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THE JOURNAL OF THE  
SCOTTISH ORNITHOLOGISTS' CLUB

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Summer 1983

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Volume 12 No. 6

Summer 1983

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Edited by V. M. Thom, assisted by R. W. Furness and S. R. D. da Prato

## Editorial

### **The end of an era**

It is a little over 20 years since Ruby Smillie joined the staff of the SOC. Many members have come to know her as the friendly voice at the other end of the phone, even though they may never actually have met her. And her cheery welcome at the registration desk will be warmly remembered by all who have attended conferences. Not only has Ruby been extremely efficient as membership secretary, but she has also been a first class PR person for the Club. Her long service, which ended on May 31st, will be suitably acknowledged by the President at a small ceremony early in June, but we feel that members would wish us to record here the Club's thanks to Ruby for all she has done for the SOC. We wish her, and her husband Jimmy a long, happy and satisfying retirement.

### **Photographic competition**

Members are reminded that entries for our photographic competition should be submitted by 30 September. Last year we had a somewhat disappointing response; we would hope that 1983 will see a big increase in the numbers participating. Photographs must be of wild birds in Scotland and be taken in the two years prior to the closing date; there is no limit on the number of entries each photographer may submit. Black-and-white prints will be preferred but colour transparencies will also be accepted; entries will be retained for possible use in *Scottish Birds* unless a SAE is enclosed for their return. The competition will again be judged by a panel of three; the winner will receive the Shield donated by Don Smith (see photo in *SB* 12: 5); and bookshop credits of £10 and £5 will be awarded as first and second prizes. The main purpose of this competition is to help raise the standard of photographs appearing in *SB*—so if you feel that you can produce something worth publishing, do send in an entry.

### **An appeal to artists**

As several readers have commented on the fact that the

same vignettes have been appearing on these pages with monotonous frequency, we feel that a brief explanation of the situation may be helpful. At present our printing is done mainly by letterpress and blocks have to be made for the vignettes; these cost around £10 each. Within a relatively short time our printer expects to change over to a litho system, which will allow drawings to be used direct, without the need for blocks. Under the circumstances it seems silly to spend much money on blocks, which will be required for only a short time, but it has been decided that a few new ones should now be obtained. In anticipation of the time when we will be able to use fresh illustrations in each issue, we invite those members who possess artistic talents to start drawing now!

## Seabird populations of the Isle of May

M. P. HARRIS and H. GALBRAITH

*The numbers of cliff-nesting seabirds on the Isle of May have increased greatly in recent years and the island is now an internationally important colony. Its seabird communities have been studied for many years and must be among the best-documented in the country.*

The recent increase in numbers of seabirds nesting on the Isle of May, Firth of Forth has resulted in the island now having one of the highest densities of seabirds in the North Sea. Here we give details of recent counts of Fulmars, Kittiwakes, Guillemots and Razorbills. Older counts are documented by Southern (1938) and Eggeling (1974) and the changes in status of Shags are discussed by Galbraith (1981), of Herring and Lesser Black-backed Gulls by Duncan (1978, 1981), and of Puffins by Harris (1977, 1983).

### Methods and material

Counts were made during June or early July 1973-81 by ourselves or Nature Conservancy Council personnel; most were from the land but Kittiwake nests in caves were counted from a boat. Single complete island counts were made in many years and in addition, between 1978 and 1981, several annual counts of Guillemots and Kittiwake nests were made in carefully defined study plots. Two complete counts made in 1979 and 1981 are shown in Table 1, as they give some idea of the variation in counts, but the annual mean is used in the calculation of rates of increase. Earlier counts are taken from Eggeling (1974) and Bird Obser-



vatory and NCC records. Counts outwith mid-May to mid-July are excluded. Some published estimates allowed 10% for hidden birds or nests but where possible we have used the actual count. Some of the older counts of auks were expressed as pairs, presumably individual birds were counted and the total later converted to pairs; it is not clear what conversion factor was used. Most of the complete censuses were single counts and are therefore of unknown, but it can be assumed, low accuracy.

The units counted were as follows :

Fulmar: Sites suitable for breeding with one or two birds present.

Kittiwake: Nests with one or two birds present.

Guillemot: All individuals on the cliffs (excluding those on tidal rocks).

In 1981 a detailed breeding biology study was made of a group of 150-200 birds and the birds present there were counted before or after counts of other parts of the colony. A total of 98 pairs definitely laid eggs. The ratio of birds to pairs in this group at the time of the island count was used to convert 1981 counts of individuals to pairs. There were a further eight pairs resident in the group which were never seen with eggs so the population estimates could be 8% higher than calculated. In 1972-76 pairs refer to counts of incubating birds; such counts are thought to be underestimates of the true population.

Razorbill: Either individuals or occupied sites (where one or two adults were present at places suitable for breeding). In 1981 the two total counts of individual birds were converted to pairs using factors (0.40 for first count, 0.48 for second count) derived from the mean of five daily counts of birds at a group of 11 pairs. Razorbills are extremely erratic in their colony attendance and the 95% confidence intervals on these conversion factors were large (0.32 - 0.48 and 0.36 - 0.60 respectively).

Rates of increase have been calculated from linear regressions of counts (natural log) against year using all available counts ( $n$ ) over the stated period;  $r$  is the correlation coefficient.

Since 1978 Kittiwake nests and individual Guillemots in three and eight sample plots respectively have been counted between 0700-1500 GMT on several days each June. In 1980 and 1981 Razorbills were counted in 10 plots. Differences between mean counts in different years were tested using student's  $t$ -tests. Throughout this paper the term significant is used solely in its statistical sense of differences significant at the 5% level.

## Results

A summary of counts is given in Table 1 and details of recent counts are deposited at NCC and SOC offices in Edinburgh.

**Fulmar Birds** started prospecting in 1921 and the first pair probably bred later that decade although the first chick was not seen until 1930. Since then the mean annual rate of increase has been 7.0% ( $n$  18,  $r$  0.98) with an even faster rate (14.8%) between 1975-81 ( $n$  7,  $r$  0.91).

**Kittiwake** The population varied from 1900-3000 nests in 1921-52 and reached a low of c. 1000 nests in 1954. In the period 1954-81 it increased significantly at a mean annual rate of 4.9% ( $n$  13,  $r$  0.92). Breeding started on the low eastern cliffs in 1954 and by 1981 there were 600 nests there—an annual increase of 16% ( $n$  10,  $r$  0.97). Numbers on Rona increased from 15 pairs in 1969 to c. 250 pairs in 1981; this annual rate of 24.6% ( $n$  7,  $r$  0.99) is far in excess of that for the rest of the island (4.9%  $n$  6,  $r$  0.83). These new areas are obviously now very attractive to Kittiwakes, or possibly it is becoming very hard for new pairs to find sites on the densely packed west cliffs. Since 1979 birds have nested 80m

inland on the slopes above the loch and in 1982 a pair bred at Holyman's Road.

The study plots showed a mean annual rate of increase 1978-81 of 2.3% but there was much variation both between years and between plots. The bulk of these plots are in areas which appear, subjectively, to be fairly crowded, so changes in numbers may not accurately represent the change in the overall population.

**Table 1** Some counts of seabirds on the Isle of May

|        | Fulmar sites | Kittiwake nests       | Guillemot pairs | Guillemot birds | Razorbills sites | Razorbills birds |
|--------|--------------|-----------------------|-----------------|-----------------|------------------|------------------|
| 1880's | 0            | hundreds or thousands | 300             |                 | few hundreds     |                  |
| 1921   | 0            | 1900                  | 2600            |                 | 360              |                  |
| 1922   | 2            |                       |                 |                 |                  |                  |
| 1924   |              | 2350                  | 1660            |                 | 160              |                  |
| 1936   | 4            | 2950                  | 2100            |                 | 500              |                  |
| 1946   | 7            | 2000                  | 2000            |                 | 400              |                  |
| 1952   | 19           | 2000                  |                 |                 | 375              |                  |
| 1954   | 21           | 980                   | 2000            |                 |                  |                  |
| 1955   | 37           | 2000                  | 2000            |                 |                  |                  |
| 1959   |              | 1650                  |                 |                 |                  |                  |
| 1966   | 30-35        | 2140                  |                 |                 |                  |                  |
| 1967   | 40           |                       |                 |                 |                  |                  |
| 1969   | 53           | 3100                  |                 | 9000            |                  | 340              |
| 1971   |              | 3120                  |                 |                 |                  |                  |
| 1972   |              | 3400                  | 3500            |                 |                  |                  |
| 1973   | 68           | 3110                  | 3360            |                 | 440              |                  |
| 1974   | 91           | 2840                  | 3920            | 9730            | 410              |                  |
| 1975   | 72           | 3520                  | 3880            | 11300           | 480              |                  |
| 1976   | 57           | 3080                  | 3790            |                 | 370              |                  |
| 1977   | 62           |                       |                 |                 |                  |                  |
| 1978   | 94           |                       |                 |                 |                  |                  |
| 1979   | 108/96       | 4840/4380             |                 |                 |                  |                  |
| 1980   | 131          |                       |                 |                 |                  |                  |
| 1981   | 132/144      | 6110/<br>6120         | 12000/<br>16500 | 16920/<br>15700 | 840/<br>1010     | 2090/<br>2080    |

#### Notes

1. Counts of auks and Kittiwakes are rounded to the nearest ten.
2. Two figures for 1979 and 1981 refer to two completely separate counts.
3. Units (pairs/birds) according to the source (see text).

**Guillemot** In 1888 there were 300 "pairs" (Raeburn in Baxter and Rintoul 1953), in 1969 there were 9000 birds. This increase continues with 9730 individuals in 1974 and 16,000-17,000 in 1981—a mean annual increase 1969-81 of 5.1% ( $n$  4,  $r$  0.95). Increases have occurred in all areas and many new parts of the island have been colonised, e.g. the Maiden's Hair had eight eggs in 1972 and 100+ birds in 1981, Rona had three incubating birds in 1975 but 166 individuals in 1981. Birds now breed in some areas such as Burrian which appear hardly suitable.

The mean number of individuals in the monitoring plots increased from 1126 to 1258 between 1978 and 1981, a mean annual rate of increase of 4% p.a. which is not dissimilar to the 5% increase calculated for the whole colony (total counts of birds) between 1969 and 1981 or 6% be-

tween 1975 and 1981. Examination of annual changes in the total number of birds in all the plots shows an overall increase of 3% between 1978-79, a 1% decrease between 1979-80 and a 9% increase between 1980-81 (Table 2). Only the last change was significant. If we consider the annual changes in the mean numbers of birds in each of the eight individual plots we find very different changes, not only in magnitude but in direction. Thus between 1978-79 4 plots showed an increase in numbers and 4 a decrease (range of changes -6% to +48%), between 1979-80 4 plots increased and 4 decreased (-48% to +22%) and between 1980-81 7 plots increased and 1 decreased (-1% to +32%). Such heterogeneity in annual changes in numbers of individuals in different parts of the colony emphasises that care is needed in interpreting population changes based on a small number of study plots containing a small proportion of the total population.

**Table 2. Changes in numbers of birds in study plots on the Isle of May**

|                            | 1978 |             | 1979 |             | 1980 |             | 1981 |             |
|----------------------------|------|-------------|------|-------------|------|-------------|------|-------------|
|                            | n    | mean<br>±SE | n    | mean<br>±SE | n    | mean<br>±SE | n    | mean<br>±SE |
| Kittiwake<br>(nests)       | 3    | 346<br>±2   | 4    | 341<br>±1   | 7    | 371<br>±2   | 4    | 374<br>±2   |
| Guillemot<br>(individuals) | 2    | 1126<br>+11 | 3    | 1165<br>±38 | 3    | 1157<br>±38 | 25   | 1258<br>±12 |
| Razorbill<br>(individuals) | 0    |             | 0    |             | 3    | 143<br>±10  | 9    | 171<br>±7   |

**Note** Sample size and means refer to summed totals of all sample plots counted on a single day.

**Razorbill** The older population estimates were extremely variable, e.g. 360 pairs in 1921 but only 160 in 1924. The 1969 count of 340 birds in July may well have been too low as c. 1,200 individuals were estimated in April 1972. Taking the 1969 count at its face-value, the mean annual increase 1969-81 was 16% ( $n$  6,  $r$  0.91). The mean annual increase 1973-81 in the number of pairs was 10% ( $n$  5,  $r$  0.86). The sample plots indicated a significant increase of 20% between 1980 and 1981.

