo Sardo		Brigasca	D	Siciliana	
	Cavallo Siciliano		Brogne		Valdarno	D
	Cremonese	X	Cadorina	X		

JAMAICA

	Jamaica Black	-
	Jamaica Brahman	-
	Jamaica Hope	-
	Jamaica Red	-
	Puerto Rican	-
	Sahiwal	-
	Barbados Blackbelly	-





JAPAN

	Japanese Black	
	Japanese Brown	
	Japanese Poll	
	Japanese Shorthorn	
	Kairyo-washu	X
	Kuchinoshima	C
	Mishima	C
	Wagyu	X
	Chubby	D
	Okinawa	-
	Tokara	C
	Dosanko	
	Kiso	C
	Misaki	C
	Miyako	C
	Nanbu	X
	Noma	C
	Tokara Pony	CM
	Tsushima	CM
	Yonaguni	C
	Ohmini	C
	Hinai-Dori	
	Japanese Long-Saddled Bantam	
	Japanese Long-Tailed Fowl	DM
	Japanese Rumpless Bantam	
	Jitokko	D
	Katsura chabo	
	Kawachiyakko	D
	Ko-shamo	
	Koeyoshi	D
	Kurokashiwa	D
	Minohiki	D
	Nagoya	
	O-shamo	
	Sado Hige-Jidori	D
	Satsuma-Dori	
	Shiba-Tori	C
	Shojo chabo	
	Shokoku	
	Tomaru	
	Tosa Cochin	D
	Tosa-Jidori Or Kojidori	
	Totenko	
	Ukokkei	
	Utai-Chahn	D

JOHNSTON ISLAND

No Information

JORDAN

	Baladi	
	Shamelia	
	Damascus	
	Mamber	
	Awassi	

KAZAKHSTAN

	Chigetai	-
	Kazakhskaya	-
	Kulan	D
	Kalmyk Bactrian	
	Kazakh Bactrian	
	Mongolian Bactrian	-
	Aulie-Ata	
	Kalmyk	
	Kazakh Whiteheaded	
	Kazakhskaya	-
	Arvana-Kazakh Type	D
	Turkmen Arvana	
	Kazakh	-
	Russian Central Asian Local Coarse-Haired	D
	Soviet Mohair	
	Adaev	
	Akhal-Teke	
	Jabe	-
	Kazakh	
	Kushum	
	Kustanai	
	Aksai Black Pied	D
	Semirechensk	
	Aktyubinsk	-
	Beskaragai Merino	-
	Chuis Semifinewool	-
	Degeresskaya Myasosherstnaya	
	Edil' Baevskaya	
	Kargalin Fat-Rumped	
	Kazakhskaya Korridel'	-
	Kazakhskaya kurdychnaya	
	Kazakhskaya Polutonkorunnaya	
	Porodnaya Gruppya	-
	Kazakhskaya Tonkorunnaya	
	Kazakhskii Arkharo Merinos	
	Sary-Ja	
	Severokavkazskii Merinos	
	Sovetskii Merinos	
	Sulukol'skii Merinos	-
	Yuzhnokazakhskii Merinos	
	Zapadnokazakhstanskaya Myasosherstnaya	-

KENYA

	Masai	-
	Somali	-
	Boran	-
	Ethiopian Boran	-
	Giriama	-

	Kamasia	
	Kamba	
	Kavirondo	
	Kenya Boran	
	Kikuyu	
	Masai	
	Nandi	
	Sahiwal	
	Samburu	
	Suk	-
	Tuni	-
	Turkana	-
	Rendille	
	Somali	
	Turkana	
	Angora Goat	
	Boran	
	Small East African	
	Somali	-
	Blackhead Persian	-
	Kenian Samburu	-
	Kipsigis	-
	Luo	-
	Masai	-
	Nandi	-
	Somali	-

KERGUÉLEN ISLANDS

No Information





KIRIBATI

No Information

KOREA, PEOPLE'S DEMOCRATIC REPUBLIC

	Penbuk	-
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KOREA, REPUBLIC OF














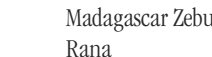










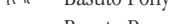

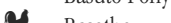



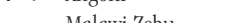


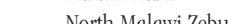
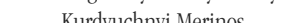













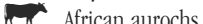










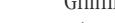


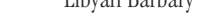


























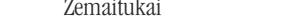





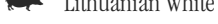




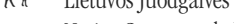


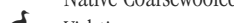
















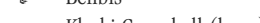







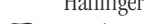
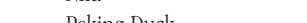






	Cheju	
	Hanwoo	-
	Yemso	
	Cheju	
	Taejung	-
	Korean Improved	-
	Korean Native	-

KUWAIT

	Arabi	
	Naeemi	
	Nagdi	-

KYRGYZ REPUBLIC

	Kirgizskaya	-
	Kazakh Bactrian	-
	Ala-Tau	-

 Aulie-Ata	-	 Damascus	-	 Texel	-
 Kazakh	-	 Mamber	-		
 Don-Kirgiz Cross	-	 Awassi	-	MADAGASCAR	
 Kirgiz	-	LESOTHO			
 Russian Central Asian Local Coarse-Haired	D	 Basuto	-	 Baria	D
 Soviet Mohair	D	 Drakensberger	-	 Madagascar Zebu	
 Kirgiz	D	 Angora Goat	-	 Rana	D
 New Kirgiz	-	 Boer	-	 Renitelo	-
 Alai	-	 Basuto Pony	-	 Madagascar	-
 Argali	-	 Basuto Pony	X	MALAWI	
 Arkhar	-	 Basuto Pony	X	 Angoni	-
 Chapan	-	 Basuto Pony	X	 Malawi Zebu	-
 Kirgiz Finewool	-	 Basuto Pony	X	 North Malawi Zebu	X
 Kirgizskaya Kurdyuchnaya	-	LIBERIA			
 Kurdyuchnyi Merinos	X	 Liberian Dwarf		 Malawian	-
 Marco Polo's Sheep	D	 N'dama		 Small East African	-
 Tyanshanskaya	-	 West African Dwarf		 Malawi	-
 Urial	-	LIBYAN ARAB JAMAHIRIYA			
 Yak	-	 Libyan	-	MALAYSIA	
 Kychinskaya	-	 African aurochs	X	 Borneo Buffalo	-
 Kyrgyzskaya	-	 Libyan	-	 Kerbau-Sawah	-
 White Leghorn	-	 Libyan	-	 Murrah	D
 Pekin	-	 Barki	-	 Bali Cattle	C
LAOS		 Ghimi	-	 Banteng	D
 Khouay	-	 Libyan Barbary	-	 Burmese Gaur	-
 Kouprey	C	LIECHTENSTEIN			
 Ngoua	-	No Information			
 Tsine	-	LITHUANIA			
 Bae	-	 Lithuanian Black Pied	DM	 Seladang	D
 Ma	-	 Lithuanian Light Grey	DM	 Sambar	-
 Mou Cheed	-	 Lithuanian Red	DM	 Boer Goat	-
 Mou Kang	-	 Lithuanian White Back	DM	 Germasia	-
 Mou Ladit	-	 Native Lithuanian	DM	 Katjang	-
 Mou Mong	-	 Lithuanian Heavy Draft	DM	 Bajau	-
 Kae	D	 Russian Trotter	CM	 Kuda Padi	-
 Kai Lat	-	 Zemaitukai	C	 Iban	-
 Pet Kab	-	 Zemaitukai (Modern Type)	C	 South China	D
 Pet Thed	-	 Lithuanian White	DM	 Barbados Blackbelly	-
 Kai Ngouang	-	 Native Lithuanian	DM	 Dorper	-
LATVIA		 Lietuvos Juodgalves	C	 Long Tail	-
 Angeln	DM	 Native Coarsewooled	C	 Malin	-
 Danish Red	DM	 Vishtines	C	 Morada Nova	-
 Latvian Black and White	-	LUXEMBOURG			
 Latvijās brūnā	-	 Charolais	D	 Sussex	-
 Latvijās zilā	-	 Holstein-Friesian	D	 Ayam Kampong	-
 Latvian	DM	 Limousine	D	 Belibis	-
 Duroc	DM	 Meuse-Rhine-Yssel	D	 Khaki Campbell (layer)	-
 Large White	-	 Cheval de Selle	DM	 Nila	-
 Latvian Landrace	-	 Cheval de Trait Ardennais	DM	 Peking Duck	-
 Latvian White	-	 Haflinger	D	 France White Rhine (broiler)	-
 Latvian Darkheaded	-	 Landrace Belge	-	 Itik Kampong	-
LEBANON				 Muscovy Duck	-
 Baladi	-				
 Lebanese	-				

MALDIVES

 Jamnapari
 Kukulhu

MALI

 Native of North Africa
 Azaouak
 Bambara
 Maure
 N'dama of Kaarta
 Toronke Fulani
 Zebu Peul Soudanais
 Bérabiche
 Chameau De L'azaouad
 Chameau Du Hodh
 Sahelian
 Tuareg
 West African Dwarf
 Bandiagara
 Beledougou
 Hodh
 Sahel
 Songhai
 Somo
 Black Maure
 Fulani
 Macina
 Malian Samburu
 Toronke
 Touabire
 Tuareg
 West African Dwarf
 Balachié
 Chiébleman
 Chiédieman
 Chiéfiman
 Dakisséchié
 Doufowchié
 Fambougourichié
 Kolokolochié
 Kolonchié
 Korochié
 Sagachié
 Ségèchié
 Malian Duck
 Brown Guinea fowl
 Grey Guinea fowl
 Lily-Type Guinea fowl
 White Guinea fowl




MALTA

 Baqra Maltija
 Holstein
 Moghza Matija
 Duroc
 Land Race
 Large White
 Maltese sheep

MARSHALL ISLANDS

No Information

MARTINIQUE

 Créole
 Puerto Rican
 Créole
 Créole

MAURITANIA

 Native of North Africa
 Brune de l' Atlas
 Maure
 Chameau De L'afout
 Chameau Du Sahel
 Arabia
 Berber
 Diougy
 Moussoro
 Tuareg
 Tuareg
 Western Goat
 Arab-Barb
 Barbe
 Hodh
 Arab
 Blackhead Persian
 Fulani
 Touabire
 Mauritanian Local Chicken

MAURITIUS

 Mauritius Creole
 Sahiwal
 Barbari
 Blackhead Persian
 Dorper
 Rodrigaise
 Romanov

MAYOTTE

No Information

MEXICO

 Boran
 Chinampo
 Criollo Lechero Tropical
 Frijolillo
 Santa Gertrudis
 Criollo
 Guadeloupe Island
 Appaloosa
 Galiceno
 Mexican Pony

 Birish
 Cerdo Coscate
 Cuino
 Criollo
 Lucero
 Tabasco
 Tarhumara
 Taret
 Bucho pelón
 Gallina criolla o de rancho

**MICRONESIA,
FEDERATED STATES OF**

No Information

MIDWAY ISLANDS

No Information

**MOLDOVA,
REPUBLIC OF**





 Moldavian Local
 Bessarabian Red
 Moldavian Black and White
 Moldavian Red Steppe
 Moldavian Simmental
 Moldavian Estonian Red
 Local Moldavian
 Local Moldavian
 Soviet Heavy Draft
 Chernaya moldavskaya porodnaya
 gruppya
 Moldavian Meat Type
 South Type
 Chushka
 Kuibyshev

MONACO



No Information

MONGOLIA







 Khulan
 Mongolian Bactrian
 Khalkhun Golun
 Mongolian
 Red Steppe
 Selenge
 Govi Gurvan Saihan
 Mongolian Cashmere Goat
 Unjuul
 Uuly'n Bor
 Mongol Aduu
 Przewalski Horse
 Argali
 Baidrag
 Baidrag





	Baruun Mongolin Utsan Suult	
	Bayad	
	Darkhad	
	East Mongolian Semi-Fine Wool	-
	Gobi-Altai	
	Jargalant	
	Kalkh Khoni	
	Karakul	-
	Khangai	
	Orkhon	
	Sartuul	
	Sumber	
	Talin Tsagaan	
	Torguud	
	Uzemchin	
	Yeroo	
	Sarlag	
	Leghorn Cross-288	
	Mongolian Local Hen	
	Mongolian Local Goose	

MONTSERAT




	Puerto Rican	-
	Creole	-

MOROCCO

	Moroccan	-
	Beldi	-
	Blonde des Plateaux d'Oulmes et des Zaers	
	Meknes Black Pied	-
	Jebli	-
	Khaouri	-
	Marmouri	-
	Sahraqui	-
	Attaouia	-
	Berber	-
	Yahyaouia	-
	Barbe	D
	Ait Barka	-
	Ait Haddidou	-
	Ait Mohad	-
	Aknoul	-
	Beni Ahsen	-
	Beni Guil	-
	Beni Meskine	-
	Berbere	-
	D'Man	-
	Doukkala	-
	Harcha	-
	Marmoucha	-
	Rehamna-Sraghna	-
	Sardi	-
	Souss	-
	South Moroccan	-
	Tadla	-
	Timhadite	-
	Tounfite	-
	Tousint	-

	Zaian	-
	Zemmour	-
	Zemrane	-
	Zoulay	-
	Moroccan Beldi	
	Habachi	
	Moroccan Pigeon	
	Moroccan Beldi	





MOZAMBIQUE

	Africander	-
	Mashona	
	Mozambique Angoni	
	Sul Do Save	
	Boer	-
	Pafuri	C
	Small East African	
	Blackhead Persian	-
	Karakul	-
	Landim	-
	Nguni	-

MYANMAR

	Myanmar Swamp Buffalo	
	Shan Kywe	
	Wild Buffalo	
	Katonta	
	Mythum	
	Pya Zein	
	Shan Nwar	
	Shwe Ni	
	Shwe Ni Gyi	
	Jade Ni	
	Burmese	
	Shan Pony	
	Badaung Wet	
	Bo Cake	
	Taung Pig	
	Bama Thoe	
	Myogyi	D
	Khayan Duck	









NAMIBIA

	Damara	-
	Holmonger	-
	Kaokoveld	-
	Nama	-
	Nuras	-
	Ovambo	-
	Tswana	-
	Boer	-
	Damara	-
	Damara	
	Karakul	
	Ovambo	CM

NAURU

No Information




NEPAL

	Tibetan	
	Arni	-
	Murrah	-
	Nepalese Hill	
	Nepalese Mountain	
	Tarai	
	Wild Water Buffalo	D
	Achham	
	Burmese Gaur	-
	Kirko	
	Lulu	
	Morang	X
	Nepalese Hill	
	Sahiwal	-
	Siri	-
	Tarai	
	Khari	
	Nepalese Northern Hill	-
	Sinhal	
	Tarai	-
	Tibetan	-
	Bhotia Pony	-
	Chyanta	-
	Tanghan	-
	Tarai Pony	-
	Tattu	-
	Tibetan Pony	-
	Chwanche	
	Hurra	
	Baruwal	
	Jumli	-
	Kagi	
	Lampuchhre	
	Lohia	-
	Tibetan	
	Yak	-

NETHERLANDS

	American Dutch Belted	D
	Deep Red	C
	Fries Roodbont	CM
	Groninger Blaarkop	DM
	Lakenvelder	DM
	Maas-Rijn-Yssel	
	Zwartbont	
	Bonte Geit	
	Dutch Piebald Goat	-
	Nederlandse Landgeit	
	Appaloosa	
	Friesian Horse	
	Gelders Paard	DM
	Groninger Paard	CM
	Warmbloed Paard Nederlands	
	Zeeuwse Paard	

	Groot Yorkshire-S	
	Groot Yorkshire-Z	
	Nederlands Landras	
	Black Blazed Sheep	DM
	Clun Forest	D
	Drentse Heideschaap	DM
	Friesian Milk sheep	
	Groningse melkschaap	X
	Kempense Heideschaap	
	Mergelland Schaap	DM
	Schoonebeker	DM
	Texelaar	
	Veluwe Heideschaap	

	Assendelfter	-
	Baardkuifhoen	-
	Brabanter	-
	Groningen Meew	-
	Kraaikop	-
	Uilebaard	-
	Krombek	-
	Spreeuwkop	-
	Groningen Slenk	-
	Hyacinth	-

**NETHERLANDS ANTILLES
(CURAÇAO, BONAIRE, ETC.)**

	Puerto Rican	-
	Creole	-
	Barbados Blackbelly	

NEW CALEDONIA

No Information

NEW ZEALAND





	Brangus	-
	Enderby Island	C
	New Zealand Jersey	-
	Sahiwal	-
	Santa Gertrudis	-
	Arapawa	D
	Auckland Island	C
	Kiko	-
	New Zealand Base Stock	-
	Arab	-
	Caspian	D
	Kaimanawa ' Wild' Horse	D
	Captain Cooker	-
	Kunekune	D
	Lincoln Red	X
	Arapawa Island	D
	Australian Merino	-
	Booroola Merino	-
	Borderdale	-
	Broomfield Corriedale	-
	Campbell Island	C
	Chevlin	X
	Coopworth	
	Corriedale	

	Drysdale	-
	Hokonui	C
	Mohaka	D
	New Zealand Romney	-
	Perendale	-
	Pitt Island	C
	Poll Merino	-
	Skye Farm Romney	-
	South Dorset Down	-
	South Hampshire	-
	South Suffolk	-
	Tukidale	-





NICARAGUA

	Criollo Lechero Tropical	-
	Pelon	-

NIGER

	AzaouakDamerghou	
	Diali	-
	Kuri	-
	Red Bororo	-
	Maradi	
	Sahelian	
	Tuareg	-
	Bandiagara	-
	Djerma	-
	Hausa	-
	Torodi	-
	Bali-Bali	-
	Goundoun	
	Tuareg	-

NIGERIA

	Adamawa	
	Azaouak	
	Bamenda	-
	Biu	X
	Keteku	
	Kuri	-
	Muturu	
	N'dama	
	Red Bororo	
	Shuwa	-
	Sokoto Gudali	
	White Fulani	
	Yola	X
	Saharan Camel	
	Bornu White	-
	Damagaran Dapple-Grey	-
	Kano Brown	-
	Katsina Light-Brown	-
	Mambilla	-
	Maure	-
	Nigerian	-
	Red Sokoto	
	West African Dwarf	
	Bhirum Pony	-

	Bornu	-
	Hausa	-
	Sulebawa	-
	Nigerian Native	
	Black Maure	-
	Bornu	-
	Fulani	
	Maure	-
	Nigerian Dwarf	-
	North Nigerian Fulani	-
	Permer	-
	Yankasa	-

NIUE

No Information





NORFOLK ISLAND


No Information

NORTHERN MARIANA ISLANDS



No Information

NORWAY

	dølefe	CM
	Gudbrandsdal	X
	Hedmark	X
	Hordaland	X
	Jarlsberg	X
	Lyngdal	X
	More and Ramsdal	X
	Norsk rodt og hvitt fe	X
	norsk rødt fe	
	Osterdal	X
	Rodt (or Raut) tronderfe og malselvf	X
	sidet trønderfe og nordlandsfe	DM
	Sor og vestlandsfe	X
	telemarkfe	DM
	vestlandsk fjordfe	D
	vestlandsk raudkolle	D
	østlandsk rød kolle	CM
	Norsk melkegeit	
	utegangargeit	CM
	fjordhest	
	Lofoten	X
	Nordlandshest	DM
	Norsk Kaldblods Traver	
	Tyngre Dølehest	DM
	Norsk Landrace	
	Norsk Yorkshire	D
	Norsk Yorkshire	D
	dalasau	
	norsk pelssau	
	rygja	
	sjeviot	
	spælsau	
	steigar	
	utegangarsau	

	Barred Plymouth Rock	
	Gjermundues 1	D
	Gjermundues 2	D
	Gjermundues 3	D
	Jarhðns	
	Kalnes 1	D
	Kalnes 2	D
	Kalnes 3	D
	Kalnes 4	D
	Kalnes 5	D
	Nor. brid 1	D
	Nor. brid 3	D
	Nor. brid 4	D
	Nor. brid 7	D
	Nor. brid 8	D
	Red Rhode Island (RRI)	
	Roko hóns 1	D
	Roko hóns 2	D
	Roko hóns 4	D
	Samvirkekulling 11	DM
	Samvirkekulling 12	DM
	Samvirkekulling 13	DM
	Samvirkekulling 15	DM
	Sove 1	D



OMAN

	Omani	
	Omani	











PACIFIC ISLANDS

No Information

PAKISTAN

	Kundi	
	Nili	
	Nili-Ravi	
	Nondescript	-
	Ravi	
	Bhagnari	
	Cholistani	
	Dajjal	
	Dhanni	
	Exotic and cross-bred	
	Kankraj	-
	Lohani	
	Nondescript	
	Red Sindhi	
	Rojhan	
	Sahiwal	
	Tharparkar	-
	Baltistani	
	Barbari	
	Beetal	
	Beiri	
	Bezoar	
	Buchi	
	Bugi Toori	-
	Bujri	-

	Chappar	
	Damani	
	Dera Din Panah	
	Gaddi	
	Jarakheil	
	Jattal	X
	Jattan	
	Kaghani	
	Kajlee	
	Kamori	
	Khurasani	
	Kohai Ghizer	
	Kooti	
	Labi	-
	Labri	
	Lehri	
	Lohri	
	Markhor	
	Nachi	
	Pak Angora	D
	Pateri	
	Piamiri	
	Pothohari	-
	Potohari	
	Shurri	
	Siberian IbeX	
	Sind Wild Goat	
	Sirli	-
	Teddy	
	Baluchi	-
	Hirzai	D
	Makra	D
	Waziri	-
	Argali	-
	Baghdale	D
	Balkhi	
	Baltistani	
	Baluchi	
	Bibrik	
	Buchi	
	Cholistani	
	Damani	
	Dumbi	
	Gad	-
	Gojal	
	Hallenjoo	-
	Harnai	
	Hashtnagri	
	Hissardale	D
	Kachhi	
	Kaghani	
	Kail	
	Kajli	
	Kali	
	Khetrani	-
	Khijloo	-
	Kohai Ghizer	
	Kooka	
	Lamkanni	
	Lati	
	Lohi	

	Marco Polo's Sheep	D
	Michni	
	Pahari	
	Pak Awassi	D
	Pak Karakul	D
	Poonchi	
	Rakhshani	
	Sipli	
	Thalee	
	Tirahi	
	Waziri	
	Aseel	
	Desi	
	Naked Neck	-
	Batakh	
	Titri	
	Pakistani Muscovy Duck	D
	Pakistani Ostrich	C
	Black Partridge	-
	Chukor Partridge	-
	Grey Partridge	-
	Himalayan Snow Cock	-
	Pakistani Partridge	-
	Seesee Partridge	-
	Snow Partridge	-
	Cheer Pheasant	DM
	Common Pea Fowl	D
	Himalayan Monal	D
	Kalij	C
	Koklass	-
	Tragopan Western Horned	D
	Blue Rock Pigeon	
	Common Quail	
	Rain Quail	
	Titri	

PALAU

No Information




PALESTINE

No Information

PANAMA

	Pelon	-
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PAPUA NEW GUINEA

	Javanese Zebu	D
	New Guinea Native	
	Priangan	

PARAGUAY

	Chaqueño	D
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PERU

	Huacaya	
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	Serra da Estrela	
PUERTO RICO		
	Puerto Rican	-
	Creole	-
QATAR		
	No Information	
REUNION		
	Créole	
ROMANIA		
	Baltata cu negru romanescă	
	Baltata romanescă	
	Bruna de maramures	
	Bucșana	X
	Ialomita	X
	Pinzgau de transilvania	DM
	Sura de stepa	DM
	Transylvâneană	X
	Carpatina Cashgora	
	Banat	X
	Dobrogeana	X
	Ialomita	X
	Moldovenescă	X
	Romanian Mountain	X
	Transylvaneana	X
	Duroc	
	Hampshire	
	Large White	
	Mangalita	CM
	Palatin	X
	Porcul Ald de Banat	C
	Porcul de Banat	DM
	Porcul negru de Dobrogea	X
	Romanian Landrace	
	Stocli	X
	Strei	X
	Yorkshire	D
	Karakul	
	Merinos de Palas	
	Merinos Transilvanean	
	Radșka	
	Tsigai	
	Turcana	
	Australorp	D
	Bantam alb	C
	Barboasa de anvers	C
	Barnevelder dublu locat-pitică	C
	Brahma albă	D
	Brahma herminat deschis	C
	Brahma herminat inchis	D
	Chochinchina galbenă	D
	Chochinchina neagră	D
	Cochin negru pitic	C
	Combatant indian	C

Combatant malaez alb	C
Combatant malaez galben	C
Combatant malaez roșu închis	C
Cornish alb-c	D
Cornish alb-cy1	D
Cornish alb-cy2	D
Cornish alb-w	D
Cornish roșu-s	D
Drezda	C
Faverolles alb	C
Faverolles Salmon	D
Gaina de portelan-pitică	C
Git golas de transilvania alb	C
Git golas de transilvania barat	C
Git golas de transilvania negru	C
Git golas de transilvania negru pitică	C
Git golas de transilvania roșu	C
Gournay	D
Houdan pitic	C
Italiana argintie	D
Italiana aurie	D
Italiana neagră	D
Italiana neagră pitică	D
Italiana pătarnichie pitică	C
Japoneză de mătase albă	C
Japoneză de mătase galbenă	C
Japoneză de mătase neagră pitică	C
La bresse	D
La Flèche	C
Langsham	C
Leghorn alb-10	D
Leghorn alb-7	D
Leghorn alb-9	D
Leghorn alb-d	D
Leghorn alb-g	D
Leghorn alb-j	D
Leghorn alb-k7	D
Legwels Alba	C
Light Sussex (Synthetic)	D
Marans alb	D
Marans barat	DM
Marans herminat deschis	D
Marans negru	D
Minorca neagră	D
Negru de franta	D
Negru pitic cu creasta batuta	C
New hamshire roșu	D
Orloff	C
Orpington alb	D
Orpington galben	D
Orpington negru	D
Paduana aurie	C
Plymouth rock alb (dw dw)	D
Plymouth Rock Alb (w)	C
Plymouth Rock Alb (w), white skinned	D
Plymouth rock alb-f	D
Plymouth rock alb-h	D
Plymouth rock alb-n	D
Plymouth rock alb-s(k)	D
Plymouth rock barat	D



Plymouth rock barat infuzat cu leghorn	D	
Rhode island alb-db	D	
Rhode island alb-murdar	D	
Rhode island roșu-e	D	
Rhode island roșu-h	D	
Rhode island roșu-m	D	
Rhode island roșu-p	D	
Rhode island roșu-pitic	D	
Sussex herminat	D	
Sussex mamaia sat	D	
Sussex peștrit pitic	C	
Welsummer Maron	C	
White Plymouth Rock-dw	D	
White Plymouth Rock-Silver	D	
White Sultan	C	
Wiandotte alb pitic	C	
Wiandotte negru pitic	D	
Wyandotte alb	C	
Wyandotte argintiu lacat	C	
Wyandotte argintiu locat pitic	C	
Wyandotte auria lacat	C	
Wyandotte lacat	C	
Wyandotte negru	D	
RUSSIAN FEDERATION		
	Abkhazskaya	-
	Dagestanskaya	-
	Hamadan	-
	Kakhetinskaya	-
	Kazakh Bactrian	
	Mongolian Bactrian	D
	Caucasian	
	Altayskaya	X
	Babaev	X
	Beliy sibirskiy skot	D
	Bestuzhevskaya	
	Chernopestraya	
	Chernopestryi skot sibli	-
	Dagestanskaya Buraya	X
	Istobenskaya	
	Kalmytskaya	
	Karelian	X
	Kavkazskaya	-
	Kazakhskaya	-
	Kemerovskaya	X
	Khevsurskaya gruppa	D
	Kholmogorskaya	
	Kostromskaya	
	Krasnaya gorbatovskaya	
	Krasnaya Stepnaya	
	Krasnaya tambovskaya	
	Kubano-Chernomorskaya	X
	Kurganskaya	D
	Menno-Friesian	X
	Miskov	X
	Pechorskii tip kholmogorskogo skota	C
	Priokskaya chernopestraya	X
	Priorskaya	X
	Russo-Siberian	X

	Shvitskaya		Pechorskaya	D	Dagestanskaya Gornaya	-
	Sibirskii skot	X	Priobskaya	D	Danadara	X
	Simmentalskaya		Przewalski Horse	D	Darginskaya	-
	Srednerusskaya		Rostopchin	X	Duzbai	-
	Suksunskaya skot		Russkaya krovnaya verkhovaya	X	Gedek	X
	Sychevskaya		Russkii Rysak		Gor'kovskaya	
	Tagil'skaya		Russkii Tyazhelovoz		Gornoaltaiskaya Porodnaya Gruppya	-
	Ural'skaya Chernopestraya	-	Sovetskii Tyazhelovoz		Gornyi Merino	-
	Velikokavkazskaya	-	Srednekolym'skaya	-	Groznenskaya	-
	Vyhegodsko-vymskaya	X	Tavdinskaya	D	Guligas	-
	West Siberian	X	Terskaya	DM	Gunibskaya	-
	Yakutskii Skot	DM	Tomskaya	X	Kalininskaya	-
	Yaroslavskaya		Tuvinskaya	D	Kalmytskaya	X
	Yurinskaya	C	Tuvinskaya upryazhnaya	X	Kambar	-
	Angoro-Pridonskaya	X	Verkhne-Eniseiskaya	D	Karachaevskaya	
	Bashkirskaya koza reduralya	X	Vladimirskaia Tyazhelovoznaya		Karachai Mountain Mutton-Wool	-
	Belaya Dagestanskaya	-	Voronezhskaya upryazhnaya	X	Karanogaiskaya	X
	Dagestanskaya	D	Vyatskaya		Kavkazskaya	
	Gorkovskaya		Yakutskaya		Kazakhskaya Kurdyuchnaya	
	Gornoaltaiiskaya		 Alabuzinskaya porodnaya gruppya	X	Khakasskaya	-
	Karachaevskaya	D	Belaya Sakhalinskaya	-	Khangaiskaya	
	Orenburg		Breitovskaya		Krasnoyarskaya Tonkorunnaya	
	Pridonskaya		Dlinnoukhaya Belaya	-	Krasnyi Samukh	-
	Russkaya Belaya		Dobrinskaya porodnaya gruppya	X	Krupnaya Zadonskaya	-
	Severorusskaya	X	Ievlevskaya porodnaya gruppya	X	Kuchugurovskaya	
	Volgograd White	D	Kalinskaya	X	Kuibyshevskaya	
	Altaiskaya		Kama	X	Kulundinskaya	-
	Amurskaya	X	Kemerovskaya		Kumykskaya	X
	Anglo-Kabarda	-	Kemerovskii Myasnyi Typ	-	Kusman	X
	Avarskaya	-	Korotkoukhaya Belaya	-	Lakskaya	-
	Balkar	-	Krupnaya Belaya		Lezginskaya	
	Bashkirskaya		Lesogornaya porodnaya gruppya	X	Liskinskaya	-
	Bitiyug	X	Livenskaya		Malich	-
	Budennovskaya		Meshchovskaya porodnaya gruppya	X	Mennonite	X
	Buryatskaya		Minisib	-	Mikhnovskaya	C
	Charysh	D	Muromskaya		Minusinsk	X
	Chemomorskaya	X	Omskaya seraya porodnaya gruppya	X	Nizhnedevitskaya	-
	Chilkovskaya	X	Pridonskaya	X	Nolinskaya	X
	Chistokov'naya Arabskaya	D	Prisheksninskaya		North Caucasus Merino	-
	Chistokrovnaya Arabskaya	D	Rossoshanskaya chernopestraya		North Ossetian Semi-Fine Wool	-
	Chumyshskaya Porodnaya Gruppya		corodnaya gruppya	X	Novokavkazskii Merinos	X
	Chuvashskaya	X	Rostov	-	Oktyabrskaya Porodnaya Gruppya	-
	Cossack	X	Severokavkazskaya		Omskaya Myaso-Sherstnaya	
	Dagestanskii Poni	D	Sibirskaya Chernopestraya	D	Polutonkorunnaya Porodnaya	
	Donskaya		Sibirskaya Severnaya		Gruppya	-
	Estonkii Tyazhelovoz	D	Tarskaya		Oparinskaya	
	Kabardinskaya		Tsivilskaya Porodnaya Gruppya		Orenburgskaya Tonkorunnaya	
	Kalmytskaya		Urzhumskaya		Porodnaya Gruppya	-
	Karachaevskaya	-	 Agul	-	Ostrogozhskaya Porodnaya Gruppya	-
	Karel'skaya	X	Altaiskaya		Pampara	-
	Kumykskaya	-	Andiiskaya		Pechorskaya Porodnaya Gruppya	D
	Kuznetskaya Porodnaya Gruppya	D	Askanian Corriedale	-	Priangarskii Merinos	-
	Lezginskaya	-	Avar	X	Prostaya derevenskaya	
	Lovetskaya	X	Bakur	D	dlinno-toshchekhvostaya	X
	Mezenskaya	D	Bitiyug	X	Romanovskaya	
	Minusinsk	X	Bokino	X	Russkaya Dlinnosherstnaya	
	Narym	D	Budiani	-	Sal'skaya	
	Obva	X	Buryatskaya	-	Saradzhiinskaya	
	Onega	X	Caucasian Mountain	-	Severnaya korotkokhvostaya	X
	Orlovskaya verkhovaya	X	Chitinskaya Porodnaya Gruppya	-	Severokavkazskaya Gornaya	
	Orlovskii Rysak		Chubuku	-	Porodnaya Gruppya	-

SOLOMON ISLANDS

	Solomon Red	D
	Native Pig	
	Village Chicken	

SOMALIA

	Somali	-
	Somali Wild Ass	D
	Bimal	-
	Boran	-
	Ethiopian Boran	-
	Garre	-
	Gasara	-
	Jiddu	-
	Magal	-
	North Somali	-
	Somali	-
	Abgal	-
	Benadir	-
	Bimal	-
	Boran	-
	Garre	-
	Somali	-
	Somali Arab	-
	Tuni	-
	Somali Pony	D
	Blackhead Persian	-
	Somali	-
	Somali Arab	-

SOUTH AFRICA

	Afrikaner	
	Ayrshire	
	Beef Shorthorn	D
	Beefmaster	
	Bolowana	X
	Bonsmara	
	Boran	C
	Bovelder	-
	Braford	
	Brahman	
	Brangus	
	Braunvieh	
	Charolais	
	Chianina	-
	Dairy Shorthorn	
	Dexter Kerry	
	Drakensberger	
	Dutch Friesian	CM
	Galloway	C
	Gelbvieh	
	Guernsey	
	Hereford	
	Highland	X
	Holstein	
	Hottentot	X
	Hugenot	
	Jersey	

	Kashibi	-
	Kemp	X
	Limousin	
	Nguni	D
	North Devon	X
	Ondongolo	X
	Pedi	D
	Pinzgauer	
	Red Poll	D
	Romagnola	C
	Rotbunte Schleswig Holsteiner	C
	SA Angus	
	SA Dairy Swiss	
	Salers	C
	Sanganer	D
	Santa Gertrudis	
	Shangaan	
	Simbra	
	Simmentaler	
	South Devon	
	Sussex	
	Tauricus	-
	Tswana	DM
	Tuli	
	Tulim	-
	Uys	X
	Venda	
	Wagyu	-
	Watusi	CM
	Dromedary	D
	Angora Goat	
	Bantu	
	Boer	
	Nguni	-
	American Quarter Horse	D
	American Saddle Horse	
	Andalusian	-
	Appaloosa	-
	Arab Horse	-
	Boer	-
	Calvinia	X
	Cape Harness	X
	Cape Horse	X
	Clydesdale	C
	Connemara Pony	C
	English Halbblut Horse	C
	European Warmblood	
	Friesian Horse	D
	Hackney	D
	Hackney Pony	D
	Hafflinger	C
	Highland Pony	-
	Lippizzaner	-
	Lusitano	-
	Namaqua Pony	X
	Namib Horse	D
	Nooitgedacht Pony	D
	Paint	-
	Percheron	C
	SA Miniature Horse	D
	Shire	C

	Thoroughbred	-
	Vlaamperd	D
	Welsh Pony	-
	American Hampshire	C
	Bantu	-
	Chester White	D
	Duroc	D
	Kolbroek	
	Large Black	X
	Large White	
	Pietrain	C
	QM Hamline	
	Robuster	-
	South African Landrace	
	Windsnyer	
	Afrino	
	Bezuidenhout	C
	Blackhead Persian	
	Blinkhaar Ronderib Afrikaner	
	Border Leicester	D
	Corriedale	D
	Damara	
	Döhne Merino	
	Dormer	
	Dorper	
	Dorset Horn	C
	Finnish Landrace	C
	Hampshire	D
	Hottentot	X
	Ilse de France	
	Karakul	D
	Letelle Merino	
	Meatmaster	X
	Merino Landsheep	
	Multihorned Merino	D
	Namaqua Afrikaner	D
	Nguni	
	Pedi	
	Polled Dorset	X
	Ramboullet	X
	Romanoff	-
	Romany Marsh	
	Ronderib Africander	
	Ronderib Merino	-
	South African Merino	
	South African Mutton Merino	
	Southdown	C
	Steekhaar	C
	Suffolk	
	Van Rooy	
	Vandor	C
	Walrich Vleis Merino	X
	White Dorper	-
	White Woolled Mountain	X
	Wiltshire Horn	X
	Wooled Persian	X
	South African Naked Neck	DM
	Venda	
	South African Black Ostrich	-

SPAIN

	Ase Mallorquí	D
	Asno De Las Encartaciones	C
	Majorera	D
	Raza Asinina Catalana	DM
	Albera	D
	Almanzoreña	X
	Asturiana de valles	
	Asturiano Montana	
	Avilena	X
	Berrenda roja andaluza	DM
	Berrendo en Negro	D
	Betizu	C
	Blanca Cacereña	D
	Bruna dels Pirineus	
	Cachena	DM
	Calasparrena	X
	Caldelana	DM
	Campurriana	X
	Canaria	
	Cardena Andaluza	CM
	Doñana	D
	Eo	X
	Frieiresa	D
	Lebaniega	X
	Leonese	X
	Limiana	CM
	Lorquina	X
	Mallorquina	C
	Marinera	X
	Menorquina	DM
	Monchina	
	Murciana	CM
	Negra de las Campinas Andaluzas	DM
	Pajuna	DM
	Pallaresa	C
	Palmera	DM
	Pasiega	X
	Pirenaica	
	Retinta	
	Rubia Gallega	
	Santander	X
	Serrana negra	C
	Terreña	D
	Toro de Casta Navarra	-
	Toro de Lidia	
	Vianesa	DM
	Azpi Gorri	X
	Blanca Serrana Andaluza	
	Cabra Blanca de Rasquera	
	Cabra Mallorquina	
	Ibicenca	
	Majorera	
	Malaguena	
	Montejaquena	
	Murciana-Granadina	
	Negra Serrana	
	Palmera	
	Pitiüsa	D
	Retinta	

