

BANDING SHOREBIRDS IN SOUTHERN NORWAY

By HOLGER HOLGERSEN

During recent years, the bird ringing station run by the Zoological Department of the Stavanger Museum, on the coast of Jaeren in SW-Norway, has had marked success with the trapping of adult shorebirds. A great number of recoveries have been reported from various countries, and the results seem to have aroused a considerable interest among ornithologists and particularly so among bird ringers.

It is a great pleasure to inform the numerous readers of *Bird-Banding* in this way of the methods used and some of the results achieved. The trapping itself certainly involves no magic. The natural conditions are by far the most important feature, and in this respect the museum of Stavanger is extremely fortunate in being situated so near a place like Revtangen.

The ringing station was founded in 1937 by Mr. H. Tho. L. Schaanning, until 1948 leader of the Zool. Dept. of the museum. Thus it had scarcely shown its possibilities before the war broke out, and during the years of German occupation the whole area was closed due to military activities. But those few years of initial work before 1940 gave at once interesting yet fragmentary results, and when the war ended, no time was lost in re-establishing the station, repairing the building, renewing the traps and gradually improving them and increasing their number, and going on where the work had so abruptly been stopped.

The observatory house is a small hut only, with kitchen, one living-room, and two smaller rooms, each with two bunks. Most of the gear is kept in a shed where there are benches and a table, and where the ringing with its additional work of diary keeping, etc., can be carried out when the weather is not favorable for outdoor work. The observatory hut itself is well sheltered behind the sand dunes, some few hundred metres away from and out of sight of the actual trapping place, while the shed is placed with a full view of this place.

Revtangen (58°45' N. lat., 5°30' E. long.) forms the most westerly point of the coastal plain of Jaeren. The mile-long, sandy beaches here protrude in a low naze covered with stones, or more correctly, in two such nazes, the northern one being considerably shorter than the principal one. These nazes are of great importance. Around this corner or bend of the coast, the currents will usually form some sort of eddy, whether running from north to south or from south to north. On the sheltered side, loose masses of sea-weed, torn off by the swell from the rocky bottom far out and away, will be washed ashore in varying quantities. Between the two nazes, there is a small but comparatively well sheltered bight, and the beach of this is almost always covered with a thick bed of sea-weed. Of course, the sea-weed will occasionally be washed off again in rough weather, but when the last winter or spring storms have passed, the beach is as a rule covered to a great extent with these beds of decaying seaplants, which are not washed away or moved until the late autumn brings rough weather again.

The rotting algae produce first of all a smell which can seem rather strong to a refined nose, but which is a necessary ingredient of the whole affair. This smell attracts hordes of flies, diptera, which lay their

eggs on and in the weed-beds, where the larvae find shelter, a conveniently high temperature, and food. At times the number of larvae can be enormous, but it depends upon the actual state of the sea-weed. If it is too dry, the larvae cannot develop; if it is too fresh, recently washed ashore, it is likewise of no use to them. So we can sometimes find areas of sea-weed where larvae abound, whilst others nearby are completely lifeless. But luckily enough, there is most often during autumn, when the migrants are passing by, some place or other on the beach where the plants are in the right stage of decay, and where larvae are plentiful.

These dipterous larvae belong to species identified by Mr. J. Smart of Cambridge, England, as *Coelopa eximia* Stenh. and *Coelopa frigida* (Fln.). They form the principal, and almost only, food for the flocks of shorebirds which migrate along the coast of Jaeren, when they stop at those places where such beds of nice-smelling sea-weed are to be found. Now, there are few such places, and at no other one than Revtingen is the quantity of food so great or so regular, nor is there such a concentration of waders at other places as there is on Revtingen as a consequence of the protruding naze.

Beside the presence of food, of primary importance of course, as it makes the waders stop and as no artificial bait for these birds is known, there is another significant feature. At this part of the Norwegian coast there is practically no tide. The mean difference between high tide and low tide is only about 30 centimetres [about one foot]. Thus no tide waves sweep away the sea-weed when the sea is falling, to bring it back for a short while only when the sea rises again.

