
A note on Oystercatchers from the Varangerfjord, NE Norway

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Lambeck, R.H.D. & Wessel, E.G.J. 1993. A note on Oystercatchers from the Varangerfjord, NE Norway. *Wader Study Group Bull.* 66: 74 - 79.

Biometrics of 11 breeding Oystercatchers, caught during a visit to the north coast of the Varangerfjord (NE Norway) from 27 June through 1 July 1991, showed very short bills in both sexes compared to more southern populations. In contrast, wing and tarsus tended to be somewhat longer. Some further data are presented on breeding biology, mainly dealing with replacement clutches. The population of the north-Varangerfjord was roughly estimated at 600 (sub)adults. Based on six recoveries plus an observation of a colour-ringed bird, it is postulated that Oystercatchers breeding west of North Cape-Porsangen migrate along the Norwegian coast and chiefly winter in Britain, while East-Finnmark birds fly over Lapland and along the Gulf of Bothnia to a yet unknown wintering region on the 'continent'.

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Communication nr. 591 of the Centre for Estuarine and Coastal Ecology, Yerseke.

INTRODUCTION

With 40,000 pairs, as estimated for the 1970s (Kålås & Byrkjedal 1981), the Norwegian breeding population of the Oystercatcher *Haematopus ostralegus* is one of the largest in Europe (see also Piersma 1986). Detailed assessments remain difficult, however. The coastline of Norway, so rich in fjords and islands, is extremely long (55,000 km; Kålås & Byrkjedal 1981), and large stretches are poorly accessible. Oystercatchers are nowadays common even around the upper ends of fjord branches, over 100 km away from the open coast. Increased inland nesting (pers. obs.) further complicates quantification.

Given the length of this country, which is situated between the latitudes of 58° and 71° N, a geographical pattern in biometrics or migratory behaviour cannot be excluded. Published information about measurements of Norwegian birds is virtually absent (cf. Glutz von Blotzheim *et al.* 1975; Cramp & Simmons 1983). However, unpublished data should exist for a population in the southwest, near Stavanger. A few hundred Oystercatchers were ringed and measured here in the early 1980s (G. Toft *in litt.*). Little is known of the birds that breed at the other end of the country, in the far north. As an extension of an expedition to NW Russia (Lambeck *et al.* in prep.), a short reconnaissance visit was therefore paid to the Varangerfjord in NE Norway, an inlet of the Barentsz Sea near the Russian border. Aims were a) to collect some

quantitative data on the occurrence of Oystercatchers in this area, b) to check birds for West-European colour-rings as an easy way of obtaining information on migration, and c) to (colour-)ring and measure local breeders. The inevitably limited results, in combination with retrieved ringing data, are made available in this note as a stimulus for further work.

STUDY AREA AND METHODS

The Varangerfjord is situated in NE Finnmark, at about 70° N and 30° E (Figures 1 and 2). Fieldwork, carried out between 27 June and 1 July 1991, was limited to the northern coast of the fjord. A road follows the shore from the westernmost end at Varangerbotn up to the island-town Vardö in the east. In general, the coastal hills gently slope into the sea. Between Varangerbotn and the town of Vadsö (Figure 2) hayfields and meadows are common along the shore, further east rocky areas with *Empetrum* heath predominate. The upper 7 km of the fjord is rather narrow (1.5 km) with extensive mudflats especially near Varangerbotn. Tidal flats also occur near the village of Nesseby and some other places. The tidal range at Vadsö is about 3 m. A more extensive description of the area is given by e.g. Lessells & Leslie (1977) and Vaughan (1979). A semi-quantitative distribution map for Oystercatchers in the Varanger and the rest of Finnmark is provided by Frantzen *et al.* (1991).

Breeding birds were caught at the nest, using drop cages and





Figure 1. Western Europe and the location of the Varangerfjord. Indicated are places of ringing or recovery of three Varangerfjord Oystercatchers (▲), and places of ringing (n=3) of four birds recovered in the rest of Finnmark/Troms region east of 21°E (■); see also Figure 2.

walk-in cages, after replacement of the clutch by plastic eggs for safety reasons. Egg sizes were measured with calipers to the nearest 0.1 mm. Body weight was determined on an electronic balance with an accuracy of 1 gram. Biometric parameters, viz. lengths of bill, wing (maximum chord), tarsus+toe (all to the nearest 1 mm) and tarsus only (to the nearest 0.1 mm), were measured according standard procedures, and, additionally, the shape of the bill tip (feeding

type) was described according to Swennen *et al.* (1983). Birds were provided with an individual combination of one engraved 16 mm high plastic colour-ring on each leg, allowing future identification by telescope. Chicks were caught by hand on the shore, and only supplied with a metal ring.

