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SCOTTISH BIRDS



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SCOTTISH ORNITHOLOGISTS' CLUB

Vol. 10 No. 5

Summer 1979

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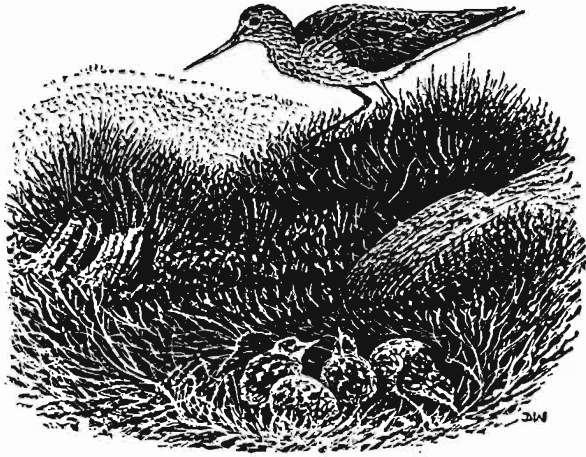
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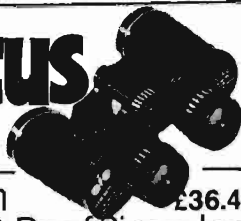
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SCOTTISH BIRDS

THE JOURNAL OF THE SCOTTISH ORNITHOLOGISTS' CLUB



Vol. 10 No. 6

Summer 1979

Edited by D. J. Bates

The Kestrel in Ayrshire 1970-78

GORDON S. RIDDLE

(Plates 21-24)

Introduction

The literature of the last 100 years has been fairly consistent about the status of the Kestrel in Ayrshire. Gray and Anderson (1869), Graham (1911), Paton and Pike (1929), Mc William (1936) and Richards (1966) all described the bird as common, but gave no information on breeding sites, density or nest success. The aims of this research were (1) to assess the distribution and density of the Kestrel in Ayrshire, and (2) to examine its breeding performance in four main habitats (see below). The resultant data could be used as a basis against which to compare any population changes in the future.

Study areas

For the purpose of this investigation, 13 sample areas encompassing the four main habitats were selected from Ayrshire (approximately 3,000km²): (1) coastline from Portendea to Hunterston (134km/83 miles), mostly cliff in the south and low lying estuary and sandy beaches in the north; (2) lowland, comprising woodland and mixed farmland, generally below 106m (350 ft); (3) upland, comprising sheep walk, forestry plantations and heather moor, above 106m and rising to 760m (2,500 ft); (4) urban and suburban including Ayr, Troon, Kilmarnock, Irvine and Stevenston. One area outside the Ayrshire boundary was included in the study.

Methods and problems encountered

The work began in 1972 and consisted initially of setting up a network of reliable observers throughout the county and accumulating data from past breeding seasons. Questionnaires were circulated asking for locations and breeding details. By winter 1978/9 40 observers had provided information on 345 nest sites and 762 nest records (with varying amount of detail) for the period 1970-78. Problems encountered inclu-

ded refusal to give information and a lack of continuity from year to year due to unavoidable fluctuation in observer coverage. The data from many nests were incomplete, often being single records of clutch and brood size, especially with casual observations prior to 1972. In consequence the totals in many tables are inconsistent.

As territorial boundaries are difficult to establish, the basic unit on which the study was based was the nest site. The presence of birds in an area was detected by regular sightings, droppings, pellets, plucked prey and general debris round the nest site and adjacent roosts. The nesting territory is defined as the defended area around the nest, the home range being the area containing the nesting territory and hunting places for a pair (Newton 1976). Young birds in the nest were ringed wherever possible.

Distribution

During the period 1970-78, Kestrels were proved to breed in all 10km grid squares in Ayrshire, except for the islands of Ailsa Craig and Lady Isle where the birds were recorded on passage only. No observer in the present study found the species as being other than common and widespread, a subjective assessment borne out in all 13 areas given special consideration.

Density

In most upland situations, pairs were distributed linearly along glens where suitable rock or tree sites were bounded by feeding ground lacking nest sites, e.g. sheep walk and young conifer plantation. In such situations pairs bred close together, for example:

Glen A	1.6km;	3 nests;	2 nests 100m apart.
Glen B	8km;	8 nests;	2 nests 375m apart.
Glen C	1.6km;	3 nests;	2 nests 300m apart.

These were not in vole *Microtus* plague years but on such occasions very high densities were supported, e.g. nine pairs in 9km² of young conifer plantation. Measurements of known nearest neighbour distances in upland glens revealed a range from 100m to 3 km, although most were between one and 2.5km. A wider range of distances was found in upland compared to lowland. More regular spacing was recorded in the latter habitats where nest sites were more abundant. In the one upland area where sites were readily available a more uniform pattern was noted.

