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Information Material

Domestication, natural behaviour and swimming water for farmed American mink
– an overview of existing scientific knowledge

DOMESTICATION

For more than 100 generations, artificial selection of farmed mink has been practiced by fur farmers seeking to accentuate certain traits including size, reproduction capabilities, pelt and quality. In addition, it has been normal practice to cull and pelt individual animals displaying deviant behaviour, such as extreme timidity or fear vocalisation thereby removing them from the breeding population. This selection has indirectly resulted in most farmed mink responding to humans with curiosity as opposed to fear[1].

Studies of behaviour and brain neurochemistry (Institute of Cytology and Genetics, Russia) have demonstrated that the biology of minks have changed so drastically during more than 100 years of farm breeding that when released from their farmed conditions, they often have little or no chance of survival in the struggle for life in the wild. The minks that have resulted from breeding have acquired biological features that make them different from the wild mink from which they originate. Therefore, the farmed mink should be regarded as new domestic breeds developed from the original wild mink[2], and it becomes difficult to compare the farmed species with the wild American Mink.

Though it may have an appealing or nostalgic ring to it, domestication does not require thousands of years in human captivity. This has been demonstrated by Russian researcher Dmitry Belyaev who in the course of 25 generations selected silver foxes for tameness to the extent that the foxes became dependent on human contact. In his world famous domestication research Belyaev compressed thousands of years of domestication into a few years[3], and the farmed mink have adapted similarly:

> *Given the relatively short history of mink breeding, the welfare assessment of farmed mink suggests that mink have adapted reasonably well to captive conditions and suggests that further selection may still contribute to an increase in welfare. Compared to the welfare of other animals, there is no reason to suggest that their level of domestication presents an unacceptable welfare problem. This is in contrast to e.g. sows, where the prolonged selection for production criteria has led to serious welfare problems.*[4]

Additionally, it is worth noticing that only very few of the world's wild species have been successfully domesticated, and those who have are known to share a common set of characteristics[5]. These

[1] Hansen and Møller (2001),), *'The application of temperament test to on-farm selection of mink'*, Acta Agriculturae Scandinavia, Anim. Sci. Suppl, 30: 43-98;
[2] Trapezov (2004), *'Have Fur-bearers become domesticated?'* p. 1-11, presented at VIII Int. Scientific Congress in Fur Animal Production, Hertogenbosch, The Netherlands, 15-18 Sept. 2004
[3] D. K. Belayaev (1979), *'Destabilizing selection as a factor in domestication'*
[4] B.M. Spruijt (1999), *'The welfare situation of farmed mink as compared to other farmed animals and the question of domestication',* 53
[5] *Eg.* C. Darwin (1868), '*The Variation of Animals and Plants Under Domestication'*

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characteristics are genetically determined, and the farmed mink have undergone the same changes in behavioural, morphological and physiological characteristics as the other domesticated species. Thus, claiming that the farmed mink is essentially wild becomes trivial:

> *Minks form a reproductive community with their wild form, and in that sense, no new species is formed in the domestication process (as opposed to different breeds, which are formed), but that is the case with all domesticated animals, including those that were domesticated 5,000-10,000 years ago. There is therefore not the slightest doubt any more as how to answer the question, namely with an unequivocal yes, minks are domesticated, on a morphological, physiological, genetic and ethological basis and research*[6].

In the existing European housing systems the minks do in fact live in good accordance with their nature and biology, and compared to other domesticated species the minks exercise an extraordinary amount of natural behaviour on various accounts:

- Minks spend 70-80% of it time in their nest box. This corresponds to the conditions of the farmed mink's wild counterpart[7].
- Minks are not inseminated, but mate naturally.
- Minks build their own nests and raise the kits.

To this end the farmed mink in Europe do exercise a large amount of natural behaviour in accordance with the common scientific consensus of animal welfare as a multifactorial concept[8].

SWIMMING WATER

Numerous research projects concerning swimming water for mink have been undertaken, and consumer demand studies confirm that minks are willing to work to get access to swimming water, but they will work just as hard to gain access to other kinds of cage enrichment and the provision of cage enrichments for farmed mink should be focussed on variability and choices[9].

