adults of both hiaticula and tundrae pass through particularly in late August, mid-/late September influxes may be due to weather-drifted influxes of juvenile tundrae. Data indicate that these later peaks were more obvious in S E Britain, and that they occurred in years with low water levels in late September, along with influxes (especially in 1973) of Grey Plover, Greenshank, Spotted Redshank, Little Stint, Dunlin and Curlew Sandpiper.

Annual totals, representing the sum of weekly totals, are given with the graphs and may be used to assess annual changes in abundance. However, such a method may suffer from bias by several factors, notably the effects of water level fluctuations. The exaggeration in annual totals caused by long-staying individuals or flocks can be reduced by summating the weekly net gains (minimum arrivals) at individual sites. This laborious method gives annual totals of 428, 521, 670 and 843 for 1971-1974 respectively, thus confirming the degree of annual increases suggested by the easier method.

Summary

The overall picture for 1971-1974 tends to even out fluctuations noted in weekly Ringed Plover totals in individual years. Mid-/late August influxes may represent passage of mainly adults of both northern hiaticula and tundrae populations. Juveniles predominate in September and, in years with lower water levels, peaks towards the end of that month may represent influxes of weather-drifted juvenile tundrae. An impression of variations in annual abundance can be gained by comparing the simple summations of weekly totals.

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WADER STUDIES ON THE MORAY FIRTH

The Beauly, Cromarty and Dornoch Firths, which together constitute the Moray Firth in its broadest sense, are the most northerly estuaries of importance to waders in Britain. The Estuaries Enquiry showed that in winter the Moray Firth held a total of about 28,000 waders, of which the totals of 2,800 Redshank and 1,700 Bar-tailed Godwit were of particular importance. The Firths, particularly the Cromarty Firth, are also of international importance for ducks, geese and swans. All the Firths are of outstanding natural beauty, surrounded by a varied agricultural and woodland landscape backed by the mountains of Inverness-shire and Ross and Cromarty. So far there has been relatively little industrial development, in contrast to the situation on almost every other British estuary. The Moray Firth is, however, a prime target for development, being in the centre of the North Sea oil boom. There are already Platform Fabrication Yards at Ardersier in the Inverness Firth and at Nigg in the Cromarty Firth.

The political weight behind oil was amply demonstrated recently by the decision by the Secretary of State for Scotland to over-rule the recommendations arising from the Public Enquiry into the proposed oil refinery at Nigg.

The Highland Ringing Group, already actively involved with seabirds, raptors and passerines, is keen to extend its operations to include studies on the waders in the Firths and will shortly have its own cannon net. Using a cannon net from The Wash, two successful catches were made in March this year, totalling 130 waders, including about 60 Redshank and 30 Oystercatchers, and a survey was made of the Firths for suitable cannon netting sites. There are many excellent sites for netting and the potential is enormous, once the vagaries of the local tides and feeding habits of the numerous peregrine falcons have been evaluated! The possibilities for catching Redshank and Bar-tailed Godwit, normally difficult species, appear to be very good.

The Moray Firth is on the same latitude as southern Norway and parts of the Baltic Sea, and is the most northerly important wintering area for waders in Europe. As such, studies could yield an interesting insight into the ecology of waders in a northerly wintering area which could be compared with areas further south. For example, what is the influence of shorter days and lower temperatures on wader feeding habits and mid winter fat accumulation? Why are there relatively fewer small wader species, e.g. Dunlin, on these estuaries? The Firths could be important staging posts for migrants either of Icelandic and Greenlandic origin or from Scandinavian and Russia. Similarly little is known of the relationship of the wintering populations to those further south or to local breeding populations. For example, many local breeding Oystercatchers are known to winter on the west coast of Britain, but do any winter in the Firths or are all the Oystercatchers wintering there of Norwegian origin?

Thus the ringing of waders by the Highland Ringing Group will have both strong scientific and conservation interest. The conservation interest will be of the most immediate importance as it has already proved difficult to present hard facts to planning committees considering the siting of oil developments. Information on local movements of waders within the Firths is urgently required to back up the conservation lobby, already well represented in the area. The Nature Conservancy Council has published its Moray Firth Prospectus and has carried out studies on the invertebrate and Zostera (eel-grass) distribution. Ringing studies will complement this and the Birds of Estuaries Enquiry and will provide some very interesting information in an area where little is at present known of the waders.

It is hoped that ringers from established wader groups, particularly those with cannon netting licences, may like to visit the Moray Firth to help with cannon netting. If so, they are asked to contact the secretary. David McAllister at 3 Springfield, Morangie Road, Tain, Easter Ross.

W.J.A. Dick and Roy Dennis

WAX LINING FOR RINGS PLACED ON NEWLY-HATCHED CHICKS

(this article is reprinted from the IWRB Woodcock Research Group Newsletter 2, Oct. 1976)

The BTO Ringing Committee are reluctant to permit general use of this on Woodcock pulli before trials have shown it to be harmless for the bird. Because of the difficulties in ringing Woodcock pulli and re-capturing them at regular intervals under natural conditions, we asked R & J Jackson to test the method during their work on Vanellus vanellus. They very kindly did so, and sent the following report: