

Numbers of gulls nesting on the northern coast of the Gulf of Finland

MIKAEL KILPI, HARRI PUNTTI & TIMO TOIVONEN

KILPI, M., H. PUNTTI & T. TOIVONEN 1980: *Numbers of gulls nesting on the northern coast of the Gulf of Finland*. — *Ornis Fennica* 57:153—160.

Data from seven census areas in the Gulf of Finland were compiled to determine the numbers of nesting Great Black-backed, Herring, Lesser Black-backed and Common Gulls. The results were compared with population estimates of these species made within the area in the late 1930s and late 1950s. The numbers of the Great Black-backed Gull have increased moderately (70—200—410 pairs) and those of the Herring Gull tremendously (400—1600—11000), whereas the Lesser Black-backed has decreased (1100—1800—1400). The Common Gull has increased moderately (1100—2000—4200).

The most striking feature in the distributional pattern of the species is the heavy concentration of Herring Gulls near Helsinki. The Lesser Black-backed and the Common Gull nest numerously only in the areas outside the main Herring Gull area. Both species have been forced by the Herring Gull to abandon some of their old colonies. The authors suggest that special attention should be paid to the population of the Lesser Black-backed Gull. The species is decreasing and suffers both from the dense Herring Gull population and from human disturbance during the nesting season.

Mikael Kilpi, Avaruuskatu 3 D 64, SF-02210 Espoo 21, Finland

Harri Puntti, Avaruuskatu 3 G 137, SF-02210 Espoo 21, Finland

Timo Toivonen, Suursuontie 4 B 21, SF-00630 Helsinki 63, Finland

Introduction

The estimates of the numbers of gulls nesting on the northern coast of the Gulf of Finland are either out of date or cover only restricted areas (Paavola 1957, Merikallio 1958, v. Haartman et al. 1963—72, Grenquist 1965, Bergman 1965, 1968). In addition, the regional distribution of the gulls within the area has been insufficiently known. This paper deals with the numbers of nesting Great Black-backed Gulls *Larus marinus*, Herring Gulls *L. argentatus*, Lesser Black-backed Gulls *L. fuscus* and Common Gulls *L. canus*. The aim is to make reliable estimates of the present-day numbers of these species and to show their distribution. Regional

differences will be pointed out and related to problems of nature conservation. The population trends will be briefly discussed, but the emphasis is upon the present situation.

There is an obvious need for reliable information on bird populations within the heavily man-altered and exploited archipelago of the Gulf of Finland. Also, it is clear that data on the current numbers are essential in planning protective or regulative measures in any particular area.

Study area and methods

The Gulf of Finland has an archipelago system differing from that in the adjoining Archipelago

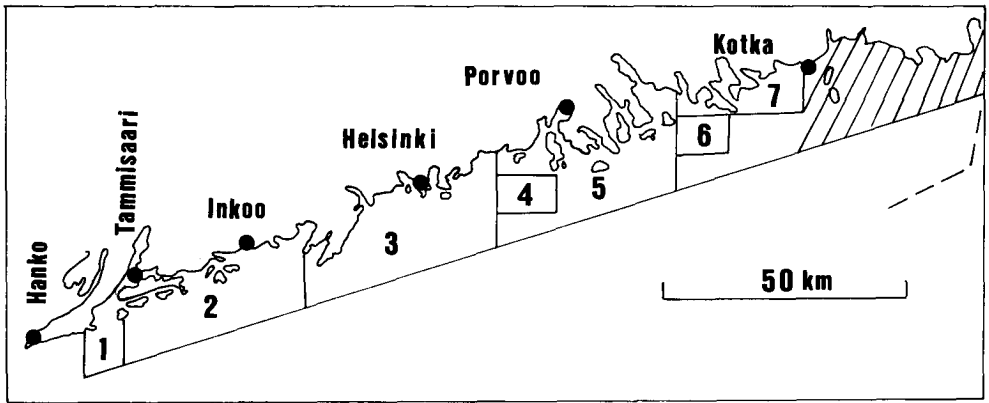


FIG. 1. The study area and the subareas from which data were collected (see text and Table 1 for further details). The data from the hatched area are still scanty.