Foreign ring recoveries were obtained from EURING. Since the preliminary account of Holgersen (1962), no overview has been made of recoveries from Norwegian-ringed Oystercatchers. Most of the ringing data from the Stavanger Ringing Centre could be covered via the (bi-)annual 'Bird-ringing Reports, Stavanger Museum' (published by H. Holgersen up to 1981 and O.J. Runde from 1981-1983 in *Sterna*) and a search in the present database containing recoveries from 1986 (O.J. Runde, *in litt.*). Recoveries from the former Oslo Ringing Centre, responsible for 24% of the 3125 Oystercatchers ringed in Norway up to 1975 inclusive (Holgersen 1977), could only be traced up to 1974 (cf. Anker-Nilssen *et al.* 1977). However, an additional check for birds ringed in northernmost Norway could be made in the Foreign Ring-files of the British, Dutch and German (only from 1987) Ringing Centres.

RESULTS AND DISCUSSION

Breeding biology

Although one nest was found over 100 m from the water, local Oystercatchers usually bred in the upper part of the shoreline. Clutch size in 11 nests varied between 1 and 3 (two with 1, two with 2 and seven with 3 eggs). Including also two eggs from abandoned nests, the average size of the 29 eggs was 56.2 (± SD 2.1) x 39.7 (± SD 1.0) mm, with extremes of 59.6

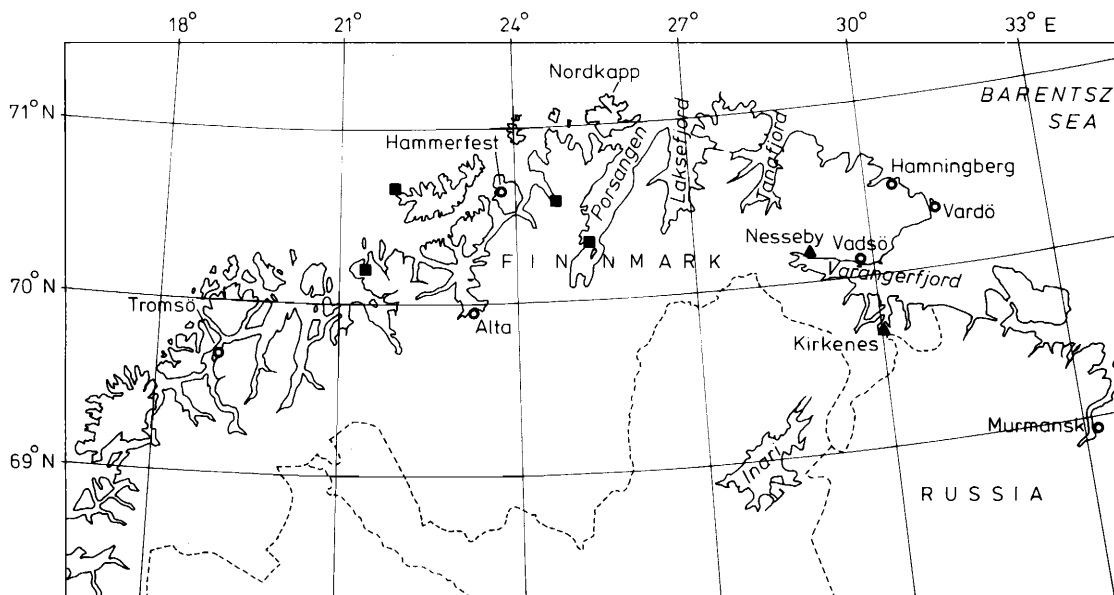


Figure 2. The 'Top of Norway' with geographical names used in the text. Indicated are recovery sites of four ringed Oystercatchers between the Varangerfjord and the 21°E meridian (■), and the places of ringing or recovery (n=2) of three Varangerfjord birds (▲).



