

The size of the flocks observed varied greatly, the largest consisting of 115 individuals. The average flock size is nine swans, but most of the flocks are smaller than average. Many of the swans seem to migrate in pairs (see Fig. 4). Often there are special migrating periods, a morning, an afternoon or sometimes even a few days, when large numbers of swans migrate. On May 1, 1958, for instance, 343 swans were observed during the morning.

The main direction of migration in the region of Helsinki seems to be north-east. Some of the numerous exceptions may occur because the flocks seem to avoid flying straight over the city.

Selostus: Lauujoutsenen (*Cygnus cygnus*) kevätmuutosta Helsingin retkeilyalueella vuosina 1950—61.

Esitys on yhteenveto Helsingin retkeilyalueen lintujenharrastajien joutsenhavainnoista. Aineisto käsittää yli 5 000 joutsenta 11 vuoden (1950—1961) ajalta. Vuosina 1958 ja 1960 on havaittu yli tuhat joutsenta. Tutkitun ajanjakson alkupuolella niitä nähtiin vähemmän kuin vuoden 1956 jälkeen (taulukko 1).

Muuttoaika vaihtelee eri vuosina huomattavasti (taulukot 2 ja 3). Tutkittavan ajanjakson aikaisimpana keväänä ensimmäiset joutsenet saapuivat kuukautta aikaisemmin kuin myöhäisimpänä keväänä. Koko kevätmuutto kestää yhdestä kahteen kuukauteen, vaikka päämuutto tapahtuukin muutamassa päivässä. Muuttoaikojen suuresta vaihtelusta huolimatta on laskettu joitakin mediaanipäivämääriä: muuton alkaminen 7. IV, päämuutto 24. IV ja muuton päätyminen 6. V. Joutsenten muuton alkamisen ja kymmenen muun aikaisen muuttajan tuloaikojen välillä on havaittu merkitsevä korrelaatio.

Parvien koko vaihtelee sekini suuresti. Suurin parvi on 115 yksilöä, keskiarvo on yhdeksän yksilöä, mutta useimmat parvet ovat kooltaan keskiarvoa pienempiä. Monet joutsenista muuttanevat pareittain (ks. kuvio 4). Useimpina vuosina on esiintynyt joukkomuuttoa, joka on kestänyt aamun, iltapäivän tai joskus jopa useamman päivän. Esimerkiksi 1. V. 1958 havaittiin aamun kuluessa 343 muuttavaa joutsenta.

Päämuuttosuunta Helsingin retkeilyalueella näyttää olevan koillinen. Eräät lukuisista poikkeuksista saattavat johtua siitä, että parvet välttävät keskikaupungin yli lentämistä.

The Crested Tit on the Åland Islands

LARS VON HAARTMAN

The Crested Tit (*Parus cristatus*) is notorious for its reluctance to cross open spaces. For instance, unlike the other tits, it is hardly ever seen in the isolated parks of Helsinki (Helsingfors) (PALMGREN 1927, LINKOLA). I myself have seen it only once (end of August 1962) in the isolated little park of the Institute of Technology, despite walking by with my dog about twice a day every autumn, winter, and spring.

This peculiarity of the species is obviously the main cause of its

absence or extreme rarity on many of the isolated islands in the Baltic. The following survey presents a short summary of what is known about the occurrence of the Crested Tit on these islands:

Hailuoto (Karlö). Isolated from the coast of the Finnish mainland by about 10 km of open sea. MERIKALLIO (1958) records two nests, in 1931 and 1953, the first one based only on egg identification. Moreover, the species has been seen at other times. On a ten day expedition (July 1947), H. Ahlqvist, the present author and other naturalists, did not see the species at all (AHLQVIST 1948—49). The relatively common occurrence, on the island, of a species like the Song-Thrush shows that there are enough suitable habitats for a resident population of the Crested Tit to nest.

