

**Wetland name:** The Dongting Lakes

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 28°38'-29°45'N, 111°40'-113°10'E;

**Location:** on the south bank of the Chang Jiang (Yangtze River), extending southwest from Yueyang almost to Changde in the west and Yiyang in the south, Hunan Province.

**Area:** 500,000 ha of wetlands; c.375,000 ha of large lakes.

**Altitude:** 30-35m.

**Biogeographical Province:** 2.15.5.

**Wetland type:** 11, 13, 14, 15, 18 & 19.

**Description of site:** A vast complex of large, shallow, freshwater lakes, numerous small lakes, extensive freshwater marshes and swamps, and wet grassy plains with a network of interconnecting river channels, streams and canals, on the plains south of the middle reaches of the Chang Jiang (Yangtze River). The system is fed by flooding from the Chang Jiang via numerous channels entering from the northwest, and by four other large rivers, the Xiang Jiang, Zhi Shui, Yuan Jiang and Li Shui, which rise in hill ranges to the south and west. The system drains northeast into the Chang Jiang through a broad channel at Yueyang. The depth of the larger lakes ranges from about 5m to 20m, and the pH values from 6.8 to 8.6. Water levels rise and fall with the level in the Chang Jiang, and annual fluctuations are great (up to 17.8m in East Dongting Lake). The main lakes are as follows:

- East Dongting Hu: 29°20'N, 112°55'E; 132,800 ha.
- Datong Hu: 29°12'N, 112°30'E; 19,600 ha.
- Hengling Hu: 28°50'N, 112°42'E; 40,000 ha.
- Wanzi Hu: 28°50'N, 112°30'E; 36,000 ha.
- Banbian Hu: 28°50'N, 112°12'E; 42,000 ha.
- Nan Hu: 28°50'N, 112°00'E; 92,000 ha.
- Qili Hu: 29°25'N, 111°55'E; 9,400 ha.

**Climatic conditions:** Subtropical monsoonal climate with cool winters and hot summers; the annual rainfall is 1,200-1,500 mm and the mean annual temperature 17.0°C.

**Principal vegetation:** The lakes support an abundant growth of submergent, floating and emergent aquatic vegetation; 131 species of aquatic plants have been recorded at East Dongting Lake, representing 40 families and 75 genera. Common submergent plants include *Vallisneria spiralis*, *Hydrilla verticillata*, *Ceratophyllum demersum* and *Potamogeton malainus*; floating plants include *Nelumbo nucifera*, *Euryale ferox* and *Lemna minor*; emergents include *Typha orientalis*, *T. angustifolia* and *Miscanthus sacchariflorus*. The extensive wet meadows are dominated by *Carex brevicuspis* and *Phalaris arundinacea*. The wetlands are surrounded by rice paddies and other cultivated fields. Land tenure: The wetlands and surrounding areas are state owned.

**Conservation measures taken:** East Dongting Lake and the surrounding marshes were designated as a Nature Reserve by the Municipal Government in December 1984. This reserve, the East Dongting Hu Nature Reserve (132,800 ha), includes about one third of the wetlands. It is administered by the County Forestry Department. A management organization has been established, and there is some control of hunting throughout the region.

**Conservation measures proposed:** There is a proposal to establish another nature reserve in the area.

**Land use:** Fishing, harvesting of reeds and grazing of domestic livestock throughout the wetlands, and outdoor recreation at some of the lakes; agriculture, particularly rice-growing, and forestry in surrounding areas.

**Disturbances and threats:** Parts of the wetland are being drained and reclaimed for agricultural land, and there is some water pollution, particularly from paper mills and other industries in Yueyang city. Overgrazing by domestic livestock, excessive fishing and illegal hunting are also reported to be problems.

**Economic and social values:** The lakes support an extremely important fishery; the wetlands act as a vast natural water storage reservoir and thus serve a very valuable function in flood control; they provide many opportunities for outdoor recreation and scientific research, and the rich aquatic vegetation supports large numbers of domestic livestock.

**Fauna:** The wetlands are an extremely important wintering area for migratory birds, particularly herons, egrets, storks, ducks, geese, cranes and gulls. About 120 species have been recorded including *Pelecanus crispus*, *Ciconia nigra*, *C. (ciconia) boyciana*, *Aix galericulata*, *Aythya baeri* and four species of cranes *Grus grus*, *G. monacha*, *G. vipio* and *G. leucogeranus*. The endangered Scaled Merganser *Mergus squamatus* has been recorded as a winter visitor in the Nature Reserve, and the Great Bustard *Otis tarda* is a regular winter visitor to the adjacent plains. Over 27,000 waterfowl were recorded in East Dongting Hu Nature Reserve during a census in mid-January 1988; these included 1,450 herons and egrets of nine species (mainly *Bubulcus ibis*, *Egretta garzetta* and *E. intermedia*) and:

340 *Tachybaptus ruficollis*

17 *Podiceps cristatus*

30 *P. nigricollis*

two *Pelecanus crispus*

72 *Ciconia (ciconia) boyciana*

78 *Platalea leucorodia*

12 *Cygnus columbianus*

10,000 *Anser fabalis*

10,000 *A. anser*

180 *Tadorna ferruginea*

30 *Aythya baeri*

300 other ducks of 11 species

78 *Grus grus*

36 *G. monacha*

24 *G. vipio*

12 *G. leucogeranus*

560 *Fulica atra*

140 shorebirds of 11 species

2,600 *Larus ichthyæetus*

150 *L. ridibundus*

860 *L. argentatus*

The critically endangered Chinese River Dolphin or Baiji *Lipotes vexillifer* occurs in East Dongting Lake and in the adjacent Chang Jiang, along with the commoner Black Finless Porpoise *Neophocaena phocaenoides (asiaorientalis)*. Other mammals include the Siberian Weasel *Mustela sibirica* and the Chinese Water Deer *Hydropotes inermis*.

About 200 species of fishes have been recorded including *Acipenser sinensis*, *Coilia ectenes*, *Cyprinus carpio*, *Carassius auratus*, *Xenocypris argentra*, *Elopichthys bambusa*, *Megalobrama sp* and *Leiocassis sp*; over 20 species are of commercial importance. Protected species include the Chinese Sturgeon *Psephurus gladius* and Salangidae. Reptiles include the freshwater turtle *Geoclemys reevesii*.

Over 40 species of Mollusca have been recorded in the reserve.

**Special floral values:** No information.

**Research and facilities:** Studies on the ecology of the wetlands, the wintering cranes and other large waterbirds were initiated in 1985 by biologists from the Hunan Department of Forestry.

**Criteria for inclusion:** 123.

**Source:** China Wildlife Conservation Association, Hunan Wildlife Conservation Association, Gui Mao-jie, Lu Jianjian and Shong Fa-zhong.

**Wetland name:** Zixi Reservoir

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 28°10'N, 111 °00'E;

**Location:** 100 km southwest of Changde, Hunan Province.

**Area:** 72,000 ha.

**Altitude:** 104m.

**Biogeographical Province:** 2.15.5.

**Wetland type:** 17.

**Description of site:** A large water storage reservoir and associated marshes on the Zhi Shui River, in wooded hills to the south of the Dongting Hu basin. The reservoir is long and very narrow, and has a deeply indented shoreline; it is fed by many small rivers and streams rising in the surrounding hills, and drains east through the Zhi Shui into the Dongting lake system.

**Climatic conditions:** Humid subtropical climate.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** Fishing and the harvesting of reeds.

**Disturbances and threats:** No information.

**Economic and social values:** The reservoir supports an important fishery.

**Fauna:** An important wintering area for migratory waterfowl, particularly Ardeidae, Ciconiidae, Anatidae and shorebirds.

**Special floral values:** None known.

**Criteria for inclusion:** 3b.

**Source:** Lu Jianjian.

**Wetland name:** Ouyanghai Reservoir

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 25°51'N, 112°42'E;

**Location:** 35 km WNW of Binzhou (Chenzhou), Hunan Province.

**Area:** 12,800 ha.

**Altitude:** 181m.

**Biogeographical Province:** 2.1.2.

**Wetland type:** 17.

**Description of site:** A water storage reservoir and associated marshes in wooded hills, fed by several small rivers rising in hills to the west and south. The reservoir drains north into the Xiang Jiang and thence into the Dongting lake system.

**Climatic conditions:** Humid subtropical climate.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** Fishing and the harvesting of reeds.

**Disturbances and threats:** No information.

**Economic and social values:** The reservoir supports an important fishery.

**Fauna:** An important wintering area for migratory waterfowl, particularly Ardeidae, Ciconiidae, Anatidae and shorebirds.

**Special floral values:** None known.

**Criteria for inclusion:** lb. 3b.

**Source:** Lu Jianjian.

**Wetland name:** Poyang Hu

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 28°22'-29°50'N, 115°47'-116°45'E;

**Location:** 50 km northeast of Nanchang, Jiangxi Province.

**Area:** 464,664 ha.

**Altitude:** 12-21m.

**Biogeographical Province:** 2.15.5.

**Wetland type:** 11, 14 & 18.

**Description of site:** A large freshwater lake with surrounding marshes and wet grassland, fed by five major rivers, the Gan, Wu, Xing, Rao and Xiu, entering the lake at its southern end. At maximum water levels, the lake is some 170 km long and 90 km wide at its widest point. As the river levels rise and fall with the changing seasons, so does the level of the lake. At the height of the wet season, from April to July, the surface of the lake can reach 21 m.a.s.l. and cover an area of approximately 4,000 sq.km. During the dry season, the water level falls by as much as 13 meters; the lake fragments into many smaller lakes and ponds, and extensive mudflats, sand bars and wet grasslands emerge. By mid-winter, the flooded area within the Nature Reserve has fragmented into nine main lakes, including Taiza Hu, Dahu Chi and Bang Hu (the three largest), and Sha Hu, Zhong Hu Chi, Chang Hu Chi and Zhu Shi Hu. By late winter, when water levels are at their lowest, the lakes are only some 20-80 cm deep, and there may be as little as 50,000 ha of open water. The pH values range from 7.0 to 7.6. Two of the shallow lakes, Dahu Chi and Sha Hu, are artificially drained in winter so that the fish can be caught.

**Climatic conditions:** Subtropical climate. The annual rainfall varies from 1,400 to 1,900 mm, with 40-60% falling in the rainy season from April to June. There is a dry season from October to March. The mean annual temperature is 17°C, the maximum recorded in summer 40°C, the January mean 5°C, and the minimum -12°C. There are 210-220 frost-free days per year in the northern part of the lake and 260-270 in the south.

**Principal vegetation:** Some 36 species of aquatic vascular plants have been recorded from the lake. The dominant aquatics are *Vallisneria spiralis*, *Potamogeton malainus*, bryophytes, green algae and blue-green algae, and there are only small areas of reed-beds (*Phragmites sp.*). The upper portions of the lake beds that are inundated only briefly during the wet season support a rich growth of grasses. The lake lies in a region of subtropical deciduous broad-leaved and evergreen forest, although most of the surrounding areas are now under cultivation or covered with grassland, pine plantations (*Cunninghamia sp.*) and secondary scrub.

**Land tenure:** The lake is state owned. Surrounding areas are under state and collective ownership.

**Conservation measures taken:** The Poyang Hu Nature Reserve (22,400 ha) was established in 1982, and is administered by the Jiangxi Provincial Forestry Department. Hunting and the drainage of wetlands for agricultural land have been prohibited in the reserve, and steps have been taken to control pollution and over-exploitation of natural resources in the region.

Conservation measures proposed: There is an urgent need to provide training for reserve staff in techniques of ecological and ornithological research, and also to increase educational activities. Because of the very large human population within the reserve, any future management proposals must work towards the co-existence of people and wildlife. Recent proposals by the Ministry of Forestry, IUCN and the International Crane Foundation call for the creation of an Education Centre at Poyang Hu, the provision of a Mobile Education Unit, and the development of a public awareness campaign to obtain the support of the local people. It is understood that a South China Crane Research Centre and Wetland Education Centre will soon be established by the local government. Hunting laws need better enforcement outside the reserve, and the protection of other parts of the wetland is desirable to prevent overcrowding of birds and increased risk of disease in the reserve. In future, the manipulation of water levels may provide an important tool for improving habitats for waterfowl, especially in late winter.

Apparently large numbers of Great Bustards *Otis tarda* and Bewick's Swans *Cygnus columbianus* and small numbers of Red-crowned Cranes *Grus japonensis* occur in the southern and eastern portions of the lake, outside the reserve. More thorough surveys of the entire ecosystem should be made, and plans advanced to protect critical habitats outside the reserve where land reclamation and hunting continue.

**Land use:** There are about 60 villages in the reserve, with a total population of 20,000. The main land-use activities are fishing, grazing by water buffalo, cutting of grass and aquatic vegetation for a variety of purposes, and small-scale cultivation of vegetable crops and rice. The two main rivers, the Gan and the Xiu, are extensively used by shipping, mainly barges and riverboats. Since the discovery of large numbers of wintering cranes, there has been a great increase in wildlife tourism to the region, and this is now being actively encouraged with the building of tourist accommodation in Wucheng. In the past, waterfowl hunting both for subsistence and for market purposes occurred on a large scale. This has now been prohibited in the Nature Reserve, but continues on a smaller scale in wetland habitat outside the reserve. The principal land-use activities in surrounding areas are agriculture and forestry.

**Disturbances and threats:** Until recently, one of the most serious problems faced by the reserve was that the waterfowl, including cranes, were shot by local people. However, this has decreased rapidly as the reserve has become better established, and the ban on shooting seems to be having a good effect. The widespread cutting of aquatic vegetation and burning of grassland drastically reduces the amount of cover for nesting water birds. The construction of dykes to prevent seasonal flooding, and the reclamation of the enclosed land for agriculture, continue to reduce the amount of wetland habitat outside the reserve. Removal of water from the lake for irrigation causes some

problems to the ecosystem, and in the longer term, changes in the water flow of the source rivers and particularly damming projects on the Chang Jiang (Yangtze River) could have a drastic impact upon the lake.

**Economic and social values:** The lake constitutes an important natural reservoir of fresh water, serves a valuable function in flood control, and supports a significant fishery. Finfish, freshwater shrimps and molluscs are harvested for food, and there is a small freshwater pearl industry. The reserve provides an ideal centre for scientific research on wetland ecosystems, has great value for conservation education, and is rapidly becoming a centre for wildlife tourism.

**Fauna:** The rich planktonic fauna includes 92 species belonging to 21 families. Sixty-five species of freshwater molluscs and 126 species of fishes have been recorded in the lake, the latter including *Mylopharyngodon piceus*, *Ctenopharyngodon idella*, *Hypophthalmichthys molitrix* and *Aristichthys nobilis*.

Over 150 species of birds have been recorded in the Nature Reserve, including 20 listed as endangered in China. The lake is most famous for its large wintering populations of cranes, especially Siberian White Cranes *Grus leucogeranus*. Some 1,350-1,450 were present in the winters of 1984/85, 1985/1986 and 1986/87, and no less than 1,658 were counted in January 1988. The maximum counts of other cranes in recent years have been 2,000 *G. vipio* (December 1986), 178 *G. monacha* (in the winter of 1985/86), and about 110 *Grus grus*. However, the lake is also an extremely important wintering area for Anatidae. It is estimated that some 5,000 swans, 100,000 geese and 600,000 ducks occur in mid-winter. The great majority of the swans are *Cygnus columbianus* (e.g. 3,450 in January 1988). The geese include well over 50,000 *Anser cygnoides*, at least 15,000-20,000 *A. albifrons* and smaller numbers of *A. fabalis*, *A. anser* and *A. erythropus*. A report of 14,000 *A. erythropus* in January 1988 is particularly interesting. *Anas acuta* is usually much the most abundant of the ducks; there are very large numbers of *A. crecca*, *A. poecilorhyncha*, *A. platyrhynchos* and *A. querquedula*, and large numbers of *Tadorna ferruginea*, *T. tadorna*, *Anas penelope*, *A. falcata*, *A. strepera*, *A. clypeata* and *Mergus merganser*. *Anas formosa*, *Aythya fuligula* and *Mergus albellus* occur in small numbers, and 200 *Aythya baeri* were reported in January 1988. Other wintering waterfowl include *Tachybaptus ruficollis*, *Pelecanus crispus* (up to 25 in recent years), *Botaurus stellaris*, *Egretta alba*, *Ardea cinerea* (several hundred), *Ciconia nigra* (usually 5-10), *C. (ciconia) boyciana* (usually 100-200 but 758 in January 1988), and *Platalea leucorodia* (over 1,000 in 1987/88). There are many wintering shorebirds and gulls including large numbers of *Recurvirostra avosetta* (3,400 in January 1988), *Vanellus vanellus* (up to 8,000), *Charadrius alexandrinus*, *Tringa erythropus* (several thousand), *T. nebularia*, *Gallinago stenura*, *G. gallinago*, *Calidris alpina* (several thousand), *Larus argentatus* and *L. ridibundus* (over 10,000). Sixteen Saunders' Gulls *L. saundersi* were present in January 1986. The grasslands, especially on Ling Gong Zhou island, provide wintering habitat for over 100 Great Bustards *Otis tarda* (e.g. 125 in January 1988) and small numbers of the very local Japanese Marsh Warbler *Megalurus pryeri* (at least seven in one area in January 1986).

Fourty mammals have been recorded including the Black Finless Porpoise *Neophocaena phocaenoides* (an occasional visitor), Chinese Water Deer *Hydropotes inermis*, Musk Deer *Moschus moschiferus* and Sable *Martes zibellina*. Other vertebrates include the frog *Rana nigronaculata* and the turtle *Geoclemys reevesii*.

**Special floral values:** None known.

**Research and facilities:** An office, laboratory, museum and bird observation station have recently been constructed at Wucheng in the centre of the reserve. The importance of the area for wintering cranes was first discovered in the winter of 1980/81 by two ornithologists from the Institute of

Zoology in Beijing (Zhou & Ding, 1987). Preliminary studies of the fauna were begun in 1981, and numerous surveys and censuses of the crane and stork populations have been carried out by the reserve staff and biologists from the Jianxi Provincial Forestry Bureau, the Shanghai Museum of Natural History, and the International Crane Foundation. WWF Hong Kong has supported an avifaunal survey of the lake, and several other international teams have visited the reserve in recent winters.

**References:** Cheng & Liu (1987); Cheng & Wang (1987); Chou & Cheng (1987); Harris (1986); Karpowicz (1985); Kennerley (1987); Liu & Cheng (1987); Yan & Ding (1986); Zhou *et al.* (1986); Zhou & Ding (1987).

**Criteria for inclusion:** 123.

**Source:** China Wildlife Conservation Association, Jiangxi Nature Reserves Administration, George W. Archibald, Patrick Dugan, Jim Harris, Lu Jianjian and David S. Melville.

**Wetland name:** Zelin Reservoir

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 29°17'N, 11 5°20'E;

**Location:** 80 km southwest of Joujiang, Jiangxi Province.

**Area:** 12,000 ha.

**Altitude:** 25m.

**Biogeographical Province:** 2.15.5.

**Wetland type:** 17.

**Description of site:** A water storage reservoir and associated marshes in the hills west of Poyang Hu, fed by the Xiu Shui River and several small streams. The reservoir overflows via the Xiu Shui into Poyang Hu.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** An important source of freshwater for surrounding areas.

**Fauna:** An important wintering area for migratory waterfowl.

**Special floral values:** No information.

**Criteria for inclusion:** 3b.

**Source:** Lu Jianjian.

**Wetland name:** Qingan Valley

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 28°52'N, 11 5°20'E;

**Location:** 60 km WNW of Nanchang, Jiangxi Province.

**Area:** 100 ha.

**Altitude:** 200-300m.

**Biogeographical Province:** 2.15.5.

**Wetland type:** 12.

**Description of site:** A small fast-flowing river and associated bogs in the foothills of the Jiuling Shan, near Qingan village. The river rises in the Jiuling Shan and flows east for 80 km into Poyang Hu.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** Protected in a Nature Reserve established in 1980.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** A breeding area for the endangered Giant Salamander *Megalobatrachus davidianus*.

**Special floral values:** No information.

**Criteria for inclusion:** 2a.

**Source:** Lu Jianjian.

**Wetland name:** Jiangkou Reservoir

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 27°44'N, 114°45'E;

**Location:** 25 km east of Yichun, Jiangxi Province.

**Area:** 9,000 ha.

**Altitude:** 78m.

**Biogeographical Province:** 2.15.5.

**Wetland type:** 17.

**Description of site:** A water storage reservoir and associated marshes on a tributary of the Gan River which flows into Poyang Hu.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** An important source of freshwater for surrounding areas.

