

## X. ANSER ERYTHROPUS IN FENNOSCANDIA

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### Introduction

*Anser erythropus* was originally a common species in northern Fennoscandian mountain regions. Since the 1950s, however, its numbers and distribution have declined drastically. Today, the species is extremely rare, and its distribution is restricted to only the more remote parts of its former breeding area.

Little information has been available on its present population size, status, population trends and the negative factors responsible for its decline. A project was organized in 1975 for this purpose, to compile available data from Finland, Norway and Sweden more systematically. The present paper summarizes the result of this study. The summary is partly based on published data, partly on information from a number of ornithologists in these three countries. In addition, restricted field work has been carried out from 1977 to 1980. The present paper is based on three status reports (*A. & M. Norderhaug* 1976, 1977 and 1980) and a final summary paper for the report of the Nordic Goose Project under the Nordic Council for Game Research (*A. & M. Norderhaug* in prep.).

### Past and present distribution in Fennoscandia

Distribution of the *A. erythropus* in Fennoscandia has previously been described by various authors. More or less complete distribution maps have been published by *Ekman* (1922), *Dahlbeck* (1946), *Rosenberg* (1953), *Curry-Lindahl* (1957, 1959) and *Haftorn* (1971).

The past distribution of the species in Fennoscandia has been summarized in Figure 1, based on these distribution maps and various more detailed information in the literature on the occurrence of *A. erythropus* during summer. In practice, this refers to published information on the breeding distribution up to 1960, with some additions from recent years.

The original breeding area was probably somewhat wider, since published data during the first part of this century were most likely not in complete accordance with the actual breeding distribution.

In Figure 1 the present distribution is also summarized based on more detailed maps given an *A. & M. Norderhaug* (1980). The present distribution area is defined as the area where *A. erythropus* has bred or been observed during the breeding period between 1960 and 1980. For this period the distribution area is presumed to be more complete. However, between 1960 and 1980 a further decline in the population and breeding distribution has most

certainly taken place. One surprising aspect of the present distribution (1960–1980) is the apparent size of this area compared to the former breeding range. It must however be kept in mind that coverage in recent years was more complete, compared to the first part of this century. A second factor is also important:

within the area where *A. erythropus* has been observed for the last 20 years, the population density has been severely reduced compared to the original situation. However, in general it can be concluded that scattered pairs still breed within 40–50% of the former Fennoscandian breeding range.

### Population size and population changes

Reliable data on the size of the Fennoscandian population of *Anser erythropus* have never been published. Evidence of serious population changes has primarily been based on the following:

1. The observed reduction in the size of the actual breeding area (= 40–50%).

2. Decline in numbers of migrating greese observed at traditional resting places, mainly on the Finnish west coast (see Figure 2). The number of migrating *A. erythropus* along the Finnish west coast was described by Merikallio (1915) (translated from Swedish) before the serious decline was evident:

“The number of migrating birds must at least be counted in tens of thousands.

As an example need only be mentioned the 17 May 1913 at Karlo (in spring 1913 I observed their migration rather carefully) when one flock after another passed northwards during the whole day. Many times during that day, one flock had not disappeared before another came from south”.

3. Information from the wintering grounds. In the 1930s, 30 000 to 50 000 may have wintered in the southeast parts of the Caspian Sea (*Bauer & Glutz von Blotzheim*, 1968). By the mid 1970s the population in this area was probably reduced to about one tenth of the former level (*D. A. Scott*, pres. comm.).

Specific data from the Fennoscandian breeding area are few. According to Finnish ornithologists (*Siivonen*, 1949, *Merikallio*, 1955 and *T. Lampio* in litt. 1976) the Finnish population in the 1920s and 1930s may have been of the order of 1000 to 2000 birds. The total Fennoscandian population at that time may well have been of the order of 10 000 birds. As early as this, however, the population may have started to decline. Accordingly, the total Fennoscandian population may well have been of the order of over 10 000 before the decline.

Figures indicating the size of the present population in Fennoscandia are also lacking. The maximum number observed at one time in various months in recent years may however be of interest. In Table 1. the recorded maximum size of flocks observed in Fennoscandia 1960–1980 are summarized from various sources.

1. During 1960–1980 *A. erythropus* bred, or was observed during the breeding period, in 43 equal (square) geographical units in Finland, Norway and Sweden. It was presumed that in 1980 birds were still breeding within 30 of these geographical units.

Table X/1.