The density of Kestrels in one upland area changed markedly during the study period, a decline from 15 territories occupied in 1968-72 to five in 1978 (see discussion).

Urban densities were not high although most towns supported Kestrels. In one suburban location however, 0.02km² of wooded garden, three pairs bred successfully within 150m, with two only 50m apart. Home ranges included adjacent parks, golf courses and other open spaces.

Taking all the 129 known nearest neighbour distances, 80% were between one and 2.5km. Calculations based on the sample densities suggest an annual breeding population of 750-1,000 pairs in Ayrshire, excluding vole plague years.

Nest sites

An analysis of nest sites by habitat is given in table 1. Of the 345 nest sites recorded in use at least once from 1970-78, 167 were in trees (11 in holes, 156 in disused nests), 142 on rock faces, 31 on buildings, three on steep grass/heather banks, one in a Rabbit burrow and another among boulder scree.

Of 162 pairs using other birds' nests, 152 were in old Carrion Crow nests, eight upland sites were in old Raven nests and the two remaining lowland sites were a Rooks' nest and a Sparrowhawks' platform.

No Kestrels were recorded building their own nest but the surface was scraped in preparation for the eggs and on occasions birds were observed raking with their feet. Nests became lined with pellet debris as incubation progressed.

In most cases the Kestrel pairs had several nest sites to choose from in their territory and on occasions several scrapes were made before the eggs were laid. Nests in woodland were always near the edge, with easy access to open ground.

One site used from 1970-78 was known to have been used in 1898 and another in 1926. Sixty-one of the nesting territories contained prime sites (80% ledges) which are known to be occupied annually by Kestrels, though there was no way of telling whether it was the same pair that returned to breed. In other territories different sites were used on the same rock face, others alternated between tree and ledge, and in one territory alternative holes in the same Sycamore tree were used. Occasionally, where a clutch was destroyed early in the breeding season, a repeat was laid either in an alternative site or in the same scrape.

During the study period, Kestrels stopped breeding on 48 sites. In 35 the reason was not discovered; in 13 this was due to nest collapse, excessive human disturbance or eviction by other predators.

Table 1. Location and types of nests 1970-78 (n=345)

Habitat	Ledge				Coniferous Stick	Tree		Others	% Total
	Rock face	Stick nest	Building	Quarry		Stick	Deciduous Hole		
Upland	97	6	3	5	94	10	2	5	64
Lowland	11	—	19	11	40	9	9	—	30
Urban	—	—	9	1	3	—	—	—	3
Coastal	11	—	—	—	—	—	—	—	3
% Total	34	2	9	5	40	5	3	2	

Inter-specific relationship with other predators at the nest site

At 32 traditional sites some indication of the relationship between Kestrels and other predators was revealed. No conflict was recorded in six instances involving Barn Owls nesting close to Kestrels, and in one case both species reared young in the same tree. One small wood supported single pairs of Kestrels, Barn Owls and Long-eared Owls during the breeding season. Tawny Owls broke the sequence of Kestrel breeding in three sites. On one coastal site the Kestrel laid two eggs before a pair of Tawny Owls moved in, laid another two eggs and reared an owlet.

Sparrowhawk pairs nested successfully within 20m (66 ft) and 40m of successful Kestrels. However, one juvenile Kestrel was found freshly plucked and eaten on a Sparrowhawk plucking post.

At six sites during the study period the Kestrel sequence was broken by Peregrines using the cliff face, and on a number of occasions Kestrel feathers were found on Peregrine plucking posts. In one instance in 1975 a Peregrine pair took over and reared two Kestrel young to the flying stage having lost their own clutch (plate 24b). Kestrels, Ravens and Peregrines all bred successfully in 1975 on one large rock face and on two occasions Kestrels bred despite the presence of an immature pair of Peregrines and an adult pair.

At two sites Kestrels were observed mobbing single Golden Eagles and in 1978 a family of five Kestrels forced a Golden Eagle to land on a heather outcrop (Alistair Douglas pers. comm.). In the same year a Merlin pair reared young 25m (82 ft) from a Kestrel nest which was destroyed at the clutch stage by man.

Carrion Crows were frequently seen in aerial combat with Kestrels in spring above prospective nest sites.

Many of the above mentioned conflicts were recorded in upland areas where suitable nest sites were limited but tolerance levels varied with species and individual birds.

Timing of the breeding cycle

The Kestrel is single brooded but on seven occasions during the study period when the clutch was destroyed a second was laid either in the same site or nearby. In 60 other cases of failure at the clutch stage no further attempt to breed was noted.