Sea (Bergman 1968), and the study area forms a fairly uniform, well-defined unit. In the west the Gulf is limited by the Hanko peninsula, in the east the study area reaches to the border between Finland and the USSR. Data on breeding gulls were collected from the seven subareas shown in Fig. 1. Table 1 presents the subareas and the census makers in more detail.

The best way of censusing nesting gulls is to count the nests. Extensive counts were carried out in subareas 1, 3, 4 and 6. In subareas 2, 5 and 7 the numbers of breeding gulls were to some extent estimated from the numbers of adults recorded in a colony, and also from the numbers of chicks ringed. The numbers of pairs of each species obtained in this way represent a minimum value for the population. For the large species, differences between the estimated and true size of the populations are small; for the Common Gull, the error produced by insufficient coverage of the breeding grounds is much larger. In parts of the study area the inner zone of the archipelago was not surveyed, and this fact will chiefly affect the estimates for the Common Gull. To obtain an estimate for the total population of this species we have multiplied the documented number of pairs by the factor 1.5. This treatment is based on the actual situation within subarea 2, where we missed some 50% of the nesting pairs. This was mainly due to insufficient coverage of the inner zone of the archipelago, where a large proportion of the pairs of Common Gulls are very scattered.

Hildén (1966) has pointed out the difficulties encountered in comparisons of the results obtained by different census makers. However, all the persons involved in this study were ex-

perienced ornithologists using roughly the same methods, so that in this case the use of the data of several census makers can hardly be a serious source of error.

Results and discussion

Larus marinus. The species breeds mainly in the outer archipelago zone, preferably in solitary pairs on very small treeless islets, but also in colonies of all the other species treated in this paper. The Great Black-backed Gull itself shows a tendency to form colonies and a few are known in the Gulf of Finland. The largest colony within the study area (Inkoo, Trollgrund) contained 18 pairs in 1979, but in the summer of 1980 this colony was destroyed by man.

In the late 1930s the population in the study area was estimated at c. 70 pairs, most of them breeding in the archipelago of Inkoo and Tammissaari (Bergman 1948). Merikallio (1958) gives an estimate of about c. 200 pairs, based on information from Bergman. Our material comprises 360 breeding pairs, which shows that the population has doubled in about 20

TABLE 1. The subareas from which data for this study were collected. The numbers correspond to those in Fig. 1.

Area	Source and census years	No. of islands censused	Coverage of the study area
1. Tvärminne off the Hanko peninsula	J. Valste & J. Palmgren 1979—80	c. 150	Known in minute detail
2. The archipelago of Tammisaari and Inkoo	H. Puntti 1978—80	c. 150	Known in detail only in the outer zone
3. The archipelago of Kirkkonummi, Espoo, Helsinki and Sipoo	M. Kilpi, H. Puntti and T. Toivonen, 1979—80	c. 210	Known in detail
4. Söderskär in Porvoo	M. Hario 1979	c. 25	Known in detail
5. The archipelago of Porvoo and Pernaja	T. Toivonen 1979—80	c. 110	Known in detail only in the outer zone
6. Aspskär in Pernaja	M. Hario, published report 1979	6	Known in detail
7. The archipelago off Loviisa, Ruotsinpyhtää and Pyhtää	T. Ahlström 1979—80	c. 25	The major colonies known

years, and the rate of increase has been fairly fast. For the distribution of the pairs see Fig. 2, and for an estimate of the present population Table 2.

Larus argentatus. Typically, the Herring Gull nests colonially in the outer archipelago zone. Due to a rapid increase in numbers it has expanded into the middle and inner zones as well, and in some areas uses a wide range of nesting habitats. Small, barren islets probably represent the most typical, original nesting sites, but nowadays Herring Gulls commonly nest even on grassy and bushy islets and wooded islands (cf. Hildén 1980). Colonies of various sizes are found, and solitary pairs frequently nest in colonies of the Lesser Black-backed and Common Gulls. At present, the largest colonies in the study area contain more than 400 pairs (Kirkkonummi, W Gadden 415 and Rönnskubb 425 pairs) which means that the only gull forming

larger colonies in the Finnish archipelago is the Black-headed Gull *Larus ridibundus*. The distribution of the colonies is shown in Fig. 2.