*Maximum size of flocks of Anser erythropus  
recorded in Fennoscandia, 1960 – 1980*

Month	Maximum observed in one flock	Country	Location	Year
April	16	Sweden	S. Vasterbotten	1966
May	cca 100	Finland	Lumijoki	1977
June	8	Sweden	Padjelanta	1966
July	30 – 50	Norway	Nordland	1970
August	20	Finland	Aland	1960

2. Allowing for an average of two to three breeding pairs within each of these units, there is a total of 60 to 90 pairs (120 to 180 breeding birds) within the region.

3. In addition, the population includes a proportion of one/two-year old non-breeders, estimated at 30 – 40% of the breeding population. This assumption gives an additional 40 – 80 birds.

Based on these assumptions, the order of size of the present Fennoscandian population was estimated at 160 – 260 birds, or in more general terms, of an order of less than 500 birds.

Further data from the three countries should, if possible, be compiled in the 1980s to refine this estimate.

### Productivity

Few data are available from Fennoscandia on the productivity of *A. erythropus* from the first part of this century, when the species still was numerous, as data on productivity were rarely collected. From recent years, the number of observed clutches have for obvious reasons been very restricted.

Comparison of data from recent years with data from the first part of this century reveals no apparent differences, indicating that the productivity of breeding pairs has probably not changed. The average clutch size ( $n = 14$ ) was 4.9, range 3 – 6. The average brood size ( $n = 23$ ) was 4.1, range 1 – 6. The number of breeding records from recent years (1960 – 1980) is very restricted (see Table 2). The majority of these records are from Norway and Sweden. In Finland the species is now clearly on the brink of extinction (see Table 3).

As early as the beginning of this century, the migratory pattern of this species was extensively studied and discussed among Finnish ornithologists notably *Munsterhjelm* (1911, 1915) and *Merikallio* (1915, 1920). *Hortling* (1929) summarized the migratory pattern in Fennoscandia:

*Anser erythropus* arrives on the south coast of Finland from a southerly direction, crossing the Gulf of Finland. From there the main part of the population migrates northwards along the Finnish west coast, and smaller numbers

Table X/2.

Number of breeding records of *Anser erythropus* in  
Fennoscandia, 1960 – 80

Period	Total	Range	Average per year
1960 – 1964	11	1 – 4	2.2
1965 – 1969	5	0 – 2	1.0
1970 – 1974	10	0 – 5	2.0
1975 – 1979	9	0 – 4	1.8
1980	1		

Table X/3.

Breeding records of *Anser erythropus* in Finland,  
Norway and Sweden, 1960 – 1980

Period	Finland	Norway	Sweden	Total
1960 – 1969	1	5	10	16
1970 – 1980	1	12	7	20
Total				
1960 – 1980	2	17	17	36
Migration				

migrate on a broader front across inland areas of Finland, and others north-east towards the White Sea.

Earlier, as well as more recent observations confirm the migration of *A. erythropus* along the Finnish west coast. Undoubtedly this is the main migration route (spring and autumn) for the Fennoscandian population. However, as pointed out by *Hortling* (1929), this does not preclude others migrating along a more easterly route to breeding areas located in northern Norway and western parts of the USSR. This eastern migratory route may still be used, according to the following observations:

– *A. erythropus* observed on migration eastwards, close to Helsinki in spring 1974 (K. Malmstroem pers. comm.).

– Regular spring observation of *A. erythropus* towards the inner parts of the Varangerfjord, northern Norway (R. Carlsen pers. comm.).

An outline of the migratory pattern of *A. erythropus* in Fennoscandia appears from Figure 1.

Spring migration in Fennoscandia can be described as follows:

– They arrive in spring relatively late, and depart early in the autumn.  
– During spring, flocks are relatively small; this was also the case in earlier periods, according to *Merikallio* (1920).

– The first birds may arrive on the west coast of Finland in the latter half of April, but arrival in early May is more common. Along the Finnish coast the

