The ringing of Barnacle Geese in Spitsbergen, 1962

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Summary

DURING the summer of 1962 an expedition consisting of seven students from Oslo University visited the Hornsund area of West Spitsbergen. Ringing and other ornithological field studies were undertaken. Due to unfavourable weather conditions in the area, 1962 was a poor breeding season, and can be described as a partial non-breeding year for the Anatidae and the Laridae. One of the projects accomplished, the trapping and ringing of Barnacle Geese, is fully discussed. Of the estimated population of 1100 Barnacles, 685 adult individuals were ringed during four days. This is the first large-scale marking of the species in West Spitsbergen. The terrain, trapping equipment and methods used are described in detail. Observations on the populations of Pinkfooted, Barnacle and Brent Geese in the Hornsund area are included.

Introduction

The Norwegian Ornithological Spitsbergen Expedition (N.O.S.E.) 1962 was organised by seven students from Oslo University and was the first Norwegian student expedition to arctic regions. It was made possible by the generous support of a number of institutions, chiefly the Norwegian Polar Institute and the Nansen Fund. The expedition was planned to function in three teams consisting of two students each, which would work separately, but combine when necessary. Two teams were to undertake field studies, the third was to film, and one man held in reserve to step in wherever extra help was needed. The teams were composed as follows:

Nils Gullestad	—	Magnar Norderhaug
Anne Larsen	—	Thor Larsen
Carl Jacob Frimann Clausen	—	Arve Helling (Film team)
Christofer Bang (reserve)		

One of the main projects was the ringing of several species of birds, including geese, auks and gulls. Colour-ringing and plumage-dyeing was also planned. Among other biological investigations were studies of the biology of the Little Auk *Plautus alle*, the nutrition of the Glaucous Gull *Larus hyperboreus* and the collection of parasites from various species. A study of the parasites on Char *Salvelinus alpinus* was also planned.

The first ringing of geese in West Spitsbergen took place in Gipsdalen during the summer of 1952 when an expedition from Sherborne School marked 42 well-developed goslings of Pinkfooted Geese *Anser brachyrhynchus* and in 1954 a joint Sherborne/Cambridge expedition ringed 568 Pinkfeet, 74 Brent *Branta bernicla hrota* and 23 Barnacles *Branta leucopsis* (Goodhart, Webbe and Wright, 1955). This ringing was undertaken for Stavanger Museum, Norway. The results of these expeditions have been most interesting, with 172 recoveries so far (Holgersen, 1956, 1962).

One of N.O.S.E. 1962's projects was the continued ringing of Pinkfeet. The trapping methods were the same as those used previously on West Spitsbergen and Iceland (Scott/Fisher method). The rings were provided by the Norwegian State Game Research Institute and Stavanger Museum, with the addition of yellow colour-rings. A number of northern European countries were informed of the proposed ringing.

