

# Swan Lake: use by migrating waterfowl of the lakes in southern Sukhbaatar, Mongolia

ROBERT A. ROBINSON

British Trust for Ornithology, The Nunnery, Thetford, Norfolk IP24 2PU, UK.

E-mail: rob.robinson@bto.org

## Abstract

Lakes in the southern part of Sukhbaatar province, southeast Mongolia, are surrounded by dry steppe to the north and desert to the south, and are likely to be important staging sites for migratory waterbirds. Yet information on the birds' use of this area is limited. Several lakes, including the Ganga Nuur complex (a Ramsar site), therefore were surveyed in early September 2004 to determine the numbers of wildfowl and shorebirds present. A total of 34 species were recorded, and 4,842 birds counted. These included three species classified by the International Union for Conservation of Nature and Natural Resources (IUCN) as being of global conservation concern: 181 Swan Goose *Anser cygnoides* (Vulnerable), 17 Black-tailed Godwit *Limosa limosa* (Near Threatened) and one Asian Dowitcher *Limnodromus semipalmatus* (also classified as Near Threatened). The counts were undertaken at the start of the migration season, so provide preliminary estimates of site use, but are likely to be much lower than peak counts later in the season. Nevertheless, the results reinforce the view that the lakes provide important habitat for birds in the East Asian flyway. Some land management issues in the area are described.

**Key words:** Asian Dowitcher, Black-tailed Godwit, Ganga Nuur Ramsar site, Mongolia, Swan Goose.

Relatively little is known about waterfowl migration and the birds' use of staging sites along the East Asian flyway. Although the Asian Waterfowl Census collates information annually on numbers recorded during the internationally co-ordinated counts of waterbirds, mostly made in January, to describe population trends and distribution (Miyabayashi & Mundkur

1999), there are major gaps in knowledge of key sites for the birds at other times of year. Data are particularly scant for Mongolia, which is a large country with a very low human population, so in many areas the wetlands have not been surveyed.

The Important Bird Areas (IBA) programme developed by BirdLife International identified 41 sites in Mongolia

that qualified for classification as an IBA by meeting one or more of the following criteria: presence of globally threatened species, presence of restricted-range species, assemblages of biome-restricted species, or globally important congregations of birds. Of these 41 sites, 39 contained wetland ecosystems (BirdLife International 2004). Wildfowl (Anatidae) species classified by the International Union for Conservation of Nature and Natural Resources (IUCN) as being globally threatened (IUCN 2001; Delany & Scott 2006) and recorded at Mongolian wetlands (BirdLife International 2004) included Swan Goose *Anser cygnoides* (at 27 IBAs), White-headed Duck *Oxyura leucocephala* (five IBAs), Baikal Teal *Anas formosa* (five IBAs), Lesser White-fronted Goose *Anser erythropus* (one IBA: Valley of Khurkh-Khutien 48°19'N 110°22'E) and Baer's Pochard *Aythya baeri* (one IBA: Tashgain Tavan Nuur 47°22'N 118°27'E). Yet, because many of the counts used to identify Mongolian IBAs were recorded during the summer, the importance of Mongolian wetlands for waterbirds migrating from breeding grounds in the tundra and taiga zones of eastern Russia to wintering sites in southeast Asia remains unclear.

This study describes the number of waterbirds counted during a survey made of lakes in the south of Sukhbaatar province, southeast Mongolia, during the early autumn migration period. The main aim was to determine the extent to which the area was used by the globally threatened Swan Geese, and also by Whooper Swans *Cygnus cygnus* which breed in Mongolia (Shiirevdamba *et al.* 1997). These lakes are likely to represent final stopover sites before