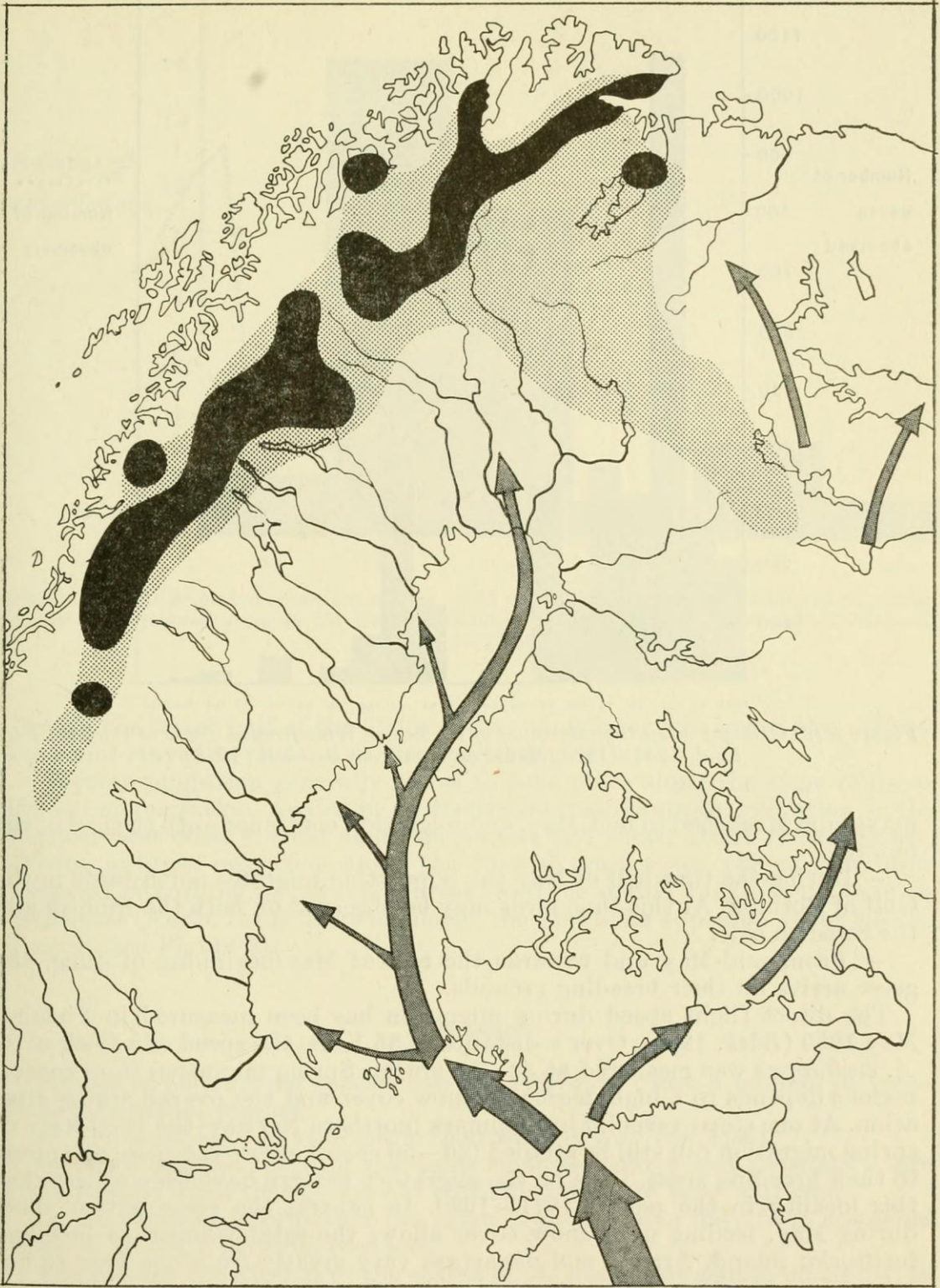


Figure X/1: Past and present (1960 – 80) distribution of *Anser erythropus* in Fennoscandia.  
 Arrows indicates migratory routes