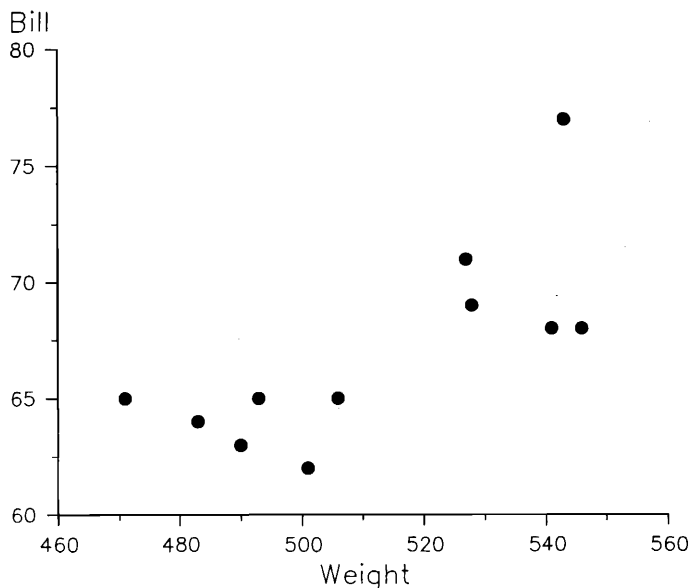


Figure 3. The relation between body weight (in g) and bill-length (in mm) for 11 breeding Varangerfjord Oystercatchers.

(x 39.1) and (57.5 x) 37.0 mm. This average is nearly identical to that of eggs collected elsewhere in Norway (Haftorn 1971), and neither is it much different from figures for other European populations (see Glutz von Blotzheim *et al.* 1975).

We observed five pairs with large chicks of over two weeks (three with 1, one with 2, and one with 3 chicks), indicating an onset of laying between 10 and 15 May. Birds normally arrive here in late April (Holgerson 1962). One more pair was seen with a chick of about three days, and also an one egg-clutch was near hatching. On the other hand, several clutches had been incubated for only two weeks and a three egg-clutch found on 1 July was even completely fresh. Considering the advanced season, the majority will have been replacement clutches. Fresh storm tide marks and many pairs with only an empty nest-hole suggested that many clutches had been washed away in the preceding weeks. A similar phenomenon was found in the Russian Bay of Kandalaksha (Lambeck *et al.* in prep). One nest found was obviously predated, and another trampled by cattle. Normal clutch size in Finnmark should be three (Frantzen *et al.* 1991), but S.A. Nilsen (*in litt.*) claims four eggs to be the rule in the Varanger, clutches with three eggs being much less common.

Table 1. Biometrics (mean \pm SD) of 11 Oystercatchers breeding along the north coast of the Varangerfjord in late June 1991, and of a bird born here in 1972 and retrapped in the Dutch Delta area on 19 and 28 March 1985.

Sex (sample)	Weight (g)	Bill (mm)	Wing (mm)	Tarsus (mm)	Tarsus+Toe (mm)
Male (n= 6)	491 \pm 11	64.0 \pm 1.2	258.8 \pm 4.9	48.6 \pm 0.9	92.4 \pm 1.5
Female (n= 5)	537 \pm 8	70.6 \pm 3.4	261.4 \pm 5.2	50.0 \pm 1.3	92.4 \pm 1.5
Total (n=11)	512 \pm 25	67.0 \pm 4.1	260.0 \pm 5.2	49.2 \pm 1.3	92.4 \pm 1.5
Varanger born adult, sex unknown	590	70	257	-	-

Population size

Time was too short for any detailed census. Along 7 stretches of the coast searched between Ekkerøy (11 km east of Vadsö) and Varangerbotn, comprising 7.4 km, in total 17 territorial pairs, or 2.3 pairs per km, were counted. The estimated shore-length between Varangerbotn and Vardö (including Vardö and Vadsö islands and Ekkerøy peninsula) is 140 km. Because the North-Varanger coast is hardly indented, the real shore-length will not be much larger. Extrapolation would then give a population of 320 pairs. This will be an over-estimation because the eastern part of the coast, where densities were apparently lower (see also Frantzen *et al.* 1991), was not sampled. A crude weighted calculation, assuming an average 5 pairs/km for the first 10 km from Varangerbotn, 2 pairs/km for the next stretch of 60 km up to Ekkerøy, and 0.5 pair/km for the final 70 km to Vardö, arrives at 205 territorial pairs. In 1977, 9 pairs along 4.5 km, or 2 pairs/km, were counted around Nesseby (Röstad *in litt.*). Kålås & Byrkjedal (1981) used an estimated 1 pair/km for the entire North-Norway. Three small flocks of in total 46 non-breeders were seen, all in adult plumage. Assuming this category to comprise about one third of the population, as found on a Dutch island (Ens 1992), would indicate a (sub-)adult population size of over 600 Oystercatchers. During our visit we already ascertained the presence of 184 different individuals.