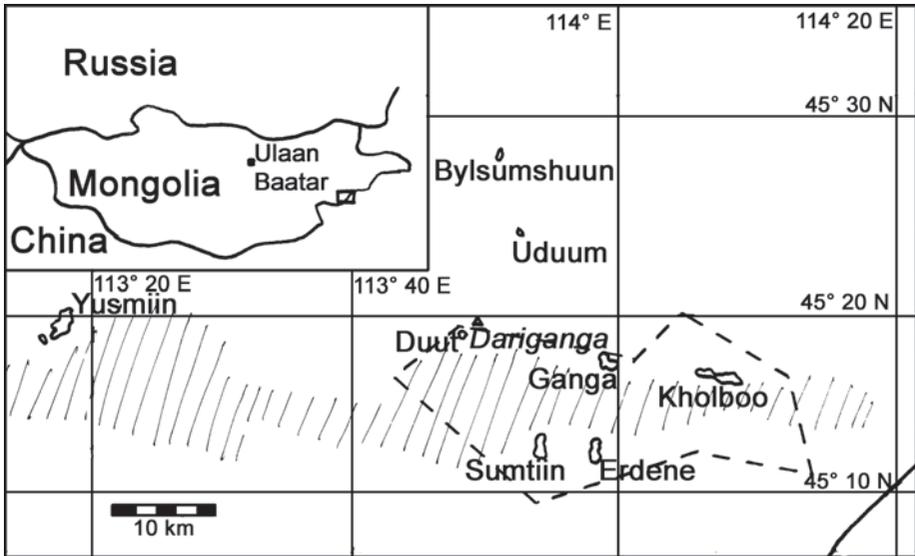
a flight crossing the eastern end of the Gobi desert. One of the lakes, Ganga Nuur (which translates as "Swan Lake") is known locally for its concentrations of migrating Whooper Swans, which pass through in October.

## Methods

All lakes marked on the national survey maps for Sukbaatar aimag (*i.e.* province), south of the provincial centre at Baruun-Urt, were visited by a three-man team in early September 2004 (Fig.1). Some of the smaller lakes proved to be seasonal and held no water during the visit. For the smaller lakes, counts were made of birds along the entire shoreline, from one or two vantage points reached by a vehicle, using binoculars and telescope. For Ganga and Kholboo Lakes we drove round the lakes and explored on foot suitable sections of the shoreline over a 2–3 h period. Most lakes were counted twice, initially in late afternoon–early evening, then again the following early–mid morning. The numbers recorded were broadly similar for each pair of counts, so the best or maximum count for each lake is presented here. Zegst Lake and Duut Lake were counted just once, both in mid–late afternoon.

## Study area

Most of the lakes (five of eight) included in the survey were within the Ganga Nuur complex, a small group of lakes in the south of Sukhbaatar province, surrounding the sum (*i.e.* county) centre of Dariganga 13 km to the northeast (Fig. 1). Ganga Nuur is



**Figure 1.** Location of the lakes surveyed in southern Sukhbaatar province. Lake (Nuur) names are shown in italics, and county (sum) centres in bold. The approximate boundary of the Ganga Nuur Natural Monument (and Ramsar site) is outlined. Stippling indicates areas of extensive sand dunes.

popular with visiting Mongolians, perhaps at least partly because of its proximity to the religious site of Altan Ovoo. The area was declared a “Natural Monument”, the lowest category of Mongolia’s “Special Protected Areas”, in 1993. The site is also designated as a wetland of international importance under the terms of the Ramsar Convention because of its importance as a waterbird stopover site (site no. 1378, Oyungerel *et al.* 2003) and is classified as an Important Bird Area (site no. MN040) by Birdlife International (2007).

The protected area extends to 32,800 ha and there are several lakes within its boundaries (Fig. 1). To avoid confusion, the main lake within the Ganga Nuur complex (and which gives the complex its name) is simply referred to as Ganga Lake. The lakes are permanent brackish lagoons set in arid

steppe grassland. The area has been classified by Bold (1990) as “Eurasian steppe – Mongol-Daugur province”. According to the sum inspector, Ganga Lake is frozen from early November through to April, with the ice reaching 70 cm in depth. Similar conditions are likely to apply to the other lakes, as the mean winter temperature is around  $-25^{\circ}\text{C}$ .