**Fauna:** An important wintering area for migratory waterfowl.

**Special floral values:** No information.

**Criteria for inclusion:** 3b.

**Source:** Lu Jianjian.

**Wetland name:** Hongmen Reservoir

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 27°27'N, 116°47'E;

**Location:** 75 km southeast of Fuzhou, Jiangxi Province.

**Area:** 8,200 ha.

**Altitude:** 80m.

**Biogeographical Province:** 2.15.5.



**Wetland type:** 17.

**Description of site:** A water storage reservoir and associated marshes in wooded hills southwest of the Poyang basin. The reservoir is fed by streams from surrounding hills and drains northwest into the Fu River and Poyang Hu.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** An important source of freshwater for surrounding areas.

**Fauna:** An important wintering area for migratory waterfowl.

**Special floral values:** No information.

**Criteria for inclusion:** 3b.

**Source:** Lu Jianjian.

**Wetland name:** Qiandao Hu

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 29°33'N, 119°00'E,.

**Location:** 70 km north of Quzhou, Zhejiang Province.

**Area:** 30,000 ha.

**Altitude:** 27m.

**Biogeographical Province:** 2.15.5.

**Wetland type:** 17.

**Description of site:** A large water storage reservoir and associated marshes in rugged hill country, fed by many streams from the surrounding hills (peaks to 1,680m). The lake has a very indented shoreline, with numerous inlets, bays and small islands.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** There is a power plant at the reservoir, and part of the area has been developed for outdoor recreation.

**Disturbances and threats:** No information.

**Economic and social values:** An important source of freshwater for surrounding areas.

**Fauna:** An important wintering area for migratory waterfowl.

**Special floral values:** None known.

**Criteria for inclusion:** 3b.

**Source:** Lu Jianjian.

**Wetland name:** Hangzhou Bay

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 30°06'-30°24'N, 120°15'-120°48'E;

**Location:** east of Hangzhou City, Zhejiang Province.

**Area:** 62,500 ha.

**Altitude:** 0-5m.

**Biogeographical Province:** 2.15.5.

**Wetland type:** 01, 02, 06 & 08.

**Description of site:** The estuary of the Tuchin River, associated brackish marshes, and extensive intertidal mudflats in the inner part of Hangzhou Bay; intensively cultivated plains to the north and south.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** An important staging and wintering area for migratory ducks, shorebirds, gulls and terns. The commonest migrants in autumn are *Numenius phaeopus*, *Tringa nebularia* and *Calidris alpina*. Eight Nordmann's Greenshanks *Tringa guttifer* were observed in April 1987.

**Special floral values:** No information.

**Research and facilities:** Some shorebird surveys have been carried out.

**Criteria for inclusion:** 3b.

**Source:** China Wildlife Conservation Association.

**Wetland name:** Andong Marshes

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 30°20'N, 121°20'E;

**Location:** 60 km NNW of Ningbo, Zhejiang Province.

**Area:** 11,000 ha.

**Altitude:** 0-5m.

**Biogeographical Province:** 2.15.5.

**Wetland type:** 06 & 08.

**Description of site:** An area of coastal brackish marshes subject to tidal inundation and extensive intertidal mudflats on the southern shore of Hangzhou Bay; cultivated plains inland.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** Parts of the marshes have been reclaimed for agriculture.

**Disturbances and threats:** Continuing drainage and reclamation for agriculture.

**Economic and social values:** No information.

**Fauna:** An important staging and wintering area for migratory Anatidae and shorebirds.

**Special floral values:** No information.

**Criteria for inclusion:** 3b.

**Source:** Lu Jianjian.

**Wetland name:** Xiangshan Gang

**WetlandID:** 111

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 29°30'N, 121°30'E;

**Location:**45 km south of Ningbo, Zhejiang Province.

**Area:** 3,000 ha.

**Altitude:** 0-5m.

**Biogeographical Province:** 2.15.5.

**Wetland type:** 01, 02, 03, 04 & 06.

**Description of site:** A long narrow sea bay with several small estuaries, many small islands, and extensive intertidal mudflats; in a region of rugged coastline with coastal hills and offshore islands.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** An important staging and wintering area for migratory Anatidae and shorebirds.

**Special floral values:** No information.

**Criteria for inclusion:** 3b.

**Source:** Lu Jianjian.

**Wetland name:** Sanmen Wan

**WetlandID:** 112

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 29°10'N, 121°35'E;

**Location:**75 km south of Ningbo, Zhejiang Province.

**Area:** 3,600 ha.

**Altitude:** 0-5m.

**Biogeographical Province:** 2.15.5.

**Wetland type:** 01, 02, 03, 04 & 06.

**Description of site:** A complex of tidal estuaries around Sanmen Bay, with extensive intertidal mudflats and numerous small islands; in a region of rugged coastal hills and numerous offshore islands.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** An important staging and wintering area for migratory Anatidae and shorebirds.

**Special floral values:** No information.

**Criteria for inclusion:** 3b.

**Source:** Lu Jianjian.

**Wetland name:** Taizhou Wan

**WetlandID:** 113

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 28°30'N, 121°34'E;

**Location:** 110 km ENE of Wenzhou, Zhejiang Province.

**Area:** 4,500 ha.

**Altitude:** 0-5m.

**Biogeographical Province:** 2.15.5.

**Wetland type:** 01, 02 & 06.

**Description of site:** The outer estuary of the Shujiang River, with associated tidal mudflats, and extensive intertidal mudflats south along the shore of Taizhou Bay. Cultivated plains inland.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** An important staging and wintering area for migratory ducks and shorebirds.

**Special floral values:** No information.

**Criteria for inclusion:** 3b.

**Source:** Lu Jianjian.

**Wetland name:** Leging Wan

**WetlandID:** 114

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 28°20'N, 121°10'E;

**Location:** 60 km ENE of Wenzhou, Zhejiang Province.

**Area:** 3,200 ha.

**Altitude:** 0-5m.

**Biogeographical Province:** 2.15.5.

**Wetland type:** 01, 02, 03 & 06.

**Description of site:** A shallow sea bay and tidal estuary with many small rocky islets and extensive intertidal mudflats; in a region of rugged coastal hills and numerous offshore islands.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** An important staging and wintering area for migratory ducks and shorebirds.

**Special floral values:** No information.

**Criteria for inclusion:** 3b.

**Source:** Lu Jianjian.

**Wetland name:** Lingkun Island

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 27°58'N, 120°54'E;

**Location:** 30 km east of Wenzhou, Zhejiang Province.

**Area:** 1,599 ha.

**Altitude:** 0-5m.

**Biogeographical Province:** 2.15.5.

**Wetland type:** 06.

**Description of site:** A low-lying island at the mouth of the Qujiang River, with extensive fringing intertidal mudflats.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** Part of the interior of the island is under cultivation.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** An important staging and wintering area for migratory ducks and shorebirds.

**Special floral values:** None known.

**Criteria for inclusion:** 3b.

**Source:** Lu Jianjian.

**Wetland name:** Sandu Wan (Sandu Bay)

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 26°31'-26°57'N, 119°33'-120°05'E;

**Location:** in Ningde District, 70 km northeast of Fuzhou, Fujian Province.

**Area:** 45,100 ha.

**Altitude:** 0-6m.

**Biogeographical Province:** 2.1.2.

**Wetland type:** 01, 03, 06 & 07.

**Description of site:** A very large shallow sea bay with many inlets, several large hilly islands, many rocky islets, mangrove swamps, extensive intertidal sand flats and mudflats, and a narrow outlet to the sea. Salinities range from 27-33 p.p.t. and the average depth of water in the bay is about five meters. The bay is in a region of rugged coastline with nearby hills rising to 730 meters.

**Climatic conditions:** Humid subtropical climate with an average annual rainfall of 1,300-1,600 mm and a mean annual temperature of 19°C.

**Principal vegetation:** Mangrove forest dominated by *Kandelia candel*; broad-leaved forest on the surrounding hills.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** No information.

**Special floral values:** The bay contains the northernmost stands of mangrove forest on the mainland coast of China.

**References:** Lin & Wei (1981).

**Criteria for inclusion:** 1a.

**Source:** China Wildlife Conservation Association.

**Wetland name:** Luoyuan Wan (Luoyuan Bay)

**WetlandID:** 117

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 26°23'N, 119°42'E;

**Location:** in the Districts of Fuzhou and Ningde, 55 km northeast of Fuzhou, Fujian Province.

**Area:** 15,400 ha.

**Altitude:** 0-6m.

**Biogeographical Province:** 2.1.2.

**Wetland type:** 01, 03, 06 & 07.

**Description of site:** An area of tidal mangrove swamps and intertidal sand flats and mudflats in a large, shallow, sea bay with several small rocky islets and a narrow outlet to the sea. The bay is surrounded by hills rising to 730m, and the villages of Luoyuan and Mabi are situated on its shores. Salinities range from 28-34 p.p.t. and the maximum depth of water is five meters.

**Climatic conditions:** Humid subtropical climate with an average annual rainfall of 1,300-1,600 mm and a mean annual temperature of 19°C.

**Principal vegetation:** Mangrove forest dominated by *Kandelia candel*; broad-leaved forest and rice paddies in surrounding areas.

**Land tenure:** The wetland is state owned; surrounding areas are under collective ownership.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** No information.

**Special floral values:** One of the largest remaining stands of mangrove forest in Fujian Province, near the northern limit of mangroves on the Chinese coast.

**References:** Lin & Wei (1981).

**Criteria for Inclusion:** 1b, 2b.

**Source:** China Wildlife Conservation Association.

**Wetland name:** Fuqing Bay

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 25°40'N, 119°30'E;

**Location:** 55 km SSE of Fuzhou, Fujian Province.

**Area:** 1,500 ha.

**Altitude:** Sea level.

**Biogeographical Province:** 4.6.1.

**Wetland type:** 01, 02, 06 & 07.

**Description of site:** An area of tidal mangrove swamps and intertidal mudflats in a small estuarine system and shallow sea bay.

**Climatic conditions:** Humid subtropical climate with an average annual rainfall of about 1,300 mm and a mean annual temperature of 21°C.

**Principal vegetation:** Mangrove forest dominated by *Kandelia candel*.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** An important staging and wintering area for migratory Anatidae and shorebirds.

**Special floral values:** One of the few remaining stands of mangrove forest in Fujian Province, near the northern limit of mangroves on the Chinese coast.

**References:** Lin & Wei (1981).

**Criteria for inclusion:** 1b, 3b.

**Source:** Lu Jianjian.

**Wetland name:** Jin Jiang Estuary and Quanzhou Bay

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 24°52'N, 118°41'E;

**Location:** east of the city of Quanzhou, Fujian Province.

**Area:** 1,200 ha.

**Altitude:** 0-5m.

**Biogeographical Province:** 4.6.1.

**Wetland type:** 01, 02, 06, 07 & 08.

**Description of site:** The estuarine system of the un Jiang, Ju Long Jiang and Zhang Jiang rivers in Quanzhou Bay, with some tidal mangroves swamps, brackish marshes and extensive intertidal mudflats. Salinities range from 3.5 to 28.9 p.p.t., and the pH is 7.0. There are rocky headlands and coral reefs on the outer coasts.

**Climatic conditions:** Humid subtropical climate with an annual rainfall of 1,036-1,642 mm and a mean annual temperature of 20.8-21.3°C.

**Principal vegetation:** Mangrove forest with *Kandelia candel*, *Acanthus ilicifolius*, *Aegiceras corniculatum* and *Avicennia marina*; also some reed-beds. Rice paddies and sugar-cane fields inland.

**Land tenure:** The wetland is state owned; surrounding areas are under collective ownership.

**Conservation measures taken:** None.

**Conservation measures proposed:** There is a proposal to establish a Nature Reserve to protect the mangroves.

**Land use:** Fishing, reed-cutting and outdoor recreation; agriculture (rice and sugar-cane), grazing of domestic livestock and industrial development in adjacent areas.

**Disturbances and threats:** No information.

**Economic and social values:** The estuaries support an important fishery, and the mangroves provide coastal protection from storms.

**Fauna:** A breeding area for Ardeidae (e.g. *Bubulcus ibis* and *Egretta garzetta*), and an important staging and wintering area for migratory Anatidae and shorebirds.

**Special floral values:** One of the few remaining stands of mangroves in Fujian Province, near the northern limit of mangroves on the Chinese coast.

**Research and facilities:** A considerable amount of research has been carried out on the mangroves by Lin Peng and associates from Xiamen University.

**References:** Lin & Lin (1985); Lin & Wei (1981).

**Criteria for inclusion:** 1b, 3b.

**Source:** China Wildlife Conservation Association and Lu Jianjian.

**Wetland name:** Jiulong Jiang Kou (Jiulong Estuary)

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 24°23'-24°30'N, 117°50'-118°02'E;

**Location:** 20 km west of Xiamen City, Fujian Province.

**Area:** 6,000 ha.

**Altitude:** 0-3m.

**Biogeographical Province:** 4.6.1.

**Wetland type:** 02, 06, 07 & 08.

**Description of site:** The estuarine system of the Jiulong Jiang and one other small river, with numerous channels and islands, brackish marshes, mangrove swamps and intertidal sand flats and mudflats; in a densely populated area with many small towns and villages in the vicinity. Salinities range from 3-30 p.p.t., and the water is up to four metres deep at high tide.

**Climatic conditions:** Humid subtropical climate with an average annual rainfall of 1,450 mm and a mean annual temperature of 21.4°C.

**Principal vegetation:** Mangrove forests with six species: *Bruguiera gymnorhiza*, *Kandelia candel*, *Excoecaria agallocha*, *Acanthus ilicifolius*, *Aegiceras corniculatum* and *Avicennia marina*. Four communities have been identified:

- a *K. candel*, *B. gymnorhiza* and *A. corniculatum* association;
- a *K. candel* and *A. corniculatum* association;
- an *A. marina* association;
- a *K. candel* association.

There are some reed-beds in adjacent areas, and rice paddies and sugar-cane fields inland.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Conservation measures proposed:** There is a proposal to establish a Mangrove Nature Reserve.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** Thought to be an important staging and wintering area for migratory waterfowl, particularly shorebirds.

**Special floral values:** One of largest remaining stands of mangroves on the Chinese coast.

**Research and facilities:** A considerable amount of research has been carried out on the mangroves by Lin Peng and associates from Xiamen University.

**References:** Lin & Lin (1985); Lin & Wei (1981); Melville (1984a).

**Criteria for inclusion:** 1b, 2b.

**Source:** China Wildlife Conservation Association.

**Wetland name:** Dongshan Wan (Dongshan Bay)

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 23°42'-23°55'N, 117°23'-117°35'E;

**Location:** in the counties of Dongshan, Yunxiao and Zhangpu, 70 km south of Zhangzhou, Fujian Province.

**Area:** 21,400 ha.



**Altitude:** Sea level.

**Biogeographical Province:** 4.6.1.

**Wetland type:** 01, 02, 03, 06 & 07.

**Description of site:** A large shallow sea bay and small estuary with extensive intertidal mudflats and mangrove swamps, separated from the open sea to the east by a long sandy peninsula. There are several small islands in the mouth of the bay. Salinities range from 30-33 p.p.t., and the tidal variation is some 2-3 meters.

**Climatic conditions:** Humid subtropical climate with an average annual rainfall of 1,110 mm and a mean annual temperature of 21.0°C.

**Principal vegetation:** Mangrove forests with six species: *Bruguiera gymnorhiza*, *Kandelia candel*, *Excoecaria agallocha*, *Acanthus ilicifolius*, *Aegiceras corniculatum* and *Avicennia marina*.

**Land tenure:** The wetland is state owned; adjacent areas are under state and collective ownership.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** Thought to be an important staging and wintering area for migratory waterfowl, particularly shorebirds.

**Special floral values:** One of largest remaining stands of mangroves on the Chinese coast.

**Research and facilities:** A considerable amount of research has been carried out on the mangroves by Lin Peng and associates from Xiamen University.

**References:** Lin & Lin (1985); Lin & Wei (1981).

**Criteria for inclusion:** lb. 2b.

**Source:** China Wildlife Conservation Association.

**Wetland name:** Lufeng Marshes

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 22°52'N, 11 5°36'E;

**Location:** 125 km WSW of Xiantou, Guangdong Province.

**Area:** 2,000 ha.

**Altitude:** Sea level.

**Biogeographical Province:** 4.6.1.

**Wetland type:** 01, 02, 06, 07 & 08.

**Description of site:** A complex estuarine system opening into a shallow sea bay, with extensive fresh to brackish lagoons and marshes, mangrove swamps and intertidal mudflats.

**Climatic conditions:** Tropical monsoonal climate.

**Principal vegetation:** Mangrove forest with about twenty species.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** An important wintering and staging area for migratory shorebirds.

**Special floral values:** No information.

**Research and facilities:** Some research has been carried out on the mangroves by the South China Institute of Botany (Chen et al., 1985).

**References:** Chen et al. (1985).

**Criteria for inclusion:** lb. 3b.

**Source:** Lu Jianjian.

**Wetland name:** Futien Nature Reserve

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 22°32'N, 114°03'E;

**Location:** in the estuary of the Shenzhen River, 95 km southeast of Guangzhou, Guangdong Province.

**Area:** 304 ha, including 228 ha of mangroves.

**Altitude:** 0-3m.

**Biogeographical Province:** 4.6.1.

**Wetland type:** 02, 06, 07 & 09.

**Description of site:** An area of fish ponds, shrimp ponds and mangrove swamps along the north shore of Hau Hoi Wan (Deep Bay), extending westwards from the mouth of the Shenzhen River for 11.5 km, and adjacent intertidal sand flats and mudflats in the lower estuary of the Shenzhen River. The site is contiguous with Mai Po Marshes in Hong Kong. Many of the fish ponds exceed one metre in depth; the shrimp ponds are subject to regular tidal flooding or are managed in the traditional way with flushing and reflooding mainly on high spring tides. Salinities range from 17.6-21.8 p.p.t.

**Climatic conditions:** Tropical monsoonal climate with an average annual rainfall of 1,950 mm, a mean annual temperature of 22.4°C (maximum 36°C, minimum 1°C) and a mean relative humidity of 79%.

**Principal vegetation:** There are some mats of sea-grass *Halophila* sp on the mudflats. The pioneer mangroves have a mixed dominance of *Kandelia candel*, *Aegiceras corniculatum* and *Avicennia marina* with some *Excoecaria agallocha*, and *Acanthus ilicifolius* lining the channels. The mature stands of mangroves are dominated by *Kandelia*, *Aegiceras*, *Bruguiera gymnorhiza* and the mangrove fern *Acrostichum aureum*, the other species present including *Sonneratia acida*, *Rhizophora stylosa* and *Derris trifoliata*. The vegetation in the shrimp ponds includes stands of *Phragmites communis*, *Cyperus* sp and *Sporobolus* sp. The bunds are covered with grasses and sedges (e.g. *Zoysia*, *Paspalum*, *Sporobolus*, *Fimbristylis*) and *Suaeda* sp, and in sandy areas, there is a mixed community of *Clerodendron*, *Achyranthes*, *Pluchea*, *Pandanus*, *Phoenix* and *Ipomoea* spp. Plantations of *Acacia confusa* have recently been established on the inland side of the reserve.

**Land tenure:** The wetland and surrounding areas are state owned.

**Conservation measures taken:** Some 304 hectares of mangroves, fish ponds and shrimp ponds are included within the Futien-Nei Lingding Provincial Nature Reserve (858 ha), established by the Shenzhen Special Economic Zone and Guangdong Province in 1984 and administered by the Guangdong Forestry Department. Grazing, extraction of sand, wood-cutting and hunting are prohibited within the reserve, and some areas previously cleared of mangroves are being replanted. The existing fish ponds and shrimp ponds are still in use, but no new ponds may be constructed. Over 10,000 *Acacia confusa* trees have been planted behind the mangrove fringe to act as a shelter belt, and a plant nursery has been created.

**Conservation measures proposed:** Existing proposals include (a) the development of a programme of environmental education, especially for the local people, (b) the construction of an observation tower, and (c) the establishment of a research centre and bird-banding station. The Guangdong Wildlife Conservation Association plans to build an education unit near the Che Gong Temple just outside the reserve.

**Land use:** Fishing and harvesting of oysters *Crassostrea gigas* in the bay; fish farming for carp, mullet and sea-bream, and the harvesting of shrimps in the reserve; grazing of livestock, sand extraction, horticulture and small-scale pastoral farming in adjacent areas. There are five villages and three fish farms nearby.

**Disturbances and threats:** There is some pollution from local agricultural and domestic waste, and the threat of serious pollution from industrial development in Shenzhen City upstream on the Shenzhen River is likely to increase. There are proposals to "train" the Shenzhen River which would have serious impacts on the eastern part of the reserve. A proposal to build an airport at Baishizhou near the west end of the reserve appears to have been dropped. The illegal netting of shorebirds is now much reduced in the reserve.