In records of 153 nests, dates were obtained of at least one event in the breeding cycle. Time ranges of the main events are presented in fig. 1. The exact date when the first

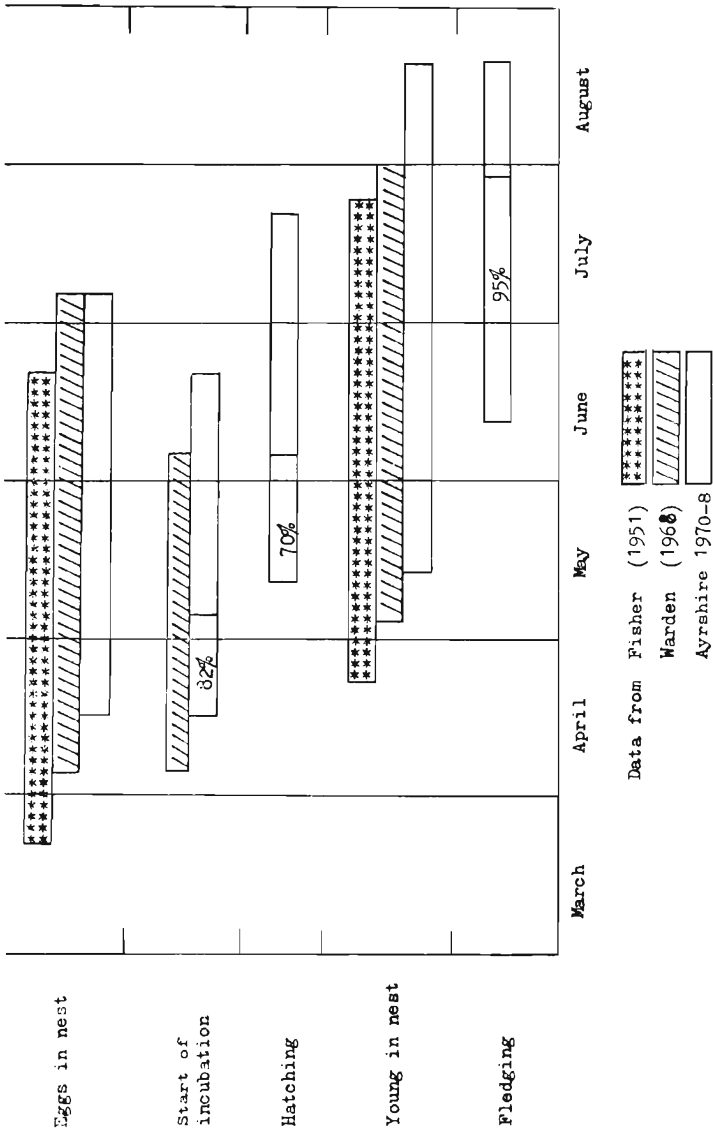


Fig. 1. Time ranges of main events in Kestrel breeding season.

egg was laid was recorded on 37 occasions between 1973 and 1978 (discounting second clutches). Eggs were usually laid at intervals of 2-3 days and in two instances a gap of at least two weeks was noted from the time the scrapes were made to the first egg being laid.

Table 2.—Breeding performance from complete nest records (n=233)

	Numbers of nest records	Average clutch size	% eggs hatched	% clutches having complete hatch	% young reared	Average young reared per successful nest	Average young reared all results	% failed
Upland Ledge	87	4.7	76	66	87	3.8	2.8	26
Upland Tree	62	4.0	81	70	94	3.5	3.0	14
Upland Total	149	4.4	77	68	90	3.7	2.9	21
Lowland Ledge	27	4.4	73	50	89	3.6	2.6	26
Lowland Free	18	4.7	70	53	90	3.7	2.9	22
Lowland Building	22	5.4	50	50	100	4.5	2.7	40
Lowland Total	67	4.8	60	50	92	4.0	2.7	30
Urban Suburban	8	5.5	70	50	100	4.1	3.1	25
Coastal	9	4.4	60	66	100	3.6	2.2	30
Grand Total	233	4.5	72	63	91	3.7	2.8	24

If the exact hatching or fledging dates were known, then by subtracting 28 or 58 days—the average times for incubation and for incubation plus brood periods respectively—the time when incubation commenced could be roughly calculated to augment those cases when the precise dates were known. In 82% of cases incubation commenced between 15th April and 8th May. First eggs in a clutch were recorded from 15th

April to 29th May, and 70% of eggs hatched between 15th May and 5th June. Incubation took 27-29 days and on several occasions whole clutches hatched on the same day, while others were spread over several days.

The timing of the breeding cycle varied considerably and no significant pattern emerged from the data. Differences of two to three weeks were noted in adjacent sites in both upland and lowland locations in the same year. Conversely, three adjacent upland pairs fledged young within a few days of each other in one year. Even in the same site timing of the cycle often varied annually from a few days to a month.