Ganga Lake itself ( $45^{\circ}15'N$   $113^{\circ}59'E$ , 1,294 m a.s.l.) is an open lake of some 200 ha, with a maximum depth of 2 m. The north side of the lake is bordered by sandy grassland, with a sand/rock shore; there is a spring on the northeast shore with reputedly healing properties. A belt of vegetated sand dunes borders the southern side of the lake. A few hundred metres to the southeast are two large pools set in hollows in the sand dunes.

Kholboo Lake (45°14'N 114°07'E, 1,306 m a.s.l.) consists of two lakes connected by a narrow channel some 5 km east of Ganga Lake. These lakes are mistakenly marked on the map as Tsagaan Nuur which, according to the sum inspector, is some kilometres to the east, close to the Chinese border. Of the two lakes, the western lake is the more exposed and is surrounded by dry sandy grassland. The eastern half of the complex is bordered to the north by grassland, which appeared in much better condition than that around Ganga Lake. To the south is a belt of vegetated sand dunes, with Osier *Salix* sp. growing around the lake boundary, particularly in the southeast corner. As with Ganga Lake, there are a couple of satellite pools immediately to the north of the two main lakes.

Between Ganga Lake and Kholboo Lakes is an extensive area of wet grassland.

Duut Lake (45°18'N 113°48'E, 1,227 m a.s.l.) is a shallow sand lake 3 km west of the county centre of Dariganga. Extending to 50 ha, with a maximum depth of 1.8 m it is surrounded entirely by (over-grazed) siliceous grassland. There were mudflats visible in the middle of the lake, but the shoreline (feeding habitat for waders) was very restricted.

On the outskirts of Dariganga (45°17'N 113°50'E, 1,236 m a.s.l.) there is a small lake, Zegst Lake, with emergent vegetation and some small reedbeds. This is situated next to a children's holiday camp and is fed by a small stream from the west, which was bordered by some damp grassland with one or two small pools.

Sumtiin Lake (45°12'N 113°53'E, 1,264 m a.s.l.) and Erdene Lake (45°11'N 113°

57'E, 1,307 m a.s.l.) lie to the south of Ganga Lake, within the strictly protected area of the National Monument (Fig. 1). They are apparently reachable from Dariganga only by driving off-road across the belt of sand dunes, which we were not equipped to do. Consequently, these lakes were not surveyed and are not considered further here.

Of the survey sites visited away from Ganga Nuur, Bylsumshuum Lake (45°27'N 113°53'E) and Uduum Lake (45°23'N 113°53'E, 1,212 m a.s.l.) were found to have little or no water, and no birds. Yusmiin Lake (45°23'N 113°22'E, 1,065 m a.s.l.), 50 km to the west, is similar in character to Ganga Nuur, though the surrounding vegetation appeared less overgrazed. Again the lake was quite shallow, with extensive reed beds in the middle of the lake.

Further information about the lakes, including land management and conservation issues relating to the lakes, was obtained by interviewing, through an interpreter, the sum inspector responsible for the Ganga Nuur Natural Monument. Although the interview was unstructured, it aimed to gain an idea of the numbers of birds using the site, the timing of peak numbers, and the factors that he thought might influence numbers of birds (particularly swans) using the lakes. While the sum inspector was uncertain about most of the species using the lakes, he appeared confident about patterns of use by swans.

## Results

A total of 4,842 waterbirds were counted on the lakes in the region: 4,496 wildfowl (14

species), 244 waders (17 species), 95 grebes (two species) and seven coot (one species) (Tables 1 and 2). The lakes were not used equally, with Kholboo Lake supporting the greatest numbers, both of wildfowl (67% of birds counted; Table 1) and of waders (40%; Table 2).