The first colonies of the Herring Gull in the archipelago of the Gulf of Finland were those in Kirkkonummi at the beginning of the 1930s (Bergman 1939). On the basis of data collected in the late 1930s, Bergman (1948) estimated the whole population of the study area at c. 420 pairs. In the late 1950s Merikallio (1958) estimated the population using data provided by Bergman at c. 1200 pairs. This figure is likely to have been somewhat too low; the real population may have been about 1500 pairs. Since that time the increase has been almost explosive, as our material comprises no less than 10350 pairs. For estimates see Table 2.

Larus fuscus. Typically an inhabitant of the outer archipelago, the Lesser Black-backed Gull favours grassy and

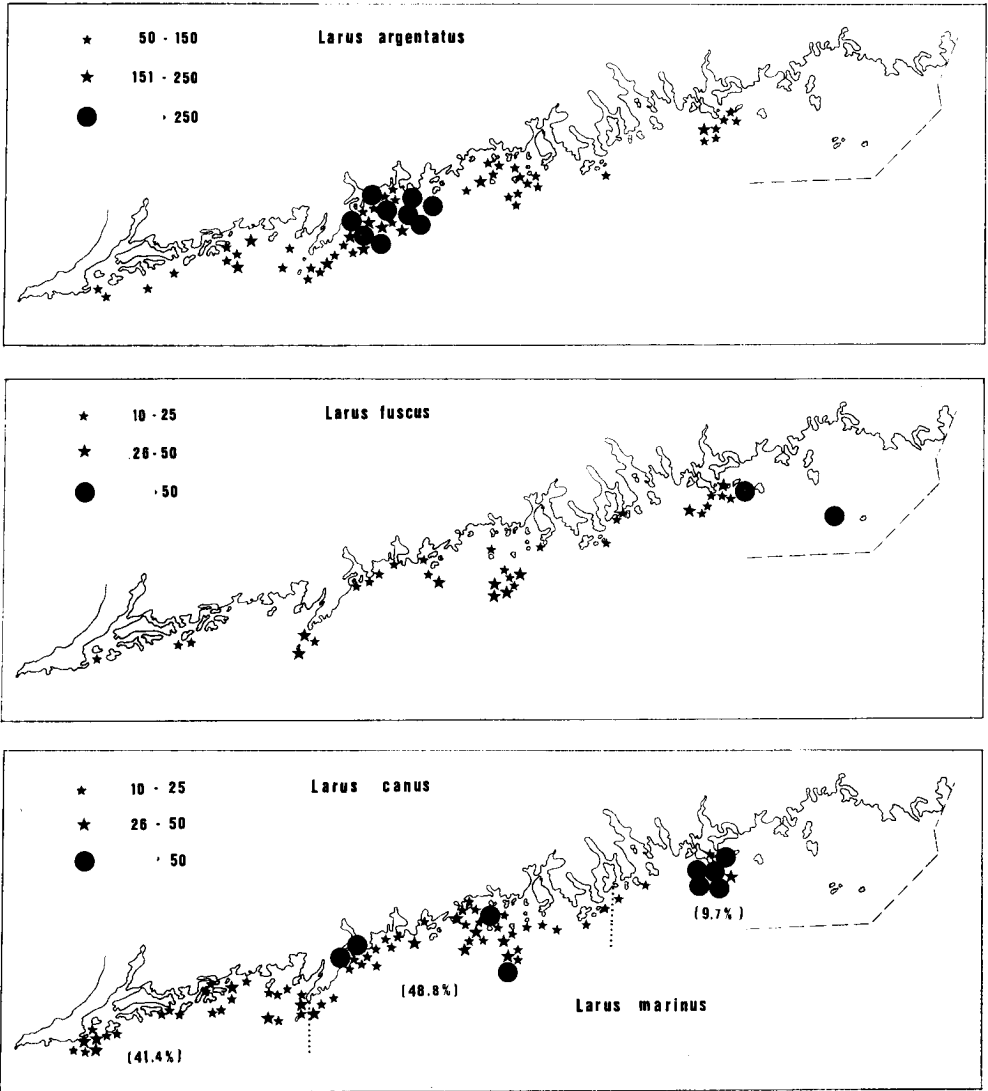


FIG. 2. The known main colonies of *Larus argentatus* (top), *L. fuscus* (middle) and *L. canus* (bottom). The numbers of *L. marinus* are presented as percentages of the total number (N = 360) for three segments of the coast (bottom).

bushy islets as nesting grounds. Nowadays the colonies are fairly small, the largest known containing about 100 pairs (Kotka, Haapasaaret 1977; J. Ruoho pers. comm.). For the distribution of the colonies, see Fig. 2.