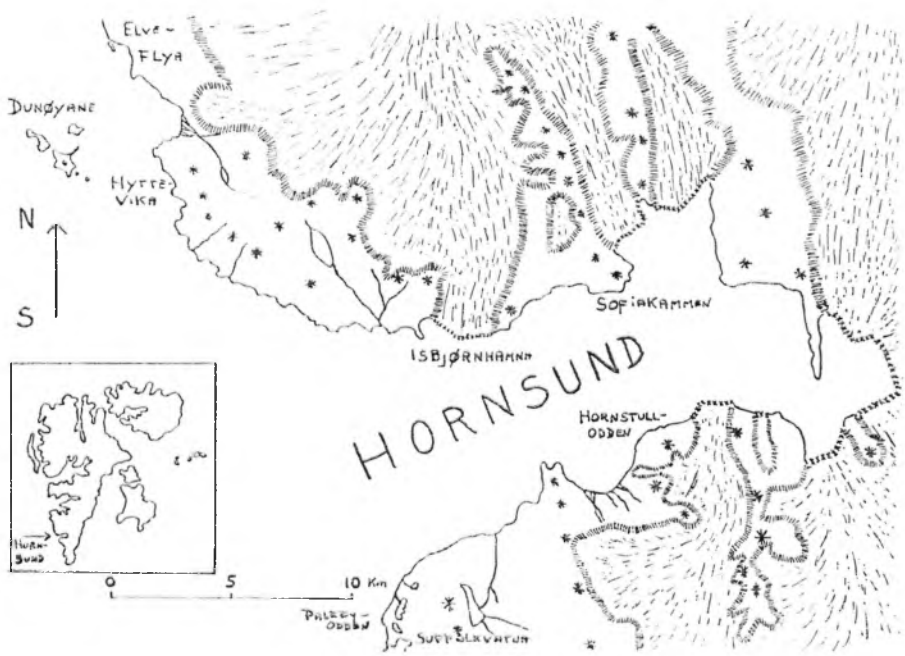
Conditions in Hornsund, 1962

The fjord Hornsund in West Spitsbergen was chosen as the working area on the recommendation of Dr. H. L. Lövenskiold who had worked there for some years (see Lövenskiold, 1954). The expedition travelled from Norway on the seal-catcher "Signalhorn", but because of unusually difficult ice-conditions landing was not effected at Hornsund until 11th July, at least a fortnight later than expected.

During the summer of 1962 ice conditions around the Spitsbergen coast were unusually severe. At times drift-ice lay in a tightly-packed belt up to 40 nautical miles offshore. Summer weather and the thaw came much later than usual and these factors undoubtedly played vital roles in the extensive non-breeding noted among the birds of Hornsund. This was most marked among the Anatidae and Laridae, few eggs were laid and of these even fewer hatched. In one colony of Arctic Terns *Sterna macrura* only five young were reared out of a total of 40 eggs laid.

Goose populations in Hornsund, 1962

From previous information it seemed that only the Pink-footed Goose had a population large enough to warrant ringing operations. However, the first week's reconnaissance gave different results. The following notes are based on observations made while the expedition was in the area "Northern region" which comprises the coast from Sofiakammen to Elveflya, including the Dunöyane islands. "Southern region" stretches from Hornstullodden to Rafenodden, 8 km. south of Pallfyodden (Figure 1).

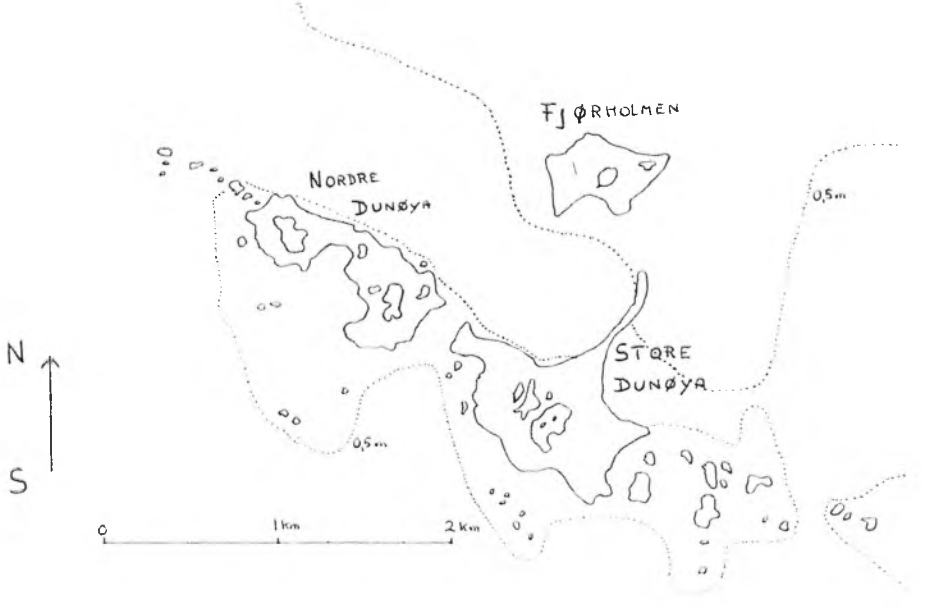


Pink-footed Goose: The population was smaller than expected and did not exceed 150 individuals (all adults) in the southern region, and about 100 (including young) in the northern region. Breeding appeared confined to the northern region where families with 3-4 goslings were often seen. The birds were very scattered and sizeable flocks were rare. The largest flock seen was on Suffolk-vatnet on 5th August and consisted of about 80 adults, of which half could fly.

Brent Goose: This species had previously bred on Dunöyane, but only small numbers, well scattered, were seen in 1962. 8-10 birds were found moulting on Dunöyane and a flock of 31 was recorded at Rafenodden on 9th August. The total population in the area was probably under 50 individuals. Breeding was not proved and is unlikely to have taken place.