Suursaari (Hogland). The distance from the Finnish coast is about 40 km. The bird fauna was carefully censused by VÄLIKANGAS (1937) assisted by Mr. J. Grönvall, but no Crested Tits were found. According to Mr. Grönvall (personal communication), the late J. Snellman saw the species on some occasion outside the breeding season.

Gotland. Distance from the Swedish coast about 80 km. The Crested Tit is reported to nest in a small area (Lina myr and surroundings, WAHLIN according to DURANGO), but no nest has been found, and DURANGO has never seen the species on the island, nor on the island of Fårö immediately north of Gotland.

Öland. Distance from the Swedish coast, at the narrowest point, only about 4 km. The Crested Tit occurs in the north of the island, which probably offers it the only suitable habitats.

Borgholm. About 40 km from the Swedish coast. The Crested Tit is not found.

Ösel and Dagö. About 20 km from the Soviet Estonian coast, the distance being partly bridged over by interjacent smaller islands. The Crested Tit does not nest (KUMARI).

The Danish islands. In the 1890's the Crested Tit (subspecies *Parus cristatus mitratus*) probably first nested on the Danish mainland, Jutland. Since then, it has spread rapidly in Jutland, and, from here, has reached the island of Fyn (distance from Jutland only about 2 km), where it has been found nesting at different places since 1926. On the other Danish islands the Crested Tit is entirely unknown. »The most obvious explanation of the immigration and distribution of the crested tit in Denmark is the large plantations of coniferous trees which have grown up during the last 50—60 years» (JESPERSEN 1944).

The main island of Åland is isolated from the Swedish coast by about 45 km, and from the Finnish coast by about 75 km of water. On the Finnish coast, but not on the Swedish side, there is an archipelago of islands of various sizes, which seemingly forms a nice bridge for the Crested Tit to cross. Notwithstanding, the bird was unknown as a nesting species until quite recently. J. Montell wrote about or just before 1900 (in the Archive of Palmén at the Zoological Museum of the Helsinki University): »Not observed in the summer. In some winters it occurs relatively numerously» (this, and a few other quotations in the text have been translated by me). The note bears a superscription, not written by the author, according to which it refers to the commune of Geta but my guess is that it refers to a larger area, although centred around Geta.

PALMGREN (1927) had observed the species six times in the Åland archipelago: twice at Ingersholm in Kumlinge, 3 times in the archipelago of Föglö, and once (10. VII. 1926) at Lumpoby in Lumparland. All these places are east of the main island of Åland, although Lumparland is practically connected with it, the separating canals being negligible even according to the standards of a Crested Tit. To these observations has been added a general statement about a rare occurrence in the commune of Vårdö, also east of the main island of Åland (Paul Olofsson, according to PALMGREN 1927). Until 1932, this situation was not changed in the Åland archipelago (PALMGREN, oral communication).

Neither did J. Snellman, another eminent connoisseur of the bird fauna of Åland, know the Crested Tit as a nesting species in the 1910's and 1920's, stating that it was observed »on the main island of Åland only a couple of times in the winter» (see PALMGREN 1927). Two years later (1929) SNELLMAN summarized the situation as: »Very rare on the main island of Åland, more common eastwards».

In 1951, I stated that »the Crested Tit is, perhaps, rather more widespread than has hitherto been believed» (v. HAARTMAN 1953). Two observations were made on the main island of Åland, both of them at Eckerö, the westernmost commune of Åland. One observation (11. VII. 1949) probably concerned a family. Further studies have revealed that the Crested Tit nowadays occurs practically everywhere where enough large spruce or pine forests are found. A good illustration of this was afforded by a trip by car which I undertook on 18. VII. 1962 from Mariehamn to Skarpnåtö in Hammarland. In all, I left the car 6 times

to search for Crested Tits, and every time managed to find them in less than one hour, mostly in about half an hour.

