

DISTRIBUTION, TOTAL NUMBER AND CHOICE OF HABITAT OF THE WHOOPER SWAN *CYGNUS CYGNUS* BREEDING POPULATION IN LATVIA IN 2000 – 2007

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Practically in all European countries the increase in number of Whooper Swan is rather fast, and Latvia is not an exception. Currently the number of breeding pairs in Latvia falls only behind Russia, Iceland, Finland and Sweden.

To clarify the Whooper Swan breeding grounds, a greater part of the country's territory was surveyed in 2000 - 2007. Due to the programme of the *Latvian Breeding Bird Atlas* the data had been collected for 2000 – 2004, but for 2004 – 2007 the data were obtained from the project „*The Whooper Swan – Ecology and Protection in Latvia*”. In total the breeding grounds were identified in 172 different locations. Most of the grounds were in the western part of Latvia and only 9.5% of them were found in the Eastern Latvia. Majority of Whooper swan had been breeding in extensive utilisation ponds (50%) and fish ponds (35%).

Key words: Whooper Swan, breeding, fish ponds

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INTRODUCTION

The first information on Whooper swan as a vagrant in Kurzeme environs can be found in historical ornithological publications (Lichtenstein 1829; Goebel 1873). O. Löwis, 1893, wrote that this species had been identified only during its migration period. The author also noted that for some decades Whooper swan had been breeding in the present territory of Kurzeme - in Lake Pape. N. Transehe and R. Sinat (1936) mentioned that Whooper swan had been identified during the vagrant-migration period when some hunter luckily happened to shoot this bird.

The first reliable evidence on Whooper swan breeding was obtained in 1973, when a nest with

eggs was found in Krauze's fish pond in Kazdanga, the environs of Liepāja district. Several years on three nests were found in fish (Baumanis 1980).

During the making of first *Latvian Breeding Bird Atlas 1980 – 1984* the number of the breeding pairs had increased up to 10 – 20, thus denoting to increasing. The breeding was mainly identified in fish ponds of the eastern Latvia, however, single individuals or pairs were also noticed in the eastern part of Latvia, including Pielubana Marsh (Fig.1) (Priednieks, et. al. 1989).

In 1987 in the western part of Latvia 6 nests and 6 non-breeding individuals had been identified and recorded (2 pairs and 1 individual in 2 different places). The breeding in the eastern

Latvia was believable because 1 individual travelled to feed in fish ponds near Lake Lubana (Lipsberg 1990).

Over the last decade the number of Whooper swans had significantly increased and in 2004 it reached approximately 150 pairs (Boiko 2005). Their number continues to grow also in the eastern part of Latvia (Fig.1). Thus in 2003 the number of the breeding pairs in the fish ponds near Lake Lubana grew up 10 pairs (J.Baumanis pers.info.) The breeding has been identified and recorded also in other parts of eastern Latvia, for example, in Teicu Marsh in 2003 a nest without eggs was found (A.Avotins pers.info.).

MATERIAL AND METHODS

Data collection on breeding (population) habitat distribution

During 2004, 2005, 2006 and 2007 the author collected the data on Whooper swan breeding in Latvia. Over that period, i.e. from 1 April to 31 August, 31 expeditions have been carried out to find and verify the breeding grounds of this species. The basic data were taken from the project “*The Latvian Breeding Bird Atlas 2000 – 2004*” whose authors in 2004 have provided 52 records on Whooper swan breeding.

In order to obtain more information on the distribution of Whooper swan, the Latvian public was respectively instructed. A brief information as well as the request to provide evidence on the breeding grounds of this species was advertised in mass media, for example published, in the journals “*MMD*” (No.2, 2004; No. 11, 2004); “*Vides Vestis*” (No.4, 2004; No.12, 2005), “*Putni daba*” (the journal of the Latvian Ornithological Society).

BirdWatchers were asked to fill in special questionnaires and send them to the author. Additional information was inserted in the home page of the Latvian Ornithological Society www.lob.lv (May – July 2004).