**Economic and social values:** The mangroves provide a rich feeding and nursery ground for many commercially important crustaceans and fishes, and are of considerable value in shoreline stabilization. The fish and shrimp ponds provide an important source of income for the local people, and the mudflats support a very important oyster fishery. The Nature Reserve provides an excellent opportunity for conservation education within easy reach of large urban populations.

**Fauna:** The intertidal flats are of considerable biological interest in that they are unusually sandy in places. The rich invertebrate fauna includes over 18 species of Lamellibranchia, ten species of Gastropoda and seven species of Crustacea. The Gastropods include *Cerithidea djadjariensis* (the common snail of the mangroves), *C. cingulata*, *Dostia violacea* and species of *Melampus*, *Cassidula*, *Assimineia* and *Onchidium*. The fiddler crabs *Uca chlorophthalmus* and *U. arcuata* are abundant; other crabs include the mangrove crab *Scylla sp.* The reptiles include Bennett's Water Snake *Enhydryis bennetti*, a poorly known snake which until recently was believed to be confined to Hainan.

The ponds, mangroves and mudflats provide rich feeding grounds for resident herons and egrets, notably *Ardeola bacchus*, *Egretta garzetta*, *E. alba* and *Ardea cinerea*, and are a very important staging and wintering area for a wide variety of migratory waterfowl. The wintering waterfowl include several hundred *Tachybaptus ruicollis*, over 500 *Phalacrocorax carbo*, several hundred ducks mainly *Tadorna tadorna*, *Anas crecca*, *A. poecilorhyncha* and *Aythya fuligula*, over 500 *Fulica atra*, several thousand shorebirds, mainly *Charadrius alexandrinus* and *Calidris alpina*, and several thousand gulls, mainly *Larus ridibundus*. Species recorded in much smaller numbers include *Pelecanus crispus* (15 in January 1986 and 33 in January 1988), *Ciconia (ciconia) boyciana* (two in January 1988), *Platalea minor* (28 in January 1988) and *Larus saundersi*. Large numbers of shorebirds occur on migration, particularly in spring, and *Pandion haliaetus* and *Circus aeruginosus* are regular winter visitors.

**Special floral values:** Futien Nature Reserve possesses a surprisingly rich mangrove community in view of its proximity to large urban centres, and thus has great potential for scientific research and conservation education.

**Research and facilities:** There is a Management Office in the reserve with a staff of eight. Various studies have been conducted on the fauna and flora of the reserve by biologists from the Guangdong Forestry Department and Working Groups from WWF Hong Kong, and mid-winter waterfowl censuses have been carried out since January 1985.

**References:** Axell (1986); Chen *et al.* (1985); Karpowicz (1985); Melville (1984b, 1985, 1986a & 1986b); Morton (1984); Viney (1985).

**Criteria for inclusion:** lb. 1d, 1e, 2b, 3b.

**Source:** China Wildlife Conservation Association, Guangdong Forestry Department and David S. Melville.

**Wetland name:** Xi Jiang (Pearl River) Delta

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 22°00'-23°00'N, 113°05'-113°40'E;

**Location:** south of Guangzhou, Guangdong Province.

**Area:** 475,000 ha.

**Altitude:** 0-10m.

**Biogeographical Province:** 4.6.1.

**Wetland type:** 02, 06, 07, 10, 11 & 19.

**Description of site:** The vast delta system of the Xi Jiang (Pearl River) and several smaller rivers including the Dong Jiang, Pei Jiang, Tan Jiang, Linxi He and Zang Jiang, flowing into the Lingding estuary. There are numerous interconnecting river channels, low-lying islands, riverine marshes, large polders with rice paddies, fish ponds and shrimp ponds, and extensive intertidal mudflats, but very little mangrove forest now remains. Water bodies created and developed for irrigation and drainage purposes are also utilized for aquaculture, and in parts of the delta, such ponds occupy 30-60% of the land. The entire delta is very densely populated and there are numerous towns and villages.

**Climatic conditions:** Tropical monsoonal climate with an average annual rainfall of 1,900 mm and a mean annual temperature of 22°C.

**Principal vegetation:** There are some tiny relicts of mangrove forest in coastal areas.

**Land tenure:** Under a mixture of state and collective ownership.

**Conservation measures taken:** Only one tiny nature reserve has been established, the Bird Paradise Nature Reserve, which protects a large breeding colony of *Nycticorax nycticorax* in a 500 year old Banyan Tree on the Tianma River at Xinhui, 70 km WSW of Guangzhou. A large public observation tower was erected at the site in August 1984.

**Conservation measures proposed:** C.A. Viney has suggested that a large egretty near Kau Kong be given complete protection. This could only be achieved with the full cooperation of the local villagers. If the villagers insist on harvesting the young birds for export to Hong Kong, strict quotas should be enforced and only the dominant species (*Nycticorax nycticorax*) taken. Furthermore, representations should be made to the appropriate authorities in Hong Kong to request cooperation in curbing the trade in herons and egrets.

**Land use:** The principal activities are aquaculture, cultivation of rice and fishing.

**Disturbances and threats:** The once extensive mangrove forests have been almost completely destroyed through conversion to fish ponds. The remaining wetlands are under pressure from many activities including drainage for disease control, reclamation and conversion to other uses, and pollution from agricultural, industrial and domestic waste. Large areas of rice paddies are devoid of feeding herons and egrets, possibly because of the heavy use of pesticides. Breeding herons and egrets are heavily exploited for food. In 1985, local villagers reported that up to 4,000 juvenile birds were taken each year from the egretty near Kau Kong for export to Hong Kong as exotic food items. This trade only started in the 1970s and the demand is increasing annually.

**Economic and social values:** The delta is one of China's most important fishing areas.

**Fauna:** The delta is known to be an important wintering area for Anatidae and an important staging and wintering area for migratory shorebirds, but few details are available. At least 50 *Aythya baeri* were observed in a concentration of over 3,500 ducks on the Xi Jiang River in early 1986 (C. Robson). Parts of the delta support large numbers of herons and egrets, notably *Nycticorax nycticorax*, *Ardeola bacchus*, *Bubulcus ibis*, *Egretta garzetta*, *E. intermedia*, *E. a/ba* and *Ardea cinerea*. In addition to the breeding colony of *Nycticorax nycticorax* in the Bird Paradise Nature Reserve at Xinhui, there is a large egretty in a bamboo grove near Kau Kong, west of Guangzhou. Local estimates of the number of birds using this egretty range from 3,000 to 20,000. In May 1985, four species were nesting: *N. nycticorax* (much the most numerous), *A. bacchus*, *B. ibis* and *E. garzetta* (C.A. Viney).

The Chinese White Dolphin *Sousa (Sotalia) chinensis (sinensis)* was first described from the Pearl River.

**Special floral values:** No information.

**References:** Boswall (in press); Melville (1984a); Tapiador *et al.* (1977); Xu & Purchase (1983).

**Criteria for inclusion:** 1b, 1e, 2c, 3a.

**Source:** Craig Robson and C.A. Viney.

**Wetland name:** Beijin Gang

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 21°45'N, 112°02'E;

**Location:** 190 km southwest of Guangzhou, Guangdong Province.

**Area:** 1,500 ha.

**Altitude:** Sea level.

**Biogeographical Province:** 4.6.1.

**Wetland type:** 01, 02, 06, 07 & 08.

**Description of site:** An area of brackish marshes, mangrove swamps and intertidal mudflats in an estuarine system and shallow sea bay, with cultivated plains and the town of Yangiang inland.

**Climatic conditions:** Tropical monsoonal climate.

**Principal vegetation:** Mangrove forest.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** An important wintering and staging area for migratory shorebirds. **Special floral values:** No information.

**Criteria for inclusion:** 3b.

**Source:** Lu Jianjian.

**Wetland name:** Dongzaigang Nature Reserve

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 20°00'N, 110°35'E;

**Location:** in Qiongshan County, 20 km east of Haikou, Hainan Island, Guangdong Province.

**Area:** 5,240 ha.

**Altitude:** Sea level.

**Biogeographical Province:** 4.6.1.

**Wetland type:** 01, 06 & 07.

**Description of site:** A small shallow sea bay with extensive intertidal mudflats and mangrove swamps, near the northeastern tip of Hainan. The bay is in a densely populated region with numerous villages and large areas of rice paddies. Much of the mangrove forest has been cut over in the past, and is now being restored. Salinities in the bay range from 9.3 to 29.0 p.p.t.; the tidal range is 1.5-2.0m.

**Climatic conditions:** Tropical monsoonal climate with an average annual rainfall of 1,700 mm and a mean annual temperature of 23.8°C (July mean 28.4°C, January mean 17.1°C).

**Principal vegetation:** Mangrove forest with *Bruguiera gymnorhiza*, *B. sexangula*, *Rhizophora stylosa*, *Ceriops tagal*, *Lumnitzera racemosa*, *Heritiera littoralis*, *Excoecaria agallocha* and *Aegiceras corniculatum*.

**Land tenure:** State owned.

**Conservation measures taken:** Protected in the Dongzaigang National Mangrove Protection Area (5,240 ha), established in 1984 and administered by the Guangdong Forestry Department. Wood-cutting and hunting are prohibited in the reserve, and many regulations have been drawn up to protect the mangroves. A major mangrove restoration project has been initiated.

**Conservation measures proposed:** There are proposals to develop an environmental education programme in the reserve, and to take measures to reduce water pollution.

**Land use:** Scientific research in the Protection Area; agriculture, particularly rice-growing, in surrounding areas.

**Disturbances and threats:** Overfishing.

**Economic and social values:** The mangroves provide a nursery ground for commercially important fishes, and help to reduce coastal erosion.

**Fauna:** There is a very rich fish fauna, and the mangroves provide feeding habitat for a wide variety of waterfowl including *Ardeola bacchus*, *Egretta garzetta*, *E. intermedia*, *E. alba* and *Anas poecilorhyncha*. Waterfowl recorded during a survey in mid-January 1988 included 60 herons and egrets of five species, 11 *Platalea sp* and 120 shorebirds of 13 species.

**Special floral values:** A particularly rich mangrove ecosystem.

**Research and facilities:** A part of the Protection Area has been set aside for scientific research, and several studies have been conducted on the mangrove ecosystem. Facilities are however very limited, and there is an urgent need for improvement in equipment and communications.

**Criteria for inclusion:** lb, 2b, 3b.

**Source:** China Wildlife Conservation Association, Guangdong Forestry Department, The Conservation Agency, Lu Jianjian and Norton H. Nickerson.

**Wetland name:** Qinglan Gang and Wenchang

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 19°33'N, 110°50'E;

**Location:** in Wenchang County, 75 km southeast of Haikou, Hainan Island, Guangdong Province.

**Area:** 5,733 ha.

**Altitude:** Sea level.

**Biogeographical Province:** 4.6.1.

**Wetland type:** 01, 02, 05, 06, 07, 08 & 19.

**Description of site:** A small estuarine system and sea bay on the east coast of Hainan, with brackish marshes, extensive mangrove swamps, intertidal mudflats, sandy beaches and offshore coral reefs. In a densely populated region with many villages and large areas of rice paddies.

**Climatic conditions:** Tropical monsoonal climate with an average annual rainfall of 1,700 mm and a mean annual temperature of 24°C.

**Principal vegetation:** Mangrove forest with 25 species of mangroves. **Land tenure:** State owned.

**Conservation measures taken:** A part of the area is protected in the Qinglan Gang Mangrove Nature Reserve (3,733 ha), established in 1982 and administered by the Forestry Department. The destruction of mangroves has been stopped and cleared areas are being replanted.

**Conservation measures proposed:** There are proposals to establish a programme of environmental education at the Nature Reserve and to take measures to reduce levels of pollution.

**Land use:** Fishing; reforestation with mangroves in the Nature Reserve.

**Disturbances and threats:** Overfishing.

**Economic and social values:** The mangroves constitute an important nursery ground for the inshore fishery, and help to reduce coastal erosion. **Fauna:** A breeding area for Ardeidae including *Egretta garzetta* and *E. alba*, and an important wintering and staging area for migratory shorebirds and some Anatidae (e.g. *Anas poecilorhyncha*).

**Special floral values:** A particularly rich mangrove forest.

**Research and facilities:** A considerable amount of research has been conducted on the mangrove ecosystem since the establishment of the Nature Reserve in 1982.

**Criteria for inclusion:** 1b, 2c, 3b.

**Source:** China Wildlife Conservation Association and Lu Jianjian.

**Wetland name:** Yanpu Gang

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 19°43'N, 109°12'E;

**Location:** on the north coast of Hainan Island, 125 km WSW of Haikou, Guangdong Province.

**Area:** 1,200 ha.

**Altitude:** Sea level.

**Biogeographical Province:** 4.6.1.

**Wetland type:** 01, 02, 05, 06, 07 & 08.

**Description of site:** An area of brackish marshes, mangrove swamps and associated tidal mudflats in a small estuarine system and shallow sea bay, with sandy beaches and coral reefs along the adjacent coasts. In a densely populated region with many villages and large areas of rice paddies inland. **Climatic conditions:** Tropical monsoonal climate.

**Principal vegetation:** Mangrove forest.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** An important wintering and staging area for migratory shorebirds. **Special floral values:** No information.

**Criteria for inclusion:** 3b.

**Source:** Lu Jianjian.

**Wetland name:** Tiehshan Gang and Anpu Gang

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 21°20'-21°45'N, 109°30'-109°55'E;

**Location:** 50-90 km east of Beihai, on the border of Guangxi and Guangdong Provinces.

**Area:** c.35,000 ha.

**Altitude:** Sea level.

**Biogeographical Province:** 4.6.1.

**Wetland type:** 01, 02, 05, 06 & 07.

**Description of site:** A complex of small estuaries and shallow sea bays including Tiehshan Bay (Guangxi Province) in the west and Anpu Gang (Guangdong Province) in the east, with extensive intertidal mudflats, large stands of mangrove forest in the two main bays, and sandy beaches along the outer coasts. In a densely populated region with many villages and large areas of rice paddies inland.

**Climatic conditions:** Tropical monsoonal climate.

**Principal vegetation:** Mangrove forest.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** Thought to be an important wintering and staging area for migratory waterfowl, particularly shorebirds.

**Special floral values:** The bays include some of the largest remaining stands of mangrove forest on the Chinese coast.

**References:** Melville (1984a).

**Criteria for inclusion:** 1b.

**Source:** Operational Navigation Charts.

**Wetland name:** Qingzhou Wan

**WetlandID:** 130

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 21°30'-21°55'N, 108°02'-109°10'E;

**Location:** the coast of Guangxi Province east from the Vietnamese border to Bei Hai Bay, 120 km south of Nanning.

**Area:** c.36,000 ha of coastal flats and mangroves; 8,385 ha of islands.

**Altitude:** 0-5m.

**Biogeographical Province:** 4.6.1.

**Wetland type:** 01, 02, 03, 05, 06 & 07.

**Description of site:** A large shallow sea bay (Qingzhou Wan) with the estuary of the Qinjiang River, several smaller sea bays, numerous small estuaries, numerous small offshore islands, extensive intertidal mudflats and some patches of mangrove forest, along a 110 km stretch of coast on the north edge of Bei Bu Gulf (Gulf of Tongkin).



**Climatic conditions:** Tropical monsoonal climate.

**Principal vegetation:** Mangrove forest and beds of sea-grass.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Conservation measures proposed:** A proposal has been made to establish a nature reserve to protect the mangrove forests.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** The Dugong *Dugong dugon* occurs in the area.

**Special floral values:** No information.

**Criteria for inclusion:** 1b, 2a, 2c.

**Source:** China Wildlife Conservation Association.

**Wetland name:** Wetlands in the Dayao Shan Nature Reserve

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 24°15'N, 110°16'E;

**Location:** 150 km northwest of Wuzhou, Guangxi Province.

**Area:** Nature Reserve 14,500 ha; area of wetlands unknown.

**Altitude:** 40-750m.

**Biogeographical Province:** 2.1.2.

**Wetland type:** 12, 13 & 14.

**Description of site:** A small freshwater lake and marshes, and a fast-flowing river and its associated marshes, in the Dayao Shan mountains (peaks rising to 1,450m). The river flows north into the Xiang Jiang river.

**Climatic conditions:** Tropical monsoonal climate.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** The wetlands are protected in the Dayao Shan Nature Reserve (14,500 ha) established in 1982.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** A breeding area for *Shinisaurus crocodilurus*.

**Special floral values:** No information.

**Criteria for inclusion:** 1b, 2a.

**Source:** Lu Jianjian.

**Wetland name:** Dawangling Marshes

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 23°48'N, 106°48'E;

**Location:** 190 km northwest of Nanning, Guangxi Province.

**Area:** 19,200 ha.

**Altitude:** 125m.

**Biogeographical Province:** 2.1.2./4.10.4.

**Wetland type:** 13 & 19.

**Description of site:** Extensive riverine marshes and a large area of rice-paddies on a marshy plain downstream from the Chengbi He Reservoir in the valley of the You Jiang, a tributary of the Yong Jiang river. In a hilly region with peaks rising to 1,500m.

**Climatic conditions:** Tropical monsoonal climate.

**Principal vegetation:** Riverine marshes and rice paddies.

**Land tenure:** State owned.

**Conservation measures taken:** Protected in a Nature Reserve established in 1980.

**Land use:** Cultivation of rice.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** An important wintering area for migratory waterfowl.

**Special floral values:** No information.

**Criteria for inclusion:** 3b.

**Source:** Lu Jianjian.

**Wetland name:** Chengbi He Reservoir

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 23°58'N, 106°39'E;

**Location:** 210 km northwest of Nanning, Guangxi Province.

**Area:** 16,200 ha.

**Altitude:** 135m.

**Biogeographical Province:** 2.1.2./4.10.4.

**Wetland type:** 17.

**Description of site:** A large water storage reservoir and associated marshes on a tributary of the Yong Jiang river, in rugged hills with peaks rising to 1,500m. The lake has a very indented and steeply shelving shoreline, and several small islands.

**Climatic conditions:** Tropical monsoonal climate.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** Protected in a Nature Reserve established in 1980.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** An important wintering area for migratory waterfowl.

**Special floral values:** No information.

**Criteria for inclusion:** 3b.

**Source:** Lu Jianjian.

**Wetland name:** Hongfeng Hu

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 26°30'N, 106°25'E;

**Location:** 30 km west of Guiyang, Guizhou Province.

**Area:** 11,000 ha.

**Altitude:** 1,250m.

**Biogeographical Province:** 2.1.2.

**Wetland type:** 17.

**Description of site:** A large water storage reservoir with over 100 small islands, situated on rolling plains with limestone outcrops. The reservoir is fed by several small rivers rising in hills to the south and west, and overflows northeast into the Yachi He, a tributary of the Chang Jiang (Yangtze River). The maximum depth is 40 meters.

**Principal vegetation:** No information is available on the aquatic vegetation. The reservoir is surrounded by mixed evergreen and deciduous forest and scrub.

**Land tenure:** State owned.

**Conservation measures taken:** Some reforestation has been carried out in the catchment area.

**Conservation measures proposed:** It has been proposed that the entire reservoir be designated as a Nature Reserve.

**Land use:** Outdoor recreation.

**Disturbances and threats:** None known.

**Economic and social values:** A popular area for outdoor recreation, with high scenic values.

**Fauna:** An important wintering area for migratory waterfowl, particularly *Phalacrocorax carbo*, *Egretta garzetta*, *Ardea cinerea*, *Aix galericulata*, many other Anatidae and *Larus ridibundus*.

**Special floral values:** None known.

**Criteria for inclusion:** 3b.

**Source:** Li Mingjing and Lu Jianjian.

**Wetland name:** Caohai Nature Reserve

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 26°48'-26°53'N, 104°10'-104°20'E;

**Location:** in Weining County, west of the town of Weining and 240 km west of Guiyang, Guizhou Province.

**Area:** 4,600 ha.

**Altitude:** 2,172-2,234m.

**Biogeographical Province:** 2.1.2.

**Wetland type:** 14, 15 & 18.

**Description of site:** A small freshwater lake of 120 ha and a large expanse of freshwater marshes and wet grassland with numerous small ponds, in the upper drainage basin of the Chang Jiang (Yangtze River) The wetland borders on agricultural land, and is fed by several springs, local run-off and four small streams rising in the surrounding hills. The maximum depth of water is five meters, and the pH 7.5-8.4. The wetland is the remnant of a former shallow lake of 4,500 ha with vast stands of emergent aquatic vegetation which gave the lake its name "Sea of Grass". During the Cultural Revolution, the entire wetland was drained and converted to agricultural land. In the late 1970s, a water control gate was placed across the drainage canal; water was returned to the western part of the basin, and some of the wetland was restored to its natural condition.

