

Numbers, distribution and breeding success of Whooper Swans *Cygnus cygnus*, and Mute Swans *C. olor*, in central Kazakhstan, USSR, in 1985 and 1987.

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Methods

Aerial counts of waterfowl in central Kazakhstan were carried out on 15 August 1985 and 20-30 August 1987. Two areas were surveyed in 1985; the lakes in the Turgay depression and the Telikol Lakes and floodplains along the Telikol Canal in the Kzyl-Orda region. The 1987 survey covered the Turgay depression and a group of lakes to the north around Kokchetav in the northwest and Pavlodar in the east. This area encompassed Lake Kumdykol in the west and

Lakes Zhalauly and Kyzykak in the east but Lake Kishikaroy was excluded (Fig.1).

The counts were made with an AN-2 aeroplane. Small lakes were crossed and larger lakes were surveyed along their shores. A boat was used to survey overgrown lakes, with transects of those that had open water.

In 1985 the water-level was fairly high in the lakes of the Turgay depression and most of the lakes were full by August. The Turgay was separated by a dam from the Chelkar-Teniz lakes so there was no over-spill. Lakes

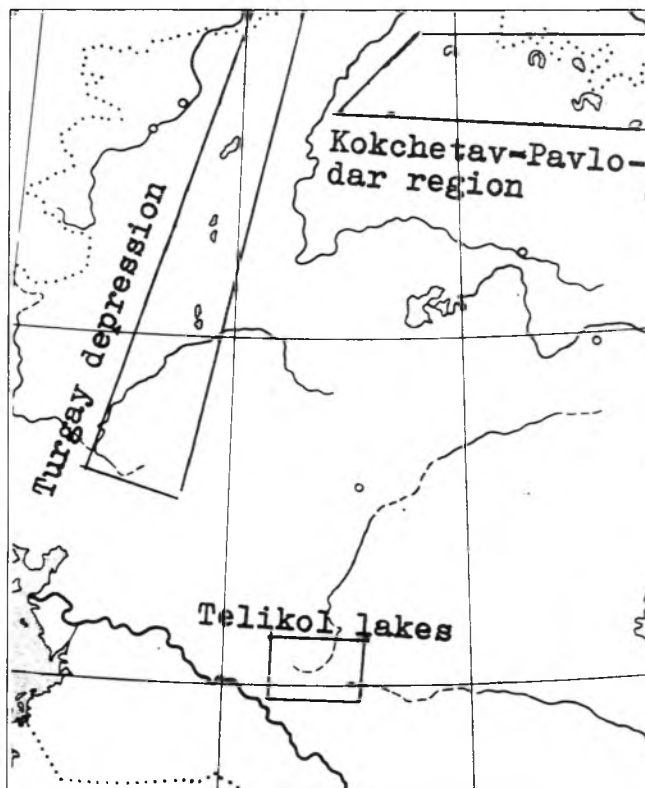


Fig. 1. Map of Kazakhstan showing location of the Turgay depression, Telikol lakes and Kokchetav-Pavlodar regions.

Zhamanakkol and Ashchitasty were dry. In the Telikol region the water level in the lakes was low and almost all the birds congregated in the floodplain of the northeastern branch of the Telikol canal.

In 1987 the water level was high in the lakes. The dam on the Turgay was breached by the spring floods and as a result the Chelkar-Teniz was filled in August. The Zhamanakkol and Ashchitasty lakes partly filled but the water was brackish. Other species of birds congregated on islands near the mouths of rivers, but no swans were seen there.

Results

In 1985, a total of 2,261 swans were recorded for both areas. Unfortunately in the Kustanay region (in the north of the Turgay depression) the species was not determined. Further south, in Sarykop, only three Whooper Swans were recorded. In the whole of the Turgay depression there were only 22 Mute Swan broods, with an average brood size of 3.54 young (Table 1). There were no swans breeding on the Telikol lakes.

Table 1. Number of young in Mute Swan broods.

Year	Number of young								Total	Mean brood size
	1	2	3	4	5	6	7	8		
1985	1	3	7	7	7	2	-	-	22	3.54 +/- 0.56
1987	4	9	17	27	28	16	3	3	107	4.32 +/- 0.29

In 1987, 4,999 swans were recorded, comprising 3,621 Mute Swans, of which 3,159 were adults and 462 were first-year young (in 107 broods) and 345 Whooper Swans (9.8% of the swans of determined species). The remaining 1,033 swans were of undetermined species in large flocks on the vast reaches of the Kushmurun and Sarykop lakes. Whooper Swan pairs were recorded in the northern edge of the study area (the Teniz, Shagly and Kumdykol lakes) but no Whooper Swan broods were seen, although in spring 1984 a pair of Whooper Swans was seen near a nest on the Sarykop Lake (Auevov 1986). We consider that all the swans with broods were Mute Swans. The average Mute Swan brood size in 1987 was 4.32 young (Table 1) which was significantly larger than in 1985.

We consider the August aerial counts in Central Kazakhstan to be approximately 70% complete. From this assumption the number of

swans in the Turgay depression can be estimated to be 3,200 in 1985 and 6,800 in 1987.

