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The distribution of the Southern Dunlin (*Calidris alpina schinzii*) in Finland

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Until recent years the ornithologists have been short of knowledge concerning the breeding of the Dunlin in Finland. From the turn of the century there are a few breeding observations of these West-European races, *Calidris alpina alpina* and *Calidris alpina schinzii*, but in this century the breeding of the species was unproved for a long time. It was not until recent time that the belonging of the nominate race to the fauna of northernmost Finland was proved (MUSTAKALLIO 1960; H. Laine pers.comm.), and it was less than only twenty years ago that the Southern Dunlin was refound breeding on the coast of South-West Finland.

Our first knowledge of the Southern Dunlin is based on the two nests, now in an egg collection, which were found in 1886 and 1890 at Taivassalo, South-West Finland (HORTLING 1929–31). The collector has not given any definition of the race, but the time and the southern locality of the observations show clearly that the birds in question were Southern Dunlins. Since the breeding in the 1940's was proved once again, several breeding localities were revealed in a short time and until the year 1963 thirteen of them are known. In the following list all the observations from this century known to me, also mapped in fig. 1, are given:

1. Mietoinen, the estuary of the river Laajoki

1942 12. VI and 1947 5–6 and 5–7 birds, respectively, probably breeding (R. Tenovuo pers.comm.), 1948–50 4–5 pairs (MERIKALLIO 1955), since 1950 4–7 pairs (MERIKALLIO 1958), 1957–59 4–6 pairs (the author), 1961 11–12 pairs (E. Joutsamo; O. Kivivuori pers. comm.).

The estuary of the river Mynäjoki, near the previous area: 1 pair during several last years (T. Laine; O. Kivivuori pers. comm.).

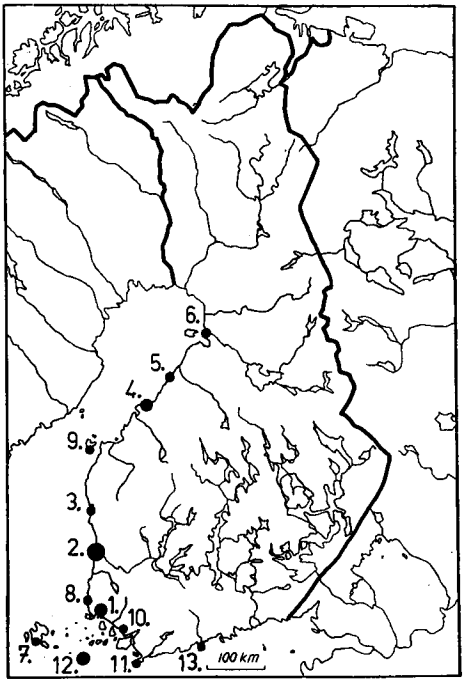

Fig. 1. The known breeding grounds of the Southern Dunlin (Calidris alpina schinzii) since 1940's in Finland. Points of small, medium and large size indicate 1—5, 6—15 and more than 15 pairs respectively. The figures refer to the list on pp. 13—15.

2. The coast outside Pori

1945 1 nest (Y. Sartomaa pers.comm.), 1947 4—5 pairs, 1948 5—6 pairs, 1949 5—7 pairs (Klemola 1950, Raitasuo 1949), 1951 8 pairs, 1952 5 pairs, 1953 7 pairs (A. Kaukola; I. Lilja pers.comm.), 1954 10 pairs, 1955 14 pairs, 1956 10—14 pairs, 1957 11 pairs, 1958 14—15 pairs, 1959 16—17 pairs (A. Kaukola pers.comm.; the author), 1960 28—35 pairs, 1962 48—58 pairs, 1963 60—70 pairs (the author).

3. Kristiina, Sandbergsgrynnan

1955 probably breeding (Johansson 1955).

4. The coast outside Kokkola

1956—63 1—3 pairs on Rummelö, 1956 1 pair and 1963 2 pairs at Laajalahti in Kruunukylä, 1963 1 pair on the estuary of the river Perho (R. Casén pers.comm.).