**Climatic conditions:** Temperate climate with an average annual rainfall of about 950 mm, a mean annual temperature of 10.5°C and a mean relative humidity of 79%.

**Principal vegetation:** Wet grassland and marshes with *Scirpus yagara*, *S. validus*, *S. triangulatus*, *Cortaderia celloano*, *Oenanthe benghalensis*, *Polygonum amphibium*, *Trapa natans*,

*Ceratophyllum demersum*, *Chara sp.*, *Ottelia alismoides*, *Myriophyllum spicatum* and *Marilea quadrifolia*. Some pine plantations (*Pinus armandii* and *P. yunnanensis*) and *Rhododendron simsii* scrub in surrounding areas.

**Land tenure:** The wetland is state owned; surrounding areas are under a mixture of state and collective ownership.

**Conservation measures taken:** The wetland is protected in the Caohai Nature Reserve, a Provincial Nature Reserve of 3,200 ha established in 1983 and subsequently increased in size to 4,600 ha. Restrictions have been placed on hunting, construction of buildings and pollution, and a management organization has been set up with a staff of twenty.

**Conservation measures proposed:** It has been proposed that water levels be manipulated to maintain the marshes in an optimum condition for the wintering cranes, and the Government of Guizhou Province has adopted a proposal to reflood up to 1,500 ha of the original lake.

**Land use:** Fishing and grazing of domestic livestock; agriculture in surrounding areas.

**Disturbances and threats:** Overfishing has been reported to be a problem. Waterfowl hunting was rampant prior to the establishment of the Nature Reserve, but is now completely prohibited.

**Economic and social values:** The wetland is the only major source of fresh water for a large surrounding area; it supports a significant fishery, and provides many opportunities for nature tourism and scientific research.

**Fauna:** Nine species of fishes have been recorded, including *Cyprinus carpio*, *Carassius auratus*, *Ctenopharyngodon idella* and *Mylopharyngodon piceus*. Nine species of reptiles and 14 amphibians occur, including *Trimeresurus microsquamatus* and *Natrix annularis*. Caohai is one of the most important wintering areas for the Black-necked Crane *Grus nigricollis* in China. Following the restoration of the wetland and protection of the cranes, numbers have built up from only 35 in the mid-1970s to 305 in 1983/84 and 350 in 1985/86. The cranes begin to arrive in mid or late October, and leave again in mid or late March. About 2,000 *Grus grus* also winter in the marshes (maximum of 2,178 in 1983), and *Ciconia nigra*, *C. (ciconia) boyciana* and *Grus monacha* have occurred. The wetland is also important for wintering ducks, geese and coots. Over 20,000 waterfowl were present in mid-January 1988, including:

24 *Podiceps cristatus*

55 *Ardea cinerea*

19 *Platalea leucorodia*

440 *Anser anser*

1,660 *A. indicus*

1,680 *Tadorna ferruginea*

580 *Grus grus*

235 *G. nigricollis*

10,000 *Fulica atra*

and 5,400 other ducks (mainly *Anas penelope*, *A. platyrhynchos*, *A. querquedula* and *Aythya ferina*).

**Special floral values:** No information.

**Research and facilities:** Several studies have been made on the wintering ecology of the cranes by biologists from the Guizhou Provincial Forestry Bureau and the Institute of Biology, Guizhou Academy of Sciences, but at present there are only limited research facilities at the reserve.

**References:** Li & Li (1987); Wu & Wang (1986); Wu & Li (1986); Wu, Li *et al.* (1987); Zhou *et al.* (1987).

**Criteria for inclusion:** 1b, 2a, 2b, 3a.

**Source:** China Wildlife Conservation Association, Weining Caohai Nature Reserve Administration, George W. Archibald, Jin Lan (National Environmental Protection Agency), Li Mingjing, Lu Jianjian and Zhang Zhi-yen.

**Wetland name:** Yangzong Hai

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 27°15'N, 103°40'E;

**Location:** in Yiliang County, 130 km NNE of Dongchuan, Yunnan Province.

**Area:** 3,100 ha.

**Altitude:** 1,950m.

**Biogeographical Province:** 2.1.2.

**Wetland type:** 14 & 15.

**Description of site:** A group of small, shallow, freshwater lakes, ponds, marshes and swampy areas on the Yunnan/Guizhou Plateau; fed by streams from the surrounding hills (peaks to 3,340m). The wetlands drain north into a tributary of the Chang Jiang (Yangtze River).

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** No information.

**Special floral values:** No information.

**Criteria for inclusion:** lb.

**Source:** China Wildlife Conservation Association.

**Wetland name:** Dianchi Lake

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 24°50'N, 102°43'E;

**Location:** 10 km south of Kunming, Yunnan Province.

**Area:** 31,827 ha.

**Altitude:** 1,880m.

**Biogeographical Province:** 2.39.12./4.10.4.

**Wetland type:** 14.

**Description of site:** A large freshwater lake and associated marshes on the plains south of Kunming. Like most lakes in Yunnan, Dianchi is a fault lake. It is bordered to the north by Kunming (a city of over three million inhabitants), to the east by flat agricultural land and to the west by mountains. It is fed by more than 20 small rivers and streams from the surrounding hills, and has a single outlet, the Tang Lang Chuan, in the southwest, which flows west then north to join the Chang Jiang (Yangtze River). The lake is shallow, with an average depth of 2.6m and a maximum depth of 5.5m; the water is alkaline, with an average pH of 8.9. A small area at the north end of the lake was reclaimed for agricultural land in the 1950s and 1960s. In terms of physical, chemical and biological parameters, the lake can be divided into two areas separated by a relatively narrow channel. The northern part, known as Cao Hai (300 ha), is very eutrophic and

supports a considerable amount of aquatic vegetation; the main part, known as the Outer Lake, is less eutrophic and has few aquatic macrophytes.

**Climatic conditions:** Subtropical monsoonal climate with an average annual rainfall of 1,200 mm, most of which falls during the summer months. Mean monthly temperatures range from 7.8°C to 19.8°C.

**Principal vegetation:** There are relatively few floating and emergent plants except in the northern part of the lake (Cao Hai), where *Eichhornia crassipes* and *Lemna* sp are common. During the summer months, *Microcystis* sp is dominant in the phytoplankton in the Cao Hai area, and *Mougeotia* sp in the Outer Lake. Subtropical pine forests grow on the west shore of the lake, and there is agricultural land (mainly rice paddies, maize fields and fruit orchards) to the east.

**Land tenure:** State owned.

**Conservation measures taken:** A Nature Reserve has been established at the lake.

**Land use:** Fishing for finfish and freshwater shrimps, aquaculture, harvesting of snails, outdoor recreation and transportation of heavy goods by large motorized junks; urban development to the north and agriculture to the east. There are some 600 small fish farms in the Cao Hai area.

**Disturbances and threats:** The lake is becoming increasingly eutrophic, and signs of pollution from industrial and human waste are becoming evident. The ecological diversity of vascular plants and fishes has decreased considerably in recent years. *Eichhornia crassipes* has recently invaded the lake, and some of the native fishes have been replaced by introduced species from the fish farms.

**Economic and social values:** The lake supports a significant fishery, and is well-known for its scenic beauty, attracting both local and foreign tourists. Sites of historical interest near the lake include the San-Qing pavilions, built in the Yuan Dynasty, and the Dragon Gate, a complex of caves and carvings completed in 1843.

**Fauna:** The lake is known to be an important wintering area for migratory waterfowl, but few details are available. Waterfowl recorded during two surveys in mid-January 1988 included:

580 *Anas poecilorhyncha*

500 *Aythya fuligula*

60 *A. ferina*

5 *Grus grus*

74 *G. nigricollis*

670 *Fulica atra*

3,000 *Larus ridibundus*

**Special floral values:** None known.

**Research and facilities:** The Biology Department of Yunnan University has conducted studies on the fauna, flora and pollution of the lake, and the Kunming Institute of Environmental Protection is carrying out limnological investigations. A study of the lake's algae and chemical nutrients was undertaken by the Oxford University Freshwater Biology Project (Yunnan) in July-August 1987 (Chan *et al.*, 1988).

**References:** Chan (1988); Chan *et al.* (1988).

**Criteria for inclusion:** lb, 2a, 3b.

**Source:** China Wildlife Conservation Association, Chan Man-suen, Lu Jianjian and Wang Zijiang.

**Wetland name:** Fuxian Hu

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 24°30'N, 102°53'E;

**Location:** in Wei Jiang County, 50 km SSE of Kunming, Yunnan Province.

**Area:** 21,190 ha.

**Altitude:** 1,720m.

**Biogeographical Province:** 2.39.12./4.10.4.

**Wetland type:** 14.

**Description of site:** A large freshwater lake, up to 87 meters deep, and associated marshes on the plains south of Kunming. The lake is fed by a river from Xingyun Hu (site 139) to the southwest, and by several small streams rising in the surrounding forested hills.

**Principal vegetation:** A wide variety of aquatic plants including *Potamogeton malainus* and *Vallisneria spiralis*.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** An important wintering area for migratory waterfowl.

**Special floral values:** No information.

**Criteria for inclusion:** 3b.

**Source:** China Wildlife Conservation Association and Lu Jianjian.

**Wetland name:** Xingyun Hu

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 24°20'N, 102°47'E;

**Location:** in Jiang Chuan County, 80 km south of Kunming, Yunnan Province. **Area:** 3,900 ha.

**Altitude:** 1,723m.

**Biogeographical Province:** 2.39.12./4.10.4.

**Wetland type:** 14.

**Description of site:** A freshwater lake, up to nine meters deep, and associated marshes on the plains south of Kunming. The lake is fed by streams from the surrounding hills, and drains northeast into Fuxian Hu (site 138).

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** Parts of the marshes have been drained for agriculture.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** An important wintering area for migratory waterfowl.

**Special floral values:** No information.

**Criteria for inclusion:** 3b.

**Source:** China Wildlife Conservation Association and Lu Jianjian.

**Wetland name:** Qilu (Jilu) Hu

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 24°10'N, 102°46'E;

**Location:** in Tonghai County, 95 km south of Kunming, Yunnan Province.

**Area:** 4,230 ha.

**Altitude:** 1,731m.

**Biogeographical Province:** 2.39.12./4.10.4.

**Wetland type:** 14.

**Description of site:** A freshwater lake, up to four meters deep, and associated marshes in wooded country on the plains south of Kunming. The lake is fed by streams rising in the surrounding hills.

**Principal vegetation:** A wide variety of aquatic plants including *Potamogeton malainus* and *Vallisneria spiralis*.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** An important wintering area for migratory waterfowl.

**Special floral values:** No information.

**Criteria for inclusion:** 3b.

**Source:** China Wildlife Conservation Association and Lu Jianjian.

**Wetland name:** Changqiao Hai and Da Tun Hai

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 23°27'N, 103°22'E;

**Location:** in Mengzi County, 30 km south of Kaiyuan, Yunnan Province (60 km north of the Vietnamese border).

**Area:** 2,400 ha.

**Altitude:** 1,295m.

**Biogeographical Province:** 2.39.12.14.10.4

**Wetland type:** 14.

**Description of site:** Two freshwater lakes, Changqiao Hai (1,000 ha) and Da Tun Hai (1,200 ha), many small ponds and extensive swamps and marshes in a mountain basin. Changqiao Hai is about 1.3m deep. The lakes and marshes are fed by many streams rising in the surrounding hills (peaks to 2,785m), and drain north into a tributary of the Hongshui He. There are many villages and areas of rice-paddies around the wetland.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** No information.

**Special floral values:** No information.

**Criteria for inclusion:** 1b.

**Source:** China Wildlife Conservation Association.



**Wetland name:** Yilong Hu

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 23°40'N, 102°33'E;

**Location:** in Shiping County, 65 km west of Kaiyuan, Yunnan Province.

**Area:** 4,200 ha.

**Altitude:** 1,407m.

**Biogeographical Province:** 2.39.12./4.10.4.

**Wetland type:** 14.

**Description of site:** A freshwater lake, up to 3.5m deep, and associated marshes in the mountains of southern Yunnan, surrounded by peaks rising to 2,500m. The lake is fed by numerous streams, and drains east into the Jian Shui valley.

**Principal vegetation:** A wide variety of aquatic plants including *Potamogeton malainus* and *Vallisneria spiralis*.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** An important wintering area for migratory waterfowl.

**Special floral values:** No information.

**Criteria for Inclusion:** 3b.

**Source:** China Wildlife Conservation Association and Lu Jianjian.

**Wetland name:** Erhal Lake

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 25°36'-25°58'N, 100°05'-100°18'E;

**Location:** in Dali County, four km north of Xiaguan, Yunnan Province.

**Area:** 24,976 ha.

**Altitude:** 1,966m.

**Biogeographical Province:** 2.39.12.

**Wetland type:** 14 & 19.

**Description of site:** A large freshwater lake, up to 10.5m deep, some associated marshes and adjacent rice paddies in a deep valley with mountains rising to 4,150m in the west. The lake is fed by numerous streams from the nearby peaks, and drains southwest into a tributary of the Mekong River.

**Principal vegetation:** A wide variety of aquatic plants including *Potamogeton pectinatus*, *Hydrilla verticillata* and *Ceratophyllum demersum*. Rice paddies in adjacent areas.

**Land tenure:** State owned.

**Conservation measures taken:** A Nature Reserve has been established at the lake.

**Land use:** Fishing and rice-growing; other forms of agriculture in surrounding areas.

**Disturbances and threats:** Parts of the marshes have been converted to agricultural land, and there is considerable disturbance from fishing boats.

**Economic and social values:** The lake supports an important fishery.

**Fauna:** An important wintering area for migratory waterfowl. About 15,000 *Fulica atra* and 2,000 *Netta rufina* were observed on one corner of the lake in the winter of 1984/85, along with many other ducks including *Tadorna ferruginea*, *Anas falcata* and *Aythya nyroca*.

**Special floral values:** No information.

**Criteria for inclusion:** lb, 3a.

**Source:** China Wildlife Conservation Association, Lu Jianjian and Urban Olsson.

**Wetland name:** Tian Chi Nature Reserve

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 25°50'N, 99°15'E;

**Location:** in Yun Long County, 100 km WNW of Xiaguan, Yunnan Province.

**Area:** 100 ha.

**Altitude:** 2,500m.

**Biogeographical Province:** 2.39.12.

**Wetland type:** 14 & 22.

**Description of site:** A group of small freshwater lakes, marshes and bogs on a high plateau in the Yun Ling Shan mountains east of the Mekong River in western Yunnan. The lakes range in depth from three to 46 meters, and drain west into the Mekong.

**Climatic conditions:** Temperate montane climate with an average annual rainfall of 1,300 mm and a mean annual temperature of 11.2°C.

Principal vegetation: No information. Primary coniferous forest in surrounding areas.

**Land tenure:** The wetlands and surrounding areas are state owned.

**Conservation measures taken:** The wetlands are protected in the Tian Chi Nature Reserve, a Provincial Nature Reserve of 6,667 ha established in 1983 to protect the plateau lakes and surrounding forests.

**Land use:** Fishing.

**Disturbances and threats:** None known.

**Economic and social values:** No information.

**Fauna:** No information.

**Special floral values:** No information.

**Criteria for inclusion:** la.

**Source:** Yunnan Forest Department.

**Wetland name:** Lasihai Swamp

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 26°53'N, 100°13'E:

**Location:** in Lijiang County, 140 km north of Xiaguan, Yunnan Province.

**Area:** c.25,000 ha.

**Altitude:** 2,600m.

**Biogeographical Province:** 2.39.12.

**Wetland type:** 14, 15 & 20.

**Description of site:** A complex of small, shallow, freshwater lakes, ponds, marshes and wet cultivated land in a broad mountain valley; formerly a very extensive swamp with numerous small lakes, but now much reduced in size by drainage for agriculture.

**Climatic conditions:** Temperate montane climate.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** Grazing by domestic livestock and intensive cultivation.

**Disturbances and threats:** Drainage of marshes for agricultural land, and excessive human disturbance.

**Economic and social values:** No information.

**Fauna:** An important wintering area for the Black-necked Crane *Grus nigricollis* (36 in December 1984); also a wintering area for *G. grus* (90 in December 1984). The poorly known Black-tailed Crake *Porzana bicolor* has been recorded.

**Special floral values:** No information.

**References:** Yang (1987).

**Criteria for inclusion:** lb. 2a.

**Source:** Craig Robson.

**Wetland name:** Cheng Hai (Changhai) Lake

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 26°33'N, 100°40'E;

**Location:** in Yongsheng County, 110 km NNE of Xiaguan, Yunnan Province.

**Area:** 7,880 ha.

**Altitude:** 1,503m.

**Biogeographical Province:** 2.39.12.

**Wetland type:** 14.

**Description of site:** A freshwater lake, up to 15m deep, and associated marshes in the mountains of northwestern Yunnan, surrounded by peaks rising to 3,800m. The lake is fed by numerous streams, and drains south into a tributary of the Chang Jiang (Yangtze River).

**Principal vegetation:** A wide variety of aquatic plants including *Potamogeton malainus* and *Vallisneria spiralis*.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** An important wintering area for migratory waterfowl.

**Special floral values:** No information.

**Criteria for inclusion:** lb. 3b.

**Source:** China Wildlife Conservation Association and Lu Jianjian.

**Wetland name:** Lu Guhu Lake

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 27°42'N, 100°47'E;

**Location:** in Ningliang County on the Sichuan border, 100 km northeast of Lijiang, Yunnan Province.

**Area:** 5,040 ha.

**Altitude:** 2,685m.

**Biogeographical Province:** 2.39.12.

**Wetland type:** 14.

**Description of site:** A freshwater lake and associated marshes in the mountains on the Yunnan/Sichuan border, fed by streams rising in the surrounding hills (peaks to 4,490m). The lake drains east into a tributary of the Chang Jiang (Yangtze River). It is about 40m deep, and has a pH of 7.7.

**Climatic conditions:** Temperate montane climate with an average annual rainfall of 910.5 mm and a mean annual temperature of 12.7°C.

**Principal vegetation:** Freshwater marshes; coniferous forest in surrounding areas.

**Land tenure:** The wetland and surrounding areas are state owned.

**Conservation measures taken:** The lake and marshes are included within the Lu Guhu Provincial Nature Reserve (8,133 ha). Protection Stations have been established, and a series of regulations drawn up to restrict hunting and fishing in the reserve.

**Land use:** Fishing; agriculture and forestry in adjacent areas.

**Disturbances and threats:** There has been some pollution of the lake with chemical fertilizers.

**Economic and social values:** The lake supports a significant fishery, and provides opportunities for outdoor recreation and nature tourism.

**Fauna:** The carp *Cyprinus carpio* is abundant in the lake. The wetland is an important wintering area for the Black-necked Crane *Grus nigricollis* (54 in February 1983), and also *G. grus* and Anatidae, notably *Aix galericulata*, *Anas platyrhynchos*, *Aythya ferina*, *A. fuligula* and *Mergus merganser*.

**Special floral values:** No information.

**Research and facilities:** A study has been made of the wintering Black-necked Cranes.

**References:** Yang (1987).

**Criteria for inclusion:** 1b, 2a, 3b.

**Source:** Lu Guhu Nature Reserve Administration.

**Wetland name:** Bitahai Nature Reserve

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 27°46'N, 99°54'E;

**Location:** in Zhongdian County, 20 km east of Zhongdian and 245 km north of Xiaguan, Yunnan Province.

**Area:** 159 ha of wetlands.

**Altitude:** 3,540m.

**Biogeographical Province:** 2.39.12.

**Wetland type:** 14.

**Description of site:** A small, shallow, freshwater lake and associated marshes fed by springs and local run-off, in the mountains of northwestern Yunnan.

**Climatic conditions:** Temperate montane climate with an average annual rainfall of 620 mm and a mean annual temperature of 5.4°C.

**Principal vegetation:** No information. Coniferous forest in the surrounding hills.

**Land tenure:** The wetland and surrounding areas are state owned.

**Conservation measures taken:** The wetland is protected in the Bitahai Nature Reserve, a Provincial Nature Reserve of 14,181 ha established in 1984 to protect the region's coniferous forests, and administered by the Yunnan Forest Department. Hunting is prohibited in the reserve.

**Conservation measures proposed:** A comprehensive management plan is being developed for the reserve, and there are plans to set up an environmental education centre.

**Land use:** Fishing and livestock grazing; grazing in surrounding areas. **Disturbances and threats:** Overfishing and overgrazing are causing problems at the wetland.

**Economic and social values:** The lake is an important source of water for surrounding areas, and provides excellent opportunities for scientific research, conservation education and nature tourism.