Breeding performance

In 233 nest records all the main stages of the breeding cycle were known (table 2). These have been supplemented wherever possible in this section with relevant material from the remaining incomplete nest records. Data were grouped on an annual basis according to main habitat and nest types.

Clutch size

The data is presented in table 3. Clutch size varied from two to seven eggs, though 83% contained four to six eggs.

Table 3. Number of eggs per clutch 1970-78

	Nest type	No. of records	Clutch size							Average
			1	2	3	4	5	6	7	
Upland	Ledge	96	—	2	9	31	40	14	—	4.6
	Tree	77	—	3	23	20	23	8	—	4.1
	Building	1	—	—	—	—	1	—	—	5.0
Lowland	Ledge	21	—	1	1	6	10	3	—	4.6
	Tree	23	—	1	1	8	9	4	—	4.6
	Building	22	—	—	—	4	8	8	2	5.4
Coast	Ledge	7	—	—	—	4	3	—	—	4.4
Suburban	Tree	1	—	—	—	—	1	—	—	5.0
& Urban	Building	8	—	—	—	4	2	2	—	4.75
Total		256	—	7	34	77	97	39	2	4.5

Average clutch sizes in similar upland habitat ranged from 5.5 in vole plague areas to 3.3 in one glen which supported ten pairs of Kestrels and where clutch size was consistently low. The other four upland study areas averaged 5.0, 4.8, 4.7 and 4.7 (table 4).

There was little significant difference between upland and lowland averages and between clutches laid in tree or ledge (if the upland extremes are removed from the data). Nest

sites in lowland buildings had a very high average of 5.4. There was annual variation in the total clutch average ranging from 4.8 in 1973 and 1974 to 4.0 in 1977.

Late and repeat clutches were smaller than early ones, 3.6 as against 5.0. Clutch size was normal in instances where close nesting took place.

Hatching

In the 233 breeding attempts where the complete cycle was known 998 eggs were laid and of these 713 hatched (72%). Of fully incubated clutches, data were available from 187 breeding cycles where clutch size and hatch were known, and of 828 eggs laid 88% hatched. Of the 69 clutches (37%) containing some non-hatching eggs, only seven had more than two eggs in this category. Worst cases were one egg hatching from a clutch of four and two from a clutch of six. Upland hatching performance was slightly better than the lowland records and upland nests contained fewer non-hatching eggs on average. In 118 clutches all the eggs hatched, 63% of the total, though annual variation ranged from 32% in 1976 to 82% in 1978. Of lowland clutches, 50% had full hatches compared to 70% in upland locations.

Brood size and fledging success

Kestrels in the study areas had broods ranging from one to six young and where part broods were lost naturally or taken by children, the pairs continued to rear the remainder. Brood size at hatching and just prior to fledging was known in 196

Table 4. Breeding data in five upland areas

	A	B	C	D	E
Nest records	24	35	11	49	19
Complete clutches known	20	16	8	32	16
Average number of eggs	4.7	4.7	4.8	3.3	5.0
% hatched	74	70	80	83	80
Young reared	63	96	36	111	52
Average young reared per successful nest	3.1	3.4	4.0	2.9	4.3
Average young reared per all nests	2.6	2.7	3.2	2.2	2.7
% failed	17	20	20	14	36

Table 5. Brood sizes at the start and end of the nesting period
(n=196)

Brood size	No.	0	1	2	3	4	5	6	Average
Start of nesting period	196	0	3	14	50	69	49	11	3.9
Last week of nesting period	196	6	7	22	45	68	38	10	3.6

cycles. Loss of young at the brood stage was extremely low, 0.3 young per nest (table 5), 91% of the young survived and 84% of all broods had all young reared to the flying stage. There was no significant difference in brood size or survival in different habitats and nest types.

Large broods showed no difference in survival rates than medium or smaller broods and more young fledged from the former, e.g. only one brood of six out of the eleven known did not have all young fledged.

In 338 of 422 breeding attempts where the result was known at least one young bird was reared (80%). The average number of young fledged per breeding attempt (including complete failures) was 2.7 and for successful nests was 3.6. Possibly there is a bias towards success as some nesting attempts could have failed before egg laying without the observer knowing.

Urban sites were very successful with only two failures out of 37 nest records. Of the 13 sites, most were inaccessible, e.g. church spires, and eight received protection from interested parties.

Low output of young was noted in two cases of close nesting pairs. One upland and one suburban example of three pairs each in 1974 had totals of four and seven young reared respectively. However, in 1978 three pairs that nested within half a kilometre of upland glen reared 14 young. In prime sites where there was no interference by man the breeding Kestrels consistently reared large broods to the flying stage.

Breeding failure

Breeding failure was mainly due to human interference (79% of known cases, $n=77$), chiefly egg collecting by children. Kestrels continued to occupy vulnerable sites despite the clutches being removed annually. Highest failure rates occurred in lowland ruined buildings and quarries, both easily accessible and regularly visited by children. Although there was little difference between upland and lowland totals, tree sites fared much better than ledge sites since nests were frequently in excess of 10m (33 ft) above the ground.