## Discussion

There have been marked and continuing increases in the numbers of most seabirds nesting on the Isle of May during the last ten years, and the recent estimates of numbers of Razorbills and Guillemots are much higher than any published previously. Taylor and Reid (1981) noted that the number of both these species ashore on the Isle of May in early winter sometimes appeared to be far in excess of the estimated number of breeding birds. However, some estimates of the numbers of auks breeding on the island were probably too low. The 13,000 Guillemots and 2000 Razorbills recorded at the island in October 1977 could well have all been Isle of May residents as the breeding populations were probably far in excess of the 4000 and 400-500 pairs respectively the authors extrapolated from the sparse data available for earlier years.

Since Operation Seafarer in 1969, Kittiwake and Guillemots on the Isle of May have increased by 5%, Fulmars by 7% and Razorbills by 16% per annum. Between 1959 and 1969 the total British populations of Kittiwake and Fulmars increased by 4% and 7% p.a. (Coulson 1974, Cramp *et al.* 1974). No comparative data are available for Guillemots and Razorbills but the available data on other seabirds suggests that populations of species which have a single egg clutch and deferred maturity cannot increase by much more than 10% p.a. without immigration. There may well have been immigration of these auks on to the Isle of May, but many other colonies in north-east Britain are also expanding. For instance, in Berwickshire during 1957-78 Guillemots increased from c. 5600 to 15,000 individuals (5% p.a.), Razorbills from 250-300 to 700 (4% p.a.), and Kittiwakes from 6,400 to 18,000 nests (5% p.a.) (da Prato and da Prato 1980). Similarly on the Farne Islands in 1972-80 Guillemots increased from 1,500 to 5,700 pairs (18% p.a.), Razorbills from 13 to 34 pairs (13% p.a.), Kittiwakes from 3,000 to 4,000 nests (3.7% p.a.) and Fulmars from 61 to 83 sites (4% p.a.) (Hawkey and Hickling 1973, 1981). The same occurred in Caithness in 1969-77 although the apparently massive increase from 50,000 to 126,000 individual Guillemots (12% p.a.) may have been partly due to incomplete coverage in 1969 (Mudge 1979). The Puffin population from the Moray Firth to Yorkshire has increased by 9% p.a. 1969-80, but here there has been much movement between colonies resulting in the population on the Farne Islands increasing only slowly whereas that on the Isle of May has gone up by 22% p.a. due to immigration (Harris 1983).

Other species nesting on the Isle of May have also done well. The number of Shags nesting increased steadily from six pairs in 1934 and 12 pairs in 1946 to 1129 occupied nests in 1973 (Eggeling 1974)—a mean annual increase 1946-73 of 16% ( $n$  10,  $r$  0.93). A large mortality of adults during the 1975 breeding season caused a slump to 364 pairs in 1976, but the



SHAG

population has since recovered at 19% p.a. ( $n$  6,  $r$  0.86) to an all-time high of 1163 nests in 1981 (Galbraith 1981, personal observations). Herring and Lesser Black-backed Gulls both increased by 13-14% p.a. from the early 1930s to a combined peak of c. 17,000 pairs in 1972 (Chabrzyk & Coulson 1976, Duncan 1981). Since then the population has been culled; in 1981 there were c. 2,800 nests of the two species combined (NCC unpublished results).

Conditions must be exceptionally favourable for most seabirds in the North Sea. Doubtless the change from human predation in the 18th and most of the 19th century to more-or-less complete protection from the start of this century has helped all the species but many of the most spectacular increases in numbers have occurred during the last few decades, long after the start of protection. This suggests protection is not the only, or possibly even the main, cause of the increases. A change in the food supply, perhaps due to climatic change or the effects of commercial fishing, appears a more likely, if mainly speculative, cause. Whatever the reason the Isle of May now ranks as one of the most spectacular concentrations of seabirds in east Scotland and well deserves its status as a National Nature Reserve.

### Acknowledgments

We thank previous counters, especially Dr J. C. Coulson, Dr P. Lack, N. Gordon, M. Tasker and K. Bayes, for documenting their counts in the records of the Bird Observatory, and we are grateful to NCC, the custodians of these records, for allowing us access to them and for financial support. Dr D. Jenkins and Dr S. Wanless improved the manuscript.

### Summary

There have been recent marked and continuing increases in the numbers of seabirds nesting on the Isle of May. Mean annual rates of increase 1969-81 have been 7% for Fulmars, 5% for Kittiwakes and Guillemots and 16% for Razorbills.

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## Breeding waders of the Caithness flows

T. M. REED, D. R. LANGSLOW and F. L. SYMONDS

*This study complements recent and current work on the breeding waders of machair and agricultural land and provides comparable data on the populations of the flat expanses of raised or blanket bog known as flows.*

The flows of Caithness and Sutherland are well known as strongholds of breeding waders (Nethersole-Thompson, 1971), yet little work has been done to assess the size and density of their breeding populations. This study presents results from two years' census work by the Upland Bird Survey team of the Nature Conservancy Council.

### Study area and census methods

Most of Caithness is covered by peat. Over the last century and a half piecemeal enclosure, drainage and peat cutting have all acted to decrease the amount of peatland and much of the remainder has been burnt and grazed; ruined crofts indicate heavier human pressure in former years. The major peatlands are in the west, north-east, and south of the county and contain areas of national and international importance (Ratcliffe, 1977). Survey sites were chosen to represent all Caithness peatland/upland moorland habitat types.

All but one of the 18 sites were between 3 km<sup>2</sup> and 10 km<sup>2</sup>; the exception was only 2 km<sup>2</sup>. Each site was counted on a single day using a transect technique. Maps for each site were overlain with a transect grid (lines 200m apart) positioned so that no part of the site was more than 100m away from an observer on a transect line. Each site was visited on 3-5 occasions between late April and early July in 1979 and 1980, with the exception of one site C12 in 1979, and three C12, C17 and C18 in 1980 where only two visits were possible. On each visit

a pair of observers walked the same transect lines plotting the exact location of all species seen, except for Skylark and Meadow Pipit, in amended common bird census codes. One observer also recorded the number of Skylarks and Meadow Pipits seen until the first fledglings appeared.

Registrations were transferred to species summary maps after each visit. The maps were analysed at the end of the season to obtain estimates of breeding populations. Registrations were accepted as indicative of breeding/attempted breeding if they fitted one or more of the following categories:

- (a) Nest, (b) Pair with young, (c) Pair acting as if with young, (d) A bird or birds, present in the same area on two or more occasions, showing signs of attachment to the area.

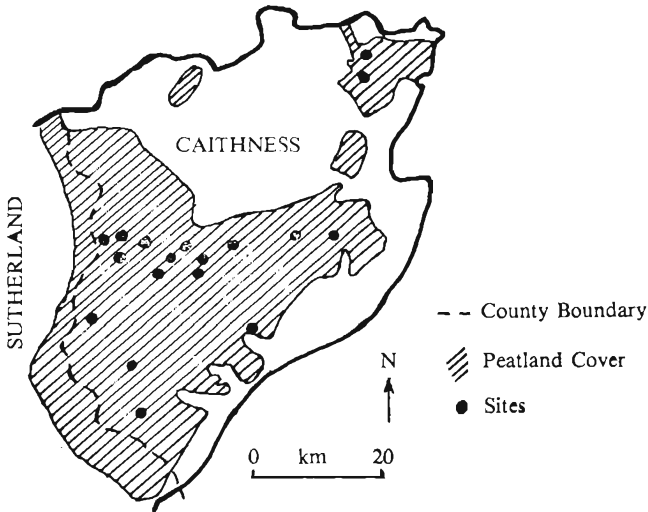


Fig. The extent of peatland and location of study sites in Caithness.

## Results

The census results are summarised in Tables 1 and 2. At only one of the five sites (C6) visited in both years was there a statistically significant difference in the total wader population between years ( $p < 0.035$ , Sign test). Populations for all but two species at this site were higher in 1979 than 1980 although the timing of visits did not differ between years. At the other 4 sites numbers of most species were highest in 1980.

For all species there were substantial variations in populations between sites but only for Curlew in 1979 ( $r=0.641$   $p<0.05$  8 d.f.) and Golden Plover in 1980 ( $r=0.838$   $p<0.001$  11 d.f.) was there any relationship between population size and site area. Although densities varied greatly between sites, average densities did not vary significantly between years for any of the major wader species (Table 3). The average number of pairs per site of each species was also similar between years, with the exception of Golden Plover ( $t=2.895$   $p<0.05$  21 d.f.). Almost all Dunlin and Curlew densities were below those found on North Uist machair (Fuller, 1981). Preliminary analysis shows that the distribution of all wader species on Caithness survey areas in 1980 was highly non-random, with species showing strong associations to certain site features rather than uniformly spaced within sites (Reed and Langslow, in prep.).

Table 1 The estimated numbers of pairs of waders on Caithness flow sites counted in both 1979 and 1980

| Site             | C2   |      | C5   |      | C6   |      | C12  |      | C13  |      |
|------------------|------|------|------|------|------|------|------|------|------|------|
|                  | 1979 | 1980 | 1979 | 1980 | 1979 | 1980 | 1979 | 1980 | 1979 | 1980 |
| Oystercatcher    |      |      |      |      |      | *    |      |      | *    | 1    |
| Ringed Plover    | *    | 1    | 6    | 5    |      |      |      |      |      |      |
| Golden Plover    | 17   | 19   | 14   | 16   | 14   | 13   | 8    | 15   | 22   | 25   |
| Lapwing          | 1    | 1    |      | 4    | 3    | 1    | 4    | 6    | 3    | 7    |
| Dunlin           | 2+   | 1+   | 6+   | 9+   | 4+   | 1+   | 2+   |      | 8+   | 7    |
| Redshank         | 2    | 1    | 3    | 4    | 1    | *    | *    | *    | *    | 2    |
| Greenshank       | 2    | 8    | 4    | 5    | 2    | 2    | 1    | 1    | 4    | 1    |
| Common Sandpiper | *    |      |      |      | 1    | *    |      | 1    | *    | *    |
| Curlew           | 1    | 1    | 5    | 4    | 8    | 7    | 4    | 5    | 14   | 18   |
| Snipe            | *    | 1    | 3    | 1    | *    | 1    | *    | 2    | 1    | *    |
| Total pairs      | 25   | 33   | 41   | 48   | 33   | 25   | 19   | 30   | 52   | 61   |
| Site area (ha)   | 625  |      | 705  |      | 850  |      | 820  |      | 875  |      |

\* present

+ estimates for Dunlin are minima (see text)

The distribution of ducks and passerines was also non-random: ducks especially Teal (19 pairs in 1979, 25 in 1980) and Wigeon (11 and 10 pairs respectively) associated with pool and loch systems. Amongst the passerines, all sites had Meadow Pipits and Skylarks whilst Wheatear, Whinchat and Stonechat were confined to the margins of a few sites. Loch edges were comparatively rich, with Pied Wagtails and Common Sandpipers on most shores and Ringed Plovers on sandy shores. The larger lochs supported breeding Greylag Geese, Black-throated Divers and Common Scoters. Almost all sites had either single pairs or small (<15 pairs) colonies of Arctic Skuas in both years. The Skua's population in northern Scot-



land is continuing to expand and Everett's (1982) figures for Caithness are probably underestimates as more than 50 pairs were found on the seventeen study sites (Reed, Symonds and Langslow, 1983).

**Table 2** Estimated numbers of pairs of waders on Caithness flow sites, 1979 and 1980

|                  | Sites 1979 |     |     |     |     | Sites 1980 |     |     |     |     |     |     |     |
|------------------|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|-----|-----|-----|
|                  | C4         | C7  | C8  | C9  | C11 | C1         | C3  | C10 | C14 | C15 | C16 | C17 | C18 |
| Oystercatcher    |            |     |     | 1   | *   |            |     | *   |     | 1   | *   | *   |     |
| Ringed Plover    |            |     |     | 3   |     |            |     |     |     |     |     |     |     |
| Golden Plover    | 13         | 23  | 13  | 14  | 16  | 22         | 24  | 17  | 3   | 4   | 6   | 4   | 7   |
| Lapwing          | *          | 1   |     | 7   | 11  |            | 9   | 6   |     |     | 9   | *   |     |
| Dunlin           | 1+         | 3+  | 2+  | 3+  | 8+  | 5+         | 5+  | 2+  | 1+  | *   | 2+  | *   | 2+  |
| Redshank         | 1          |     |     | 1   | 4   |            | 5   | 4   |     |     | *   | *   | *   |
| Greenshank       | 1          | 6   | *   | *   | 1   | 2          | 6   | 3   | 1   | 1   |     |     | 3   |
| Common Sandpiper | 1          |     |     | 1   |     |            | 1+  |     |     | 5   |     |     |     |
| Curlew           |            |     |     |     |     |            | 6   | 11  | 3   | *   | 3   | 3   | 3   |
| Snipe            |            |     |     |     |     | 2          | *   | *   |     | *   | 5   |     | *   |
| Site area (ha)   | 700        | 725 | 700 | 625 | 850 | 700        | 810 | 690 | 200 | 520 | 340 | 300 | 400 |

\* present

+ estimates for Dunlin are minima (see text)

## Discussion

It is difficult to determine breeding wader populations accurately. Large waders such as Curlew, Greenshank and Golden Plover are generally detectable by observers walking 200m apart, whilst small waders such as Snipe and Dunlin are harder to detect. The Dunlin's quietness, great mobility when disturbed, and tendency to occur in dense clusters means that population assessments from these transect counts will be underestimates. Intense nest searching in 1980 within an area worked by Fuller in 1979 also indicated his estimated densities from transects to be too low (R. Fuller, pers. comm.). An additional problem with visiting a site over a period of several months is that species detectability varies during this time period (Reed and Langslow, in prep.). However, for all but Greenshank, detectability during the course of the season was

not statistically different between species of wading birds on the flows (op. cit.); underestimation should be spread evenly amongst species. Visits in early and mid June detected more birds than visits earlier or later in the season.