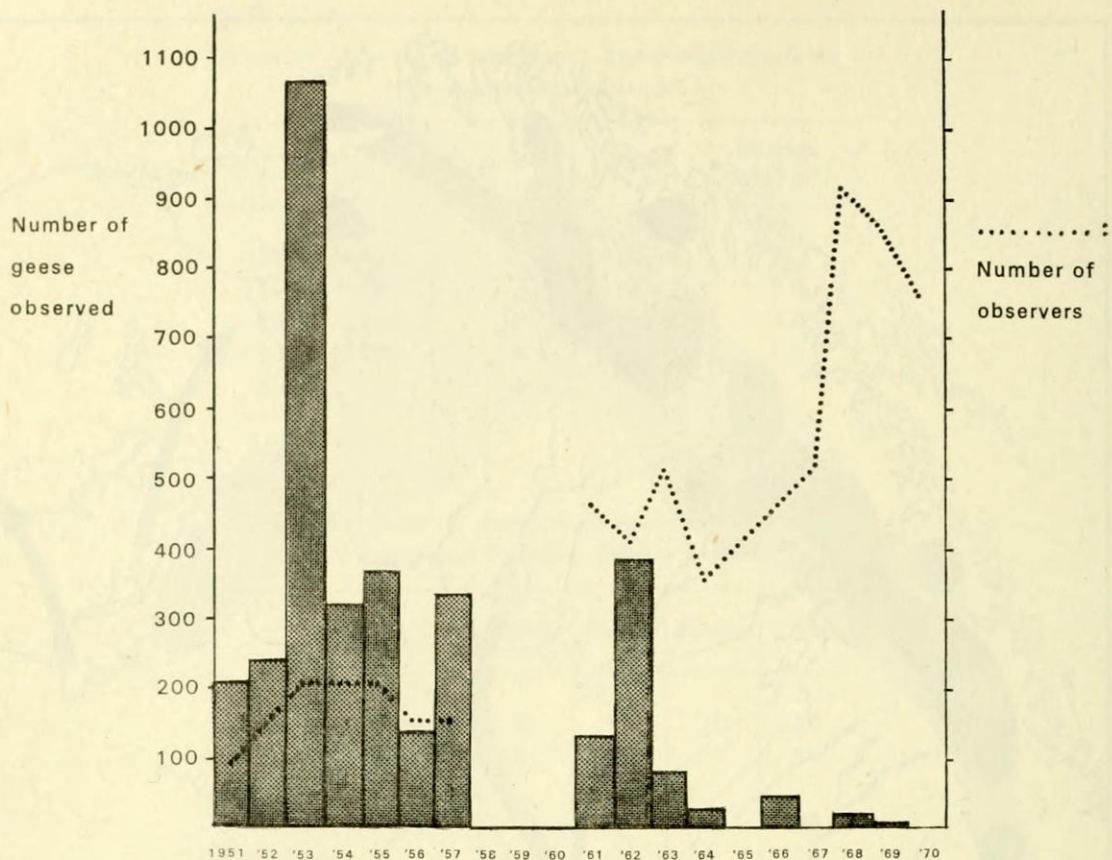


Figure X|2: Changes in spring migration of the Lesser Whitefronted Goose at Pori W. Finland, 1951–1970. Based on data from Soikkeli (1973)

maximum is reached in mid-May, and migration continues until the end of the month.

– During the first half of May the population migrates northwards in the Gulf of Bothnia. At this time birds may be observed on both the Finnish and the Swedish side.

– From mid-May and towards the end of May/beginning of June, the geese arrive on their breeding grounds.

The direct flight speed during migration has been measured in Finland, May 1959 (Bäck, 1959). Over a distance of 35 Kms, the speed of a flock of 29 *A. erythropus* was measured at 80–85 km/hr. Spring migration from coastal regions depends to a high degree on snow cover and the overall spring situation. At one stop overpoint in Finnmark (northern Norway) the final stage of spring migration can still be studied (20–50 geese) before the geese disappear to their breeding areas. Data on the migratory pattern have been collected at this locality in the period 1971–1980. In general the geese gather there during May, feeding until snow cover allows the establishment of breeding territories inland. Arrival and departure vary greatly from one year to another, depending on the snow cover and spring situation.

During the first part of the 1970s spring came early. In this period the geese arrived early and dispersed to breeding areas in the third week of May.