It is true that the studies were carried out after the nesting season of the Crested Tit (which is very early, the young becoming fledged at the end of May or beginning of June), but as some of the observations obviously concern families, and the species is very stationary, the finds probably give some indication of the distribution of the tit as a nesting bird. In the following list all observations, including those of 1962, are given. Many of them have been made on sailing trips, the bird either being seen close to the places where I landed, or heard from the boat. A number of colleagues have aided me on these trips: K. V. Abrahamsson, M. A., N. Backlund, M.A., Dr. and Mrs Bill Drury, South Lincoln, Mass., and Prof. B. J. Wikgren. I am especially grateful to the late Prof. Alvar Palmgren, with whom I made my first excursions on Åland.

Kumlinge

1957. 14. VII. Heard from the north shore of Bärö.

1961. 21.—22. VII. The main island of Kumlinge: near the road from the landing-stage in northwest to the village at 4 different places.

Föglö

1949. 4. VII. Ekholm west of Degerby a family (v. HAARTMAN 1953).

1956. 16.—17. VII. Degerö: at 5 different places.

1957. 5. IX. Sandö north of Degerö: a number of individuals on one place.

Vårdö

1957. 15. VII. Main island of Vårdö, Grundsunda southwest of Österholm: heard. — 15. VII. Grundsunda, southernmost point: heard. 15. VII. Töftö, southernmost point: a family. — 19. VII. Ängö, near Lumparland: found at 2 different places together with other Titmice.

Lumparland

1958. 7. VII. At the landing-stage of the Föglö ferry on Svinö: seen. — 8. VII. About 500 m north of the above-mentioned place: seen. — 8. VII. Svinö 1.8 km from the landing-stage, 200 m east of the road: heard.

1962. 5.—13. VIII. Norrboda: about half a dozen observations (the society «Luonto» through Kauri Mikkola). These observations are not mapped in fig. 1.

Lemland

1958. 7. VII. About 2 km east of the turning from the main road to Bistorp: a few Crested Tits together with Willow-Tits.

1959. 25. VII. The peninsula of Herrö, about 4 km north of the southernmost point, along the road: observed.

Sund

1961. 20. VII. Domarböle: Crested Tit in the company of Willow- and Coal-Tits and Gold-

crests. — 20.—21. VII. Bomarsund: observed at 3 different places between Notviken and Prästöundet. — 7. VIII. Bomarsund, the fortification of Notviken: observed.

Salvik

1959. 23. VII. Hjortö north of Germundsö: Crested Tit observed together with Goldcrest, Willow-Tit, Spotted Flycatcher, Redstart, and Siskin. — 23. VII, 150 m southwest of the above-mentioned place, at least 3 Crested Tits.

Jomala

1958. 8. VII. Between Önningeby and Kalmare in dense spruce-forest Crested Tit, Coal-Tit and singing Willow-Tit. — 8. VII. The road Önningeby-Jomala at the turning to Österkalmare, at least 3 Crested Tits with a family of Great Tits. — 22. VII. Immediately west of Ulfby near the turning to Södersunda and Norrsunda: Crested Tit and many Willow-Tits. — 13. VII. A family of Crested Tits at the Hotel Hjorten, town of Mariehamn (H. Ahlqvist, oral information).

1962. 18. VII. About 1 1/2 km west of Odanböle: family. — 18. VII. About 1 km southwest of the above-mentioned place: a number of Crested Tits, in company with Willow-Tits and Goldcrests.

Finström

1959. 23. VII. Immediately north of Bastgärda west of Germundsö: Crested Tit, with Willow-Tits and Goldcrests.

Geta

1959. 23. VII. Getabergen, close of Grotta: at least 2 Crested Tits in company with Coal-Tits. — 23. VII. Getabergen Djupvik: Crested Tit and Willow-Tit. — 23. VII. On the other side of Djupvik, 200 m east of the above-mentioned place: Crested Tit and Willow-Tit and Wood-Lark. — 23. VII. 750 m south of Sollentuna: Crested Tit with many other species (Willow-Tit, Chaffinch, Spotted Flycatcher, Pied Flycatcher, Song-Trush, Mistle-Trush).