**Fauna:** Fishes include *Brachymystax lenok*. The lake is an important wintering area for Anatidae (e.g. *Tadorna ferruginea*, *Aythya ferina*, *A. fuligula*), and *Grus nigricollis* (over 100).

**Special floral values:** No information.

**Research and facilities:** Studies on the fauna and flora of the Nature Reserve have been carried out by biologists from the Yunnan Forest Department.

**Criteria for inclusion:** lb. 2a, 3b.

**Source:** Yunnan Forest Department.

**Wetland name:** Napahai Nature Reserve

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 27°49'-27°55'N, 99°37'-99°40'E;

**Location:** in Zhongdian County, 250 km NNW of Xiaguan, Yunnan Province.

**Area:** 2,400 ha.

**Altitude:** 3,260m.

**Biogeographical Province:** 2.39.12.

**Wetland type:** 14 & 15.

**Description of site:** A complex of freshwater ponds, marshes and swamps in the mountains of northwestern Yunnan, fed by eight small streams from the surrounding hills. During the rainy season (May to August) the marshes flood to form a shallow lake which gradually dries out again during the dry season. Water drains out of the system through nine natural sink holes, and eventually reaches the Chang Jiang (Yangtze River). In the 1950s, the lake exceeded 1,000 ha in extent during the wet season, and was some 4-5m deep. In recent years, the lake has decreased in size to a maximum of several hundred ha.

**Climatic conditions:** Temperate montane climate with an average annual rainfall of 620 mm and a mean annual temperature of 5.4°C (maximum 25.1°C, minimum -25.4°C). There are about 125 days of frost per year, and snow can occur from September to May.

**Principal vegetation:** No information is available on the aquatic vegetation. Coniferous forests occur in surrounding areas.

**Land tenure:** The wetland is state owned; surrounding areas are under the control of the local communities.

**Conservation measures taken:** The wetland is protected in the Napahai Nature Reserve (2,067 ha), a Provincial Nature Reserve established in 1984 and administered by the Yunnan Forest Department. Hunting is prohibited, and measures have been taken to restrict pollution.

**Conservation measures proposed:** It has been suggested that several small dams be constructed to facilitate manipulation of water levels and improvement of the water supply to the marshes.

**Land use:** Grazing by domestic livestock during the dry season (winter); grazing and agriculture in surrounding areas.

**Disturbances and threats:** Diversion of water supplies for other uses is resulting in a lowering of water levels and loss of wetland habitat. Overgrazing of marsh vegetation is also reported to be a problem.

**Economic and social values:** No information.

**Fauna:** An important wintering area for the Black-necked Crane *Grus nigricollis*; up to 63 were present in the winter of 1984/85 and up to 58 in 1985/86, but as many as 130 have been recorded in the past. Also an important wintering area for Anatidae including *Anser indicus* (maximum of 800 in December 1985), *Tadorna ferruginea* (up to 315), *Anas platyrhynchos*, *A. acuta* and *Mergus merganser*. *Grus grus* occurs in very small numbers, and *G. japonensis* has been recorded as a vagrant.

**Special floral values:** No information.

**Research and facilities:** There are no special facilities at the reserve, and the only studies to date have been preliminary investigations of the wintering waterfowl, particularly the cranes, by biologists from the Yunnan Forest Department and Kunming Institute of Zoology.

**References:** Wu, Wang *et al.* (1987); Yang (1987).

**Criteria for inclusion:** lb. 2a, 3b.

**Source:** Yunnan Forest Department, Yang Lan and Lu Jianjian.

**Wetland name:** Ruoergai Marshes

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 33°30'-34°00'N, 102°10'-102°55'E;

**Location:** near the town of Zoige, 350 km NNW of Chengdu, northern Sichuan Province.

**Area:** 300,000 ha.

**Altitude:** 3,275m.

**Biogeographical Province:** 2.15.5.

**Wetland type:** 15 & 22.

**Description of site:** A vast expanse of small lakes and ponds, freshwater marshes, peat bogs and high altitude wet grasslands on the east bank of the Huang Ho (Yellow River) in the highlands of extreme northern Sichuan, near the border with Gansu Province. The marshes are fed by numerous streams rising in the Mm Shan mountains to the east and ranges to the south (peaks to 4,750m), and drain west into the Huang Ho.

**Principal vegetation:** Marsh and wet meadow communities dominated by *Carex muliensis* and *Kobresia tibetica*.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

Possible changes in land use: There are plans to exploit the peat resources for the production of fertilizers and animal feed, and conversion to more usable energy sources such as gas and electricity.

**Disturbances and threats:** None known.

**Economic and social values:** The marshes of Ruoergai and Hongyuan Counties are the largest peat bogs in China with an estimated deposit of 1.3 to 1.5 billion tons. If utilized rationally, these peat resources could provide a substantial source of income for the region without serious damage to the wetland ecosystem.

**Fauna:** An important breeding area for waterfowl, and the only breeding locality for Black-necked Cranes *Grus nigricollis* in Sichuan. Between 60 and 70 *G. nigricollis* were observed in the area in May 1988, and one nest was located (M. Beaman).

**Special floral values:** No information.

**Research and facilities:** A feasibility study for the exploitation of the peat resources at Ruoergai was initiated in 1986 by the Sichuan Provincial Commission on Science and Technology in collaboration with Swedish experts.

**References:** Anon (1986).

**Criteria for inclusion:** 1b, 1e, 2a, 3b.

**Source:** National Environmental Protection Agency, Mark Beaman and Lu Jianjian.

**Wetland name:** Er He Nature Reserve (Gahai)

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 34°12'N, 102°20'E;

**Location:** 240 km southwest of Lanzhou, in the extreme south of Gansu Province.

**Area:** 10,790 ha.

**Altitude:** 3,320m.

**Biogeographical Province:** 2.23.8./2.22.8.

**Wetland type:** 14 & 15.

**Description of site:** A complex of shallow freshwater lakes, marshes and wet grassland on the eastern edge of the Qinghai/Tibetan Plateau. The wetland is situated on a small plain almost entirely surrounded by peaks rising to 4,150m. The lake and marshes receive water from local run-off and about ten springs, and drain north into the Tao He, a tributary of the Huang Ho (Yellow River). Water levels are stable year round, the maximum depth being about 1.2 meters and the pH 8.6. The entire wetland freezes over in winter.

**Climatic conditions:** The average annual rainfall is 637 mm and the average annual temperature 1.1°C (July average 10.5°C, January average -9.9°C).

**Principal vegetation:** Algae and wet alpine meadows; steppic vegetation in surrounding areas.

**Land tenure:** The wetland is state owned; surrounding areas are under collective ownership.

**Conservation measures taken:** Protected in the Er He Migratory Birds Nature Reserve (10,790 ha) established in 1982. Various regulations have been drawn up by the local government to control waterfowl hunting and protect the habitat.

**Conservation measures proposed:** Various measures for the management of the Nature Reserve have been proposed by the Zhangzhu Autonomous Prefecture Congress, and there is a proposal to improve research facilities and develop a summer resort to encourage nature tourism.

**Land use:** None in the Nature Reserve; grazing by domestic livestock in surrounding areas.

**Disturbances and threats:** None known; the wetlands in the reserve remain in very good condition.

**Economic and social values:** The undisturbed nature of the wetland makes it an ideal location for scientific research.

**Fauna:** The wetlands support a rich mammalian, avian and fish fauna. Mammals include *Lutra lutra* and *Marmota sp.*; birds include *Phalacrocorax carbo* (maximum 400), *Cygnus cygnus* (maximum 110), *Anser anser*, *A. indicus*, *Tadorna ferruginea* (maximum 1,000), several species of *Anas*, *Grus grus* and *G. nigricollis*.

**Special floral values:** The rich alpine meadow flora is of considerable botanical interest.

**Research and facilities:** There are basic facilities for research at the reserve, and some studies have been carried out on the behaviour of the Black-necked Cranes *G. nigricollis*.

**Criteria for inclusion:** 1b, 2a, 3b.

**Source:** China Wildlife Conservation Association and Lu Jianjian.

**Wetland name:** Ganhaizi Nature Reserve

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 40°24'N, 98°03'E;

**Location:** 75 km northeast of Yumen City, northwestern Gansu Province. Area: 300 ha.

**Altitude:** 1,203m.

**Biogeographical Province:** 2.22.8.

**Wetland type:** 13 & 16.

**Description of site:** A small, permanent, brackish lake and riverine marshes in an inland drainage system on sandy plains. The lake is fed by a small river, local run-off and underground water sources; the average depth for most of the year is one meter, but during the wet season (summer) the water level rises by 1-2 meters. The pH is 9.0.

**Climatic conditions:** The climate is semi-arid continental with an average annual rainfall of 618 mm, most of which falls in summer. The summers are hot (maximum temperature 36.7°C), and the winters cold (minimum -28.7°C).

**Principal vegetation:** Reed-beds of *Phragmites communis* and *Salix* scrub; low shrubs in surrounding areas.

**Land tenure:** State owned.

**Conservation measures taken:** A Nature Reserve of 300 ha was established in 1983, and is administered by the Yumen City Forestry Department. Hunting and cultivation are prohibited within the reserve.

**Conservation measures proposed:** There are plans to establish research facilities at the reserve.

**Land use:** None; a Nature Reserve.

**Disturbances and threats:** There is illegal hunting in the reserve, and some problem with the water supply.

**Economic and social values:** No information.

**Fauna:** An important breeding area for over twenty species of waterfowl including *Podiceps cristatus*, *Egretta alba*, *Ardea cinerea*, *Tadorna ferruginea*, *Anas poecilorhyncha* and *Aythya ferina*.

The gazelle *Gazella subgutturosa* occurs in the area.

**Special floral values:** No information.

**Criteria for inclusion:** 1b, 3b.

**Source:** China Wildlife Conservation Association and Lu Jianjian.

**Wetland name:** Qinghai Hu (Koko Nur)

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 36°50'N, 100°10'E;

**Location:** in Gangcha County, 90 km west of Xining, Qinghai Province.

**Area:** 458,300 ha.

**Altitude:** 3,185m.



**Biogeographical Province:** 2.22.8.

**Wetland type:** 14, 15 & 16.

**Description of site:** A very large brackish lake, over 100 km long and about 60 km wide, in an inland drainage system, with surrounding bare salt flats, shingle and sand beaches, fresh to brackish marshes and extensive wet meadows, particularly along the southwestern shore. There are several true islands in the lake, although Bird Island is connected to the mainland by a narrow isthmus of marshes and salt flats. There is a much smaller saline lagoon behind a shingle ridge at the east end of the lake, and a large complex of freshwater ponds, marshes and wet meadows extending eastwards from there. Most of the lake is frozen over from mid-December to early April, the ice reaching 40-60 cm in thickness in January. However, a group of warm springs at the west end of the lake maintains areas of open water throughout the winter. Qinghai Hu is gradually decreasing in size as the climate of the Qinghai/Tibetan Plateau becomes more arid; in recent times, the depth of the lake has fallen from 31 meters to about 27 meters. The lake is fed by the Boha and Shalu rivers and numerous smaller rivers and streams rising in snowmelt in the mountain ranges to the north and south.

**Climatic conditions:** Semi-arid continental climate with hot summers and cold winters; most of the precipitation falls in summer, and there is relatively little snow. Temperatures can fall to -35°C in January, and strong winds are frequent.

**Principal vegetation:** There is no aquatic vegetation other than algae in the lake itself. Adjacent marshes are brackish with halophytic vegetation, or fresh with an abundant growth of emergent such as *Typha* sp. The wet grassland bordering the marshes has a rich alpine meadow plant community, and there is some low *Salix* scrub along the rivers. In a region of grassy steppe with some stunted woodland on nearby north-facing slopes.

**Land tenure:** State owned.

**Conservation measures taken:** Partly protected in the Niao Dao (Bird Island) Nature Reserve, established in 1975 (7,850 ha) and subsequently enlarged to 53,550 ha. The Nature Reserve is administered by the Agriculture and Forestry Department of Qinghai Province, which maintains a Wildlife Management Office at the reserve.

**Land use:** Fishing in the lake and marshes, and a considerable amount of grazing by domestic livestock (sheep, yak and horses) in the marshes and surrounding plains. Hunting is widespread outside the reserve, and many birds' eggs are taken for human consumption. The lake is used for transportation and there are small harbours in some of the lakeside villages. There is a small community of monks living on an island in the centre of the lake.

**Disturbances and threats:** Overgrazing of the marsh and meadow vegetation reduces the amount of nesting cover for waterfowl.

**Economic and social values:** The lake supports an important fishery, and the surrounding meadows and steppes provide very rich pastures for the pastoral nomads living in the region. The lake and its wildlife are a well-known tourist attraction, bringing in large numbers of Chinese and foreign visitors every year.

**Fauna:** An extremely important breeding area for a wide variety of waterfowl including over 500 pairs of *Phalacrocorax carbo*, 2,300 pairs of *Anser indicus*, 6,500 pairs of *Larus brunnicephalus*, hundreds of pairs of *Tadorna ferruginea*, *Fulica atra*, *Charadrius alexandrinus* and *Larus ichthyaetus*, and smaller numbers of *Podiceps cristatus*, *Anas strepera*, *A. platyrhynchos*, *A. poecilorhyncha*, *A. clypeata*, *Netta rufina*, *Aythya nyroca*, *Vanellus vanellus*, *Tringa totanus* and *Sterna hirundo*. A small number of non-breeding *Grus nigricollis* spend the summer in the wet

meadows by the lake, and there is a good breeding population of Pallas's Sea-Eagle *Haliaeetus leucoryphus* in the area.

Spring-fed marshes at the west end of the lake provide wintering habitat for about 1,000-1,250 *Cygnus cygnus*, along with some 300-450 ducks, mainly *Anas platyrhynchos*, *A. falcata*, *Aythya fuligula* and *Mergus merganser*. The swans arrive during the second half of October and depart in late March or early April. The lake is also a very important staging area in spring and autumn for migratory waterfowl, particularly Anatidae and shorebirds. A major concentration of Anatidae at the west end of the lake in April 1986 included:

over 1,000 *Anser indicus*

600 *Tadorna ferruginea*

400 *Anas acuta*

2,000 *Aythya fuligula*

150 *Bucephala clangula*

25 *Mergus albellus*

Migrants present in mid-May 1987 included large numbers of *Charadrius mongolus*, *Tringa glareola* and *Calidris temminckii*, and small numbers of six other species of shorebirds. Fishes are reported to be very abundant.

**Special floral values:** No information.

**Research and facilities:** There is a small research station, the Bird Island Management Research Station, at the reserve headquarters, and extensive new visitor facilities were constructed in 1987. There is also a capacious observation hide, partially underground, at the main breeding colony of geese and gulls. A considerable amount of research has been conducted on the lake and meadow ecosystems and their wildlife by biologists from the Northwest Plateau Institute of Biology in Xining. The National Bird Banding Centre began banding waterfowl, mainly *Anser indicus* and *Larus brunnicephalus*, in 1983, and Liao *et al.* (1984) have studied the breeding behaviour of *Larus ichthyaetus*.

**References:** Liao *et al.* (1984); Robson (1986); Vaurie (1972); Sien *et al.* (1964).

**Criteria for inclusion:** 123.

**Source:** L Iehao, Lu Jianjan, Urban Olsson, Craig Robson, Derek A. Scott, Ye Xiao-di and Zhang Zhi-yen.

**Wetland name:** Chakayan Hu

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 36°42'N, 99°05'E;

**Location:** 240 km west of Xining, Qinghai Province.

**Area:** 11,000 ha.

**Altitude:** 3,200m.

**Biogeographical Province:** 2.22.8.

**Wetland type:** 16.

**Description of site:** A saline lake and surrounding marshes in an intermontane basin southwest of Qinghai Hu, on the Qinghai-Tibetan Plateau. The lake is fed by intermittent streams from the Qinghai Nanshan Mountains to the north and other nearby mountain ranges. Drainage is internal.

**Principal vegetation:** Alpine meadow vegetation dominated by *Kobresia pygmaea*.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** None.

**Disturbances and threats:** None known.

**Economic and social values:** No information.

**Fauna:** An important breeding area for *Anser indicus* and gulls *Larus spp.*

**Special floral values:** No information.

**Criteria for Inclusion:** lb. 3b.

**Source:** Lu Jianjian.

**Wetland name:** Donggeicuona Hu

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 35°17'N, 98°35'E;

**Location:** 320 km WSW of Xining, Qinghai Province.

**Area:** 22,000 ha.

**Altitude:** 4,300m.

**Biogeographical Province:** 2.22.8./2.23.8.

**Wetland type:** 14.

**Description of site:** A large freshwater lake on the Qinghai-Tibetan Plateau, with extensive marshes in the delta of the main river emptying into the lake. This river and other streams feeding the lake rise in the A'nyemaqen Shan mountains to the southeast (peaks to 5,390m). The outlet of the lake drains northwest into the Zaidan Basin.

**Principal vegetation:** Alpine meadow vegetation dominated by *Kobresia pygmaea*.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** None.

**Disturbances and threats:** None known.

**Economic and social values:** No information.

**Fauna:** An important breeding area for ducks, *Anser indicus* and gulls *Larus spp.*

**Special floral values:** No information.

**Criteria for inclusion:** 3b.

**Source:** Lu Jianjian.

**Wetland name:** Madol Lakes

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 34°50'N, 98°10'E;

**Location:** south of the village of Madoi, 340 km ESE of Geermu (Golmud), Qinghai Province.

**Area:** c.11,000 ha.

**Altitude:** 4,250m.

**Biogeographical Province:** 2.23.8.

**Wetland type:** 14 & 15.

**Description of site:** A group of four freshwater lakes of about 3,100, 3,000, 2,000 and 2,000 ha respectively, and several much smaller lakes and marshes with intervening low hill ranges, to the east of Zhing Hu and Zhaling Hu (sites 157 and 158). The lakes are fed by local run-off, and drain into the upper Huang Ho (Yellow River). The lakes and marshes are completely frozen over in winter.

**Principal vegetation:** Marshy grassland and rich alpine meadow vegetation dominated by *Kobresia pygmaea*. Grassy steppe in surrounding areas.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** An important breeding area for Anatidae (including *Anser indicus*, *Tadorna ferruginea*) and the gulls *Larus brunnicephalus* and *L. ichthyaetus*, and an important staging area for many species of migratory waterfowl. Large concentrations of waterfowl were observed by C. Robson in April 1986.

**Special floral values:** No information.

**Criteria for inclusion:** lb, 3b.

**Source:** Craig Robson.

**Wetland name:** Zhling Hu (Ngoring Hu)

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 34°55'N, 97°43'E;

**Location:** 300 km WSW of Geermu (Golmud), Qinghai Province.

**Area:** 61,800 ha.

**Altitude:** 4,285m.

**Biogeographical Province:** 2.23.8.

**Wetland type:** 15.

**Description of site:** A large brackish lake (salinity 10 p.p.t.) and surrounding marshes on the Qinghai-Tibetan Plateau, separated from Zhaling Hu (site 158) to the west by a strip of higher ground 10 km wide. The lake and marshes are fed by overflow from Zhaling Hu and by streams rising in the Bayan Har Shan to the south (peaks to 4,900m). The lake drains east into the Huang Ho (Yellow River).

**Principal vegetation:** Marshy grassland and rich alpine meadow vegetation dominated by *Kobresia pygmaea*.

**Land tenure:** State owned.

**Conservation measures taken:** About 120,000 ha around Zhing Hu and Zhaling Hu were designated as a reserve in 1984.

**Land use:** Fishing.

**Disturbances and threats:** None known.

**Economic and social values:** The lake supports a significant fishery of yellowfish and pike.

**Fauna:** An important breeding area for *Phalacrocorax carbo*, Anatidae (including *Anser indicus*, *Tadorna ferruginea*) and the gulls *Larus brunnicephalus* and *L. ichthyaetus*.

**Special floral values:** No information.

**References:** Boswall (in press); Tapiador *et al.* (1976); Vaurie (1972).

**Criteria for inclusion:** lb, 3b.

**Source:** Lu Jianjian.

**Wetland name:** Zhaling Hu (Gyaring Hu)

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 34°55'N, 97°15'E;

**Location:** 260 km southwest of Geermu (Golmud), Qinghai Province.

**Area:** 95,000 ha (lake 55,000 ha; marshes to west 40,000 ha).

**Altitude:** 4,287m.

**Biogeographical Province:** 2.23.8.

**Wetland type:** 14 & 15.

**Description of site:** A large freshwater lake and associated marshes on the Qinghai-Tibetan Plateau. There are very extensive freshwater marshes with numerous small lakes and ponds stretching for some 70 km along a network of streams to the west of the lake. Zhaling Hu is separated from Zhing Hu (site 157) to the east by a strip of higher ground 10 km wide. The lake and marshes are fed by streams from the Burhan Budan Shan to the north and Bayan Har Shan to the south, and drain east into Zhing Hu and thence into the Huang Ho (Yellow River).