Together with the Common Gull, the Lesser Black-backed was earlier considered the most numerous gull species breeding in the archipelago. In the late 1930s the population of the study area was some 1100 pairs (Bergman 1948),

TABLE 2. The total populations of the species treated within the study area. Numbers in brackets denote the number of pairs known to us.

Species	No. of pairs		
	Late 1930s ¹	Late 1950s ²	1980
<i>Larus marinus</i>	70	200	410 (360)
<i>L. argentatus</i>	420	1500	11000 (10350)
<i>L. fuscus</i>	1100	c. 1800	1400 (1200)
<i>L. canus</i>	c. 1100	c. 2000	4200 (2810)
Total no. of pairs of all species	2690	5500	17010 (14720)

¹) Data mainly by Bergman (1948)

²) Data mainly by Merikallio (1958)

and two decades later Merikallio (1958) estimated it at c. 1500 pairs. Since Paa-volainen (1957) counted 1050 pairs east of Helsinki, and Bergman (1965) 400 between Helsinki and Porkkala, Merikallio's estimate was too low; the real population was probably at least 1800 pairs. According to our material, which comprises some 1200 pairs, the species has declined in recent times (see also Table 2).

Larus canus. The Common Gull breeds in a variety of habitats, from the outermost islets to the mainland shores. It commonly nests in solitary pairs and small loose colonies, which makes censusing hard and partly explains the lack of previous numerical data on the species. The colonies vary in size; the majority are fairly small and the largest contain some 100 pairs. The distribution of the larger known colonies is shown in Fig. 2.

In the late 1930s the population of the study area was considered to equal that of the Lesser Black-backed Gull (Bergman 1948). Merikallio (1958) had the same view, so the population in the late 1950s can be estimated at roughly 2000 pairs. The species evidently increased in numbers, at least up to the late 1960s (v. Haartman et al. 1963—72, Hildén 1966). But during the last

decade this increase has ceased or changed to a slight decline in many places (Hildén et al. 1978, Häkkinen 1980). Our material comprises some 2800 nesting pairs. For estimates of the total population, see Table 2.

The present distribution of the species. The distributional patterns of the species is shown in Fig. 2. The most striking feature is the heavy concentration of the Herring Gull in the vicinity of Helsinki. Some 7000 pairs nest in this area, and the density in the large colonies is very high. The population explosion has been made possible by the vast amounts of food available on refuse dumps (Bergman 1965). The Herring Gull has rapidly spread westward and eastward from this area. In recent years the numbers of Herring Gulls visiting smaller dumps along the coast (Inkoo, Hanko) has greatly increased (own unpubl. data). In 1979 the numbers of Herring Gulls on the main dump of Helsinki reached a peak in late summer and early autumn, the highest recorded number being c. 8000 (Kilpi 1980).

Additional factors that have contributed to the present situation are the establishment of protected areas in the archipelago and decreased persecution by man during the last few decades.

These factors have also affected the distribution of the Great Black-backed Gull during recent times. The most conspicuous change is the growth of its population east of Porkkala. The huge increase of the Eider *Somateria mollissima* population (Hildén 1980) may be another important factor, since the Eider is a species frequently preyed upon by the Great Black-backed Gull.

The Lesser Black-backed Gull formerly bred in the whole study area (Bergman 1948). The present data shows clearly that nowadays large colonies occur only outside the area where the densities of Herring Gulls are highest. Earlier, this area contained one of the largest colonies of Lesser Black-backs ever recorded in the study area, but it was gradually deserted when Herring Gull numbers reached high levels; instead, Lesser Black-backs formed new colonies in the inner parts of the archipelago (Bergman 1965). As the same is true for the Common Gull (Bergman 1965), it is clear that the occurrence of both these species within the study area is to a great extent governed by the pressure exerted by the Herring Gull. Both the Great Black-backed and the Herring Gull prey upon young of the two smaller species. Thus, the Lesser Black-backed and the Common Gull suffer both from competition for breeding sites and predation. The Great Black-backed also preys upon young of the Herring Gull (our own observations, see also Harris 1965), but this predation is of minor importance to the Herring Gull population.