	Tinerfeña	
	Verata	
	Breto Cerda	
	Burguete	
	Caballo Gallego de Monte	
	Caballo Losino	CM
	Cavall Mallorquí	CM
	Cavall Menorquí	D
	Espanol-Andaluz	
	Jaca Navarra	D
	Pottoka	D
	Ibicenco	D
	Andaluza rubia (campieñesa)	X
	Asturian	X
	Baztanes	X
	Celta	CM
	Cerdo negro canario	CM
	Chato Vitoriano	X
	Chato-Murciano	C
	Gallega	X
	Ibérico (Dorado Gaditano)	C
	Ibérico (Mamellado)	D
	Ibérico (Negro Entrepelado)	D
	Ibérico (Negro Lampiño)	DM
	Iberico (Retinto)	
	Ibérico (Torbiscal)	DM
	Lermeña	X
	Mallorquina	X
	Manchada de Jabugo	CM
	Negra Iberica	
	Porc Negre Mallorquí	D
	Vich	X
	Canaria	
	Canaria De Pelo	D
	Cartera	
	Chamarita	
	Churra Lebrijana	D
	Churra Tensina	
	Colmenarena	
	Gallega	
	Guadalupe	X
	Ibicenca	D
	Infantado	X
	Latxa	-
	Maellana	
	Mallorquina	
	Menorquina	D
	Merina	DM
	Merina Negra	-
	Merino de Grazalema	
	Montesina	
	Negretti	X
	Pallaresa	
	Palmera	D
	Paular	X
	Perales	X
	Rasa Navarra	-
	Ripollesa	
	Roja Levantina	
	Roja Mallorquina	D
	Rubia de El Molar	





	Sasi Ardi	
	Segureña	
	Tudelana	X
	Vasca Carranzana	D
	Andaluza (Azul)	D
	Cara Blanca	-
	Castellana Negra	D
	Catalana Del Prat	D
	Empordanesa Blanca	C
	Empordanesa Roja	D
	Empordanesa Rossa	C
	Euskal Oiloa-Beltza	D
	Euskal Oiloa-Gorria	
	Euskal Oiloa-Lepasoila	
	Euskal Oiloa-Marraduna	
	Euskal Oiloa-Zillara	D
	Extremeña Azul	D
	Gallina Mallorquina	D
	Mos	DM
	Penedesenca Aperdizada	C
	Penedesenca Barrada	C
	Penedesenca Negra	D
	Penedesenca Trigueña	C
	Pitiüsa	
	Utrerana	D
	Annera Mallorquina	C
	Oca de l'Emporda	D
	Colillano	-
	Colom Borino	D
	Colom Casta Grossa	
	Colom de Pinta	D
	Colom Escampadissa	
	Colom Gavatxut	
	Colom Nas de Xot	
	Gaditano	-
	Jerezano	
	Morrillero gaditano	-
	Indiot Mallorqui	D
	Pavo Negro Extremeño	C

SRI LANKA

	Puttalam Buruwa	D
	Lanka	
	Mannar	
	Tamankaduwa	
	Hatton	D
	Kinniya	-
	Sahiwal	-
	Sinhala	
	Thamankaduwa	-
	Kottukachchiya	
	Sri Lankan	
	Sri Lankan Pony	C
	Sri Lanka Native	
	Jaffna	
	Lanka	




	Arabe Barbe	
	Barbe	D
	Hamdani	D
	Nefza Pony	-
	Sidi Tabet Cross	-
	Tadmit	
	Thibar	
	Tunisian Barbarin	
	Tunisian Milk Sheep	

THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA

	Buša	
	Macedonian Goat	
	Djumajliska	D
	Pramenka, Karakacanska	
	Pramenka, Ovce Polian	
	Pramenka, Sharplanian	

TURKEY

	Anatolian	-
	Anatolian	-
	Antakli, Beirut, Beyrouth	-
	Boz	-
	Cildir	-
	Çukurova	X
	Diyarbakir	X
	Dört Yol	X
	East Anatolian Red	
	Eleskirt	X
	Gole	-
	Güney Anadola Kirmizidi	
	Güney sarisi	
	Kalmuk	X
	Karacabey montafon	-
	Karacadag	X
	Karaisali	X
	Kultak	
	Kurdi	-
	Malakan	X
	Seferihisar	X
	Urla	X
	Yerli Kara	
	Zavot	
	Abaza	-
	Anatolian Black Goat	-
	Ankara	
	Bezoar	-
	Damascus	
	Hair Goat	
	Kilis	
	Kurdi	-
	Mingrelian	-
	Saanen Kegisi	-
	Anatolian	-
	Arab	
	Canik	-
	Çukurova	-
	Hinis	-

	Karacabey Halfbred Arab	-
	Karacabey-Nonius	X
	Kurdi	-
	Malakan	D
	Mytilene Pony	-
	Rumelian Pony	X
	Turkish Arab	-
	Uzunyayla	-
	Acipayam	
	Ak-Karaman	
	Anatolian Red	-
	Asaf	-
	Awassi	
	Central Anatolian Merino	
	Cine Capari	D
	Dagliç	
	Gökçeada	
	Güney Karaman	-
	Halkali	X
	Hemsin	-
	Herik	-
	Herki	-
	Kamakuyruk	-
	Kangal	-
	Karacabey Merino	
	Karacabey-Kivircik	X
	Karakaçan	X
	Karakas	-
	Karakul	
	Karayaka	
	Kivircik	
	Mor-Karaman	
	Ödemis	
	Ramliç	-
	Red Sheep	-
	Sakiz	
	Tahirova	-
	Tuj	-
	Türkgelo	-
	Denizli	
	Denizli Black	-
	Denizli Demirkiri	-
	Denizli Pamukkiri	-
	Denizli pekmez kefi	-
	Denizli sarabi	-
	Gebze	
	Turkish Goose	

TURKMENISTAN

	Kulan	D
	Maryiskaya	-
	Mesket- Dzhavakhetskaya	-
	Turkmenskaya	-
	Khorosanskii Zebu	-
	Sredneaziatskii Zebu	-
	Turkmen	-
	Turkmen Arvana	
	Mestnye Gruboshestnyye Kozy	
	Srednei Azii	D
	Sovetskaya Sherstnaya	

	Turkmen	-
	Adaevskaya	
	Akhal-Tekinskaya	
	Iomudskaya	
	Arkal	-
	Ashkhabadskaya	-
	Erek	X
	Iomud	X
	Saradzhinskaya	
	Shirazi	-
	Tekin	X
	Turkmenskaya kurduchnaya	X







TURKS & CAICOS ISLANDS

No Information

TUVALU




No Information









UGANDA










	Ankole	-
	Boran	-
	Karamajong	-
	Kigezi	-
	Lugware	-
	Nganda	
	Nkedi	-
	Nsagalla	-
	Kigezi	
	Mubende	
	Small East African	
	East African Blackheaded	
	Masai	
	Ugandese Chicken	
	Ugandese Duck	
	Ugandean Turkey	D

UKRAINE

	Carpathian Brown	
	Chernigov	-
	Chernopetraya podol'skaya	X
	Dnieper	-
	Hutsul	X
	Lebedin	
	Polish Red	
	Red Steppe	
	Russian Black Pied	
	Southern Ukrainian	-
	Ukrainian Grey	D
	Ukrainian Whiteheaded	D
	Ukrainian Whitebacked	X
	Volynsk	-
	Znamensk	-
	Askanian Mohair	X
	Krymskaya	X
	German Bessarabian	X
	Nogai	X

	Bavarian	-	Essex	X	Galway	C
	Camargue	-	Gloucestershire Old Spot	DM	Gotland	-
	Caspian	C	Hampshire	C	Greyface Dartmoor	
	Cleveland Bay	DM	Kune-Kune	-	Hampshire Down	
	Clydesdale	D	Large Black	DM	Hebridean	
	Connemara	D	Large White		Herdwick	
	Cushendale	X	Lincolnshire Curly Coat	X	Hill Radnor	
	Dales	D	Manx Purr	X	Icelandic Sheep	D
	Dales Pony	-	Middle White	DM	Ile-de-France	
	Dartmoor Pony	DM	Old English	X	Inra 401	-
	Devon Pack Horse	X	Oxford Sandy and Black	D	Jacob	
	Eriksay	C	Small Black	X	Keerie	X
	Exmoor Pony	DM	Small White	X	Kent Halfbred	X
	Falabella	-	Tamworth	D	Kerry Hill	
	Fell Pony	D	Welsh	D	Leicester Longwool	DM
	Fjord	-	Wessex Saddleback	X	Limestone	X
	Friesian	-	Yorks Blue and White	X	Lincoln Longwool	DM
	Galloway Pony	X	 Anglesey	X	Llanwenog	D
	Gocan	X	Anglo-Merino	X	Lleyn	-
	Goonhilly	X	Badger Faced Welsh Mountain		Lomond Half-Bred	
	Great Horse	X	Balwen		Longmynd	X
	Hackney	-	Bampton Nott	X	Lonk	
	Haflinger	D	Beltex		Manx Loghtan	
	Hanoverian	-	Berkshire Knot	X	Meatinc	-
	Hebridean Pony	X	Berrichon du Cher	-	Morfe Common	X
	Highland Pony		Beulah	-	Norfolk Horn	DM
	Icelandic	-	Black Welsh Mountain		North Country Cheviot	
	Irish Draught	D	Blackface (Scottish)	-	North Ronaldsay	
	Lipizzaner	C	Bleu du Maine		Oldenburg	-
	Long Mynd	X	Bluefaced Leicester		Oxford Down	
	Lundy	-	Border Leicester		Pembroke Hill	X
	Lusitano	C	Boreray	C	Pink-nosed Somerset	X
	Manx	X	Brecknock Hill Cheviot	-	Poll Dorset	-
	Morgan	C	British Charolais		Polwarth	-
	New Forest	-	British Friesland	D	Portland	DM
	Palomino		British Milkshoop		Prolific	X
	Percheron	-	British Texel		Rhiw Hill	X
	Russian	-	Cadzow Improver	X	Romney	
	Shetland		Cambridge		Rouge De L'ouest	
	Shire	D	Cannock Chase	X	Rough Fell	D
	Skewbald/Piebald	-	Castlemilk Moorit	DM	Roussin	-
	Spotted	-	Charmoise	D	Ryeland	
	Suffolk	CM	Charollais		Shetland	
	Tennessee	-	Cheviot		Shropshire	
	Tersk	-	Clun Forest		Soay	D
	Tiree	X	Cobb 101	X	South Devon	X
	Trakehner	-	Colbred	-	South Wales Mountain	-
	Vardy	X	Colbred	-	Southam Nott	X
	Wels	-	Contentin	-	Southdown	
	Yorkshire Coach Horse	X	Corriedale	-	Suffolk	
	American Hampshire	-	Cotswold	DM	Sussex	X
	Berkshire	DM	Dalesbred	-	Swaledale	-
	Black Essex	X	Dartmoor (Greyface)		Tanface	X
	Black Suffolk	X	Derbyshire Gritstone		Teeswater	D
	British Landrace		Devon & Cornwall Longwool		Torddu	-
	British Lop	DM	Devon Closewool		Vendeen	D
	British Saddleback	DM	Devon Longwoolled	X	Welsh Half-Bred	
	Chester White	X	Dorset Down		Welsh Hill Speckled Face	
	Cumberland	X	Dorset Horn/Poll		Welsh Mule	
	Dorset Gold Tip	X	Est à laine Mérino	D	Welsh Tanface	X
	Duroc	D	Exmoor Horn		Wensleydale	

	Whiteface Dartmoor									
	Whitefaced Woodland	DM								
	Wiltshire									
	Wiltshire Horn									
	Yorkshire Halfbreed	X								
	Zwartbles	D								
	Buff Orpington	D								
	Buff Sussex	D								
	Cornish Game (Large)	D								
	Croad Langshan	D								
	Derbyshire Redcap	D								
	Dorking	DM								
	Dorking Dark	DM								
	Dorking Red	DM								
	Dorking Silver-Grey	D								
	Gold Legbar	C								
	Indian Game	D								
	Ixworth	C								
	Langshan Black Croad	DM								
	Langshan White Croad	DM								
	Light Sussex									
	Marsh Daisy	C								
	Old English Pheasant Fowl	D								
	Scots Dumpy	DM								
	Scots Grey	D								
	Sebright Bantams	D								
	Speckled Sussex	D								
	Norfolk Black	C								
	Norfolk Bronze	D								
UNITED STATES OF AMERICA										
	Burro	-								
	Mammoth Jack Stock	D								
	Miniature	-								
	Spotted	-								
	Standard	-								
	Africangus	-								
	American Angus	-								
	American Beef Friesian	-								
	American Brahman	-								
	American Breed	-								
	American Brown Swiss	-								
	American Dutch Belted	D								
	American Milking Devon	D								
	American White Park	D								
	Ankole-Watussi	-								
	Barzona	-								
	Beefalo	-								
	Beefmaker	-								
	Beefmaster	-								
	Braford	-								
	Brangus	-								
	Char-Swiss	-								
	Charbray	-								
	Charford	-								
	Cuprem Hybrid	-								
	Devon	D								
	Dexter									
	Florida Cracker	D								
	Hash Cross	X								
	Hawaiian Wild					X				
	Holstein									
	Illawarra	-								
	Makaweli	-								
	Milking Shorthorn									
	Mulley	-								
	Polled Albion	X								
	Polled Charolais	-								
	Polled Hereford									
	Polled Jersey	-								
	Polled Shorthorn	-								
	Polled Simmental	-								
	Randall Blue Lineback	C								
	Ranger	-								
	Red And White Holstein	-								
	Red Angus									
	Red Brangus	-								
	Regus	-								
	Sabre	-								
	Santa Gertrudis									
	Simmalo	-								
	Texas Longhorn									
	Victoria	-								
	White Park	D								
	Yellow Dane	X								
	American Pygmy	-								
	Angora Goat	-								
	Kinder	C								
	Lamancha									
	Nigerian Dwarf	-								
	Oberhasli	-								
	Pygora	D								
	Rock Alpine	X								
	San Clemente	C								
	Santa Catalina	-								
	Spanish	-								
	Tennessee Fainting	D								
	Wooden Leg	-								
	Akhal-Teke	D								
	American Cream Draft	C								
	American Miniature									
	American Saddle Horse									
	American Shetland Pony	D								
	American Trotter									
	American Walking Pony	-								
	Appaloosa									
	Appaloosa Pony	-								
	Assateague Pony	-								
	Broomtail	-								
	Buckskin									
	Canadian									
	Caspian	D								
	Cayuse	-								
	Chickasaw	X								
	ChinCôteague Pony	-								
	Cleveland Bay	D								
	Clydesdale									
	Colorado Ranger									
	Conestoga	X								
	Cow Pony	-								
	Cracker	-								
	Exmoor									D
	French Coach									X
	German Coach									X
	Indian	-								-
	Kanata Pony	-								-
	Missouri Fox Trotting Horse									
	Morgan									
	Morocco Spotted	-								-
	Mustang	-								-
	Narragansett Pacer	X								
	Palomino									
	Paso Fino									
	Quarter Horse									
	Quarter Pony	-								-
	Rocky Mountain									
	Sable Island Pony	D								
	Spanish Barb	-								-
	Spanish Mustang									
	Suffolk	D								
	Tennessee Walking Horse									
	Welara Pony	-								-
	American Berkshire									
	American Essex	X								
	American Hampshire									
	American Landrace									
	American Yorkshire									
	Beadford	X								
	Beltsville No. 1	X								
	Beltsville No. 2	X								
	Big China	X								
	Brahma	-								-
	Byfield	X								
	Catalina	-								-
	Cheshire	X								
	Chester White									
	Choctaw	-								-
	Cuprem	-								-
	Curtis Victoria	X								
	Duroc									
	Gloucestershire Old Spots	C								
	Guinea Hog	D								
	Hanford Miniature	-								-
	Hereford	D								
	Irish Grazer	X								
	Jersey Red	X								
	Kentucky Red Berkshire	X								
	Large Black	C								
	Maryland No. 1	X								
	Miami	X								
	Minnesota Miniature	X								
	Minnesota No. 1	X								
	Minnesota No. 2	X								
	Minnesota No. 3	X								
	Minnesota No. 4	X								
	Montana No.	X								
	Mulefoot	C								
	O.I.C.	X								
	Ossabaw Island									
	Palouse	X								
	Pineywoods	-								-

	Pitman-Moore Miniature	X	Targhee			Perijanero	-
	Poland China	C	Thribble Cross	-		Tipo Carora	X
	Razor Back	-	Vermont Merino	X		Criollo	-
	Red Hamprace	X	Warhill	-		Llanero	-
	Red Wattle	D	Willamette	-		Venezuelan Black	-
	San Pierre	X	Wiltshire Horn	D		Criollo	-
	Sinclair Miniature	-				Roja Africana	-
	Spotted					Venezuelan Criollo	-
	Suffolk	X					
	Sussex	X		Ñata	X		
	Tamworth			Criollo			
	Victoria	X		Merilin			Trau Noi
	Vietnamese Pot Bellied	-		Uruguayan Criollo	D		Baria
	Vita Vet Lab Minipig	X					Bo Lai Sin
	Yucatan Miniature	-					Bo Vang
	Agnis	-					Burmese Gaur
	American Karakul	-		Senepol			Chau Doc
	American Merino	-		Virgin Island White			H'mong Cattle
	American Rambouillet						Kouprey
	American Tunis	D					Sahiwal
	Ancon	X					Thanh-Hoa
	Barbado						Tuy-Hoa
	Barbados Blackbelly			Kara-Kalpaks kaya	-		Huou Sao
	Bighorn	-		Meskhet-Dzhavakhetskaya	-		De Back Thao
	California Red	-		Uzbekskaya	-		De Co
	California Variegated Mutant	-		Bushuevskaya			Indo-Chinese
	Columbia			Fergana	X		Ngua Noi
	Columbia-Southdale	-		Kuramin	X		Tho Noi
	Coopworth	-		Sredneaziatskii Zebu	-		Ba Xuyen
	Corno			Turkmen Arvana			Boxu
	Cotswold	D		Chernye Pukhovye Kozy Uzbekistana			Co
	Dall's Sheep	-		Markhor			Dbi
	Debouillet	-		Mestnye Grubosherstnye Kozy			Lang Hong
	Delaine Merino	D		Srednei Azii	D		Lon I
	Gulf Coast Native	C		Sovetskaya Sherstnaya			Meo
	Hawaiian Black Buck	-		Uzbek	-		Mong Cai
	Hog Island	C		Adaevskaya			Muong Khuong
	Imperial	X		Karabairskaya			Thuoc Nhiu
	Katahdin	D		Akhangaranskaya Myaso-sherstnaya	-		Cuu Phan Rang
	Louisiana Native	-		Arabi	-		Ga Ac
	Minnesota 100	X		AstKarakul'			Ga Choi
	Minnesota 101	X		Dzhaidara			Ga Dong Tao
	Minnesota 102	X		Parkentskaya Myaso-Sherstnaya	-		Ga Ho
	Minnesota 104	X		Saradzinskaya			Ga Mia
	Minnesota 105	X		Shirazi	-		Ga Ri
	Minnesota 106	X		Uzbek Mutton-Wool	-		Ga Tau Vang
	Minnesota 107	X					Ga Tre
	Monta Khia	-					Vit Bau
	Montadale	C					Vit Co
	Morlam	-		Vanuatu			Ngong Co
	Multinipple	-		Vanuatu Duck			Ngan Noi
	Navajo-Churro	D					Coturnix Japonca
	No-Tail	-					Tay
	North Star Minnesota 103	X					
	Panama	-					
	Polled Rambouillet	-					
	Polypay						
	Romeldale	-		Cebu Venezuelano	-		
	Santa Cruz	C		Chusco			No Information
	Southdale	X		Criollo Lechero Limonero			
	St. Croix	D		Criollo Lechero Tropical	-		
				Llanero			
				Ocampo	X		



Indonesian boy tending a flock of geese

USE THIS PAGE IF

■ CONTRIBUTING/CORRECTING DATA

- You wish to give further information for updating the Global Databank for Farm Animal Genetic Resources.
- You do not agree with some data reported on particular breeds and wish to assist FAO with your knowledge.
- You have information on breeds which are not included in any of the lists in this publication.
- You are able to contribute good quality slides or prints showing breeds, preferably in their production environment, to FAO's Breed Image Databank.
- You are aware of any important publications not listed in section 1.12 that relate to the management of AnGR.

■ COUNTRIES NOT REPRESENTED

A number of countries have no information reported in this edition of the WWL-DAD. In these countries, individuals are needed to provide information. If you are knowledgeable about Domestic Animal Diversity in your country and wish to assist and are able to facilitate the completion of information on your country's AnGR, please provide this information (see Tables 1.7.1 and 1.7.2 and section 2.4.2).

■ YOU ARE INTERESTED IN FURTHER INFORMATION ON THE MANAGEMENT OF DOMESTIC ANIMAL DIVERSITY?

PLEASE COMPLETE THIS FORM AND SEND A PHOTO-COPY OF THIS PAGE TO:

- countries **with** a National Co-ordinator (see Annex 2.2) to your National Co-ordinator
- countries **with no** National Co-ordinator nominated yet, directly to:

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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PLEASE FILL IN YOUR COMPLETE ADDRESS:

Name :

Position :

Organization :

Street/P.O. Box :

City Code and City :

Country :

Telephone : Fax :

e-mail :

ANNEX 2.2 NATIONAL CO-ORDINATORS FOR ANIMAL GENETIC RESOURCES MANAGEMENT

The framework for FAO's Global Strategy for the Management of Farm Animal Genetic Resources (known hereafter as the Global Strategy) incorporates a country-based structure of National Focal Points; acknowledging the key role countries have in managing these resources. This role is also highlighted by the Convention on Biological Diversity, the intergovernmental treaty which clearly recognizes national sovereignty over countries' genetic resources. It is also accepted that the national communities and their representative governments have responsibility for the data describing their national resources.

Accordingly, FAO is proceeding to invite governments of countries within each region, on a sequential regional basis, to nominate a National Technical Focal Point and, within this institution, a Co-ordinator, to serve as the direct technical contact for FAO. These National Focal Points have the responsibility for implementing and maintaining an in-country network associated with the Global Strategy at the country level. Many of the Informal Contacts (see Annex 2.3) who have contributed over the years providing information on breeds, will undoubtedly form part of this in-country network which connects the country to the Global Strategy.

At this phase in the Global Strategy, identification of National Focal Points is still in the early stages, but already 81 countries from around the world have nominated Focal Points; and the National Co-ordinators concerned have actively taken on the additional responsibilities. All technical exchanges between FAO and these countries regarding the Global Strategy are now conducted through National Focal Points. For countries and regions where FAO has not yet invited governments to establish Focal Points direct contact with the Informal Contacts will continue.

To facilitate activities, all national parties dealing with technical matters concerning the management of animal genetic resources should endeavour to inform and involve these National Co-ordinators.

Please use DAD-IS (URL:<http://www.fao.org/dad-is/>) for the most up to date status of your National Focal Point.

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ANNEX 2.3

LIST OF INFORMAL CONTACTS INVOLVED IN THE BREEDS SURVEY

To introduce FAO's Global Strategy for the Management of Farm Animal Genetic Resources and to harmonize with the Convention on Biological Diversity, particularly its recognition of countries' sovereignty over genetic resources, FAO is establishing National Technical Focal Points, and Co-ordinators, to serve as the contact point for FAO on all matters associated with the Global Strategy. The National Co-ordinators established to date are listed in Annex 2.2.

In countries and regions where FAO has not yet invited governments to identify their National Focal Points, FAO will continue to work with the Informal Contacts, particularly for updating the global breed surveys. Undoubtedly, Informal Contacts listed in this Annex 2.3 will help the National Co-ordinators establish an effective network for better managing the animal genetic resources within their country.

The co-operation and dedication of each Informal Contact who has contributed information to the Global Databank is gratefully acknowledged. Without their willingness to complete the questionnaires and to answer the inevitable follow-up questions, the Global Databank for Farm Animal Genetic Resources and WWL-DAD:3 would not have been possible.

Following is a list of all 200 countries and 38 dependent territories, overseas departments, entities or areas represented in the Global Breed Survey. Countries are listed alphabetically within region. Overseas departments or dependent overseas territories are listed in the respective geographic region. Where available, contact names and addresses are given. No contact after countries, dependent territories, overseas departments, entities and areas name indicates that no data has been received from countries, dependent territories, overseas departments, entities and areas. For such entities contact with interested persons willing to provide data would be appreciated (see Annex 2.1).

Please use DAD-IS (URL:<http://www.fao.org/dad-is/>) for the most up to date status of your National Focal Point.

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Part

3

**WILD RELATIVES
OF DOMESTIC LIVESTOCK
&
SOME SUGGESTIONS
FOR NEW DOMESTICANTS**

Michael H. Woodford, Washington, D.C., United States of America



Big Horn Sheep, wild relatives of domestic sheep, persist in diverse environments; from deserts to mountain peaks.

Part 3 documents the wild species that are presumed to be the ancestors of present-day domestic livestock. Since some of the species are undergoing a process of domestication and are currently being bred in captivity, there is some overlap between Parts 2 and 3.

Part 3 details the geographical distribution of the wild relatives, their current status in the wild, threats to survival, and economic importance. Where appropriate, prospects for the use of their genetic attributes for the improvement of the productivity of their domestic counterparts are presented. The development of extensive ranching and intensive farming of some of these wild relatives is already underway. Some speculations are made for species that are not related to domestic animals but which are, or could be, in the process of being domesticated for the benefit of humankind.

Feral populations of domestic animals, i.e. domesticants that have returned to the wild, are covered in Part 4. Others that do not concern this list are fur-bearers, domestic dogs and cats and other species considered to be companion animals.

The information presented, especially that on status in the wild is variable in quality. This is understandable when one remembers that the status of many wild species is changing rapidly and in some cases estimates may not be very accurate if recent surveys have not been made. Only in the case of high profile, large or easily seen, and thus easily counted animals, can any degree of precision be expected. Trends, however, can be assessed reasonably accurately.

Past and present domestication achievements are discussed. The development of innovative husbandry techniques which may overcome the difficulties that have constrained the management, taming and breeding of non-social and territorial species are described.

Finally, suggestions are made for the utilisation of the genetic diversity contained in the wild relatives of domestic livestock. The need for co-operative action by rural and national communities is highlighted.

Note that wild relatives are categorized by the IUCN threatened species categories which differ from the FAO definitions of risk for domestic animals. See section 1.6 for definitions.

3.1 CATTLE, BISON AND BUFFALOES

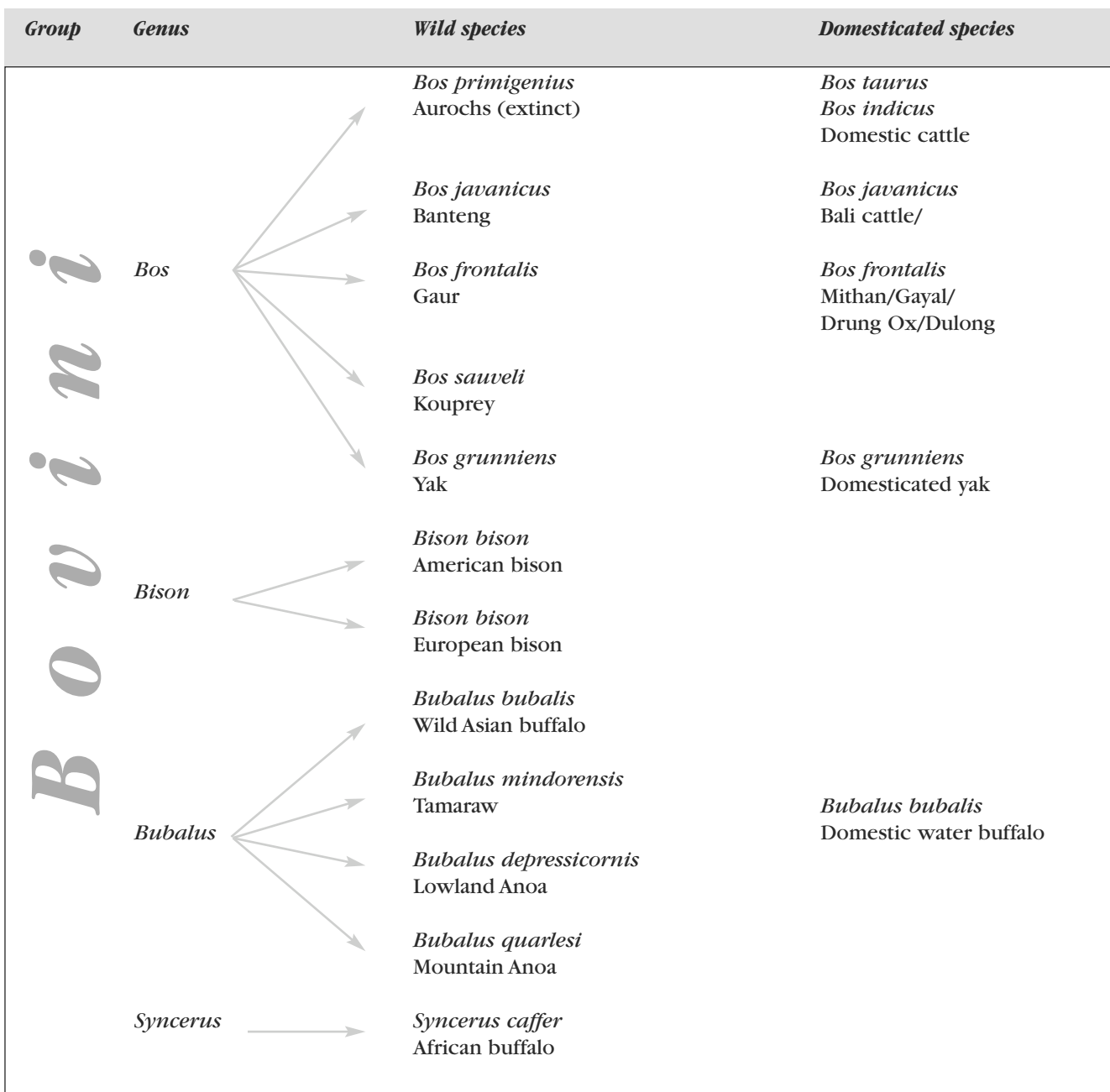
Order *Artiodactyla*/Family *Bovidae*

- | | |
|------------------------|----------------------------|
| 1 Kouprey | 6 Tamaraw |
| 2 Gaur | 7 Anoa |
| 3 Banteng | 8 European bison or Wisent |
| 4 Wild yak | 9 North American bison |
| 5 Wild Asiatic buffalo | 10 African buffalo |

Wild cattle are bovids belonging to the tribe *Bovinae*. There are 12 species in four genera. Domestic cattle are descended from a group of races of the now extinct Aurochs, *Bos primigenius*. The Aurochs, the last specimen of which died in a Polish park in 1627, was once common throughout Europe and had a range that extended through North Africa and the Middle East to Southeast Asia and China.

There are a number of theories to explain how such a diverse range of breeds of modern domestic cattle has been derived from various races of wild cattle. Inter-specific crossing may also have contributed to the development of some eastern breeds. Exceptions are the American and European bison, now regarded as conspecific, which belong to the genus *Bison*; the two anoas (which may also be conspecific) to the genus *Bubalus*; the wild Asian buffalo, *Bubalus*; and the African buffalo, *Syncerus*. These so-called genera are very closely related and while some of them can inter-breed, producing fertile offspring, others produce sterile male hybrids. The true cattle of the genus *Bos* are most closely related to the Asian gaur and banteng from which they appear to have become separated during the Upper Pliocene (Zeuner, 1963).

FIGURE 3.1.1: WILD AND DOMESTICATED SPECIES WITHIN THE GROUP BOVINI (FAMILY BOVIDAE, SUBFAMILY BOVINAЕ) AFTER PAYNE, 1991.



There are two major types of domestic cattle; zebu (*Bos indicus*) which have a marked thoracic hump and taurine (*Bos taurus*) which do not. Although the two types are designated as separate species, due to their complete interfertility they are generally considered to be subspecies. There is molecular evidence to suggest that there were two separate domestication events, the two cattle types arising from different subspecies of the Aurochs (Loftus *et al.*, 1994). Molecular studies suggest that European and African breeds of domestic cattle have one mitochondrial lineage type (taurine), while Indian breeds have another (zebu). Molecular analysis of the bovine Y chromosome suggests a major zebu influence in African humped cattle populations. This indicates a predominantly male-mediated introgression of zebu blood into African cattle populations, presumably facilitated by introducing zebu bulls to taurine herds.

The *Bovinae* tribe achieved great diversity in the Pliocene (about five to three million years ago) when it inhabited the warm plains of Eurasia. Some forms, such as the yak and the bison, evolved to become cold-resistant and are adapted to live at high altitudes. Only the bison, *Bison bison*, managed to migrate from Eurasia into North America across the Bering Strait and to extend its range as far south as El Salvador.

See: Hedges (1999).

1 KOUFREY

Bos sauveli

ENDANGERED

The kouprey, also known as the forest ox or the grey ox of Indochina, is the most primitive of living cattle. Its features are typical of some forms that existed during the Pleistocene era. Discovered by western scientists only in 1937, the kouprey was one of the last large mammals to be scientifically described. It is closely allied to *Bos primigenius namadicus*, the wild ancestor of zebu cattle. In 1964, the kouprey was declared Cambodia's national animal but is now perilously close to extinction.

The kouprey is a large animal. Bulls stand 1.5 to 2 m at the shoulder and may weigh up to 900 kg. Cows are somewhat smaller. The shoulder hump is smaller than that of the gaur but larger than that of the banteng. The body appears more slender and longer-legged than both the gaur and the banteng. A marked and unique feature is the pendulous dewlap that hangs from the throat to the lower sternum. Old bulls are black with white stockings. Cows and juveniles are mouse-grey or light brown, also with white stockings. The horns of the bull kouprey are long and spread wide, the tips often frayed like a brush. The cows' horns are slender and lyre-shaped. When kouprey move they are less ponderous than other wild cattle, more reminiscent of a large antelope. The kouprey is a denizen of the forest edge and is primarily a browser, although it will graze in forest glades when the monsoon stimulates a fresh growth of grass following the fires of the dry season.

DISTRIBUTION AND CURRENT STATUS

The kouprey is now found only in northern and eastern Cambodia and may possibly be found in southern Laos, eastern Thailand and western Vietnam. In Cambodia the most optimistic estimate suggests that less than 200 animals remain. In Vietnam it is estimated that only about 27 kouprey occur in the wild, while in Laos very few, if any, survive. The most recent kouprey sightings have been in eastern Cambodia, along the western border of Vietnam. An aerial survey covering 6 500 sq. km in eastern Cambodia and a smaller area in north central Cambodia, carried out in March 1994, failed to detect the presence of any kouprey. However, reports of recent sightings by local hunters (if true) would suggest that the animal still persists in Cambodia's forests, albeit in greatly reduced numbers (Olivier and Woodford, 1994). The world population is unknown, but is thought to be between 100 and 300 (MacKinnon and Stuart, 1989).

THREATS TO SURVIVAL

The main causes for the continuing decline in numbers of the kouprey are said to include a low reproductive rate, uncontrolled hunting and a demand for its lyre-shaped horns as trophies. Another major cause of the kouprey's decline has been the succession of wars within its range that included the widespread laying of land-mines by warring factions.

CAPTIVE BREEDING

There are no koupreys in captivity at present (1999). The gestation period of the kouprey is thought to be about 250 days.

DOMESTICATION AND ECONOMIC IMPORTANCE

Although it is generally believed that the kouprey has never been domesticated, domestication may in fact have occurred during the period of the Khmer culture, 400 to 800 years ago (Wharton, 1957). Furthermore, National Research Council (1983a) reports that in both Vietnam and Laos there are cattle breeds that resemble the kouprey and that a kouprey bull, reported to be a domestic animal of the Stieng tribe, was exhibited in the Paris Menagerie in the mid-nineteenth century. National Research Council speculates that there may be domestic kouprey in parts of Indo-China today. It is alleged that the species may be resistant to Rinderpest, but there is no direct evidence of this. The animals' well-developed and extensive dewlap may indicate enhanced heat tolerance, this characteristic being potentially valuable for domestic cattle in the moist tropics.

REMARKS

In January 1988 an international workshop chaired by Professor Vo Quy, Dean of Biology, was held at the University of Hanoi. This workshop was attended by scientists and resource managers from Vietnam, Cambodia,

Laos, Thailand, Malaysia, Sri Lanka, the United States of America and the United Kingdom. Members of the zoological community from the United States of America and officers from the International Union for the Conservation of Nature (IUCN) and the World Wide Fund for Nature (WWF) also attended.

The workshop drew up and published later that year, an Action Plan for the conservation of the kouprey. The delegates agreed that the conservation of the kouprey is a matter of great urgency and is one of the region's highest conservation priorities. All parties agreed that the primary responsibility for saving this species rests with the people and authorities in each country where it may occur. The search for the kouprey in the wild continues and an expedition was made to search an area in southern Laos in May 1992 but no sign of the animal was found. Eastern Cambodia, along the western border of Vietnam, now seems to be the most likely place to find the last population of kouprey, but the aerial survey carried out in March 1994 (reported above) was unsuccessful.

Until individuals of this species are actually located few effective conservation measures can be carried out. Investigations to locate relict kouprey populations in eastern Cambodia have been recommended (Olivier and Woodford, 1994) and if these are successful, attempts may be made to capture some animals for the establishment of a captive-breeding programme. The feasibility of the declaration of a protected area for the kouprey in Cambodia is also to be explored once the political situation is stabilised.