Barnacle Goose: This species had also been known to breed in small numbers on Dunöyane, but in 1962 the population was surprisingly large. It was visually estimated at about 1100 individuals in the Hornsund area. Almost all the birds were found on Dunöyane and the straits between the islets, where moulting took place during the last half of July. Nearly the entire population was non-breeding and probably included Barnacles from large areas of West Spitsbergen. Only three pairs showed territorial behaviour and of these only one was observed with young. This pair had a territory on the mainland, near Kvartsittpynten, Hyttevika and a brood of three goslings.

It seems clear that 1962 was a partial non-breeding year for most of Hornsund's geese. Contrary to expectation the Pinkfeet were too scarce for any wide ringing operations and it became necessary to alter the trapping plans. It was decided to concentrate instead on the Barnacles, whose large numbers presented far more worth-while opportunities for ringing.



Trapping and ringing of Barnacle Geese

Dunöyane, where almost all the Barnacles had congregated to moult, lies three kilometres north-west of the mouth of Hornsund. The group consists of three main islands, Store Dunöya, Nordre Dunöya and Fjörholmen, and a number of rocks and skerries (Figure 2). The coastal waters are very shallow and difficult to navigate, and at times the islands were cut off by drift-ice. The main islands are all less than one square kilometre, they are low and grass-covered with small, shallow ponds. In the past, they were a well-known breeding locality for Spitsbergen Eiders *Somateria mollissima borealis,* but nest robbing has greatly reduced the population. In 1962, two Arctic Foxes were present on Fjörholmen; their effect on the non-breeding noted is uncertain.

The expedition paid its first visit to the islands on 17th July, and found flocks of about 300 and 70 Barnacles on the ponds on Store and Nordre Dunöy respectively. The geese were grazing on the grassy slopes and stayed on or near the pools. When startled they took refuge on the ponds, or retreated to the narrow channels between the islands where they were very effectively protected between the drift-ice and the coast.

All the materials for a trap of the Scott/Fisher type were brought from Norway and assembled at Hornsund after the first reconnaissance on 17th July. The trap was constructed of hemp " cod " netting (20 cm. mesh) and especially made T-shaped aluminium poles. Two walls were set up, 44 and 47 m. long and 90 cm. high, and were threaded with thin rope. The poles were tied to the walls about 3.5 m. apart. They were 125 cm. long and sharpened to a point for driving into the ground. One man could carry the walls on a back-frame, and as they were folded together from pole to pole (not rolled) he could pull them out to their full lengths in only a few seconds. This proved extremely effective. The trap was wedge-shaped, the inner part forming the collecting cage.

After the first drive (see below) the trap was improved by the addition of a separate collecting cage made of chicken wire (1″ mesh). It was one metre high and had a " gate " made of the same material. This cage could be placed inside the top of the wedge at varying distances according to the size of the catch. The cage and gate were also fastened to T-poles which could be pushed into the ground, while the cage itself was further strengthened by thin guy-ropes. Two men, each with a back frame, were needed to carry the new trap, which was relatively heavy. Luckily, it was seldom necessary to walk more than one or two kilometres to the trapping areas so the extra weight had little significance. The prepared trap could be set up by two men in 20-30 minutes and was very strong and effective.

Each member of the expedition was equipped with a walkie-talkie radio, but these proved too heavy and unreliable. On the other hand, the one or two small rubber dinghies, each manoeuvred by one man, were absolutely invaluable, and without them little or nothing could have been achieved.

After we had decided to concentrate our goose-ringing efforts on the moulting Barnacles on Dunöyane, we had to alter our trapping methods. Instead of the expected wide valleys and rolling plains we were forced to make our captures on low, flat islands of limited size, where the birds had to be driven off small ponds. The modified plans were as follows: having chosen one of the islands as a catching area, extreme caution had to be the rule when landing. We had to switch off the boat engine and row the last few hundred

yards. We found it paid to be as silent as possible as the geese were extremely wary and dashed off to sea at the slightest alarm. We planned to use walkie-talkies to keep contact with each other and to make sure that no-one showed themselves until everyone was at their stations surrounding the island. One man was to give the orders and the drive was to begin only at his agreed signal. The " beaters " were to show themselves simultaneously, driving the geese slowly on to the pond and holding them there quietly. While the others held the flock " in check " two men were to set up the trap with the walls leading down into the water. Finally, with the help of rubber dinghies and the men on shore, the birds were to be driven into the trap and the gate closed when they had entered the collecting cage. Each goose was released separately immediately after ringing. As we found no families with young on Dunöyane it was not necessary to release the whole flock together.