Other factors affecting the gulls in the study area. During the last few decades the Finnish archipelago has undergone a dramatic change (Stjernberg 1976). Human disturbance in the form of pleasure boating has vastly

increased. During weekends and the summer vacation season thousands of small boats cruise around in the archipelago and thousands of people visit the islands. The effect of this can readily be seen in the vicinity of Helsinki. Many islands are virtually empty, and rich, diverse breeding communities are found only on islands where landing is prohibited or on islands situated far out at sea, or otherwise unattractive to the boaters. The pleasure boating has a particularly deleterious effect on (1) species breeding in the inner archipelago within easy reach of small boats, and (2) species breeding late, at the peak of the boating season. Both the Great Black-backed and the Herring Gull breed mainly in the outer archipelago, on islets unattractive to boaters and campers, and they also hatch their young in late May before the boating season has properly started. In addition, many large Herring Gull colonies are situated on protected islands, where no landing is allowed during the breeding season. Consequently, both species produce young successfully (Bergman 1965) and do not suffer from human out-door activity.

The Lesser Black-backed and the Common Gull both breed much later than the two larger species. Most chicks hatch during the second week in June and many even later. This makes the broods vulnerable to human disturbance, and landing on islets easily causes parent gulls to leave their small chicks exposed to adverse weather. Many chicks are lost annually due to overheating or chilling. The situation in certain areas is aggravated by the fact that both species are forced by Herring Gulls to settle in the inner parts of the archipelago. Apparently, the Common Gull is not as vulnerable as the Lesser Black-backed, as it breeds near summer

cottages and becomes to some extent used to human activity.

In summary, the decline observed in the numbers of breeding Lesser Black-backed Gulls indicates that the future of the species in the study area is highly uncertain. This conclusion is supported by the low production of young (Bergman 1965, Linkola 1976, our own observations).

The future of the Common Gull is difficult to predict; the population has apparently ceased growing, but additional studies are required to determine the trend in the whole study area.

The Herring Gull has increased up to now, and no natural cause for a decline can be detected. The eggs of more than 6000 pairs were pricked in each of the breeding seasons of 1979 and 1980 (Kilpi 1980), but this measure is not likely to affect the breeding population until 1984, when recruits to the population should be fewer than normal. The population of the Great Black-backed Gull is also increasing rapidly, and in this case, too, its growth will probably continue unchecked by any natural cause for many years.

Concluding remark. Since the data presented here show that the Lesser Black-backed Gull is declining seriously, we suggest that the species should be given full legal protection. The management of its population should also involve the care of known breeding centres. Many of the important colonies are situated in protected areas (Porvoo, Söderskär, Pernaja, Aspskär) and regulation of the local Herring Gull populations may be required to safeguard their existence.

Acknowledgements. The authors wish to express their gratitude to all the persons involved in the census work, T. Ahlström, M. Hariö, J. Palmgren and J. Valste. Valuable comments on an earlier draft of the paper were made by O. Hildén and G. Bergman and useful advice on the work was provided by P. Saurola.

Selostus: Suomenlahden pohjoisrannikolla pesivien loppukokkijien levinneisyydestä ja lukumääristä

Kirjoitusta varten on kerätty tietoja seitsemältä alueelta Suomenlahdella (kuva 1 ja taul. 1) meri-, harmaa-, selkä- ja kalalokin parimäärän ja levinneisyyden selvittämiseksi. Takseeraustietojen pohjalta esitetään nykykantojen kokonaisarviot, joita verrataan tilanteeseen 1930- ja 1950-luvun loppupuolella (taul. 2).

Lajien levinneisyyskuvassa hätkähdyttävien piirre on tavattomasti runsastuneen harmaalokin keskittyminen Helsingin lähivesille (kuva 2). Tämän on katsottu johtuvan alueen hyvin runsaasta jätetarjonnasta, joka on turvannut harmaalokin ravinnonsaannin. Selkälokki ja kalalokki esiintyvät runsaina vain tiheimmän harmaalokkialueen ulkopuolella (kuva 2). Harmaalokkialueella molemmat lajit ovat joutuneet hylkäämään ne koloniat, joihin harmaalokki on runsaana pesiytynyt. Merilokin levinneisyyteen harmaalokki ei ole vaikuttanut.