The generic name *Novibos* is sometimes used instead of *Bos* for the kouprey (Coolidge, 1940).

2 GAUR

Bos frontalis

VULNERABLE



Photo 3.1: Gaur (India): Wild progenitor of semi-domestic mithan, gayal or drung ox.

The gaur is believed to be the wild progenitor of the semi-domestic mithan (gayal, drung ox or dulong), *Bos frontalis*, a ceremonial ox of the hill tribes of Assam,

Bhutan, Bangladesh and Myanmar. The gaur is the largest and most powerful of the surviving wild bovids. Two subspecies are recognised, *B.f. gaurus*, which occurs in India and Nepal, and *B.f. laosiensis* found in Myanmar, Thailand, Laos, Vietnam and peninsular Malaysia. Average-sized gaur bulls stand 1.75 m to 1.98 m at the shoulder and there is one record of a gaur bull shot in Myanmar which stood 2.1 m at the shoulder (Pollok and Thom, 1900). Gaur cows are somewhat smaller. Bulls weigh 600 - 940 kg and cows weigh about 150 kg less. Adult bulls are black with white stockings while cows and young bulls are dark brown with similar stockings. Gaurs produce an oily skin secretion that has a characteristic odour and allegedly acts as an insect repellent (Simoons and Simoons, 1968). The gaur is considered to be both a grazer and a browser (Schaller, 1967).

DISTRIBUTION AND CURRENT STATUS

The gaur ranges eastwards from India to Myanmar and southern China and south-east to Thailand, Laos, Vietnam and peninsular Malaysia, where it is sometimes called the Seladang. A shy, forest animal, it still numbers some thousands but is becoming less numerous throughout its range largely due to increasing habitat loss. Reasonable sized populations occur in many national parks and protected areas. Outside these it tends to survive only in isolated and fragmented populations. The species is reported to have at one time been present in Sri Lanka but to have become extinct there some 300 years ago.

THREATS TO SURVIVAL

There are three main causes for the decline in numbers: habitat destruction, indiscriminate hunting and diseases such as Rinderpest, Foot-and-Mouth disease, malignant catarrhal fever transmitted by domestic stock and anthrax which is enzootic in many parts of Asia. Gaurs are extremely sensitive to disturbance and will not survive in country continually disturbed by man. In India, Rinderpest severely affected herds in the Mudumalai and Bandipur Sanctuaries in August 1968 when between 300 and 500 animals are said to have died (Krishnan, 1972).

In Thailand, during the Second World War, gaurs were also greatly affected by disease, transmitted to them by domestic buffalo that grazed in the forests. In Myanmar, anthrax was said to be a major cause of their disappearance from many areas in the north and centre and surveys in the early 1980s found that poaching and agricultural encroachment were also widespread and presented a threat to the gaur population (Salter, 1983).

CAPTIVE BREEDING

The global captive population of gaur is 175 in 24 institutions (ISIS, 1993). In 1980 the New York Zoological Society successfully bred a gaur from an embryo transfer experiment in which a gaur embryo was surgically implanted in a domestic Holstein cow (Stover *et al.*, 1981). A successful non-surgical embryo transfer between

these two species was also made in 1987 by Pope *et al.* (1988) at Cincinnati Zoo. The cryopreservation of gaur semen has been described by Gross (1991). The gestation period of the gaur is 270 days and its chromosome number is $n = 58$.

DOMESTICATION AND ECONOMIC IMPORTANCE

The gaur has not been domesticated, but a semi-domesticated hybrid form, the mithan or mithun (*Bos frontalis*), is thought to have been derived from it (National Research Council, 1983a; Simoons and Simoons, 1968). The name gayal is sometimes used as a synonym for the mithan. Although the mithan is a semi-domestic animal, it has a curious role among hill peoples of Southeast Asia, according to Simoons and Simoons (1968):

“It is a free-ranging animal, used for sacrifice on festive occasions, intimately involved in ritual and religious belief and in the prestige structure; figuring in the exchange system and used in payment of political, legal and social obligations yet having a minimal role in the realms of traction and dairying, for which common cattle are so valued among Hindu Indians.”

The mithan is widely distributed in the hill country of northern Myanmar, Arunachal Pradesh, Manipur, Nagaland and Bhutan. It may also occur in northern Yunnan where it is called the drung ox or dulong (Tan, 1983). The mithan is a woodland animal and is usually found at elevations of 600 - 2 500 m asl. However, in the Chittagong Hill Tracts it descends to 300 m and in Bhutan it is maintained as high as 3 500 m asl. At lower elevations, the mithan overlaps with domestic cattle and at higher elevations, in the Himalayas, it overlaps with the yak. In general, the mithan prefers a shady, humid environment at about 1 000 - 2 000 m asl.

The mithan is a browser and prefers the forage provided by secondary forest, which springs up in the abandoned fields of shifting cultivators. In this respect, it follows closely the habits of its gaur progenitor and does not require forests to be cleared to provide pasture as is needed for domestic cattle. The mithan is smaller than the gaur, similar in colour, but the horn shape is strikingly different, being more cow-like.

In India there are some 90 000 head of mithan in the jungles of Arunachal Pradesh and in the Chin Hills of Myanmar there are some 34 000. In Bhutan there are 60 000 head of mithan-cattle hybrids. The Naga Hill Tribes encourage interbreeding with gaur and mithan (always gaur bulls on mithan cows) regarding it as an improvement on the breed. Arunachal Pradesh tribal people cross-breed the mithan with domestic cattle. The male F_1 progeny obtained by crossing male mithan with female cattle are called Jatsa and are used for ploughing. These hybrids are very strong and docile. The females are called Jatsamin and yield more milk than pure mithan cows. In the F_2 generation animals (male mithan \times F_1 female), the males (called Nupsa) are used for ploughing and the females,



Photo 3.2: Mithan or gayal (India, Myanmar, and Bhutan). Semi-domesticated gaur, frequently crossed with zebu cattle and yaks to produce hybrids for milk and traction.

Nupsamin, are reared for the increased milk production. Crosses between mithan and zebu are also encouraged in certain districts and the hybrid females are fertile while the males are sterile. This hybrid fertility/sterility pattern prevails in all mithan/domestic cattle, mithan/yak crosses and in all gaur/domestic cattle crosses. It is unclear whether both sexes of the gaur/mithan crosses are inter-fertile. In the eastern Himalayas mithan are crossed with yaks and with dzo (the product of a yak/cattle cross). Such crosses evince the usual hybrid fertility/sterility pattern and are used for traction and milk production.

REMARKS

The Bhutan Government has established two mithan herds by purchasing animals from Arunachal Pradesh and is breeding them on government farms for distribution to private farmers (National Research Council, 1983a). The Indian Council of Agricultural Research (ICAR) has recently instituted the National Research Centre for Mithan in Arunachal Pradesh. For a full description of the gaur see Gee (1964), Hubback (1937) and Tun Yin (1967), and of the mithan, Simoons and Simoons (1968).

3 BANTENG

Bos javanicus

VULNERABLE

The banteng is a Southeast Asian bovine and is the wild relative of domestic Bali cattle. Wild banteng are the most elegant of wild cattle. The bulls are dark brown or black, while in Myanmar and Indo-China the bulls are a golden reddish-brown like the cows. The cows are a foxy red. Both sexes have white stockings and a large white rump. Wild banteng are larger than their domestic cousins. Bulls stand 1.6 - 1.9 m at the shoulder and weigh 635 - 825 kg. Cows average 1.4 m in height and weigh about 400 kg. The Bornean race is a little smaller.

DISTRIBUTION AND CURRENT STATUS

Wild banteng occur in small, increasingly fragmented populations in Myanmar, Laos, Thailand, Cambodia, Vietnam and Sabah Indonesia. Three subspecies are recognised: *B.j. birmanicus* on the Asian mainland, *B.j. lowi* in Borneo and *B.j. javanicus* in Java and Bali. The mainland race numbers a few thousand and is declining. The Bornean race in Sabah totals about 300 – 550. Some 700 – 1 000 occur in Java and 30 – 40 in Bali.

THREATS TO SURVIVAL

Loss of habitat to an ever-increasing human population, uncontrolled hunting pressure for meat and trophies, military operations in much of the range and hybridisation with domestic cattle are all serious threats. Diseases such as Rinderpest and intestinal parasites present a threat, especially where contact with domestic cattle is frequent. Malignant catarrhal fever, blackleg (*Clostridium chauveii*) and mucosal disease have also been reported as seriously affecting banteng, especially those kept in zoos.

CAPTIVE BREEDING

The global captive population of banteng is 245 in 23 institutions (ISIS, 1993). The gestation period of the banteng is 280 days.

DOMESTICATION AND ECONOMIC IMPORTANCE

The wild banteng shows great promise for improving the domesticated banteng and for crossing with cattle. Sir Stamford Raffles, founder of Singapore, noted 170 years ago that in Java the degenerate domestic cows were sometimes driven into the forest to couple with the wild banteng for the sake of improving the breed. Domestic banteng, known as Bali cattle, are found in parts of Southeast Asia, principally Indonesia.

They are particularly important on the islands of Bali, Kalimantan, Lombok, Sulawesi, Sumbawa and Timor. Small numbers of domestic banteng have also been introduced to Sumatra, Malaysia, Papua New Guinea and northern Australia and there are experimental herds in Texas and Hawaii, United States of America. The domestic banteng differs little from the wild banteng, although it is smaller in size. Banteng and domestic cattle have the same number of chromosomes and will cross-breed. However, while the female hybrids are fertile, most of the hybrid males are sterile. Banteng/domestic cattle crosses are very food-efficient, able to maintain body condition on poor forage, are heat-tolerant and fatten readily with high carcass quality. They are intelligent and easily trained to the plough. However, they tend to be nervous and difficult to manage under extensive conditions and are poor milk producers. A particularly successful cross is that between banteng and zebu to produce the Madura. This breed, native to the Indonesian island of Madura, where there are some 575 000, probably came into being about 1 500 years ago when Indian invaders brought zebus of

the Sinhala type to Madura. Surprisingly, though originally hybrid in origin, both sexes of the Madura cattle are fully fertile. The Madura is the swiftest of all bovines and is able to run as fast as a horse. Race meetings are a regular feature on the island.

However, the domestic banteng (Bali cattle) have some serious limitations. They need close contact with humans or within three or four months they may revert to the wild state. Cows and calves are very timid. They panic easily and, when frightened, may run into fences causing themselves severe injuries.

Bali cattle are poor mothers, often failing to protect their calves against predators and allowing other calves in the herd to suck their milk to the extent that their own calves starve.

In Indonesia, malignant catarrhal fever and jembrana disease (tick-borne rickettsiosis), to which Bali cattle are particularly susceptible, have caused severe losses (Sweetman, 1984). Bali cattle appear to be the only animals to be affected by Bali ziekte, a disease that produces a dry eczema followed by extensive necrosis of the skin and exposed mucous membranes. Research is badly needed on the prevention and control of both this disease and jembrana.

REMARKS

The name *Bos sondiacus* has also been used in the past for the banteng. For a description of the banteng see Lekagul *et al.* (1977), National Research Council (1983a) and Medway (1978).

4 WILD YAK

Bos grunniens

ENDANGERED

The wild yak is classified as *Bos grunniens* (it is also called the grunting ox or horse-tailed buffalo), as is the domestic yak. The wild yak thrives on the scanty herbage found at an elevation of 4 000 – 5 000 m where the mean annual temperature is near 0°C and where the winter temperature may fall as low as -50°C.

Wild yaks are much larger than their domestic counterparts. Mature bulls may stand up to 1.5 m at the shoulder and may weigh over 500 kg. Sexual dimorphism is marked, the female being much smaller than the male. The wild yak has very large horns, up to 90 cm long, which are often made into containers for milk by the nomadic herdsmen. All wild yaks are dark brown to nearly black with a silver grey dorsal line and a grey edge to the muzzle. The animals are fierce and wary. At high altitudes where horses quickly become short of breath, yaks can easily outrun them (Epstein, 1974).

DISTRIBUTION AND CURRENT STATUS

The species inhabits remote areas of the Tibetan Plateau and adjacent highlands in China. It may still occur in the more remote areas of Kashmir and possibly in Bhutan. No population size estimates exist and the species is probably reduced to the low hundreds. Sightings made by Academia Sinica in China in 1973 - 76 total approximately 800 animals but recent reports from Tibet suggest that wildlife in that country has drastically declined and that the wild yak has been decimated. Miller *et al.* (1994) estimated that the wild yak population of all ages and both sexes may still have numbered around 15 000 in the early 1990s but this may be an over-estimate. Wild yak are protected by the Chinese wildlife protection legislation but according to Miller *et al.* (1994) the departments concerned have inadequate resources for enforcement.



Photo 3.3: Yak (Tibet). Wild yaks breed freely with domestic yaks on the Tibetan plateau.

THREATS TO SURVIVAL

Yak populations have suffered a marked reduction as a result of uncontrolled hunting, partly for food. The herds that remain have become scattered and isolated in the remotest parts of their former range, due to the encroachment of roads and increasing competition for grazing land from domestic livestock.

CAPTIVE BREEDING

Domestic yaks are kept in small numbers in zoological gardens in many countries of Europe and elsewhere, where they are reported to survive and breed successfully. However, there are no wild yaks in captivity anywhere in the world.

The chromosome number for the wild and domestic yak is $2n = 60$. This is the same number as for *Bos taurus* and *B. indicus*, both of which interbreed freely with wild and domestic yaks. The female hybrids are fertile and the males are sterile. Yaks will also interbreed with bison (*Bison bison*) again producing fertile female hybrids and sterile males.

The gestation period for the yak is 258 days.

DOMESTICATION AND ECONOMIC IMPORTANCE

It is generally considered that wild yaks were first domesticated in Tibet or on the northern slopes of the Himalayas about 2 500 BC. It is likely that there has been a close interaction between man and the yak ever since the first human migrations into the high mountains of Asia. The domesticated yak differs little in appearance from the wild animal except that it is smaller, has shorter and thinner horns and may be variable in colour (Clutton-Brock, 1981). National Research Council (1983a) suggests that there are more than one million domestic yaks in the world, but Li and Wiener (1995) estimate that there are around 14 million domestic yaks in the world. Of these, 13 million are in Chinese territories, 0.5 million in Mongolia and the rest in other countries, notably those bordering the Himalayas and the countries of the Commonwealth of Independent States (CIS).

On the high plateau of Tibet during the breeding season, from July to September, wild yaks are said to be seen mixing with herds of domestic yaks in order to mate. Cross-breeding between the two species produces a hybrid with normal fertility (Zhang Rong-Chang, 1985), and there is some interest in the use of the larger wild yak to improve the productive performance of the domestic type. Zhao and Zhang (1994) noted that, historically, herdsmen in the Gannan region of Gansu drove their female yaks into the region where wild yaks were to be found so as to encourage mating with the wild yak bulls. The crossbred progeny would later be selected to improve the domestic yak population. Based on this experience more systematic studies are now in progress using frozen semen from wild yak bulls.

Domestic yaks are excellent pack and riding animals and can carry up to 150 kg. At high altitudes, of up to 6 000 m, a yak can carry a pack or a man at a steady pace for days at a time and remain in good condition. In some regions the yak is the only pack animal available whilst in others it is also milked and occasionally slaughtered for meat. The milk has a very high fat content and in some areas yak butter is used in great quantities as a food and as a lighting fuel. The long silky hair is also used for textiles. Yaks are the only bovines able to thrive at such high altitudes. In cold high areas they can work and produce milk and meat more efficiently and more cheaply than cattle. In lower regions they sometimes interbreed with cattle. The sires are usually domestic cattle bulls and the dams yaks. The hybrid, the females of which are fertile and the males sterile, are called dzo. The dzo are preferred for ploughing in Tibet because the pure domestic yak is said to be too stubborn (Epstein, 1977). The Government of India has set up national research centres to investigate important wild species, including the yak (Bhat, 1981). This research should investigate the role that the wild yak may play in future yak husbandry.

REMARKS

Wild and domestic yak are both classified as *Bos grunniens*, although they were previously classified as either *Bos mutus* (wild yak) and *Bos grunniens* (domestic yak) or *Poepbagus mutus* and *Poepbagus grunniens*. For a full description of the wild yak see Allen (1940), National Research Council (1983a) and Li and Wiener (1995).

5 WILD ASIAN BUFFALO

Bubalus bubalis

ENDANGERED

The wild Asian buffalo is the ancestor of the domestic water buffalo. The domestic water buffalo now numbers at least 130 million, one-ninth of the total number of cattle in the world and upon which more human beings depend than any other domestic animal.

DISTRIBUTION AND CURRENT STATUS

The wild Asian buffalo is highly endangered and will become extinct in the near future unless effective conservation action is taken immediately. Wild Asian buffalo are now only found in a very small part of their former range. The total world population of wild Asian buffalo is now almost certainly less than 4 000 animals and may well be less than 200 animals. Indeed, it is possible that no pure-bred wild Asian buffalo remain. Small isolated populations are thought to remain in the Bastar and Raipur Districts of Madhya Pradesh and Manas WS/Project Tiger Reserve (India), Kosi Tappu WR (Nepal), Royal Manas NP (Bhutan), and Huai Kha Khaeng WS (Thailand). These are the populations believed to have been least affected by interbreeding with domestic and/or feral buffalo.

The marked differences in the estimates for the extant population of wild Asian buffalo reflect the difficulty of distinguishing between pure-bred wild buffalo, feral buffalo, domestic buffalo and hybrids between them.

Translocated or feral buffalo of domestic origin also occur in Australia, Brazil, India, Indonesia, Laos, Thailand, Vietnam, the Philippines, Timor, Italy and Sri Lanka.

THREATS TO SURVIVAL

The chief reasons for the decline of the wild Asian buffalo have been the loss of suitable habitat and excessive hunting. These remain serious threats today. The preferred habitat of the buffalo is easily traversed by vehicles and/or trained elephants and this has facilitated hunting. The coastal and riverine plains, which once supported large wild herds, have largely been claimed by farmers for agricultural purposes and livestock production. Competition with domestic livestock and especially the loss of genetic integrity as a result of interbreeding with domestic and feral buffalo are also very serious threats.

In addition, the wild Asian buffalo is highly susceptible to

a number of domestic livestock diseases, particularly Rinderpest (now believed to have been eliminated from the Indian subcontinent). In the past, Rinderpest was believed to have been responsible for the near extinction of Asian buffalo in Madhya Pradesh during the 1920s, and for the precipitous decline of the species in Sri Lanka at the end of the nineteenth century (Stockley, 1928; Phillips, 1935; Daniel and Grubh, 1966). The spread of infectious diseases from domestic and feral livestock to wild Asian buffalo is considered to be a constant threat.

Development projects, particularly hydroelectric and irrigation schemes, have contributed to the decline of the species and remain a threat in Nepal and in parts of India (Thornback, 1983; Heinen, 1993a).

Trade in wildlife parts is probably a minor threat to the wild Asian buffalo but there have recently been reports of wild buffalo horns being offered for sale in Southeast Asia.

CAPTIVE BREEDING

To date, captive breeding has made no contribution to the conservation of the wild Asian buffalo because of the uncertain genetic status of the captive animals. It has been suggested that some or all of the captive animals may be hybrids (Read *et al.*, 1994).

In 1983 a team of researchers at the University of Florida succeeded in transferring embryos from Asian buffalo into a recipient of the same species and a male calf was produced after a 10.5 month gestation period (Drost *et al.*, 1983; Dresser, 1985; Sidhu and Guraya, 1985). It has been suggested that embryo transfer and similar manipulative techniques could play a valuable role in the management of captive endangered wild animals including the wild Asian buffalo.

There are no true wild Asian buffalo in zoological gardens. The wild Asian buffalo does not voluntarily interbreed with domestic cattle to which they are less closely related than are the yak, gaur, banteng and bison. The chromosome number for the wild Asian buffalo is $2n = 48$, for the domestic swamp buffalo, $2n = 48$, and the domestic river buffalo, $2n = 50$. The gestation period of the wild Asiatic buffalo is 300 - 340 days. Domestic cattle of genus *Bos* have $2n = 60$ chromosomes, but although copulation between these domestic cattle and buffalo of all types is common, hybrids from this union are unknown. In contrast, crossbreeding between the wild Asian buffalo and the two domestic types produces fertile hybrids.

DOMESTICATION AND ECONOMIC IMPORTANCE

Two types of domestic buffalo are recognised: the swamp buffalo and the river buffalo. The swamp buffalo is found in the eastern half of Asia from the Philippines westwards to India. They wallow in any water or mud they can find. They are exploited primarily as a work animal, but they are also used for meat. They are almost never used for milk production.

River buffalo occur in the western half of Asia, from India to Egypt and Europe. They prefer to wallow in clean water. They are of the dairy type and produce much more milk than the swamp buffalo. The milk is used in Italy to produce a special, highly sought-after quality cheese called Mozzarella.

Buffalo are or have been used as currency and for wife purchase, hunted for sport, regarded as sacred animals, sacrificed to placate spirits and deities and ritually slaughtered at weddings, funerals and cremations. Buffalo horns, skulls, blood and milk are thought to have religious significance or magical powers in some countries. Belief in the aphrodisiac properties of buffalo meat and milk is also widespread. Buffalo races and fights are still staged in many areas. They have also been employed as mounts for cavalry and used to pull both chariots and heavy ordnance (Kremer 1956; Cockrill, 1968a and FAO, 1974).

There is increasing interest in the potential for the development of the domestic water buffalo especially since the promises offered by mechanisation in many developing countries appear increasingly unattainable. The importance of conserving the wild genetic stock is recognized as it may well offer added diversity (Choudhury, 1994).

REMARKS

For a description of this animal see Daniel and Grubh (1966), Prater (1965) and FAO (1974). For a full account of the wild Asian buffalo see Hedges (1999).

6 TAMARAW

Bubalus mindorensis

ENDANGERED

Tamaraws resemble miniature water buffalo of the Southeast Asian swamp type. They are however, more solidly built, darker in colour and have a thicker coat. They evolved as an independent island form and in common with many island-dwelling species they are of small size. Tamaraws are about one metre in height at the shoulder and weigh up to 300 kg.

DISTRIBUTION AND CURRENT STATUS

Endemic on the Philippine island of Mindoro, the tamaraw is now probably restricted to three small areas: Mount Iglet/Mount Baco, Mount Calavite and Sablayan in Occidental Mindoro (Cox and Woodford, 1990). There is no accurate estimate available of the present population size of the wild tamaraw. However, in 1987, an estimate quoted by Petocz (1989) indicated a figure of 356.

THREATS TO SURVIVAL

Hunting for meat has been the main cause of the decline of the tamaraw. Increasing human numbers, timber operations, farming and cattle ranching have all combined to restrict the animal's habitat and to reduce its numbers.



Photo 3.4: Tamaraw (Mindoro, Philippines). In common with other island-dwelling species, the tamaraw has evolved to be small.

The ranching of cattle in and around the national parks of Mindoro is probably one of the major threats to the recovery of the tamaraw.

CAPTIVE BREEDING

There is a small captive population of about 16 tamaraws maintained in a fenced enclosure of 2.8 km² inside the southern border of Mount Iglet/Baco National Park on Mindoro. This enclosure is covered with thick secondary forest and the exact number of tamaraws, all of which have been captured outside the enclosure and translocated into it, is difficult to estimate. However, the animals are breeding and calves have been seen. Two more animals, one male and one female, are held in a smaller fenced enclosure of 0.75 ha inside the main fenced area. These two tamaraws are tame and have recently had a calf. There are no tamaraws in captivity anywhere else in the world. The gestation period of the tamaraw is 276 - 315 days (Grzimek, 1990).

DOMESTICATION AND ECONOMIC IMPORTANCE

The tamaraw has never been domesticated. However, it is considered to have food and agriculture potential, since both its hide and meat are held in high regard by the local people on Mindoro. It appears that its habitat requirements are flexible; it is very hardy and can exist on poor quality forage. Although its genetic relationship with the water buffalo is unclear, it is certainly close and the tamaraw may thus be a reservoir of genetic material which could be used to improve the quality of the domestic water buffalo resource. A proposal has been made that some of the captive tamaraws on Mindoro should be transferred to the University of the Philippines at Los Banos on Luzon where they could be studied in depth (Cox and Woodford, 1990), but the Mindorese are unwilling to permit this to occur at present.

REMARKS

The tamaraw is frequently considered to be related to the two anoas of Sulawesi, all three often being placed in the genus *Bubalus*, subgenus *Anoa*. Groves (1969) conclud-

ed that the tamaraw is more closely related to the Asian buffalo, *Bubalus bubalis*, and that it should be named *Bubalus mindorensis* in the subgenus *Bubalus*. For a description of the tamaraw see Alvarez (1970); Lydekker (1898) and National Research Council (1983a).

7 ANOAS

Mountain Anoa

Bubalus quarlesi

Lowland Anoa

Bubalus depressicornis
ENDANGERED

The two anoas are small bovines that are related to the water buffalo but are scarcely bigger than goats. They are thus the smallest of the wild cattle species. There is some controversy over whether there are in fact two species of anoa. It has been suggested that the differences in horn shape which are an important means of distinguishing the two species may simply be a function of age (Wind and Amir, 1978).

DISTRIBUTION AND CURRENT STATUS

Anoas are endemic in the dense mature forests of the Indonesian island of Sulawesi where they once were abundant and well-distributed. There are several large nature reserves on the island which have been declared to protect the anoas but no census has been carried out and total numbers are unknown. MacKinnon (1982) thought it probable that each species numbered a few thousand, although the trend is believed to be downward. MacKinnon (1979) also reported the lowland anoa to have disappeared, or to have reached low numbers, near towns and villages where it was heavily hunted, but that healthy populations still occurred in large forest blocks. At the same time he reported the mountain anoa to be very rare. The Indonesian transmigration policy which has resulted in large numbers of people being moved from Java and Bali to the outer islands including Sulawesi, is bound to have a marked effect on the anoas outside protected areas as habitat destruction and hunting increase.

THREATS TO SURVIVAL

Anoas are heavily hunted and snared and soon desert an area if disturbed. Their forest habitat is shrinking due to human activities and increased logging. However, it is reported that although they are disturbed by logging, anoas may benefit from the regeneration of the secondary vegetation.

CAPTIVE BREEDING

The global captive population of both species of anoa is 60 in 18 institutions (ISIS, 1993). The gestation period of the anoas is 275 - 315 days.

DOMESTICATION AND ECONOMIC IMPORTANCE

Anoas have never been domesticated. Anoa meat, horns and hide are valued throughout Sulawesi and the animals

are hunted for sport. Despite their aggressive and nervous temperament, it has been suggested that the anoa might make potentially valuable livestock animals. Their small size makes them relatively easy to handle and they have been bred and reared successfully in captivity. However, according to Whitten *et al.* (1988) anoas used to be caught by the Toraja people who attempted to breed them for meat but their aggressive nature, even after several years in captivity, prevented them from being used as domestic animals. It has been suggested that the offspring of an anoa/water buffalo cross could produce a useful domestic animal.

REMARKS

For a description of the anoas see Groves (1969) and National Research Council (1983a).

For a full account of the distribution and status of wild Asian cattle see Hedges (1999).

8 EUROPEAN BISON OR WISENT

Bison bison

VULNERABLE

The European bison or wisent survived in the wild until the beginning of the twentieth century but only in the Bialowieza Forest in Poland (subspecies *B.b. bonasus*) and in the Caucasus (subspecies *B.b. caucasicus*). The last bison in Bialowieza was killed in 1919 and the last in the Caucasus died in 1927. The only surviving animals were those in zoos and those belonging to private owners. Only one animal, a bull of the *B.b. caucasicus* race, survived in captivity where he died in 1925 after siring some calves from *B.b. bonasus* cows. Now, most of the existing bison in Europe are *bonasus/caucasicus* hybrids.

DISTRIBUTION AND CURRENT STATUS

The wisent is extinct in the truly wild state, but semi-wild herds have been established in Russia and Poland. The largest herd is in the Bialowieza Forest which straddles the Polish and Russian border. There is a herd in the Caucasus National Park which contains some genes of the American bison (*Bison bison*). In the early 1980s there were about 800 wisent in the then USSR and 560 in Poland, of which 242 were in Bialowieza. By the late 1980s, as a result of successful breeding programmes, the species had increased to over 2 000 animals and 24 herds had been established in the wild.

THREATS TO SURVIVAL

The almost complete felling of the forests of Europe during the Middle Ages was the main cause of the disappearance of the wisent. Hunting and warfare also took a toll and the extinction of the wisent in the Caucasus is said to have been accelerated by outbreaks of Foot-and-Mouth disease and anthrax brought into the mountains by domestic stock (USSR Red Data Book, 1978).

CAPTIVE BREEDING

The global captive population of the European bison or wisent is 191 in 31 institutions (ISIS, 1993). All the extant European bison are essentially captive bred. The European Bison Pedigree Book is maintained at the National Council for Nature Protection, ul WaWelska 52/54, 00-922 Warsaw, Poland. The chromosome number for the European bison is $2n = 60$ and the gestation period is 270 - 280 days.



Photo 3.5: European bison or wisent (Poland). Conspecific with the American bison - now under domestication.

DOMESTICATION AND ECONOMIC IMPORTANCE

The European bison has never been domesticated but there is perhaps some potential for commercial meat and hide production as is carried out with the congeneric American bison. The European bison interbreed freely with the American bison and the offspring are fertile. It is therefore becoming accepted to treat the two forms as conspecific under the name *Bison bison* (Clutton-Brock, 1987).

REMARKS

For a description of the wisent see Nowack and Paradiso (1983).

9 NORTH AMERICAN BISON

Bison bison

NOT THREATENED

The ancestors of the North American bison were the only members of the *Bovinae* tribe which managed to migrate from Eurasia into North America across the Bering Strait and to extend their range as far south as El Salvador. The bison of the Great Plains of North America was counted in tens of millions when the Europeans arrived in the continent, but by the 1890s had been reduced to but a few hundred. A century later their numbers had recovered to more than 100 000. Two subspecies of the American bison are usually recognised. These are the plains bison, *B.b. bison*, and the wood bison, *B.b. athabasca*.

DISTRIBUTION AND CURRENT STATUS

The two subspecies of the North American bison are found in the United States of America and north-west Canada. *B.b. athabasca* occurs only in Canada, whereas *B.b. bison* occurs in both the United States of America and Canada. By the 1980s the number of bison in North America was probably in the region of 100 000 of which 75 000 were in the United States of America and 25 000 in Canada. Numbers in both countries are increasing and the species is no longer considered to be threatened. The wood bison was, however, of some conservation concern and in the early 1980s numbered only about 900 animals. In the 1940s it was considered extinct as a subspecies. This supposed extinction was due to hybridisation with the plains bison which were introduced in large numbers into the Wood Buffalo Park in 1925 - 1928. Not only did the two subspecies hybridise but the plains bison brought with them tuberculosis and brucellosis. Fortunately, during an aerial survey in 1957, a small herd of pure wood bison was discovered in an isolated sector of the Wood Buffalo National Park. Animals taken from this pure, disease-free herd are the founders of herds of the wood bison in the MacKenzie Bison Sanctuary (now over 2 000 head) and on Elk Island, Canada.

THREATS TO SURVIVAL

Today there are no great threats, other than accidental disease introduction, to the survival of the species. The tuberculosis and brucellosis issue concerns the largely hybrid plains bison/wood bison herd in the Wood Buffalo Park in Canada. A recent decision to cull the infected herd of some 3 200 animals has been deferred in the face of hostile public opinion. Anthrax has also been reported in the bison of the Slave River lowlands and the Wood Buffalo National Park (Northern Diseased Bison Report, 1990).

CAPTIVE BREEDING

The global captive population of North American bison is 613 in 108 institutions (ISIS, 1993). The chromosome number for the North American bison is $2n = 60$ and the gestation period is 270 - 280 days.

DOMESTICATION AND ECONOMIC IMPORTANCE

The North American bison may be described as undergoing domestication. Bison ranching is underway in the United States of America and Canada and private herds exist in nearly every state in the United States of America. The main characteristic of bison that makes them desirable as a source of meat is their ability to be productive under range conditions that are suboptimal for cattle. Bison have been cross-bred with many cattle breeds and also with the yak. However, the hybrids have not proven to be more productive than their pure parents are. The American Bison Company is now successfully marketing fur-on hides and fur garments and hopes to expand mar-

kets for meat and skulls. The latter are in demand by native American artists.

REMARKS

For a description of the North American bison see Jennings (1978) and Rowe (1970), also Hutchinson, A.D.

10 AFRICAN BUFFALO

Syncerus caffer

NOT THREATENED

There are two subspecies of African buffalo: *S. caffer*, the large black buffalo of southern Africa, which ranges north to Ethiopia and Somalia; and the smaller red type, *S.c. nanus*, which occurs in western Uganda and south-west through the Democratic Republic of Congo, Gabon and the Republic of Congo to northern Angola.



Photo 3.6: African buffalo (Uganda).

DISTRIBUTION AND CURRENT STATUS

One of the most widely distributed ungulates in Africa, it occurs throughout the continent south of 15°N. Buffalo distribution is limited by the 250 mm isohyet and the species is confined to areas where the annual rainfall is higher than twice the potential annual evaporation. There are no buffalo in arid areas (Stewart and Stewart, 1963). The total population size is probably around one million and it is not threatened as yet as a species. Nevertheless, the African buffalo has declined markedly in parts of its range and numbers fluctuate due to hunting pressure and disease outbreaks.

THREATS TO SURVIVAL

Buffalo are highly susceptible to Rinderpest, which is still endemic in parts of the Sudan and Ethiopia (Woodford, 1983). Bovine tuberculosis is a serious problem in the buffalo in the Queen Elizabeth National Park in Uganda and in the Kruger National Park in South Africa. Buffalo have long been considered carriers of SAT strains of FMD virus and as a result have been eliminated from large areas where disease-free cattle are raised. Recent work in Zimbabwe, however, seems to indicate that cattle may be

the main carriers of FMD virus and that the strains which infect and are carried by buffalo are less infective for cattle. African buffalo are also symptomless carriers of the haemo-parasite *Theileria lawrencei*, the casual agent of Corridor disease, a fatal disease of domestic cattle, which is transmitted by the tick *Rhipicephalus appendiculatus*.

CAPTIVE BREEDING

The global captive population of African buffalo is 135 in 36 institutions (ISIS, 1993).

DOMESTICATION AND ECONOMIC IMPORTANCE

African buffalo have not been domesticated although attempts are being made in Zimbabwe to train them to the yoke. Wild buffalo are currently being exploited in various countries for meat and hides. South Africa in particular has a cropping scheme in Kruger National Park and Mozambique had a major scheme at Marromeu in the Zambezi Delta before uncontrolled hunting and civil war resulted in the reduction of the buffalo population by almost 90 percent. There is considerable demand in southern Africa for FMD virus-free buffalo to stock game farms and ranches, usually for trophy hunting purposes. FMD virus-free buffalo are produced by taking young calves away from their infected mothers and raising them in isolation. Under wild conditions, the calves first acquire infection with FMD virus when they are a few months of age, when their colostral immunity wanes.

REMARKS

For a description of the African buffalo see Smithers (1983) and Sinclair (1977).

Also widely consulted in this section: Thornback (1983) and National Research Council (1983a).

Order *Artiodactyla*/Family *Bovidae*

- 1 Wild sheep
- 2 Wild goat or Bezoar
- 3 Nubian ibex

1 WILD SHEEP

SOME SPECIES AND RACES VULNERABLE

Mouflon-Urial are the wild sheep considered to be the ancestors of domestic sheep. The diploid karyotype number of wild sheep varies from 52 to 58 but despite this, given the opportunity (usually in captivity), they will interbreed amongst themselves and amongst domestic sheep to produce fertile offspring. The taxonomic status of the members of the genus *Ovis* is open to dispute (Schaller, 1977). For Asian mouflon and urial some authorities distinguish a single species, *O. orientalis*, while others distinguish two separate species; mouflon, *O. gmelini* and urial, *O. vignei*. However, some of those who support distinguishing two species also suggest that there are naturally occurring, self-sustaining hybrid populations, e.g. Alborz red sheep, *O. gmelini gmelini* x *O. vignei arkal* and Kerman sheep, *O. g. laristanica* x *O. v. blanfordi*. Despite this, most of the several subspecies recognised are accepted by both camps. Finally, *O. severtzovi* is sometimes classified as an urial and others as argali (Schaller, 1977).

DISTRIBUTION AND CURRENT STATUS

Today, autochthonous populations of mouflon are found on the Mediterranean islands of Corsica and Cyprus, while on the mainland their distribution begins in Turkey and spreads eastwards as far as Armenia and Iran. The European mouflon, *O. musimon*, has been introduced into many areas in continental Europe as a game animal, including the Czech Republic, the Slovak Republic, France, Germany, Italy, Spain, the Balkans etc. The current distribution of urial extends from Iran eastwards into Pakistan and Afghanistan. Southeast Pakistan represents the southern limits, while the northern extent of their range is in Uzbekistan. Urial, like mouflon, primarily inhabit the lower mountain slopes and foothills of the higher mountains. Some of the isolated and local populations of the urial and mouflon are classified as vulnerable and endangered by IUCN. Total population sizes are generally not known.

THREATS TO SURVIVAL

Their use of low elevation habitats brings the wild sheep into closer contact with humans than most other *Caprinae*. As a result, they are especially vulnerable to overhunting, habitat loss and competition for food with domestic stock. Disease transmission from domestic livestock may also be a threat. For many, their small population size makes them vulnerable to stochastic events and possibly to inbreeding depression. Civil disturbances, and

warfare have had a negative impact on the wild sheep and goat populations of the world.



Photo 3.7: Mouflon (France). Believed to be the ancestor of most breeds of domestic sheep.