**Principal vegetation:** Marshy grassland and rich alpine meadow vegetation dominated by *Kobresia pygmaea*. Grassy steppe in surrounding areas.

**Land tenure:** State owned.

**Conservation measures taken:** About 120,000 ha around Zhaling Hu and Zhing Hu were designated as a reserve in 1984.

**Land use:** No information.

**Disturbances and threats:** None known.

**Economic and social values:** No information.

**Fauna:** An important breeding area for *Phalacrocorax carbo*, *Grus nigricollis*, Anatidae (including *Anser indicus*, *Tadorna ferruginea*) and the gulls *Larus brunnicephalus* and *L. ichthyaetus*.

**Special floral values:** No information.

**References:** Boswall (in press); Lu *et al.* (1987); Vaurie (1972).

**Criteria for inclusion:** 1b, 2a, 3b.

**Source:** Lu Jianjian.

**Wetland name:** Longbaotan Nature Reserve

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 33°10'N, 96°35'E;

**Location:** in Yushu County, 40 km WNW of Yushu, southern Qinghai Province.

**Area:** 10,000 ha.

**Altitude:** 4,200m.

**Biogeographical Province:** 2.23.8.

**Wetland type:** 15.

**Description of site:** A grassy marsh, about 25 km long and 2-3 km wide, along an upper tributary of the Tongtian River, itself a tributary of the Chang Jiang (Yangtze River). The marsh runs west to east in a high mountain valley with surrounding peaks rising to 5,270m. It is fed by numerous springs and streams, and contains many freshwater ponds with grassy mounds of varying sizes which have been made into little islands by wave action. The maximum depth of the ponds is 2.5m; the bottom consists of a very deep layer of silt.

**Climatic conditions:** Dry, cold, montane climate with an average annual rainfall of less than 300 mm, a mean annual temperature of 5.0°C and an average relative humidity of 55%. Diurnal

variations in temperature are great, and in May and June temperatures can vary from -12°C to +19°C. Principal vegetation: Alpine grassy marshes and boggy meadows with *Carex spp*, *Eleocharis sp*, *Polygonum sibiricum*, *Kobresia reyleana*, *K. tibetica*, *Primulailla amscrina* and *Taraxacum spp*.

**Land tenure:** State owned.

**Conservation measures taken:** The entire area has been declared a Nature Reserve (10,000 ha).

**Land use:** No information.

**Disturbances and threats:** None known.

**Economic and social values:** No information.

**Fauna:** The marsh has a rich fish and arthropod fauna, and is an important breeding area for waterfowl. The site is particularly important as a breeding and staging area for Black-necked Cranes *Grus nigricollis*. The cranes arrive in March and flocks of up to 36 have been observed in April. About seven or eight breeding pairs and ten non-breeders remain at the marsh throughout the summer, while the rest move on to other breeding sites in the vicinity. The marsh is also very important for breeding Bar-headed Geese *Anser indicus*. In 1980, there were "several dozen" breeding pairs, but by 1986, the breeding population had increased to 2,000 pairs. Other breeding species include *Podiceps cristatus*, *Tadorna ferruginea*, *Mergus merganser*, *Fulica atra*, *Tringa totanus* and *Sterna hirundo*.

**Special floral values:** No information.

**Research and facilities:** Several studies have been carried out on the breeding Black-necked Cranes.

**References:** Li (1987); Lu *et al.* (1987).

**Criteria for inclusion:** 1b, 2a, 3b.

**Source:** China Wildlife Conservation Association and Zhang Zhi-yen.

**Wetland name:** Yitan Cuo

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 33°05'N, 93°15'E;

**Location:** 400 km SSW of Geemu (Golmud), Qinghai Province.

**Area:** 20,000 ha.

**Altitude:** 4,750m.

**Biogeographical Province:** 2.23.8.

**Wetland type:** 14 & 15.

**Description of site:** A freshwater lake of 3,500 ha and extensive freshwater marshes with numerous small lakes and ponds stretching away for 25 km to the south and east; on the Qinghai-Tibetan Plateau. The lakes and marshes are fed by numerous streams rising in the surrounding hills and in the Tanggula Shan mountains to the south (peaks to 6,070m). The lake overflows into a small tributary of the Tongtian He, itself a tributary of the Chang Jiang (Yangtze River).

**Principal vegetation:** Alpine meadow vegetation dominated by *Kobresia pygmaea*; sandy steppe to the south and east.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** None.

**Disturbances and threats:** None known.

**Economic and social values:** No information.

**Fauna:** An important breeding area for ducks, *Anser indicus* and gulls *Larus spp.*

**Special floral values:** No information.

**Criteria for inclusion:** 1b, 3b.

**Source:** Lu Jianjian.

**Wetland name:** Duoergai Cuo

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 35°13'N, 92°06'E;

**Location:** 280 km WSW of Geermu (Golmud), Qinghai Province.

**Area:** 18,000 ha.

**Altitude:** 4,600m.

**Biogeographical Province:** 2.23.8.

**Wetland type:** 14.

**Description of site:** A large freshwater lake and associated marshes on the Qinghai-Tibetan Plateau, with many small lakes in surrounding areas. The wetlands are fed by numerous streams from nearby peaks rising to 5,560m, and overflow into a small tributary of the Tongtian He, itself a tributary of the Chang Jiang (Yangtze River).

**Principal vegetation:** Steppic vegetation dominated by *Arenaria musciformis*.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** None.

**Disturbances and threats:** None known.

**Economic and social values:** No information.

**Fauna:** No information.

**Special floral values:** No information.

**Criteria for inclusion:** 0.

**Source:** Lu Jianjian.

**Wetland name:** Zhuobai Hu

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 35°32'N, 92°00'E;

**Location:** 20 km WSW of Geermu (Golmud), Qinghai Province.

**Area:** 28,000 ha.

**Altitude:** 4,800m.

**Biogeographical Province:** 2.23.8.

**Wetland type:** 14 & 15.

**Description of site:** A large freshwater lake with fringing marshes, and many much smaller lakes, ponds and marshes in adjacent areas; on the Qinghai-Tibetan Plateau. The lakes are fed by many small streams from the surrounding mountains (peaks rising to 5,950m), and drain east into the Kusai Hu basin (site 163).

**Principal vegetation:** Steppic vegetation dominated by *Arenaria musciformis*.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** None.

**Disturbances and threats:** None known.  
**Economic and social values:** No information.  
**Fauna:** No information.  
**Special floral values:** No information.  
**Criteria for inclusion:** 0.  
**Source:** Lu Jianjian.

**Wetland name:** Kusai Hu  
**Country:** PEOPLE'S REPUBLIC OF CHINA  
**Coordinates:** 35°41'N, 92°55'E;  
**Location:** 190 km WSW of Geermu (Golmud), Qinghai Province.  
**Area:** 28,000 ha.  
**Altitude:** 4,400m.  
**Biogeographical Province:** 2.23.8.  
**Wetland type:** 16.

**Description of site:** A saline lake and fringing marshes in an inland drainage basin on the Qinghai-Tibetan Plateau. The lake basin is almost entirely surrounded by cliffs which rise to 5,800m along the northern edge. The lake is fed by snowmelt from the mountains to the north and a river from Zhuobai Hu (site 162) and the high plateau to the south.

**Principal vegetation:** Steppic vegetation dominated by *Arenaria muscifornis* around the lake.  
**Land tenure:** State owned.

**Conservation measures taken:** None.  
**Land use:** None; a very remote lake, difficult of access.  
**Disturbances and threats:** None known.  
**Economic and social values:** No information.  
**Fauna:** No information.  
**Special floral values:** No information.  
**Criteria for inclusion:** 0.  
**Source:** Lu Jianjian.

**Wetland name:** Hala Hu  
**Country:** PEOPLE'S REPUBLIC OF CHINA  
**Coordinates:** 38°18'N, 97°35'E;  
**Location:** 300 km northeast of Geermu (Golmud), Qinghai Province. Area: 60,200 ha.  
**Altitude:** 4,078m.  
**Biogeographical Province:** 2.22.8.  
**Wetland type:** 16.

**Description of site:** A large saline lake in an inland drainage system on the Qinghai-Tibetan Plateau. The lake is fed by many small streams from surrounding mountain ranges which rise to 5,600m.

**Principal vegetation:** Alpine meadow vegetation dominated by *Achnatherum splendens* with *Artemisia cephalostachys*, *Stipa kryloril*, *Agropyron cristatum*, *Salsola arbuscula*, *Kalidium caspicum* and *Spergularia sauna*.

**Land tenure:** State owned.  
**Conservation measures taken:** None.



**Land use:** None.

**Disturbances and threats:** None known.

**Economic and social values:** No information.

**Fauna:** The lake supports a large population of the fish *Huso dauricus*, and is an important breeding area for Anatidae, shorebirds and gulls *Larus spp.*

**Special floral values:** No information.

**Criteria for inclusion:** 3b.

**Source:** Lu Jianjian.

**Wetland name:** Tuosu Hu (Kurlyk Nor) and Kuerhleiko Hu

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 37°10'N, 96°55'E;

**Location:** near Lianghu, 190 km ENE of Geermu (Golmud), Qinghai Province.

**Area:** 22,000 ha (Tuosu Hu 16,000 ha; Kuerhleiko Hu 6,000 ha).

**Altitude:** 3,000m.

**Biogeographical Province:** 2.22.8.

**Wetland type:** 16.

**Description of site:** Two saline lakes, Tuosu Hu and Kuerhleiko Hu, and extensive fresh and brackish marshes to the east; in an inland drainage system at the extreme eastern end of the Zaidan Basin, on the Qinghai-Tibetan Plateau. The two lakes are separated by a narrow isthmus about 2.5 km wide, and are fed by the Bayan Gol, entering from the northeast, and numerous intermittent streams rising in the surrounding hills (peaks to 5,240m).

**Climatic conditions:** Very arid continental climate with hot summers and cold winters. The average annual rainfall is 110 mm; the mean annual temperature is 2°C, the July mean 17°C (maximum 33°C) and the January mean -12°C. The average number of days with frost is 226.

**Principal vegetation:** Brackish marshes with some *Phragmites sp.*, *Tamarix* scrub and alpine meadow vegetation dominated by *Achnatherum splendens*. Semi-desertic steppe in surrounding areas.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** Fishing, hunting and livestock grazing; agriculture in surrounding areas.

**Disturbances and threats:** Perhaps half of the marshes have already been drained for agricultural purposes, and the drainage continues. Excessive hunting may also be a problem.

**Economic and social values:** The lakes support a significant fishery.

**Fauna:** An important breeding area for Anatidae (notably *Anser indicus* and *Tadorna ferruginea*) and Black-necked Cranes *Grus nigricollis*, and a staging area for ducks and shorebirds. Large numbers of *Netta rufina* have been recorded.

**Special floral values:** No information.

**References:** Vaurie (1972).

**Criteria for inclusion:** 1b, 2a, 3b.

**Source:** Lu Jianjian and Urban Olsson.

**Wetland name:** Wetlands in the Zaidan Basin

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 36°40'N, 95°55'E to 37°44'N, 93°22'E;

**Location:** in the central portion of the Zaidan Basin north of Geermu (Golmud), Qinghai Province.

**Area:** Over 90,000 ha of lakes and associated marshes.

**Altitude:** 2,680-2,730m.

**Biogeographical Province:** 2.22.8.

**Wetland type:** 16.

**Description of site:** A chain of large saline lakes and their associated marshes in the central portion of the Zaidan Basin, a vast depression 850 km long by 350 km wide near the northern edge of the Qinghai-Tibetan Plateau. Zaidan (which means 'salt marsh') was probably once the largest lake in central Asia but, as the climate of the Qinghai-Tibetan Plateau has become drier, has almost completely dried out. The few lakes and marshes which persist are continually fluctuating in content and shape, and are gradually vanishing. The principal lakes at the present time lie in the central and lowest portion of the depression, in a chain stretching for some 260 km from Beihuoluxun Hu and Nanhuoluxun Hu in the east to Xitaijinaier Hu in the west. The lakes are fed by numerous rivers and streams, mostly intermittent, rising in the Burhan Budai Shan to the south, Kun Lun Shan to the southwest, and lesser mountain ranges to the northeast. Many other rivers end in gravel beds or terraces, or form temporary lakes and marshes.

The six main lakes are as follows: Nanhuoluxun Hu (36°40'N, 95°55'E; 8,800 ha); Beihuoluxun Hu (36°53'N, 95°55'E; 10,700 ha); Dabuxun Hu (37°00'N, 95°10'E; 45,000 ha); Senie Hu (37°00'N, 94°24'E; 9,000 ha); Dongtaijinaier Hu (37°30'N, 94°00'E; 10,000 ha); and Xitaijinaier Hu (37°44'N, 93°22'E; 15,000 ha). The four easternmost lakes, Nanhuoluxun, Beihuoluxun, Dabuxun and Senie, lie in a vast salt waste of some 400,000 ha.

**Climatic conditions:** Very arid continental climate with hot summers and cold winters, and an average annual rainfall of 110 mm. The mean annual temperature is 2°C, the July mean 17°C (maximum 33°C) and the January mean -12°C. The average number of days with frost is 226.

**Principal vegetation:** Large reed-beds of *Phragmites* in the wetter areas, and dense thickets of *Tamarix* sp and other shrubs along the rivers. Alpine meadows dominated by *Achnatherum splendens*, and grassy steppe dominated by *Kalidium foliatum* near the lakes; sandy plains and sand dunes with xerophytic vegetation in surrounding areas.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** Salt mining at Xitaijinaier and Dongtaijinaier lakes.

**Possible changes in land use:** Petroleum has been discovered in large quantities in the region, and the construction of new towns and industrial development around the edge of the basin are likely to have a considerable effect on the wetlands in the future.

**Disturbances and threats:** The lakes are in the process of drying out, and the entire area is undergoing natural desertification.

**Economic and social values:** The salt desposits are of considerable commercial value.

**Fauna:** Waterfowl are abundant throughout the region. There are large breeding populations of Anatidae (including *Anser indicus* and *Tadorna ferruginea*), shorebirds and the gulls *Larus brunnicephalus* and *L. ichthyaetus*. Black-necked Cranes *Grus nigricollis* breed in the marshes at Dabuxun Hu.

Fishes are reported to be very abundant in the rivers.

**Special floral values:** No information.

**References:** Vaurie (1972).

**Criteria for inclusion:** I b. 2a, 3b.

**Source:** Lu Jianjian.

**Wetland name:** Dasugan Hu and Xiaosugan Hu

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 38°52'-39°12'N, 94°00'-94°06'E;

**Location:** in northern Qinghai Province, 60 km SSW of Arkesai, Gansu.

**Area:** c.12,000 ha (Dasugan Hu 10,800; Xiaosugan Hu 1,160).

**Altitude:** 2,795-2,810m.

**Biogeographical Province:** 2.22.8.

**Wetland type:** 14 & 16.

**Description of site:** A large saline lake (Dasugan Hu), a small freshwater lake (Xiaosugan Hu) and extensive fresh to brackish marshes in an inland drainage system on the northern edge of the Qinghai/Tibetan Plateau. The lakes are shallow (1-2 metres deep) and permanent, with stable water levels. They receive water from numerous springs and streams fed by snow melt in the Tangoh Nan Shan mountains to the northeast (peaks rising to 6,025m) and the Mahan Shan and Takentafan Shan mountains to the southeast. There is a large salt waste to the east of Dasugan Hu.

**Climatic conditions:** The average annual rainfall is 776 mm, and the mean annual temperature -0.4°C.

**Principal vegetation:** Freshwater marsh vegetation including some reeds, and wet meadows; salt flats, sand dunes and grassy steppe in surrounding areas.

**Land tenure:** State owned.

**Conservation measures taken:** Both lakes are partly protected in Nature Reserves, Dasugan Hu Nature Reserve (3,500 ha) and Xiaosugan Hu Nature Reserve (850 ha). Both were established in 1982, and are administered by the Provincial Forestry Bureau. Hunting is prohibited and there are restrictions on tourism.

**Conservation measures proposed:** There are plans to create a Management Authority for the Nature Reserves.

**Land use:** Fishing, grazing by domestic livestock in the meadows and surrounding areas, and some illegal hunting.

**Possible changes in land use:** There are plans to develop fishing, forestry and tourism in the region.

**Disturbances and threats:** Overgrazing in the marshes, illegal hunting, and considerable disturbance from heavy traffic on the two main roads which pass through the area.

**Economic and social values:** The wetlands support a significant fishery, and have considerable potential for tourism and scientific research.

**Fauna:** Fishes include *Anguilla japonica* and *Cylopharyngodon piceus*. The wetlands provide breeding habitat for many species of waterfowl including *Tadorna ferruginea*, several other ducks, shorebirds and gulls. *Cygnus cygnus* and *Grus grus* occur on migration.

**Special floral values:** No information.

**Research and facilities:** Few facilities are available at the present time, and there is an urgent need for properly trained staff and equipment in the reserves.

**Criteria for inclusion:** Ib, 3b.

**Source:** China Wildlife Conservation Association and Lu Jianjian.

**Wetland name:** Gasikule Hu (Ghaz Kul)

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 38°07'N, 90°48'E;

**Location:** 85 km WNW of Manghai and 400 km WNW of Geermu (Golmud), Qinghai Province.

**Area:** 15,000 ha.

**Altitude:** 2,800m.

**Biogeographical Province:** 2.22.8.

**Wetland type:** 16.

**Description of site:** A saline lake and marshes in an inland drainage system on the Qinghai-Tibetan Plateau. The lake is fed by many small rivers and intermittent streams from nearby mountains which rise to peaks at 5,700m. The lake lies in a salt waste of some 135,000 ha at the extreme northwestern end of the Zaidan Basin. Sandy plains and sand dunes stretch away to the south and southeast.

**Climatic conditions:** Very arid continental climate with hot summers and cold winters, and an average annual rainfall of 110 mm. The mean annual temperature is 2°C, the July mean 17°C (maximum 33°C) and the January mean -12°C. The average number of days with frost is 226.

**Principal vegetation:** Halophytic vegetation in the salt marshes; alpine meadow vegetation dominated by *Achnatherum splendens* in surrounding areas, and some *Tamarix* and other shrubs along the rivers.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** None.

**Disturbances and threats:** None known.

Economic and social values: No information.

**Fauna:** An important breeding area for Anatidae, gulls *Larus* spp and Black-necked Cranes *Grus nigricollis*.

**Special floral values:** No information.

**Criteria for inclusion:** lb, 2a, 3b.

**Source:** Lu Jianjian.

**Wetland name:** Arakekumu (Ayakkum) Hu

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 37°30'N, 89°30'E;

**Location:** 190 km southeast of Ruoqiang and 550 km southeast of Kuerle, Xinjiang Zizhiqu (Sinkiang Autonomous Region).

**Area:** 60,000 ha.

**Altitude:** c.3,900m.

**Biogeographical Province:** 2.22.8.

**Wetland type:** 16.

**Description of site:** A large saline lake with extensive salt flats to the east, in an inland drainage basin between the Altun Shan and Kun Lun Shan mountains, on the extreme northern edge of the Qinghai-Tibetan Plateau. The lake is fed by numerous intermittent streams from the Altun Shan to the north and the Kun Lun Shan to the south.

**Principal vegetation:** No information.

**Land tenure:** State owned.  
**Conservation measures taken:** None.  
**Land use:** No information.  
**Disturbances and threats:** No information.  
**Economic and social values:** No information.  
**Fauna:** No information.  
**Special floral values:** No information.  
**Criteria for inclusion:** 0.  
**Source:** Lu Jianjian.

**Wetland name:** Arkatag Hu  
**Country:** PEOPLE'S REPUBLIC OF CHINA  
**Coordinates:** 36°20'N, 89°25'E;  
**Location:** 310 km SSE of Ruoqiang, Xinjiang Zizhiqu (Sinkiang Autonomous Region).  
**Area:** 17,000 ha.  
**Altitude:** 4,800m.  
**Biogeographical Province:** 2.22.8.  
**Wetland type:** 16.

**Description of site:** A large saline lake in an inland drainage basin in the Arkatag Range of the Kun Lun Shan mountains; on the extreme northern edge of the Qinghai-Tibetan Plateau. The lake is fed by numerous intermittent streams rising in the surrounding mountains (peaks to 6,275m).

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** No information.