Occasionally accidents occurred at the clutch stage with eggs rolling off exposed ledges and aged Carrion Crow nests collapsing. Desertion of clutches was rare. The reason for seven nests failing was not known but none showed signs of pesticide effects. Data from the 1955-66 period showed good breeding success and confirms the view at that time that Ayrshire was not badly affected (Prestit 1965).

Only nine broods failed completely, four being taken by children, two killed by children, one killed by forestry oper-

ations and two by Carrion Crow predation. Five part-broods were taken by children and one part-brood by a Fox *Vulpes vulpes*. In 18 cases where part of the brood died in the nest, 16 occurred in the first week after hatching and two died in the second week, all but one in upland sites and invariably the smallest in the brood. In addition three pairs of adults were known to have been shot.

Every year 15-30% of breeding attempts failed, the sites within a three mile (3.8km) radius of centres of population being under greatest pressure from human interference.

Mortality and movement

The initial flight of young from the nest can occasionally prove to be fatal. Two broods (eight young) were shot on leaving the nest site, two individuals were killed by colliding with a tree and a maintenance tower respectively and one was drowned in a pool below the site.

Adult mortality was noted in 43 cases. Three were killed in accidents, two by hitting windows and one drowning, seven by other raptors, 15 were road casualties, seven were shot, two were poisoned by dieldrin and in nine cases the cause was unknown.

In 1974-8, 233 nestlings were ringed from 53 broods. Of 15 birds recovered dead, 12 were less than one year old, as were two birds found in the study area but ringed outwith. Eleven of the birds were recovered south, one in Guernsey, one in Cornwall, one in France and one in Spain, all from different upland nests. Three others were recovered within 100km (62 miles), one having travelled west, one east, and one north. One bird found inside the study area, but ringed outside, had travelled north. Three were recovered from the same brood in 1976 at Cockermonth, Kings Lynn and Barrow in Furness, all at the five month stage. One bird recovered after two and a half years was only 5km from where it had been ringed as a nestling.

Even this small sample bears out the view that there is dispersal in various directions in late summer within 100km and that birds migrating further than this do so in a southerly direction, some reaching Europe.

Comparison with other studies and discussion

Some of the Ayrshire findings were similar to those in previous studies of the Kestrel. There was evidence to suggest that scarcity of nest sites is a common limiting factor in Ayrshire. Uniform spacing was recorded where sites were abundant and irregular spacing where they were scarce. Close nesting Kestrels were also recorded occasionally in the latter

situation. Simms (1973), commenting on an area of upland Yorkshire, recorded up to three pairs nesting on rock faces less than 100m in length and though on occasion Field Voles *Microtus agrestis* were estimated as being common, these again were traditional sites. Ingram & Marsh (in Parr 1969) recorded two instances when three pairs bred successfully within a radius of 30m. This pattern of nesting, dependent upon the toleration of close neighbours at the few nest sites available, is one way this species can utilize large tracts of suitable hunting ground without nesting on the ground as in Orkney (Balfour 1955).

The change in density of Kestrels in one upland study area corresponded with a change in the habitat and availability of hunting ground. Between 1968 and 1972 when a large part of the area was planted with young Sitka Spruce 15 territories were occupied, tree and ledge sites being utilised. Voles were abundant (R. Heaney, pers. comm.). By 1978 Kestrels were unable to hunt small mammals in much of the ground because of the tree size and dense nature of these plantations and the population had reverted to five pairs using the five prime rock face sites for nesting and the sheep run and moorland for hunting.

Peregrines rearing young Kestrels has been recorded twice before by Ratcliffe (1963), young reaching the flying stage on one occasion and the predation of Kestrels by the same species was noted by Weir (1971) in Speyside.

When comparing Ayrshire data with other Kestrel studies, e.g. in Surrey (Parr 1969) and Sussex (Shrubbs 1969), it must be remembered that these populations, when studied, were in the process of recovering from the low levels of the pre-1963 decline attributed to toxic chemicals (Cramp 1963). The Ayrshire densities were not only higher than those in southern England, with the exception of the 'common' type habitat in Surrey, but also considerably higher than the two near normal situations in Speyside (in Macmillan 1969) and Leicestershire (Griffiths 1967), though the latter population was probably depleted.