CAPTIVE BREEDING

The global captive population of mouflon-urial is 392 in 32 institutions (ISIS, 1993). Iraq has established wildlife breeding centres but there is no evidence that mouflon are being bred in captivity there. All the domestic breeds of sheep have $2n = 54$ chromosomes and their karyotype is identical to that of the European mouflon, the Asiatic mouflon, *O. orientalis*, and the Bighorn and Dall sheep of North America, *O. canadensis* and *O. dalli*. The Snow sheep, *O. nivicola*, of eastern Siberia has only 52 pairs of chromosomes whereas the urial, *O. vignei*, of Iran, Tajikistan and Afghanistan has 58 pairs. Whether these chromosomal differences represent the cause or a consequence of speciation and domestication is open to question (Short, 1976). Almost all the European, Asiatic and North American wild species of sheep will produce fertile hybrids when crossed with domestic sheep (Gray, 1971). The main exception is the Barbary sheep or Aoudad, *Ammotragus lervia*, $2n = 58$, which is more of a goat than a sheep and can produce live offspring when crossed with the domestic goat, *C. bircus*.

DOMESTICATION AND ECONOMIC IMPORTANCE

The mating of wild Argali/Arkhar, *O. ammon kaselini*, rams of Tibet, Kazakhstan and Mongolia (which have $2n = 56$ chromosomes) with fine-wool domestic ewes results in a unique high-producing mutton/wool Arkhar-merino sheep which is well adapted to the high mountain pastures of some eastern countries of the former Soviet Union (Gray, 1971).

Present evidence suggests that while some interspecific ovine hybrids are fertile, others are not even carried to term. It has been suggested by Short (1976) that it might be possible to produce a third class of sterile hybrid, an 'ovine mule'. Such an animal could be of great agricultural significance since it would obviate the need to castrate the males as a husbandry procedure. Sterile hybrids could

be produced for fattening by crossing two species maintained as straight-breeding populations. Although all domestic sheep may have been derived from the mouflon, there could be some benefit from back-crossing to the ancestral stock, since records show that *O. orientalis* has a very long breeding season in the United Kingdom; births extending from January to November, with a peak in April (Zuckerman, 1952).

The very large Marco Polo sheep, *O. ammon poli*, said to number 3 000 in 1972 and 1 300 in 1997, thrive at elevations up to 6 000 m asl in the Afghan Pamirs (Petocz, 1973, Habibi, 1977). These impressive animals, which weigh up to 136 kg, have developed a very rapid growth rate and food conversion efficiency so that their lambs can make the most of the transient high-altitude summer. These attributes, along with large body size, might be extremely useful for incorporation into new domestic sheep breeds for highland environments where a larger sheep would have a survival advantage. Disadvantages would be the absence of wool and the very short mating season of *O. ammon poli*, but even these problems might be overcome by judicious genetic manipulation (Short, 1976).

REMARKS

A full account of the wild sheep and goats and their relatives can be found in Shackleton (1997).

2 WILD GOAT

Capra aegagrus

SOME RACES VULNERABLE

The goat was the first ruminant to be domesticated and the Cretan wild goat or Bezoar, *C. aegagrus cretica*, is believed to be the ancestor of the domestic goat, *C. hircus* (Clutton-Brock, 1981). Fertile offspring arise from crossing wild and domestic goats. Although various subspecies have been named, the taxonomic status of subspecies of the wild goat, as with many other *Caprinae*, is open to debate and requires study.

DISTRIBUTION AND CURRENT STATUS

Wild goats inhabit forested mountains and are currently found in scattered, often fragmented populations from Crete eastwards through Turkey and Iran as far as southwestern Pakistan. Their northern limits are the Caucasus Mountains of Georgia, Daghestan, Azerbaijan, Armenia and the Kopet Dag Mountains of Turkmenistan. In the recent past they were also found in Lebanon and Syria but they are extinct there now. Their status in Iraq is unknown. Some small isolated populations are classified as vulnerable or endangered. Only in Turkey is the population of *C. aegagrus* not threatened; elsewhere it is indeterminate, vulnerable or endangered.

THREATS TO SURVIVAL

Although there are several thousand wild goats, most populations are small and scattered, and the majority do

TABLE. 3.2.1: THE CHROMOSOME NUMBERS OF DOMESTIC AND WILD SHEEP AND RELATED SPECIES (NADLER ET AL. 1973).

SYSTEMATIC NAME	TRIVIAL NAME	LOCALITY	CHROMOSOMES
<i>Ovis nivicola</i>	Snow sheep	East Siberia	52
<i>Ovis aries</i>	Domestic sheep	Europe	54
<i>Ovis musimon</i>	European mouflon	Europe	54
<i>Ovis orientalis</i>	Asiatic mouflon	Asia	54
<i>Ovis dalli</i>	Dall sheep	North America	54
<i>Ovis canadensis</i>	Bighorn sheep	North America	54
<i>Ovis ammon</i>	Arkhar or Argali	Asia	56
<i>Ovis vignei</i>	Urial	Asia	58
<i>Ammotragus lervia</i>	Barbary sheep	North Africa	58
<i>Capra hircus</i>	Domestic goat	Europe	60
<i>Capra aegagrus</i>	Wild goat	Europe/Asia	60

not occur in protected areas. The Turkish and Iranian populations may be the most secure. Threats come primarily from poaching although habitat loss and competition for forage from domestic livestock are problems in some areas. In Greece, most populations have hybridised with domestic goats and the only remaining true wild goat populations are on Crete and the Island of Theodorou. Hybridisation with domestic goats is a major threat to the survival of the wild goat in many countries.

CAPTIVE BREEDING

The global captive population of wild goats is 97 in 14 institutions (ISIS, 1993). A joint captive breeding programme has been proposed between Syria and Lebanon, with the objective of re-introducing the species into both of these countries where it has recently become extinct. Wildlife breeding stations have been established in Iraq, but it is not clear if the wild goat is being bred there. The chromosome number for the domestic and wild goat is $2n = 60$.

DOMESTICATION AND ECONOMIC IMPORTANCE

While hybridisation of wild goats with domestic goats sometimes presents a conservation problem, interspecific crosses, when intentional, may have economic advantages. The development of a population of domestic goat x *Nubian ibex* hybrids is described in the next section. Hybrids between domestic goats and wild markhor, *C. falconeri*, are sometimes produced by chance in Chitral and the offspring, when raised to maturity, are much heavier than the pure domestic goats of the area (100 kg versus 30 kg). These hybrids command high prices as domestic stud animals. Such crosses may have economic potential in the northern mountainous areas of Pakistan (Rasool and Hussain, 1993).

REMARKS

None.

3 NUBIAN IBEX

Capra ibex nubiana

INDETERMINATE

The Nubian ibex is not thought to be the descendant of wild goats, but may prove a useful source of genetic material in arid environments. The status of the Nubian ibex as a separate species or subspecies of ibex, *C. ibex*, is currently open to question.

DISTRIBUTION AND CURRENT STATUS

Today this ibex is found in the Middle East from Israel south through Egypt and the Sudan as far as Ethiopia and to the east into Jordan, Saudi Arabia and Oman. It has recently become extinct in Lebanon and Syria and its status in Iraq is unknown. Total numbers are largely unknown and while there may be a few thousand, since they are distributed in many small, isolated and scattered

populations, they are threatened everywhere throughout their range.



Photo 3.8: Nubian Ibex (Jordan). Crosses with domestic goats are interfertile and drought tolerant.

THREATS TO SURVIVAL

Poaching, habitat loss and competition for food with domestic livestock are the major threats. However, the fact that most populations are small and isolated makes them especially vulnerable to stochastic events.

CAPTIVE BREEDING

The global captive population of the Nubian ibex is 182 in 18 institutions (ISIS, 1993). In Egypt a captive breeding programme exists at Giza Zoo but there are no immediate plans to re-introduce the animals into the wild. In Jordan there is a similar captive breeding programme and the ibex will soon be released into a national park on the Dead Sea. The gestation period is 150 - 180 days.

DOMESTICATION AND ECONOMIC IMPORTANCE

A population of domestic goat x *Nubian ibex* hybrids (ya-ez) has been developed by the Institute for Animal Research at Lahav in northern Negev, Israel. The Sinai Desert goat was the domestic breed that was used. This animal ranks next to the camel in its ability to sustain long periods without water, but its meat has such a strong flavour that most people consider it inedible. On the other hand, the ibex produces tender, mild meat. It is hoped that the product from cross-breeding these two animals will be able to endure extreme temperatures and drought and make use of poor pasture while producing edible meat. Both sexes are fertile and they can be bred with each other or with either parent.

In the northern areas of Pakistan, one-day-old male ibex kids (and markhor) are fostered by lactating domestic goats. When mature, they are crossed with their foster mothers to produce healthy hybrids.

Apart from the greater body weight of these hybrids, their fecundity is greater too, and they sometimes produce two kids in a year, whereas the local domestic goats usually kid only once.

It is also claimed that the markhor and ibex/goat hybrids are resistant to the common diseases to which domestic goats are susceptible. However, a note of caution is necessary. If these hybrids are able to invade the rugged mountain environment and live alongside the wild markhor and ibex, not only would they compete with the wild species for grazing, they might also introduce domestic goat diseases and damage them genetically by further cross breeding (Rasool and Hussein, 1993).

REMARKS

For a full bibliography and further information on the status of the wild sheep and goats see remarks at the end of the section on wild sheep.

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For a full bibliography and further information on the status and conservation of the wild sheep and goats see Shackleton (1997).

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|---|--|
| <p>1 Przewalski's wild horse</p> <p>2 African wild asses</p> <ul style="list-style-type: none"> - Nubian wild ass - Somali wild ass | <p>3 Asian wild asses</p> <ul style="list-style-type: none"> - Onager - Kulan - Kiang - Dzigatai - Indian wild ass |
|---|--|

1 PRZEWALSKI'S WILD HORSE

Equus przewalskii

EXTINCT



Photo 3.9: Przewalski's wild horse (Ukraine). The only remaining true horse (other than the domestic horse). Extinct in the wild.

The Asian wild horse, *E. przewalskii*, is the only extant species of true horse other than the domestic horse, *E. caballus*. There have been no confirmed sightings of wild Przewalski's horses since 1966 (Ryder and Wedemeyer, 1982), but the species has been maintained in captivity for the last 90 years. The worldwide captive population now numbers about 1 300 and is entirely descended from 13 wild-caught individuals. The last wild-caught founder entered the pedigree in 1948 at Askania Nova in the Ukraine, where the most important of the captive herds is maintained. About 200 horses are kept at Askania Nova under semi-domestic conditions. There is a plan afoot to reintroduce a number of captive-bred Przewalski's wild horses back into the wild in part of the species' original range in Mongolia. A major constraint to this ambitious project is the risk of hybridisation with the ubiquitous domestic horses of the nomadic Mongolian herdsmen (Ryder, 1993).

THREATS TO SURVIVAL

The long-term threat to the relatively small captive population of Przewalski's wild horse is continued loss of genetic diversity. The numbers cannot be increased much more because the carrying capacity of zoos and ranches is limited as the horses compete with other large mammals for space (Seal *et al.*, 1990).

CAPTIVE BREEDING

The global captive population of Przewalski's wild horse is 580 in 59 zoological gardens (ISIS, 1993) – this does not include herds maintained outside of zoological gardens. The chromosome number for Przewalski's wild horse is $2n = 66$; domestic horses have $2n = 64$ but the genetic material of the two species is so similar that their hybrids are fertile (Ryder *et al.*, 1978). Embryos of Przewalski's wild horse have been successfully transferred to domestic mares (Summers *et al.*, 1987).

REMARKS

For a full account of Przewalski's wild horse see Mohr, (1971).

CAPTIVE BREEDING

The global captive population of Nubian wild asses is two in one institution (ISIS, 1993).

SOMALI WILD ASS

E. africanus somalicus

ENDANGERED

This surviving subspecies of the African wild ass is the only wild ancestor of a domestic animal now to be found in Africa. However, according to Zeuner (1963) there is no evidence that this subspecies played a major part in the domestication of the donkey, although the Maasai donkey, which lacks the shoulder stripe, may be descended from it.

DISTRIBUTION AND CURRENT STATUS

The Somali wild ass survives in small numbers in northern Somalia and in the Danakil Depression and Yaugudi-Rassu National Park in Ethiopia. Current numbers, recently depleted further by war and drought, are probably less than 300.

2 AFRICAN WILD ASSES

Wild equids (African wild asses and Asian wild asses) are said to possess unique behavioural, morphological and physiological characteristics which allow them to exploit grasslands more effectively than other ungulates.

The true wild asses, as distinct from the half-asses or onagers, are of purely African origin. Up to the Roman period there appear to have existed three wild races. One, *Equus asinus asinus*, from which the domestic donkey is probably mainly derived, occurred in Northwest Africa and became extinct in the wild during the Roman era. A second true wild ass lived in the mountainous deserts of Nubia and in eastern Sudan from the Nile to the Red Sea. This subspecies, *E. africanus africanus*, which also contributed genomes to the domestic ass, is now reported as extinct in the wild. The third and only surviving subspecies is the Somali wild ass, *E. africanus somalicus* (Zeuner, 1963). However, geographical variations amongst the races of African wild ass may be continuous (clinal) and there may be only one subspecies. This is the currently accepted opinion and the different populations are described by their common geographic names. Mason (1981) draws attention to the paucity of information on all aspects of the domestic donkey, an animal which he points out comprises 47 percent of the world's domestic equines.

NUBIAN WILD ASS

Equus africanus africanus EXTINCT (IN THE WILD)

The Nubian wild ass used to occur in Africa north of the Sahara and southwards into the Sudan. It is considered to be extinct in the wild as a result of over-hunting and extensive hybridisation with domestic donkeys. The Nubian wild ass is thought to be one of the main ancestors of the domestic donkey. The wild asses on Socotra Island may be the descendants of Nubian wild asses introduced many centuries ago by the ancient Egyptians (Harper, 1975).



Photo 3.10: Somali wild ass (Israel). Endangered wild relative of the domestic donkey.

THREATS TO SURVIVAL

Although protected on paper in both countries where it occurs, the Somali wild ass is relentlessly hunted for its meat and hide. In Somalia the fat of the wild ass is in great demand as a cure for tuberculosis. Other threats include hybridisation with domestic donkeys, competition for grazing, exclusion from water sources by domestic stock and agricultural development. Political instability, military activities and persistent droughts all present severe threats to the survival of the Somali wild ass.

CAPTIVE BREEDING

The global captive population of the Somali wild ass is 23 in eight institutions (ISIS, 1993). This ass is difficult to breed under captive conditions. The only two captive herds of pure Somali wild asses are at Basle Zoo in Switzerland and Hai Bar in Israel where there were 18

in 1992. These animals were showing signs of inbreeding depression, characterised by birth defects in foals and a depressed breeding rate (Duncan, 1992).

DOMESTICATION AND ECONOMIC IMPORTANCE

It is clear that the Somali wild ass is on the brink of extinction and in view of the agricultural importance of the much-neglected donkey and mule in the semi-arid areas of the world, the genes of this wild ancestor may be of crucial importance for genetic improvement experiments. While the survival of most domestic stock is severely compromised in times of drought, the wild asses may be able to tolerate harsh drought conditions. However, their ability to survive climatic stress may be due to their freedom to move long distances in search of grazing and water.

REMARKS

For references see the end of the section on African and Asian wild asses.

3 ASIAN WILD ASSES

There are eight subspecies and several more geographically distinct populations of the wild ass in Asia. One, the Syrian, *E. hemionus hemippus*, which has been extinct for more than sixty years, is believed to have once been domesticated. The last Syrian wild ass was shot coming for water at the Al Ghams Oasis at Azraq in 1927.

In China and Mongolia, equids (kiang and dziggatai) are harvested for their skins and meat, but unfortunately the economic importance of the trade in these resources is largely undocumented.

ONAGER

Equus hemionus onager

ENDANGERED

DISTRIBUTION AND CURRENT STATUS

The range of the onager has now been reduced to Israel and the northern desert plateau of Iran. Within this range less than 400 onagers are said to survive in three protected areas.

THREATS TO SURVIVAL

The main threats to survival are overhunting and competition with domestic stock for forage and water. In Iran onagers are shot from vehicles for meat and medicine.

CAPTIVE BREEDING

The global captive population of the onager is 98 in 15 institutions (ISIS, 1993). There are about 50 onagers at Hai Bar in Israel, but these may have some kulans among their

founders. This herd is to be used to produce animals for re-introduction into Makresh Ramon (central Negev) to replace the extinct Syrian wild ass. There are now at least 30 free-ranging onagers in the Negev.



Photo 3.11: Onager (Jordan). Has a reputation of great endurance under climatic extremes.

DOMESTICATION AND ECONOMIC IMPORTANCE

Onagers are believed to have been domesticated by the Sumerians at Ur where they were used for pulling chariots in 2 500 BC. They are said to have a reputation for great endurance in the climatic extremes under which they live. Cross-breeding with domestic donkeys might be investigated, but the male hybrid would be sterile (Ryder *et al*, 1978).

KULAN

Equus hemionus kulan

ENDANGERED/
INSUFFICIENTLY KNOWN

DISTRIBUTION AND CURRENT STATUS

The kulan is now confined to Turkmenistan and Kazakhstan where it survives in small isolated herds. Total numbers are probably around 2 000. Since 1941 kulans have been protected in Badkhyz Nature Park, in southern Turkmenistan. An increase in the population in this park has allowed some kulans to be translocated to other areas to create new populations (Wolfe, 1979). The new populations of kulans were maintaining themselves in the 1980s, but their small sizes render them endangered.

THREATS TO SURVIVAL

Excessive hunting and competition with domestic stock are the main causes of the kulan's decline.

CAPTIVE BREEDING

The global captive population of the kulan is 94 in 12 institutions (ISIS, 1993).

Order *Artiodactyla*/Family *Suidae*

1 Eurasian wild pig

2 Sulawesi warty pig

The wild ancestor of the majority of domestic breeds of pig is the Eurasian wild pig, *Sus scrofa*. There is evidence that *S. scrofa* has been independently domesticated in several widely separated geographic locations and times, using different founder stocks which originated in local subspecies or races. The Sulawesi warty pig, *Sus celebensis*, has also been domesticated on the island of Sulawesi, probably in the early Holocene.

1 EURASIAN WILD PIG

Sus scrofa

NOT THREATENED



Photo 3.13: Eurasian wild pig (Eurasia). Ancestor of the majority of breeds of domestic pigs.

DISTRIBUTION AND CURRENT STATUS

The Eurasian wild pig occurs throughout southern Europe, Asia, northern Africa and southwards to the Sudan. It is present in large numbers. The failure of the species to extend further into Africa may be due to the presence of the African Swine Fever (ASF) virus to which this pig is very susceptible, but which is an inapparent infection of the indigenous warthogs, *Phacochoerus aethiopicus*, and bush pigs, *Potamochoerus porcus*.

THREATS TO SURVIVAL

There are few threats to the survival of the Eurasian wild pig. However, the introduction of ASF virus into Portugal, Spain and Italy has had a marked impact on local populations of Eurasian wild pigs in these countries.

CAPTIVE BREEDING

The global captive population of Eurasian wild pigs is 105 in 32 institutions (ISIS, 1993).

Wild pigs, or their domestic and feral derivatives, have been widely distributed by man as a source of food. Populations have become established, often in large numbers, on all continents except Antarctica. Most naturalised populations are regional variants of the Eurasian wild pig. Some of these are considered to be of interest in terms of the regional genetic diversity of *Sus*, with possibilities for further domestication of this most important source of animal protein. In some countries, especially in non-Muslim Southeast Asia, pigs also have cultural and religious importance for the local people.

REMARKS

Introduced and feral pigs have had a profound and usually negative impact on wildlife, forestry and agriculture in the eco-systems to which they have been introduced. In many places attempts are made to eradicate them but their feeding habits, fecundity and cryptic behaviour render this extremely difficult.

2 SULAWESI WARTY PIG

Sus celebensis

NOT THREATENED

DISTRIBUTION AND CURRENT STATUS

This wild pig occurs as a native form only on Sulawesi and some adjacent islands. It has been introduced onto some of the Lesser Sunda and West Sumatran Islands as a domesticated or feral form. On the Moluccas, whence it was translocated, it has hybridised with *Sus scrofa* and has given rise to *S. papuensis*, the domestic and feral pig of Papua New Guinea. On many islands of Indonesia the Sulawesi warty pig is common and in some places, abundant.

THREATS TO SURVIVAL

In the wild, overhunting, deforestation and disturbance due to human settlement are the main threats. Overall, Sulawesi warty pig populations are declining and in some areas have been greatly reduced by uncontrolled hunting.

CAPTIVE BREEDING

There is a wealth of unrecorded indigenous experience about the domestication of this animal, but the information needs to be collected and appraised. The genetic variability within the species, as well as the karyotypic differences from other *Sus* species and hybrids, needs definition. There are no Sulawesi warty pigs in captivity (ISIS, 1993).

DOMESTICATION AND ECONOMIC IMPORTANCE

As a source of meat the Sulawesi warty pig has been exploited since prehistoric times. The presence of feral specimens far beyond the species' natural range indicates that traders or migrants have translocated it either in

The world population is stable but could rapidly fall if conservation efforts were to be relaxed.



Photo 3.14: Vicuña (Peru). Producer of very high quality wool. Crossed with alpaca to improve wool quality.

THREATS TO SURVIVAL

The most important threats to the survival of the vicuña in the wild include illegal hunting, increasing competition with domestic llamas and alpacas for grazing and lack of funds for long-term conservation activities. Illegal hunting has intensified in Bolivia and Peru, overwhelming the ability of the authorities to control it, especially in areas where guerrilla activities have escalated. The recent conspicuous increase in the vicuña population achieved as a result of protection, will render long term conservation of the species difficult unless the local people on whose land the vicuña live receive some tangible benefits. Bad weather and predation by the puma, *Felis concolor*, are also said to influence the vicuña's recovery in some areas.

CAPTIVE BREEDING

The global captive population of vicuña is 49 in 15 institutions (ISIS, 1993). The gestation period is about 330 days.

DOMESTICATION AND ECONOMIC IMPORTANCE

Semi-domestication will follow the establishment of adequate protection of the wild resource from uncontrolled utilisation. The sustainable utilisation of the vicuña, together with well-defined participation of local communities, could greatly supplement village economies by enabling them to transform vicuña fibre into cloth of the best quality in the world.

The wool, hides and meat are all resources of great importance to local communities. Although the vicuña populations of Peru and Chile have reached a viable size, utilisation of the species at an industrial level has not yet begun. At present, experiments to improve techniques for capturing, shearing and releasing individual animals are taking place.

In Argentina, there are no sustainable vicuña utilisation

prospects for the immediate future. It was originally thought that the vicuña is the ancestor of the alpaca, but now it is widely believed that both the llama and the alpaca derive from the guanaco. Hybrids produced between a male vicuña and a female alpaca (or vice versa) are called paco-vicuña and are bred in order to obtain finer wool than that of the pure alpaca.

REMARKS

"The courtship of the llama embarrasses the farmer but it copulates far sooner than the kinkier vicuña."

Stuart Piggott

GUANACO

Lama guanicoe

NOT THREATENED

The guanaco is the largest South American camelid. Four geographic subspecies have been described; *L.g. guanicoe* is found in Argentina and Chile south of 38°S, *L.g. huanacus* is restricted to Chile, *L.g. cacsilensis* occurs in the High Andes of Peru, Bolivia and northeastern Chile and *L.g. voglii* is restricted to the eastern slopes of the Andes between 21°S and 32°S in Argentina.

DISTRIBUTION AND CURRENT STATUS

The guanaco occurs along the Andes from approximately 8°S to Tierra del Fuego at 53°S. In Argentina the distribution of the guanaco is characterised by rapid changes due to the species interaction with human communities. It has a migratory tendency and its ability to utilise a wide range of habitats allows it to travel long distances. In Bolivia the current distribution of the guanaco is not known, but it appears to be concentrated between 19°- 22°S and 62°- 65°W, ranging from 300 m asl in the Chaco to 3 800 m asl in the Andes. In Bolivia the guanaco is on the edge of its natural range. Chile has a large population of guanacos on Tierra del Fuego Island and another along the eastern border with Argentina. The guanacos of Peru are scattered throughout five departments, most of them in the south. Population estimates for the four countries are (1989 and 1990):

Argentina	550 000
Bolivia	54
Chile	19 836
Peru	1 347
Total	571 237

The exact distribution and population densities of the guanaco in South America are unknown. However, while the current numbers are thought to be stable they are vulnerable to sudden decline.

THREATS TO SURVIVAL

Intense, unsustainable commercial hunting is the main threat. Sheep farmers in Argentina and Chile vigorously oppose the guanaco because they believe it competes for food with their sheep and presents a disease risk. In fact, the disease risk is to the guanaco from the sheep (Karesh *et al.*, 1998).

CAPTIVE BREEDING

The global captive population of guanaco is 313 in 71 institutions (ISIS, 1993). The gestation period is about 330 days.

DOMESTICATION AND ECONOMIC IMPORTANCE

Both the domestic llama and alpaca are believed to derive from the wild guanaco which was domesticated by the Incas and their predecessors. Trade in guanaco hides has shown reasonable economic potential for several decades and there is an increasing demand for guanaco meat at the local level. In Argentina guanacos are hunted for their skins for export, but the meat is not consumed or used commercially. Experimental, semi-captive breeding is in progress, while utilisation of wild populations has concentrated on live capture, shearing and release. The practice of periodic shearing of live animals enables a recovering population to be utilised for profit without affecting its growth. Mixed guanaco/domestic animal farming is an option that may be profitable in marginal areas. However, the tendency of the guanaco to migrate renders the necessity for semi-captivity and presents an additional management cost.

REMARKS

For a full account of the present status, conservation and utilisation prospects for the vicuña and the guanaco in South America see Torres (1992) and FAO (1985).

2 OLD WORLD CAMELIDS

There are two camelid species in the Old World. One, the single-humped dromedary, *Camelus dromedarius*, which has no extant wild ancestor and the other, *C. bactrianus* which has two humps and is represented by a wild progenitor, *C. ferus ferus*. There is, however, a large feral population of *C. dromedarius* in Australia.

WILD CAMEL

Camelus ferus ferus

VULNERABLE

The wild, two humped (misnamed Bactrian) camel was once thought to be native to Bactria in northern Afghanistan hence the name Bactrian. In fact, it never occurred in the wild anywhere near Bactria.



Photo 3.15: Bactrian camel (Afghanistan). Two small populations of the wild relative of this camel survive in Mongolia and China.

DISTRIBUTION AND CURRENT STATUS

The wild camel is now confined to two areas between the lakes of Lob Nor and Bagrah Kol at 1 500 – 2 000 m asl in south-western Mongolia and north-western China. This is a remote part of the Transaltai Gobi desert and the wild camel population there is probably less than 500 and declining.

THREATS TO SURVIVAL

The main threats to survival of the wild camel are hunting pressure, competition for food with domesticated stock, hybridisation with the domesticated Bactrian camel and disturbance by nomadic herdsmen.

CAPTIVE BREEDING

There are few records of *C. ferus ferus* having been bred in captivity (ten in two institutions) (ISIS, 1993). However, there is believed to be a small semi-domesticated herd in the Gobi Altai in Mongolia. The wild camel and its domestic relative can be cross-bred with the dromedary to produce fertile offspring. In inter-specific hybridisation it is difficult to maintain hybrid vigour by breeding the first generation hybrids among themselves or by grading to either of the initial species, but maintenance of heterosis through criss-crossing has given positive results. The gestation period is about 400 days.

DOMESTICATION AND ECONOMIC IMPORTANCE

The wild camel is able to survive in the extremely harsh climate of the Gobi Desert. It has great powers of endurance and its domestic relatives are used as pack and riding animals in Mongolia and Afghanistan. The wool of the domesticated wild camel is used to make the felt of which the yurts of the nomads are made.

REMARKS

See FAO (1989).

Order *Artiodactyla*/Family *Cervidae*

- | | |
|-----------------------------|-----------------------|
| 1 Red deer | 7 Fallow deer |
| 2 Sika deer | 8 Chital or Axis deer |
| 3 Wapiti | 9 Reindeer/Caribou |
| 4 Sambar | 10 Musk deer |
| 5 Rusa, Timor or Javan deer | 11 Pere David's deer |
| 6 Hog deer | 12 Moose/Elk |

The wild relatives of the several deer species which have been domesticated or semi-domesticated in recent years are in most cases still present in the wild in considerable numbers. Some local geographic subspecies are, however, classified as endangered or vulnerable by IUCN.

Deer of various species have long been exploited by man as mobile sources of meat. On military expeditions the Romans herded fallow deer as a source of meat and more than a thousand years ago, red deer were driven down from the Scottish Highlands for winter meat supplies.

In recent years there has been much interest in the domestication and farming of different species of deer under varying degrees of intensification. The main countries where this is taking place are as follows: red deer in New Zealand, Australia, Taiwan, Korea, Russia, China, United Kingdom and the United States of America; wapiti (elk) in New Zealand, Canada and the United States of America; fallow deer in New Zealand, Australia, United Kingdom, Denmark, Sweden, Switzerland, Germany and the United States of America; rusa deer in Australia, Mauritius, New Zealand and Papua New Guinea; sika deer in Taiwan and New Zealand; musk deer in China and India; and Pere David's deer in New Zealand. Although not yet truly domesticated, the European elk, *Alces alces*, has been tamed by bottle-raising the calves in Scandinavia and Russia. The number of farmed deer in the world is difficult to estimate because the industry is expanding at 20 percent per annum, however, in 1993 the international herd stood at well over five million (Chardonnet, 1993).

Hybridisation of deer of temperate zone origin with other species of tropical origin is becoming a common practice, especially on New Zealand deer farms, in an attempt to maximise production by manipulating the changes in the time of the mating season and gestation length which are displayed by the hybrids.

Wapiti, sika and Pere David's deer all hybridise with red deer and produce fertile offspring. Tuberculosis is proving to be a considerable problem in domesticated deer herds especially in New Zealand, United Kingdom and the United States of America.

New Zealand now has over 5 000 deer farms carrying more than a million deer. New Zealand has declared so-called farmed deer to be domestic animals and these must now be slaughtered in Deer Slaughter Premises that

comply with the standards for export abattoirs. The export of velvet (dried developing antlers) is subject to export protocol standards and to health regulations relating to the processing of a food product. These regulations are primarily hygiene-based. Deer of several species are undergoing various degrees of domestication in several European countries, the United States of America, Canada, Southeast Asia and Australia.

TABLE. 3.6.1: SOME REPRODUCTIVE PARAMETERS OF THE WILD RELATIVES OF FARMED DEER.

SPECIES	GESTATION PERIOD (DAYS)	DIPLOID CHROMOSOME NO.
Red deer	231	68
Sika deer	228	64 - 68
Wapiti	238	68
Sambar	240	58, 64, 65
Hog deer	225 - 230	68
Fallow deer	225	68
Rusa or Javan deer	250	60
Chital or Axis deer	210 - 225	66
Reindeer/Caribou	240	70
Musk deer	178 - 198	?
Pere David's deer	190	68
Moose/Elk	216 - 231	?

Source: (Hsu and Benirschke, 1977)

1 RED DEER

Cervus elaphus

NOT THREATENED

The red deer survives as at least five subspecies and several geographic races whose status ranges from critical to not threatened. The subspecies under domestication throughout the world are the nominate species, *C.e. elaphus* (the red deer of United Kingdom), *C.e. sibiricus* (the maral of Iran, Turkey and Russia) and *C.e. canadensis*, (the wapiti of North America). The maral is considered not threatened and under domestication is often hybridised with the wapiti (which is also considered not threatened).

C.e. elaphus has been introduced into Morocco, United States of America, Argentina, Chile, Australia and New Zealand. The wapiti (also called elk in North America), which is the largest race of the red deer, has been introduced into New Zealand and the Ural mountains of Russia. Deer farms, often largely populated with *C.e. elaphus*, are

springing up all over the temperate world, especially in the Antipodes, Europe, North America and European Russia (in Russia there are 40 000 wild and 46 000 domestic maral). The wapiti and the maral are frequently crossed with the red deer and produce fertile offspring.

2 SIKA DEER

Cervus nippon nippon

NOT THREATENED

The sika deer is native to Japan and survives globally as at least 13 subspecies. The status of these varies between critical and not threatened. Only the Vietnamese race (*C.n. pseudaxis*) is truly tropical. The Taiwanese race (*C.n. taioanensis*) and the Kopschi Sika (*C.n. kopschi*) are sub-tropical. The sika species under domestication is the nominate, *C.n. nippon*, which has been introduced into the United Kingdom, Ireland, Madagascar, Denmark, France, Germany, Czech Republic, Azerbaijan, United States of America and Oshima Island in Japan. In Russia there are 15 000 wild and 65 000 domestic sika deer. Sika deer comprise 78 percent of the deer farmed in Asia (excluding Russia and the reindeer). The Taiwanese sika deer has disappeared from the wild, but survives in large numbers on deer farms from which it is now possible to reintroduce this subspecies back into its former wild habitat (Chardonnet, 1993). The sika deer is well suited to domestication since it is gregarious and polygamous, withstands high densities and close confinement, is easily tamed and is a rough grass grazer.

3 WAPITI OR ELK

Cervus elaphus canadensis

NOT THREATENED

See Red Deer, *C.e. elaphus* above.



Photo 3.16: Sambar (India). Now under domestication.

4 SAMBAR

Cervus unicolor unicolor

NOT THREATENED

This large deer is present in some numbers in India, Sri Lanka, Myanmar, Thailand, Cambodia, Laos, Vietnam and China. Other geographic races occur locally in China, Taiwan, Sumatra and Malaysia. It has been intro-

duced into Australia, New Zealand and the United States of America. Its status varies. The nominate race is not threatened but some geographic subspecies are vulnerable or endangered. Sambar are farmed on a small scale in Vietnam, Taiwan and Thailand.

5 RUSA, TIMOR OR JAVAN DEER

Cervus timorensis russa

NOT THREATENED

This small deer species is native to Indonesia where it occurs as six geographic races, the status of which are largely unknown. Rusa have been introduced into the Indonesian island of Ambon, Sulawesi, Mauritius, Comoro Islands, Madagascar, Brazil, Australia, New Caledonia and New Zealand. Most of these introductions have been for the purpose of establishing deer farms in the tropics where the rusa, a truly tropical deer, is ideally adapted. It hybridises with the red deer to produce fertile offspring.

6 HOG DEER

Axis porcinus

NOT THREATENED

This small forest deer is a relatively common inhabitant of Southeast Asian forests and is not threatened. It breeds freely in captivity and is kept on a small scale in Thailand and Australia. The hog deer has some potential for domestication and will probably be farmed in larger numbers in the future.



Photo 3.17: Hog deer (Thailand). A small Asian forest species with potential for domestication

7 FALLOW DEER

Dama dama

NOT THREATENED

The natural distribution of *D. dama* in historic times has not been defined, but probably includes most European countries and Turkey. A subspecies, *D.d. mesopotamica*, whose status is critical, occurs only in Iran. *D. dama* has been introduced into South Africa, Australia, Fiji, United States of America, Argentina, Chile, Peru, Uruguay and the Leeward Islands. It is a popular species for semi-domestication for deer parks in Europe, some of which have main-

tained it for hundreds of years. Artificial insemination has been successful in farmed fallow deer (Asher *et al.*, 1988). It is not threatened in the wild.

This species is highly susceptible to tuberculosis and is believed to have been the source of a tuberculosis outbreak in the animal collection of the late King Khalid of Saudi Arabia. The collection contained numerous valuable native oryx and gazelles and years of work and huge sums of money were required to clear these animals of tuberculosis. This case is a cautionary tale on how expensive it can be not to follow sound health and hygiene procedures with captive animals. It also indicates that the susceptibility of deer to tuberculosis is a very important management issue.

8 CHITAL OR AXIS DEER

Axis axis

NOT THREATENED

The chital is a native of Sri Lanka, Bangladesh and India and is not considered to be threatened. It has been introduced into the Hawaiian Islands, New Guinea, Australia, Brazil, Argentina, Balkans, United States of America and the Andaman Islands. Axis deer are non-seasonal breeders and come into oestrus throughout the year, regardless of the latitude at which they are kept. Thus the date of the birth of the fawns can be programmed by controlling the time of access of the bucks. If it is arranged for the does to fawn in the early spring this would give their fawns a two-month advantage over red deer and fallow deer which, being seasonal breeders, rut in the autumn and give birth the following summer (Kyle, 1990).

9 REINDEER/CARIBOU

Rangifer tarandus

NOT THREATENED

The caribou is the wild relative of the domestic reindeer, an animal of great economic importance in northern Scandinavia and Russia. Reindeer farming in these harsh northern climes is said to be more profitable than fur farming, fishing or farming other domestic species for meat.

The main differences between the wild caribou and the domesticated reindeer are believed to be behavioural. When reindeer are threatened by wolves, they herd or form a compact group. When wild caribou are so threatened they scatter in all directions. It seems possible that today's domestic reindeer have been selected for the herding propensity, which, of course, renders them much more manageable than if they scattered like the caribou. If this is the case, it might take a long time to domesticate Canadian caribou satisfactorily, as suggested by Mason (1981). So far the caribou has never been domesticated. Domestic reindeer have been introduced into Canada and South Georgia, Malvinas. When domestic reindeer were introduced into western Greenland from Norway, they brought

with them two important parasites, a warble fly and a nasal bot fly, which have had a severe impact on the native, wild caribou (Thing and Thing, 1983; Woodford and Rossiter, 1993).

DISTRIBUTION AND CURRENT STATUS

The reindeer/caribou is widely distributed in northern Scandinavia, Russia, Kazakhstan, the Greenland coastal areas and northern North America. There are estimated to be two million wild caribou in Canada and 900 000 wild reindeer in Russia. With about 2.3 million domestic reindeer, Russia has 74 percent of the world's domestic reindeer stock.



Photo 3.18: Reindeer (Norway). Domestic counterpart of the conspecific wild caribou, this animal is of great economic importance in Scandinavia and Northern Russia.

THREATS TO SURVIVAL

There are no immediate threats to the survival of the wild reindeer in the Old World or the caribou of the New World. In northern Russia (Taimyr Peninsula) outbreaks of anthrax have taken a heavy toll. On occasion, Rinderpest and Foot-and-Mouth disease have also caused considerable losses in northern Russia. Wolf predation may be significant in some areas.

CAPTIVE BREEDING

Reindeer breed freely in captivity. The chromosome numbers for reindeer and caribou are $n = 72$ to 74 .