Regional distribution

The number of Mute, Whooper and unidentified swans recorded in the various regions are given in Table 2. In the Kzyl-Orda region only 13 Mute Swans were found; three in one of the drying-up Telikol lakes and ten in the floodplain of the overflow of the northeastern branch of the canal. In the Kokchetav-west Pavlodar region swans were recorded only in the west (Kumdykol and Shagly lakes and the flooded areas between them), in the central region (Lake Alabata and the lakes to the east of it) and in the east (Bol Koskal and Selety lakes). There were relatively few swans in this region because most of the lakes were dry, but a large brood size was recorded for the few lakes which were suitable for breeding. Almost half of the Mute Swan adults (47 out of 96) and most of the broods (14 out of 19) were recorded on Kumdykol Lake which is nearest to the Turgay depression. It is unknown why Mute Swans were absent from Lake Shagly, which is overgrown. Other species, such as geese, *Anser spp.*, and cranes, *Grus spp.*, which are more cautious, were relatively abundant on the lake and a pair of Whooper Swans was also recorded.

In 1987 swans were evenly distributed on lakes in the valley of the River Ubagan, in the Turgay depression, with the exception of Lake Kushmrnun. In 1985, 79% (73 out of 93) of the birds were concentrated on the most northern lake, Lake Teniz. In 1984 only one brood was noted there. In 1987 this was the most important breeding area for swans in the region. Growth in numbers and breeding probably occurred because of a considerable increase in the wetland area including inundation of reedbeds.

In 1985 Lake Kushmurun was filled with water for the first time for 11 years. Waterfowl remained on the lake, mainly along the shore edge, since aquatic vegetation was absent from the lake. In 1987 there were more than five times as many swans occupying a 1.5 km. strip along the shore. In 1985 and 1987 both breeders and large flocks of non-breeders, including Whooper Swans, were recorded at the Naurzum lakes in the Turgay depression. Southern and eastern lakes were full of water in both years but Lake Sarymoin was dry in 1985. The increase in numbers of swans in 1987 was largely a result of this lake, although there were more Mute Swans breeding throughout the area.

Table 2 Number of swans on the lakes of Central Kazakhstan.

Area	Year	Ads.	Mute Swans			mean b.s.	% brdrs	Whooper Swans	Swans*	Total Swans
			1st years	broods						
River Ubagan valley	1985	-	5	1	5.00	2.4	-	82	87	
	1987	166	111	26	4.27	31.3	2	-	279	
Kushmurun Lake	1985	-	-	-	-	-	-	170	170	
	1987	61	16	3	5.33	2.5	221	775	873	
Naurzumski Lakes	1985	-	10	2	5.00	0.7	2	551	561	
	1987	496	86	20	4.30	8.1	175	-	757	
Sarykop Lake	1985	292	9	3	3.00	2.0	3	-	304	
	1987	494	67	16	4.19	6.5	128	258	947	
River Ulyzhilanshik (lower reaches)	1985	66	-	-	-	-	-	-	66	
	1987	132	14	2	7.00	3.0	8	-	154	
Turgay & Ul'kayak valleys	1985	1006	54	16	3.37	3.2	-	-	1060	
	1987	1714	81	21	3.86	2.4	-	-	1795	
Turgayskaya Depression	1985	1377	78	22	3.54	?	3	803	2248	
	1987	3073	375	88	4.26	5.7	334	1033	4815	
Telikolskaya System	1985	13	-	-	-	-	-	-	13	
Kokchetav chain of lakes	1987	96	87	19	4.58	39.6	11	-	194	

The 1987 population increase of Mute Swans on the Sarykop lakes was much greater than in the Naurzum lakes and in 1987, unlike in 1985, there were more swans on the Sarykop lakes. This may also be due to a difference in the timing of counts between 1985 and 1987 since the 1987 count was later, when birds would have arrived from the north and may have congregated on Sarykop.

In 1985 there were no broods found on the lower reaches of the River Klyzhilanshik, or on Lake Zhaksyakkol and the adjoining lakes and floodplains. However a nest with eggs was found in June and a brood was recorded in September, which must have remained in the thick reeds during the count. In 1987 twice the numbers were recorded compared to 1985, apparently due to the timing of censuses and the arrival of birds from the north, as indicated by the presence of Whooper Swans.

During both years the Turgay valley was the main area inhabited. The number of swans and broods increased less here than in other areas.

The total number of swans in the Turgay depression was 2.2 times higher in 1987 than in 1985, mainly as a result of an increase in the wetland areas and possibly the arrival of swans from the north. There were four times as many broods and 6.1 times as many young in 1987 compared with 1985. The increase in the total number of breeding birds and breeding success was probably caused by the growth of large reeds, providing good nest sites, as well as the appearance of channels between the edge of the reeds and the shore, on many lakes. These channels protect Mute Swan nests from land predators. There was an insignificant fall in the water level during the 1987 summer, which also contributed to high breeding success since at the end of incubation the nests were surrounded by water.

There was a well pronounced tendency for mean brood size to increase from south to north in 1987, which was slightly evident in 1985. The reason for this phenomenon is not clear due to insufficient data on clutch size.

Reference

Auevov, E.M. 1986. Lake Balkhash - new nesting sites of *Larus relictus* (Lonnb.) for the USSR. *Izvestiya Akad. Nauk kazakh. SSR (Biol.)* 1986: 81. (in Russian).

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