The choice of nest sites in Ayrshire is equally divided between tree and ledge and reflects the BTO nest records (in Brown 1976) for northern England and Scotland rather than those for southwest and southeast England where holes in trees were most commonly noted. In Ayrshire, of the 162 pairs using other birds' nests, 152 were in old Carrion Crow platforms, showing a great dependence on this species, especially where rock faces were scarce. This is a different picture from Macgillivray (1840) who stated, 'Indeed in Scotland, twenty nests might be pointed out in rocks, for one in a tree'.

and Gray (1871) who declared that a rock site 'is oftener chosen than any other'. Tree cover was much poorer last century. Dependence upon other species is well documented for the American Kestrel by Balgooyen (1976) whose research in California showed that it depended totally upon wood drilling species for nest sites.

The range of timings of the Kestrel's breeding season in Ayrshire is later than those of the Bristol area and of Fisher's British data (fig. 1). The Ayrshire average of 4.5 for completed clutches is slightly lower than the 4.7 from the BTO nest record cards (Morgan in prep.). The trend of late and repeat clutches being smaller than early ones was also noted by Cavé (1968).

In the study area 72% of all eggs laid hatched which compares well with the figures for work done in southern and eastern England in 1964-7 when 67%, 57%, 61%, 78% and 57% hatching success was noted (Shrubb 1969). Cavé, whose work was mainly on birds using nest boxes, had a proportion of 93.2% hatching for fully incubated clutches, while Balgooyen estimated 89.3% for the American Kestrel, both of which are similar to the 88% in Ayrshire.

In no case did the whole Kestrel clutch fail to hatch as has happened regularly since 1960 with the Peregrine (Ratcliffe 1972) and Sparrowhawk (Newton 1973). Even pre-1947 it was fairly common for one egg in a Peregrine clutch not to hatch and this seems to be a similar occurrence in Kestrels.

Shrubb's low figures for nestling mortality were similar to the Ayrshire data. Ratcliffe stated that it is unusual for all young Peregrines to die at the nest stage, and Newton (1973) showed that once the Sparrowhawk's eggs hatch, the young survive well. If young Kestrels did die at the brood stage the first week after hatching was the critical time, a point also recorded by Cavé.

The loss of clutches in Ayrshire sites is nothing new as one 'oologist of ill repute' in the period 1953-61 removed 17 Kestrel clutches (76 eggs) and, as he put it, 'Kestrels were not even my speciality'. Some traditional sites were well known and consequently robbed annually though this did not deter Kestrels from using the site the following year.

The Ayrshire failure rate of 15-30% of breeding attempts corresponds well with Shrubb's figure of 22% for Britain in the 1960s. The high incidence of failure due to human interference is also in line with other research findings. Shrubb puts these losses as high as 97% in southeast and eastern England and 85% for Britain as a whole in 1954-67. Montier's (1968) London figures show 14 out of 96 nests destroyed or

robbed (14%) involving 38 eggs and 17 young, while Griffiths recorded four out of ten nests robbed in 1964.

The first-year mortality shown by ringing returns is well documented by Thomson (1958), Snow (1968) and Mead (1973). Snow estimated a 60% annual mortality in this age group.

Acknowledgments

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Summary

345 Kestrel nesting territories, each containing at least one nest site, were located, and 762 breeding attempts recorded in 13 study areas in Ayrshire 1970-78. Kestrels were widely distributed with stable breeding populations in each study area. Regular spacing of nest sites was recorded where nest sites were freely available and irregular spacing where they were scarce. The majority of nearest neighbour distances were within 1-2.5km, though some pairs were closer than 100m. Most nesting territories were traditional and regularly occupied, each pair having several sites to choose from in one territory. In upland areas the population density was liable to fluctuate due to prevailing forestry conditions. An estimate of the breeding population of Kestrels in Ayrshire based on the sample areas was 750-1,000 pairs/3,000km².

First eggs in a clutch were recorded from 15th April to 29th May, incubation took 27-29 days and 70% of eggs hatched between 15th May and 5th June. Clutch sizes ranged from two to seven eggs with an average of 4.5. No double brooding was noted; replacement clutches were generally successful but smaller than firsts. 72% of all eggs laid, and 88% of fully incubated eggs hatched.

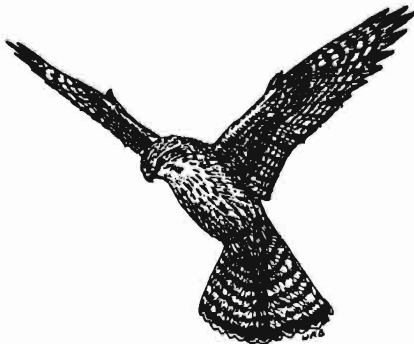
37% of clutches had at least one non-hatching egg, and an average brood size of 3.9 was reduced to 3.6 at fledging. At least one young was reared in 338 of the 422 cases when the result was known. An average of 2.7 young were reared from all breeding attempts, 3.6 was the average for successful pairs. Urban nest sites were consistently successful. 79% of breeding failures were due to man, egg collecting by children being the main factor. 15-30% of all breeding attempts failed annually.