However, aware that the society usually has a low responsiveness as well as that most

respondents might confuse Whooper swan with Mute swan to avoid misunderstanding, it was asked that the questionnaire was delivered during the summer, just after the chick hatching, with a view that the author could visit the identified grounds and on the spot could get convinced about the facts as well as get more precise information.

In order for the search for breeding grounds to be more fruitful, the data on Whooper swan breeding were taken from the project “*The Latvian Breeding Bird Atlas 2000 – 2004*” of the Latvian Ornithological Society. Within the framework of this project the territory of Latvia was divided into 5x5 km squares and in special inquiry forms the data about all the bird species identified over the breeding season were recorded. Whooper swan was one of the species had to provide additional information on breeding habitat, exact grounds and number of chicks.

In 2005 – 2007 when a single individual or pair in the habitat suitable for breeding was identified (according to indications: the nest found, family with non-flying cygnets) the following information was put down in the inquiry form: date; district, parish, name of the water body, breeding habitat, number of cygnets in a hatch, probable disturbance factors. Each breeding ground was surveyed as frequently as it was possible, almost twice a season to get the main idea on breeding development.

Characteristics of the breeding habitat

Each water body where Whooper swan breeding (a nest found or adult birds with non-flying cygnets observed) was identified and proved, the type of its habitat was recorded: extensive utilisation pond, fish pond, beaver dam, lake.

Find below a brief description of Whooper swan main breeding habitat (fish ponds, extensive utilisation ponds, beaver dams):

Fish ponds are usually set up for market fish breeding. Mostly these ponds are extensive, comparatively shallow (depth from 1- 2m) with a

various scrub outgrowth range. Pond waters are purposefully regulated. They are frequently inundated in spring (March–April) and emptied in autumn (September–October). These ponds are usually good for water bird breeding and feeding. Whooper swan builds its nest in reeds, on small islands or shallow open water.

Frequently in these ponds fish are being by-fed and according to the kind of fish food and the feeding method there could be a possibility for water birds, including swans, to get some additional food. For example, in Skrunda, Rimzati, etc. fish ponds.

The extensive utilization ponds like fish ponds are artificially made water bodies where the fish of small volumes is harvested or angled. The ponds are also used for hunting. However, they differ because the water level is not artificially regulated. Their hydro-eco-system is closer to the natural one. Water remains in these ponds all the year round. The depth could be on average 0.5 - 2.0 m. These ponds have middle or big-size scrub extent thus providing good conditions for water bird breeding. The ponds are abundant in food and chicks can easily hide in the scrubs.

Beaver dams are usually small, severely overgrown water bodies of fluctuating water level. In springs the water level could be very high or vice versa – very low if spring floods have broken through the beaver dam or the dam has been destroyed with a view to preclude the flooding of the forest stand. Generally, in beaver dams there are fallen trees and bushes as well as rather rich above-water vegetation that ensures good feeding conditions for water birds.

RESULTS AND DISCUSSION

In 2000 – 2007 information on 172 different breeding grounds of Whooper swan was received.

Distribution of the breeding grounds by districts: Liepaja district – 43, Kuldiga district – 38, Talsi

district – 24, Saldus district – 24, Ventspils district – 10, Tukums district – 9, Rezekne district – 6, Dobeles district – 6, Aizkraukle district – 2, Riga district – 2, Valka district – 2, Cesis district – 2, Valmiera district – 1, Balvi district – 1, Ludza district – 1, Ogre district – 1 (Fig.2).

Whooper swan nests or hatches have been identified in the following habitats: extensive utilisation ponds – 71 (50%), fish ponds – 49 (35%), lakes – 9 (6%), beaver dams – 9 (6%), inundated peat fields – 2 (1.4%), marshes – 1 (0.7%), gravel-pits – 1 (0.7%), (Fig.3).