Hammarland

1962. 18. VII. At the road to Strömna and Skarpnätö, west of Ivarskärsfjärden: Crested Tit and Goldcrest. — 18. VII. West of Bodafjärden, immediately west of the road Näfsby-Postad: Crested Tit, with Willow-Tit and Coal-Tit. — 18. VII. Immediately east of Drygsböle Långträsk: at least 2 Crested Tits together with Great Tit, Chaffinch, Pied Flycatcher and Redstart. — 18. VII. 2 km south of Hellerby, 3 km westsouthwest of Västermyra: Crested Tits and Willow-Tits.

Eckerö

1949. 11. VII. Degersund, southeastern part of Eckerö: Crested Tits, probably a family (v. HAARTMAN 1953).

1951. 12. VIII. South of the harbour of Eckerö (Valberget): one Crested Tit (v. HAARTMAN 1953). — 23. IX. Ornithological Station of Signilskär: one Crested Tit (Lars Holmberg according to LINKOLA). Signilskär is an isolated island about 9 km west of the main island of Åland. The occasional occurrence of the species here is somewhat unexpected, but it has been found a couple of times even on Helgoland (GÄTKE).

The observations are mapped in figure 1. One may wonder why the Crested Tit has been held up until quite recently by the comparatively narrow open waters between the coast of southwestern



Fig. 1. The distribution of the Crested Tit in the Åland archipelago. □ = observations before 1927 (PALMGREN), ○ = observations during and after 1949, — = the limit of the pine-forest (the limit of the spruce-forest runs, in most places, inside this limit) (SKULT).

Finland and Åland. This distance, as stated before, is about 75 km but is spanned by a large and, in most places, relatively dense archipelago.

But as PALMGREN (1927) has pointed out, the central part of this archipelago lacks coniferous forest¹ and therefore does not help the Crested Tit very much in moving towards Åland. No doubt the Crested Tit long ago occupied the archipelago of Iniö and Houtskär on the eastern border of the central marine archipelago. From here, the distance to Kumlinge, which forms an enclave of pine forest, is no more than 20 km, from Kumlinge, again, about the same to Vårdö and Föglö immediately east of the main island of Åland. These distances the Crested Tit had already covered by 1926. The final, much shorter step from Föglö or Vårdö to the main island, or islands, more or less directly

¹ According to SKULT both pine and spruce, in earlier times, have been more wide-spread in the southwestern archipelago than now. The matter is, however, somewhat controversial (See BACKMAN, Acta Societatis pro Fauna et Flora Fennica 1955, 72:1).

connected with it, was obviously taken at one spot (Lumparland 1926, PALMGREN).

Owing to the post-glacial land-elevation, the waters separating Åland and the mainland were at one time considerably wider than they are now. The rate of land-uplift in this part of the archipelago is about 50–60 cm a century (RENVIST). Only 3000 years ago not much was visible of the archipelago now bridging the space between Åland and the Finnish mainland, and the main island of Åland itself was considerably smaller and certainly more barren than at present. The human settlements in Kumlinge and Brändö, however, are known to have been relatively unchanged since at least the 14th century, which PALMGREN (1927) considers a proof that the geographical conditions for land birds have been relatively similar to the recent ones. But only in the last 30 years has the Crested Tit been an inhabitant of the main island of Åland, or islands connected with it.

When once the first pioneers reached the main island, the matter was settled. No province in southern Finland has more needle forest in relation to its area than Åland. Here, the niche (see HAFTORN) of the species was unoccupied, and there was, to begin with, no limit to the population rise. Today, it is hardly possible to consider the Crested Tit more common in the eastern parts of Åland than in the west; it seems to be common everywhere. Of course, a census of the tits of Åland would be very desirable.