Dispersal of young took place in late summer with birds travelling up to 100km but showing no directional trend. Migrating birds tended to move in a southerly direction.

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Spring passage of skuas at Balranald, North Uist

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This paper describes the recent discovery of a significant spring passage of skuas off the Outer Hebrides. Since 1959 good numbers of Pomarine and Arctic Skuas have been seen regularly in the first half of May on the south coasts of England and Ireland (Davenport 1975). There is also a big northward movement of the smaller skuas all across the Atlantic in May (W. R. P. Bourne *in litt.*) so it is not surprising that large numbers have now been seen on the west coast of Scotland.

A look at the map of the Outer Hebrides shows that the headland at Balranald in North Uist is ideally positioned to watch migrant seabirds coasting north in spring, as it projects several miles seawards from the coastline to the south. The seawatch point at Balranald is on a low, flat rocky headland, no higher than the coastal sand dunes that continue to the southeast. There are several offshore islands, among them the distant St Kilda, providing reference points for tracking seabirds in flight. The most important in this respect are the Monach Islands and Causamul.

The establishment of the RSPB reserve led to the discovery in 1971 of a spring passage of skuas (Critchley 1972) and follow-up observations in 1976, 1977 and 1978 have established Balranald as the best site known for watching spring migration of skuas in the British Isles. However, as long ago as 1888 Harvie-Brown and Buckley wrote of the Pomarine Skua in the Outer Hebrides, 'there cannot be any doubt as to its frequent, if not regular, summer visits to the coasts of these islands, and the seas to the west of Lewis, most of such birds proving to be old birds in almost perfect plumage'.

Previous observations

Observations were made at Balranald between 17th-23rd May 1971 and significant numbers of skuas were seen between 17-19th with 207 Pomarine/Arctic Skuas in 7½ hours. The most remarkable part of this movement occurred between 10.37-12.45 on the 18th when no fewer than 132 Pomarine/Arctic Skuas, including the seven largest flocks of 8-22 birds, were seen. Such a high rate of passage has not been equalled since. This movement followed northerly gales from a stationary depression on the 16th, with the wind eventually moderating to NW5 on the evening of the 17th when the movement started, and reaching a peak on the 18th when the wind had moderated further to WNW4.

Five of the large flocks seen on 18th May were thought to be Arctic Skuas, but this seems rather unusual in view of the other information available on flock sizes (Davenport 1975, and this paper). Large parties of Arctic Skuas are comparatively rare, and indeed have otherwise not been recorded in groups of greater than nine birds. In addition, four of these larger flocks were said to consist entirely of intermediate phase birds. This again seems unlikely in view of the fact that the other Arctic Skuas seen at the same time consisted almost entirely of equal proportions of light and dark phase birds, which is more in accordance with subsequent observations at Balranald, and would indicate that these birds were not seen well enough.

Methods

Observations of at least one hour were made daily in 1976 and 1977 but it soon became apparent that watching in unfavourable winds or during rain was unproductive. A light trickle of Great and Arctic Skuas, possibly part of the Scottish breeding population, was in progress daily, but the rate of passage did not increase, nor did Pomarine Skuas appear unless the optimum weather conditions prevailed.

Special efforts were made to watch after the passage of fronts but this did not necessarily mean movement started straight away. In two cases it began after one hour but in two others there were delays of at least four hours. In three other cases where strong movements of four or five hours had taken place in the morning, one stopped because of rain and restarted in the evening, one stopped for no apparent reason and restarted in the evening, and the other stopped when the wind died away. Very few other migrant seabirds were seen in either year.

Identification

Identification of the skuas in spring is made easier because the only migrants are in adult plumage. Furthermore they travel in flocks of a single species, although it has been known for single Pomarines to travel with groups of Arctics.

However, most skuas fly low over the water and so the diagnostic tails even of adult Pomarine Skuas can be difficult to see against the dark background. It is therefore necessary to rely on size, shape and flight action to separate the species at a distance, backed up by any additional evidence such as the proportion of light and dark phase birds and the general appearance of the flock.

Pomarine Skuas have broader wings, deeper chests, and fly more heavily than Arctics, and roughly nine out of ten are light phase birds. In addition they travel in compact flocks, mostly in single file and very close together.

By comparison Arctic Skuas are lighter in flight and have a more equal distribution of light and dark phase birds. In addition the larger parties, when they occur, are never so compact as Pomarine Skuas, often travelling as a loose group spaced well apart from each other. Arctic Skuas will often break away from such a group to chase a gull or tern and then hurry to catch up with the others, something Pomarine Skuas never do.

As the Long-tailed Skua is also known to travel in large flocks it seems likely that both Long-tailed and Pomarine Skuas habitually migrate in this manner and travel long distances without feeding.