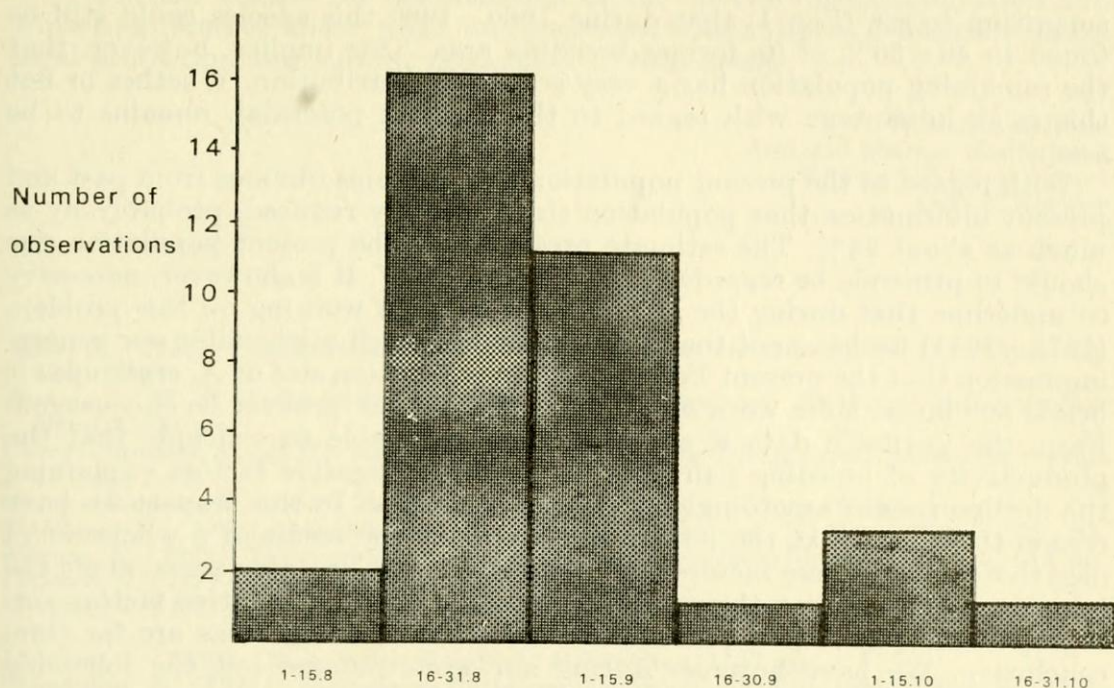


Figure X/3: Distribution according to time, of 34 published autumn observations of migrating Lesser Whitefronted geese in the Gulf of Bothnia and on the southern coast of Finland, 1905-1974

During the latter half of the 1970s spring came later; the geese also arrived later and stayed to the end of May/beginning of June.

Autumn migration generally seems to take place along the same route as the spring migration. According to Merikallio (1920) autumn migration on the Finnish west coast started about 26 August and ended about 12 September. During autumn migration along the Finnish west coast, the earliest birds recorded (according to various sources from the period 1912-1949) were on 10 August (Karlo, 1912). More regularly, the first birds appeared about 20-22 August (see Figure 3).

### Discussion

Studies of endangered species like *A. erythropus* cause a number of problems for obvious reasons:

- The possibility of systematic field work is very restricted.
- More detailed data on questions such as biology and population size from periods when the species was still numerous, are very restricted.
- More recent information has often been available only from scattered notes or through personal contacts.

The present description of the status of *A. erythropus* should primarily be regarded as an effort to utilize available data more systematically, and to draw some conclusions from these data.

In relation to the present restricted size of the population, it is somewhat

surprising to see (Fig. 1) that during 1960–1980 this species could still be found in 40–50% of its former breeding area. This implies, however, that the remaining population has a very scattered distribution. Whether or not this is an advantage with regard to the survival potential, remains to be seen.

With regard to the present population size, it seems obvious from past and present information that population size is heavily reduced, probably by as much as about 95%. The estimate presented on the present population size should in principle be regarded as a “guesstimate”. It is, however, necessary to underline that during the period we have been working on this problem (1975–1981) we have not found any evidence which might alter our general impression that the present Fennoscandian population size of *A. erythropus* is below 500 birds. More work on this question should however be encouraged. From the available data it seems further reasonable to conclude that the productivity of breeding pairs has not delined. Negative factors explaining the decline should accordingly be sought elsewhere. In this respect we have reason to believe that the population decline is the result of a whole set of negative factors. These factors may be sought in the breeding areas, along the migratory route and on the wintering grounds. Data on negative factors acting upon the population in the Fennoscandian breeding areas are far from conclusive. We have however during our work pointed out the following potential negative factors:

- Illegal hunting (in earlier period).
- Disturbance in the breeding areas.
- Disturbance at the moulting grounds.
- Disturbance on resting sites used during migration (both within Fennoscandia and elsewhere).
- Damage to biotopes (hydro-electric power projects?).
- Expansion of the red fox into mountain regions (I. Ahlen pers. comm.).

In general, however, we believe that the main causes for the decline must be sought along the migratory route and in the wintering quarters. With regard to migration, the migratory pattern seems to be fairly clear, mainly because of studies conducted in Finland in the first part of this century. It seems reasonable to conclude that the best way to monitor further population changes in the small population still left would be to study carefully annual variations in numbers at the few migratory sites still in use in Fennoscandia.

At the beginning of the 1980s the future of the remaining population of *A. erythropus* in Fennoscandia is very uncertain. It must be regarded as a conservation task of high priority in Finland, Norway and Sweden to continue studies on this species and to develop a joint conservation programme. In this connection, the most important elements would be:

- Further studies of existing breeding, moulting and migration areas in use.
- Establishment of a co-ordinated observation system in the three countries to monitor the population.
- Better protection of migration, breeding and moulting sites still in use.
- Increased public information, aiming at better understanding and conservation of this species.
- Further development of the present Swedish captive breeding programme.

– Further studies on the situation of the species during migration and wintering (studies under way), and increased international efforts for better legal protection and habitat protection of vital areas.

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