In view of the situation in Åland, it is difficult to understand why the Crested Tit, having reached Hailuoto and Gotland, has not been able to multiply very rapidly in these places.

The immigration of the Crested Tit into Åland took place simultaneously with a very striking northward movement in Finland. Since about 1930 its northern border has advanced about 3 latitudes (LEHTONEN in LEHTONEN and RAITASUO, *cp. fig. 2*). In Sweden, likewise, there has been a spread northwards (DURANGO). This movement is probably connected with the amelioration of the winter climate, which has been very striking since the end of the last century (KALELA). This amelioration probably made the northern areas inhabitable whilst at the same time the population pressure in the original areas increased owing to reduced losses during the winters. As KALELA has pointed out, there have been several warm periods taking the place of cold periods in the last 6 or 7 centuries. It is therefore likely that the northern border of a number of species has oscillated many times (KALELA). With the Crested Tit it is almost certainly so.

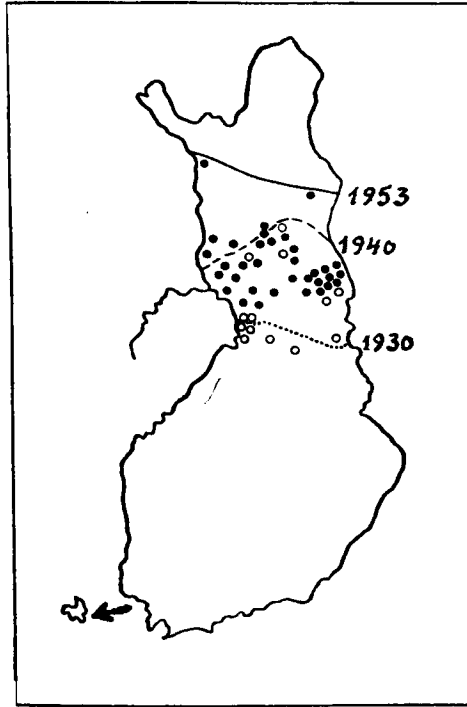


Fig. 2. The northward expansion of the Crested Tit in Finland (LEHTONEN, somewhat modified). ○ = the northernmost observations in 1930–40, ● = the northernmost observations after 1940, = the limit of the distribution before 1930, - - - = in 1940, — = in 1953.

Before 1930, both EKMAN and PALMGREN had difficulty in understanding the immigration route of the Crested Tit into Sweden, as the Swedish distribution seemed to be completely isolated from the main range of the species. The Danish islands lacked Crested Tits, and Jutland had only few, belonging to the subspecies *mitratus*, instead of the nominate subspecies of Sweden and Finland. The main island of Åland was not yet occupied, and north of the Gulf of Bothnia the Swedish and Finnish distribution areas did not reach each other. It is likely, however, that the Crested Tit, in earlier warm periods, had reached the areas north of the Gulf of Bothnia and was able, in this way, to invade Sweden.

The warm winters may have had some influence upon the immigration of the Crested Tit into Åland. After a warm winter the population is higher, the chances of emigration being, thus, »mechanically» greater. Besides, higher population pressure probably causes active expansion.

Summary

Until 1926, the Crested Tit was not found nesting on the main island of Åland but occurred in the archipelago east of this island. Outside the breeding season a few Crested Tits were recorded. In 1926, one observation, indicating nesting, was made at an island practically connected with the main island of Åland.

Since 1949, the author has found the species at about 50 places both on the main island and in the eastern archipelago of Åland. It must now be considered a common bird in the entire province.

The immigration of the Crested Tit into Åland has been slowed down by the waters separating Åland from the Finnish mainland. The gap is filled by a large archipelago, but the central part of this archipelago is unsuitable for the species, as it lacks needle forest.

On once reaching the main island of Åland, the Crested Tit has spread extremely rapidly (mainly between 1932 and 1949).

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