**Special floral values:** No information.

**Criteria for inclusion:** 0.

**Source:** Operational Navigation Charts.

**Wetland name:** Aqqikkol Hu  
**Country:** PEOPLE'S REPUBLIC OF CHINA  
**Coordinates:** 37°05'N, 88°25'E;  
**Location:** 210 km south of Ruoqiang, Xinjiang Zizhiqu (Sinkiang Autonomous Region).  
**Area:** 36,000 ha.  
**Altitude:** 4,250m.  
**Biogeographical Province:** 2.22.8.  
**Wetland type:** 16.

**Description of site:** A large saline lake with surrounding salt marshes and salt flats, in an inland drainage basin between the Altun Shan and Kun Lun Shan mountains; on the extreme northern edge of the Qinghai-Tibetan Plateau. The lake is fed by several small rivers and numerous intermittent streams rising in the Kun Lun Shan to the south and west.

**Principal vegetation:** No information.  
**Land tenure:** State owned.  
**Conservation measures taken:** None.  
**Land use:** No information.  
**Disturbances and threats:** No information.  
**Economic and social values:** No information.  
**Fauna:** No information.  
**Special floral values:** No information.  
**Criteria for inclusion:** 0.  
**Source:** Operational Navigation Charts.

**Wetland name:** Lop Nur  
**Country:** PEOPLE'S REPUBLIC OF CHINA  
**Coordinates:** 39°35'-41°03'N, 89°50'-93°00'E;  
**Location:** at the eastern end of the Tarim Basin, Xinjiang Zizhiqu (Sinkiang Autonomous Region).  
**Area:** 1,250,000 ha.  
**Altitude:** 780m.  
**Biogeographical Province:** 2.22.8.  
**Wetland type:** 16.  
**Description of site:** A vast salt waste, formerly a large saline lake with extensive brackish marshes, now reported to be completely dry. The lake basin is surrounded by sand deserts, with low hill ranges to the east. The principal sources of water were the Kongi He, entering from the west, and seasonal run-off from the northern edge of the Qinghai-Tibetan plateau to the south. Natural dessication of the Qinghai-Tibetan plateau and utilization of the Kongi He for irrigation have probably both contributed to the drying out of the lake.  
**Principal vegetation:** No information.  
**Land tenure:** State owned.  
**Conservation measures taken:** None.  
**Land use:** Little if any; the lake is situated in a very remote and almost uninhabited region.  
**Disturbances and threats:** Diversion of water supplies for irrigation in the catchment area has presumably contributed to the dessication of the lake. **Economic and social values:** No information.  
**Fauna:** Formerly a breeding locality for the Dalmatian Pelican *Pelecanus crispus*; the only known breeding site for this species in China (Cheng, 1976).  
**Special floral values:** No information.  
**References:** Cheng (1976); Lop Lake Comprehensive Scientific Expedition (1985).  
**Criteria for inclusion:** 0.  
**Source:** See references.

**Wetland name:** Tarim Liuchang Lakes  
**Country:** PEOPLE'S REPUBLIC OF CHINA  
**Coordinates:** 40°25'N, 87°55'E to 41°03'N, 86°39'E;  
**Location:** on the northern edge of the Tarim Basin, 90-125 km southeast of Kuerle, Xinjiang Zizhiqu (Sinkiang Autonomous Region).

**Area:** c.100,000 ha.

**Altitude:** 860m.

**Biogeographical Province:** 2.22.8.

**Wetland type:** 14, 15 & 16.

**Description of site:** About 25 fresh to brackish lakes each of 100-6,500 ha in extent, numerous seasonal saline lagoons, and extensive fresh, brackish and saline marshes along the northeastern edge of the great sand desert of the Tarim Basin. The lakes are fed by seepage and local run-off, and drain northwest into the Tarim He. Many of the lakes lie within the dune systems, and the remainder are on the cultivated plains to the north.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** There are many small villages and areas of irrigated cultivation on the adjacent plains.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** No information.

**Special floral values:** No information.

**Criteria for inclusion:** 0.

**Source:** Operational Navigation Charts.

**Wetland name:** Bosten (Bagrax) Hu and Bo Hu Marshes

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 42°00'N, 87°00'E;

**Location:** 50 km ENE of Kuerle, Xinjiang Zizhiqu (Sinkiang Autonomous Region).

**Area:** 140,000 ha.

**Altitude:** 1,042m.

**Biogeographical Province:** 2.22.8./2.36.12.

**Wetland type:** 14 & 15.

**Description of site:** A large freshwater lake and extensive fresh to brackish marshes in the Sinkiang desert. With an area of 107,500 ha, Bosten Hu is one of the largest freshwater lakes in China. The Bo Hu Marshes to the southwest of Bosten Hu cover some 30,000 ha, and include many small lakes and ponds. These marshes are separated from the main lake by a dam. The lake and marshes are fed by numerous intermittent rivers and streams rising in the Tian Shan mountains to the north. Drainage is west into the Tarim He.

**Principal vegetation:** Vast reed-beds of *Phragmites* sp (at least 10,000 ha) and sedge marshes dominated by *Carex muliensis*.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** Harvesting of reeds during the winter months, when the lake is frozen; also fishing and livestock grazing (cattle and a few horses). There is a pumping station at the southwestern end of the lake.

**Disturbances and threats:** Some areas of marsh are heavily grazed during the summer months.

**Economic and social values:** The reed-beds support a significant paper industry.

**Fauna:** An important breeding area for waterfowl, and probably also an important staging area during the migration seasons. Species found breeding or thought to be breeding in early July 1988

included *Podiceps cristatus*, *Botaurus stellaris*, *Ixobrychus minutus*, *Egretta alba*, *Ardea cinerea*, *Tadorna ferruginea*, *Anas strepera* (the commonest duck), *A. platyrhynchos*, *A. querquedula*, *Netta rufina*, *Aythya nyroca*, *Gallinula chloropus*, *Himantopus himantopus* (common), *Vanellus vanellus*, *Charadrius dubius* (common), *C. alexandrinus*, *Tringa totanus*, *Larus ridibundus* (common), *L. argentatus*, *Chlidonias hybrida*, *Sterna hirundo* and *S. albifrons*. The reed-beds held large breeding populations of *Panurus biarmicus* and *Acrocephalus arundinaceus*, along with small numbers of *Locustella luscinioides*, *Acrocephalus scirpaceus*, *A. agricola* and *Emberiza schoeniclus*. *Circus aeruginosus* was also present and presumably breeding. Other waterbirds recorded in July 1988 included *Phalacrocorax carbo*, *Anas acuta*, *Tringa stagnalilis*, *T. nebularia*, *T. ochropus* and *Xenus cinereus*.

**Special floral values:** No information.

**Research and facilities:** Some research has been conducted by the Lanzhou Desert Institute on the utilization and protection of the marsh vegetation. R. Grimmett carried out a preliminary avifaunal survey in early July 1988.

**References:** Chen (1981).

**Criteria for inclusion:** 1 b, 2b, 3b.

**Source:** Lu Jianjian and Richard Grimmett.

**Wetland name:** Barkol Hu

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 43°40'N, 92°48'E;

**Location:** west of the town of Barkol, 100 km northwest of Hami, Xinjiang Zizhiqu (Sinkiang Autonomous Region).

**Area:** 30,000 ha (lake 8,000 ha, marshes 22,000 ha).

**Altitude:** 1,825m.

**Biogeographical Province:** 2.30.11.

**Wetland type:** 15 & 16.

**Description of site:** A saline lake, associated brackish to saline marshes, and a large area of fresh to brackish marshes and salt flats, on the extreme southeastern edge of the Junggar Basin. The lake and marshes are fed by numerous perennial streams and a river rising in snowmelt on the Karlik Shan range to the east (peaks to 4,675m). The drainage is internal.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** Irrigated cultivation on the plains to the east.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** No information.

**Special floral values:** No information.

**Criteria for inclusion:** 0.

**Source:** Operational Navigation Charts.

**Wetland name:** Aiding Hu

**Country:** PEOPLE'S REPUBLIC OF CHINA



**Coordinates:** 42°48'N, 89°12'E;

**Location:** south of the village of Turpan, 170 km southeast of Wulumuqi (Urumqi), Xinjiang Zizhiqu (Sinkiang Autonomous Region).

**Area:** 18,000 ha.

**Altitude:** 154 metres below sea level.

**Biogeographical Province:** 2.22.8.

**Wetland type:** 16.

**Description of site:** A large saline lake and associated brackish to saline marshes near the centre of the Turpan Pendi (Turpan Depression); fed by numerous intermittent streams from the Tian Shan mountains to the west and the Bogda Shan to the north. The whole of the Turpan Depression (some 350,000 ha) lies below sea level, and includes about 200,000 ha of salt waste. There is an extensive sand desert to the east.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** Irrigated cultivation nearby.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** No information.

**Special floral values:** No information.

**Criteria for inclusion:** 0.

**Source:** Lu Jianjian.

**Wetland name:** Bayinbuluke Nature Reserve

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 42°50'N, 84°00'E;

**Location:** in Hejing County, 200 km northwest of Kuerle, Xinjiang Zizhiqu (Sinkiang Autonomous Region).

**Area:** 100,000 ha.

**Altitude:** 2,430m.

**Biogeographical Province:** 2.36.12.

**Wetland type:** 14 & 15.

**Description of site:** A vast complex of small freshwater lakes, ponds and marshes in an intermontane basin in the Tian Shan mountains, surrounded by peaks rising to 4,800m. The marshes are fed by numerous rivers and streams from the surrounding hills, and drain east through a gorge into Bosten Hu and Bo Hu Marshes (site 174).

**Principal vegetation:** Reed-beds dominated by *Phragmites communis*, and sedge marshes dominated by *Carex muliensis*.

**Land tenure:** State owned.

**Conservation measures taken:** Protected as a Nature Reserve of 100,000 ha established in 1980 and administered by the Bazhou Forestry Department.

**Land use:** None; a Nature Reserve.

**Disturbances and threats:** No information.

**Economic and social values:** An important source of freshwater for the surrounding area.

**Fauna:** An extremely important breeding, staging and wintering area for a wide variety of waterfowl, particularly Ardeidae, Anatidae and Laridae. Seventy-two species of waterfowl have been recorded including *Cygnus cygnus*, *C. columbianus*, *C. olor* and *Grus grus*. Large numbers of *C. cygnus* are reported to breed in the marshes.

**Special floral values:** No information.

**Criteria for inclusion:** 1b, 3b.

**Source:** Lu Jianjian.

**Wetland name:** Sayram Hu

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 44°35'N, 81°10'E;

**Location:** 65 km north of Yining, Xinjiang Zizhiqu (Sinkiang Autonomous Region).

**Area:** 46,000 ha.

**Altitude:** 2,075m.

**Biogeographical Province:** 2.36.12.

**Wetland type:** 14/16.

**Description of site:** A large lake of unknown salinity in the Borohoro Shan Mountains, fed by streams rising in mountains to the west (peaks to 4,550m).

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** No information.

**Special floral values:** No information.

**Criteria for inclusion:** 0.

**Source:** Operational Navigation Charts.

**Wetland name:** Ebinur (Aibi) Hu

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 44°55'N, 82°53'E;

**Location:** 160 km WSW of Kekamkyi (Karamay), Xinjiang Zizhiqu (Sinkiang Autonomous Region).

**Area:** 107,000 ha.

**Altitude:** 171m.

**Biogeographical Province:** 2.30.11.

**Wetland type:** 16.

**Description of site:** A large saline lake with associated brackish marshes and meadows, at the extreme western end of the Junggar Basin. The lake is fed by numerous intermittent streams mostly rising in the Borohoro Shan Mountains to the south (peaks to 4,730m). The wetland is surrounded by an extensive salt waste with sand desert to the south.

**Principal vegetation:** Grassland dominated by *Achnatherum splendens* around the lake.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.  
**Disturbances and threats:** No information.  
**Economic and social values:** No information.  
**Fauna:** No information.  
**Special floral values:** No information.  
**Criteria for inclusion:** 0.  
**Source:** Lu Jianjian.

**Wetland name:** Kekamkyi (Karamay) Lake  
**Country:** PEOPLE'S REPUBLIC OF CHINA  
**Coordinates:** 45°35N, 85°00'E;  
**Location:** near the town of Kekamkyi (Karamay), Xinjiang Zizhiqu (Sinkiang Autonomous Region).  
**Area:** 100 ha.  
**Altitude:** c.300m.  
**Biogeographical Province:** 2.30.11.  
**Wetland type:** 16 & 17.  
**Description of site:** A shallow brackish to saline lagoon with extensive fringing reed-beds, mudflats and saline marshes, formed by spillage and leakage from a nearby water storage reservoir built for the power station in the Karamay Oil Field. The lagoon is permanent but subject to wide fluctuations in water level, and is frozen over from November to March.  
**Principal vegetation:** Reed-beds with *Phragmites* sp, sparse *Tamarix* scrub and mudflats with some *Salicornia* sp. In a very sparsely vegetated desert region with dry ravines, rocky outcrops, rock and gravel desert plains, and saline flats.  
**Land tenure:** State owned.  
**Conservation measures taken:** None.  
**Conservation measures proposed:** W.G. Harvey has made outline proposals to the Karamay Oil and Gas Corporation for conserving the lake and providing wildlife education facilities for local people.  
**Land use:** There has been active oil extraction since the 1950s, and the population of the Kekamkyi area is now 160,000.  
**Possible changes in land use:** The area is likely to be opened up considerably for oil exploration and extraction in the next decade.  
**Disturbances and threats:** None at present.  
**Economic and social values:** No information.  
**Fauna:** The lagoon and marshes support a very rich and diverse breeding avifauna. Birds observed during a brief survey in June 1986 included *Podiceps nigricollis*, *Tadorna ferruginea*, *Marmaronetta angustirostris* (several pairs thought to be nesting), *Netta rufina* (30 birds in pairs), *Aythya nyroca* (30 birds in pairs), *Fulica atra*, *Himantopus himantopus*, *Charadrius dubius*, *C. alexandrinus*, *Tringa totanus*, *Acrocephalus arundinaceus*, *A. agricola* and *Panurus biarmicus*. The observation of Marbled Teal *M. angustirostris* was the first record of this threatened species in China. The wetland is also probably of considerable importance as a staging area for migrating waterfowl; a variety of shorebirds and terns were observed in 1986, and *Cygnus olor* has been reported on migration.

**Special floral values:** One of the few shallow well-vegetated lakes in the northwestern desert regions of China.

**Research and facilities:** W.G. Harvey carried out a very brief avifaunal survey in June 1986.

**References:** Harvey (1986).

**Criteria for inclusion:** 1a, 2a, 2b.

**Source:** See references.

**Wetland name:** Manasi Hu

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 45°50'N, 86°00'E;

**Location:** 75 km ENE of Kekamkyi (Karamay), Xinjiang Zizhiqu (Sinkiang Autonomous Region).

**Area:** 80,000 ha.

**Altitude:** 270m.

**Biogeographical Province:** 2.30.11.

**Wetland type:** 16.

**Description of site:** A large saline lake with surrounding brackish marshes and **meadows**, on the western edge of the Junggar Basin. The lake is fed by rivers rising in the Erenhaberga Shan Mountains to the south. There is an extensive salt waste to the northeast, and sand deserts to the east and south.

**Principal vegetation:** *Anabasis* plant community in surrounding areas.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** No information.

**Special floral values:** No information.

**Criteria for inclusion:** 0.

**Source:** Lu Jianjian.

**Wetland name:** Chianassu Hu

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 48 °40'-48 °54'N, 86 °59'-87 °07'E;

**Location:** 90 km north of Burqin, in the extreme north of Xinjiang Zizhiqu (Sinkiang Autonomous Region) near the Russian and Mongolian borders.

**Area:** c.7,000 ha.

**Altitude:** c.1,370m.

**Biogeographical Province:** 2.35.12.

**Wetland type:** 14.

**Description of site:** A large freshwater lake, about 23 km long and three km wide, and associated marshes in the northern Altai Mountains. The lake is fed by two small rivers rising in the Youyi Feng Hutun Orgil mountains on the Russian and Mongolian borders (peaks to 4,374m), and drains southeast into a small tributary of the Ertix He (Irtys River).

**Principal vegetation:** No information.  
**Land tenure:** State owned.  
**Conservation measures taken:** None.  
**Land use:** No information.  
**Disturbances and threats:** No information.  
**Economic and social values:** No information.  
**Fauna:** No information.  
**Special floral values:** No information.  
**Criteria for inclusion:** 0.  
**Source:** Operational Navigation Charts.

**Wetland name:** Ulungur Hu and Jili Hu  
**Country:** PEOPLE'S REPUBLIC OF CHINA  
**Coordinates:** 46°51'-47°25'N, 87°02'-87 °35'E;  
**Location:** near the town of Fuhai, 250 km northeast of Kelamari (Karamay), Xinjiang Zizhiqu (Sinkiang Autonomous Region).  
**Area:** c.100,000 ha.  
**Altitude:** 470m.  
**Biogeographical Province:** 2.29.11./2.21.8.  
**Wetland type:** 14 & 15.  
**Description of site:** Two large freshwater lakes, Ulungur (82,500 ha) to the north and Jili (16,000 ha) to the south, with extensive freshwater marshes, and the adjacent marshes along the Ulungur River. Both lakes are fed by numerous streams from the surrounding hills, and Ulungur Hu receives water from the Ulungur River rising in the Altai Shan to the east. Jili Hu drains northwest through a narrow channel into Ulungur Hu, 10 km away, and the latter overflows into the headwaters of the Ertix He (the Irtysh River of the U.S.S.R.).  
**Principal vegetation:** No information.  
**Land tenure:** State owned.  
**Conservation measures taken:** None.  
**Land use:** No information.  
**Disturbances and threats:** No information.  
**Economic and social values:** No information.  
**Fauna:** No information.  
**Special floral values:** No information.  
**Criteria for inclusion:** 0.  
**Source:** Lu Jianjian.

**Wetland name:** Southern Altai Lakes  
**Country:** PEOPLE'S REPUBLIC OF CHINA  
**Coordinates:** 46 °50'N, 90 °52'E;  
**Location:** in Qinghe County, in the southern Altai Mountains on the Mongolian border, 420 km northeast of Wulumqi (Urumqi), Xinjiang Zizhiqu (Sinkiang Autonomous Region).  
**Area:** At least 2,500 ha of wetlands.

**Altitude:** 2,600-3,100m.

**Biogeographical Province:** 2.35.12.

**Wetland type:** 12, 14, 15 & 22.

**Description of site:** Five small freshwater lakes, each 150-350 ha in extent, many smaller ponds, freshwater marshes, mountain bogs, and fast-flowing mountain streams at the headwaters of the Ulungur He in the southern Altai Shan mountains.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** Some of the wetlands have been protected in the Burgen Nature Reserve (5,000 ha), established in 1980 to protect Beaver habitat.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** The Beaver *Castor fiber* occurs in the ponds and streams.

**Special floral values:** No information.

**Criteria for inclusion:** 1a, 2b.

**Source:** National Environmental Protection Agency.

**Wetland name:** Lakes of the Qiangtang (Chang Tang)

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 30°00'-36°30'N, 79°00'-92°00'E;

**Location:** the whole of central, northern and western Xizang Zizhiqu (Tibetan Autonomous Region), along with adjacent parts of southwestern Xinjiang Zizhiqu (Sinkiang Autonomous Region) and western Qinghai Province.

**Area:** Between three and four million ha of lakes.

**Altitude:** Mostly 4,500-5,500m, with many isolated mountains ranges rising to peaks at 6,500-7,000m.

**Biogeographical Province:** 2.23.8.

**Wetland type:** 12, 13, 14, 15, 16 & 22.

**Description of site:** The Qiangtang (Northern Plain) of the Qinghai-Xizang Plateau is a vast, cold, dry plain at an elevation of 4,500-5,500m, bounded to the north by the Kun Lun Shan and to the south by the main Himalayan Range, and interrupted by many lesser mountain ranges with snow-capped peaks rising to 7,000m. It includes most of the Tibetan Autonomous Region west of 91°E except for the valleys of the Indus and Tsangpo in the south, as well as adjacent parts of Sinkiang Autonomous Region and Qinghai Province. All of the drainage of the Qiangtang is internal, the innumerable perennial and seasonal rivers and streams emptying into over a thousand lakes, which usually lie in the transverse folds of the numerous mountain ranges crossing the region from east to west. Most of the lakes are brackish or saline, and there are very few freshwater lakes in the northern part of the region. Water temperatures are very low, and the period of freezing lasts almost six months. Because of the dry climate, there are relatively few permanent bogs and swamps.

The total area of lakes on the Qiangtang is unknown, but is thought to exceed three million ha. There are approximately 1,190 lakes of over 100 ha in extent. Three of these are very large: Namu Cuo (194,000 ha), Selin Cuo (164,000 ha) and Zarinanmu Cuo (100,000 ha). A further 20 lakes are between 25,000 and 100,000 ha in extent, while some 160 are between 2,500 and 25,000 ha. Fan

(1987) gives the total area of lakes in Xizang Zizhiqu as 2,400,000 ha, about 88.5% of which are on the Qiangtang.