DOMESTICATION AND ECONOMIC IMPORTANCE

Domestication of reindeer is believed to have originally taken place in northern Russia. It is commonly assumed that reindeer domestication was achieved by group or herd taming rather than by habituating individuals. Primitive hunters probably followed the wild herds and gradually took over management of them, rather than undertaking the laborious task of catching and rearing individual young animals. The economic importance of reindeer husbandry in northern latitudes cannot be overestimated and several national minorities are totally

dependent on this animal. Reindeer products provide humans with all they need for survival in the rigorous northern conditions. Reindeer produce high quality venison, skins, fur and velvet (unossified developing antlers) which contains biologically active substances used in oriental medicine. Reindeer are also used as transport animals.

Four native domestic reindeer breeds have been identified in the Commonwealth of Independent States (CIS). These differ in productivity and conformation as well as in adaptation to environmental and climatic conditions. These breeds are the result of selection by various northern tribes.

10 MUSK DEER

Moschus moschiferus moschiferus

ENDANGERED

There are at least five subspecies of musk deer. The musk deer, which is not a true deer but belongs to its own family, the *Moschidae*, is a very small animal, standing 50 - 60 cm at the shoulder and having a mature weight of 6 - 11 kg. Neither sex has antlers but the males have long upper canine teeth, which project downwards well below and over the lower lips. Musk deer mainly occur in dense upland woodland. In the Himalayas their upper limit coincides with the tree line which is at about 4 600 m at the eastern end.

DISTRIBUTION AND CURRENT STATUS

The musk deer is widely but irregularly distributed in small numbers throughout the forested mountainous parts of most of Asia. There is a population that extends from just north of the Arctic Circle southwards to the northern edge of Mongolia and Korea. Others occur in China, Vietnam, Bhutan, Assam, Tibet, Indian Himalayas, Nepal, northern Pakistan and Afghanistan. With the exception of China and Bhutan, where the numbers are probably stable, populations are very localised and declining. In south China, a recent estimate puts the musk deer population at 100 000 head, while in western and north-western China between 200 000 and 300 000 are said to occur.

THREATS TO SURVIVAL

The main threat to the musk deer is uncontrolled hunting which in most places is driving the animal to extinction. Livestock and deforestation are increasingly eroding their habitat. The hunting methods employed are particularly unselective and wasteful. Most are snared in traps, caught in nets or killed by poisoned stakes set in their trails. These methods kill all animals indiscriminately, even females and fawns which do not produce musk. This waste of young and reproductive animals is extremely destructive to the population.

CAPTIVE BREEDING

Musk deer farms have existed in China since 1958. Most of these are in Sichuan, Shanxi and Anhui Provinces. Despite heavy initial losses, mainly during transportation and acclimatisation, the Chinese now breed musk deer in considerable numbers. The gestation period of the musk deer is 178 - 192 days and the female bears one to three fawns per year.

DOMESTICATION AND ECONOMIC IMPORTANCE

The important product of the musk deer is the thick waxy secretion of small glands in the inguinal region of the male deer. This is called musk and is one of the most valuable substances in the animal kingdom. Musk is used in oriental medicines as well as in European perfumes and in recent years it has sold, by weight, for three times the price of gold. Musk is traditionally obtained by killing the deer and removing the glands.

The dried glands, called pods, contain about 30 g of a reddish brown waxy powder that is used as a fixative in the perfume industry and as an ingredient of more than 200 Japanese medicines. The international trade in musk originating from both northern and southern sides of the Himalayan divide amounts to 200 kg of musk per year which represents an annual slaughter of 20 000 - 30 000 male deer plus a similar number of females and young.

The musk deer being farmed in China are kept under primitive conditions, but non-lethal techniques for extracting musk using a curved spoon have been developed. However, so far the yield of musk has been small and the life of the captive deer short. In India small collections of musk deer have been established by the Forest Departments of Himachal Pradesh and Uttar Pradesh. At least one perfume factory in France is known to be interested in the domestication of musk deer in order to obtain a legal, humane supply of musk.

Trade in the Himalayan musk deer and its products is banned by all countries that are parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). However, products from musk deer from Russia, the CIS and China can be traded under license. Unfortunately, buyers of musk often require the whole pod (which can only be obtained after killing the animal) because the musk removed from the living animal can easily be adulterated and this creates market resistance to the farmed product.

The conservation of the remaining wild population of the musk deer will be difficult, so valuable is the product and so well organised are the poachers and smugglers. Nevertheless, conserving sufficient numbers in the wild is of great importance, if stocks are to be available for further domestication trials.

REMARKS

A full account of the musk deer and its biology can be found in National Research Council (1991).

11 PERE DAVID'S DEER

Elaphurus davidianus

ENDANGERED

Pere David's deer has been extinct in the wild for 800 years but has recently been reintroduced into China from captive sources in the United Kingdom. It is now maintained under semi-domestic conditions near the region in China where it originally occurred in the wild in the twelfth century. There is some experimental farming of Pere David's deer being undertaken in New Zealand.

One of the dangers of domestication projects is the possibility of genetic contamination of wild species by escaped domestic forms. Deer which are confined and are undergoing domestication often escape. These escapees can establish feral populations and in some cases can hybridise with local wild, indigenous species. For these reasons every care must be taken to prevent the escape of captive deer. Intensively farmed deer under domestication are also often infected with dangerous diseases like tuberculosis and escapees can transmit these diseases to local wild deer or other susceptible wild species.

12. MOOSE/ELK

Alces alces

NOT THREATENED

The European moose (sometimes also called the elk in Europe) is a common wild ungulate in Norway, Sweden, Finland, Russia, the Baltic States, Belarus and in the northern Commonwealth of Independent States (CIS). Small numbers also occur in some East European countries. For the species, the moose population density in Scandinavia is the highest in the world, with densities of up to three animals per square kilometre and a total number of almost one million. The moose is an important game animal in Europe and approximately 25 percent of the moose population of Scandinavia is harvested (shot) each year.

In North America, the moose occurs from Alaska to northern Colorado and extends into the central Rocky Mountains. Secondary vegetation growth following logging has provided a food source to allow a population expansion of moose northwards into Alaska and Canada. Moose have been introduced into Newfoundland and are becoming established there. The moose population of North America was estimated to be about one million in the 1970s and by now is probably considerably more.

The moose or elk, has been subjected to periodic attempts at domestication over many years. In Sweden, as far back as the seventeenth century, there are many

accounts of such activity. Attempts at domestication of moose continued in Russia and similarly of conspecific moose in North America. In Russia there are experimental farms on which moose have been divided into three groups - meat producers, milk producers and draught animals (Whitehead, 1993).



Photo 3.19: The Anderson moose team at the Manitoba Provincial Exhibition (Canada 1905).

Moose were also used in battle. After his eventual victory, one Russian general, whose horses had been terrified and consequently routed by moose-mounted cavalry, attempted to erase all memory of moose-training methods by widespread slaughter of both the animals and their owners (Stott, 1993; Whitehead, 1993). In Finland the private ownership of moose was once banned because bandits on mooseback could be certain of escaping from police officers mounted on slower horses.

In North America, Seton (1910) considered that moose were: "...much more tractable and valuable than reindeer...they are docile, easily trained, exceedingly swift and, being natural trotters, are well suited for light travel...". However, moose/elk are extremely difficult to maintain in captivity, owing to their very exacting nutritional requirements and their failure to meet Galton's (1865) basic criteria for hardiness has prevented them from becoming established as ranch or farm species. They are concentrate selectors (Hoffman, 1985) and do not thrive on grass and hay diets. On Russian experimental farms this problem has, to some extent, been circumvented by raising young moose and training them to go out each day to forage for their own food in their natural environment and to return in the evening to be milked (Syroechkovsky *et al.*, 1989). The best milk yields obtained from free-range moose were 430 litres per lactation at six litres per day.

Moose are susceptible to a variety of intestinal worms, winter tick infestation and malignant catarrhal fever. While the Russians have succeeded with animals that can range freely over the tundra, North American game farmers are likely to have many problems if they try to keep a number of these remarkable animals for any length of time. (Haigh, 1995).

The gestation period of the moose is 216 - 231 days.

Order *Artiodactyla*/Family *Bovidae*

- | | |
|-------------|-------------|
| 1 Eland | 5 Duikers |
| 2 Oryx | 6 Blackbuck |
| 3 Springbok | 7 Nilgai |
| 4 Impala | 8 Saiga |

The ranching of wild antelopes is now well established in eastern and southern Africa, often in association with domestic cattle.



Photo 3.20: Eland (Tanzania). This large antelope is the most suitable African species for domestication.

1 ELAND

Taurotragus oryx

NOT THREATENED

This large antelope is probably the most suitable African species for experimental domestication.

DISTRIBUTION AND CURRENT STATUS

The wild eland is widespread throughout the savannahs of eastern and southern Africa. It occurs in herds of up to 200 and is not at present threatened.

THREATS TO SURVIVAL

The main threats are overhunting, competition with domestic stock and disease transmission, particularly Rinderpest, by cattle.

CAPTIVE BREEDING

Eland breed freely in captivity.

DOMESTICATION AND ECONOMIC IMPORTANCE

There are small herds of domesticated eland in the Ukraine, Kenya, Zimbabwe and Nyae Nyae Farmers Cooperative in Bushmanland, Namibia. A very important, and to some extent successful, attempt at domesticating the eland is being made at Askanya Nova in the Ukraine. Here a large herd of eland, all descended from four bulls and four cows brought from Africa in 1892, is being selected for improvements in the quality of the meat and the quantity of milk production. The milk from about 50 milking eland cows is used in a local hospital for the treatment of gastric disorders and tuberculosis. In 1991, Askanya Nova was still very active in developing its herd of domesticated eland. In Africa, eland are generally kept on ranches for their very popular meat or as hunting trophies.

REMARKS

For further information see Kyle (1972) and Posselt (1963).

Other antelopes of interest for domestication:

There are a number of other African and Asian antelopes which may have potential for domestication or semi-domestication. These come from diverse habitats ranging from moist rain forest to arid savannah and semi-desert. They are thus adapted to some environmental conditions that are marginal for the production of conventional livestock because of drought, heat, disease, altitude, humidity and other constraints. Even if not subjected to the long process of domestication they may well prove to be more productive and less damaging to the environment than conventional livestock in marginal areas, once practical and sustainable management regimes have been developed. With the exception of the Saiga antelope, none of these animals are currently threatened with extinction. The animals concerned are:

2 ORYX

Oryx spp.

Eastern Africa

Two species, *O. beisa* and *O. callotis*, occur in Kenya and Tanzania and another, the gemsbok, *O. gazella*, in South Africa, Botswana and Namibia. *O. callotis* has been experimentally herded on the Galana Ranch in eastern Kenya where the meat has been sold at premium prices to hotels on the Kenya Coast. Thresher (1981) described the economics of this attempt to domesticate the oryx.



Photo 3.21: Oryx. An east African antelope undergoing domestication in Kenya.

The last herd of semi-domesticated oryx in East Africa is located on Baobab Farm, on the south-east Kenya coast.

3 SPRINGBOK

Antidorcas marsupialis

Southern Africa

Springbok are widely distributed throughout arid environments in South Africa, Botswana and Namibia, in terrain, which is unsuitable for conventional livestock. Meat is exported to Europe from areas that are free from Foot-and-Mouth disease.

4 IMPALA

Aepyceros melampus

East and Southern Africa

Impala are common woodland antelopes occurring throughout eastern and southeastern Africa, south of the Equator. Large numbers are harvested for meat in Zimbabwe and South Africa.



Photo 3.22: Impala (Kenya). An African woodland antelope of high productivity.

5 DUIKERS

*Cephalophus spp. and
Sylvicapra spp.*

sub-Sabellian Africa

These small forest-dwelling antelope are harvested in great numbers in the forests of West and Central Africa where they provide a major source of protein, in the form of so-called bush meat, for the local people. Many species are now becoming scarce due to habitat destruction and over-harvesting.

6 BLACKBUCK

Antelope cervicapra

*India (Australia, United
States of America, Argentina)*

Blackbuck are widespread in north-western India (Rajasthan) and are well represented in protected areas throughout peninsular India. Total numbers in India exceed 10 000 and are stable or increasing. Blackbuck are farmed for meat in Texas, United States of America (more

than 20 000 are kept on 326 ranches (1988)), on the pampas of north-west and central Argentina (more than 10 000 head in the mid-1980s) and in New South Wales, Australia (East, 1993).

Blackbuck are capable of a very high level of productivity. With a gestation period of only five months and with post-partum conception occurring one month later, two fawns can be produced each year. Blackbuck were domesticated by the Mogul emperors who kept them as fighting animals.



Photo 3.23: Blackbuck (India). A very productive antelope currently undergoing domestication.

7 NILGAI

Boselephas tragocamelus

*India, Nepal
(United States of America)*

The nilgai or bluebuck is endemic on the Indian subcontinent where it is widespread outside areas of high or low extremes of rainfall. The total population in India is more than 10 000 and is stable or increasing. The nilgai is well represented in protected areas throughout India where at least three parks have a population in excess of 1 000. The nilgai's status is also good in Nepal.

Introduced populations are well established on ranches in Texas, United States of America (East, 1993). This large Indian antelope weighs up to 250 kg and regularly produces twins each year. It is the largest antelope in the world capable of such a level of production. With twice the annual output of calves compared to the similar-sized red deer, the nilgai could well compete with that species when farmed for meat (Kyle, 1990).

8 SAIGA

Saiga tartarica

*THREATENED
Kazakhstan, Kalmykia and Mongolia*

The saiga antelope is an inhabitant of the dry steppe and semi-deserts of Kazakhstan and the Autonomous Russian Republic of Kalmykia. There is also a small population in Mongolia.

By the end of the nineteenth century and during the first

20 years of the twentieth century the considerable saiga populations in the then Soviet Union underwent a marked decline and were hunted to extinction in many areas. The cause of the decline was the export of saiga horns to China for pharmaceutical purposes. One customs post alone recorded the export of 3.95 million pairs of horns.

Recovery of the saiga population began following the Russian Revolution when vast areas of the arid zones were cleared of human settlement, and by the end of the 1950s the Kazakhstan population had reached 2 million. Since then another decline has set in due to the resumption of the poaching of horns for the Chinese market, intensive agricultural development, competition with domestic sheep for forage and water and obstruction of migration routes by irrigation canals and farm fences.

Disease, possibly acquired from contact with domestic livestock, may also present a hazard to the saiga. Anthrax, Foot-and-Mouth disease, brucellosis, yersiniosis and pasteurellosis have all been documented. Predation by wolves is considered to be significant in some areas.

Today the saiga populations of Kalmykia are reduced to about 15 - 20 percent of their peak in 1958, when their estimated number was almost one million. When conditions of nutrition are good and disturbance is minimal the productivity of the saiga is high and an average of 1.6 fawns per female of all ages per annum is reported.



Photo 3.24: Juvenile saiga (Russia, Kazakhstan). A small antelope with considerable potential for management as a sustainable source of meat, skins and horns.

Saiga antelopes have considerable potential for management as a sustainable resource (meat, skins and horns), provided poaching can be controlled and competition with domestic livestock reduced (Milner-Gulland, 1994).

About 200 saiga antelopes are currently being raised under extensive, fenced conditions at Askanya Nova in the Ukraine and plans are being made to determine the feasibility of producing saiga under semi-intensive conditions or on game farms on the Kalmykian Steppe. Saigas are listed amongst the ten most endangered species by the World Wide Fund for Nature (United States of America).

Ovibos moschatus

Order *Artiodactyla*/
Family *Bovidae*/Tribe *Ovibovini*
NOT THREATENED

The musk ox is an arctic bovid belonging to the subfamily *Caprinae*. While it resembles the ox, serologically it is closer to the sheep. It has the most northerly distribution of all ungulates.

Musk oxen are large animals with compact bodies, thick necks and short legs. In the wild males stand 1.35 m at the shoulder and weigh about 300 kg. Females are smaller by one-third. The heaviest known wild male musk ox weighed 408 kg. In captivity, adult males of six years can weigh about 650 kg.

Musk oxen have a long coat of dark brown hair but the saddle and legs are light cream. Mature males have a large reddish mane which stands out and makes the animal look bigger. The coat of the musk ox consists of long coarse guard hairs which hang down almost to the ground. Beneath the guard hairs is a woolly undercoat called quiviut. The quiviut which is very fine, soft and curly, accounts for 60 - 80 percent of the fleece and covers the entire body. The combination of guard hairs and quiviut provides such efficient insulation that the musk ox can survive a critical ambient temperature of -70°C while maintaining a body temperature of 38.4°C .

DISTRIBUTION AND CURRENT STATUS

The wild musk ox is found only on the tundra of Canada, Greenland and in Taimyr and Vrangal Island in Russia. The population in Canada (including those on some small experimental farms) is now estimated at 107 600, but in Greenland there are far fewer. Some musk oxen in Greenland have recently been translocated further up the western coast from Kangerlussuaq in order to establish a new population near Illulissat.



Photo 3.25: Musk ox (Greenland). An arctic bovid with high potential for the production of meat and fibre.

There are few threats to the musk ox population. Extremes of weather, predation by wolves and polar bears and in the past, overhunting have all taken a toll but the world population is now healthy and increasing. The musk ox is a protected species throughout the Arctic.

CAPTIVE BREEDING

The global captive population of musk ox is 86 in 21 institutions (ISIS, 1993). There are also several experimental musk ox farms in Canada, Alaska, Norway and Siberia. Introduced herds of translocated musk oxen have increased at over 30 percent per annum in western Greenland and do not, so far, appear to be damaging their environment. The chromosome number for the musk ox is $2n = 48$.

DOMESTICATION AND ECONOMIC IMPORTANCE

The musk ox is a prime candidate for domestication in the tundra areas of the world. It is easy to tame, gregarious, docile, sedentary and can be herded. Domestication of musk oxen on experimental farms began in the United States of America and Canada in the 1950s. In 1969, a musk ox farm was set up at Bardu in northern Norway and in 1974/75 a group of musk oxen were shipped from Canada and the United States of America to Taimyr and Wrangel Island in Siberia. The chief resource of the musk ox is the very fine and abundant under-wool or quiviut that is shed by the animals in the spring. This product is spun into a fine, uniform yarn, which is easily dyed different colours. Garments made from quiviut yarn are warm, attractive and very expensive. For example, even in 1981, quiviut was being sold for US\$ 170/kg. In Greenland the musk ox is harvested by the Inuit in autumn as a meat supply for the winter.

REMARKS

For further information see Wilkinson (1974 and 1975) and FAO (1989).

Order *Proboscidae*/Family *Elephantidae*

1 Asian elephant

2 African elephant

The two species have been placed in two separate genera, *Elephas* being the Asian genus and *Loxodonta* being the African genus. Elephants are probably the only animals employed by man that have never been bred selectively.

1 ASIAN ELEPHANT

Elephas maximus

ENDANGERED

DISTRIBUTION AND CURRENT STATUS

Today the Asian elephant occurs in Bangladesh, Bhutan, Myanmar, Cambodia, China, India, Indonesia, Laos, Malaysia, Nepal, Sri Lanka, Thailand and Vietnam. The total population of the Asian elephant is estimated to be between 50 000 and 63 000, of which between 36 000 and 46 000 remain in the wild. Country populations vary from less than 100 in Bhutan and Nepal to possibly over 20 000 in India - but these numbers are the maximum - the minimum could be far less. Table 3.9.1 shows that there are about 15 000 elephants in captivity in Asia. This represents between one quarter and one third of the estimated total population, wild plus captive. A further consideration is that in some wild populations the sex ratio is now believed to be 1:3 to 1:5 adult males to adult females, due to selective killing of bull elephants for their ivory. The captive herd also contains a preponderance of cow elephants because these tend to be more docile and are easier to train. Imbalances in the sex ratio of the adults in the wild result in a decrease in the effective population size. Sex ratios in wild juveniles are likely to be 1:1 but as remarked above, females are selectively captured for domestication. This would seem to help to redress the adult sex ratio imbalance in the wild in those places where elephants are captured. The capture of wild elephants is now illegal in India and has ceased in Myanmar.

THREATS TO SURVIVAL

The main threats to the wild Asian elephant population are habitat destruction, illegal hunting, unsustainable capture quotas for recruits for domestication, warfare and the pressure of expanding human populations. Land mines left by various armies have taken a heavy toll on wild elephants (and other large wild mammals) in Southeast Asia.

CAPTIVE BREEDING

The global captive population of Asian elephants is 412 in 147 institutions (ISIS, 1993). In the past captive breeding of domesticated elephants has been discouraged because the young elephant is of no use for work until it

is about 12 years old, and it has been easier and cheaper to capture animals of that age from the wild. However, the annual attrition of the domestic elephant herds is about seven percent and the number of recruits needed to offset this loss is too great for the accessible wild herds to sustain. It is now recommended that, where capture is still permitted, not more than two percent of the most reliable estimate of the wild population should be captured each year for domestication and that breeding of replacements in captivity should be undertaken to make up the shortfall (Caughley, 1980).



Photo 3.26: Asian elephant (India, Myanmar). An indispensable source of traction in Southeast Asian forestry operations.

DOMESTICATION AND ECONOMIC IMPORTANCE

Domesticated for several thousand years, the Asian elephant is still of great value in the timber industries of several Asian countries where it can be used in implementing the policy of selective felling rather than clear felling. Selective felling is a much more sustainable way of forest exploitation and is far less damaging to the environment.

The economic and environmental advantages of using trained elephants in forestry operations are many. A trained elephant, 20 years old, costs about US\$ 6 000 in Thailand and has a working life of 30 years. A crawler tractor to do similar work costs US\$100 000, has a working life of six years and requires skilled and expensive maintenance. Trained elephants are environmentally and user friendly. Their use obviates the need to cut the expensive logging roads that are essential for the use of heavy machinery. Trained elephants can negotiate rough, hilly country where no machinery can go. Unlike machinery, elephants do not rust, corrode or pollute the environment. They do not depend on expensive spare parts and their dung acts as both a fertilizer and as an agent of seed dispersal in the forest. The use of elephants in the extraction of timber greatly reduces the environmental damage caused by heavy machinery and thus reduces soil erosion and compaction (Santiapillai, 1992). Asian elephants are increasingly used as viewing platforms by tourists in Asian National Parks and are becoming a feature of many eco-touristic enterprises.

REMARKS

Only male Asian elephants carry tusks and some of these do not. The percentage of males carrying ivory varies by region from only seven percent in Sri Lanka to 90 percent in South India.

For a full account of the status of the Asian elephant and its conservation see Santiapillai and Jackson (1990) and FAO (1997).

2 AFRICAN ELEPHANT

Loxodonta africana

VULNERABLE

Domestication and training of the African elephant was attempted with some success by the Belgians at Gangala-na-Bodio in the north-eastern reaches of the Democratic Republic of Congo at the beginning of this century. The motive for this effort was to provide transport to move the cotton crop from the fields to the distant roadhead. At one time there were over 100 trained elephants in the Democratic Republic of Congo. There are now four and these are not very reliable. However, there are plans to restore the Gangala-na-Bodio elephant training station to provide riding elephants for the adjacent Garamba National Park. Trained African elephants are also being used as tourist platforms in Botswana.

CAPTIVE BREEDING

The global captive population of African elephants is 905 in 107 institutions (ISIS, 1993).



Photo 3.27: African elephant (Uganda). Under experimental domestication for tourist transportation in the Democratic Republic of Congo, Botswana and South Africa.

TABLE 3.9.1: ESTIMATED NUMBERS OF WILD AND CAPTIVE ELEPHANTS IN ASIA.

COUNTRY	WILD	CAPTIVE	TOTAL
Bangladesh	281 – 348	50	331 – 398
Bhutan	up to 60	0	up to 60
Myanmar	3 000	5 400	8 400
Cambodia	2 000	500 – 600	2 500 – 2 600
China	250	15	265
India	17 310 – 22 115	2 200 – 2 800	19 510 – 24 915
Indonesia	3 300 – 5 300	50-100	3 350 – 5 400
Laos	2 000	1 000 – 1 300	3 000 – 3 300
Malaysia (Peninsular)	825	below 50	below 875
(Sabah)	500 – 2 000	0	500 – 2 000
Nepal	25 – 38	60 – 80	85 – 118
Sri Lanka	3 051 – 3 435	400 – 500	3 451 – 3 935
Thailand	2 600 – 3 650	3 500 – 5 000	6 100 – 8 650
Vietnam	1 000	600	1 600
Totals:	36 202 – 46 021	13 825 – 16 495	49 527 – 62 516

Source: IUCN

Order *Carnivora*/Family *Ursidae*

- 1 Asiatic black bear (*Ursus thibetanus*) *VULNERABLE*
 2 Brown bear (*Ursus arctos*) *NOT THREATENED*

Bears have been valued for centuries in Asia for medicine and food. In some Asian countries they are also favoured as pets and in some Buddhist cultures the keeping of a bear as a pet is a way of earning religious merit. There are eight bear species, worldwide. Of these, two, the Asiatic black bear and the brown bear are farmed in China and North and South Korea for their bile which is believed to have curative properties for many human diseases.

DISTRIBUTION AND CURRENT STATUS

The distribution of the Asiatic black bear extends through most of southern Asia. The western edge of its range was formerly Afghanistan and it still ranges across Pakistan, extending eastwards over northern India, southern China, Southeast Asia, eastern Russia, Korea and Japan. It is believed to prefer to live on forested hills and in tropical moist forests, below alpine elevations. The exact status of the Asiatic black bear is uncertain throughout much of its range, except for the dense forests of Laos, Myanmar and eastern Russia. It is the favoured species for traditional medicine and unusual cuisine and is the most available species in the three countries where these uses are prevalent - China, Japan and Korea. The Asiatic black bear is listed among the ten most endangered species by the World Wide Fund for Nature (United States of America).

The brown bear is the most widespread of any bear species, occurring in Europe, Asia and North America from the northern arctic tundra to the dry southern deserts. This range is now becoming reduced by the spread of firearm use, human encroachment and habitat destruction. Many brown bear populations are now isolated and face extinction due to loss of genetic diversity. Worldwide, all bear species except the American black bear (*U. americanus*) and the polar bear (*U. maritimus*) are thought to be in decline (Servheen, 1990).

THREATS TO SURVIVAL

The future for both the Asiatic black bear and the brown bear remains uncertain. The major threats facing both species are uncontrolled hunting (because of the increasing commercial demand for gall bladders for medicine and bear parts for food) and deforestation (causing habitat loss and fragmentation). The demand for bear gall bladders for traditional medicine is linked to the increasing affluence of China, Japan and South Korea. It is unlikely that bears will be able to maintain viable wild populations given the escalating prices, asked for and received, for gall bladders, bile and edible parts (Mills and Servheen, 1991).

Bears breed freely in captivity. The global captive population of the Asiatic black bear is 131 in 48 institutions and of the brown bear 170 in 38 institutions (ISIS, 1993). In captivity, usually in Asia, Asian black bears and brown bears occasionally cross-breed to produce fertile hybrids. The gestation period of the Asian black bear is 200 - 240 days and of the brown bear 180 - 210 days but bears undergo delayed implantation for a variable period and the embryonic gestation is actually about 60 days. Twin cubs are produced annually by both species.

DOMESTICATION AND ECONOMIC IMPORTANCE

Bears have achieved such a high economic value that in China and North and South Korea they are now being farmed for their parts and milked of their bile while alive. Since the mid 1980s the government of China has encouraged the establishment of bear farms. There are now over 30 bear farms in China each holding over 100 bears - one, in Sichuan Province, has more than 450 - and many smaller farms which keep a few bears. Farmed bears, of which China has a total of about 10 000 (1995) lack one of the main bile salts (choly-aurine) which is found in wild bear gall. This may account for the popularity of wild bear gall and thus the extensive illegal killing of wild Asian black bears (United States Fish and Wildlife Service Forensic Laboratory report). China now milks enough bile from captive live bears to satisfy the country's domestic needs, but it has a state-mandated goal of ultimately having 40 000 bears in captivity for the commercial production of bile salts, according to statements made at a recent bear conference in Harbin, China. The Sichuan Province farm extracts more than 500 kg of dried bile salts from living bears by means of catheters surgically implanted in their bile ducts. A bear can produce 3 kg of dried bile salts annually which sell for about US\$ 5/g. South Korea had 14 bear farms in 1989 and there bear gall bladders, mostly imported from China, are priced, gram for gram, at up to 18 times the price of gold (US\$ 11.53/g in 1991). North Korea has been farming bears for bile for more than 20 years and at least one bear park in Japan proposes to begin extracting bile from its bears.

Bear gall bladders (from slaughtered bears) and bile (from living bears) are valuable and powerful medicines used throughout Asia for the treatment of high fever, convulsions, burns, swollen eyes, jaundice, hepatitis, haemorrhoids, cirrhosis of the liver, diabetes, high blood pressure, heart disease, palsy and tooth decay. Bear gall is used in Japanese medicine for children to relieve night crying, colic and diarrhoea. Bear meat, especially the paws, is increasingly a novelty dish in Japan, where it has great status appeal. The consumption of bear meat is said to aid rheumatism, weakness, beri-beri with paralysis and general strength of mind and body (Read, 1982; Mills and Servheen, 1991). A live bear is worth US\$ 1 400 - 2 700 in China, US\$ 2 000 - 4 000 in Thailand and US\$ 7 100 in South Korea (1993). Most bear parts originate in Malaysia

and Thailand (and increasingly in the United States of America, Canada and Russia). The main consumer countries are Hong Kong, China, Taiwan, Singapore, South Korea and Japan.

REMARKS

For information on the status of the bears of the world and the Asian trade in bears see Servheen (1990); Mills and Servheen (1991) and Brown (1993).

3.11

RODENTS

Order *Rodentia*

- | | |
|--------------------|----------------------------|
| 1 Agouti | 7 Paca |
| 2 Capybara | 8 Vizcacha |
| 3 Coypu | 9 Giant rat |
| 4 Wild guinea pigs | 10 Grasscutter or Cane rat |
| 5 Hutia | 11 Other rodents |
| 6 Mara | |

Rodents are the world's most adaptable and prolific animals. They reproduce well, grow fast, learn quickly and adapt to a wide variety of local conditions. Many convert coarse vegetation into meat efficiently even though their stomachs are simple.

Previous domestication of the guinea pig, laboratory rat and mouse, gerbil and hamster supports the notion that other species might be similarly utilised. Already much rodent meat is consumed throughout the world. In Latin America, especially in Peru and other Amazonian regions, about 85 percent of the total protein in the human diet comes from hunted rodents. In tropical West Africa and Botswana the annual harvest of the springhare (*Pedetes capensis*) exceeds 3.3 million kg. Peru has 20 million domestic guinea pigs that produce annually between 16 000 and 17 000 tons of meat. The killing-out percentage (dressed weight) of many rodents often exceeds 60 percent, yet rodents are seldom included in livestock programmes or economic development plans.

The wild animals briefly described in this section have either been domesticated, are undergoing experimental domestication or have potential for exploitation.

The source of much of the information in this section can be found in National Research Council (1991).

1 AGOUTI

Dasyprocta spp.

Family *Dasyproctidae*

NOT THREATENED

Prolific, hare-sized, diurnal rodents, highly valued for their meat and relentlessly hunted throughout their range. Adults weigh 2 - 5 kg.

DISTRIBUTION AND CURRENT STATUS

The agouti is found throughout the lowland tropical forests of Latin America, from southern Mexico to Paraguay and on many islands of the Caribbean. It is becoming rare in Mexico and Costa Rica. Hunting of agoutis is prohibited in Brazil, but nevertheless still continues.

THREATS TO SURVIVAL

The main threats are excessive hunting for sport and food and habitat destruction. Agoutis are said to be highly susceptible to Foot-and-Mouth disease.

CAPTIVE BREEDING

Agoutis breed freely in captivity and a research project on captive breeding of two local agouti species, *D. mexicana* and *D. punctata*, for food has been set up at Tuxtla Gutierrez, Mexico. The gestation period of the agouti is 3.5 - 4 months. Twins are usually born.

DOMESTICATION AND ECONOMIC IMPORTANCE

Although wild agoutis are very shy, when taken young they tame easily. Domestication would appear to be possible once a system of husbandry has been worked out. Since agoutis are popular game animals, their meat is widely accepted. However, the agouti has two very active anal glands that produce a strong odour. This can taint the meat unless they are carefully removed after slaughter. Agoutis in captivity are very smelly and unpleasant to work with (Smythe and Brown de Guanti, 1995).

REMARKS

Agoutis often save nuts and seeds by digging holes in scattered places and burying them. This behaviour helps disperse the seeds of many tree species and provides a degree of reforestation. The dispersal and germination of Brazil nut seeds is entirely dependent on the forest-dwelling agouti which is the only rodent able to open the hard shell which encases the nut (World Bank Information Brief, 1993).

2 CAPYBARA

Hydrochoerus hydrochaeris Family *Hydrochoeridae*
NOT THREATENED

The capybara is the world's largest rodent and is as big as a sheep. It often weighs over 50 kg. These reddish-brown rodents move freely on dry land and having webbed feet are good swimmers. They dive with ease and can remain submerged for about 5 minutes.

DISTRIBUTION AND CURRENT STATUS

The capybara occurs in flooded grasslands from Panama to Paraguay, mainly in the watersheds of the Orinoco, Amazon, Paraguay and Parana Rivers. Large populations live in the Pantanal of western Brazil and on the llanos flood plains of Venezuela and Colombia. While capybaras occur in large numbers (one ranch in Venezuela had 47 000 capybaras on 50 000 ha) in many areas they have been deliberately exterminated by farmers who think they compete with cattle and transmit diseases. The capybara is rarely found more than 500 m from water in which it takes refuge when pursued.

THREATS TO SURVIVAL

The main threat is illegal hunting especially in the dry season when the animals concentrate around waterholes. Disease hazards include Foot-and-Mouth disease, brucel-

losis and trypanosomiasis. The latter of which may present a constraint to captive production *in situ*, since in one area 55 percent of the capybaras died of the disease, which was shown to have been due to infection with *Trypanosoma evansi* (Schaller and Crawshaw, 1981).

CAPTIVE BREEDING

Capybaras were bred in captivity in Brazil as early as 1565. Confining capybaras at high densities may create serious problems of intra-specific aggression. Nevertheless, capybara farming is considered to be very feasible (Ojasti, 1991). The animal is large, has a high reproductive potential, grows fast, eats grass, has few major health problems, lives in groups and is easy to handle. Production systems for capybaras have been developed and tested in Brazil (Alho, 1986), Colombia (Fuerbringer, 1974) and Venezuela (Sosa-Burgos, 1981) and the feasibility of raising capybaras in captivity has been demonstrated beyond any doubt. The gestation period of the capybara is 100 - 110 days and one or two litters of 4 - 6 young are produced annually.

DOMESTICATION AND ECONOMIC IMPORTANCE

The Institute of Animal Production in Venezuela started a captive-breeding programme in 1970. A similar project is in progress in Colombia and guidelines for raising capybara have been published. In Brazil, research has been carried out into capybara nutrition, genetics, management, reproduction and social behaviour in captivity. This research is being conducted by the University of Sao Paulo at its Wildlife Research Centre (CIZBAS). Young capybaras can reach a live weight of 35 kg in 10 months (Parra *et al*, 1978) and annual productivity is said to exceed that of cattle in many parts of their range. Kyle (1987) compares the meat production of Venezuelan capybaras with cattle production and concludes that a female capybara can produce 60 kg of meat a year as compared to 40 kg produced by a cow under the current Venezuelan production systems.



Photo 3.28: Capybara (Argentina). The largest rodent in the world with high potential for ranching for meat and skins.

The species is widely eaten in South America and in Venezuela more than 500 tons of meat are sold each year. The hide of the capybara is considered excellent for glove making and is sold for high prices on the European market, where the leather is known as Carpincho. Rennet from the stomachs of capybaras is used for the production of a starter for cheese. The meat of this semi-aquatic animal has long been approved by the Vatican for consumption on traditional Roman Catholic meatless days. It is now an important food during Holy Week in Colombia and Venezuela. Another commercial product of the capybara is oil, which is extracted from subcutaneous fat and yields up to 4 litres per adult animal. Capybara oil is valued as a popular medicine for asthma (Ojasti, 1991).

REMARKS

The rising price of beef throughout South America is providing a new incentive to develop a capybara industry and is forcing many *campesinos* to eat more wild meat.

For information on productivity of capybara, see Gonzalez-Jimenez (1995).

3 COYPU

Myocastor coypus

Family *Myocastoridae*
NOT THREATENED

The coypu is an aquatic rodent the size of a small dog. A native of South America, it produces fur of considerable commercial value. Its meat is consumed in many regions of South America and in parts of Europe. The live weight of the coypu averages 7 - 10 kg but may go as high as 17 kg.

DISTRIBUTION AND CURRENT STATUS

The coypu is widely distributed throughout Brazil, Paraguay, Uruguay, Bolivia, Argentina and Chile. It has been introduced into North America, Europe, northern Asia and eastern Africa. As a result of escapes from fur farms it is now feral in all these areas including Japan. In the United States of America it is abundant in Louisiana, Oregon, Florida and Chesapeake Bay. In various countries the animal's status ranges from rarity to pest. Wild coypus are protected by law in Argentina because of overhunting and there are over one hundred coypu farmers in that country. Elsewhere coypus are destroyed *en masse* to reduce damage to dams, irrigation ditches and crops.

THREATS TO SURVIVAL

In areas where the animal is considered a pest, extermination policies may be carried out. Coypus are susceptible to rabies and can carry the virus of equine encephalomyelitis. In captivity they are susceptible to a number of density-dependent infections such as salmonellosis, leptospirosis and toxoplasmosis. They are also susceptible to bacterial pneumonia and strongyloides infection.

CAPTIVE BREEDING

Captive breeding of coypu began in Argentina in 1922. Wild coypus are shy animals but tame easily in captivity. They are difficult to confine and when they escape, can become a serious agricultural pest. The gestation period of the coypu is 128 - 140 days and two or three litters of 5 - 6 young are produced annually.

DOMESTICATION AND ECONOMIC IMPORTANCE

There is a huge literature on farming coypus. While the meat is highly acceptable, the main product of coypu farming is the fur, known as nutria. The guard hairs are also used to make felt. In Chile, 80 commercial coypu farms maintain 48 000 breeding females and produce 500 000 skins a year. The coypu provides 50 percent of the total exports of native mammal skins from Argentina.