The absence of swimming water, without prior experience, does not lead to consistent changes in the level of stereotypic behaviour, or anticipatory responses; but the removal of a previously experienced water bath may induce short-term stress[10]. Thus, the claim that access to swimming water is essential

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[6] E. Decuypere (2011), *'Is the mink domesticated?'*
[7] Møller *et al* (2011), *'Welfare in mink',* Report no. 104: 4-5, Faculty of Agricultural Sciences, commissioned by the Danish Ministry of Agriculture.
* One square meter space pr. animal, min. three square meter pr. housing system, access to swimming water (from 2016)
[8] European Union Welfare Quality: *"It is now widely accepted that animal welfare is very complex, that it can be affected by many factors, and that it embraces both physical and mental health".* http://www.welfarequality.net
[9] Hansen et al (2006), *'Demand for swimming water and running wheel with 1 min of access per reward.'* Appl. Anim. Behav. Sci. 98 (1–2), 145–154 and *'Hansen, S.W., Jensen, M.B., 2006b. Quantitative evaluation of the motivation to access a running wheel or a water bath in farm mink',* Appl. Anim. Behav. Sci. 98 (1–2), 127–144.
[10] Vinke et al (2008), *'To swim or not to swim: An interpretation of farmed mink's motivation for a water bath'* Appl. Animal Behaviour Science 111, 1–27

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for minks' well-being is based on the assumption that the farmed minks are missing something they have never experienced. Though such a negative assessment is possible in theory, it is not supported by scientific knowledge.

> *Research indicates that the effect of access to swimming water is less than the welfare improvements which can be achieved by cage enrichment with platforms, tubes and biting objects. In addition, not all mink enter swimming water which would be expected if mink had an essential behavioural need for swimming water*[11]*.*

NATURAL BEHAVIOUR

In the public debate over animals, there is a tendency to value what is 'natural' and many people seem more influenced by the aesthetic appearance of a housing system than by whether the scientist's detailed measurements have indicated the welfare better or worse. Thus, some people hold the philosophical view that farms should be designed to fit the animal, and not the other way around.

Such a view seems to suggest that all elements from their natural environment which animals are denied in captivity can be described as deprived and leading to suffering. With reference to behavioural plasticity, the effects of domestication and humans' selective breeding programmes, this idea has largely been rejected by animal welfare scientists, who have concluded it inappropriate to assume that captive animals would require the same elements in their environment as their wild conspecifics[12]. Moreover, it is problematic from an animal welfare perspective to solely focus on natural behaviour. In the scientific community there is widespread consensus that good animal welfare is multifactorial and the assessment of animal welfare must take a large variety of measures into account[13].

The British animal welfare scientists Marian Stamp Dawkins has addressed the large societal attention to natural behaviour arguing that it is not the 'naturalness' that is the criterion for whether domesticated animals suffer or not: 'Natural' is not per definition something good in the wild where stress factors are high and life in general can be a risky affair. Natural behaviour will sometimes, but not always contribute to good animal welfare; whether it does or not must first and foremost be approached through scientific studies of the animals' behaviour:

[…] Do animals want to behave naturally? Do captive animals want to do all the things their wild counterparts do, or do they find plentiful food without having to hunt for it far more preferable? The connection between 'natural' and 'good' welfare becomes something that has to be established with

[11] Møller et al (2011), *'Welfare in mink',* Report no. 104: 4-5, Faculty of Agricultural Sciences, commissioned by the Danish Ministry of Agriculture.
[12] *E.g* E. Price (1999), *Behavioural developments in animals undergoing domestication,* Applied Animal Behaviour Science 65, 245-271; T.B. Poole (1992), *The nature and evolution of behavioural needs in mammals,* Applied Animal Behaviour Science, 1, 203-220; Veasey et al. (1996), *On comparing the behaviour of zoo housed animals with wild conspecifics as a welfare indicator,* Animal Welfare 5, 13-24
[13] *E.g.* Welfare Quality fact sheet, '*Principles and criteria of good Animal Welfare'*

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facts by looking at the animals themselves, not just by romantic assumptions about what life in the wild might be like. The results could turn out to favour either natural behaviour or not[14].

The important thing when addressing animal welfare is not to be blindsided by the emotional idea that 'good' equals nature. Animal welfare is the one ethical component where the natural sciences including biology, physiology and ethology can give us clear answers about the needs and wants of the animals. It is certain that the approach to animal welfare must be multi-stringed and cannot rely on 'natural' alone.

[14] M. Dawkins (2012), *Why Animals Matter,* 146-147