5. The estuary of the river Kalajoki

1957 28. VI 1 pair (Hildén 1958), 1963 no birds seen, the habitat has dryed since 1957 (O. Hildén pers.comm.).

6. The islet Laaja near Oulu
1957 1 pair (HILDÉN 1958), 1962 3 pairs (R. Hissa pers.comm.).

7. Maarianhamina, Möckelönlahti
(1957 ?) 29. V 1 pair (RÄSÄNEN 1957).

8. Uusikaupunki, Kytämäenlahti
1959–60 1 pair, 1961 no birds seen (R. Blomqvist/U. Laine pers. comm.).

9. The archipelago of Vaasa, Södra Björkö
1959 1 pair (H. Katajisto/R. Hissa pers.comm.).

10. Paimionlahti
1959 1 bird performing mating flight, 1960 3–4 pairs (E. Joutsamo pers.comm.), 1962 2–3 pairs (the author).

11. Täktom
Before 1961 some birds seen, 1961 2–3 pairs, 1963 3 pairs (G. Bergman, P. Palmgren, K. Vepsäläinen/P. Saurola pers.comm.).

12. Korppoo, Jurmo
1961 2–3 pairs, 1962 4–6 pairs, 1963 6 pairs (»Turun Lintumiehet» pers.comm.).

13. Helsinki, Santahamina
1957 25. V one nest found (B. Kumlander/H. Ahlqvist pers.comm.).

In Finland the Southern Dunlin does not breed in inland as elsewhere in its distribution area. The breeding is concentrated to the west coast, which is due to the appearance of suitable meadows for breeding in this area. Large meadows on the coast with short vegetation and comparatively dry soil, often stony and sandy, are the habitat of the Southern Dunlin in Finland. The lack of the race on the Swedish coast across the Gulf of Bothnia is astonishing (Förteckning över Sveriges fåglar). Although the coastal topography is there different from that of Finland, the deltas of the rivers might also there be suitable for the Southern Dunlin.

The recent quantity of the Finnish population is not easy to estimate. MERIKALLIO (1958) estimates the Finnish Dunlin population (including the nominate race) to be 30 pairs. In the known localities more than one hundred pairs can be counted to breed, but there are certainly some more unknown nesting places.

From experience I know how difficult it is to observe the Southern Dunlin on an open meadow. The ornithologists visiting my area of research generally notice only a few specimens, although this area, covering ca $^1/_2$ km^2, inhabit ca 25 pairs. A temporary observer easily ignores the nesting of some pairs and the number of pairs estimated on the basis of the birds seen is apt to be too small.

In my opinion, the mere population of the Southern Dunlin in Finland was at the beginning of the 1960's 150—200 pairs.

Distributional changes in the Finnish population

The finds of nests from the end of the last century show the fact that the Southern Dunlin has been breeding on the south-west coast of Finland for many years. Discovering a nest is so difficult that the number of the breeding birds must be several pairs at least.

In the 1940's the population is steady in two areas, at Mietoinen and on the Pori coast. For resolving the problem of the possible resettling of the Southern Dunlin in this country in the 1940's it is reasonable to observe the knowledge of the population inhabiting the Pori coast. The following table shows the various meadows from which there are observations on breeding and the number of pairs as well:

	1945	1947	1948	1949	1951—57	1958—59	1960—62	1963
meadows	1	2	2	4	6	7	9	10
pairs	1	4—5	5—6	5—7	5—14	14—17	28—58	60—70

Both the number of breeding grounds and that of pairs prove that there has been a rapid continued growth in the population. We have to consider that the rapidity of the growth has, however, been ostensible and is due to the fact that in the 1940's this area has, from ornithological point of view, been insufficiently investigated. The specimens of the 1940's mainly consist of birds inhabiting one single meadow (Levo), which is nowadays inhabited by 2—3 pairs only. Among the present time observations there is only one pair both from the meadow of 25 pairs (Eteläranta[1]) and from that of 12—15 pairs (Fleiviiki). The growth of the number of pairs appearing in the material follows the same line with the increase of research and is not, for that reason, objective. This is revealed most distinctly at the turn of the 1960's, at the time when I started my own research work. The population of Eteläranta e.g., »increased» in a few years' time from 10 to 25 and that of the whole coast from 14—17 up to 60—70 pairs.