Population estimates reported here are likely to be low for several reasons. The transect method assumes that all birds are always equally detectable; this is unlikely to be correct. In most species there is a lull in activity between display and the emergence of juveniles. Waders are highly detectable before and after incubation, but relatively undetectable during incubation. Variation in detectability may influence the analysis of summary species maps when only three visits are made. Visits were spaced, on average, three weeks apart; if birds are not seen on even one of the visits, the chances of territory detection, according to the rules used to compile territories, are lowered considerably. In such circumstances territory designation depends on detecting nests, young or distraction display. Unless hatching is strongly synchronised between all individuals of the same species, it is unlikely that all territories will be detectable on one or two visits, especially if these visits are late in the season when the earliest broods will have fledged. Both these factors will lead to underestimation of populations.

A further factor that may lead to underestimation is the patchy distribution of birds, as strong clumping of registrations makes it almost impossible to split registrations into discrete units. This problem is especially acute for Dunlin where birds occur in colonies separated by large areas without registrations. Rather than attempt an estimate of colony size, based upon the number of individuals seen, the minimum estimates are based on either nests or distraction displays.

The results give not only information on population sizes but also indications of factors affecting species occurrence. Most wader species were widespread whilst a few were highly localized. Redshank were absent from pure flow areas lacking basic marshes or flushes (C1, C14, C15, C18) and upland areas (C2, C8, C12). Lapwing were also absent from areas without marshes (C1, C14, C15, C18) and were found within sites only on damp basic ground by lochs and streams. Golden Plover were ubiquitous, at varying densities, with Dunlin almost as widespread. Both species were found at highest density on sites with dubh lochs and slightly degrading pool systems. Greenshank were found on all sites with the exception of the two northernmost flows which are surrounded by farmland.

Certain sites are especially rich both in number of species and their abundance: (C3, C5, C13, C11, C10), whilst others

(C1, C4, C8 and C14) are species-poor with only 5 wader species. In neither year was the number of wader species recorded on each site related to its area ( $r=0.116$   $p>0.05$  8 d.f. 1979;  $r=-0.143$   $p>0.05$  11 d.f. 1980); confirming the inherent differences between sites. Because of these differences between sites, any extrapolation to estimate the wader populations for the whole of Caithness will be influenced by the sites sampled. Nevertheless Table 3 gives estimates for the Caithness flowland as a whole. Population densities for almost all wading species are low in comparison with other studies in Scotland (Fuller, 1978, 1981) and England (Greenhalgh, 1969, 1971). Average Greenshank densities are lower than those reported in some areas of Sutherland and Wester Ross but above reported Finnish densities (Nethersole-Thompson and Nethersole-Thompson, 1979). However, Golden Plover densities are similar to those observed in various parts of north-east Scotland (Ratcliffe, 1976).

Table 3. Numbers and densities of 5 wader species on survey sites and estimated populations on Caithness flowland in 1979 and 1980

|               |      | Area surveyed      |              | Density |           | Estimated Caithness population pairs † |
|---------------|------|--------------------|--------------|---------|-----------|--|
|               |      | (km <sup>2</sup> ) | No. of pairs | av.     | range     |  |
| Golden Plover | 1979 | 74.8               | 154          | 2.05    | 0.97-2.7  | 1441                                   |
|               | 1980 | 78.4               | 175          | 2.09    | 0.77-3.14 | 1638                                   |
| Lapwing*      | 1979 | 74.8               | 30           | 0.39    | 0 -1.29   | 273                                    |
|               | 1980 | 78.4               | 43           | 0.54    | 0 -2.65   | 378                                    |
| Redshank*     | 1979 | 74.8               | 12           | 0.16    | 0 -0.47   | 112                                    |
|               | 1980 | 78.4               | 16           | 0.21    | 0 -0.62   | 147                                    |
| Greenshank    | 1979 | 74.8               | 21           | 0.28    | 0 -0.56   | 196                                    |
|               | 1980 | 78.4               | 33           | 0.41    | 0 -1.28   | 287                                    |
| Curlew*       | 1979 | 74.8               | 53           | 0.71    | 0 -1.28   | 497                                    |
|               | 1980 | 78.4               | 64           | 0.82    | 0 -2.02   | 574                                    |

†Extrapolated from average density figures; 700 km<sup>2</sup> suitable habitat.

\*Because these species also breed on marginal agricultural land, total Caithness populations will exceed those estimated for flowland.

Although the average density (Table 3) did not vary significantly between sites for any species in 1979 and 1980, extrapolated populations for the flowland differ appreciably between years. Therefore extrapolations that assume similarity between both sites and years, although useful as a guide, will produce contrasting and potentially misleading results. Because most wader species exhibit strong selectivity for certain types of habitat, more accurate estimates can be obtained by the use of air photographs and field survey to delimit the extent of suitable habitat for each species within Caithness (Reed and Langslow, in prep.).

## Summary

Censuses of breeding waders were carried out on ten areas in Caithness in 1979 and thirteen in 1980. The number of species on a site was not related to site area, nor was individual population size with the exception of Curlew in 1979 and Golden Plover in 1980. Species densities varied between sites but did not differ between years and were relatively low in comparison to other studies. Species richness is very high in comparison with peatland bird communities elsewhere.

## Acknowledgments

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George Street, Huntingdon, Cambs.

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## Birdwatching in the Eighties - Fair Isle

NICK RIDDIFORD

Fair Isle has so much to offer the birdwatcher I would call it unfair . . . were I not living there! With a variety of habitats in an area small enough to be thoroughly covered but large enough to leave an unexplored corner for the morrow, and at times migrants occupying every available niche from shoreline to the highest point, Ward Hill, a visit to Fair Isle must be, for the birdwatcher, as much a question of 'when' as 'where'.

Fair Isle is traditionally known for its large-scale migra-

tions and uncanny ability to produce rarities at a rate which threatens to devalue the meaning of the word. So it remains to this day. Heavy movements, spring and autumn, are still commonplace; rarities have become ever more numerous and exotic, partly at least due to the sophisticated approach to identification by the modern birdwatcher. However, another aspect of the island's birdlife has grown rapidly in prominence in the last decade—its populations of breeding seabirds.

Massive increases in the numbers and variety of seabirds breeding on Fair Isle in the last fifteen years are mainly due to two factors: firstly, an ever-increasing abundance of sand-eels offshore during the summer months, providing an important food source, and secondly a plentiful supply of ledge, cranny, cave, grassy slope and boulder beach habitats to suit a variety of nest-site requirements. Eighteen species are known to breed and two of them—Gannet and Arctic Tern—have colonised since 1974. Careful searching and a modicum of luck may yet establish Leach's Petrel as an addition to this list; it certainly occurs with marked regularity at one or two sites during July and August.

Fair Isle is a veritable seabird city with the total population numbering in the hundred thousands. There can be few more impressive sights than the summer activity all round the isle, set against a backcloth of magnificent scenery. Flowers carpet the ground—and the cliffs. Caves, stacks and natural arches litter the coastline, and the west cliffs rise to over 150 m as a contrast to the low cliffs and pebble beaches of the south. The sounds and smells, too, are atmospheric, echoing and wafting up dramatic geos (narrow inlets) from beaches out of sight. Fortunately not all breeding colonies are beyond view and there are sites where the patient birdwatcher or student of breeding behaviour can sit safely in close proximity to virtually all the breeding seabird species without causing disturbance. Thus the showy and individualistic auk, the Tystie, can be watched in several places at distances of 10 to 30 m. Puffins permit still closer approach, tempting even the most hard-bitten non-photographer to reach for his Instamatic. Needless to say, the birdwatcher for whom photography is an integral part of the hobby will find numerous subjects among the seabirds. One species which does not lend itself to daytime photography, or watching, is the Storm Petrel, but the Bird Observatory's night-time studies enable visitors to see this species in more favourable circumstances than normal—and there is always the chance of a Leach's Petrel too.

Not all breeding activity is confined to the cliffs. A walk across the heather in the north brings one close to breeding

Bonxies and Arctic Skuas—for some visitors, too close for comfort! Hardly a summer goes by without a Long-tailed Skua joining the flock of non-breeders at the airstrip. Non-seabirds breed on Fair Isle too. Most celebrated among these is the Fair Isle Wren, a large, boldly-marked version of the mainland race. It breeds down the cliffs, using rock faces as natural sounding boards for its powerful song. The constant piping of Oystercatchers at two o'clock of a June morning is less appreciated! About 80 pairs breed, as do Curlew, Lapwing, Ringed Plover and Snipe regularly and Whimbrel and Golden Plover occasionally. The Peregrine no longer nests, leaving the cliff patrol to five pairs of Ravens, and though the rasping of the Corncrake is still heard most years in May and June there has been no recent breeding record. On the credit side Quail bred successfully in 1981 and the late summer covey gave several visitors their first views of this elusive bird. In the same year a pair of Yellow Wagtails, pioneers beyond their British range, nested not 20 m from the Quail.

In summer the isle is at its most verdant and the weather generally at its kindest. In spring and autumn Fair Isle sits in the path of the numerous depressions or their sweeping fronts which bring a fresh meaning to the word 'changeable'. But it is these very weather patterns which make Fair Isle a migration station of world renown. When a depression moves north-east on a track between Shetland and Iceland, a succession of fronts swinging from it results in a period of southerly or south-easterly winds pulling in disoriented migrants from Scandinavia and Continental Europe. As the front passes the wind swings to SW, but rarely does one need to wait for more than a day or two before the next SE blow. A rather more constant easterly airflow exists when a large area of high pressure becomes established over southern Scandinavia and into Russia, and depressions track E or SE across Britain to become slow moving on meeting the anticyclonic barrier. This situation, prevalent in recent years particularly in autumn, makes Fair Isle a target for waifs and strays from regions far to the east in Russia. While the migration specialist rubs his hands at the prospect of yet more easterly winds, there is no room for complacency during periods of westerlies; deep depressions rapidly tracking across the North Sea have transported a number of Nearctic passerines, waders and even Sandhill Crane to the isle.