REMARKS

Feral coypus have recently been eliminated from the eastern counties of the United Kingdom where they had escaped from fur farms (National Research Council, 1991).

4 WILD GUINEA PIGS

Cavia spp.

Family *Caviidae*
THREATENED

Three species of wild cavies, close relations of the domesticated guinea pig, occur in South America. They are *Cavia aperea*, *C. fulgida* and *C. tschudii*. All are declining in numbers rapidly and action to preserve them is urgently needed. *C. aperea* is still widely used as a food item in rural Brazil and elsewhere in South America.

DISTRIBUTION AND CURRENT STATUS

The range for wild guinea pigs includes the central highlands of Bolivia and Brazil, but it is not well known. The current status of wild cavies is unclear and no accurate estimates are available.

THREATS TO SURVIVAL

Over-exploitation and habitat destruction.

CAPTIVE BREEDING

Domestic guinea pigs breed freely whether they are confined in small cages or, as in a few regions of Peru, they are herded on the open range and confined at night in small adobe coops. There are no data on captive propagation of the wild species. The gestation period of the domestic guinea pig is 65 - 70 days and four litters of 2 - 3 young are produced annually.

DOMESTICATION AND ECONOMIC IMPORTANCE

The wild guinea pig was domesticated for food use in the central highlands of Peru and Bolivia at least 7 000 years ago and its descendants are still widely used as a meat source throughout South America. Peru alone has about 20 million which produce 16 000 to 17 000 tons of meat a year, almost as much as is produced in that country by the domestic sheep population. Improved guinea pigs have been developed by La Molina National Agrarian University in Peru, which has raised the average weight of domestic guinea pigs from 0.5 kg to nearly 2 kg. Guinea pigs are raised for food in Nigeria, Cameroon, Ghana, Sierra Leone, Togo and the Democratic Republic of Congo. In southern Nigeria, at least 10 percent of all households raise guinea pigs for food, often in colonies of up to 30 animals. Small-scale farmers in the Philippines also raise them in cardboard boxes. It is estimated that 20 females and two males can produce enough meat year round to provide an adequate protein diet for a family of six (Huss, 1982). An FAO study at Ibarra in Ecuador showed that on small mountain farms guinea pigs provided more profit than either pigs or cows, largely because their meat sold for such high prices. The food conversion efficiency is high: 3.3 - 5.7 kg of forage produces 1 kg of meat. Guinea pigs are also used worldwide for biomedical research. The domestic guinea pig did not spread beyond the Inca Empire until after the Spanish Conquest, when being small and easily transported, it appeared in Spanish Equatorial Guinea. From here it became known in the English-speaking world, as is suggested by its name (Zeuner, 1963).

REMARKS

Domestic guinea pigs can be carriers of the trypanosome of Chaga's disease (*Trypanosoma cruzi*) and also of *Salmonella spp.* Coccidiosis and internal parasites are also common. Research on domestic guinea pig husbandry is underway in universities and government research stations in Colombia, Ecuador, Venezuela, Peru and Bolivia. Domestic guinea pigs have been implicated in a recent outbreak of bubonic plague in Peru.

5 HUTIA

Capromys spp.

Family *Capromyidae*
THREATENED/ENDANGERED

The hutia is a short-legged rodent, varying in size according to species, from that of a guinea pig to that of a small dog. Hutias of some ten species are hunted for food throughout the Caribbean islands. Caribbean Indians used to carry hutias on long voyages as a semi-domesticated food source. Live weight of the various species of hutia varies from 1 - 9 kg and their habits vary, too. The Cuban hutia is a diurnal forest dweller and can weigh up to 7 kg. The Jamaican hutia weighs up to 2.5 kg and is nocturnal.

DISTRIBUTION AND CURRENT STATUS

Hutias are found only in the Caribbean Islands (Greater Antilles and Bahamas). Most species are endemic on a single island. The Cuban hutia is found only on Cuba and is the only hutia considered not to be threatened. All others are rare, over-exploited by hunters and in danger of extinction.

THREATS TO SURVIVAL

Several island-endemic hutia species are already extinct and those that remain are seriously at risk from over-hunting, habitat degradation and predation by introduced domestic cats, dogs and mongooses. All hutia species, except the Cuban hutia, are classified as endangered by IUCN.

CAPTIVE BREEDING

Cuban and Jamaican hutias breed freely in captivity and are over-produced in many zoos so there is no shortage of stock for domestication trials. Colonies might be established on uninhabited Caribbean islands, as has already been done with the Bahamian hutia (*Geocapromys ingrabami*), a species that was a regular food source of the pre-Colombian Indians. The gestation period of hutia species is 16 - 20 weeks. Two litters of 1 - 4 young are produced annually.

DOMESTICATION AND ECONOMIC IMPORTANCE

Hutias are kept in barns in Cuba, fed on bananas and harvested for the table. They tame easily and show promise for domestication, which if successful, might provide an incentive for their conservation. Hutia meat is especially relished in Jamaica where the animals are hunted and killed after being treed by dogs.

REMARKS

Hutias are carriers of the virus of equine encephalomyelitis, a serious disease of horses. The Jamaican hutia (*Geocapromys brownii*) has one of the highest diploid chromosome numbers of any animal, $2n = 88$.

6 MARA

Dolichotis patagonum

Family *Caviidae*
NOT THREATENED

The mara is a large wild relative of the domesticated guinea pig that lives in the dry country of Patagonia in the southern half of Argentina. Average live weight is about 8 kg, but some specimens can weigh up to 16 kg (Taber, pers. com.).



Photo 3.29: Mara (Argentina). A large relative of the domesticated Guinea pig whose meat is widely consumed in South America.

DISTRIBUTION AND CURRENT STATUS

The mara is found in the thorn-scrub desert and Patagonian steppe of Argentina, between 28°S and 50°S. It is now scarce everywhere and is extinct in many eastern parts of its former range.

THREATS TO SURVIVAL

These animals, once plentiful, are now threatened by the introduction of the European hare (*Lepus europaeus*) which competes successfully with the mara for food. Maras used to be shot for their hair which was used to make fishing flies. The animal is now protected throughout Patagonia.

CAPTIVE BREEDING

Maras have been bred successfully in many zoos. The gestation period is 77 days and litters of 1 - 3 young are produced several times a year.

DOMESTICATION AND ECONOMIC IMPORTANCE

Maras are social animals and can be maintained in groups in captivity. They tame easily and at 8 kg are a suitable size for domestication. The meat is said to be dry and flavourless but nevertheless is widely consumed in South America. The yellowish-grey hair used for making fishing flies could be a valuable by-product of domesticated maras.

REMARKS

Captive maras are said to be very susceptible to tuberculosis when kept in humid conditions.

7 PACA *Agouti paca*

Family *Agoutidae*
NOT THREATENED

Pacas are also known as lapa. They are large, spotted, tailless, nocturnal rodents with the potential to become a source of protein for the American tropics. Paca meat is said to taste like a combination of pork and chicken. Adult pacas weigh 6 - 14 kg, the males being larger than the females.

DISTRIBUTION AND CURRENT STATUS

Pacas are found throughout most of lowland Latin America from central Mexico to northern Paraguay, Argentina and Brazil. The animal has also been introduced into Cuba. Unfortunately, expanding human populations have exterminated this very popular game animal within hunting range of almost all cities, towns and villages. Hunting and marketing paca meat is prohibited by law in some countries, but this is rarely enforced. Hunting takes place at night using dogs and spotlights. The paca has become extinct or greatly reduced in certain areas of Venezuela due to hunting for human consumption in restaurants.

THREATS TO SURVIVAL

Intense hunting pressure for sport and food and habitat and habitat destruction.

CAPTIVE BREEDING

Captive breeding is not very easy, but some zoos have been successful. Intra-specific aggression is a serious impediment to captive reproduction. Tamed female pacas are said to be difficult to breed because they are unreceptive to the male, whereas wild pacas while being much less manageable are easier to breed. This problem might be solved by careful selection of breeding stock since the females show considerable individual variation. Smythe (1991) describes novel artificial socialisation procedures that have been successful in breaking down and modifying the characteristic social intolerance and aggressive nature of the paca. His results show that artificially changed social behaviour is adopted by subsequent captive-bred generations and he is optimistic that in future, when opportunities for the selection of desirable characteristics occur, a truly domesticated strain of paca will be developed within a few generations. However, whether or not this will happen depends largely on the economic feasibility of paca farming.

The gestation period of the paca is 138 - 173 days and a single, precocious offspring can be produced twice a year. Twins are occasionally born.

DOMESTICATION AND ECONOMIC IMPORTANCE

In Belize and Mexico pacas are kept in cages and fattened on kitchen scraps. In Costa Rica pacas are bred on farms, under houses and even in apartments. Research on raising pacas in captivity is under way at the Universidad Nacional in Heredia, Costa Rica, at the Smithsonian Tropical Research Institute in Balboa, Panama and at the Instituto de Historia Natural at Tuxtla Gutierrez, Mexico. In Turrialba, Costa Rica, a farmer is already breeding pacas commercially and paca meat fetches very high prices in Costa Rican restaurants. The potential yield of meat from farmed pacas has been compared to that of ranched cattle. During the 4 - 5 years for a steer to reach slaughter weight, a female paca could produce 10 young with a total weight of 60 kg or about 14 kg/year. If the meat is 65 percent of the carcass weight, the yield would be 9 kg/year. This would be much below the potential yield from cattle (40 kg/cow/year) but a *campesino* keeping a single group of one male and five female pacas could expect to produce 45 kg/year which compares favourably with one steer (Smythe, 1991). Cattle ranching in the humid lowlands of the tropics is a major cause of deforestation. Paca farming would encourage the preservation of the forest and provide a source of high-quality protein from forest products.

REMARKS

Pacas can harbour leishmaniasis and Chaga's disease. For full information on domestication and husbandry of the paca, see Smythe and Brown de Guanti (1995) and FAO (1995).

8 VIZCACHA

Lagostomus maximus Family *Chinchillidae*
NOT THREATENED

Vizcachas are soft-furred South American rodents with some promise for producing meat and skins in marginal areas within their natural range. They weigh up to 8 kg.

DISTRIBUTION AND CURRENT STATUS

Vizcachas were once abundant all over the savannahs of southern Paraguay, Bolivia and Argentina. Now they are being systematically exterminated because they are believed to compete with cattle for grazing and because their acidic urine kills grass. The plains vizcacha has been greatly reduced for this reason and has almost disappeared from Tucuman Province in Argentina (Ojeda and Mares, 1982). Today they inhabit isolated areas of north, central and western Argentina and southern Paraguay.

THREATS TO SURVIVAL

Ranchers have mercilessly hunted these animals since 1907. A bounty system used to be in operation in Argentina, but this is not now necessary because the numbers of vizcachas have been greatly reduced.

CAPTIVE BREEDING

The gestation period of the vizcacha is 154 days. In the wild one or two litters of one or two young are produced annually.

DOMESTICATION AND ECONOMIC IMPORTANCE

Vizcachas have not been domesticated, but in marginal areas they may be much more productive than conventional livestock. The meat is often consumed in the pickled form in South America. One slaughterhouse in Rio Cuarto in Argentina handles 10 tons of vizcacha meat a week, harvested from the wild, and vizcacha dishes can be found in any restaurant.

REMARKS

None.

9 GIANT RAT

Crycetomys spp.

Family *Muridae*
NOT THREATENED

The giant rat, also known as the pouched rat, is one of Africa's largest rodents. There are two species, *C. gambianus*, which lives on savannahs and at the edge of the forest and *C. emini* that lives mainly in rain forest. Both are highly prized as food for human consumption. Although the giant rat is vegetarian, in captivity, it eagerly consumes dry or canned dog food. Adult rats weigh 1 - 1.5 kg.

DISTRIBUTION AND CURRENT STATUS

The giant rat is found in suitable habitat from Senegal to Sudan. It can live at high altitude, being found up to 2 000 m asl in West Africa and to 3 000 m asl in East Africa. The rain forest species occurs in the forests of the Democratic Republic of Congo and adjacent Central African countries. It is abundant but has been exterminated where human populations are dense, such as in parts of eastern Democratic Republic of Congo.

THREATS TO SURVIVAL

Over-hunting is the main threat.

CAPTIVE BREEDING

The giant rat usually breeds easily in captivity, but the project at the University of Kinshasa, Democratic Republic of Congo, reports problems getting giant rats

to mate. When introduced, the male and the female tend to fight viciously. The gestation period of the giant rat is 28 - 42 days. Females can reproduce six times a year and the average litter size is four.

DOMESTICATION AND ECONOMIC IMPORTANCE

The University of Ibadan in Nigeria has a programme for domesticating the giant rat. Breeding stocks were established in 1973 and this population is now considered domesticated. Commercial-scale giant rat farming is now being established in southern Nigeria. The project, at the University of Kinshasa reports that the rain forest species seems more docile and sociable than *C. gambianus*. Wild giant rats form a large component of bushmeat in West Africa and successful domestication would produce a valuable and acceptable meat supply. The giant rat also has some potential as a laboratory animal in nutritional, clinical and pharmacological research.

REMARKS

A few African tribes have taboos against consuming rat meat. Giant rats are omnivorous and are thus easier to feed in captivity than the grasscutter or cane rat.

10 GRASSCUTTER OR CANE RAT

Thryonomys spp.

Family *Thryonomyidae*
NOT THREATENED

Two species occur, *Thryonomys swinderianus* and *T. gregorianus*, both found in the forests and savannahs of the humid and subhumid areas of Sub-Saharan Africa. Grasscutters weigh up to 8 kg and in Africa their meat is more valuable than chicken.

DISTRIBUTION AND CURRENT STATUS

Grasscutters or Cane rats occur throughout Sub-Saharan Africa wherever the grass species they prefer for food is available. They do not inhabit rain forest, dry scrub or desert but often live in forest clearings where adequate grass is present. Despite intense hunting, this animal survives and is not threatened. Nevertheless, many populations are well below carrying capacity due to local over-exploitation.

THREATS TO SURVIVAL

Over-hunting and habitat destruction. Captive animals have died of clostridial infections.

CAPTIVE BREEDING

Experimental work is in progress. The gestation period of the grasscutter is 152 days. Litters normally contain two to four young, but in Benin and Togo litters of 11 and 12 are reported.

DOMESTICATION AND ECONOMIC IMPORTANCE

The Wildlife Domestication Unit of Ibadan University in Nigeria reports the potential of domesticated grasscutter colonies. Research on grasscutter husbandry is also being carried out by the Ministry of Rural Development in Benin and at Lacena in Côte d'Ivoire. In areas where cattle raising is constrained by the tsetse fly and trypanosomiasis, bushmeat is a very important source of protein for the local population. In Accra, Ghana during one year, 73 tonnes of grasscutter meat were sold in one local market. This represents more than 15 000 animals. In Côte d'Ivoire the meat sells for the equivalent of US\$ 9 per kg. The demand for grasscutter meat exceeds the supply and a market exists for it all over Africa.

The agricultural extension services of Cameroon, Ghana, Côte d'Ivoire, Nigeria, Togo and Benin are encouraging farmers to rear grasscutters as backyard livestock. A bilateral co-operation project is under way in Benin to study improved breeding methods. A new project has recently been set up in Gabon by the French Non-governmental Organization (NGO) Veterinaires sans Frontières. This project will test the economics and technical viability of farming grasscutters and the brush-tailed porcupine (*Atherurus africanus*).

The nervous disposition of the grasscutter may interfere with successful domestication. Thus there is a need for selection for docility because even after several generations in captivity the grasscutter must be handled with care. This animal might respond to the socialisation techniques that have been successful for the domestication of the paca.

Although domestication of the grasscutter would provide a useful supply of meat, wild populations could also be managed to maximise and sustain production by habitat management.

REMARKS

For information on the grasscutter, see Asibey (1974) and FAO (1996). In francophone African countries, the grasscutter is referred to as agouti which means an animal from the bush. It is not a true agouti.

NOTE

The ten rodent species described in this section all show some promise as specialised food sources for humans. Some are more productive than domestic livestock in marginal or degraded areas and some are adapted to thrive where, for one reason or another, conventional livestock do not. Many valuable rodent species are classified by IUCN as endangered or vulnerable and some have already been hunted to extinction. If the considerable productive potential of these members of the Order *Rodentia* was more widely known in development and agricultural economic circles, an important incentive would be provided for the conservation actions needed to maintain these genetic resources

and develop their food producing potential. There are a few more rodents, which may have potential for domestication in localised situations, or for management in the wild for sustainable exploitation by habitat manipulation. These include the following:

CHINCHILLAS (ANDEAN REGION OF PERU, CHILE, BOLIVIA AND ARGENTINA)

Chinchilla brevicaudata and *C. Lanigera* INDETERMINATE
C. Lanigera is probably extinct in Argentina and Peru

Both valuable furbearers.

PACARANA

Dinomys branickii. ENDANGERED

The third largest living rodent.

SPRINGHARE (SOUTHERN AFRICA)

Pedetes capensis. NOT THREATENED

An important bushmeat species in southern Africa.

ROCK CAVY (SOUTH AMERICA)

Kerodon rupestris NOT THREATENED

Closely related to the guinea pig. Subject to intense hunting pressure and for its stomach contents which are used as a starter for cheese. Lacher (1979) deals with *K. rupestris* as a potential human food source.

SALT DESERT CAVY

Dolichotis salinicola. NOT THREATENED

An inhabitant of dry, salty deserts. Eats halophytic vegetation.

NEW GUINEA GIANT RAT

Mallomys rothschildi. NOT THREATENED

A forest dweller which exhibits very rapid growth.

PORCUPINES

Hystrix spp. NOT THREATENED

Distantly related to guinea pigs and widely consumed throughout Africa and Asia.

KIORE

Rattus exulans. NOT THREATENED

Formerly an important Polynesian food source.

SOFT-FURRED RAT

Praomys spp. NOT THREATENED

Has been successfully raised in Malawi as a food source.

SQUIRRELS

Callosciurus spp. NOT THREATENED

At present a pest on cocoa, oil palm and mixed fruit plantations in Southeast Asia. Could be raised in captivity as a food.

CLOUD RAT

Phleomys spp. NOT THREATENED

Southeast Asian animal also found in the Philippines. Has potential for exploitation in forest situations but now becoming scarce in some areas due to deforestation.

CAYENNE SPINY RAT

Proechimys guyannensis NOT THREATENED

A popular food animal in Colombia.

BAMBOO RAT

Rhyzomys spp. NOT THREATENED

The largest rodent on Sumatra where it is hunted and eaten.

REMARKS

For further information see Lidicker (1985).

1 IBERIAN RABBIT*Oryctolagus cuniculus huxleyi*Order *Lagomorpha*/Family *Leporidae*

NOT THREATENED

The ancestral form of the domestic rabbit is now thought to be the *Oryctolagus* subspecies *O.c. huxleyi* that occurs only in Spain and Portugal and some Mediterranean and Atlantic islands. All other wild rabbits in Europe belong to the subspecies, *O.c. cuniculus*, and are believed to be descended from semi-domesticated rabbits introduced by the Romans, who relished eating foetuses and new-born rabbits, which they called laurines. Thus, perhaps *O.c. cuniculus* should be considered feral (Fitter, 1959). Morphometric and DNA studies have confirmed the subspecific differences.

DISTRIBUTION AND CURRENT STATUS

The wild relative of the domestic rabbit is confined to southwestern Spain and Portugal and some Mediterranean and Atlantic islands. Its numbers are declining and there are fears for its long-term survival. It is noticeably smaller (max. weight: 1 kg) than the much more widespread feral *O.c. cuniculus* (max. weight: 2 kg).

THREATS TO SURVIVAL

The main threats to *O.c. huxleyi* are over-hunting, habitat destruction and the appearance in Europe of first, myxomatosis, and more recently, of the rapidly fatal viral haemorrhagic disease of rabbits.

CAPTIVE BREEDING

The rabbit is notoriously prolific. The gestation period is 28 - 32 days. Even under subsistence conditions, a female can produce four or five litters of 5 - 8 young each year.

DOMESTICATION AND ECONOMIC IMPORTANCE

Conservation of this true ancestor of the domestic rabbit is of scientific and economic importance, since almost nothing is known of its biology. Monks in the Middle Ages were in the habit of eating laurines during Lent as they were classified as an aquatic dish. Controlled breeding and thus domestication of rabbits began in the sixteenth century and was probably mainly the work of monks (Lebas *et al.*, 1986).

REMARKS

Rabbits (and hares) are the subjects of many translocation projects, mostly to Europe from places as far away as Argentina and Poland and usually for sporting purposes. Several important diseases of humans and domestic stock, e.g. tularaemia and *Brucella suis*, have been spread in this way.

If it is true that the domesticated rabbits, introduced all over continental Europe by the Romans, were the real ancestors of wild *O.c. cuniculus* of today, then this must represent the best example of the successful return to the wild of any domesticated mammal. Unfortunately, elsewhere in the world the fecundity and colonising ability of the rabbit has had disastrous results. In 1859, 24 wild rabbits were brought from England and released on Thomas Austin's farm in Australia. These animals were cross-bred with domestic rabbits of the same species and the progeny were released into fenced enclosures with the intention of creating a new industry for the settlers. As is frequently the case with such imports of exotic species, escapes occurred and the rabbits quickly established themselves in the wild. The rabbit invasion of Australia was the fastest ever recorded for any mammal on any continent. Now rabbits are devastating environmental pests that cost Australian farmers US\$ 90 million a year and millions of hectares of grazing land have been destroyed.

After the failure of conventional methods of population control (shooting, trapping, poisoning, fencing and the release of exotic predators), biological control was attempted in 1950 with the introduction of the virus of myxomatosis. This initially produced a mortality rate of 99 percent of those affected and the rabbit population plunged from 600 million to less than 100 million. Host-virus selection pressures subsequently caused the most pathogenic myxomatosis virus strains to die out and the more resistant rabbits to survive. In response the Australian Government has established a Cooperative Research Centre for the Biological Control of Vertebrate Pest Populations within the Commonwealth Scientific Industrial Research Organisation (CSIRO). This research group has now identified immunocontraception as a potential new approach to the control of rabbit populations.

Rabbit Viral Haemorrhagic Disease (RVHD) escaped from trials on Wardang Island, South Australia in March 1995. The disease spread slowly throughout Australia and by mid 1998 had killed over 95 percent of the rabbits over extensive areas of the continent, particularly in the semi-arid regions. RVHD has also been observed in wild rabbits in France, Germany, Spain, Sweden, Ireland and the United Kingdom where mortality has been high in some places.

REMARKS

For further information see Chapman and Flux (1990).

- | | |
|--------------------------------|-----------------------------|
| 1 Red jungle fowl | 5 Guinea fowl |
| 2 Other jungle fowl | - Grey-breasted guinea fowl |
| 3 Ducks | - Tufted guinea fowl |
| - Mallard | - Mitred guinea fowl |
| - Whistling duck | - Vulturine guinea fowl |
| - Black bellied whistling duck | 6 Turkey |
| - Greater wood duck | 7 Ostrich |
| 4 Geese | 8 Emu |
| - Greylag | 9 Rhea |
| - Swan goose | 10 Cassowary |
| - Greater snow goose | |
| - Red breasted goose | |
| - Canada goose | |
| - Egyptian goose | |
| - Ne-ne | |
| - Bar-headed | |

Chickens, ducks, geese, guinea fowl, quail, pigeons and turkeys help to meet the protein needs of some of the poorest people in the world and also make important contributions to developed world diets through the commercial poultry industry. These birds are often raised as scavengers, i.e. at little cost, in areas where cattle cannot survive, such as those infested by the tsetse fly (*Glossina* spp.). Ostriches, emus, rheas and cassowaries are all at various stages of domestication for their skins, meat and other products.

1 RED JUNGLE FOWL

Gallus spp.

Order *Galliformes*/
Family *Galliformidae*
NOT THREATENED

The red jungle fowl and its close relatives within the genus *Gallus*, some of which are threatened, are the ancestors of the domestic chicken, *G. domesticus*, and are the source of its genetic diversity.

DISTRIBUTION AND CURRENT STATUS

The jungle fowl is present throughout a wide crescent stretching from Pakistan to Indonesia. It is a highly adaptable species and can thrive in many habitats from sea level to 2 000 m asl. Most, however, are found in damp forests, secondary growth, dry scrub, bamboo groves and small woods. The species is not rare but is under some hunting pressure.

THREATS TO SURVIVAL

In some areas over-hunting and habitat destruction are significant and in others there is a risk of disease transmission by domestic poultry.

CAPTIVE BREEDING

Jungle fowl are easy to raise in captivity and a number of subspecies are kept in various parts of the world.

The urgency for action to preserve genetic variability is greater in poultry, especially chickens and turkeys, than in any other form of domestic stock. North America, for example, which some years ago had 50 or more common breeds of domestic chicken, now has only two for meat production. The others have been largely lost. The ancestral jungle fowls contain much potentially important diversity, particularly in respect of heat and humidity tolerance since their home is in the hottest and most humid parts of Asia. They may also be resistant to some diseases and parasites but this has yet to be investigated. Conservation of germplasm from representative jungle fowl species is thus a matter of some priority.

2 OTHER JUNGLE FOWL GREY OR SONNERAT'S JUNGLE FOWL

G. sonnerati

NOT THREATENED

The Grey or Sonnerat's jungle fowl is a native of India that produces feathers that are used for tying trout and salmon flies. The demand for these is so great that some populations have been seriously depleted. Since 1968 India has banned the export of all birds and feathers, but there are many jungle fowl in captivity in various other countries.

LA FAYETTE'S JUNGLE FOWL

G. lafayettei

NOT THREATENED

La Fayette's jungle fowl is a native of Sri Lanka. It is little known in captivity and only in the United States is a small number kept.

GREEN JUNGLE FOWL

G. varius

NOT THREATENED

The Green jungle fowl is a striking bird, native to Java, Bali and other Indonesian islands as far south-east as Timor. The species can be raised without difficulty and there are about 90 in various parts of the world.

ARAUCANIAN CHICKEN

G. inauras

NOT THREATENED

The Araucanian chicken still occurs in the wild in southern Chile and on Easter Island. It is generally agreed to be of pre-Colombian origin and there is archeological evidence that it is native to the Americas. In addition to Chile and Easter Island, it is reported to have occurred in the past in Ecuador, Bolivia, Peru and Costa Rica. The Araucanian has been called the Easter Egg chicken because it lays light green, light blue and olive coloured eggs. The high degree of genetic variability in this unusual bird is borne out by the selection and creation of breeds, such as the White Araucanian, Black Araucanian and Barred

Araucanian. These breeds are homozygous and breed true.

REMARKS

Other species of jungle fowl and wild chickens may also harbour useful genetic material, which could prove valuable in marginal or specialised habitats. Almost everywhere they are considered culinary luxuries and their meat commands premium prices. Several of the more colourful species have feathers that add to their commercial value. Some species are vulnerable or threatened.

Globally, domestic chickens contribute more protein (eggs and meat) to the human diet than any other animal species and yet knowledge about the existing poultry genetic resources of the world is only fragmentary, lagging behind that of other livestock species, especially cattle and sheep (Crawford, 1992). The conservation of the germplasm of the wild progenitors of the domestic chicken must therefore be a matter of great concern.

3 DUCKS

Order *Anseriformes*/Family *Anatidae*

Many species of wild ducks adapt readily to captivity and several wild tropical species would seem to have potential for semi-domestication in developing countries where they are indigenous. Domestic ducks have great importance as a food source in Asia, especially in the south-east. Here, eggs are more important, while further north, meat production assumes greater significance. Ducks are, as yet, of only minor significance as a food source in Africa, Latin America and the Near East.

If not managed carefully ducks can become pests to some crops, especially cereals. Against this, ducks are useful in that they seek out and eat the snail hosts of important human and livestock diseases (*Bilharzia* and *fascioliasis*). Ducks are susceptible to a number of infectious diseases, some of which can cause severe losses to both wild and domestic species. The most important of these are aflatoxin poisoning from mouldy grain, botulism, duck plague and duck virus enteritis.

In Asia and in one or two places in Central Africa ducks have been integrated into fish-farming systems where the excreta of 4 000 ducks on a one hectare pond can provide 30 000 tilapia with 20 percent of their feed. Integrated pig and duck farming, largely in Asia, is thought to be a factor in the worldwide emergence of new strains of the influenza virus.

A survey of all duck species having domestication potential is needed to determine their status in the wild.

MALLARD

Anas platyrhynchos

NOT THREATENED

The wild mallard, a very widespread species, is

the ancestor of the present day domestic duck breeds. Kear (1975) has pointed out the disadvantages of the domestic duck. These include a monogamous mating system, the deposition of large amounts of fat below the swimline, a large bone:meat ratio in the carcass, a long incubation period of 28 days and a breeding season confined to the spring.

WHISTLING DUCK

Dendrocygna spp.

NOT THREATENED

These are long-necked, perching ducks found throughout the tropics. They are gregarious, sedentary and vegetarian, all positive traits for a potential domestic species. In latitudes of uniform day length they tend to breed all the year round.

BLACK-BELLIED WHISTLING DUCK

D. autumnalis

NOT THREATENED

This species is common throughout tropical America from the south-western United States of America to northern Argentina and is sometimes kept in semi-captivity (Guatemala). They eat grain, require no swimming water and will use nest boxes. In the wild they dump large numbers of eggs so that even if substantial numbers were collected for artificial hatching or eating, the wild population would not be affected. In Mexico a census of nest boxes showed that out of 22 000 eggs laid, 80 percent were not hatched. This species would seem to have marked domestication potential.

GREATER WOOD DUCK

Cairina spp.

VULNERABLE

The white-winged wood duck, *C. scutulata*, is found from eastern India to Java. Hartlaub's duck, *C. bartlaubi*, occurs in forests and wooded savannahs from Sierra Leone to the Democratic Republic of Congo. Both of these ducks are rare in captivity but might prove to be future tropical resources. Both are similar to the domestic Muscovy duck in size and habit, being large, phlegmatic, sedentary and omnivorous, all positive attributes for domestication.

The Muscovy duck, *Cairina moschata*, (also known as the Barbary duck, and in Latin America, as the Criollo duck), is a unique species from the South American rain forest. It belongs to the small group of waterfowl that perch in trees. The Muscovy duck was domesticated by South American Indians long before the Europeans arrived. It is now widespread in all equatorial countries of Africa and Asia. It is particularly prevalent in Southeast Asia where it is kept for eggs and meat and plays a minor role in household insect control. In Europe and Taiwan, Province of China, a sterile hybrid, the Mallard, has been produced by crossing the Muscovy with the common domestic duck (Crawford, 1992).

It is important that the wild relatives of the domestic Muscovy duck, which belong to the same genus, *Cairina*, should be conserved and studied in Latin America, where the Muscovy itself has a very long history of domestication.

4 GEESE

Order *Anseriformes*/Family *Anatidae*

The domestic geese of today are descended from two species: the western European breeds from the Greylag, *Anser anser*, and the Asian breeds from the Swan goose, *Anser cygnoides*. Both these wild relatives of domestic geese are native to the northern temperate zone.

GREYLAG

Anser anser

NOT THREATENED

The Greylag goose, the most southerly species of grey goose to breed in Europe, has been kept by humankind since Neolithic times. It is the ancestor of most of the European breeds of domestic goose.

Two races of Greylag are recognised, *A.a. anser*, in western Europe, and *A.a. rubirostris*, which intergrades with the nominate species in eastern Europe and Russia. Greylags breed across the north-western Palaearctic region from Iceland and the United Kingdom, through Scandinavia, eastern Europe and central and southern Russia, into Mongolia and China.

Numbers of *A.a. anser* have been much reduced by excessive hunting and drainage of wetlands. However, in northern Europe, and especially in Iceland, the population has recently staged a remarkable recovery. *A.a. rubirostris* has not been able to recover its numbers and is undergoing a decline due to shooting and destruction of the marshes in which it nests.

SWAN GOOSE

Anser cygnoides

NOT THREATENED

The Swan goose is a native of China and Mongolia. In spite of having been domesticated as the so-called Chinese goose for some 3 000 years, in the wild it remains the least studied of all the Palaearctic waterfowl. The population of nesting wild swan geese in eastern Russia is said to be between 300 and 400. In 1977, a summer congregation of over 1 000 was observed in north central Mongolia. This goose is in urgent need of study and conservation. The main threats to the survival of the swan goose in the wild are excessive hunting and habitat destruction in eastern and southern China.

Unlike chickens, geese have the great advantage that they can be reared solely on grass protein. Geese are willing to eat more than is strictly necessary, a propensity which has been exploited since very early times, both for the

purpose of fattening and in order to render the birds too heavy to fly. Since tame geese will mate freely with wild individuals when these are available, domestication has not resulted in the development of many divergent breeds (Zeuner, 1963). Most of the remaining 15 temperate wild goose species will adapt to captivity. Two of these, which might be hybridised with domestic geese to improve their productivity in temperate areas, are:

GREATER SNOW GOOSE

Anser caerulescens

NOT THREATENED

This species is native to North America and breeds in the high Arctic. It has a very short incubation period of 23 - 24 days, a very rapid growth rate and a high food conversion efficiency. Its genes may be of value for improving the productivity of the domestic goose (Short, 1976).

RED-BREASTED GOOSE

Branta ruficollis

INSUFFICIENTLY KNOWN

This goose is another species that breeds in the Arctic and has a short incubation period. It also has a very rapid growth rate, attaining 17.7 times its hatching weight by three weeks of age. This is double the growth rate of the domestic gosling. The world population of the red-breasted goose is estimated to be about 75 000 (Bird Life International, 1993). These geese nest in Siberia and winter on the Black and Caspian Seas.

CANADA GOOSE

Branta canadensis

NOT THREATENED

This species is unlikely to be of value for hybridisation with domestic geese. Many local Canada goose flocks have become sedentary (and no longer migrate) in North American and European city parks and wildlife reserves. These flocks are increasing in numbers each year and the geese are on the way to *de facto* domestication. The flesh of the Canada goose is not considered to be very palatable unless grain-fed.



Photo 3.30: Canada goose (North America and Europe). Under self-domestication.

The geese of the tropics have seldom been considered for domestication. They are expected to be heat-tolerant and have less subcutaneous fat than the Palaearctic ancestors of domestic geese. Examples of species, which might be domesticated in tropical areas, are:

EGYPTIAN GOOSE

Alopochen aegypticus

NOT THREATENED

This goose is a native of tropical Africa. It is already semi-domesticated but it is said that its bad temper and quarrelsome nature limit its usefulness.

NE-NE

Branta sandvicensis

VULNERABLE

Native to the Hawaiian Islands, this is a highly endangered species. If it could be shown to be amenable and useful for domestication, the possibility of an economic future might result in a more rapid build-up of its currently small wild population. The Nene is unique in that it lays its eggs in winter, when day-length is short and that it is the only wholly land-dwelling goose. It can copulate on land and probably has little subcutaneous fat. These could be valuable traits for infusion into domestic goose breeds.

BAR-HEADED GOOSE

Anser indicus

NOT THREATENED

Occurs in India and Central Asia. Despite heavy hunting pressure the species is still abundant and breeds well in captivity if the parent stock is hand-reared. It is characterised by a very long breeding season.

The wild goose species listed in this section all have some potential for the enhancement of domestic breeds. Careful selection might shorten incubation periods, improve growth rates, increase efficiency of food conversion and thus improve production under specific climatic conditions.

5 GUINEA FOWL

Numida meleagris

Order Galliformes/
Family Phasianidae

The domestic guinea fowl is descended from only one of the nine wild species. Other wild subspecies closely related to the domestic guinea fowl might have some potential for domestication. Guinea fowl were domesticated in Egypt and Greece about 1475 BC and 400 BC, respectively. The guinea fowl was the last bird to be added to the Roman menu (Pliny, 72 AD). Later the guinea fowl died out in Europe but was reintroduced by Portuguese navigators returning from Africa in the late 1400s (Belshaw, 1985).

GREY-BREASTED GUINEA FOWL

N.m. galeata

NOT THREATENED

This subspecies is the true ancestor of the domestic guinea fowl. It thrives under semi-domestic conditions and needs little special care having retained the hardiness and social habits of its wild ancestor. It is found throughout West Africa and probably has many valuable genetic traits. There is much variation in size and other characteristics amongst individual birds. These birds have long been semi-domesticated by the people who live along the Gambia, the Volta and the Niger rivers. Very large numbers of guinea fowl (55 million in Nigeria alone) are kept as semi-domestic producers of meat and eggs in the dry regions of West Africa. The wild populations are large and are not threatened. Various subspecies of guinea fowl are native to the grasslands and woodlands of most of Sub-Saharan Africa. They have an inherent adaptability to both heat and cold. However, in cool climates, regardless of day length, they will not come into lay until the mean ambient temperature exceeds 15°C. In West Africa egg production is largely confined to the rainy season but can be induced by spraying the birds with water. In Queensland, Australia, many farmers keep a few so-called guineas to help control grasshoppers in crops and gardens as well as ticks around the cattle sheds (National Research Council, 1991).

TUFTED GUINEA FOWL

N.m. meleagris

NOT THREATENED

This subspecies is probably the ancestor of the birds domesticated by the ancient Egyptians and in the Roman Empire. Hill farmers in southern Sudan sometimes breed this subspecies in captivity.

MITRED GUINEA FOWL

N.m. mitrata

NOT THREATENED

This subspecies is a popular game bird in East Africa. It was once common but is now in decline through over-hunting. The Mitred guinea fowl has been kept in semi-domestication on Zanzibar for several centuries and is now most numerous in the Maasai lands of Kenya and Tanzania.

VULTURINE GUINEA FOWL

Acryllium vulturinum

NOT THREATENED

The largest of all the guinea fowls belongs to a different genus and is found in the dry areas of Ethiopia, Somalia and northern Kenya. It is famous for its long neck and saddle feathers that are much sought after for making fishing flies.



Photo 3.31: Vulturine guinea fowl (Kenya). The largest of the guinea fowls, which produces valuable feathers for fishing flies.