Considering the fact on how different amount of work our knowledge of the population on the Pori coast is based, on one hand in the

[1] The find of a nest by RAITASUO (1949) is from Eteläranta, not Preiviikki, as the writer first reported (pers. comm.).

1940's and on the other in recent years, I take it for certain that the number of pairs of the population in this area has been quite large as early as in the 1940's, at least 20—30 pairs. To this refers also the fact that there were some breeding Southern Dunlins at that time on many meadows (Eteläranta, Levo, Kirrisanta, Fleiviiki) separated by distances of kilometers from each other. This shows that the race is not quite a newcomer in the district.

In the 1940's the population in the parish of Mietoinen was also most probably larger than it was known, and as early as in the beginning of the decade considerably steady (5—6 birds seen in 1942).

The population on the Pori coast and at Mietoinen is likely to have come into existence in the 1930's, perhaps even earlier. HORTLING (1927) does not certainly mention the Southern Dunlin from the Pori coast, but he did not begin his research earlier than 15. VII (1926), at the time when all old birds and the bulk of the young ones have left the country. Neither is SUOMALAINEN (1927) aware of existence of the Southern Dunlin in this district, but it is most probable that he did not often wander on the coast at the breeding time. It is not quite impossible that the Southern Dunlin should have been continually breeding as a rare specimen on the south-west coast since the last century. A bird shot near Helsinki 25. IV 1925 (HORTLING 1929—31) may refer to this. At any rate the Finnish population is older and has been in the 1940's larger than the enclosed material shows [1].

In spite of the unreliability of the observation material it seems clear that the Finnish population has increased in number during the two last decades and that the expansion is going on. This is proved, e.g. by the following facta:

a) Nine new breeding grounds were found in the 1950's and at least in the Oulu archipelago (N. Fritzén pers.comm.) and at Uusikaupunki there has appeared some breeding for the first time in the years mentioned in the list.

b) On the islet Laaja in the Oulu archipelago the population increased 1957—62 from 1 up to 3 pairs. In 1963 the Southern Dunlin was discovered on a new area at Ulasoori on the delta of the river Kokemäenjoki near Pori (P. Kalinainen pers.comm.).

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[1] According to another paper by HORTLING (1928), it is obvious that the Southern Dunlin was lacking on the Pori coast in the 1920's.

Causes affecting the expansion

The expansion of the southern fauna element in this century has been connected with climatic changes. The warm weather of spring months (March-May) has particularly expanded the distribution area of those species which migrate early in spring and breed in early summer (KALELA 1949). A good example of this is the rapid expansion of the Lapwing (*Vanellus vanellus*) in Finland (KALELA 1955). It is interesting to observe that also the Southern Dunlin belongs to those species whose migration and breeding time has become more favourable in the early decades of this century, as far as climatic conditions are concerned. Accordingly, the Southern Dunlin arrives to its breeding grounds as early as in April, the laying of eggs takes place in the first days of May and the hatching at the turn of June.

Another factor influencing on the expansion of species which migrate and breed early is, according to KALELA (1949), the ameliorating in climatic conditions on the area of hibernating (the winter months have become warmer) and the decrease of the winter mortality, because the bulk of the expansing species hibernates in Central or Southern Europe. Changes in the winter mortality have not, however, made the expansion of the Southern Dunlin more effective, as the species hibernates so far in the south that winter months do not prove critical. After a particularly cold winter of 1962—63 in Central Europe 90 % (30 from 33) of marked breeding birds returned to my investigation area.