A large fall of migrants is one of the most exhilarating wonders of the bird world. Add to this the unexpected—a Red-flanked Bluetail, Yellow-browed Bunting, Red-necked Stint or perhaps a vagrant yet to be recorded in Britain—and you have the ingredients which draw many birdwatchers to Fair Isle,

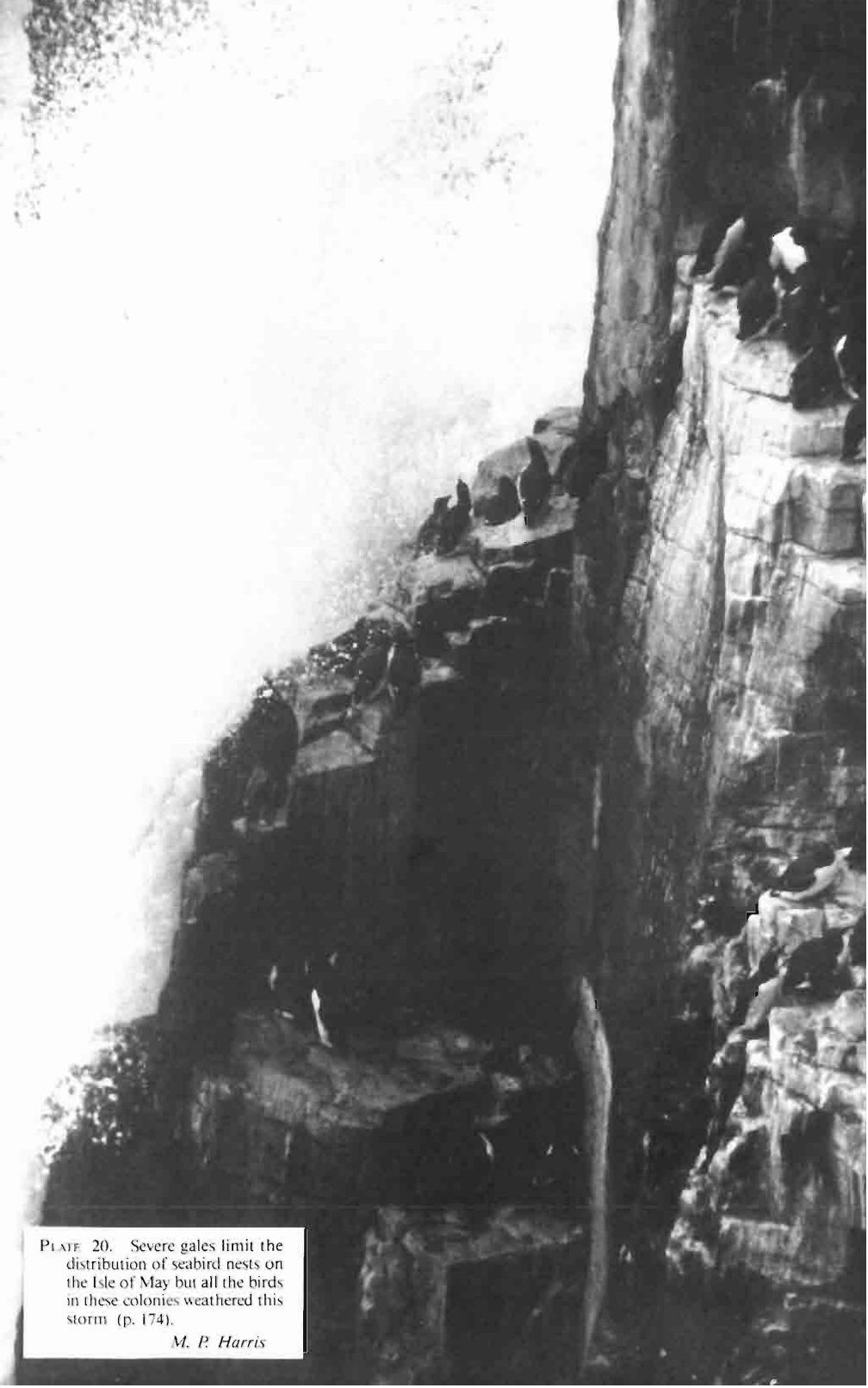


PLATE 20. Severe gales limit the distribution of seabird nests on the Isle of May but all the birds in these colonies weathered this storm (p. 174).

*M. P. Harris*

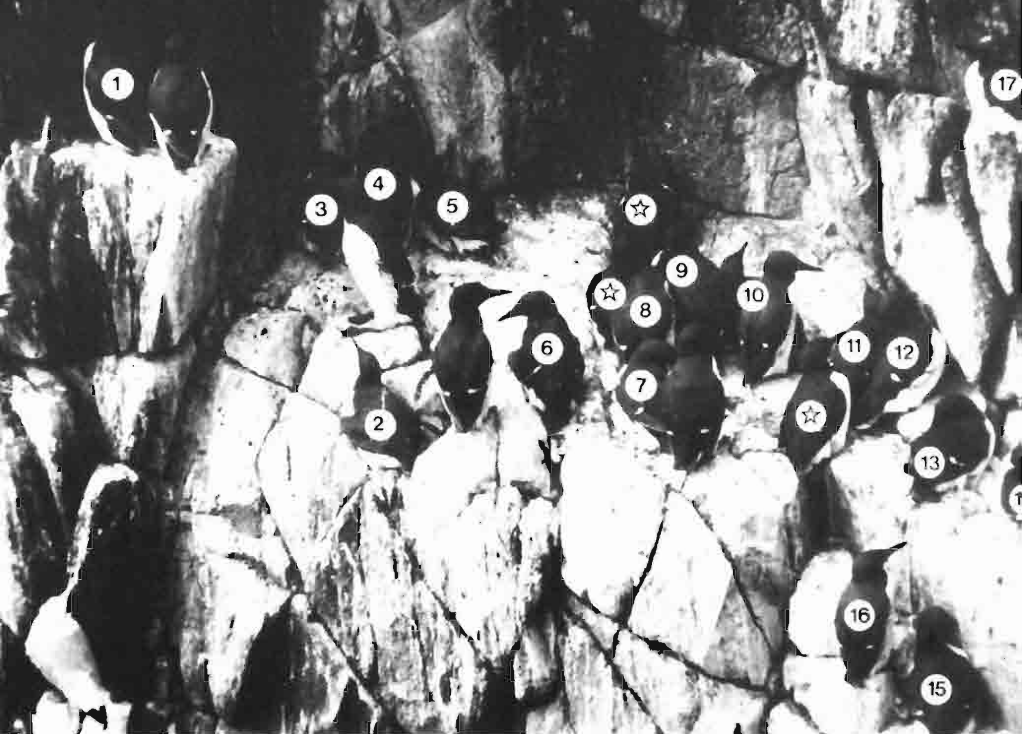


PLATE 21a. Part of the study colony of Guillemots on the Isle of May. In 1981 the 20 marked pairs all laid and by 22 October birds were back on 17 of these sites.

b. On some Isle of May cliffs Guillemots are easy to count but in other areas they occur in dense aggregations which make counting much harder.

*M. P. Harris*







PLATE 22. On much of the wet, peaty flowland of Caithness the Golden Plover is by far the most abundant breeding wader (p. 180).

Upper - *Derek Ratcliffe*

Lower - *Sam Alexander*

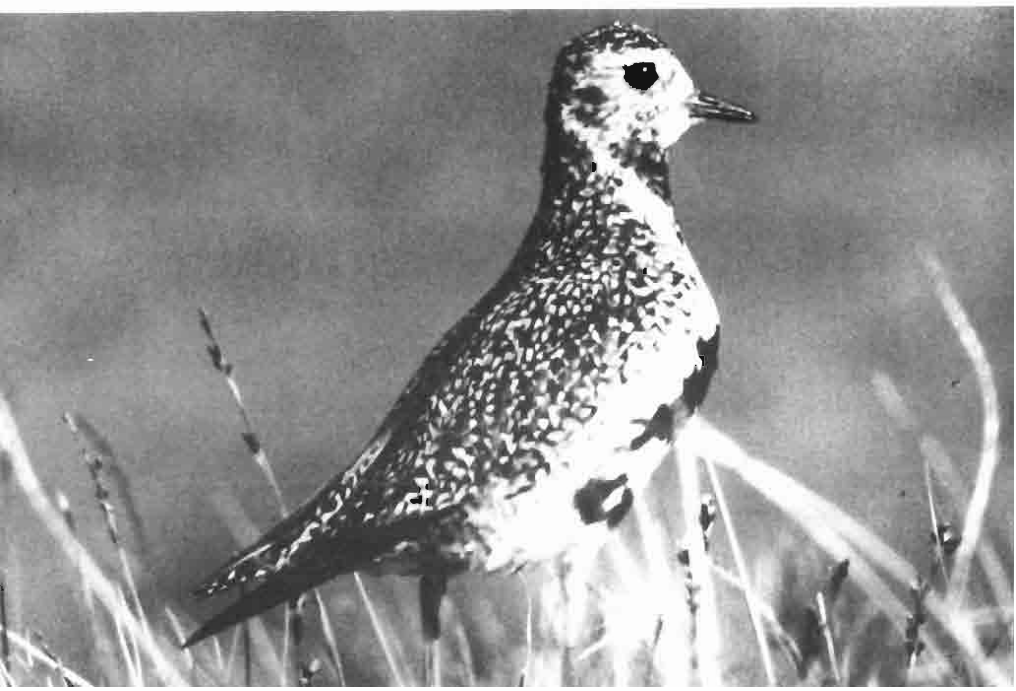




PLATE 23a. Many birdwatchers doubtless attempted to photograph the Killdeer at Bo'ness; the first recorded in Scotland this century.

*Jonathan Osborne*

b. This White-tailed Eagle, wearing its Rhum wing-tag, was snapped while wintering near Stornoway.

*Peter Cunningham*



spring and autumn. Picking the right moment to visit is difficult. Most popular months are May and September when rarities are virtually guaranteed. Some of the heaviest movements take place at this time, but they occur in other months too. Large arrivals of Chaffinches and Bramblings have been a feature of late March in recent years, phenomenal movements of Blackbirds, Robins and Dunnocks have been recorded in April and numbers of Redwings in October frequently exceed 10,000; the isle supported 65,000 Redwings one day in 1979, a total that defies the imagination. Over the last few years October has proved as exciting and varied as September, viz. a 'fall' of 10 Pallas's Warblers and a Parrot Crossbill irruption in 1982, Isabelline Shrike, two Olive-backed Pipits, King Eider and Arctic Redpoll in 1981 and Brunnich's Guillemot, Pine Bunting and Yellow-browed Bunting in 1980. Fair Isle has added 20 species to the British list since the Observatory's foundation in 1948. Visitors in search of the May or September crop of rarities have missed the last three: Yellow-browed Bunting in October 1980, Sandhill Crane in April 1981 and Red-necked Stint in August 1982. These three are typical of the vagrants which appear on Fair Isle—unpredictable in date, origin and species. The thrill of encountering the unexpected is the 'icing on the cake' for many birdwatchers. The joy of Fair Isle is that the unexpected happens virtually every week, spring and autumn, and regularly in the summer months too.

This brief sketch of birdwatching on Fair Isle will, I hope, help and encourage the reader to plan a visit to this, one of the world's most famous bird islands. I have dwelt more on the when than the where. For details of the isle's habitats and ornithological history I refer the reader to Roger Broad's chapter in 'Bird Observatories in Britain & Ireland' (Durman, 1976). It is useful to know that habitats vary from well-drained moorland to wet bog and shallow lochans. Sturdy walking boots give the visitor access to much of the isle but Wellingtons are a recommended accessory. Warm, waterproof clothing is also essential—some of the best birdwatching can be done in less than clement weather! Photographers will be pleased to learn that the Observatory possesses a portable hide for loan to guests.

Means of travel to and from the isle have multiplied in recent years. Loganair currently run a scheduled air service from Tingwall, Shetland, four times a week in summer (and twice a week in winter) and Air Orkney provide charter flights from Orkney, while the island-based mailboat, The Good Shepherd, plies twice a week in summer (and once a week in winter) to Grutness Pier and back. Further information on these services can be obtained from the appropriate travel

organisation or from FIBOT, 21 Regent Terrace, Edinburgh EH7 5BT.

Fair Isle Bird Observatory welcomes birdwatchers, naturalists and, indeed, all who wish to visit Fair Isle, whatever their interest. The Observatory offers full-board accommodation at competitively low rates in an attractive and comfortable modern cedarwood building overlooking the sea (brochure available from FIBOT). It is an ideal centre for a birdwatching holiday as there is ample opportunity to further ornithological knowledge among like-minded persons, there is an extensive bird and natural history library, and the atmosphere is designed to be relaxing and informal. Many birdwatchers feel that they must make one 'pilgrimage' to Fair Isle in their lifetime. Those who do frequently make it again and again. It is certainly an experience not to be missed. I hope you are tempted. If you are, any request for further information will be welcomed—it can be obtained by writing to the Warden, Bird Observatory, Fair Isle, Shetland or telephoning Fair Isle (035 12) 258.

*Nick Riddiford, Bird Observatory, Fair Isle, Shetland*

**Footnote** The Red-necked Stint referred to above is still subject to British Birds Rarities Committee acceptance.—Ed.

## Short Notes

### Dotterel numbers and breeding in the Central Grampians

In 1976-80 numbers, breeding and behaviour of Dotterel were studied on 3.5 km<sup>2</sup> of hill ground over Moine schist (for fuller description see Nethersole-Thompson 1973). Woolly fringe moss *Rhacomitrium lanuginosum* was dominant in one part and together with *Carex bigelowii* on another. One or two pairs of Golden Plover nested each year on the study area. Raven, Kestrel, Peregrine and Golden Eagle all hunted over the breeding grounds. The droppings of Foxes were also found regularly.

Each year the Dotterel population was estimated in mid-June by counting the nests and additional broods found and the extra males or pairs present. The total number of pairs (Table) was on average about double the 2-11 pairs recorded by Nethersole-Thompson (1973) on the same area in 1950-58 using the same methods at the same time of year.