Although many of the lakes are still very large, most were formerly much larger. This is attributed to decreased rainfall caused by the rise of the Himalayas. Uplift of the Qinghai-Xizang Plateau from about 1,000-2,000m in the early Pleistocene to 3,000-4,000m by the late Pleistocene and 4,000-7,000m at the present time has been accompanied by dessication of climate, as the moist trade winds from the Indian Ocean have been blocked by the rising Himalayas. The plateau is still being uplifted, and the barrier effect of the Himalayas is becoming more and more significant. As a result, the drainage systems continue to disintegrate and dwindle, while the area of interior drainage continues to expand.

Many of the lakes are now highly mineralized. There is a general tendency for the degree of mineralization to increase from southeast to northwest, reflecting the increasing aridity in climate. In the southern part of the plateau, in the so-called "big lake region", lakes such as Namu, Selin, Zarinanmu, Dangreyong and Anglaren have salinities of around 10 p.p.t. In the north, however, 70% of the lakes are hypersaline with the highest salinities reaching 300 p.p.t. The beds of some lakes, such as Angdar, Margai Caka, Pongyin, Yaggain Can and Margog Caka, consist of thick sediments of chemical origin.

Some of the principal lakes are as follows:

- Kekexili Hu: 3535'N, 91°10'E; 340 km WSW of Geermu, Qinghai Province. 45,000 ha; 4,950 m.a.s.l. A large saline lake with numerous small fresh to brackish lakes, ponds and marshes in surrounding areas, at the extreme northeastern edge of the Qiangtang. The wetlands are fed by numerous intermittent streams and a perennial river rising in snowmelt in the Kun Lun Shan to the northwest.
- Lexiewuda Hu: 35°45'N, 90°12'E; 420 km WSW of Geermu, Qinghai Province. 35,000 ha; 4,854m. A large saline lake and associated marshes near the northeastern edge of the Qiangtang. The lake is fed by perennial streams from snowmelt on nearby peaks.
- Xijinwulan Hu: 3512'N, 9020'E; 415 km WSW of Geermu, Qinghai Province. 46,000 ha; 4,900m. A large saline lake on the eastern edge of the Qiangtang, with many bays, spits and headlands, and several large islands. It is fed by a number of perennial rivers rising in snowmelt on the mountains to the northeast and northwest.
- Wulanwula Hu: 34°50'N, 90°30'E; 420 km WSW of Geermu, Qinghai Province. 61,000 ha; 5,000m. A large saline lake and associated marshes on the eastern edge of the Qiangtang. The lake has a very indented shoreline and several large islands. It is fed by numerous intermittent streams from the surrounding hills and a perennial river rising in snowmelt in mountains to the west.
- Duoge Cuo (Rola Co): 3518'N, 89°12'E; 678 km NNW of Lasa, Xizang Zizhiqu. 12,000 ha; 4,900m. A large saline lake, associated brackish marshes and extensive salt flats in an area of open plains in the northeastern part of the Qiangtang, fed by snow melt from peaks to the northeast.
- Angpa Cuo (East Chihpuchang Hu): 33°25'N, 90°19'E; 440 km NNW of Lasa, on the borders of Xizang Zizhiqu and Qinghai Province. 30,000 ha; 4,900m. A large freshwater lake and associated marshes in a region of plains with numerous smaller lakes. The lake is fed by snow melt on peaks to the east, and overflows into Duoersuodong Cuo, immediately to the west.
- Duoersuodong Cuo (West Chihpuchang Hu): 33°25'N, 89°52'E; 450 km NNW of Lasa, Xizang Zizhiqu. 25,000 ha; 4,900m. A large saline lake with associated brackish marshes, fed by overflow from Angpa Cuo to the east and snowmelt from peaks to the northwest.
- Namu Cuo (Tengri Nor): 30°40'N, 90°30'E; 120 km NNW of Lasa, Xizang Zizhiqu. 194,000 ha; 4,590m. A large saline lake and associated saline and brackish marshes on the southeastern edge of

the Qiangtang. The lake is fed by streams from the Nyainqentanghla Shan to the south. The lake was formerly much larger in size, and is now in the process of drying out.

- Selin Cuo (Siling Co): 31°50'N, 89°00'E; 300 km northwest of Lasa, Xizang Zizhiqu. 164,000 ha; 4,530m. A large saline lake with brackish marshes and extensive salt flats, comprising the largest lake system on the Qiangtang. The main source of water is the Zagya Zangbo River, which rises in the Tanggula Shan to the east and flows through extensive marshes before entering the lake.

- Geren Cuo (Gyaring Co): 31°09'N, 88°18'E; 300 km northwest of Lasa, Xizang Zizhiqu. 25,000 ha; 4,650m. A large saline lake with associated brackish marshes, fed by runoff from surrounding peaks and overflow from many smaller lakes in the vicinity.

- Dangreyong Cuo (Tangra Yumco): 31°00'N, 86°35'E; 460 km WNW of Lasa, Xizang Zizhiqu. 84,000 ha; 4,535m. A large saline lake with associated brackish marshes, fed by runoff from the surrounding hills.

- Zarinanmu Cuo (Zhari Namco): 30°55'N, 85°35'E; 520 km WNW of Lasa, Xizang Zizhiqu. 100,000 ha; 4,613m. A large saline lake with associated brackish marshes, fed by the Coqen Zangbo which rises in mountains to the south.

- Taruo Cuo: 31°08'N, 84°05'E; 680 km WNW of Lasa, Xizang Zizhiqu. 55,000 ha; 4,415m. A large saline lake with associated brackish marshes, fed by the Pudoy Zangbo rising in mountains to the south.

- Anglaren Cuo (Ngangla Ring Co): 31°35'N, 83°05'E; 770 km WNW of Lasa, Xizang Zizhiqu. 67,500 ha; 4,689m. A large saline lake with associated brackish marshes, fed by snowmelt from mountains to the east.

- Guozha Cuo: 35°00'N, 81°00'E; 1,220 km northwest of Lasa, Xizang Zizhiqu. 60,000 ha; 5,180m. A large brackish lake with associated fresh to brackish marshes, on the extreme northwestern edge of the Qiangtang. The lake is fed by snowmelt from the Kun Lun Shan range to the north, and drains west through a marshy valley into Aksayqin Hu.

- Aksayqin Hu: 35°13'N, 79°50'E; 210 km south of Hotan. In disputed territory; under Chinese control as part of Xinjiang Zizhiqu but claimed by India. 17,500 ha; 4,944m. A large saline lake and associated marshes at the extreme northwestern end of the Qiangtang. The lake is fed by overflow from Gozha Cuo 100 km to the east, and by many perennial streams from the Kun Lun Shan to the north and Karakoram Range to the south.

**Climatic conditions:** The climate is cold and dry, with very intensive solar radiation during the summer months. There is a general tendency for the climate to become increasingly arid from southeast to northwest and from south to north, the annual rainfall varying from about 250 mm in the southeast to as little as 60 mm in the northwest. Most of the rainfall occurs during the summer months (June to September), and there is very little snowfall. Strong winds are frequent throughout the year, averaging 25-30 km/hr in spring and summer, and 32-39 km/hr in winter. Temperatures range from as low as -44.5°C in winter to 22°C in summer.

**Principal vegetation:** The swamp vegetation includes *Kobresia littledalei*, *Carex microglochin*, *Hippuris vulgaris* and *Triglochin maritimum*, while the peat bogs are dominated by *K. littledalei*, *Carex doniana* and *Blysmus sinocompressus*. Most of the Qiangtang is alpine desert, with arid steppe dominated by *Arenaria muscifformis*. Alpine meadows dominated by *Kobresia pygmaea* occur in the wetter areas, and there are some low shrubs in sheltered valleys.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** Most of the Qiangtang is uninhabited. Nomads visit the region to hunt, fish and graze their livestock, and there are some primitive mines and salt workings.



**Disturbances and threats:** No information.

**Economic and social values:** The nomadic tribes of the region are dependent on the fishing, hunting and grazing resources of the wetlands for their livelihood. The saline lakes contain deposits of commercially important minerals such as lazurite, mirabilite, borate and sylvite.

**Fauna:** Fishes are reported to be abundant in some of the lakes. Schizothoracine fishes of the Cyprinidae are the overwhelmingly predominant forms in the fauna. These fishes hibernate in burrows not only during the long winter, but also partly in summer, to avoid the intensive solar radiation during the daytime and low temperatures at night (Cao *et al.*, 1987). The branchiopod Crustacea have been described by Jiang (1987). He records three species of Anostraca (including *Artemia sauna*) and 56 species of Cladocera from the Tibetan Plateau. Two species, *Daphnia pamirensis* and *Simocephalus himalayensis*, have been recorded at over 5,000m above sea level. These two species and *Alona aliensis*, *Daphniopsis tibetana* and *Kurzia yunnanensis* are endemic to the Tibetan plateau and adjacent regions. Gong (1987) has reported on the Rotatorian fauna, which includes two forms known only from the Qiangtang: *Notholca tibetica* and *N. acuminata cincta*. Twenty-two species of Rotatorians have been recorded on the Qiangtang, the commonest being *Notholca squamula*. Four species of Bdelloidea have been collected at altitudes of over 5,550m.

The region is known to be important for breeding waterfowl, such as *Anser indicus*, *Tadorna ferruginea* and *Larus brunnicephalus*, and may be an important staging area for migrants in spring and autumn, but almost no information is available on the waterfowl, other than isolated specimen records from collecting expeditions.

**Special floral values:** No information.

**Research and facilities:** Some geological and limnological studies were carried out at many of the lakes during the Chinese Comprehensive Scientific Expedition of Qinghai-Xizang Plateau in 1966 and 1973-1976.

**References:** Cao *et al.* (1987); Chen *et al.* (1987); Fan (1987); Gong (1987); Jiang (1987); Li Bing-yuan *et al.* (1987); Vaurie (1972); Zhao *et al.* (1987).

**Criteria for inclusion:** 123.

**Source:** Lu Jianjian and references.

**Wetland name:** Lasa He (Lhasa River)

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 29°38'N, 91°05'E;

**Location:** between Lasa and Ganden, Xizang Zizhiqu (Tibetan Autonomous Region).

**Area:** Several thousand ha.

**Altitude:** 3,680m.

**Biogeographical Province:** 2.38.12.

**Wetland type:** 12, 13 & 18.

**Description of site:** A large area of grazed wet meadows and riverine marshes along the Lasa He from eight km west of Lasa, east for about 50 km up the Lasa valley to the region of Ganden. The river is fast-flowing, with extensive shingle banks and braided channels.

**Climatic conditions:** The climate is cold and dry, with an annual rainfall of 400-500 mm. Most of the rain falls in summer (May to September), and the winters are dry with negligible snowfall. The region is rather windy, with frequent dust storms in late winter and spring. Mean temperatures range from 0°C in January to 17°C in July, with extremes of -14°C and 31°C.

**Principal vegetation:** Wet pastures and alpine steppe, with some trees in sheltered valleys.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** Livestock grazing and some agriculture.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** The wet meadows are an important wintering area for Black-necked Cranes *Grus nigricollis*, while the marshy areas along the river, particularly near Ganden, are important for migratory ducks. Approximately 140 *G. nigricollis* were present in the winter of 1985/86 (H. Meltofte). Robson observed 108 cranes in the area in March 1986, along with 110 *Anser indicus*, 350 ducks (mainly *Tadorna ferruginea*, *Anas crecca* and *A. platyrhynchos*), and three White-tailed Eagles *Haliaeetus albicilla*. Several pairs of Ibisbill *Ibidorhyncha struthersii* nest on shingle banks in the river.

**Special floral values:** No information.

**References:** Vaurie (1972).

**Criteria for inclusion:** lb, 2a, 3b.

**Source:** Hans Meltofte and Craig Robson.

**Wetland name:** Yangcaoyong Cuo (Yarshoyum Co)

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 29°00'N, 90°45'E;

**Location:** 80 km southwest of Lasa, Xizang Zizhiqu (Tibetan Autonomous Region).

**Area:** 67,800 ha.

**Altitude:** 4,445m.

**Biogeographical Province:** 2.38.12.

**Wetland type:** 14.

**Description of site:** A large, deep, freshwater lake and associated marshes in the mountains southwest of Lasa. The lake is fed by numerous streams rising on the surrounding peaks (with summits to 7,200m), and drains west into a small tributary of the Yarlung Zangbo Jiang (Brahmaputra). Much of the very indented shoreline is steeply shelving, but there is a large area of shallow water with extensive marshes at the northwestern end of the lake, near the village of Nagarze.

**Principal vegetation:** The lake is rich in submerged aquatic vegetation, and is surrounded by alpine meadows dominated by *Kobresia pygmaea*.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** Fishing, hunting and livestock grazing.

**Disturbances and threats:** No information.

**Economic and social values:** The local inhabitants of the region are dependent on the fishing, hunting and grazing resources of the lake and its surroundings for their livelihood.

**Fauna:** An important staging and breeding area for migratory waterfowl. About 2,000 waterfowl were observed at the northwestern corner of the lake in late April 1986. These included:

at least 10 *Podiceps cristatus*

2 *P. nigricollis* (breeding)

4 *Anser indicus*  
125 *Anas strepera*  
90 *Netta rufina*  
450 *Aythya fuligula*  
50 *A. ferina*  
400 *Fulica atra*  
700-1,000 *Larus brunnicephalus*  
and 10 other species of ducks in smaller numbers.  
**Special floral values:** No information.  
**Criteria for inclusion:** 1b, 3b.  
**Source:** Lu Jianjian and Hans Meltofte.

**Wetland name:** Pumuoyong Cuo  
**Country:** PEOPLE'S REPUBLIC OF CHINA  
**Coordinates:** 28°33'N, 90°24'E;  
**Location:** 135 km southwest of Lasa, Xizang Zizhiqu (Tibetan Autonomous Region).  
**Area:** 22,500 ha.  
**Altitude:** 4,733m.  
**Biogeographical Province:** 2.38.12.  
**Wetland type:** 14.  
**Description of site:** A large freshwater lake and associated marshes on the north slope of the main Himalayan range. The lake is fed by snowmelt from the mountains to the south (peaks to 7,600m), and drains east through a short river into the Yangcaoyong Cuo (site 187).  
**Principal vegetation:** Alpine meadows dominated by *Kobresia pygmaea* in surrounding areas.  
**Land tenure:** State owned.  
**Conservation measures taken:** None.  
**Land use:** Fishing, hunting and livestock grazing.  
**Disturbances and threats:** No information.  
**Economic and social values:** The local inhabitants of the region are dependent on the fishing, hunting and grazing resources of the lake and its surroundings for their livelihood.  
**Fauna:** Known to be an important breeding and staging area for migratory waterfowl, but no details are available.  
**Special floral values:** No information.  
**Criteria for inclusion:** 1b, 3b.  
**Source:** Lu Jianjian.

**Wetland name:** Paiku Co  
**Country:** PEOPLE'S REPUBLIC OF CHINA  
**Coordinates:** 28 °50'N, 85°35'E  
**Location:** south of the Yarlung Zangbo Jiang (Brahmaputra River), 540 km west of Lasa, Xizang Zizhiqu (Tibetan Autonomous Region).  
**Area:** 26,500 ha.  
**Altitude:** 4,593m.  
**Biogeographical Province:** 2.38.12.

**Wetland type:** 16.

**Description of site:** A large, brackish or saline lake in an inland drainage basin on the north slope of the main Himalayan range. The lake is fed by snowmelt from the Xixabangma Feng Mountains to the south (peaks to 8,012m).

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** No information.

**Special floral values:** No information.

**Criteria for inclusion:** 0.

**Source:** Operational Navigation Charts.

**Wetland name:** Maquan He Marshes

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 29 °40'-30°10'N, 83 °10'-83 °50'E;

**Location:** near the village of Paryang in the upper drainage of the Yarlung Zangbo Jiang (Brahmaputra River), 710 km west of Lasa, Xizang Zizhiqu (Tibetan Autonomous Region).

**Area:** c.142,500 ha.

**Altitude:** 4,850m.

**Biogeographical Province:** 2.38.12.

**Wetland type:** 14, 15, 18 & 22.

**Description of site:** A vast complex of freshwater marshes, bogs and seasonally flooded alpine meadows with numerous lakes, ponds and interconnecting river channels on an extensive plain near the headwaters of the Maquan He, a tributary of the Yarlung Zangbo Jiang (Brahmaputra River). The wetland is fed by runoff from the Gangdise Shan to the north and the main Himalayan range to the south (peaks rising to 7,062m). The Maquan He flows east through the marshes, joining up with many smaller rivers and streams in the process; for over 45 km of its length, the river broadens into a lake up to four km wide.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** No information.

**Special floral values:** No information.

**Criteria for inclusion:** 0.

**Source:** Operational Navigation Charts.

**Wetland name:** Mapam Yumco (Lake Manasarowar) and Langa Co (Rakas Tal)

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 30°34'-30°51'N, 81°05'-81°37'E;

**Location:** near the Nepalese and Indian borders, 930 km west of Lasa, Xizang Zizhiqu (Tibetan Autonomous Region).

**Area:** Mapam Yumco 52,500 ha; Langa Co 28,500 ha.

**Altitude:** 4,572m.

**Biogeographical Province:** 2.38.12.

**Wetland type:** 14.

**Description of site:** The twin lakes of Mapam Yumco (Lake Manasarowar) and Langa Co (Rakas Ta!), situated on an extensive plain near the headwaters of the Indus, Ganges and Brahmaputra Rivers. The lakes are separated by a mountainous isthmus rising to 5,040m, and are dominated by Kangrinboge Feng (Mount Kailas, 6,714m) to the north and Gurla Mandhata (7,728m) to the south. They are fed by runoff from the Gangdise Shan to the north and the main Himalayan range to the south. Mapam Yumco, in the east, drains west into Langa Co via an eight km channel linking the lakes near their northern ends. Both lakes are fresh; they formerly belonged to the drainage of the Xiangquan (Sutlej) River, a tributary of the Indus, but in relatively recent times the drainage of the lake basin has become internal.

**Climatic conditions:** Arid montane climate with an annual rainfall of less than 250 mm. Temperatures in June range from -2°C at night to 32°C during the day (usually 21-24°C); the winters are extremely cold.

**Principal vegetation:** No information is available on the aquatic vegetation. The lakes are surrounded by alpine meadows dominated by *Kobresia pygmaea*, alpine steppe and *Caragana* scrub.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** Fishing, hunting and grazing of domestic livestock.

**Disturbances and threats:** No information.

**Economic and social values:** The local inhabitants of the region are dependent on the fishing, hunting and grazing resources of the lakes and surrounding areas for their livelihood. The region has profound religious associations, and is sacred to both Hindu and Tibetan alike. Mount Kailas is regarded by Buddhists as the cosmic centre around which the world rotates. The waters of Lake Manasarowar are so sacred that some of the ashes of Gandhi were scattered there.

**Fauna:** An important breeding area for waterfowl, notably *Anser indicus* and *Larus brunnicephalus*.

The Asiatic Wild Ass *Equus hemionus* occurs on the surrounding plains.

**Special floral values:** No information.

**References:** Li Bing-yuan *et al.* (1987); Vaurie (1972).

**Criteria for inclusion:** lb. 1e, 3b.

**Source:** Lu Jianjian.

**Wetland name:** Pangong Lake

**Country:** PEOPLE'S REPUBLIC OF CHINA

**Coordinates:** 33°30'N, 79°53'E to 33°58'N, 78°25'E;

**Location:** at the east end of the Karakoram Range, on the border between China and India, Xizang Zizhiqu (Tibetan Autonomous Region) and Jammu & Kashmir (India).

**Area:** 65,000 ha, of which about one third is in India.

**Altitude:** 4,218m.

**Biogeographical Province:** 2.38.12.

**Wetland type:** 14.

**Description of site:** A chain of four interconnected lakes, about 155 km in length but with an average width of only 2.4 km, in a deep mountain valley. The lakes are probably of very recent origin, having been formed by natural damming of the valley. They are fed by numerous streams rising in the mountains to the north and east, and drain west into a tributary of the Indus. There are some marshy areas, particularly near the eastern end. The water is reported to be slightly salty.

**Principal vegetation:** No information.

**Land tenure:** State owned.

**Conservation measures taken:** None.

**Land use:** No information.

**Disturbances and threats:** No information.

**Economic and social values:** No information.

**Fauna:** No information.

**Special floral values:** No information.

**References:** Vaurie (1972).

**Criteria for inclusion:** 0.

**Source:** Operational Navigation Charts.

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