Whooper Swans were recorded on all but the smallest lake (Zegst Lake). The total count was of 190 birds but only two family groups were noted, with broods of three and four young respectively. Although most of the swans in the protected area were recorded on Kholboo Lake, it is likely that they used this and Ganga Lake interchangeably. Herders living next to Kholboo Lake reported that around 100 swans had arrived 2–3 days prior to our visit, on 4–5 September. This count was much smaller than the peak numbers that occur on the lake, which according to the sum inspector reach 4,000 birds in late September–early October.

Swan Geese were recorded on two lakes, Kholboo Lake and Duut Lake (Table 1). It is possible that there is interchange between these lakes, though both flocks seemed to roost on their respective lakes. A proportion (40%) of the birds on Kholboo Lake were seen flying south at dusk, and these may have been roosting on either Sumtiin or Erdene Lakes.

Good numbers of duck were recorded, with Common Pochard *Aythya ferina* and Mallard *Anas platyrhynchos* being the commonest; most were in eclipse plumage. Wader numbers were disappointing given the apparent availability of suitable habitat, but a single Asian Dowitcher *Limnodromus semipalmatus* (classified by IUCN as a Near

Threatened species) was seen on Kholboo Lake. No attempt was made to sample habitat quality, so the abundance of prey as a food source for waders is not known. The low wader counts therefore may have been due either to the counts being made outside the main migratory period or to poor food resources despite the habitat seeming good for wader species.

While not classed as waterbirds, the counts clearly coincided with a major passage period for wagtails and many were seen, particularly in the vicinity of Kholboo Lake. Although no systematic counts were made of wagtails, it was estimated that there were 300–500 birds present round the lake, particularly on the grassland on the northeast shore. These were mostly White Wagtails *Motacilla alba personata*, which accounted for perhaps 60–70% of the total, with the remainder being mostly Grey Wagtails *M. cinerea* or Yellow Wagtails *M. flava*. A handful of Citrine Wagtails *M. citreola* was also noted.

Small numbers of gulls were recorded on the lakes, mostly Black-headed Gulls *Larus ridibundus* (65 birds counted) and Mongolian Gulls *Larus mongolicus* (50).

In addition to the counts made in the main study area, two lakes were also visited in the Kherlen valley during the return journey to Choibalsan. At the first, Guruum Nuur (47°49'N 112°09'E), was a total of 80 Whooper Swans (including four juveniles), 300 Common Pochard, 500 Black-necked Grebes *Podiceps nigricollis*, 600 Common Goldeneye *Bucephala clangula*, 400 Tufted Ducks *Aythya fuligula*, 100 White-winged Scoters *Melanitta deglandi* and a single Long-tailed Duck *Clangula hyemalis*. The second

**Table 1.** Counts made of wildfowl, coot and grebes on lakes in southern Sukhbaatar, Mongolia, from 5–8 September 2004. The maximum count noted on the Ramsar site information sheet for Lake Ganga and its surrounding wetlands is also given for each species (from Oyungerel *et al.* 2003), except where “?” indicates that a maximum count was not reported.

Species	Ganga	Kholboo east	Kholboo west	Zegst	Duut	Yusmiin	Total	Max. count reported by Ramsar
Black-necked Grebe <i>Podiceps nigricollis</i>		90					90	106
Little Grebe <i>Tachybaptus ruficollis</i>				5			5	?
Common Coot <i>Fulica atra</i>				7			7	>100
Common Pochard <i>Aythya ferina</i>	75	150	1,000	10	700		1935	>1,000
Spot-billed Duck <i>Anas poocilorhyncha</i>			200				200	>500
Northern Mallard <i>Anas platyrhynchos</i>	5		500	20	50	150	725	>1,000
Tufted Duck <i>Aythya fuligula</i>				10			10	>1,000
Gadwall <i>Anas strepera</i>	30		200	20		25	275	>1,000
Common Goldeneye <i>Bucephala clangula</i>	20	25	50				95	>300
Common Teal <i>Anas creca</i>	5		50			50	105	>1,000
Common Shelduck <i>Tadorna tadorna</i>	4		20			20	44	>600
Ruddy Shelduck <i>Tadorna ferruginea</i>		100	150	14		300	564	>500
Eurasian Wigeon <i>Anas penelope</i>			100				100	>500
Northern Shoveler <i>Anas clypeata</i>			50	5	2	10	67	>500
Northern Pintail <i>Anas acuta</i>						3	3	>1,000
Whooper Swan <i>Cygnus cygnus</i>	5		180		5	2	192	>300
Swan Goose <i>Anser cygnoides</i>			150		31		181	>500
<b>Total</b>	<b>144</b>	<b>365</b>	<b>2,650</b>	<b>91</b>	<b>788</b>	<b>560</b>	<b>4,598</b>	