Breeding densities varied from 2.3-4 pairs/km<sup>2</sup>. These were higher than those recorded elsewhere in Scotland but are lower than in northern Fenno-Scandia and north-west Russia (Nethersole-Thompson 1973). The shortest recorded distance between nests was 100m in 1978; two other nests in 1978 were only 150 and 350m apart (in 1953 four nests lay roughly in a straight line within 500m. Nethersole-Thompson, 1973). All nests found were at altitudes between 870 and 1000m.

Two clutches had two eggs (1978, 1979) and 22 had three eggs. This was similar to the results recorded by Nethersole-Thompson (1973) for the Central and West Grampians.

At three hatches watched to completion, all nine eggs hatched successfully. Eight hatching eggs from three nests were weighed one day before hatching, ranging from 10-13 g. One egg about to hatch weighed 10 g and a two hours old chick dry in the nest weighed 11 g. In 1979 a brood of three chicks, thought to have just left the nest, weighed 9, 9 and 9.5 g and another brood of two chicks 10 and 10.5 g. Of 12 broods found shortly after hatching, three had three chicks, five had two chicks and four only one chick, suggesting that heavy losses had already occurred.

At four nests observed during hatching, the chicks did not emerge simultaneously. For example, on 15 June 1977, a cock was flushed from three well-chipped eggs at 12.10 but by 13.30 the first egg had hatched. While the cock incubated, a hen stood about 100 m away. Calling occasionally, she moved to within 30 m of the nest. When the cock left with an egg cap in his bill, the watching hen, followed by another hen, ran up to within 0.5 m of the nest. She now chased the following hen before the cock returned and in turn drove her away. After this chase the hen again stood 30 m from the brooding cock.

A cock had two chicks beside this same nest at 12.00 on 16 June and a solitary hen with a single chick stood 100 m away; she had apparently led away the older chick, thus enabling the cock to hatch the last two eggs. During this hatch the three chicks within the eggs cheeped continuously and the cock gave gruff cries *Keereek Keereek* and frequently tapped the eggs with his bill.

Cocks were incubating at all nests with eggs but at two of them hens were standing close to the nests and brooding cocks. Cocks alone were tending the chicks in 16 out of 17 broods.

As very small numbers of Dotterel breed in Britain, the Central Grampians, with their relatively high population, are clearly of great importance to the species in this country. Such valuable habitat should be carefully protected to allow future generations of outdoor enthusiasts and naturalists to enjoy watching Dotterel.

I thank my brothers and sisters for their field notes, my father for stimulating discussions, my mother for typing and Adam Watson for constructive comments.

PATRICK S. THOMPSON

REFERENCE: Nethersole-Thompson, D. (1973) *The Dotterel*.

Table Estimated numbers of Dotterel on the study area

| Year  | Nests found | Additional broods seen | Other males or-pairs | Total pairs |
|-------|-------------|------------------------|----------------------|-------------|
| 1976  | 2           | 0                      | 6+                   | 8+          |
| 1977  | 6           | 1                      | 1                    | 8           |
| 1978  | 8           | 3                      | 2-3                  | 13-14       |
| 1979  | 3           | 8                      | 2-3                  | 13-14       |
| 1980* | 5           | 0                      | 3-4                  | 8-9         |

\*Note: Possibly an underestimate because bad weather made observation difficult.

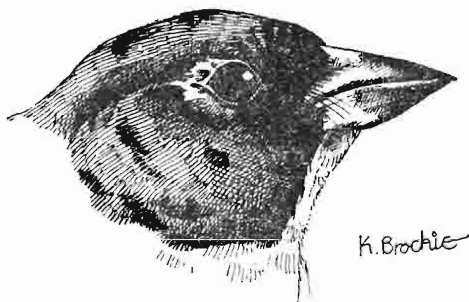
### Successful breeding of Brambling in Inverness-shire

On 5 June 1982 my wife and I heard bird song which was strange to us in an Inverness-shire birchwood and spotted a female Brambling feeding beneath the trees. The strange song was soon repeated and we

caught a glimpse of the male, but the birds proved elusive and both quickly disappeared. Forty-five minutes later the male sang close by and we saw him in pursuit of the female and then mounting her. Moments later the female again disappeared and we suspected that she might have gone to her nest.

At 1130 hrs on 6 June the male sang loudly and shortly after pursued the female around the mating area of the day before. He fed her with an insect during the act of mating, which ended with the pair going their separate ways. We did not see the female again for several hours and presumed that she had again gone to the nest. At 2010 hrs that evening the male sang from a tree in the display area and continued to produce frequent, though short, bursts of song until 2050 hrs. I again searched the tree through binoculars and almost at once spotted the nest. It was about 10m up and tucked into a fork. The nest was larger than, and not so neat as, a Chaffinch's and was later found to measure 14 x 11 cm and to be 8 cm deep. It was made of dry grasses, moss and lichens interwoven with a lot of sheep's wool and some tiny pieces of dry bracken, heather, paper and strips of fine birch bark. The cup, 7 cm in diameter and c.3 cm deep, was lined with finer grasses, very soft fur which looked like rabbit's, and small feathers, of which two were from Woodcock and one from Tawny Owl.

On 7 June we watched the nest for over 6 hours, starting at 1045 hrs. The female frequently left it to feed for short periods, usually remaining within a radius of 30-50 m. After feeding she returned quickly to the nest, usually flying directly into the tree and then to the nest but sometimes going straight to the rim of the nest. The male fed over a wider area and when he brought food to the nest made the same direct approach as the female but almost always used a misshapen branch at the side of the nest as a perch.



In the course of our watch the female left the nest 21 times, including two occasions when she seemed to fly off in excitement just as the male arrived with food and stayed off only a few seconds. The total time she spent off the nest feeding and consorting with the male was 98 minutes, average period 4.67 mins. Between 1050 and 1421 hrs she left the nest 16 times and between 1421 and 1705 hrs only 5 times. In the early afternoon she sat for 73 mins without a break, then left to feed for 15 mins (the longest period of absence we recorded) before returning to incubate for a further 26 mins. The average period of continuous incubation during our watch was 13.19 mins.

The male came to the nest 13 times during this period and refused to feed the female unless she was actually in the nest cup. Only once did he bring food to the nest in the female's absence and in all fed her 8 times, the longest interval between visits being 2 hrs 35 mins.

We left the area on 8 June but informed Roy Dennis of our discovery. He inspected the nest on 14 June and reported that it contained 5 white, downy young about 5 days old. The nest was revisited on 1 July when the young had fledged and one juvenile was seen in the area.

Brambling is reputed to have bred in Perth, Inverness and Easter Ross but there have been only two previous documented records, in Sutherland in 1920 and Grampian in 1979. In Sutherland the nest with 7 eggs was robbed, and the Grampian nest, which contained 3 eggs, was unfortunately deserted. The present record therefore constitutes the first proven successful breeding in Britain.

I thank Roy Dennis for reports on his visits, including a detailed description of the nest, and for advice regarding this note, and my wife for her assistance with fieldwork.

R. H. BUCKNALL

REFERENCE Buckland, S. T. & Knox, A. G. 1980. Brambling breeding in Scotland. *Brit. Birds* 73: 360-361.

### High-rise Willow Warbler

On the 5th July 1982 I located the unusual nesting site of a Willow Warbler in a wood surrounding my garden at Knapp, near Inchtute, Perthshire. The nest, containing 3 chicks about 10 days old, was built into the side of a witches' broom growth 70 cm in diameter on the branch of a silver birch 5.2 m above ground level. The nest was a typical domed structure lined with Peregrine and Wigeon feathers (from my captive birds). The whole branch swayed freely in moderate winds. This odd site was chosen despite the abundance of more suitable/normal nesting habitat.

The Handbook (Vol 2 Witherby et al) gives nesting sites as occasionally in low bush, on trellis or in ivy on wall but normally on the ground, though occasionally recorded as much as 14 or 16 feet above it.

KEITH BROCKIE

### Non-breeding territorial aggression by Peregrine

On October 23rd 1982 I was working in my garden when all the small birds suddenly panicked and flew into the still-leafy shrubs and remained still and silent. A few seconds later two Peregrines appeared flying high and fast on an easterly course, one of them calling with the 'cacking-call' followed by the 'creaking call' (kek-kek-kek wi-chew, wi-chew, wi-chew), this series repeated several times in quick succession. The steady flight was interrupted twice, when both birds threw up; and then at the limit of my visibility, after circling for ten or fifteen seconds, they parted, one continuing out of sight while the other returned westwards, whence both had come.

Although the literature states that the 'creaking-call' is normally associated with courtship displays, Ratcliffe (1981, *The Peregrine Falcon*) adds that it is sometimes used in territorial defence, and on this occasion I am in no doubt that the latter is the correct explanation. Peregrines are seen every winter in eastern Fife, especially in estuary and coastal areas, but these are birds displaced from breeding territories elsewhere in the country. I have been unable to trace any records of non-breeding territorial aggression in the Scottish lowlands, and wonder whether what I witnessed was an isolated instance of aberrant behaviour by an individual, or may be rather more common than is generally realised.

E. F. B. SPRAGGE

### Fledgling Merlins catching moths

According to the Birds of the Western Palearctic Vol II (BWP) hand-reared young Merlins at six weeks showed innate dexterity in taking flying insects in their first hunting flights. There seem to be few documented observations of this behaviour in the wild.

On 31st July 1977 at a conifer forest in Upland Galloway I was watching three fledgling Merlins about a week out of the nest. One of them flew up from a conifer and attempted to catch a flying Eggar Moth twice but missed on each occasion. Two hours later its sibling (a male by size) flew down from a conifer and deftly caught an Eggar Moth in its talons, bent down, bit it, then flew to a conifer to eat it. A week later I disturbed a young Merlin from a heather tuft where it had obviously been eating an Eggar Moth. Thirty-five minutes later it began chasing an unidentified moth and tried to grasp it three times before eventually catching it.

On 10th July 1977 in the same nesting area I had collected from below a boulder, which was used frequently by the female as a perch, 60 Eggar Moth wings (33 left, 27 right) and from the nest I collected 13 Eggar Moth wings and one unidentified moth wing. BWP state that when day flying moths are especially abundant they may form a substantial part of the diet of the young. In this instance the female may have been feeding on the majority of them herself but on the other hand she may have been discarding the wings before feeding them to her young.

R. C. DICKSON

### Petrels and predators

Ed Maguire's interesting account of the way in which Storm Petrels avoided Peregrines by diving under the water (*Scottish Birds* 12: 118) prompts me to make the following points. While I too have seen Storm Petrels fly low out to sea when released, it was noticeable that a Leach's Petrel, which is much more agile in the air, flew high instead, avoiding numerous gulls—which also like to chase petrels—in the process. Migrant landbirds normally appear to avoid the attentions of such predators by flying high over the sea, with the result that Peregrines settling on ships often prefer to feed on petrels instead (*Ibis* 122: 536-540). I have also seen Coots pursued by a Peregrine, a Sooty Shearwater pursued by Great Skuas, and a flying Shag that was shot at, all dive under the water under conditions where other birds might be expected to tower, so it seems possible that this is a regular means of escape adopted by birds more at home in the water than the air. That it also has disadvantages is illustrated by the Wilson's Petrel caught by a passing shark (*Sea Swallow* 18: 64).

W. R. P. BOURNE

### Osprey taking up wing-stretch posture

On 29 August 1982, while watching an adult male Osprey at an estuary, we observed the following behaviour. After an unsuccessful attempt at fishing the Osprey shook off excess water and landed on a low perch. Looking very bedraggled it spread its wings out horizontally and started to preen its underwing coverts and upper breast. After fully 15 mins it seemed to tire, as both wings (still outstretched) slowly dropped and were finally closed after a quick shake. This is presumably very unusual behaviour for an Osprey as it has apparently not previously been recorded (see Cramp & Simmons, 1980. *The Birds of the Western Palearctic*, Vol II).

KEITH DUNCAN, IAIN C. McLEOD



## Fieldwork Reports

*These brief reports have been submitted by recipients of SOC  
Endowment Fund grants*

**Foula Expedition 1982** A party of 11 visited the island from 25 June to 11 July. The aims of the expedition were to ring seabirds; obtain weights and measurements of skua chicks; census and map Great and Arctic Skuas, Larus gulls and Arctic Terns; record numbers, distribution and breeding success of Red-throated Divers and Eiders; determine timing of breeding and productivity of terns, Kittiwakes, Shags and skuas; sample seabird diets; obtain biometrics for adult seabirds; continue annual monitoring of selected sites; census the new and expanding Gannet colony; obtain data on the Tystie population; and assist with seabird ringing at Sumburgh. About 300 seabirds were ringed at Sumburgh and 3,305 on Foula; the latter included 694 Shags, 107 Arctic Skuas, 828 Great Skuas, 677 Arctic Terns and 410 Guillemots. All Great and Arctic Skua chicks were weighed and measured. Numbers of both skuas and of terns showed a continuation of the trends over the last few years: Great Skuas have decreased to 2,500 since reaching a peak of 3,000 pairs in 1977, Arctic Skuas have decreased to 224 from 273 in 1979, and Arctic Terns have continued to drop erratically after their rapid increase in the early 1970's. Red-throated Divers continue to increase, with 14 pairs in 1982, and Eiders to decline. The new and expanding Gannet colony at the base of the Kame held 45 nests. A complete analysis of the data will be made in due course.