The expansion in the perifery, caused by climatic changes, is in connection with the growth of the population and the population pressure, as a rule. Only a few observations about the fluctuations of the Southern Dunlin population elsewhere in the distribution area are at my disposal. On the coast of the North Sea and in the north of Germany the Southern Dunlin was not rare earlier, but has since almost or completely disappeared (NIETHAMMER 1942; PEITZMEIER 1961). According to BERNDT & MEISE (1962) »Der Vögel brütete früher an den norddeutschen Binnengewässern und am Meer viel häufiger». In several places in the south of Scandinavia the population has disappeared. This is due to the fact that waterside meadows have been brought under cultivation (MATHIASSON 1961). It is most probable that the population in its centre grew less in number simultaneously with the expansion observed in Finland and that the distribution area as a whole was moved north-

wards. Accordingly, the population pressure caused by the growth of the population can hardly be the primary cause for the expansion. On the contrary, the decrease of the area of the meadow habitats in consequence of cultivation has the same influence than the growth of population: part of the birds which start breeding in spring, especially the young ones, are not able to occupy the territory and are pushed out of the way to some other place [1]. According to my observation the Southern Dunlin is a territorial bird above all, and the maximum density is determined by the size of the territory at least. The expansion mechanism can be thought to have acted like this: at the time of occupying the territory the population pressure, caused by the decrease of breeding habitats, has pushed part of the population farther to the north in connection with the prolongation of migration stimulated by warm spring months. In the later phase the growth of the Finnish population was hardly dependent on immigration. On the contrary, the recent expansion has probably taken place from secondary distribution centres (e.g. Mietoinen and the Pori coast).

Summary: Since the 1940's thirteen breeding localities of the Southern Dunlin have been found in Finland. The author estimates the recent Finnish population to be 150—200 pairs. The population is increasing and the possible causes affecting the expansion are: the breeding habitats around the North Sea and in South Scandinavia have decreased both in number and in size by cultivation. In spring especially the yearlings have difficulties to occupy a territory. The fact that the spring months have become warmer during this century very likely has stimulated the prolongation of the spring migration of the yearlings and new areas have been inhabited. In the later phase the expansion has probably taken place from secondary distribution centres in Finland.

Acknowledgements. I express my thanks to all the persons who have left their observations at my disposal.

[1] Since this was written I read a paper by BRAAKSMA (1960). He writes that the establishment of Curlews (*Numenius arquata*) on new breeding grounds in some countries (in Ireland, the United Kingdom, some parts of Germany, Denmark, Sweden and Finland) must probably be considered as a kind of »emergency-migration», caused by drainage and cultivation of their former breeding areas.

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Selostus: Suosirrin eteläisen rodun *(Calidris alpina schinzii)* levinneisyydestä Suomessa.

Viime vuosisadan lopulta tunnetaan kaksi pesälöytöä Taivassalosta, mutta niiden jälkeen kului yli puoli vuosisataa ennenkuin rotu uudelleen 1940-luvulla löydettiin pesivänä. Kahden viimeksi kuluneen vuosikymmenen aikana pesimäpaikkoja on paljastunut kaikkiaan 13. Luettelossa s. 13—15 ja kuvassa s. 14 on esitetty pesimäpaikat (pieni piste = 1—5 paria, keskikokoinen piste = 6—15 paria ja suuri piste = yli 15 paria). Tekijä arvioi maamme *schinzii*-kannan olleen 1960-luvun alussa 150—200 paria.

Tarkasteltaessa suosirrikannan kehitystä Porin rannikolla havaitaan sekä pesimäniittyjen että parien lukumäärän kasvaneen aineistossa jatkuvasti. Lisäys on kuitenkin osaksi näennäinen, sillä se johtuu tutkimustyön samanaikaisesta lisääntymisestä. Suosirrin pesiminen jo 1940-luvulla useilla toisistaan kilometrien päässä sijaitsevilla niityillä (Eteläranta, Levo, Kirrisanta, Fleiviiki) osoittaa, että se ei ole varsin uusi tulokas seudulla. Koska parimäärä jo silloin oli eräillä niityillä (Levo) nykyistä luokkaa ja toisaalta koska nykyisin paririkkaimmilta niityiltä (Eteläranta, Fleiviiki) ei ole riittävästi havaintoja, näyttää ilmeiseltä, että Porin rannikon kanta jo 1940-luvulla on ollut huomattavan vahva, ainakin 20—30 paria. Sen johdosta, että Mietoisissakin jo 1940-luvun alussa on nähty 5—6 todennäköisesti pesivää yksilöä, on syytä olettaa nykyisen *schinzii*-kantamme syntyneen 1930-luvulla. Havaintomateriaalin epäluotettavuudesta huolimatta on selvää, että maamme kanta on viime aikoina, erityisesti 1950-luvulla kasvanut.