**Table 2.** Counts made of waders on lakes in southern Sukhbaatar, Mongolia, from 5–8 September 2004. The maximum count noted on the Ramsar information sheet for Lake Ganga and its surrounding wetlands is also given for each species (from Oyungel *et al.* 2003), except where “?” indicates that a maximum count was not reported.

Species	Ganga	Kholboo east	Kholboo west	Zegst	Duut	Yusmiin	Total	Max. count reported by Ramsar
Northern Lapwing <i>Vanellus vanellus</i>	34		15			10	59	>500
Temminck's Stint <i>Calidris temminckii</i>	3		12	8			23	?
Long-toed Stint <i>Calidris subminuta</i>	2						2	?
Wood Sandpiper <i>Tringa glareola</i>	2		5	2			9	56
Red-necked Stint <i>Calidris rificolis</i>	2		15	10	12		39	?
Marsh Sandpiper <i>Tringa stagnatilis</i>	3		5	35			43	20
Asian Dowitcher <i>Limnodromus semipalmatus</i>			1				1	?
Spotted Redshank <i>Tringa erythropus</i>			10	5	2	5	22	38
Common Snipe <i>Gallinago gallinago</i>			7	2			9	?
Common Greenshank <i>Tringa nebularia</i>			2				2	9
Little Curlew <i>Numenius minutus</i>			3				3	56
Ruddy Turnstone <i>Arenaria interpres</i>			2				2	5
Terek Sandpiper <i>Xenus cinereus</i>			3	5			8	4
Eurasian Curlew <i>Numenius arquata</i>			1				1	2
Black-tailed Godwit <i>Limosa limosa</i>			11			6	17	26
Pacific Golden Plover <i>Pluvialis fulva</i>						1	1	>500
Green Sandpiper <i>Tringa ochropus</i>				2	1		3	20
<b>Total</b>	<b>46</b>	<b>0</b>	<b>92</b>	<b>69</b>	<b>15</b>	<b>22</b>	<b>244</b>	

site, Uvur Nuur (47°52'N 112°05'E), held 172 Swan Geese, 95 Whooper Swans (four juveniles) and 2,500 duck: 1,100 Northern Mallard, 1,000 Common Pochard, 350 Gadwall *Anas strepera*, 100 Common Teal *Anas crecca* and 50 Common Goldeneye.

## Discussion

Although the numbers of birds recorded were small in relation to population sizes of many species in the East Asian flyway, it should be noted that the counts were made at the beginning of the migratory season. It is likely, therefore, that they do not reflect the peak usage of the lakes; certainly most counts were lower than the peak numbers noted by Oyungerel *et al.* (2003).

Interviews with the sum inspector and local herders suggest that the birds have changed their distribution in recent years, and now use Kholboo Lake in preference to Ganga Lake. The sum inspector also thought the swans did not use Sumtiin or Erdene Lakes, but a count of Erdene Lake (not visited in this study) made by M. Gilbert and J. Losloma on 2 October 2007 included 168 Whooper Swans and 10 Bewick's Swans *Cygnus columbianus*, together with 74 Swan Geese, 773 Ruddy Shelduck *Tadorna ferruginea*, 232 Northern Mallard, 119 Common Teal, 86 Eurasian Wigeon and 166 Northern Pintail (M. Gilbert pers comm.).

