

Temporary colonization of a small island by *Larus ridibundus*, and its immediate effect

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Limpan is a small, barren, granite islet about 0.3 ha in size. It is situated in the middle zone of the archipelago, off Hanko, SW Finland (59°52'N, 22°57'E), and is part of a larger study area containing c. 230 islands of various sizes. Limpan rises c. 4 m above sea-level and c. 75 % of its shore is steep. The vegetation is sparse, and prior to the colonization by the Black-headed Gull, it consisted mainly of small patches of *Allium schoenoprasum* and *Matricaria inodora*. Stripes of *Sedum acre* (3–20 cm wide) grow in cracks in the granite. Apart from a small depression (c. 5x15 m), the surface is smooth. In 1979, several Black-headed Gulls were seen near the islet throughout the summer, but nesting was not confirmed. In 1980, five nests with eggs were found and the gulls numbered c. 30–40. In the following summers the colony increased rapidly, but in 1983 it had almost completely disappeared (Table 1). Prior to this invasion the dominant larids were terns (*Sterna hirundo*, *S. paradisaea*). Arctic Terns nested primarily on the strips of *Sedum* on the barren part of the islet near the summit. Common Terns nested mainly in the more sheltered depressed area, where a little more vegetation was available. In 1979, the two species occurred in about equal proportions. The first five Black-headed Gull nests were built in the depression, in a tight cluster (inter-nest distances c. 1 m). In 1981, the colony was still confined to the depression, but in 1982 it had expanded to cover most of the islet, except the very exposed area at the summit, favoured by Arctic Terns. In 1983, the remaining seven nests were clumped in the depressed area.

As the Black-headed colony grew, the numbers of terns decreased. This was not due to a general decreasing trend; the total study area holds about 110 pairs of terns (predominantly Arctic), and the population has been stable in 1979–83 (Kilpi unpubl.). The implication is that the decline was caused by the Black-headed Gull. The decline chiefly concerned the tern nests situated in the depression, that is nests of Common Terns. In 1982,

only one pair of Common Terns was observed to be breeding.

In 1983, when the Black-headed Gull colony had disappeared almost totally, the number of nesting terns rose again. Moreover, there were again nests in the depressed area, within the limit of the expanded Black-headed Gull colony in 1981–1982. Four of the nests in the "reoccupied" nesting area were identified as Common Terns nests.

Other species on the islet were apparently not affected by the rise of the Black-headed Gull colony. The Black-headed Gull builds an elaborate nest even when nesting on rocky islets. This brought about an enormous increase in the amount of dead plant matter, providing a substrate for new plants. The vegetation increased strongly during the time of the colony, and several new species appeared. The increase in the plant cover possibly affected the number of Tufted Ducks *Aythya fuligula*, but little is known about this late-breeding species before the Black-headed Gulls arrived. It is possible that the Black-headed Gull was also partly responsible for the complete reproductive failure of the terns on Limpan in 1980–83. Even in 1983, no chicks fledged from Limpan, although the year was exceptionally good for terns in the area. There is no evidence of predation on tern chicks by Black-headed Gulls.

Limpan was the second site used by the Black-headed Gull in the area since 1975. A third site was occupied in 1983. The other two sites (Svartskär W, NW) are both low islets, with meadow-like vegetation and no areas of exposed bedrock. Both islets support terneries of 15–25 pairs.

The occupation of Limpan coincides very neatly with the desertion of Svartskär W, some 6 km SSW of Limpan. This colony disappeared in 1980, after having reached a maximum size of 175 pairs in 1979. The colony persisted for at least six seasons. Svartskär W lies only c. 100 m from Svartskär NW, and both these sites were occupied in 1983; Svartskär W was re-occupied by a few pairs (3–4 nests), Svartskär NW had 14 nests. Both Svartskär W and Limpan had been slightly disturbed by ringers before they were deserted. On Svartskär, ringing visits caused no observable harm, but Limpan is a death-trap for small chicks fleeing from intruders into the water, since the steep shores prevent them from returning.

The Black-headed Gull is adapted to breeding in marshes (see Burger 1974). Low, sheltered islets in the inner archipelago zone may have thriving colonies persisting for several years, but it seems that barren, more exposed islets are colonized only occasionally and that the colony soon disappears. It appears that the presence of terns is used as a cue for colony-site selection in the Black-headed Gull in the archipelago (see v. Haartman et al. 1967–72). Once a nucleus of settlers have established themselves, the Black-headed colony may grow very fast. It would be interesting to know whether the colonists of a new site belonged to former colonies in the vicinity, collectively moving to the new site (see McNicholl 1975). Since it appears that Black-headed Gulls chiefly frequent the inner archipelago zone (v. Haartman et al. 1967–72), this species will more often interfere with the Common Tern than with the Arctic Tern, which is more numerous in the outer zones of the archipelago (see Bergman 1939).

Table 1. The birds breeding on Limpan in 1980–1983.

Species	No. nesting pairs			
	1980	1981	1982	1983
<i>Somateria mollissima</i>	20	15	16	24
<i>Aythya fuligula</i>	(2)	(2)	7	7
<i>Arenaria interpres</i>	1	1	1	1
<i>Tringa totanus</i>	1	1	1	1
<i>Larus canus</i>	1	1	—	1
<i>Larus ridibundus</i>	5	33	120	7
<i>Sterna hirundo/paradisaea</i>	20	20	10	15

Selostus: Tilapäinen naurulokkikolonia pienellä ulkoluodolla

Hangon merialueella sijaitsevalla pienellä graniittiluodolla Limpan (n. 0.3 ha) havaittiin ensimmäiset 5 naurulokin munapesää kesällä 1980 (taulukko 1). Kolonia kasvoi nopeasti ja käsitti 1982 120 pesivää paria, hävitäkseen jälleen v. 1983.

Limpanin lintuyhteisöä hallitsivat tiirat, kala- ja lapintiira, aina vuoteen 1980. Vuonna 1982 tiirojen parimäärä oli pudonnut puoleen ja pesät olivat hävinneet niiltä alueilta, joille naurulokit olivat asettuneet. Naurulokit estivät nimenomaan kalatiiroja pesimästä, lapintiirat, jotka pesivät hyvin avoimella avokalliolla pärjäsivät paremmin. Kun naurulokit olivat hävinneet v. 1983, muutama kalatiirapari pesi jälleen vapautuneella alueella. Tiirojen poikastuotto oli kaikkina niinä vuosina, jolloin naurulokit luodolla pesivät, erittäin huono, mutta mitään suoraa yhteyttä naurulokkiin ei voitu varmistaa. Naurulokkien kantama pesäaines rehevöitti Limpanin kasvuston huikeasti, ja samalla tuntui etenkin tukkasotkien määrä kasvaneen.

Limpan on naurulokin kaltaiselle lajille huono pesimäympäristö. Luodon rannat ovat erittäin jyrkät, ja veteen pakenevat poikaset eivät pääse nopeasti maihin ja menehtyvät veteen.

References

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