Pohjanmeren rannikolla, Pohjois-Saksassa ja Etelä-Skandinaviassa rodun pesimäbiotoopit ovat vuosisadan alkupuolella vähentyneet ihmisen toiminnan johdosta ja kanta on monin paikoin vähentynyt tai hävinnyt kokonaan. Primäärinen expansiomekanismi on saattanut toimia

siten, että pesintänsä aloittavilla linnuilla on edellä mainitusta syystä ollut vaikeuksia reviirin valtauksessa ja ne ovat vuosisadan alkupuoliskon tunnetusti lämpimien kevätkuukausien kiihdyttämän muuton prolongaation vaikutuksesta siirtyneet pohjoisemmille alueille. Mainittu kevätjakson sääolojen paraneminen on voinut kohottaa maahamme jo asettuneen kannan lisääntymistulosta ja myöhempi expansio on saattanut tapahtua sekundäärisistä leviämiskeskuksista (esim. Mietoinen, Porin rannikko) käsin.

Havaintoja muuttolintujen esiintymisestä aavalla merellä

Risto Lemmetyinen, Ilkka Lilja, Heikki Teiro

Kirjoittajilla on ollut tilaisuus suorittaa muutamia hajahavaintoja muuttolinnuista ulkomerillämme merentutkimusalus m/s Arandalla suoritettujen matkojen yhteydessä 15.—27. VIII. 1960 (Lilja & Lemmetyinen) sekä 13.—25. VIII. 1962 (Teiro). Koska varsinainen tehtävämme koski silakkatutkimuksia, jäivät ornitologiset havainnot olosuhteitten pakosta vajavaisiksi, mutta muutamat mielenkiintoiset havainnot ansainnevat kuitenkin maininnan.

Kuljettu reitti oli molemmilla kerroilla pääpiirteissään sama. Lähtö tapahtui Turusta, josta Saaristomeren kautta ajettiin Selkämerelle Vaasan saariston eteläreunaan (Strömmingsbådan) asti; sieltä palattiin etelään Ahvenanmaalle, joka v. 1960 kierrettiin länsipuolelta ja v. 1962 itäpuolelta. Reitti jatkui edelleen Suomenlahdelle, jossa kulminoitiin v. 1960 Helsingin edustalla (keskellä Suomenlahtea) ja v. 1962 Kotkan edustalla. Täältä palattiin takaisin Turkuun Saaristomeren itäreunaa myöten.

Havainnot: 1960. 15. VIII lähtö Turusta klo 12: Rymättylä—Kustavi—Isokari—lähelle Kylmäpihlajaa. Voimakas tuuli (n. 6 beauf. E) puhalsi koko iltapäivän ja yön. *Motacilla flava* 1 ex laivalla Isokarin ulkopuolella. *Tringa hypoleucos* 2 kertaa kuului ääntelyä Kylmäpihlajan edustalla keskiyöllä.

16. VIII. Suurin osa päivästä pysyteltiin Kylmäpihlajan ja Isokarin välillä, maata koko ajan näkyvissä. Tuuli edelleen navakka (n. 5 beauf. S). *Larus fuscus*, n. 20—50 exx, ainoa laivaa seuraava lokkilaji.

17. VIII. Aikaisin aamulla saavuttiin Ahvenanmaan pohjoisrannikolle Getan kirkon pohjoispuolelle. Tuuli osittain tyyntynyt. Ei havaintoja laivalla.

18. VIII. Iltapäivällä saavuttiin Reposaareen. Maa oli suurimman osan päivästä näkymättömissä. Illalla lähdettiin luoteeseen. Tuuli verrattain heikko (n. 3 beauf.), tihkusadetta. *Larus fuscus*, useita yksilöitä seurasi laivaa.

19. VIII. Koko päivän pysyteltiin keskellä Selkämerta Merikarvian ja Kristiinan korkeu-