6 TURKEY

Meleagris gallopavo

Order Galliformes/
Family Phasianidae
NOT THREATENED

The indigenous domestic turkeys of Latin America were domesticated from *Meleagris gallopavo gallopavo*, the wild species of Mexico. These spread through Central and South America and have persisted as indigenous domestic turkeys. Their plumage is largely black. Some Latin American turkeys were taken to Europe in the sixteenth century and subsequently to eastern North America in the eighteenth and nineteenth centuries. Here they hybridised with another wild subspecies, *M.gallopavo sylvestris*, to produce the bronze turkey, forerunner of all commercial turkeys in developed countries. Thus, the indigenous Latin American turkeys derive exclusively from *M.g. gallopavo*, while all other domestic turkeys derive from the hybrid *M.g. gallopavo / M.g. sylvestris* (Crawford, 1992). Some authorities, however, postulate that the domestic turkey derives from Merriam's Turkey (*M.g. merriami*), which is found in the south-western United States of America.

Another wild turkey, the Ocellated turkey, *Agriocharis ocellata*, occurs in Yucatan, Belize and Guatemala. This bird does not appear to be an ancestor of the domestic turkeys of Europe and North America, but may have been domesticated by the Mayans. Today, in Guatemala, ocellated turkeys are sometimes kept in a semi-domestic state as scavengers around houses. The ocellated turkey is classified as Insufficiently Known by IUCN and its status is under review.

A French company has developed a strain of self-reliant farm turkeys for export to developing countries as a scavenger and meat producer. The wild Mexican turkeys and some of the primitive, domesticated strains in the uplands of central Mexico may now be scarce since their numbers and distribution have been greatly reduced. The need for the conservation of the genetic variability of this species is urgent and the wild and unimproved domestic

turkeys of Mexico should be collected and assessed before it is too late. A separate type, independently domesticated by the Pueblo Indians of the south-western United States, has already entirely disappeared.

7 OSTRICH

Struthio camelus

Order Struthioniformes/
Family struthionidae
NOT THREATENED

Ostriches are the largest living flightless birds. The head and neck are almost naked, but are sparsely covered with downy feathers. The eyes are exceptionally large, the largest of any terrestrial vertebrate (50 mm in diameter) and are protected by long eyelashes. Males are conspicuously black and white, the females a uniform dull grey and brown. The thighs are almost naked. The legs, adapted for swift running, are also used for attack when fighting among themselves and for defense against predators. The male has a grooved penis, which is unusual in birds.

DISTRIBUTION AND CURRENT STATUS

The ostrich is now endemic only to Africa, but formerly extended to the Arabian Peninsula before becoming extinct there in about 1968. The ostrich now ranges throughout eastern and central Africa, from southern Morocco, the northern Sudan and southern Egypt to the Cape. Its distribution in central Africa is broken by the *Brachystegia* woodlands of southern Tanzania, Zambia, Angola and Mozambique. Throughout most of its range the ostrich is locally common and is even abundant in some protected areas.

Of the four races of the ostrich, the northern and western nominate race, *S.c. camelus* has been severely persecuted during the twentieth century and is believed to be rapidly decreasing. The two east African races, *S.c. molybdophanes*, and *S.c. massaicus*, are under less pressure. The southern race, *S.c. australis*, is extinct throughout most of its former range and is now confined to Namibia and to some national parks. This is the domesticated race in South Africa, but has hybridised with introduced *S.c. camelus* and the hybrid has become feral on some farms.

THREATS TO SURVIVAL

Throughout its range the ostrich is hunted for its meat, skin, feathers and eggs. Egg predation by jackals, *Canis mesomelas*, hyaenas, *Crocuta crocuta* and especially Egyptian vultures, *Neophron percnopterus*, may be significant in some areas. Where these predators are abundant the nests are guarded at all times, by the female during the day and the male by night. Although greatly reduced in numbers by hunting and destruction of habitat through overgrazing by domestic livestock, no living race of the ostrich is threatened with imminent extinction.

CAPTIVE BREEDING

Ostriches breed freely in captivity when well fed and properly managed.

The National Wildlife Research Centre in Saudi Arabia plans to release the red-necked ostrich, *S.c. camelus*, from the Sudan into the Mahazat as Said protected area in south-western Saudi Arabia to replace *S.c. syriacus*, which has been extinct since 1968 (SSC/IUCN, 1994).

DOMESTICATION AND ECONOMIC IMPORTANCE

Domestication, which started in Algeria in about 1860, has been in progress in South Africa for more than 100 years. The current annual world demand for ostrich skins approaches one million. At present world production of ostrich skins, mainly from South African farms, is less than 250 000 skins a year. Small numbers of skins are also produced in Zimbabwe, Tanzania and Texas. Australia has more than 35 000 farmed ostriches (1995) and the industry intends increasing its flock to 200 000 birds by the year 2000. In 1995 ostrich meat was selling locally in Australia for A\$40 a kilogramme (US\$ 29) and a pair of breeding ostriches was selling for A\$ 60 000 to 120 000.

Almost nothing produced by the ostrich is wasted. There is a market for the feathers as feather dusters and the meat is saleable as human food (fresh or dried). Even broken eggshells can be made into attractive necklaces and bracelets. Recently the corneas from ostrich eyes, being HIV-free, have been used for transplantation into human eyes. The most valuable product, however, is the skin, which is harvested at 14 months of age. High quality, unprocessed ostrich skins are worth about US\$ 200 each wholesale. In South Africa, in 1979, a domestic ostrich was worth R 150 of which 48 percent was for the skin, 40 percent for the feathers and 12 percent for the carcass. In Texas in 1994 the productive value of an ostrich was estimated to be US\$ 900. Ostrich skins are processed in South Africa and Germany and are made up into ladies handbags, shoes, briefcases and wallets in France and Italy. The greatest demand for these articles is from Japan.

Ostriches can be farmed in areas where the climate is hot and dry in the summer and cool and relatively dry in the winter. Attempts have been made to farm ostriches in Italy, but these are understood not to have been successful because the climate in winter is too damp.

8 EMU

Dromanius novaehollandiae Order *Casuariiformes*/
Family *Dromaiidae*
NOT THREATENED

The emu is a flightless Australian bird, which reaches up to 2 m in height and 50 kg in weight. It is fully protected as native fauna in all Australian states and territories, but it is considered to be an agricultural pest in Western Australia (WA) where the Government can

authorise the killing of emus for pest control. However, products from emus killed on damage permits cannot be sold.

DISTRIBUTION AND CURRENT STATUS

Emus are still common throughout most of Australia, the highest densities being in the pastoral zones.

THREATS TO SURVIVAL

Predation by dingoes (*Canis dingo*) is believed to have a marked effect on population densities in some areas. Severe drought also probably has a negative effect on emu populations.

CAPTIVE BREEDING

Under good management, emus breed freely in captivity.



Photo 3.32: Emu (Australia). An emerging domesticant with potential for production of skins, meat and oil for cosmetics.

DOMESTICATION AND ECONOMIC IMPORTANCE

There is no commercial harvest of wild emus in Australia but farming is now permitted in a number of States. Emu farming was first attempted in 1976 by an Aboriginal community in WA, using breeding stock captured from the wild. Commercial emu farming was authorised by the WA Government in 1987. All emu farms are licensed by State conservation agencies and farm size, stocking densities and fencing requirements are regulated. In 1994 there were 38 emu farms in WA. Farms are also being established in Tasmania, New South Wales and Queensland. The Australian national flock in 1994 numbered over 30 000 birds.

The emu farming industry aims to supply meat, skins and byproducts, such as oil and feathers, to markets both in Australia and overseas. Tourism also provides a source of income for some farms. Slaughter of farmed emus began in 1991 in WA with an estimated 85 000 birds being available for slaughter in 1995. The key export markets for emu products are the United States of America, Japan, France and Southeast Asia for meat, leather and oil.

Emu meat is low in fat and cholesterol, with a pleasant

gamey taste. The industry is seeking to establish this product on the domestic market with emphasis on the regions that attract tourists. However, export markets are eventually likely to absorb most of the emu meat produced in Australia.

Emu fat is rendered to produce oil that is used in cosmetics and is reputed to be an effective treatment for muscle and joint pain, but these claims are as yet unproven.

The productive value of an emu in Texas, where in 1994 there were about 30 000 under domestication, is US\$450. The emu industry is still in its infancy in Australia and markets continue to be developed. If production and processing costs can be lowered, the outlook is considered to be very optimistic (Ramsay and English, 1991; Ramsay, 1994).

9 RHEA

Rhea americana

Order *Rheiformes*/
Family *Rheidae*
NOT THREATENED

Rheas are large, flightless birds found in South America. Five subspecies are usually identified, however these differ from one another by only subtle morphological differences and some authorities recognise only two subspecies, which overlap with one another in the Chaco Region (Short, 1975). The species enjoys total protection in Uruguay and Argentina. Bolivia, Brazil and Paraguay have generic bans on trade in their wild species, including rheas.

DISTRIBUTION AND CURRENT STATUS

Rhea americana is extensively distributed throughout south-eastern South America. It occurs in Brazil, Bolivia, Paraguay, Uruguay and Argentina. In Argentina the southern range limit is in the ecotone between the Pampa and Patagonia, close to the Rio Negro. Little population data exists in any of the range states. In Argentina complete censuses have been taken only on some private estancias. It is generally agreed, however, that the species is less widely distributed than in former times.

THREATS TO SURVIVAL

The main threats are habitat loss due to agricultural expansion and illegal hunting, mostly in the Pampas region of Argentina, in Uruguay and in southeastern Brazil. On some cattle ranches, the rhea has been wiped out by hunting.

CAPTIVE BREEDING

Rheas can be bred in captivity. A small member of the family *Rheidae*, *Pterocnemia pennata* (the Lesser or Darwin's rhea) is the subject of an Argentine Government experimental project at the Instituto Nacional de

Tecnologia Agropecuaria, Bariloche, Argentina. *Rhea americana* is also under investigation at this Institute.

DOMESTICATION AND ECONOMIC IMPORTANCE

Throughout its range the species has always been harvested for its meat, eggs, feathers, skin and oil, with very diverse applications for the aboriginal and creole cultures (Fauna Argentina, 1984; Sick, 1986). In Argentina, rhea skin is used to make leather goods and the feathers are used for dusters. The meat, especially from the thighs, called Picana, is eaten locally along the Argentine coast and in southern Brazil. The eggs are also eaten. Tanned skins are traded internationally by Argentina which exported 18 000 in 1990 (CITES Data). Skins are worth US\$ 24 - 28 per sq. ft. There is a significant volume of illegal international trade, especially with dealers in Japan. The farming of rheas for skins, feathers and meat would appear to be a distinct economic possibility, but in Texas where 3 - 4 000 are under domestication at present, farmers are finding rheas to be nervous and difficult to manage, when compared with ostriches or emus. There are no commercial rhea farms at present in South America but it is expected that many will soon be set up in Argentina, Uruguay, Brazil and Chile, in an attempt to diversify away from the traditional sheep farms of Patagonia.

10 CASSOWARY

Casuaris spp.

Order *Casuariiformes*/
Family *Casuariidae*
NOT THREATENED

Cassowaries are large, flightless birds that live in the forests of Papua New Guinea. Three species are recognised, the Double-wattled, *C. casuaris*, the Single-wattled, *C. unappendiculatus*, and the Dwarf cassowary, *C. bennetti*.

DISTRIBUTION AND CURRENT STATUS

The cassowary species are widely distributed in the highland forests of Papua New Guinea and are still relatively abundant. There is no immediate risk of extinction.

THREATS TO SURVIVAL

In the past, Papuan villagers hunted cassowaries with bows and arrows and by trapping. Now modern weapons, such as shotguns are being used and the cassowary population is in decline. Demands for traditional uses are increasing and there are few controls on trade in the young birds captured from the wild.

CAPTIVE BREEDING

Hatching cassowary eggs is very difficult. The birds are extremely sensitive to disturbance and males and females are often aggressive towards one another

when in captivity. The females only lay four to five eggs a year and do not breed every year. As a result, very few are bred in captivity and captive propagation is unlikely to be economic at present.

DOMESTICATION AND ECONOMIC IMPORTANCE

Many villages in the highlands of Papua New Guinea have cassowary farms. The villagers get their chicks from the wild birds in the forests or buy them from neighbours. The chicks are reared by hand and become very tame. Nevertheless, when adult the tame cassowary is unpredictable and very dangerous. When roused, the bird is capable of killing a human by leaping into the air and striking down with its long, sharp toenails.

In some areas of the highlands the cassowary has a very important economic status. Like the pig, it is used in the settlement of disputes, for bridal dowries, as a political gift and for feasts. The feathers are used for headdresses, the bones for tools and the toenails for spear tips. Again, like pigs, cassowaries are a sign of wealth. The price of an adult bird can be between 200 - 1 000 Kina (1 Kina = 1US\$) depending on size.

The Wildlife Division in Papua New Guinea has set up an experimental cassowary farm at Was, near Mendi in the southern highlands, to teach the villagers to propagate the birds for domestic production.

Order *Sauria*/Family *Iguanidae*
and Family *Crocodylidae*

- 1 Green Iguana
- 2 Black Iguana
- 3 Crocodilians

Large lizards have been important food animals for man since prehistoric times. Some, such as the monitor lizards, *Varanus spp.*, are frequently seen trussed-up in the markets of Indo-China. They are carnivorous and may be difficult to raise economically for meat. However, they may be very valuable to raise for medicine for the Chinese pharmacopoeia, as is done on a small scale in Thailand. Their skins also make fine leather. Iguana meat is popular in Latin America and the lizards are hunted relentlessly everywhere. As a result they are now becoming scarce and their decline is accelerated by habitat destruction as the tropical forests are felled and the land is turned over to cattle ranching. Iguanas are forest-edge species and will thrive on farms and ranches as long as some patches of woodland are left standing.

1 GREEN IGUANA

Iguana iguana

THREATENED

This large arboreal lizard is herbivorous and, although it takes three years to reach market size, it is easily tamed as a hatchling. If released into the wild, it will remain in nearby trees as long as it regularly receives a small amount of supplementary food in the form of house scraps. Iguanas can thus provide an important incentive for keeping the tropical forest trees standing, while still providing people with meat and income. These lizards weigh 2 - 4 kg and mature males may reach 6 kg.

DISTRIBUTION AND CURRENT STATUS

Indigenous from Mexico to northern Peru, green iguanas were formerly abundant in Central America but are no longer so. In most places where they used to be common, such as in the mangrove forests of Mexico's Pacific coast, only five percent of the former population remains. In the Guatemalan Pacific lowlands and in El Salvador, green iguana density is less than one percent of what it was a few years ago and in Panama and Costa Rica the species is classified as endangered.

THREATS TO SURVIVAL

Intense commercial hunting and deforestation are the main causes of population decline throughout the green iguana's range. Conservation education is badly needed in Central America, where people catch gravid females and rip out the eggs to eat, under the widely held misconception that the lizards can survive this brutality. Where this occurs iguana populations have been devas-

tated. In most countries where the green iguana still survives, it has been declared an endangered species by the government (Fuller and Swift, 1984).

CAPTIVE BREEDING

Sexual maturity is reached at two to three years of age and the females lay one clutch each year of 10 - 85 eggs, on average about 35 each year. There is a green iguana research farm in Costa Rica where thousands of lizards have been raised. Research on the green iguana is being carried out at the National Institute for Renewable Natural Resources of Panama (Cook, 1981).



Photo 3.33: Green Iguana (Belize). A large arboreal lizard with potential for semi-domestic management for meat and skins.

DOMESTICATION AND ECONOMIC IMPORTANCE

The green iguana has been a source of protein for humans for over 7 000 years. Many rural poor throughout central and northern South America still depend on the iguana for protein (Fitch *et al.*, 1982). Iguana meat and eggs are considered to be aphrodisiacs in many areas. Iguanas are best semi-domesticated since they normally inhabit the tree-tops, feeding on leaves, shoots and fruit in the forest canopy. Few other herbivores are able to convert such forest foliage into food for human consumption. Research indicates that 200 - 300 kg of iguana meat can be produced each year from one hectare of forest. The main constraint to iguana farming, however, is that while it takes as much food to produce a 3 kg iguana as it does to produce a 3 kg chicken, it takes three years to produce the iguana and four months to produce the chicken. Iguana skin has barely been exploited as yet. It sells on the international reptile leather market as chameleon lizard and is used for making ladies' accessories.

REMARKS

Green iguanas adapt well to secondary forest growth and to backyard conditions and unless grossly overstocked they are unlikely to affect the productivity of the trees. Werner (1991) gives a full account of the rational use of green iguanas.

2 BLACK IGUANA

Ctenosaura spp.

THREATENED

Four species of black iguana have been exploited for food in Latin America for centuries. Black iguanas differ from green iguanas in that their young are insectivorous and carnivorous during their first few weeks of life. Later on they become herbivorous like the green iguana and feed on vegetation. Adult black iguanas weigh up to 3 kg.

DISTRIBUTION AND CURRENT STATUS

The four black iguana species range from northern Mexico along both coasts of Central America to Panama and Colombia's Caribbean islands. They tolerate human presence well and have become almost suburban, often thriving on town garbage dumps and in cemeteries where they feed on coarse vegetation. As recently as 16 years ago black iguanas were shipped to market in Central America by the truckload. Today they are much reduced in numbers and have disappeared over much of their range. Nevertheless, they are still plentiful enough to be considered the major wild animal human food source over extensive areas in Central America.

THREATS TO SURVIVAL

Overhunting and the killing of gravid females for their eggs have had a disastrous impact on the once plentiful black iguana populations. Excessive insecticide spraying, too, is thought to be significant in some areas, probably because it kills the insect food source of the young iguanas.

CAPTIVE BREEDING

Black iguanas are much less arboreal than green iguanas. They are also more aggressive and territorial. The insectivorous nature of the hatchlings renders feeding them difficult and expensive since, like most lizards, they require living, moving prey. Females lay one clutch of 20 - 90 eggs each year.

DOMESTICATION AND ECONOMIC IMPORTANCE

In 1981 the Centro de Recursos Naturales (CENREN) in El Salvador started a black iguana farming project. Since then many data have been accumulated and the project produces large numbers of hatchlings for restocking depleted areas. Latin Americans believe that the flesh of these lizards has medicinal properties and they are willing to pay well for it. Where green iguana and black iguana occur together the flesh of the black species is preferred. Marketable size is not reached before two years of age. If sustainable harvesting programmes are not soon developed both iguana species are likely to be hunted to extinction.

REMARKS

Certain parasitic worms found in the flesh of black iguanas can make the meat inedible and unsaleable.

3 CROCODILIANS

Order *Sauria*/Family *Crocodylidae*

Crocodiles, alligators, caimans and gavials have existed on Earth for some 200 million years - far longer than mammals - but all are now fast disappearing. Of the 22 species of crocodilians distributed in the warm waters of the world, at least 18 are threatened with extinction in most of the countries in which they are found in the wild. Many species now survive only in national parks, protected reserves or in breeding stations. Habitat destruction (dams, marshland drainage, riverine forest destruction and estuary reclamation) and illegal poaching, by both tribal people and by professional hunters, have all contributed to the widespread decline of crocodilian populations over most of their range (National Research Council, 1983b).

Since the Second World War, almost all crocodilians have been over-exploited for their skins. The extent to which each species has been affected has depended on the economics of commercial hunting. The species with valuable skins have been hunted the most intensively. In spite of this, no species has yet become extinct in the wild as a result of over-hunting, although the Siamese crocodile (*Crocodylus siamensis*) and some of the South American crocodilians may be approaching that state.

The worldwide decline of wild crocodile stocks has provided the stimulus for the establishment of commercial crocodile farms and rearing stations. Captive-breeding programmes, established or promoted by the Governments of South Africa, United States of America, Zimbabwe and Papua New Guinea, have been able to encourage the conservation of wild crocodiles, while legally providing skins for commercial use. Today, commercial crocodile farms are operating with varying degrees of success in a large number of countries including Australia, Greece, Israel, Kenya, Malaysia, Mexico, Mozambique, the Philippines, South Africa, Singapore, Thailand, United States of America, Zimbabwe and the island of Taiwan, Province of China. Some countries, such as India and China, have captive-breeding programmes for endangered species, with the objective of restoring viable populations to the wild (Jenkins, 1987). Some crocodile farms, notably in Malaysia, are operated in conjunction with duck and pig farms that supply offal to feed the crocodiles.

The world trade in crocodilian skins peaked in the 1950s and early 1960s when 5 - 10 million skins, mainly those of the Nile crocodile (*C. niloticus*), were traded. Since then the annual number of skins has declined to about 1.5 million (Hemley and Caldwell, 1986). During this time the species harvested has changed from a predominance of classic skins (Nile crocodile) to an increasing number of those of the South American caiman. At present the genus *Caiman* supplies some two-thirds of the crocodilian hides in trade worldwide (Hemley and Caldwell,

1986). The spectacled caiman (*Caiman crocodilus*) is the most widely distributed and ecologically adaptable of the New World crocodilians and substantial wild populations remain in Venezuela and Colombia. Most caiman skins are harvested from the wild, but the farming and ranching of spectacled caimans has recently started in South America.

The majority of farmed crocodiles are derived from five wild species. These are:

NILE CROCODILE

C. niloticus

VULNERABLE

This species is widespread throughout Sub-Saharan Africa, but is absent in much of the extreme south and south-west. It extends northwards along the Nile to Lake Nasser and is present in Madagascar. The wild Nile crocodile is much depleted by intensive, uncontrolled hunting for skins, but it is now farmed on a large scale in Zimbabwe and South Africa where a proportion of the artificially-hatched hatchlings are returned to the wild to augment the free-living population.

ESTUARINE (SALTWATER) CROCODILE

C. porosus

ENDANGERED

A widespread species occurring from Sri Lanka, through eastern India to the Philippines and western Carolines and south through Indonesia, Papua New Guinea and northern Australia to the Solomon Islands and Vanuatu. This crocodile is very severely depleted, rare and declining through most of its range. It is the largest living crocodilian and is reported to sometimes attain 9 m in length. It has the most commercially valuable skin of all the farmed crocodiles. Four crocodile farms have been established in Australia where this species is raised but to date only the Edward River farm, operated by the Government as an aboriginal development project, has developed a successful breeding programme and is producing eggs from its own captive breeding stock.

NEW GUINEA CROCODILE

C. novaeguineae

VULNERABLE

A moderate-sized crocodilian occurring mainly in freshwater habitats in Papua New Guinea and Irian Jaya, Indonesia. This species has been the subject of an FAO crocodile farming project in Papua New Guinea where hatchling crocodiles collected from the wild have been raised in captivity by villagers for their skins.

SIAMESE CROCODILE

C. siamensis

ENDANGERED

Very rare in the wild. Formerly this species inhabited the lowland freshwater lakes of Vietnam, Cambodia, Laos and Thailand, also Kalimantan, Java and maybe

Sumatra, Indonesia. It is now extinct throughout much of its previous range due to intensive hunting for skins and habitat destruction. It is, however, now captive-bred on a large scale, primarily for skins, on a farm near Bangkok where hybridisation with *C. porosus* has taken place. The hybrid offspring are said to be commercially superior to the pure-bred stock.

AMERICAN ALLIGATOR

Alligator mississippiensis

NOT THREATENED

Now listed by IUCN as out of danger. Relatively widespread in various wetland habitats in the southeastern United States of America, the wild population now stands at over 300 000. There are about 20 alligator farms in the United States of America, mostly in Florida and Louisiana where the animals are kept for skin and meat production and as a tourist attraction. There is an alligator farm in Israel, using animals supplied by a Florida farm, which is at present run as a tourist attraction but expects soon to begin producing skins on a commercial scale.

At least 12 other species of crocodylian are the subject of captive-breeding operations, usually, but not always, in their native country. In most cases the aim is to conserve the stocks and to return them to the wild when circumstances permit.

The meat of farmed crocodiles and alligators is becoming an increasingly valuable by-product of the crocodile skin industry. Crocodile meat dishes are now served in many restaurants near the farms and croctail cocktail is a popular starter. In Louisiana, alligators are classified as seafood by the meat inspection services. Meat not sold for human consumption can be fed back to the crocodiles provided it is fresh. There is also a market in the East for the gall bladder and the penis of the crocodile for oriental medicine (National Research Council, 1983b; Groombridge, 1987; FAO, 1989). In The Dominican Republic, Haiti, Venezuela and Bolivia crocodylian fat is sought after for the treatment of asthma, burns and skin ulcers (Ross, 1992). Medem (1983) reports that during the commercial hunting of Orinoco crocodylians, musk collected from the cloacal glands was sold as a base for making perfume.

Crocodiles held under farm conditions are very prone to escape and when this occurs can establish a feral population. While this may be of little consequence when it happens in the species' native country, within the species' natural range, it can cause serious problems of competition and hybridisation if it occurs within the range of indigenous species in other countries. It is therefore recommended that crocodylians should be farmed only in their native countries or where there are no indigenous crocodylians in the wild.

Much of the material summarised in the Sections on Rodents, Poultry and Reptiles has been gleaned from National Research Council (1991) and National Research Council (1983b).

3.15

CIVET CATS

Order *Carnivora*/Family *Viverridae*
NOT THREATENED

- 1 African civet
- 2 Small Indian civet

Two civet cats, one African and one Asian, are currently exploited in captivity for the very valuable musk secreted by their anal glands.

1 AFRICAN CIVET

Viverra civetta

The African civet, *Viverra civetta*, has been kept in captivity in Ethiopia for hundreds of years. Civet musk, a foul smelling scent produced by the anal glands of the male civet cat, has powerful holding properties for other scents and is used in the manufacture of expensive perfumes. Today there are estimated to be more than 200 civet farmers in Ethiopia with about 4 000 civets in captivity. The farms are mostly to be found in the lower parts of the western highlands and in the Sidamo region.

TRADITIONAL CIVET FARMING IN ETHIOPIA

Most civet farmers keep 10 - 15 civets in individual cages made from eucalyptus poles. The design of these cages has not changed since the 1870s, when the engraving above was etched from a sketch by Cardinal Guglielmo Massaia, an Italian missionary.

The cages are placed in rows on trestles in dark rooms. Smoke is used to reduce fly-worry. Hygiene is usually very poor and there is a strong smell of urine and faeces, which are left to decay on the floor.

The civets are fed on a mixture of fruit and vegetables, maize meal and meat (1 kg/civet) or four eggs, every five days. The musk is collected using a horn spoon every 11 - 12 days during the rainy season and every 9 - 10 days during the dry season. Musk collection apparently causes no discomfort to the civet, which is restrained by using a stick to hold the head. The hind legs and tail are stretched out by an assistant whose hands are protected from injury by sacking gloves.

The musk is collected in horns and taken to agents in Addis Ababa every three or four months. The musk is then passed to the Pasteur Institute where it is tested for purity and packed in lead-sealed glass containers for export.

The measurement traditionally used for buying and selling civet musk is the wocket (also used for gold) and 23.6 wockets make 1 kg. One wocket is worth 40 Ethiopian birr (ETB), thus 1 kg of musk is worth 950 ETB or US\$ 450 (1990).

In one year a civet will yield about 300 - 400 g of musk, worth to the farmer about US\$ 200.

Ethiopia has an almost worldwide monopoly for civet musk production and annually exports some 2 000 kg of musk worth about US\$ 900 000.

Civets are trapped in the wild using a noose with a bell attached. Traps are placed on the known so-called mid-dens, which are commonly found near footpaths or tracks. The trappers charge between 120 and 150 ETB for a civet, payable after two months to ensure survival. Unfortunately, captive civets often die of a disease resembling canine parvovirus infection.

The Ethiopian Wildlife Conservation Organisation has outlined a programme for civet research and plans to set up an experimental civetry to study captive management (Woodford, 1990).

2 SMALL INDIAN CIVET

Viverricula indica

The Small Indian civet, *Viverricula indica*, is similarly farmed in Thailand and India. The musk produced by this species in Thailand is exported to China for the Chinese pharmaceutical industry. The Thai civet farms are run in association with chicken hatcheries and the civets are fed on boiled dead-in-shell chicks.

Small Indian civets are also kept in cages in many households in Kerala State in southern India for the collection of civet produced by the animals' anal glands. The civet and the ketone compound Civetone are sold to Ayurvedic physicians for medicinal use. Currently about 250 households keep some 500 civets in captivity, but as the practice is illegal the animals are kept in secret. Mortality, in the absence of any veterinary care is said to be high. Captive breeding or replacements is not generally undertaken (although it is possible) as replacements are easily obtained from the wild. Average longevity in captivity is 8 - 10 years. Viral diarrhoea and endo-parasites are major causes of mortality (Xavier and Balakrishnan, 1993; Xavier, 1994). The wild population of the small Indian civet is declining in southern India due to habitat loss and the Conservation of Nature Trust believes that if civet farming was made legal and farmers were registered welfare would improve and veterinary care would become available. Recently the Forest Department of the Government of Kerala has started issuing ownership certificates to civet farmers.

Both the African civet and the small Indian civet are widely distributed throughout sub-Saharan Africa and Southeast Asia respectively and neither species is judged to be threatened.

*"Give me an ounce of civet, good apothecary
- sweeten my imagination"*

King Lear. W. Shakespeare

The loss of biodiversity within wild faunas and floras that has been steadily increasing since the first spread of agriculture, has now become evident in domesticated species, too. The apparent accompanying reduction in diversity in domestic livestock species is particularly dangerous for those species whose wild progenitor is already extinct, for once the genetic material of the wild form is lost, it is gone for ever. Recourse to captive-bred stocks of wild relatives for genetic material may not be satisfactory since some wild species have been held in captivity for many generations and are based on a very small, so less flexible and responsive, gene pool.

Domestication itself - and one may call captive breeding, whether in zoological collections or in more extensive conditions, a form of creeping domestication - may be an irreversible genetic process that will inevitably follow the removal of some species from the selective pressures of their natural environment. Any human interference with the multifarious influences that shape wild behaviour can result in genetic changes which may lead to differing degrees of behavioural and genetic domestication (Ryder, 1993).

In view of this, genetic material from wild animals, whether for storage in cryopreservation or for the production of hybrids with domesticated types, whenever possible should be taken from a healthy, wild population occupying the environment to which it has become adapted.

There is the question as to whether we should be attempting to domesticate new species of wild animals. We have already exploited the indigenous genes of our temperate-based domestic stock substantially. It has even been suggested (Short, 1976) that apart from the romantic appeal it may have for conservationists there may be little point in preserving rare domestic breeds for their genetic potential. Their very scarcity may be an indication that they have lost their usefulness and become museum pieces. Maybe what we should be doing now is collecting and evaluating the genes of more tropical and polar species for infusion into existing domestic livestock of temperate origin and evaluating the potential of some completely new species for domestication, to feed a world increasingly crowded with humans, many of which live or will live in the tropics.

Tropical species are not usually seasonal breeders and even when transported to temperate zones their reproduction may continue to be non-seasonal. Examples are the chital or axis deer, *Axis axis*, of India, the Barbary sheep, *Ammotragus lervia*, of North Africa and the eland, *Taurotragus oryx*, of southern Africa, all of which breed throughout the year in their natural habitats and continue to do so even when translocated to northerly latitudes such as the United Kingdom (Zuckerman, 1952). The introduction of these tropical genes into a domestic species might therefore be expected to extend its mating

season. In contrast to this, animals living in polar regions or at high altitudes in the temperate zone would be expected to have a very restricted breeding season, perhaps an undesirable characteristic in some advanced agricultural situations. Nevertheless, they could well have a number of highly desirable attributes, such as large body size – evolved to minimise heat loss – a rapid growth rate and a high food conversion ratio, both associated with the need to reach maturity in the short summer growing season. Thus the introduction of polar genes or high altitude genes into a suitable domestic species might be expected to increase body size, accelerate growth rates and improve efficiency of food conversion. The new and more productive domestic animal could thus be a blend of desirable genes selected for under environmental extremes and infused into stock of proven domestic temperament (Short, 1976).

The concept of cross-breeding to produce designer domestic animals is not new. The Greeks believed that the minotaur was the result of a union between a bull and a woman, while Pliny in his Natural History suggested that ostriches were the products of giraffes mated with insects. Fundamentally, we must expect that changes in the genetic make-up of populations taken from the wild will be required to ensure their sustainable use for food and agricultural production in the organised (less chaotic) farming environment.

The question of what wild relatives of domestic stock should be given priority, both for *in situ* and *ex situ* conservation, must be addressed. From the documentation it would seem that those wild cattle which are classified as vulnerable or endangered should receive some priority. The wild cattle of Asia include several potentially valuable species: the kouprey, *Bos sauveli*, of Vietnam and Cambodia; the gaur, *Bos frontalis*, of India and the forests of Southeast Asia; two species of anoa, *Bubalus spp.*, from Indonesia and the tamaraw, *Bubalus mindorensis*, on Mindoro in the Philippines. The productive and economic potential and unique characteristics of these tropical, forest-dwelling bovids are almost unknown. A little more is known of the banteng, *Bos javanicus*, of which a domesticated form, known as Bali cattle, is kept for draught and meat production in Indonesia and for the production of hybrids when crossed with zebu cattle, on the island of Madura. Yaks, *Bos grunniens*, are domesticated in the high country of the Himalayas and hybrids with both humped and hump-less cattle (yakows) are also produced in central Asia. The mithan, *Bos frontalis*, is believed to be a semi-domesticated form of the gaur. However, some authorities think that it is the progeny of a gaur/cattle cross, others favour a gaur/banteng cross. Whichever is correct, the mithan has the valuable attribute of great docility and could be further developed for meat and traction in hilly, forested areas unsuited to conventional cattle.

Most of the wild Asian cattle species are threatened with extinction and attention to their conservation is urgent. All inhabit tropical forests and savannahs, regions which

are subject to those environmental extremes to which conventional livestock is poorly adapted and in which more than half the world's human population subsists. While the wild cattle of Asia may be resistant to some of the diseases and parasites which occur in their native environment, there is no doubt that diseases of domestic cattle are a serious threat to their continued existence in some areas.

Those wild species which are truly relatives of domesticated forms (yak, banteng, gaur) are important genetic reservoirs and yet others may have potential for the production of new domesticates (anoa, tamaraw, kouprey).

The African Cape buffalo, *Syncerus caffer*, is not threatened with extinction and the European and American bison, *Bison bison*, (now thought to be conspecific) are safely conserved by governments and individuals. These animals have some potential for the production of high quality, low fat meat when ranched in areas marginal for domestic beef cattle.

The mouflon-urial, *Ovis orientalis*, is considered to be the ancestor of the domestic sheep. Almost all European, Asiatic and North American wild sheep species will produce fertile hybrids when crossed with domestic sheep (Gray, 1971) and there may be some advantages, especially in the production of extended breeding seasons, of back-crossing to the ancestral stock (Zuckerman, 1952).

The production of ovine mules, as suggested by Short (1976) could be of considerable agricultural significance since it would obviate the need to castrate surplus males as a husbandry procedure and might thus allow better food conversion rates and enhanced weight gains.

The wild goat species believed to be the ancestor of the domestic goat is *Capra aegagrus*. This species is well distributed throughout the Middle East but the populations, often small and isolated, occur mainly outside protected areas. Only in Turkey is the wild goat population not threatened. A hybrid between the Sinai Desert goat, and the wild Nubian ibex, *C. ibex nubiana*, has been developed in Israel with the object of improving the palatability of the desert goat's meat. Hybrids between domestic goats and wild markhor, *C. falconeri*, are sometimes produced by chance in Chitral, Pakistan. The males of this cross, which are much heavier than their domestic mothers, are greatly prized as stud animals.

Przewalski's horse, *Equus przewalskii*, is now probably extinct in the wild but is safe in captivity. Plans are being made to return this species to its native environment in Mongolia. The wild asses of the world are in a critical state, especially the one surviving African species, the Somali wild ass, *Equus africanus somalicus*, thought to be one of the progenitors of the domestic donkey. With the exception of the now extinct Syrian wild ass, no representative of the eight subspecies of the Asian wild ass has been domesticated and all are now considered either endangered or vulnerable by IUCN. The Somali wild ass

will interbreed with its Asian cousins but the hybrids are infertile. An infusion of Asian wild ass genes into the domestic donkey might produce a mule with the characteristic endurance of its wild parent.

The wild ancestor of the majority of the domestic breeds of pig is the Eurasian wild pig, *Sus scrofa*. The Sulawesi warty pig, *Sus celebensis*, has also long been domesticated on the island of Sulawesi and elsewhere in Indonesia. The species occurs only in its wild, native form on Sulawesi and some adjacent islands. Pigs are likely to be of increasing importance to humankind as a source of protein and the regional genetic variants of the Eurasian wild pig and those of the Sulawesi warty pig (and other Asian wild pigs) are of great interest.

Of the three wild camelids, two occur in Latin America and one in central Asia. The Latin American wild camelids are the vicuña, *Vicugna vicugna*, and the guanaco, *Lama guanicoe*. The latter is the ancestor of the domesticated llama and the alpaca. The largest population of vicuña is in Peru where political unrest threatens the species. The world population of the vicuña is stable but could rapidly fall if conservation efforts were to be relaxed. The development of management techniques for the capture, shearing and release of vicuña could bring about semi-domestication of the species and provide a valuable source of income for the hill villages of Peru.

The guanaco is present in considerable numbers in Argentina but everywhere in Latin America it is over-hunted and persecuted by farmers who believe that it competes for grazing with their sheep and presents a disease risk.

The wild two-humped, so-called Bactrian camel, *Camelus ferus*, is now reduced to about 500 head and is confined to two small areas Mongolia and China.

Some deer species are now officially considered to be domesticated and others will follow them. Their wild relatives, although often under pressure, are generally not immediately threatened but in a world in which the human population is increasing by one million every five days this can hardly be a matter for complacency. Musk deer, *Moschus spp.*, are over-exploited throughout their range, which extends from Afghanistan through northern India to China, for their musk which is used by the European perfume and Asian pharmaceutical industries. Pere David's deer, *Elaphus davidianus*, has been extinct in the wild for 800 years and has recently been returned to its original habitat in China from captive sources in the United Kingdom.

Hybridisation of deer of temperate zone origin, with other species of tropical origin, is becoming a common practice, especially on New Zealand deer farms. The aim is to maximise production by manipulating changes in the time of the mating season and the length of the gestation period displayed by the hybrids. Wapiti, *Cervus canadensis*, sika, *C. nippon*, and Pere David's deer all

hybridise with red deer, *C. elaphus*, and produce fertile offspring. The world domestic deer herd now comprises more than five million head, of which more than a million deer are raised on over 5 000 deer farms in New Zealand. This total excludes reindeer that has been domesticated on an extensive scale for a long time in the sub-Arctic.