From the end of March till the end of June 2000 – 2006 some single individuals and pairs have been identified in different habitats suitable for breeding (Fig.4). This situation does not completely reflect the total number of non-breeding birds in Latvia's water bodies, but in several places where single individuals had been identified the Whooper swan could also breed. It is possible that at the moment of observing a nest was not noticed and only one or both individuals of the pair had been seen.

Believable breeding has been observed in the following habitats: extensive utilisation ponds – 35 (44%), fish ponds – 17 (21%), lakes – 10 (12.5%), beaver dams – 9 (11.2%), inundated peat fields – 5 (6.3%), rivers – 4 (5%) (Fig. 4)

It is interesting to mention that in both occasions, as for distribution and as for habitats chosen, the situation is almost identical to the proved breeding one. For example, believable breeding in 65% occasions has been identified in extensive utilisation ponds and fish ponds (the proved breeding in extensive utilisation ponds and fish ponds has been identified in 85% of the occasions). The ratio of beaver dams and lakes has increased: from 6% and 6% to respectively 11.2% and 12.5%. Believable breeding in gravel-pits has not been identified however it has been identified in rivers.

The same concerns the distribution: in the eastern part of Latvia the breeding has been proved in 17 squares but the believable breeding

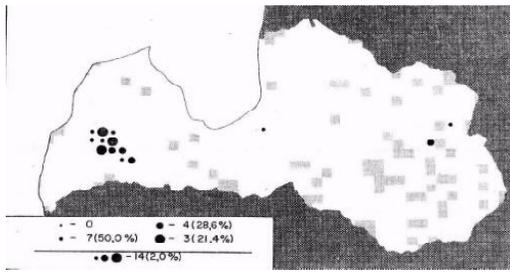


Fig. 1. The Map of Whooper swan *Cygnus cygnus* distribution in breeding period 1980–1984 in Latvia (Priednieks, et. al., 1989).

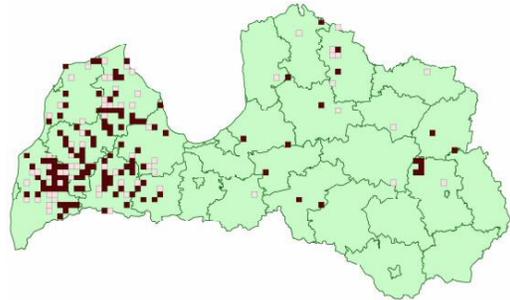


Fig. 2. Whooper swan *Cygnus cygnus* breeding grounds in Latvia in 2000 – 2007 (black squares – proved breeding, white squares – believable breeding).

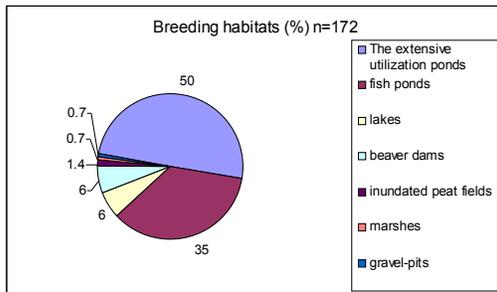


Fig. 3. Whooper swan *Cygnus cygnus* breeding habitats in Latvia for 2004 – 2007 in percentage.

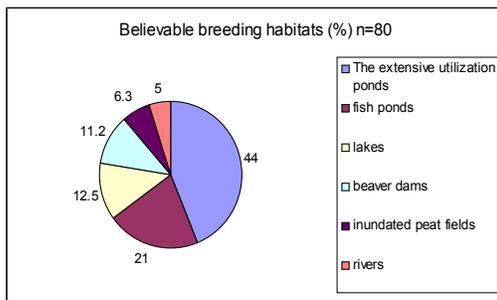


Fig. 4. Whooper swan *Cygnus cygnus* believable habitat in Latvia during 2000 – 2007 in percentage.