This means a constant shoreline, a non-changing feeding-area for the birds, and, eventually, a constant trapping-place for us, with the exceptions indicated above, as the conditions may vary somewhat from one year to another, but comparatively little within the same season.

The birds are caught in traps made of galvanized wire-netting ($\frac{3}{4}$ -inch mesh) on frames of solid steel-wire. Various types have been tested, but the best one seems to be the triangular type which is now being mostly used.

The sides are about 1.3 metres [about 51 inches] long, the height of the trap is 35 cm. [about 14 inches]. One corner is cut off, and here is a trap-door, not used for catching the birds, but for getting them out of the trap and into a portable cage. There is no bottom in the trap and the roof has no entrances. These are to be found on the middle of the long sides, one on each. The opening measures about 18 by 30 cms. [about $7\frac{1}{2}$ by 12 inches], but it narrows inward and ends in a small "door" or hole just wide and high enough to let in such birds as Dunlin, Sanderling, Knot, Turnstone, and even Godwit. The system is more or less the same as is used for instance in a bow-net, or in a lobster-weel.

One trap alone does not catch very much. The average catch increases when several traps are placed together, in the way that a long side of one will lead the birds toward the entrance of another, etc. As there is much food to be found also outside the traps, the birds will usually first pick up everything they can find easily without entering these netting-cages, which must after all seem strange to them. But when the traps are placed on the sea-weed, or when they are re-set after

having been emptied, the upper layer is turned over and the deeper ones with their fresh supplies of larvae are exposed. Outside the traps, the food will eventually disappear, and as the birds are not able to dig very deep, they soon find out that the only food left for them is that seen on the other side of the netting-wall. Some do get in more or less by chance, and here as so often else, when one is already in, others do not hesitate in following. Sometimes the birds may be very eager to enter the traps, when they have eaten all accessible food outside, but it may happen that hundreds of waders walk around the traps and feed, and not one gets in.

From time to time all traps are emptied and the birds carried in the portable cages to dry land, i.e. the elevated dunes or the shed, to be ringed. How often this is done varies considerably, but the traps are always looked after in the early morning, when reset in the evening, and during the day they are usually kept under observation, so that the birds are never retained too long. However, they do not seem to be much worried, tame as waders in autumn often are. Having discovered that they do not find any way out, they may even perch on the entrance tunnel, put the bill under the dorsal feathers, and fall asleep.

Due to the varying natural conditions (food, weather) the annual catch may vary considerably. The trapping season is usually between mid-August and mid-October, i.e. two months yearly. For the most important species, Table 1 shows the results for the last four years:

