

A WINTERING FLOCK OF GOLDEN PLOVERS *Pluvialis apricaria* IN RELATION TO TIDE AND WEATHER

by Jean and Rennie Weatherhead

Counts made for Birds of Estuaries Enquiry have shown that certain shores of the Firth of Forth sometimes hold considerable numbers of Golden Plover but the species feeds largely inland. Not until the 1976-77 winter was a concentrated attempt made to census all the flocks in the Lothians. These 1976-77 counts were made in anticipation of the British Trust for Ornithology's Golden Plover Enquiry of 1977-78, which relied on counts made on three weekends: November 24-27, December 31-January 1 and February 4-5. Counters found that these results varied dramatically even within the space of an hour as Golden Plover flew in, or departed from, the area being counted.

Our home, on the outskirts of Dunbar, East Lothian, Scotland, overlooks an area of permanent grass-playing fields and golf course which can hold up to 300 Golden Plover in winter. Beyond this is a rocky shore made up of relatively flat wave cut platforms with rich invertebrate populations, especially mussels *Mytilus edulis* and periwinkles *Littorina* spp. This shore supports a wintering wader population of several hundred birds, especially Oystercatcher *Haematopus ostralegus*, Knot *Calidris canutus*, Dunlin *C. alpina*, Turnstone *Arenaria interpres*, Purple Sandpiper *C. maritima*, and at times Golden Plover. We decided to make daily accounts of the Plover from November 1977 through to March 1978, noting which areas they used and whether they were feeding or resting, to see if this correlated with environmental factors such as temperature, tide or wind. Since the Dunbar meteorological station lies within the study area such data was readily available except for tides for which the predictions for Leith were used. Counting was not at a fixed time, the only restriction being to avoid high spring tides as then the foreshore was covered.

The results of these observations are plotted in Figure 1. During the study period Golden Plover numbers varied between 0 and 271. Few sightings of these birds were made after mid-February which suggests the flock is of local or at least Scottish origin since the breeding season starts much later further north. Between 16 November and 15 January there were 23 days when no plovers were recorded either on the shore or grass. These periods coincided with higher temperatures; whenever the temperature dropped below freezing the birds appeared in the area. Highest numbers were recorded in cold weather in January and February. We do not know the destination of the flock when it left the area during spells of mild weather but it seems certain that they were feeding further inland. Even when cold weather brought birds into the area, they spent a relatively low proportion of their time feeding. Fewer observations (20%) were made of Golden Plover on the grass than the rock but when on the grass the birds were invariably feeding whereas approximately half of the observations of birds on rock refer to resting individuals. Feeding on grass coincided with particularly low temperatures suggesting that this area was a last resort for feeding Golden Plovers although grassland generally provides their main feeding habitat. Feeding on the shore increased from zero in November to a regular pattern in February and may also have been associated with the presence of snow lying on the land. This indicates that Golden Plover only exploit coasts when more favoured inland sites are unavailable. The use of coastal sites in cold weather probably reflects the moderating influence of the sea on soil temperatures in coastal fields; when even these areas freeze the inter-tidal zone is normally ice free.

Ratcliffe (1976) quotes the results of stomach analysis of 46 wintering birds. Of these only two were taken on the shore (Solway) although some others were obtained from coastal fields. They contained remains of inland invertebrates and vegetable matter besides fragments of very small shore-dwelling molluscs. The commonest prey items from the birds shot on fields were earthworms, beetles and fly larvae. It seems that the preferred food and the feeding methods of the Golden Plover make it poorly adapted for feeding on rocky coasts. Both anatomical (Burton 1974) and field (Pienkowski 1979) studies show that the Plovers are adapted to take prey by rapid response, movement to and pecking at prey which may only be available for a very short time. Presumably the uneven nature of rocky coasts, and possibly the hard surface on which the rapidly moving bill would impact, make them unsuitable for the Plovers' feeding technique.

Wind direction (not shown) also appeared to correlate with Plover numbers with more birds in the area when winds were between north and east. However such winds are invariably associated with cold weather and this seems a more likely factor than wind speed or direction, as the study area is very exposed to the North and North-east.

There were some indications that numbers on the shore tended to be higher just after high tide and lower on incoming tides. If true, this may reflect greater prey availability on ebb tides as invertebrates are generally more active on a damp than a dry shore. Also, in very cold weather, the sea will be warmer than the land and the shore may be significantly warmer on the ebb than the flood. There also appears to be a tendency for higher numbers during neap tides than at spring (Fig.1). However, because of the possible interaction of factors depending on time of day, tidal height and time of high water, it is not possible to draw firm conclusions regarding tidal effects based on the present data.

We conclude that Golden Plover use this rocky shore mainly when low temperatures make prey in their preferred inland fields unavailable and that prolonged cold weather is needed before they resort to extensive feeding on this coast.