R. W. FURNESS

**Heron Studies in East Scotland** In 1982 fifteen colonies were studied in Angus (5), Fife (4), Kinross (1) and Perthshire (5). Three colonies, at Carnoustie, Brechin and Glen Isla, were discovered and one at Montrose was lost due to felling. The severe weather of December and January caused high mortality of first year birds but only slightly reduced the adult population. Breeding numbers at colonies were, on average, 12% down on 1981, considerably less of a reduction than we had anticipated following the hard weather. Brood sizes were slightly above average, and nesting in some colonies continued into August, much later than usual. 320 young were ringed (329 in 1981). The colour-ringed bird found breeding at Montrose in 1980 and 1981 was not located in 1982, owing to the movement of the colony, but another colour-ringed bird was found breeding, again at its natal colony, at the age of three. Wing-tagging was continued, in conjunction with Mick Marquiss of I.T.E. Last year's tagging produced several sightings of birds allowing individuals to be followed for varying lengths of time. Unfortunately, the high mortality of first year birds considerably reduced the number of marked individuals surviving into summer. No tagged birds were found breeding but two were resident near their natal colonies and should breed next year. Along with Mick Marquiss, we have published two short reports: a summary of our work, in the Fife Bird Report, and an account of the effects of the severe winter, in BTO News.

K. BROCKIE, M. NICOLL

**Status and Breeding Ecology of Merlin in Grampian** A team of three, myself, Brian Cosnette and Logan Steele, continued to work on this project. The main study area was expanded by approximately 25% and effort was concentrated there. Little feedback on status elsewhere in Grampian has been forthcoming. The breeding results for 1982 were poorer than in the previous 3 years but the reasons for this are not

clear. Some nests on relatively unkept ground probably failed due to ground predators. In some nests eggs were broken and in others failed to hatch. More pairs and nests were located but this was probably due to greater experience and effort. Eighteen known sites were checked early in the season, when 3 sites previously unknown to us were discovered. Nests were found at 16 of these 21 sites (14 with eggs, 1 with broken shells and 1 empty). Another one of the sites fledged young, as did a further site reported to us. For the 14 nests found with eggs the average clutch size was 4.07 (range 3-5); 9 nests reared 28 young to the ringing stage (2-3 weeks old), averaging 3.1 young per nest; one of these broods was predated after ringing. Three areas checked for post-fledging success had 8 young on the wing. As part of an attempt to establish reliable sexing at the ringing stage, the young in 4 broods were weighed and measured until they left the nest. Six unhatched eggs were collected for chemical analysis and sent to Monkswood Experimental Station. Prey remains and pellets were collected on most visits and will be analysed in due course.

GRAHAM REBECCA

**Auskerry Seabird Survey** Visits have been made to Auskerry since 1971, to look particularly at Tysties and Fulmars but also other seabirds including Storm Petrels. The island was uninhabited until 1974-5 but there has since been some habitation and very considerable land improvement has produced an excellent sheep farm; the results of this "colonisation" are being assessed. Our short visit in mid-July 1982 coincided with an exceedingly wet spell which resulted in the deaths of about 40 Fulmar chicks, several broods and individual Shags (especially large chicks unable to be brooded by an adult), and a number of gull chicks. The atrocious weather limited fieldwork but slight increases in Tysties, Shags, Fulmars and gulls were recorded, and a decrease in Kittiwakes. The average brood size for Shags was 2.51 and for Tysties 1.56—both are high figures. Most of the Tysties were well-grown and fledging success is likely to have been very high. Ringing totals (c.500 birds) were not as high as in previous years, the grand total is now well over 6,000. Several colour-ringed birds from previous years were seen. Lists of the numbers counted and ringed have been deposited in the Waterston Library. It is hoped to continue the work in future years.

A. D. K. RAMSAY

**Canna Seabird Studies** 1982 marked the fourteenth successive year of our studies on Canna. Four visits were made in April, May, July and August, covering most of the breeding season. The aims of our visit are threefold: (1) a complete count of all species to detect annual variations in seabird numbers; (2) assessing the breeding performance of several species; and (3) a ringing programme to determine dispersal patterns, mortality etc. All species except Puffin were counted or sampled in 1982. Manx Shearwater (1000+ pairs), Greater Black-backed Gull (61 pairs), Lesser Black-backed Gull (43 pairs), Common Gull (13 pairs) and Black Guillemot (114 birds) showed no major changes on 1981 counts. Razorbill numbers also seemed stable compared to the last available count in 1979. Shags however had increased 24% to 1507 pairs, Herring Gulls by 21% to 1212 pairs and Guillemots by 12% to over 2000 pairs (based on sample colonies). Kittiwakes continued their slow increase by 1% to 991 pairs. The only species to decline was the Fulmar which dropped to 548 pairs from a peak of 668 pairs in 1980. Breeding success was good for most species. Herring Gulls produced chicks in 85.4% of 321 nests in sample areas and Shags 2.07 young per pair from the 46 study nests (Second best performance ever). Shearwaters, however, had their worst ever breeding season with only one young fledging from 42

study nests that were laid in; rats were mainly responsible. Over 3,400 birds were ringed and in addition 200 young Herring Gulls and 350 Guillemots were colour ringed. More three-year-old Guillemots were proven breeding and 5 two-year-old Shags were caught as breeding adults—an unprecedented number for Canna and one that may partly explain the large increase in breeding numbers. Finally food samples were obtained for analysis from Guillemots, Shags and Razorbills. A full report of our work in 1981 and 1982 is being produced and copies will be placed in the Waterston Library.

R. L. SWANN

**Pentland Skerries Survey** A visit was made to the Pentland Skerries on 6th June 1982, landing on Muckle Skerry, to obtain a comprehensive count of the breeding birds. There was an impressive colony of Arctic Terns with an estimated 7,000 birds. A small colony of Sandwich Terns was found with 26 nests counted. Puffins, a species not included in the Seafarer count, totalled 259 individuals; 2 colour ringed birds from the Farne Islands and 1 from the Isle of May were seen. A landing could not be made on Little Skerry but a small colony of Cormorants could be seen, with at least 5 nests. A list of birds counted has been deposited in the Waterston Library. Thanks are due to all members of the party, Mrs Oag for permission to land and Mr H. Birley for providing the boat service.

CHRIS BOOTH

**Sule Skerry Survey** Between the 19th and 28th July, 1982 a party of eleven made a further survey of the seabirds of Sule Skerry. This was our fourth visit to the island, the others being in 1975, 1979 and 1980. As in all other years we estimated the Puffin breeding population and found that the slight declines noted in 1979 and 1980 had been reversed, and numbers were back to the 1975 level of c.44,000 pairs. It is important to note that with our estimation technique of using random quadrats our variations fell within the spread one would expect. The other seabirds nesting in significant numbers also appeared to be doing well. Fulmars were well up on all previous years and Shags showed a slight increase. Kittiwakes on the other hand, after showing a significant increase in 1979, had fallen back to their 1975 level of about 11,000 pairs. Storm Petrels still appear to be doing well, and there were certainly large numbers of non-breeders present during our stay. We continue to see and catch plenty of Leach's Petrels, but despite intense searches we are still unable to find any evidence of breeding of this species, even though some birds possess an obvious brood patch. Our studies on this island are continuing and it will be interesting to note any effects brought about by automation of the light, which was finalised on the 6th December, 1982.

A. C. BLACKBURN, D. BUDWORTH

**East of Scotland Mute Swan Study** During this first year the main emphasis was placed on the capture and colour ringing of broods of cygnets from as wide an area between the Highland and Lothians regions as possible. A total of 153 cygnets (from 41 broods) were caught, along with 43 breeding adults and 32 non-breeders. Data on age, sex, weight, tarsus and skull measurements were gathered, and a blood sample collected from 183 birds, to be analysed for lead levels. Following the good summer, indications are that breeding success was high, and of 52 broods known to have successfully reared young, mean brood size at fledging was 3.94 cygnets. Causes of mortality were investigated, and revealed that lead poisoning as a factor is certainly present, though precisely how prevalent is not yet clear. One bird from near Elgin died from ingesting no less than 944 pieces of lead shot, of gunshot not angling

origin. Ringing results and observations of colour marked birds have been most encouraging. Reports of birds from as far south as Jedburgh, Kelso, Northumberland and Lancashire suggest that major moult migrations along the east coast may exist, alongside the less dramatic seasonal movement of birds within the area. Observations of any marked swans will be gratefully received, as will reports (and preferably samples of livers and kidneys) of any recently dead birds. A more detailed report is lodged with the SOC in the Waterston Library.

CHRIS SPRAY

**Isle of May Bird Observatory Bain Trap Replacement** The new Heligoland Trap, replacing the Bain Trap, will be built in Spring 1983. This trap is experimental in that it utilises nylon coated steel tubing and cintoflex netting. Hopefully this should reduce problems associated with rust and rot. The structure will be smaller than its predecessor, but constructed in such a way that it can be increased in size with additional sections should this be required. Replacement of any damaged section should also prove relatively simple. It is hoped that this trap will make as valuable a contribution to migration as did the original, which was the most productive of the island's Heligolands. The S.O.C. Grant met half the cost of the materials.

B. ZONFRILLO

**Waders of rocky shores in northern Scotland** This was the first part of a 2-year project to survey the waders on all types of shoreline in the Orkneys. It was undertaken by a team of eight, drawn largely from the Tay and Orkney Ringing Groups. Between 22 and 31 January 1983 approx. 70% of the coastline suitable for waders was surveyed, covering all the larger islands. Over 44,000 waders and c.8,500 gulls were counted on approx. 450 km of shoreline. The most abundant species were Curlew (17,000) and Redshank (5,500). Internationally important numbers of Ringed Plover (1,000+), Turnstone (4,000+), Purple Sandpiper (3,500), Sanderling (650), Redshank, Bar-tailed Godwit (850) and Curlew occurred. Sanderlings were found only on Sanday and Westray, over 11,000 of the Curlews were on Mainland, and the Purple Sandpipers were mostly on the more exposed rocky shores, with relatively few around Scapa Flow or in the sounds between islands. The remaining islands will be surveyed in the winter of 1983-4, after which the project will be fully written up. An interim report has been deposited in the Waterston Library.

M. W. A. MARTIN, R. W. SUMMERS

## Reviews

**The Birds of Africa** (Volume 1) by L. H. Brown, E. K. Urban & K. Newman; Academic Press, London, 1982; 521 pp; 32 col plates; many distribution maps and line drawings; £52.00.

Volume 1 of this proposed four-volume series deals with the orders Struthioniformes to Falconiformes. The geographical coverage is the African continent and its immediate offshore islands (but not Madagascar). The three authors wrote the entire text themselves—a mammoth task, involving years of research. Nearly every species is illustrated, where necessary in different plumages of age, sex and race; many are also shown in flight. Plates 1-17 were painted by Peter Hayman, the rest by Martin Woodcock. Many of Hayman's plates are rather crowded but the work of both artists is competent and acceptable, even if some birds are less successful than others. The only major fault that I spotted right

away was the dark eye of the Greater Kestrel, which should have been a creamy white. Line drawings in the text show characteristic behaviour patterns and sometimes details of bill and foot. The introduction is extensive and covers the African avifaunas, climate, vegetation, geology, migration, research possibilities and the plan of the text. References to general works are listed at the end of the introduction. The research is up-to-date to 1980, when the book first went to press. Distribution maps for every species, except the rarest vagrants, are big and clear; both text and maps were competently refereed and must be about as authoritative as any current work of ornithology.

The amount of information in this book is vast. One can at a moment's notice get such details as weights, clutch sizes, social structure, abundance, and so on—all clearly set out under the relevant subheadings. Sample sizes for quantitative information are given wherever possible. Place names are given with coordinates, especially for information on migration. The list of references for separate families, given at the end of the book, covers 29 pages and must number about 2000 works. Sources of sound recordings are also available as a separate list.