Selkä- ja kalalokin levinneisyyskuvaan ja menestymiseen vaikuttavat harmaa- ja merilokin ohella myös voimakkaasti lisääntynyt veneily ja saaristoretkeily. Ihmisen toiminnasta kärsivät eniten ne lajit, jotka pesivät myöhään ja/tai saariston säilyvyöhykkeissä, kovimman retkeilypaineen alaisina. Niillä alueilla, missä harmaalokki on erityisen runsas, pienemmät loikit joutuvat hakeutumaan rannikon tuntumaan menettettyään vanhat koloniansa.

Harmaalokin kilpailusta ja retkeilypaineesta kärsii selkälokki selvästi eniten, ja se onkin taantumassa tutkimusalueella. Lajin tulevaisuus Suomenlahdella tuntuu epävarmalta, ja populaation säilyttämiseksi tarvitaan selviä toimenpiteitä. Kirjoittajat pitävät tärkeänä selkälokin rauhoittamista myös merialueilla.

References

- BERGMAN, G. 1939: Untersuchungen über die nistvogelfauna in einem Schärengebiet westlich von Helsingfors. — *Acta Zool. Fenn.* 23:1—134.
- BERGMAN, G. 1948: Om antalet skärgårdsfåglar vid våra kuster. — *In Skärgårdsboken*: 460—470. Helsingfors.
- BERGMAN, G. 1965: Trutarnas konkurrensförhållanden, födobebehov och relationer till andra skärgårdsfåglar (Zusammenfassung). — *Zool. Revy* 27:58—77.
- BERGMAN, G. 1968: Vår fågelskärgård. — Borgå.

- GRENQUIST, P. 1965: Changes in abundance of some duck and sea-bird populations off the coast of Finland 1949—1963. — Finnish Game Res. 27:5—114.
- v. HAARTMAN, L., O. HILDÉN, P. LINKOLA, P. SUOMALAINEN & R. TENOVUO 1963—72: Pohjolan linnut värikuvin. — Helsinki.
- HARIO, M. 1980: Aspskär 1979. — Stenciled report.
- HARRIS, M. P. 1965: Aspects of the breeding biology of the gulls *Larus argentatus*, *L. fuscus* and *L. marinus*. — *Ibis* 106:432—455.
- HILDÉN, O. 1966: Changes in the bird fauna of Valassaaret, Gulf of Bothnia, during recent decades. — *Ann. Zool. Fenn.* 3: 245—269.
- HILDÉN, O. 1980: Changes in seabird populations in Finland. — *Proc. VI Finnish-Estonian Ornithol. Congr.*: in press.
- HILDÉN, O., HURME, T. & C. G. TAXELL 1978: Häckfågelstudier och sträckobservationer på Valsörarna. — *Österbotten* 1978:5—119.
- HÄKKINEN, I. 1980: Saaristolinnustossa 1970-luvulla tapahtuneet muutokset. — Sisäasiainministeriön ympäristönsuojeluosaston julkaisu A2:179—182.
- KILPI, M. 1980: Harmaalokki — saariston lintuyhteisön musta lammas? (Summary: The Herring Gull — a pest in the archipelago?). — *Lintumies* 15:102—107.
- LINKOLA, P. 1976: Merilokki *Larus marinus* leviämässä järvialueelle (Summary: The Great Black-backed Gull spreading into the Finnish Lake district). — *Lintumies* 11:122—123.
- MERIKALLIO, E. 1958: Finnish birds. — *Fauna Fennica* 5:1—181.
- PAAVOLAINEN, E.-P. 1957: Die Vogelfauna des äusseren Schärenhofes im östlichen Teil des Finnischen Meerbusens. I. Quantitative Übersicht. — *Ann. Zool. Soc. 'Vanamo'* 18:1—51.
- STJERNBERG, T. 1976: Protection of birds in the Finnish archipelago. — *Ornis Fennica* 53:142—146.

Received November 1979, revised October 1980