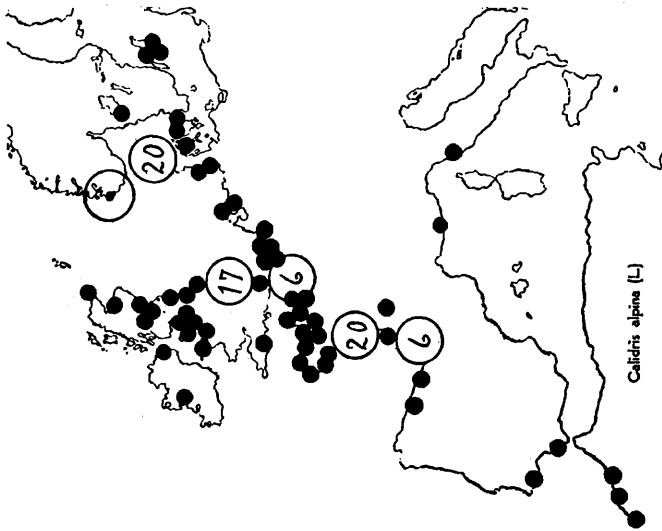
TABLE 1

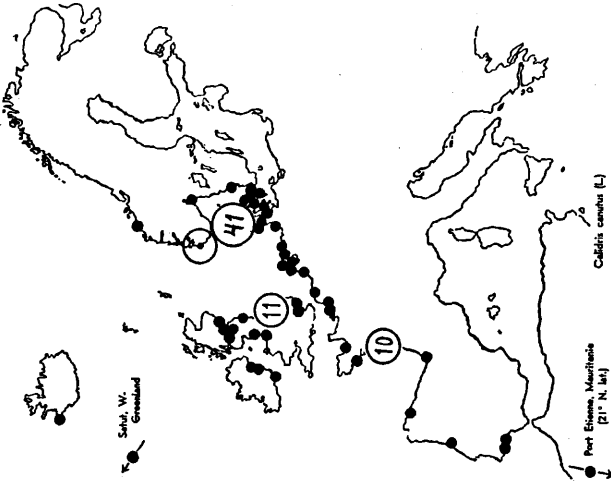
SPECIES:	1949	1950	1951	1952
Knot, <i>Calidris canutus</i>	761	226	408	145
Dunlin, <i>Cal. alpina</i>	663	1667	2344	2197
Curlew-Sandpiper, <i>Cal. testacea</i>	19	50	38	8
Little Stint, <i>Cal. minuta</i>	6	23	80	9
Sanderling, <i>Crocethia alba</i>	299	183	369	181
Turnstone, <i>Arenaria interpres</i>	96	66	149	36
Ringed Plover, <i>Charadrius hiaticula</i>	148	85	96	48
Grey Plover, <i>Squatarola squatarola</i>	14	7	7	17
Ruff, <i>Philomachus pugnax</i>	11	—	2	—
Bar-tailed Godwit, <i>Limosa lapponica</i>	138	46	18	7
Redshank, <i>Tringa totanus</i>	20	24	29	3
	2175	2377	3540	2651

The great increase in the number of ringed Dunlins is mainly due to a greater number of improved traps being used, whilst the Knot and the Godwit have not been present in the same numbers during the last years as before.

It will be seen that these birds, with the exception of the Ruff, are mainly littoral species. Inland waders, landbirds like Dotterel, Golden Plover, Curlew, Whimbrel, and Lapwing, are not trapped here. Other species caught in the same traps and on the same spot, are Starling (*Sturnus vulgaris*), Rock pipit (*Anthus spinoletta*), White Wagtail (*Motacilla alba*), occasionally Oystercatcher (*Haematopus ostralegus*) and Purple Sandpiper (*Calidris maritima*), only the two first ones being trapped in any numbers (1952 resp. 706 and 100).

Table 2 shows the grand total ringed of the same species as above, with number of recoveries.