The Barentsz Sea coast northwest of Vardö is very rugged and exposed. Where the shore could be viewed from the 36 km long road to Hamningberg, we saw eight individuals, including at least two territorial pairs, in sheltered bays only.

Biometrics

Besides eight chicks, 11 breeding adults were caught, including two pairs. The partners had clearly different bill-lengths (64 versus 71, and 65 versus 77 mm, respectively), the long-bills being the presumed females. One more bird could be reliably sexed as a female from its brownish back feathers (cf. Cramp & Simmons 1983). The sample is too small for discriminant analysis. Since the average biometrics were nearly identical to that measured in a larger sample (58, of which 14 are of known sex) of North-Russian birds (Lambeck *et al.* in prep.), data of these two regions were combined to assess the sex from our Varanger birds.



According to discriminant analysis with weight, length of wing, bill and tarsus+toe as variables, our sample should consist of five females and six males. Their biometrics are summarized in Table 1.

The females tended to have a slightly longer wing and tarsus. No difference was found in the length of tarsus+toe, however. The females were on average 46 g (9.4%) heavier than the males, the sex difference in bill-length was also distinct. A plot of bill-length against body weight (Figure 3) shows indeed two obvious categories in this small sample. Eight birds had a chisel-type bill, in two birds the tip was intermediate between chisel-shaped and blunt, and one had a rather pointed bill.

Bill-length of the Varanger birds is strikingly small in comparison to published data for other populations, where averages range from 67.9 – 77.0 mm in males and 75.3 – 83.8 mm in females (Glutz von Blotzheim *et al.* 1975; Cramp & Simmons 1983). This difference is independent of the bill shape (cf. Swennen *et al.* 1983). Our data provide further evidence for a north-south gradient in bill-length. This aspect will be discussed in Lambeck *et al.* (in prep.).

The short bill is not a consequence of a small body size: both tarsus-length and wing-length are in the upper range of published values (cf. Glutz von Blotzheim *et al.* 1975; Cramp & Simmons 1983). The average wing length of e.g. adults wintering in the Dutch Wadden Sea is 256.2 mm (data C. Swennen, in Glutz von Blotzheim *et al.* 1975) as opposed to 260.0 mm in our small Varanger sample. The primaries of the latter birds were, moreover, subjected to an extra half a year of wear. Only Icelandic Oystercatchers have a roughly similar wing length (Glutz von Blotzheim *et al.* 1975). A longer wing may be an adaptation to facilitate long-distance migratory flights (cf. Winkler & Leisler 1992).

Migration

The few ring recoveries of high-northern Norwegian Oystercatchers are summarized in Figures 1 and 2. The only Varanger-ringed bird involved was ringed as a juvenile near Nesseby on 10 August 1972 and retrapped by us in the northern Dutch Delta area on 19 March and again 28 March 1985. Its high weight for that time of the year, 590 g on both dates (Table 1), indicated pre-migratory fattening. This bird probably wintered in the Dutch Delta, since it was found freshly dead in the same sector on 17 February 1989.

The number of Oystercatchers ringed around the Varanger is presumably low. The annual figure for entire Norway in the 1970s was around 200 birds, predominantly chicks (e.g. Holgersen 1977). Considering reports from the Stavanger Ringing Centre, most of these originated from southern Norway. No Oystercatchers were trapped during a British

wader ringing expedition to the Varanger in 1974 (Lessells & Leslie 1977). During an extensive Norwegian wader project around Nesseby (e.g. Lifjeld 1984), in total 32 Oystercatchers (27 pulli, three fledged juveniles and two breeding adults) were ringed between 1975 and 1982, without recoveries so far (Röstad *in litt.*).

One foreign-ringed bird had been reported from the Varanger: an adult caught on 6 September 1929 at the island of Mellum (Germany) and shot near Kirkenes on 11 May 1932. Inspection by us of 166 individuals revealed one colour-ringed Oystercatcher near Nesseby, which was marked by us in the central Dutch Delta on 2 April 1987 (since a group-code was used, this bird was not individually identifiable).

When extending the study area to the Finnmark/Troms region, west to 21° E (Figure 2), there are four more recoveries available. One Oystercatcher was ringed south of Stavanger on 11 October 1950, and shot east of Hammerfest on 15 May 1953. The other three were ringed in Britain. One, caught as a juvenile on the Wash (east England) on 14 November 1970, was found freshly starved to death on 1 May 1975, hence shortly after arrival. The two others were ringed respectively as an adult on the Wash in late January, and as "> 1 year" in West-England in mid-September.