The Russians have had some success in domesticating the European elk, *Alces alces*, for meat and milk production and as a beast of burden in the Taiga, an environment unsuitable for most domestic animal transport. The Russians report that marked differences in the milk yield of individual elk suggest that selective breeding might result in an increase in productivity.

There are a number of African and Asian antelopes which may have potential for domestication or semi-domestication. These come from diverse habitats ranging from moist rain forest to arid savannah and semi-desert. They are thus adapted to some environmental conditions which are marginal for the production of conventional livestock because of drought, heat, disease, altitude, humidity and other constraints. Even if not subjected to the long process of domestication, they may well turn out to be more productive and less damaging to the environment than conventional domestic livestock in marginal areas.

The most important of the African candidates for domestication are the eland, *Taurotragus oryx*, springbok, *Antidorcas marsupialis*, and impala, *Aepyceros melampus*, and in Asia, the nilgai, *Boselephas tragocamelus*, and the blackbuck, *Antilope cervicapra*. The nilgai, which produces twins annually, could compete with the red deer as a meat producer in suitable environments but, of course, would not provide velvet as an additional product. The saiga, *Saiga tartarica*, which 40 years ago roamed the dry steppe of Kalmykia in Russia and what is now Kazakhstan in millions, has great potential for extensive management as a sustainable producer of meat and skins. Unfortunately, this small antelope is currently undergoing a marked decline as the populations are decimated for their horns to supply the Chinese market.

The Asian elephant is an extremely useful, semi-domestic animal in the logging camps of the Asian forests where it is extensively employed to drag teak logs weighing up to 1 000 kg. In Myanmar, where about 4 500 elephants (and 10 000 domestic buffalo) are employed in the timber industry, the annual losses of trained elephants from old age, accidents, disease etc. are about 7 percent (= 315). To be sustainable, annual offtake from the wild herds, conservatively estimated in Myanmar not to exceed 6 000 head, should not be more than 2 percent (= 120). But the wild herds are not all equally accessible to capture operations and as a result those that are within easy reach, in suitable terrain, tend to be exploited every year to supply as many of the required recruits as possible. In the past, working elephants have been discouraged from breeding because the young elephant is of little use as a work ani-

mal until it is about 12 years old and it has always been easier and cheaper to capture a wild recruit of the right age. Now, if environment-friendly working elephants are to continue to play a part in the timber industries of Southeast Asian countries, some attention must be given to selection for docility, trainability and intelligence in captive breeding stations, while the wild resource is permitted to recover.

Among the other wild species which have potential for future domestication are the musk ox, *Ovibos moschatus*, Asian bears and some Latin American and African rodents. The musk ox, a denizen of the northern tundra, has the most northerly distribution of all ungulates. It has great potential for domestication as a producer of meat and fibre in an environment which, with the exception of the caribou and reindeer, cannot support any other ruminants. There are some areas in northern Canada, western Greenland and northern Russia which could support populations of musk oxen.

The wild populations of the Asiatic black bear, *Ursus thibetanus*, and the brown bear, *U. arctos*, throughout Asia, from Pakistan to Japan, are unlikely to survive the current onslaught on them brought about by the great demand and high prices for their gall bladders and bile. Other bear species in Asia (sloth bear, *Melursus ursinus*, and sun bear, *Helarctos malayanus*) are also likely to be over-exploited for their medicinal products. China's stated intention to increase the number of farmed bears to 40 000 may result in a fall in the price of bear bile and other parts as supply catches up with demand, but before this can happen, the Asiatic black bear and the brown bear may find themselves extinct in the wild and fully domesticated in captivity.

Rodents are particularly likely to become extremely important as a source of future domesticants. They are the world's most adaptable and prolific animals. They reproduce well in captivity, grow fast and adapt to a wide variety of local conditions. Many convert coarse vegetation into meat efficiently even though they have only simple stomachs. Much rodent meat is already consumed throughout the world, especially in Latin America and West Africa. Peru alone has 20 million domestic guinea-pigs and several other species are undergoing experimental domestication. Some of these, like capybaras, *Hydrochoeris hydrochaeris*, the intensive farming of which has been shown to be feasible, are more productive than domestic livestock in marginal or degraded areas and others are adapted to thrive where for one reason or another conventional livestock do not.

Many valuable rodent species are classified by IUCN as endangered or vulnerable and some have already been hunted to extinction. If the considerable productive potential of these and other members of the order *Rodentia* was more widely known in development and agricultural economic circles, an important incentive would be provided for the conservation actions needed to maintain these genetic resources and develop their

food producing potential. Under semi-domestication few have been selectively bred for docility or productivity, nor have the characteristics of the various races of those species which occupy a variety of different habitats been characterised.

There are several important factors to be considered before recommending the introduction of a newly domesticated rodent (or indeed any exotic genetic resource) into a new country or culture. Largely because of their fecundity many rodents are agricultural pests in their natural range and since some species have a remarkable propensity for escape there is a danger, supported by a number of unfortunate past experiences, that an alien species could establish itself as a feral population in a new environment. For this reason, rodents may be appropriate for raising only in countries where they are already indigenous. Such potentially invasive animals should not be introduced into another environment where they could escape and become a liability to agriculture and the eco-system as a whole.

The subject of disease carriage has also been mentioned. Some rodent species are carriers of dangerous human diseases, e.g. Chaga's disease, leishmaniasis, trichinellosis, tuberculosis, bubonic plague and tularaemia. This also must be borne in mind when the introduction of a new domesticated animal into a new area is considered.

In the case of poultry, the genes of the high Arctic breeding species, such as the greater snow goose, *Anser caerulescens*, and the red-breasted goose, *Branta ruficollis*, will surely be needed for the improvement of the domestic goose. The bar-headed goose, *Branta indicus*, and the Ne-Ne, *Branta sandvicensis*, (Kear, 1975) will also be important for this purpose. The first two of these wild geese are high Arctic nesters, have incubation periods of only 23 - 24 days (the domestic goose incubates for 33 - 35 days), have a very rapid growth rate and an excellent food conversion efficiency. The red-breasted goose, for example, attains 17.7 times its hatching weight by three weeks of age, which is about twice the growth rate of the domestic gosling. The bar-headed goose nests at high altitudes and has an advantage over the high latitude species in that it has a long breeding season. The endangered Ne-Ne from Hawaii actually lays its eggs on a decreasing day-length in winter. It is also a truly terrestrial goose, is able to copulate on land and has little subcutaneous fat, all useful attributes for infusion into domestic goose breeds.

Ostriches, *Struthio spp.*, have been domesticated for more than 100 years and large numbers are now kept under increasingly intensive conditions. The domesticated ostrich population of Oudtshoorn District in South Africa alone is over 90 000 (1990s) and in the United States of America in 1994, about 100 000. At present, ostrich skins are under-produced and there is some scope for development in the industry by selection and back-crossing to the wild stock.

Emu, *Dromanius novaehollandiae*, domestication is a very new activity, having been first attempted in Australia in 1976 it is now also underway in the United States of America. Experimental rhea, *Rhea americana*, domestication is a recent development in Argentina and in Texas, United States of America. Care must be taken to ensure that successful domestication of these large, productive birds does not distract attention from the need to maintain their parent stocks in the wild.

Large lizards have been important food animals since pre-historic times. Some, such as the monitor lizards, *Varanus spp.*, frequently seen trussed-up in the markets of Indo-China, are carnivorous species and may be difficult to raise economically for meat. However, they may be very valuable to raise for medicine for the Chinese pharmacopeia, as is done on a small scale in Thailand. The meat of the green iguana, *Iguana iguana*, is popular in Latin America and the lizards are hunted relentlessly. As a result they are now becoming scarce and their decline is accelerated by habitat destruction as the tropical forests are felled. But iguanas are forest-edge species and will thrive on farms and ranches as long as some patches of woodland are left standing.

Green iguanas are better semi-domesticated rather than wild, since they normally inhabit the treetops, feeding on leaves, shoots and fruit in the canopy. Few other herbivores are able to convert such forest foliage into food for human consumption. Research indicates that 200 – 300 kg of iguana meat can be produced each year from one hectare of forest. The meat tastes like chicken and the eggs are also consumed throughout Latin America where they are believed to possess aphrodisiac properties. Iguana skin has barely been exploited as yet. The main constraint on iguana farming is that the lizards take three years to reach marketable size.

The five crocodylians, *Crocodylus spp.*, which are in the process of domestication, support a multi-million dollar industry based on the demand for their skins. At present, crocodile eggs or hatchlings are collected from the wild and hatched or raised in captivity. Where eggs are taken, under licence issued by the appropriate national wildlife authority, it is usual to require that ten percent of the resultant young crocodiles are returned to the wild. Unfortunately, this laudable conservation activity carries with it a disease risk because diseases such as crocodile pox, acquired in the hatchery, can be transferred to the wild population with the returned hatchlings. Efforts are being made to complete the domestication process by maintaining adult crocodylians in captivity for the production of captive-laid eggs and already some farms have had success in producing a supply of eggs from their own captive crocodile stocks.

Two civet cats, one African and one Asian are currently exploited for the very valuable musk secreted by their anal glands. The African civet, *Civettictis spp.*, is kept semi-domestically by small-scale farmers in Ethiopia solely for its musk production, which is exported for the per-

fume industry. The Small Indian civet, *Viverricula indica*, is similarly raised in Thailand and India. The musk produced by this species is exported to China for the Chinese pharmaceutical industry. The Thai civet farms are run in association with chicken hatcheries and the civets are fed on boiled dead-in-shell chicks. Both these civet cats are common and are widely distributed throughout Africa and Asia respectively. At present, these two civet-musk industries are sustained by adult civet cats, caught in the wild, but in future attempts will probably be made to breed the animals in captivity.

The success of domestication of wild animals by humans in the past may have been fortuitous and seems to have depended largely on the degree of social development of the species concerned and to some extent to that of humans as well. It has been suggested by Zeuner (1963) that domestication is rarely possible before a certain level of social evolution has been reached. In the case of those animals already domesticated, the only notable exception to this being the domestic cat, it is not by chance that the majority have been gregarious ungulates. This might imply that to attempt the domestication of nervous, solitary animals or those that exhibit fiercely territorial habits and socialise only in small family groups would be a waste of time. However, studies at the Smithsonian Tropical Research Institute in Panama have shown that, in the case of the fearful and aggressive paca, careful husbandry involving the early removal of the young from their natural mothers and suckling them on tame surrogate mothers, which have been previously imprinted to humans, results in docile, non-aggressive animals in which fierce territoriality never develops. This remarkable research has shown that, after a single generation, pacas trained to be non-aggressive and social adopt the desired behaviour patterns and these become progressively fixed. After three generations the animals need no further training and can be considered domesticated. The African cane rat or grasscutter is very nervous and aggressive and may require these special husbandry techniques to overcome what at first appears to be a serious constraint to domestication. A similar technique enables the bar-headed goose to breed freely in captivity, provided that the parents have been hand-reared and are imprinted to their human attendants.

The findings of Hagedoorn (1950) might well be applicable to the domestication of productive rodents. In his experiments he crossbred several races of the supposedly untameable black rat, *Rattus rattus*. From the resultant hybrids he raised a large second generation which was extremely variable. By a process of fortuitous selection – some pairs bred more easily in the small cages and were more inclined to become tame – a strain of tame yellow rats was produced. Whilst generalising across species is not without risk, these results provoked Bigalke and Neitz (1954) to suggest that Hagedoorn's work might indicate that the domestication of the eland should start by hybridising the common eland, *T. oryx oryx*, of eastern Africa with Lord Derby's (Giant) eland, *T. derbianus gigas*, of central Africa. Posselt (1963), however, noted that

hand-reared young eland varied considerably in temperament and this probably indicates that selective breeding for tameness and tractability could be achieved without recourse to hybridisation. Other authors have noted that when selecting canid pups for training, those with the darkest skin and eye colour are easier to tame and show less instinctive timidity than their lighter coloured siblings (Kagan, 1994). If proven, the existence of such marker traits for complex behaviour responses such as ease of domestication, may help to identify desirable wild types.

If the human population of the world increases by at least 50 percent in the next few decades and if sustainable agriculture is to be achieved across the whole range of production environments, as is required, humankind is going to need all the genetic diversity available. In particular, those genes which confer disease and drought resistance, life cycle productivity and the ability to thrive in degraded and inhospitable environments. The expected world human population increase will almost certainly be a major factor in contributing to global warming. Shifts in climate zones, changes in weather patterns and the inundation of low-lying coastal areas will place great stress on conventional agriculture and livestock production. Action is needed because most of today's farm stock has been derived from temperate ancestors and in 50 years time two-thirds of the world's human population will be packed into the tropical zones where production of livestock of temperate origin is often less than satisfactory.

The development of new techniques for incorporating the desirable genetic traits of the remaining wild relatives into their domestic counterparts and the production of new, innovative domesticants will be essential. There are two basic ways of conserving the genetic diversity exhibited by the wild relatives of domestic stock.

1. *In situ* conservation

in which the stock is preserved by protecting the ecosystem in which it occurs naturally, by the establishment and maintenance of national parks and reserves. In which natural selection is allowed to continue.

2. *Ex situ* conservation

- of the whole animal: by the maintenance of captive populations in zoos. Although this is undoubtedly expensive and could lead to problems of inbreeding, because numbers kept are inevitably small and further genetic change is almost solely the result of random genetic drift and inbreeding depression: both products of small parent numbers.
- of part of the animal: by cryopreservation techniques enabling the storage of ova, embryos and sperm, freezing the gene pool as sampled at its current generation.

Ideally all three measures should be taken, however in practice this may not be possible for financial and/or technological reasons.

There remains the question of how to make animals available for utilisation in genetic resources programmes. The numbers required for this will vary even within a species, depending on whether a new development initiative is to commence using the sample alone or, at the other extreme, whether interest lies only in a unique gene or allele in the wild relatives. In practice it is likely that captive herds and flocks will provide the animals, these being supplemented from time to time with wild specimens. Some important species are represented in zoological collections, but by no means all and it is for those of potential value as wild genetic resources that this situation needs attention. Within zoos there is also the need to be more aware of the importance of maintaining the genetic variation of the captive stock. This will only come about with increased genetic monitoring of captive populations and breeding programmes.

Animal scientists will increasingly advise on the modern techniques of embryo storage and transfer and semen dilution, storage and insemination. These methods have already been employed for one bovine species: In 1980 the New York Zoological Society successfully bred a Gaur calf from an embryo surgically transferred between a Gaur and a Holstein cow. Clearly reproductive biotechnology offers the potential for increasing the captive stocks of many species without recourse to further depletion of wild populations.

The wild relatives of domestic livestock have travelled by very different evolutionary pathways from those taken by their captive cousins on the farm. The forces of natural selection have fashioned their morphology, physiology and behaviour to produce unique evolutionary advantages, the value of which are only now being appreciated and the techniques for their exploitation developed.

The collection, preservation, characterisation and utilisation of the genetic resources of the wild relatives of domestic animals require the joint endeavours of both environmentalists and agriculturists: The environmentalists by increasing awareness of the animals' potential and by focussing on *in situ* conservation of wild relatives; the agriculturists by providing expertise in storage and utilisation of these genetic resources. The wild relatives of domestic stock must be accorded high priority when national conservation action plans are made and strategies implemented. Wild taxa with potential for domestication must be studied and maintained so that techniques for their conversion for human use can be investigated and adopted.

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ANNEX 3.1 FURTHER INFORMATION ON WILD RELATIVES

The author is grateful for the help of the compilers of the following IUCN/SSC Action Plans.

To learn more of the international Action Plans for these wild relatives, contact the IUCN Publication Services Unit, 219 Huntingdon Road, Cambridge CB3 0DL, U.K.

Draft or completed Action Plans have been developed for:

Asian Wild Cattle Action Plan

Caprinae Global Survey and Action Plan

Pigs, Peccaries and Hippos. Status Survey and Conservation Action Plan

Action Plan for the Conservation of the South American Camelids

Action Plan for the Conservation of the Cervidae, Moschidae and Asian Tragulidae

Asian Elephant Action Plan

Rabbits, Hares and Pikas; Status Survey and Conservation Action Plan.

Zebras, Asses and Horses - an Action Plan for the Conservation of Wild Equids

Part

4

**FERAL ANIMALS
PROBLEMS AND POTENTIAL**



A group of Feral Spanish Mustang horses

Part 4 introduces, for the first time, the issue of feral populations associated with Domestic Animal Diversity. In explaining that feral populations, by definition, are derived from previously domesticated stock, the section expands on the potential costs and benefits of feral animals. Species covered include goats and sheep, through cattle and buffaloes to horses, with examples from Australasia to the Americas.

Exploring issues related to the impact of feral organisms on the environment, the use of management practices, especially hunting, to limit harmful impacts and gain some economic and nutritional benefits is discussed. The value of the resource for genetic diversity and the means of assessing this potential are included.

More detailed documentation of these feral populations and their links to Farm Animal Genetic Resources will be provided as the Global Strategy for the Management of Farm Animal Genetic Resources is further developed.

PROBLEMS

For the purposes of this publication, animals are considered to be feral if they, or their ancestors, were formerly domesticated but are now living independently of humans. The terms feral and introduced are often confused, although their respective meanings are quite distinct. Feral animals may be introduced and exotic to the area in which they occur, but need not be so. Similarly, introduced species need never to have passed through a domesticated phase and those that have not, should not be referred to as feral.

For example, the free-living Asian buffalo in northern Australia represent a feral population of an introduced species whereas the red fox (*Vulpes vulpes*) in the same country is not feral although it was introduced.

Distinguishing feral populations of introduced species from feral but indigenous animals is of great importance because the account taken of both their potential value and of the problems they may cause can be very different.

Feral animals are often regarded as a serious problem, but what is less appreciated is that they may also be a valuable resource.

TABLE 4.1. POTENTIAL PROBLEMS AND POSSIBLE BENEFITS ASSOCIATED WITH FERAL ANIMALS

PROBLEMS
<ul style="list-style-type: none"> ■ genetic introgression into contiguous wild populations; ■ environmental modification; ■ competition with wild species and/or domestic livestock; ■ disease risk to wild species or domestic livestock; ■ expensive management; ■ public disapproval.
BENEFITS
<ul style="list-style-type: none"> ■ maintenance of ecosystem integrity; ■ genetic resource; ■ economic value; ■ cultural importance; ■ research potential.

Several of the entries in Table 4.1 are self-explanatory, but others require further comment.

The problem of feral animals interbreeding with their wild conspecifics is generally one that occurs when the feral animals in question belong to a species indigenous to the area. It is possible, however, for feral individuals of an introduced species to interbreed with members of a different, but closely related, indigenous species.

Undesirable environmental modification brought about by the activities of feral populations, both indigenous and exotic, can present a serious problem. The destruction or harmful modification of the habitats of native flora and fauna is a widely recognised consequence of the presence of exotic species.

The well-documented ecological impact of feral Asian buffalo in northern Australia provides many good examples of the profound environmental changes that can be caused by an introduced feral species. Feral populations of indigenous species can also cause similar problems, but this is only likely to be the case when the population density is unusually high.

Large herds of feral buffalo in northern Australia have overgrazed areas close to water and have almost eliminated the water couch plant (*Hymenachne sp.*). This plant forms the living fabric of the swamp, being grazed by native animals and forming huge floating rafts used by crocodiles, birds and other small animals for nesting. The rotting vegetation is also a source of food for many small aquatic animals. Other plants, such as the giant reed *Phragmites*, are seriously depleted by the buffalo, leaving the trampled soil exposed to erosion by rain in the wet season.

The swimming and wallowing habits of the buffalo have also had a devastating impact on low, sub-coastal wetlands. During the wet season buffalo use regular routes to swim and walk between the high ground where they graze. This behaviour pattern breaches naturally formed banks and creates deep channels that remain as permanent canals. The damaged banks and canals allow the invasion of salt water from high tides during the dry season, altering the salinity of the wetland. The persistent flow of tidal salt water also accelerates the erosion process.

It has been suggested that feral Asian buffalo in Java are a threat to wild banteng (*Bos javanicus*), both as competitors for food and as a source of disease. In Australia, feral Asian buffalo are controlled in an attempt to eradicate bovine tuberculosis and brucellosis.

In almost every situation where they occur, especially on islands, feral populations of domesticated animals are considered to be pests. They compete with wildlife, including their wild relatives, and with domestic livestock for food and shelter, threaten native fauna and flora, contribute to erosion and can also transmit or act as reservoirs of disease organisms.

Feral goats in Australia exert a great influence on native vegetation and compete with native wild animals for food and shelter. One of the possible reasons that the yellow-footed rock wallaby (*Petrogale xanthopus*) is rare in its former range in western New South Wales is that it is forced out of rock shelters by feral goats. Rock wallabies are heavily preyed upon by wedge-tailed eagles (*Aquila audax*) and require rock overhangs and caves for shelter from aerial predators and from the heat of the day. Feral goats also compete with domestic stock for pasture, especially during drought. Another problem for domestic stock is that feral goats often carry footrot, making it difficult to eradicate this disease from sheep where the goats are present.

In the Himalayas feral goats may transmit the virus of *peste des petits ruminants* to their wild relatives (Wood and Barrett, 1979).

In the United States of America, in places where feral pigs are not controlled by man or large predators, they multiply rapidly and cause considerable environmental damage by rooting in the soil. Feral pigs, which occur in at least 18 States, are susceptible to swine brucellosis and to pseudorabies, both important diseases of domestic pigs with which they may come into contact (Wood and Barrett, 1979; Animal and Plant Health Inspection Service, 1995).

In Australia, feral pigs, which occur from western Victoria through New South Wales and Queensland and across northern Australia from Cape York to the Kimberley Mountains in Western Australia, are the most serious agricultural pests. Pigs eat and damage crops and pasture. They have a serious adverse impact on the natural ecosystem. Their habit of rooting and wallowing around the margins of swamps and watercourses can destroy the vegetation that prevents erosion and provides food and nesting sites for native wildlife. Feral pigs may prey on lambs and damage fences. Up to 40 percent of lambs are said to be killed and eaten by feral pigs in some areas. However, the greatest threat the feral pig poses to agriculture in Australia is its potential to carry exotic diseases such as foot and mouth disease and swine fever (both classical and African), in a country where these notable diseases do not occur as yet. The feral pig is also a potential host of the screwworm (*Cochliomyia hominivorax*).

Feral horses and asses (burros) have been present in the United States of America since the 1850s. They represent one of the most complicated contemporary wildlife management problems in the western United States (Howard and Marsh, 1982). Most of the feral (often called wild) horses are to be found on public lands in Nevada, but other states with more than 1 000 individuals are California, Colorado, Idaho, Montana, Oregon and Wyoming. The major feral burro distribution is in an area comprising mostly public lands in south-eastern California, southern Nevada, southern Utah and western Arizona. About 95 percent of all the wild horses (+/ 45 000) and burros (+/ 12 000) occur on federal land

administered by the Bureau of Land Management (BLM) of the Department of the Interior (USDI).

In some areas of California feral burros have caused devastating damage to the vegetation and have seriously affected the native flora and fauna. They have caused soil damage, accelerated erosion, vegetation destruction, spring and water hole disturbance and have competed with native wildlife for food, water and living space (Sanchez, 1974).

In Australia, the Northern Territory alone has approximately four times as many feral horses (brumbies) as there are in the entire United States of America. There is considerable dietary overlap between horses and cattle in the types of grasses eaten and they are regarded as being in direct competition. Brumbies are also said to cause significant damage to fences.

The ass thrives in areas unsuitable for horses and cattle and since they graze further away from water they can have a much wider impact on native vegetation. Asses are believed to congregate around remaining watering points during times of drought and to prevent cattle from drinking. They also foul watering points, to the detriment of other species. On the Arabian Peninsula, where the ass as a beast of burden has been largely replaced by the pickup truck, abandoned feral asses graze alongside main roads where the run-off encourages growth of vegetation. Asses have little road sense and motor accidents are frequent.

The management of feral animals can be very expensive, resulting in less money being available for the conservation of wild flora and fauna. Berger (1991) has calculated that for every US\$ spent on feral horses and burros in the United States of America during the period 1980 to 1987 each of the 126 endangered species that also occurred on public lands received less than six cents. Money spent on managing feral animals for either economic or biological reasons may also be wasted if the methods adopted are ineffective, or if management is not actually necessary.

Public opinion may need to be considered too. Animal welfare groups may object to the control or elimination of feral populations. Many people find it hard to accept that animals in poor condition and dying of starvation could be part of a natural process of selection and that it is necessary to adjust the population to the carrying capacity of the range. Such concerns lead to demands that the animals be given supplementary food; for example, feral buffalo in Baluran National Park in East Java were provided with cut grass despite a concurrent programme to reduce the population.

Local people may have an economic interest in the preservation of feral populations which conservationists may wish to control or eradicate in order to protect wild flora and fauna. In Australia, a mutually satisfactory solution to this problem has been established whereby Aboriginal landowners derive both sustenance from the

large numbers of feral Asian buffalo and banteng which occur there, and financial benefit through the sale of hunting permits. This has been successful, despite the fact that these animals are otherwise controlled because of their considerable impact on the ecology of the area (Bowman, 1993).

Alternatively local people, particularly farmers, may want feral animals removed or eradicated because they are agricultural pests or because they compete with livestock, while conservationists may want to conserve the same animals because of their perceived genetic or ecological value.

BENEFITS

Feral animals can play the same ecological role as their wild relatives in helping to maintain the functional integrity of the ecosystems in which they occur. Furthermore, a well-established feral population is likely to be better adapted to its environment than an introduced wild one. There is always the possibility, however remote, that the original wild population in a given region might have belonged to a now extinct subspecies and that those animals might have been the ancestors of the present feral population. Thus some feral populations may be both functionally important and genetically valuable because they may contain genetic material which has been lost from the wild gene pool.

Feral animals are also a valuable genetic resource in their own right. Van Vuren and Hedrick (1989) argue that populations of feral livestock may have two important attributes that are of significance for genetic conservation (Table 4.2):

Firstly, feral animals may possess relict characteristics or genetic variants that are either absent in modern domestic stock or exist only in rare breeds. These traits may be of commercial, scientific, aesthetic or historical value. The feral cattle on Swona in the Orkney Islands, United Kingdom, which may be descendants of an unusual breed of triple-use stock (used for meat, milk and draught) (Hall and Moore, 1986) are one example. Another is the Chillingham herd of White Cattle in the United Kingdom, which were previously thought to be wild descendants of the aurochs, but are now generally regarded as feral (Baker and Maxwell, 1981; Hall and Hall, 1988; Corbet and Harris, 1991).

Secondly, feral animals may have novel and/or rare characteristics or adaptations. Such traits may include adaptations to extreme environmental conditions (e.g. temperature stress, drought and high parasite load), either as a result of selection pressures that have led to an increase in the frequency of rare genetic types, or mutation, or both.

Feral horses are not known to possess genetic features that are not found in domestic individuals. The selective pressures they have endured in the wild, however, are likely to be shaping them genetically, producing a hardier

stock which may prove to be a useful genetic resource in the future (Mason, 1979; FAO, 1980). Against this, in Australia it is said that feral horses tend to lose the conformation desirable for domestic horses, developing small bodies with big heads and short necks.

Genetic introgression from wild, other feral, or domestic populations, followed by recombination, selection, genetic drift, or some combination of these may have been of importance in accruing novel traits (Van Vuren and Hedrick, 1989). The presence of such traits in feral populations may potentially be of great commercial and scientific value. Feral populations may exhibit both relict and novel attributes.

Some feral species have great economic significance. Feral Asian buffalo have potential value as a source of meat and revenue from hunting. Domestic Asian buffalo were imported into northern Australia in the first half of the nineteenth century and many were set free. They spread and multiplied in the absence of any large predator to control them. In 1985 it was estimated that there were 350 000 feral buffalo in the Northern Territory and Queensland. About 20 000 are harvested for meat and many redomesticated animals have been exported to Papua New Guinea, Venezuela, Nigeria and Guyana.

Redomesticated animals may be of actual economic importance irrespective of whether they possess valuable genetic characteristics. In Australia, feral Asian buffalo are currently being captured and tuberculosis-free herds established (Boulton and Freeland, 1991). In Indonesia, feral Asian buffalo have been removed from at least one protected area and redomesticated. A similar project was instituted in Sri Lanka (Woodford, 1979).

The immediate economic value of feral animals is not limited to their redomestication. They can be a major tourist attraction and thus a source of revenue. Wildlife oriented tourism is becoming increasingly popular and for many people the sight of apparently wild animals of such impressive appearance as the Asian buffalo, the mithan or the yak will not be devalued by knowing that the animals are feral. Although one can expect indigenous feral animals to be of greatest interest to wildlife enthusiasts, feral animals of introduced species have proved to be an attraction too: Feral Asian buffalo feature in tourist promotions in the upper reaches of northern Australia, for example.

Safari hunting can be another source of revenue from feral animals. The Aboriginal owners of Gurig National Park in Australia receive about A\$ 2 500 for each trophy-sized banteng bull and A\$ 400 for each cow shot by big game hunters who come from all over the world (Bowman, 1993).

Feral pigs in the United States of America have become popular for sport hunting and are considered important game animals in California where commercial hunting/management programmes on private land have been successful (Howard and Marsh, 1984).

Feral animals may also be of cultural and historical importance. In the United States of America mustangs (wild or feral horses) symbolise the freedom of the West and many people are happy to let them occupy the niche formerly filled by truly wild equids, which became extinct in the New World some 10 000 years ago (Duncan, 1992). Bowman (1993) has argued that feral bovids in northern Australia are of great interest as a living reminder of the early colonial period.

Finally, populations of feral animals can be of great scientific value. Abundant feral relatives of endangered wild species can be studied using methods that would present an unacceptable danger to their wild counterparts. Such studies can produce much information of value for the conservation of the remaining wild populations. Much of what we know about the ecology and behaviour of the Asian buffalo is the result of research on the feral animals of Australia (e.g. Tulloch, 1969 *et seq*; Braithwaite *et al*, 1984; Taylor and Friend, 1984; Friend and Taylor, 1984). Several studies of feral banteng, also in northern Australia, have provided interesting data about that species (e.g. Bowman and Panton, 1991; Choquenot, 1993). Further, as Bowman (1993) points out, the large number of feral banteng in northern Australia presents biologists with an extraordinary opportunity to study the ecology and behaviour of an endangered bovid, an opportunity that has yet to be fully appreciated.

TABLE 4.2.
VALUABLE GENETIC ATTRIBUTES THAT MAY BE PRESENT IN FERAL POPULATIONS AND POSSIBLE INDICATORS OF THEIR PRESENCE

ATTRIBUTES	
Relict characteristics or genetic variants; novel or rare adaptations.	
INDICATORS	
DIRECT	<ul style="list-style-type: none"> ■ morphological markers; ■ quantitative traits; ■ fitness enhancing characteristics; ■ rare and unique alleles.
INDIRECT	<ul style="list-style-type: none"> ■ generations since isolation; ■ extent of isolation; ■ number of founders; ■ ancestral breeds; ■ physical and biotic environment; ■ management practices.

Source: reproduced with modifications, from Van Vuren and Hedrick, 1989

Van Vuren and Hedrick (1989) cite studies documenting potentially valuable traits present in feral sheep and pig populations in the United States of America. Unfortunately, the important feral bovid populations in Asia have been generally neglected and consequently

their potential value is largely unknown. Feral Asian buffalo in Australia have been better studied and while their numbers have been much reduced in recent years as part of a disease control programme, a number have been redomesticated and these animals may possess useful characteristics.

How can one tell whether a feral population might contain important genetic traits? Indicators can be either direct or indirect (Table 4.2). Direct indicators are usually best and include morphological features that may indicate ancestry or adaptation such as hair colour, coat length or presence and shape of horns. Quantitative characteristics, including body size, degree of sexual dimorphism, litter size or duration of breeding season, may also indicate significant differences in ancestry or selection pressure. However, the possible confounding effects of environmental variation should always be kept in mind when considering the possible significance of quantitative or morphological traits. For example, small body size might be the result of a poor quality diet. Bison (*Bison bison*), although not feral animals, provide an illustrative example. In Canada, bison belonging to the putative wood bison subspecies (*Bison bison athabascae*) develop the characteristic coat of the plains bison (*B.b. bison*) when properly fed. Wood bison turn out to be an ecotype and an artefact of captivity rather than a valid taxon; *Bison bison* has no subspecies (Geist, 1992). Similar caution needs to be applied to the interpretation of other traits that might indicate valuable adaptations such as resistance to particular diseases or parasites: Low parasite load in feral populations may be due to a lack of the necessary intermediate hosts (Van Vuren and Hedrick, 1989). The reported absence of rinderpest and foot and mouth disease among Asian buffalo on Borneo probably owes more to the apparent absence of these diseases from the island than to any inherent resistance of the buffalo living there (Cockrill, 1968). Comparisons between animals from different populations clearly need to be conducted under controlled conditions.

Genetic markers can be useful indicators. The presence of rare or unique alleles in feral populations, determined using the fast-developing techniques of molecular biology, might indicate that those animals have a different ancestry to that of extant domestic stock. Alternatively, the differences may be due to a particular mutation that has subsequently increased in frequency as a result of selection and/or genetic drift. The absence of unique genetic markers, however, should not be taken to mean that the animals under investigation lack interesting or unique adaptive traits since it is generally assumed that biochemical variants are non-adaptive (Van Vuren and Hedrick, 1989).

Indirect indicators of possible genetic differences between feral populations and domestic livestock can also be useful and will very often be all that is available. A number of potential indicators are listed in Table 4.2. The number of generations for which a population has been feral may indicate how likely it is that novel adapta-

tions will have evolved. The degree of isolation can be important too. If a population has been completely or almost completely isolated, many of the characteristics of its founders should be retained. However, as Van Vuren and Hedrick (1989) point out, isolation is not actually necessary. Interbreeding between feral populations and domestic animals need not lead to a change in the feral gene pool if the hybrid offspring do not themselves mate with feral animals.

The number of founders and the size of the population since the animals became feral can be useful indicators of the likelihood that the population is genetically significantly different from other feral populations and from extant breeds. If there were few founders and/or population size has been small for many generations, genetic drift may have led to the fixation of unusual characteristics. The history of the population can be important in other ways too. If it is known that a feral population was derived from a now extinct breed it may contain interesting and potentially valuable relict variants.

The environment can also be a valuable indicator of whether interesting genetic characteristics are likely to be present in a population. Both biotic and abiotic features may be important. For example, local climatic extremes may suggest that a population that has persisted in an area is adapted to temperature stress or drought conditions. Similarly, if a population apparently thrives in an area where a particular parasite or disease is known to be especially prevalent, one might expect that population to be more resistant than domestic (or other feral) animals not subjected to such selective pressures.

Finally, the management history of the feral population may also provide an indication of whether unusual traits are present. The persistence of relict characteristics, some of which may have originated as a result of deliberate selection for certain traits while the ancestors of a currently feral population were still managed domestic stock, has already been discussed, but management can also be influential after a population has become feral. Hunting practices, for example, may represent an important selection pressure. The small size of the feral Asian buffalo in Australia compared with those on the island of Timor, the source of many of the original imports, has been attributed to many years of hunting, during which large males were preferred targets (Cockrill, 1974).

Important as they may be, the genetic characteristics of feral animals are by no means their only valuable feature. Indeed, while many of the genetic traits discussed above are of potential importance, other attributes, such as economic worth, may be of far more immediate value.

It should be clear from the above discussion that feral animals have great economic and biological value, both potential and actual. It must be stressed, however, that when the management of a feral population is being considered the conservation of natural biodiversity should always take precedence. Although it is important to

acknowledge that feral animals may play a key role in the functioning of ecosystems in which they occur and thus be of significance for the conservation of many other species, they can be very destructive. Feral populations will need to be assessed on a site-by-site basis, weighing their possible valuable attributes against the potentially serious problems often caused by their presence.

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ANNEX 4.1.

SPECIES THAT HAVE GIVEN RISE TO FERAL POPULATIONS

ARTIODACTYLA	Wild Relatives	Domestic descendants
Bovidae	<i>Bos javanicus</i> (banteng) <i>Bos frontalis</i> (gaur) <i>Bos grunniens</i> <i>Bos primigenius</i> (EXTINCT) <i>Bubalus bubalis</i> (water buffalo) <i>Capra aegagrus</i> (Bezoar or wild goat) <i>Ovis orientalis</i>	Bali cattle Gayal or Mithan yak cattle buffalo domestic goat sheep
Camelidae	<i>Camelus bactrianus</i> (Bactrian camel) <i>Camelus dromedarius</i> (dromedary) <i>Lama guanacoe</i> (guanaco)	Bactrian camel camel llama and alpaca
Cervidae	<i>Rangifer tarandus</i>	reindeer
Suidae	<i>Sus scrofa</i> (wild boar)	pig
PERISSODACTYLA	Wild Relatives	Domestic descendants
Equidae	<i>Equus asinus</i> (African wild ass) <i>Equus ferus</i> (EXTINCT)	ass or donkey, burro horse, brumby
PROBOSCIDEA	Wild Relatives	Domestic descendants
Elephantidae	<i>Elephas maximus</i>	Asian elephant
CARNIVORA	Wild Relatives	Domestic descendants
Canidae	<i>Canis lupus</i> (wolf)	dog, dingo
Felidae	<i>Felis sylvestris</i> (wild cat)	domestic cat
Mustelidae	<i>Mustela putorius</i> (polecat) <i>Mustela vison</i> (American mink)	ferret mink
RODENTIA	Wild Relatives	Domestic descendants
	<i>Cavia aperea</i> <i>Hydrochaerus hydrochaerus</i> <i>Chinchilla laniger</i> <i>Cricetus cricetus</i> <i>Mesocricetus auratus</i> <i>Ondatra zibethica</i> <i>Gerbillus</i> spp. (gerbils) <i>Mus musculus</i> (house mouse) <i>Rattus norvegicus</i> (Norway rat)	guinea pig capybara chinchilla common hamster golden hamster muskrat gerbil laboratory mouse laboratory rat
LAGOMORPHA	Wild Relatives	Domestic descendants
	<i>Oryctolagus cuniculus</i>	rabbit or coney

from: Munton, Clutton-Brock and Rudge, 1984