It seems that only a small number (fewer than ten) swans remain in the area through the summer, with numbers starting to increase in July and the peak number of birds present during late September and the first week of October. The passage period

for swans (and presumably other species) is relatively short; by November the lake is frozen with birds returning at the end of March–early April. If peak numbers of Whooper Swans do reach the 4,000 birds mentioned by the sum inspector, this would represent about 7% of the East Asian flyway population (Delany & Scott 2006). Although the site is noted for the number of Whooper Swans present, there certainly seems to be notable numbers of other wildfowl species, particularly of the globally endangered Swan Goose.

In common with much of the surrounding region, the area around the lakes is heavily overgrazed. This issue is much greater in the vicinity of Ganga Nuur, as it is used as a source of water for livestock; according to the sum inspector up to 30,000 animals drink at any one time. Ganga Lake is also a tourist attraction given its closeness to the holy mountain of Bayan Owoo, with many visitors coming from Ulaan Baatar, particularly during the festival of Nadaam (early July). Although this is probably outside the peak wildfowl passage period (it is unclear how many birds breed in Ganga Nuur), problems may arise from pollution of the water, both by litter and detergent from the large number of people washing themselves, their clothes and their cars in the lake; such problems probably do not extend to any of the other lakes, although increasingly people are visiting Kholboo Lake to avoid the crowds around Ganga Lake. It is possible that Kholboo Lake is preferred because of lower disturbance; it is certainly further from Dariganga and the religious site of Altan Ovoo. If Ganga Nuur is to retain its

population of migrating wildfowl in the long-term, sensitive management of the high numbers of visitors and grazing pressure will be required, though in such an arid and undeveloped landscape it is difficult to see how this may be achieved.

### Acknowledgements

I would like to thank the Steppe Forward Project (funded by the Darwin Initiative) for making my visit to Mongolia possible, and to Peter Zahler (Wildlife Conservation Society) for funding the excursion to Sukhbaatar. I thank Nigel Barton and Jargal Jamsranjav for their congenial company and help in counting the birds. Jargal also did magnificently in translating between Scottish and Mongolian, without which none of this would have been possible. I also thank Eileen Rees, Mark Barter and an anonymous referee for their comments, which greatly improved this manuscript and Martin Gilbert for supplying details of counts made at Erdene Nuur as part of the GAINS programme.

### References

BirdLife International 2004. *Important Bird Areas in Asia: key sites for conservation*. BirdLife Conservation Series No. 13, BirdLife International, Cambridge, UK.

BirdLife International 2007. *Birdlife's online World Bird Database: the site for bird conservation v2.1*. <http://www.birdlife.org> (accessed 28/04/2008).

Bold, A. 1990. Ecological and geographical basis for the conservation and sustainable use of avifauna of Mongolia. D.Sc. thesis, National University of Mongolia, Ulan Bataar, Mongolia.

Delany, S. & Scott, D. 2006. Waterbird population estimates, fourth edition. Wetlands International, Wageningen, the Netherlands.

IUCN 2001. *IUCN Red List Categories and Criteria: Version 3.1*. IUCN Species Survival Commission, Gland, Switzerland and Cambridge, UK.

Miyabayashi, Y. & Mundkur, T. 1999. *Atlas of Key Sites for Anatidae in the Eastern Flyway*. Wetlands International – Japan, Tokyo, and Wetlands International – Asia Pacific, Kuala Lumpur.

Oyungerel, B., Tseveenmyadag, N. & Batnasan, B. 2003. Information sheet on Ramsar Wetlands: Lake Ganga and its surrounding wetlands (Ramsar site no: 1378), Wetlands International, Wageningen, the Netherlands.

Shiirevdamba, T., Shagsdarsen, O., Erdenejav, G., Amgalan, T. & Tsetsegmaa, T. 1997. *Mongolian Red Book, 2nd edition*. Mongolian Ministry for Nature and the Environment, Ulaanbaatar, Mongolia.