This is a truly magnificent book, full of excellent ornithology. It is sad that Leslie Brown, whose brainchild it was, didn't live to see it in final print, but it is a fitting monument to his memory. Intending buyers should subscribe to the entire set right away and get the books at a lower price. Volume 2 is in preparation at the moment, and the others should follow within a year or two of each other.

GORDON MACLEAN

**St Kilda Revisited** by David A. Quine; Frome, 1982; 230 pages; 9 colour, 38 monochrome photos; 9 maps, many sketches and diagrams; (soft-back) £5.25.

Over four hundred years have passed since Donald Munro first described St Kilda and in the intervening period more has been written about the island than on any equivalent fragment of land in the whole British Isles. Why then another St Kilda book when such excellent handbooks as the new edition of Tom Steel's *Life and Death* and the National Trust's *St Kilda Handbook* have been published in recent years? David Quine's *St Kilda Revisited* is the compilation of an enthusiast who has "endeavoured to collect together . . . earlier material, with recent findings in as many fields as possible".

He has certainly succeeded in this and has produced a comprehensive and readable compendium of information on all aspects of St Kilda life and history. Some photographs are published for the first time, family histories are brought up to date (with photographs), and of particular interest are long extracts from George Murray's diary. This is a most useful and interesting little book which complements rather than replaces other recent works. All St Kilda lovers should have this one. My only criticism is its curious format—oblong and floppy—it deserves better.

IAN DURANCE PENNIE

**The Living Birds of Eric Ennion** by Eric Ennion, with an introduction & commentary by John Busby; Gollancz, London, 1982; 128 pages; many colour & plain illustrations; field sketches. £9.95.

'Living Birds' is an apt description for this marvellous collection of sketches and paintings by the late Eric Ennion. His unique style of capturing the vitality and movement of birds with such economy of line and paint was masterful. Their simplicity belies the genius, years of knowledge and fieldwork backed up by scrapbooks of reference sketches which form the basis of this book. My particular favourite is a page of kestrel

sketches depicting a male balancing on a thin branch whilst scanning the ground for prey. He taught and inspired many artists, including John Busby, who compiled the book and wrote the introduction and commentary. I had the privilege of attending Ennion's last drawing course with John in 1980. I shall treasure that week's tuition and this book, a fitting tribute to Dr Eric Ennion.

KEITH BROCKIE

**Golden Eagle Years** by Mike Tomkies; Heinemann, 1982; 202 pp; 20 col., 40 plain illus; £9.95.

Somewhat in the mould of Gavin Maxwell, Mike Tomkies exiled himself somewhere in the West Highlands so that he could observe, photograph and write about its wildlife. This very popular account of the Golden Eagles in his area is lucid and at times absorbing, although I found his frequent references to each of thirty or so numbered eyries in his 'patch' slightly confused the text. He subjected himself to prolonged and gruelling overnight stints in hides (vowing repeatedly 'never again!') and the resultant photographs reflect both his frustrations and successes, ranging from poor to excellent. The book reaches a convincing climax when he finally locates the long elusive eyrie of a kenspeckle pair near his home, containing a brood of two chicks. Freely admitting his initial ignorance of some basic aspects of eagle biology (which at times he tends to exploit to convey the impression that he is breaking new ground in eagle research), the author subsequently researched his subject deeply, and includes an impressive bibliography. He also appends a useful list of over a hundred prey items found in his eyries, together with a brief analysis on the altitude and aspects of the nests.

JOHN A. LOVE

**Foula, Shetland Vol. 4 - The Birds of Foula** by R. W. Furness. The Brathay Hall Trust, 1983; 147 pages; 41 figs & 18 plain illus; £3 (S).

This is Vol. 4 in a series of 8 on the Shetland island of Foula published by the Brathay Trust to put on record the results of 25 years of late-summer expeditions for schoolboys. Bob Furness has used this opportunity to bring up to date all that is known or recorded on Foula. He admits that the observations are 'uneven', and the chief criticism must be that much of the data is patchy or incomplete. But when so few long-term studies have been made and so little published, this brave attempt to restore the balance is all the more valuable. For island-lovers it's a must. By far the most important part of the book covers the 40 species of breeding birds and brings up to date the changing status of one of the Northern hemisphere's most important and least documented seabird stations. The author's own wide knowledge of the island is most evident in the evaluation of the past history and recent status and significance of the skua populations, especially an important summary of our knowledge of the largest N. Atlantic colony of the Bonxie. Other highlights are the agonisingly slow process of establishing, over 8 years, a new gannetry now of 30 nests; and the dramatic confirmation of a minor colony of perhaps 50 pairs of Leach's Petrels.

C. K. MYLNE

**Les Oiseaux de la Corse** by J-C Thibault; Parc Naturel Regional de la Corse. Ajaccio, 1983; 255 pages; 12 tables; 30 maps; 70 b/w plates; £12 (S).

This well-produced little book, by the eminent French ornithologist Jean-Claude Thibault, describes the habitats and the status and distribution of the birds of Corsica, home of the endemic Corsican Nuthatch and stronghold of the Lammergeier in the western Mediterranean.

W. G. HARPER

**Birds new to Britain and Ireland** by J. T. R. Sharrock and P. J. Grant; Poyser, Calton, 1982; 263 pages; many illustrations, maps, and plain photos; £12.60.

Thirty five years of what could be described as one of the most exciting aspects of birdwatching—finding a species new to the British Isles—are crammed into this fascinating new book. It contains descriptions of "firsts" which originally appeared in *British Birds*, but with some very useful additions, including an update on each species' status, and a note on additional identification details. The occasional weather map helps to explain how some birds became firsts. All 83 species are described in chronological order—I wonder how many twitchers made the pilgrimage to Norfolk in 1955 after their first Collared Dove? The book is beautifully illustrated by a variety of artists, but I don't share the editor's enthusiasm for the photographic section at the end. Better quality photos would have been more helpful—even if they had come from outside the UK! This, however, is a very minor criticism of an otherwise excellent and "gripping" book.

ANGUS HOGG

The books reviewed above are available from the SOC Bird Bookshop.

**Current literature** Articles and reports on birds in Scotland, mainly on status and distribution, are listed here. Some biological studies, e.g. behavioural, are excluded, as are references from the widely available journals *British Birds*, *Bird Study*, *Ringing and Migration* and *Ibis*. Most items listed are available for reference in the Waterston Library. The librarian welcomes copies of work on any aspect of ornithology.

Biometrics of breeding Dunlins from South Uist. B. Etheridge & W. G. Taylor 1982. *Wader Study Group Bull.* 36: 2-3.

Breeding Dunlins on a South Uist machair meadow in 1982. B. Etheridge & W. G. Taylor 1982. *Wader Study Group Bull.* 36: 4-5.

Spring passage of Sanderlings on the Solway Firth. N. A. Clark, B. S. Turner & J. F. Young 1982. *Wader Study Group Bull.* 36: 10-11.

Limitation of local population size in the Shelduck. I. J. Patterson, M. Makepeace & M. Williams 1983. *Ardea* 71: 105-116.

The diet of the Knot on rocky shores of eastern Scotland in winter. R. W. Summers & S. M. Smith 1983. *Ardea* 71: 151-153.

Summer distribution of birds [in Cumbernauld and Kilsyth District]: Preliminary maps. (59). A. D. Wood & A. J. Young 1982.

St Abb's Head seabird counts for 1982. (21 pp). S. R. Warman & C. O. Badenoch 1982. Nature Conservancy Council, Edinburgh.

Ecology and everyman. G. M. Dunnet 1982. (deals with monitoring seabirds in Scotland) *J. Anim. Ecol.* 51: 1-14.

A radio-tracking study of the ranging behaviour and dispersion of European Sparrowhawks [in south-west Scotland]. M. Marquiss & I. Newton 1982. *J. Anim. Ecol.* 51: 111-133.

Fidelity to breeding area and mate in Sparrowhawks. I. Newton & M. Marquiss 1982. *J. Anim. Ecol.* 51: 327-341.

Time of laying by Swallows and Sand Martins [in Scotland]. A. K. Taylor 1982. *J. Anim. Ecol.* 51: 29-46.

The home range and density of Kestrels [in Scotland] in relation to vole abundance. A. Village 1982. *J. Anim. Ecol.* 51: 413-428.

Concentration of Scottish seabirds vulnerable to oil pollution. W. R. P. Bourne 1982. *Marine Pollut. Bull.* 13: 270-273.

Changes in the breeding biology of the Herring Gull induced by reductions in the size and density of the colony [on the Isle of May]. J. C. Coulson, N. Duncan & C. Thomas 1982. *J. Anim. Ecol.* 51: 739-756.

- Detection of annual changes in the numbers of cliff-nesting seabirds in Orkney 1976-80. S. Wanless, D. D. French, M. P. Harris & D. R. Langslow 1982. *J. Anim. Ecol.* 51 : 785-795.
- Food, predation and breeding season in Sparrowhawks [in Scotland]. I. Newton & M. Marquiss 1982. *J. Zool. (Lond.)* 197 : 221-240.
- A colony of Cormorants at a fresh water loch in North Uist. D. J. R. Counsell 1982. *Army Bird Watching Soc. Bull.* no. 4/82.
- Forth Island bird counts in 1982. R. W. J. Smith 1983. *Edin. Nat. Hist. Soc. J.* for 1982, 24-25.
- Variations in size and growth of Great Skua chicks [in Shetland] in relation to adult age, hatching date, egg volume, brood size and hatching sequence. R. W. Furness 1983. *J. Zool. (Lond.)* 199 : 101-116.
- Interim report of the Scottish Greenland White-fronted Goose census in autumn 1982.* (8 pp). A. D. Fox & D. A. Stroud (1983).
- Scottish Bird Report for 1981.* (62 pp). R. H. Dennis (ed) 1983. £1.75 post free from SOC Bird Bookshop.
- Trapping and colour-ringing Golden Plovers in NE Scotland. R. Parr 1982. *The Ring* 9 : 244-246.
- Lothian Bird Report for 1981.* (59 pp). D. J. Bates, G. F. Bell & M. R. Leven (eds) 1983. £1.50 post free from M. R. Leven, 13 Henderson Row, Edinburgh EH3 5DH.

## The Scottish Ornithologists' Club

### ANNUAL CONFERENCE

The 36th annual conference and 46th annual general meeting of the club will be held in the Marine Hotel, North Berwick, East Lothian, during the week-end 4 - 6 November 1983. The conference programme, which includes the agenda for the AGM, and the booking form will be sent to members with the autumn journal early in September. Reservations for the conference can only be accepted on the booking form; the Marine Hotel has been instructed not to accept any booking except through the club secretary.

### BRANCH MEETINGS

Will members please note that the dates for the first meetings of branches next winter will be as follows :

September 19th Aberdeen, Borders and Glasgow  
 20th Edinburgh, Inverness and Wigtown  
 21st Ayr, Dumfries, St Andrews and Thurso  
 22nd Dundee, New Galloway and Stirling

### LOCAL RECORDERS

Please note the following change :

**Sutherland** A. R. Mainwood, 13 Ben Bhraggie Drive, Golspie, Sutherland KW10 6SX.

The list of all SOC recorders is published towards the end of this issue of the journal.

### THE BIRD BOOKSHOP

The 1983 summer booklist is available free from the club office. Members can still order books post free if they buy at least £10 worth at a time.



## Notices

**Southeast Scotland Bird Bulletin** It is planned to start an informal news-letter to publicise sightings and events in the Lothian and Border Regions. As well as a systematic list of species seen, the Bulletin will include details of indoor meetings, fieldtrips, census work, new books, etc. All observers (local and visiting) are asked to send in their records on a monthly basis and these will subsequently be forwarded to the three local recorders involved. Records for each recording area should be sent on separate sheets and in Voous order under headings of species, number, locality, date and comments. These should be sent to I. J. Andrews, 36 Lutton Place, Edinburgh EH8 9PG, at the end of August (for April to August) and monthly thereafter.

**The Centennial Meeting of The American Ornithologists' Union** is to be held in New York, 25 September-1 October 1983. Members of "sister ornithological organisations" all over the world are invited to participate. Anyone interested should contact Lester L. Short or George Barrowclough at the American Museum of Natural History, New York, New York 10024, USA, for further information.