has been identified in 13 squares (Fig.3). Out of the rare and sporadic encountering species Whooper swan has become a rather widely distributed bird that ousts Bewick swan even from its taiga and tundra breeding areas (B.Laubek pers. info.). In Latvia's conditions Whooper swan often ousts Mute swan, who is of a bigger size, from its breeding grounds (Cramp, et al., 1994; Dementiev, et al., 1967; Rees & Einarsson, 1996). The author has never come across such inter-species conflict, but according to the information provided by other ornithologists (R.Rekmanis, J.Viksne pers. info.) there is a gradual withdrawal of Mute swan from the breeding grounds in the western part of the country (Liepaja, Talsi and Kuldiga districts). Initially Mute swan inhabited only the northern Palearctic areas, later Whooper swan, atypically for this species, began to conquer territories beyond the usual area. Due to insignificant mortality rate, aggressiveness, fast development of chicks and good survival abilities, Whooper swan distributed fast from the northern Finland to the southern, southern-western part (Haapanen, et al., 1991). Thus they from a rare breeding bird have become a frequently encountered species (Haapanen, et al., 1991). The biggest increase in the number of breeding pairs has been recorded in 1950. (Haapanen, et al., 1973; Nilsson, et al., 1998; Bianki, 1981) that might be explained by Whooper swan breeding in other countries (Poland, Lithuania, Latvia) where the first nests had been found in 1970's (Baumanis, 1975; Kawenczynski, et al., 1976, quat. by Haapanen, 1991). Most probably during the migration some single individuals or pairs stayed for summering in these countries (Latvia included), not having reached their breeding territories in the north of Russia and in Finland, so later they started breeding by developing separate small populations.

In standard distribution area of the species in Finland (Haapanen, et al., 1977) and in the north of Russia (Bianki, 1981), Whooper swan is breeding in marshes. According to the data of 2000 – 2007 being at the author's disposal, the breeding in Latvian marshes has been proved only in Kacoru marsh. As to the author's

information, 50% of all the breeding grounds were found in extensive utilisation ponds and fish ponds – 35%. In the habitats of the same kind Whooper swan has been observed breeding 20 years ago also in Latvia (Baumanis 1980; Lipsberg 1990). In Poland and Germany they mostly bred in fish ponds (M. Wieloch and A. Degen, pers. info). It is interesting to add that in Estonia Whooper swan breeds in high marshes (43% of the population), eutrophic lakes (31 %), coastal lakes and bays (26%) (Luigujoe, et al., 2002); in Finland in marshes, wetlands, oligotrophic, eithrophis, methothrophic lakes, including the ones surrounded by forests and in ponds (Haapanen, et al., 1977). Thus starting from Latvia and more towards the south Whooper swan mostly prefers artificial water bodies.

In Latvia over the last 25 years the number of pairs had increased, starting from 80's when there were 10 – 20 breeding pairs (Priednieks, et.al., 1989.), up to 170 – 200 pairs in 2007. It means that over the 20 years' period the number of the breeding pairs has increased approximately 15 times. Yet even now, similarly as it was 20 years ago, Whooper swan as a breeder is mainly met only in the western part of Latvia (Liepāja, Kuldīga, Saldus, Talsi and Tukums districts). It could be explained by sufficient amount of habitats (fish ponds and other ponds). We cannot forget the beavers' role in the development of the habitat suitable for Whooper swan breeding. At present solely 9.5% of the total population are breeding in the eastern part of the country (mostly in Nagli fish ponds). In authors' opinion in the future the maximum number of the breeding pairs in Latvia might attain 300 pairs. In Sweden since the beginning of the last century up to nowadays the number of Whooper swans has increased from 20 to 3800 pairs, i.e. over a hundred years - 190 times (Axbrink 1999, quat.by Nilsson, 2002).

CONCLUSIONS

In years 2000 – 2007 about 170 – 200 pairs of Whooper Swans where breeding in Latvia. The number of breeding pairs slowly increases.

About 91,5 % of Latvian breeding population were found in western part of Latvia.

In years 2000 – 2007 Whooper Swans in Latvia selected habitats made by humans (ponds (50%) and fish ponds (35%)) for breeding

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