The extensive ringing programme around the Wash resulted in 437 recoveries from Norway up to 1986 inclusive, while a further 46 Oystercatchers with Norwegian rings were reported from the Wash (Branson 1987). Recovery sites cover the entire Norwegian coastline, and even in the Province of Troms (between 69° and 70° N) 21 birds were reported. The absence of British ringed birds in East-Finnmark is therefore striking. Conditions for recoveries around the Varanger are no worse than elsewhere in North-Norway. Indeed recoveries may be even more likely, considering the many farms and villages dotted along the coast, and the presence of relatively many local and foreign bird-watchers.

That the three recoveries of Varanger birds are all from continental Europe, points to an alternative explanation: a different migration route for the East-Finnmark population. This may be related to the extreme easterly situation of this area in combination with, compared to the west-coast, its atypical topography. As a consequence, a coastal route from the Varangerfjord to the outer Alta fjord (Figure 2) takes c. 500 km during which the flight direction has to be completely changed three times. The same journey is only c. 250 km in a straight westwards flight. However, the other three main fjords in East Finnmark have a north-south axis, the ends of Tanafjord and Laksefjord being more northerly than the Varanger and that of Porsangen being at the same latitude (Figure 2). For such a short-cut to the North Atlantic, birds should thus chiefly cross a rugged sub-arctic mountain plateau, with peaks approaching 1000 m. Flying slightly more southwards, e.g. towards the Tromsø coast, implies the



crossing of considerably higher mountain ridges.

The recovery sites of the Norwegian and two of the British birds in Finnmark still face the North Atlantic. The third was recovered at the western shore of Porsangen, with in-between only an easily crossable peninsula (Figure 2). The scarce data thus indicate that birds breeding in coastal habitats west of North Cape–Porsangen migrate southwards along the coast in autumn, predominantly with Britain as destination.

Birds breeding more to the east are postulated to head directly southwestwards for a 500–550 km flight over Lapland to the Gulf of Bothnia. The landscape here is much flatter, with several large lakes (including 70 km long Lake Inari) and, in the southern half, the valleys of some major rivers. When further following the Finnish coast of the Gulf, with a likely crossing over the Åland archipelago (Figure 1) towards the Swedish Baltic coast, the presumed flight distance from the Varanger towards the Danish Wadden Sea is, moreover, about 100 km shorter than the 2,600 km needed for the route over Finnmark and along the Norwegian coast. The gain is even larger when birds would fly directly from South–Sweden towards the western part of the German Wadden Sea. Flying along the Swedish Bothnian coast is not shorter than the Norway route, but here also 100 km can be won by a short-cut via the large lakes in mid–Sweden to the Skagerrak, and another 50 km when flying from there directly over Jutland. Such large (low)land-crossings are also made by British (Andrew 1959) and Russian birds (Bianki & Nehls 1985; Lambeck *et al.* in prep.), and further supported by data from local counts in Denmark (Moltofte in prep.).

The period of autumn migration is not exactly known. According to Röstad (*in litt.*), Oystercatchers around Nesseby stay until at least mid–September. Given the lack of ringing data, we cannot draw conclusions on the location of the main wintering area of Varanger birds. It is obvious that (colour-)ringing efforts in this high-northern breeding area should be considerably increased to elucidate their migration patterns. Additionally, it would be interesting to analyze by biochemical techniques whether some genetic differentiation has developed between the Oystercatchers from West and East–Finnmark.

ACKNOWLEDGEMENTS

The visit to the Varanger area was financially supported by the 'Beijerinck–Popping' fund. Mr. O.J. Runde (Stavanger Museum) provided us with a ringing license, and checked Norwegian Oystercatcher recoveries from 1986. Help in the search for ringing data was further obtained from R. Wasenaar (Dutch Ringing Centre/EURING), Dr. S.R. Baillie and W. Peach (BTO), and Dr. K.–M. Exo (Helgoland Ringing Centre). Additional information was provided by Mrs. M. Birkeland (Finnmarksbiblioteket), Dr. C.M. Lessells, Dr. H.

Moltofte, Mr. S.A. Nielsen and Dr. O.W. Röstad (with thanks to Dr J.T. Lifjeld). Dr. P.J. Herman carried out the discriminant analysis. Mr. A.A. Bolsius drew the maps. Dr. J.B. Hulscher, P.L. Meininger and Drs. H. Schekkerman made useful comments on the manuscript.

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