References

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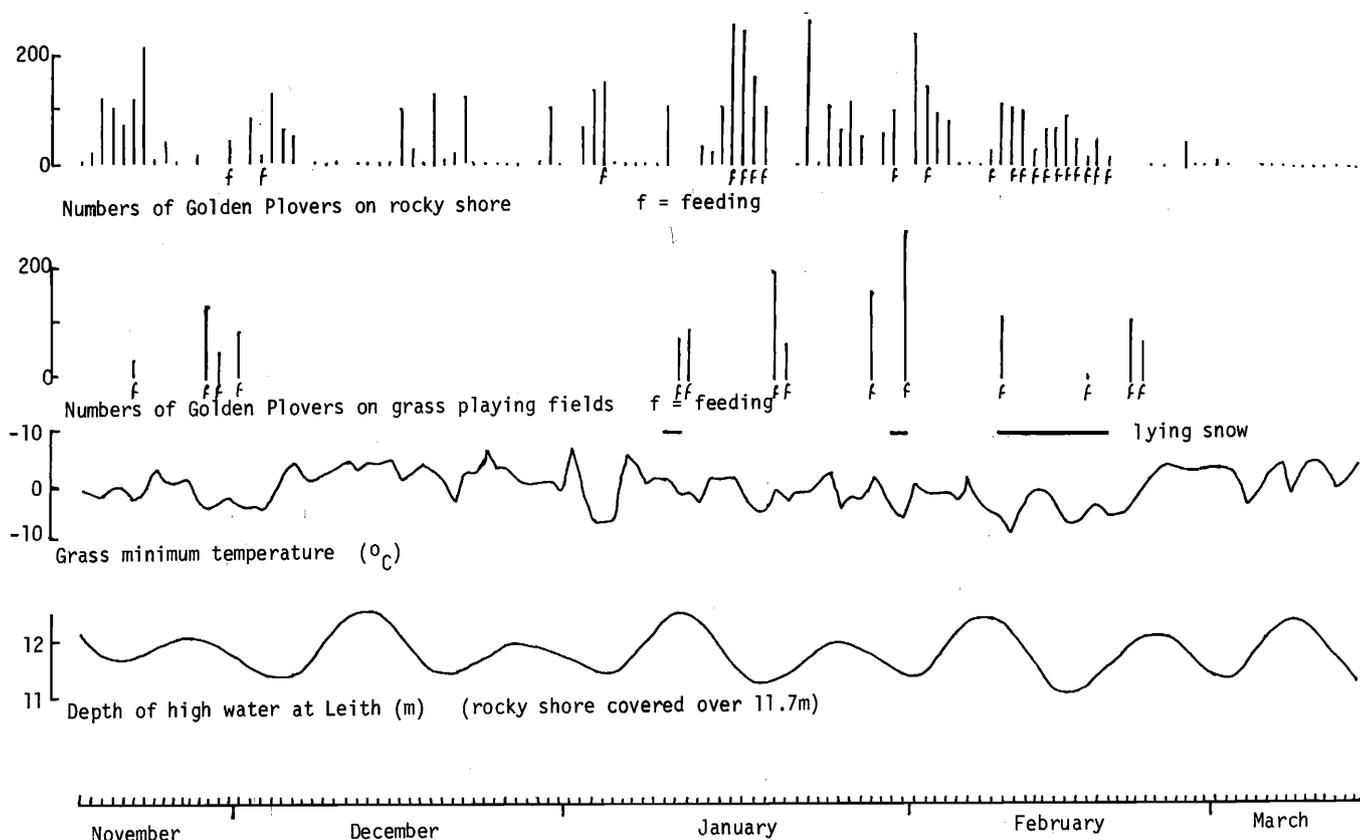


Figure 1. Observations of Golden Plovers near Dunbar, winter 1977-78.

THREE WADER SPECIES USING THE SAME NEST SITE

by K.B.Briggs

The banks of a 5km stretch of the River Lune near Arkholme, Lancashire (N W England) are searched daily for nest scrapes in spring as part of a study on the ecology of Oystercatchers *Haematopus ostralegus*. In 1979 the river was flowing 60-90cm above its normal spring level. As a result, many of the seven species of waders breeding in the locality were nesting in flood debris deposited on the pastureland, some 15-20m from the water's edge, and not as usual amongst the riverside gravel and sparse vegetation. On 24 April two scrapes, well lined with short grass stems, were found amongst the debris on the fields near the confluence with Newton Beck. One scrape was by a log (about 40 x 20cm). By 26 April, three more scrapes appeared within 5-6m of the other two. One Curlew *Numenius arquata* egg was found in the scrape by the log on 27 April. This egg was marked, as was the second on the following day. On 29 April, the two eggs were found crushed (presumably by cattle) and had disappeared by 2 May. The Curlew pair relaid approximately 200m inland about twelve days later.

Three fresh scrapes were found in the original area on 11 May and one more on 15 May by the log. The scrape was lined and a clutch of three Lapwing *Vanellus vanellus* eggs produced by 18 May. Two days later, the eggs were trampled. This pair of Lapwings had previously nested 20m from this site amongst riverside gravel, but the clutch of four eggs had been flooded on 9 May. One further attempt (unsuccessful) was made on 1 June near their original site.

Two new scrapes were found 4m apart in the area on 25 May and two days later there was a scrape again by the log about 4m from the two earlier scrapes. A pair of Oystercatchers were observed in the scrape area and one egg was laid on 30 May. The egg was marked and measured. No further eggs were laid and incubation commenced. This egg was also crushed on 2 June. The pair were occupying the territory for the first time and the egg weight (44g) and the egg size index (38.77, as defined by Väisänen 1977) are consistent with figures being obtained for young or late breeding Oystercatcher pairs in this inland site. The pair made no further attempts to breed.

Väisänen, R.A. 1977. Geographic variation in timing of breeding and egg size in eight European species of waders. *Ann. Zool. Fennica* 14: 1-25.

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