## Recent Reports

*These notes include unchecked reports and are not intended as a permanent record, nor will they be indexed. Please send reports to Pete Ellis, 17 Regent Terrace, Edinburgh via local recorders, at the end of March, June, September and December. The period January to March is covered here.*

The mild winter was in stark contrast to last year and was no doubt responsible for the number of wintering "summer visitors", though winter rarities were well represented. Shetland produced 2 **White-billed Divers** and a rather "out of place" **Night Heron** wintered on Arran. Notable wildfowl included a white **Snow Goose** at Meikle Loch in January and a blue phase bird in March in the Western Isles, where there was also a **Canada Goose** of one of the small northern races. A **Teal** of the American race *carolinensis* stayed at Inverness till February and the male **Ring-necked Duck** returned to Loch Insh in March. **King Eiders** were reported from Orkney, Shetland and Lewis, at least three male **Surf Scoters** wintered at Spey Bay and a female appeared in Shetland in March, while **Smew** were seen in several localities—those on Mull and in Orkney being the most unusual. **Rough-legged Buzzards** in several areas and spectacular white **Gyr Falcons** in Shetland on 21st February and in South Uist on 30th March were highlights among the raptors. Scotland's first **Killdeer** this century, and the second ever recorded, gave tremendous pleasure to hundreds of birdwatchers from January till at least mid March. The mild weather no doubt helped a **Common Sand-piper** survive the winter at Paisley Moss.

Passerines of special interest were few and far between but included a **Shore Lark** on Fair Isle (on 31st March it was their earliest ever), **Water Pipits** appeared at Sumburgh in January and Barnsness in March, and a **Dipper** of the continental black-bellied race (c. *cinclus*) on Fair Isle. Wintering **Black Redstarts** and **Blackcaps** were seen as far north as Fife and Shetland respectively whilst a **Chiffchaff** appeared in Edinburgh on 1st March. **Crossbills** have been perhaps more numerous than usual with flocks of up to 80 near Selkirk. The weather turned cold again in mid-

March and northerly winds have meant a slow start to the spring migration.

By far the most outstanding feature of the period was the influx of sea birds, no doubt a result of the long series of gales. January and early February produced unprecedented numbers of **Iceland Gulls**, particularly in the north and west—for example 30 at Stornoway, 30 Scalloway, 23 Wick, 13 Lerwick, 13 Ullapool, 12 Stromness, 6 Ayr and 5 Fraserburgh. One bird in Lerwick was considered to be of the American race *kumlieni*. For once **Iceland Gulls** outnumbered **Glaucous Gulls** in most areas. Gull watching is always good at this time of year; Shetland as usual took the lead. "Good" gulls included **Mediterranean** in Shetland and Leven in March, **Little** at Peterhead and Dunbar in February, **Sabine's** off Islay in January and at Eyemouth in March, a **Bonaparte's** at Scalloway in January and **Ring-billed** at Scalloway and Tiree in January. The ultimate in gulls, a **Ross's**, stayed in Shetland throughout January and February and was twitched by a Dutchman with a world list of over 4000 species. (He had previously missed them in Alaska). A second bird was at Sumburgh on 22nd-23rd January and yet another graced Wick Harbour from 26th January to 6th March and thrilled a number of birders who made the long drive from the central belt and Aberdeen. Other unusual seabirds included a **Grey Phalarope** at Longniddry on 13th February, **Pomarine Skuas** at Inverness in February, 2 at Peterhead in January and 4 there in February, where an **Arctic Skua** was also seen. Single **Bonxies** were also at Peterhead in January and February.

The most distressing aspect of this influx of seabirds was the largest wreck of auks ever recorded in Britain. At least 18,000 were involved, 2,500 being picked up dead on the beaches of Scotland. About 60% of the birds killed were **Razorbills** whilst most of the rest were **Guillemots**. The deaths are believed to have been due to exhaustion and starvation brought about mainly by the severe gales. In Orkney an Icelandic ringed **Razorbill** was recovered for the first time in Britain. Measurements indicate that the **Razorbills** found dead in Shetland were from Arctic breeding sites. The north-easterly gales produced the largest numbers of **Little Auks** to reach our shores since the 1940's. About 5% of the dead auks found on beaches were **Little Auks** but many of these super little birds were seen alive. Counts included 100 off **Whalsay** on 11th January and several hundred in the Forth between Barnsness and Cockenzie in early February. It is always such a shame that weather conditions which produce lots of birds for us to see are so bad for the birds themselves.

STOP PRESS : **White Stork**—East Linton, 9 April; **Ross's Gull**—Wick, 2-11 April; **Brunnich's Guillemot**—Shetland, 5 April.

PETE ELLIS

**A different kind of record!** During 1982 Bruce Forrester of Prestwick recorded 308 species in Britain. He believes that he is the first Scottish-based birdwatcher to have broken the 300 barrier, although this has been done by several south of the Border. He says that 12 months of "twitching, dipping and being gripped off" have left him exhausted (we can well believe it!) and is looking forward to a quieter year in 1983. (Incidentally, employing a much more static approach, the Editor has also just passed the 300 mark—in respect of draft species accounts for "Birds in Scotland").

**Scottish Bird Report 1981.** The Editor apologises for the errors in the species list. A full correction will appear in SBR 1938.

## SCOTTISH BIRDS

### ADVICE TO CONTRIBUTORS

**S**SCOTTISH BIRDS publishes original material relating to ornithology in Scotland. Papers concerned with status and distribution are particularly welcome, as are short non-technical summaries of studies carried out in Scotland and reported fully in a scientific journal. Descriptive articles for the "Birdwatching in..." series and short notes on behaviour, rarities, new breeding records, etc. are also invited. Papers are considered by an Editorial Panel and, where appropriate, are scrutinised by specialist referees. Contributions are accepted subject to editing and on the understanding that they are not being offered elsewhere.

Authors should bear in mind that only a small proportion of the readership is science-trained. Unfamiliar technical terms and symbols should be avoided wherever possible and if deemed essential should be explained. Supporting statistics should be kept to a minimum and preferably be given in association with a table or figure, or in an appendix, rather than in the body of the text. Authors should aim to present their material concisely, interestingly and clearly.

Papers should generally not exceed about 2,500 words; reference should be made to recent issues of Scottish Birds for guidance on style of presentation, use of capitals, form of references, etc. Two copies of papers and long articles are required, typed on one side only, in double spacing and with wide margins. Hand-written short notes should be well spaced and clearly written.

Tables should be self-explanatory and designed to fit across the page; lengthwise tables which do not completely fill a page will not normally be accepted. Table contents and headings should be kept as simple as possible; footnotes may be used to provide extra details where necessary. Each table should be on a separate sheet. Care should be taken to check all figures. (The Editor cannot undertake to correct other people's arithmetic !)

Maps and diagrams should be designed either to fit across the page (preferable) or to fill a page fully, and be drawn so as to permit reduction to half their original size. Lines and lettering should be in Indian ink, and shading in Letratone or cross-hatching (also in ink) at a density which will permit similar reduction. Pencil shading may not reproduce satisfactorily. Captions should be typed on separate sheets.

Both a figure and a table should not be used to present the same information. Figures and tables will be published only if, in the view of the Editorial Panel, the content justifies the space occupied.

Photographs, either glossy black & white prints (preferable) or colour transparencies, are welcomed; they should be sharp and have good contrast. Line drawings, in Indian ink on good quality paper, are also invited.

## LOCAL RECORDERS

- Shetland** (except Fair Isle) Dennis Coutts, "Da Knowe", Twageos Road, Lerwick, Shetland.
- Fair Isle** N. Riddiford, Bird Observatory, Fair Isle, Shetland.
- Orkney** C. J. Booth, "Ronas", 34 High Street, Kirkwall, Orkney.
- Outer Hebrides, St Kilda** W. A. J. Cunningham, Aros, 10 Barony Square, Stornoway, Isle of Lewis PA87 7TQ.
- Caithness** Mrs P. M. Collett, Sandyquoy, East Gills, Scrabster, Caithness KW14 7UH.
- Sutherland** A. R. Mainwood, 13 Ben Bhraggie Drive, Golspie, Sutherland KW10 6SX.
- Ross-shire (except Black Isle), Inverness-shire (mainland over 18 miles from Inverness)** R. H. Dennis, Landberg, North Kessock, Inverness IV1 4XD.
- Inverness-shire (within 18 miles of Inverness) and Black Isle, Ross-shire** M. I. Harvey, Clachbhan, Loaneckheim, Kiltarlity, Inverness-shire.
- Nairnshire, Morayshire, Banffshire** N. Elkins, 10 Oakbank Place, Elgin, Morayshire IV30 2LZ.
- Aberdeen, North Kincardineshire** Dr M. V. Bell, 20 West Mount Street, Aberdeen AB2 4RJ.
- South Kincardineshire, Angus** N. K. Atkinson, 5 Tolmount Crescent, Montrose, Angus DD10 9DQ.
- Perthshire** E. D. Cameron, Strathclyde, 14 Union Road, Scone, Perthshire PH2 6RZ.
- Isle of May** B. Zonfrillo, 28 Brodie Road, Balornock East, Glasgow G21 3SB.
- Fife (except Forth Islands), Kinross-shire** I. G. Cumming, 11 Canongate, St Andrews, Fife.
- Clackmannanshire, East Stirlingshire** Dr C. J. Henty, 3 The Broich, Alva, Clackmannanshire.
- West Lothian, Forth Islands (except May) Midlothian** A. W. & L. Brown, 7 Trelawney Terrace, Penicuik, Midlothian EH26 0NB.
- East Lothian** K. S. Macgregor, 16 Merchiston Avenue, Edinburgh EH10 4NY.
- Berwickshire, Peeblesshire, Roxburghshire, Selkirkshire** R. D. Murray, 143 Eskhill, Penicuik, Midlothian.
- Argyllshire, Inner Hebrides** R. F. Coomber, 4 Staffa Cottages, Tobermory, Isle of Mull PA75 6PL.
- Dunbartonshire, West Stirlingshire, Renfrewshire** I. P. Gibson, Arcadia, The Glen, Howwood, Renfrewshire.
- Lanarkshire** Dr E. S. Alexander, 3 Lilac Hill, Hamilton, Lanarkshire.
- Ayrshire, Arran, Bute** R. H. Hogg, Kirklea, 11 Kirkmichael Road, Crosshill, Maybole, Ayrshire.
- Dumfriesshire** Dr E. Fellowes, West Isle, Islesteps, Dumfries DG2 8ES.
- Kirkcudbrightshire, Wigtonshire** A. D. Watson, Barone, 54 Main Street, Dalry, Castle Douglas, Kirkcudbrightshire DG8 3UW.

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## THE SCOTTISH ORNITHOLOGISTS' CLUB

**T**HE Scottish Ornithologists' Club was formed in 1936 and membership is open to all interested in Scottish Ornithology. Meetings are held during the winter months in Aberdeen, Ayr, the Borders, Dumfries, Dundee, Edinburgh, Glasgow, Inverness, New Galloway, St Andrews, Stirling, Thurso and the Wigtown District at which lectures by prominent ornithologists are given and films exhibited. Expeditions are organised in the summer to places of ornithological interest.

The aims of the Club are to (a) encourage the study of Scottish ornithology and to promote an interest in wild birds; (b) co-ordinate the activities of Scottish ornithologists; (c) encourage ornithological work in Scotland; (d) encourage conservation of Scottish birds and protection of threatened and rare species; (e) hold meetings for discussion and to arrange ornithological field meetings, and (f) appoint local recorders and publish material relating to Scottish ornithology, including *Scottish Birds*, the club journal.

There are no entry fees for Membership. The Annual subscription is £7.50, or £3 in the case of Members under twenty one years of age or Students under 25 who satisfy the Council of their status as such at the times at which their subscriptions fall due. The Life subscription is £150. Family Membership is available to married couples and their nominated children under 18 at an Annual subscription of £11, or a Life subscription of £225. *Scottish Birds* is issued free to Members but Family Members will receive one copy between them. Subscriptions are payable on 1st October annually.

*Scottish Birds*, which is published quarterly, includes papers, articles and short notes on all aspects of ornithology in Scotland. The club also publishes the annual Scottish Bird Report.

Application for Membership form, copy of the Club Constitution, and other literature are obtainable from the Club Secretary, Major A. D. Peirse-Duncombe, Scottish Centre for Ornithology and Bird Protection, 21 Regent Terrace, Edinburgh, EH7 5 BT (tel. 031-556 6042).



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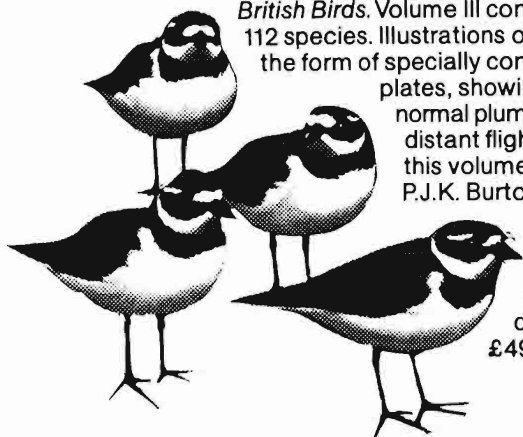
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