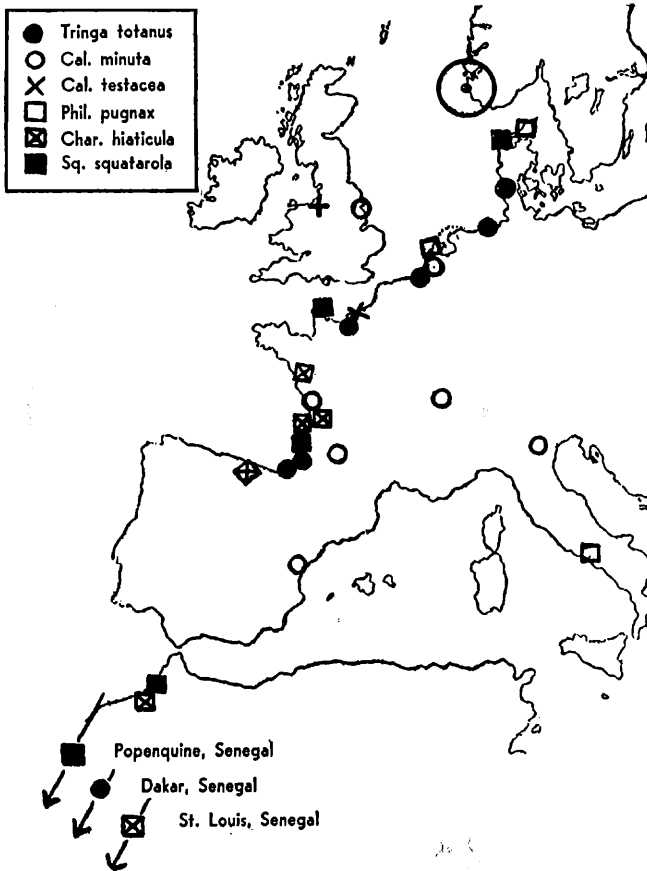


TABLE 2

SPECIES:	1)		%
	NOS. RINGED:	RECOVERIES:	
Grey Plover	67	5	7.5
Bar-tailed Godwit	429	27	6.3
Turnstone	819	47	5.7
Redshank	231	9	3.9
Knot	2,924	109	3.7
Little Stint	187	7	3.7
Ruff	112	3	2.7
Sanderling	1,590	31	1.95
Dunlin	11,103	142	1.3
Curlew-Sandpiper	180	2	1.1
Ringed Plover	621	6	0.97
	18,263	388	2.1

1) by June, 1953

It is not unreasonable that those topping the list are big birds like Grey Plover and Godwit, followed by Turnstone, Redshank, and Knot.

Most of the recoveries are due to the birds being shot, and the hunters, of course, look first for the bigger birds. Somewhat unexpected is the high percentage for Little Stint, but this may be just an accident. 1.2% recoveries for Dunlin is not much, but due to the high number ringed of this species, recoveries are many and give a good picture of its migration routes and winter quarters.

Most of these birds have been on their way south for some time already when they are trapped at Revtangen. Some are no doubt breeding birds from the nearest beaches and fields or marshes (Ringed Plover, Redshank, Dunlin). Where the bulk do come from is difficult to find out, as the breeding grounds for a great part of the birds must be Arctic regions with no human population. Correspondingly, recoveries from the breeding season or breeding areas are extremely scarce: One Knot was reported from W. Greenland; one Bar-tailed Godwit from the Archangel district in N. Russia; one Knot and one Turnstone were trapped and released in May in SW-Iceland, presumably on their way to Greenland.

Three of our Dunlins have been taken in another season by the Swedish bird observatory and ringing station at Ottenby in Öland; one Turnstone in mid-July five years after ringing, on the northern Baltic coast of Sweden; and a Knot and a Turnstone, as mentioned, in Iceland. On the other hand, a Swedish-ringed Dunlin from Ottenby was trapped at Revtangen two years later. It is to be hoped that increased activities at the various shore ringing stations will give more such results in future.

Most of the recoveries are reported from countries visited by the birds when they leave Norway shortly after having been banded. Some do cross the North Sea, as is demonstrated by a few Godwits and Dunlins. But the major part go south, cross the Skagerrak to Denmark, and continue SW. The winter-quarters are partly in the British Isles, partly along the coasts of France, for some species also on the Iberian Peninsula. Many of the species, but perhaps not many individuals, extend their migration so far south as the NW coasts of Africa. For details, see the accompanying maps.

A few examples of longevity, as shown by recoveries: Knot, 6, 7, and 9 years; Dunlin, 14½; Turnstone, 4 and 5 years; Bar-tailed Godwit, 4, 5, and 7 years.

Finally one rather remarkable recovery: two Knots, Nos. 11,588 and 11,587, were both ringed at Revtangen on August 23, 1949. More than a year later, on October 17, 1950, they were both (together with an unmarked bird) shot out of a flock of four at Nord-Mors, Limfjorden, Denmark. That they had kept together during the winter of 1949/1950 is likely, but what had they done in the summer of 1950? Had they been back to their Arctic breeding grounds, or had they stayed together somewhere in the North Sea area, without breeding?

The recovery is, however, not unique: Two Hooded Crows (*Corvus corone cornix*), both ringed in the same trap in Stavanger on February 13, 1942, were trapped together on January 2, 1946, in Moss, 290 kilometres east of the ringing-place.

Stavanger Museum, Zool. Dept., Stavanger, Norway.