When we first visited Dunöyane on 17th July we landed on Store Dunöy where we found a flock of about 300 Barnacles on the largest pool. We did not disturb the birds, but returned to the boat and explored Fjörholmen and Nordre Dunöy. On the latter island another flock was discovered and we decided to encircle it to see if this could be done without causing panic. The trial was a success, the geese remained quietly on the water and by waving our arms and moving about on the banks we could drive them in any direction.

First drive. On 19th July our first drive took place on Nordre Dunöy. A flock of about 195 Barnacles were feeding on the grassy banks, but went on to the pond as soon as we appeared and they realised they were surrounded. During the next twenty minutes the trap was erected at the northern end of the pool, where the ground was soft and the poles could be driven in easily. When all was ready the drive began. We were directed by radio, and with one man in a rubber dinghy the geese were driven up to the net. All went well until they reached the bank when the first birds showed a definite reluctance to go ashore. However, the pressure soon became too great and they rushed up and into the collecting cage. At once it became only too obvious that the cage was not strong enough and several birds escaped. In addition, the mesh was too wide and many became entangled in the netting. Panic broke out and the rest of the flock turned to flee, but this was prevented by two of the beaters at the last moment. During this drive a relatively high proportion of geese escaped, about 89 individuals. We also had difficulties in extricating those birds which had become caught up in the netting. The same evening we made a new collecting cage of fine mesh chicken wire.

Second Drive. The next drive took place on 20th July on Store Dunöy. It was difficult to surround the flock because the island was both larger and more open than Nordre Dunöy. We had to be even more cautious in order not to startle the birds. This flock was also feeding on shore when the drive began, but went on to the pond when they saw us. A breakdown in the radio connections added to our difficulties; we only had contact during the last part of the drive. At one point the whole flock came ashore and almost escaped, but was driven back at the last moment. This time both rubber dinghies were needed owing to the size and shape of the pool. When the flock neared the bank, it split in two, and half the birds went up into the trap while the others remained on the water. Four men ringed the first batch while the others guarded the rest of the flock and later drove them into the trap for ringing.

During this drive we discovered that there was less chance of panic among

the geese if we kept a certain distance from them and did not go too near the edge of the pond. As long as we kept about 100 metres away, the flock showed no signs of going ashore. If this distance was reduced the birds became restless and panic resulted.

Third Drive. On 23rd July the third drive took place on Fjörholmen without difficulties of any kind. The pool there was so small that only one dinghy was needed.

It was striking that even at the second drive on Store Dunöy we had a retrap percentage of about 5.4%; on Fjörholmen this rose to 16.1%. The geese which had been ringed earlier seemed to show a steadily growing reluctance to being driven, with the result that the flock as a whole became more awkward to move ashore. When the flock ran into the collecting cage we noticed that the ringed birds hung behind the others.

Fourth Drive. The final drive took place on Nordre Dunöy on 24th July, with no complications. The retrap percentage was considerable, about 39%.

The rings used on the Barnacle Geese were issued by the Norwegian State Game Research Institute and by Stavanger Museum, Norway. The yellow plastic colour-rings planned for use on Pinkfeet could not be used on the Barnacles a) because colour-ringing was not announced for this species and b) it might collide with previous colour-ringing schemes. We estimated the population of Barnacles in the Dunöyane area at about 1100 individuals in the summer of 1962. This figure was reached by direct counting of the moulting flocks.

The number of adult geese ringed per drive is shown below:

	newly ringed	retrapped	total catch
Nordre Dunöy, 19th ..	106	0	195*
Store Dunöy, 20th ..	244	14	258
Fjörholmen, 23rd ..	172	33	205
Nordre Dunöy, 24th ..	163	98	261
total	685	145	919

*89 escaped.

No geese were seriously wounded or killed during the trapping operations. During the first drive a few of the birds which had become entangled in the netting suffered superficial flesh wounds. After this, with the new collecting cage of finer netting, no birds were injured.

The ringed Barnacles were not sexed, weighed or measured. In this connection we would like to stress that goose-ringing was not the expedition's sole project. It was only part of the ringing undertaken, beside a number of other biological investigations, and it was therefore impossible to handle all the material as thoroughly as we wished. Norderhaug (1963) has published an account of the other ornithological work done.

Acknowledgements

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