Observations

1976 Balranald was manned between 9-18th May and significant northward passage occurred on five dates between 10-15th with 138 Pomarines and 46 Arctics in 14½ hours.

1977 Balranald was manned between 7th-21st May and significant northward passage occurred on five dates between 7-13th with 312 Pomarines and 106 Arctics in 18½ hours.

There were two unusual occurrences in 1977 that call for further comment. Firstly, the incidence of the two largest flocks of 47 and 21 Pomarine Skuas together at 16.00 on 7th May, four hours after the clearance of a vigorous depression, gave the impression that several smaller groups had joined up as one large flock during the bad weather of the previous 24 hours. The wind at the time was NNW5 and they were the first sightings in a watch that had started at 15.15.

Secondly, a flock of 24 adult Long-tailed Skuas was seen at 09.00 on 10th May during a large movement of Pomarine

Skuas and 15 hours after the clearance of another front the previous evening. This movement had started the previous evening when the wind was SW3, but had veered to WNW5 by morning.

1978 Observations of one or two hours were made on several dates throughout the spring by the warden, C. Pickup. Significant numbers of skuas were seen on 11th, 12th, 14th and 23rd May with 139 Pomarines and 16 Arctics in only four hours.

Flock sizes

The flock sizes of the ten largest movements in 1976 and 1977 are shown in table 1. It should be noted that the mean

Table 1. Flock sizes of ten largest movements 1976-7

Flock Size	1	2	3	4	5	6	7	8	9	10	12	13	14	16	21	24	47	Mean
Pomarine	13	21	16	17	8	3	1	1	3	1	1	1	2	3	1	—	1	4.84
Arctic	65	15	5	3	1	—	1	—	2	—	—	—	—	—	—	—	—	1.65
Long-tailed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
Great	23	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

flock sizes for Pomarine and Arctic Skuas, 4.84 and 1.65 respectively, are very similar to those found for Beachy Head and Dungeness in spring, which were 4.54 and 1.55 respectively (Davenport 1975). The observations in 1976 and 1977 give an average passage rate during the larger movements of 14 Pomarine and five Arctic Skuas per hour, equivalent to three sightings of parties of each species per hour.

Weather

The wind conditions for the seventeen largest movements are shown in table 2, from which it can be seen that the best

Table 2. Wind directions of 17 largest movements 1971, 1976-8

Direction	SW	WSW	W	WNW	NW	NMW	N
No. days	4	1	1	3	4	3	1

wind is anywhere from the west side of the compass between southwest and north. Indeed, watching in winds from any other direction has so far proved unsuccessful. From this one can deduce that westerlies cause onshore drift, even on such a short coastline as that of the Outer Hebrides. Most of the larger movements took place after the passage of a front, or after a period of strong headwinds following the decline of a depression. The largest movements consistently took place in winds of force 3-5 and it was noticeable that whereas headwinds up to force five were tolerated, the same winds of force six or more appeared to halt any migration.

Future observations

The success of Balranald seems to depend on skuas that head north or northeast being drifted towards the coastline in westerly winds and thereby forced to coast northwards round a projecting headland. The discovery of this site suggests that other suitable localities may yet be found on the west coast of Scotland, the most likely being the western point of Skye, Neist Point, which projects a considerable distance into the Minch. The western coast of Ireland is likely to be even more productive than Balranald simply because more skuas are likely to catch up against its greater length.

Another possible outcome of future observations is the discovery of a regular spring passage of Long-tailed Skuas on the west coast of Scotland and Ireland. In the same way that the spring passage of the Pomarine Skua, as seen from the shore, was hardly known before 1959, so the large flock of Long-tailed Skuas at Balranald on 10th May 1977 could well be the first of a number of such sightings.

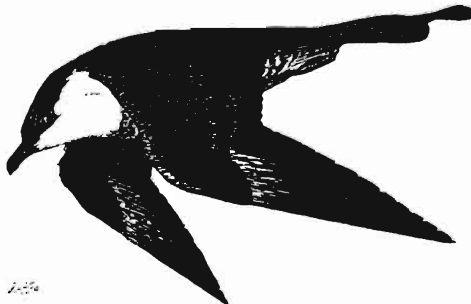
So far, all the observations at Balranald have been made between 7th-23rd May when the Pomarine is evidently the most numerous species of skua. It seems probable that observations there in April and earlier in May would give more information on the spring passage of both Great and Arctic Skuas.

Acknowledgments

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Summary

Observations at Balranald, North Uist, in May 1971, 1976, 1977 and 1978 have established this site as the best locality known for observing



POMARINE SKUA R. H. Hogg

spring passage of skuas in the British Isles. Details are given of identification, behaviour, flock sizes, and weather influences. Pomarines were the most numerous, followed by Arctic Skuas. The largest movements took place in winds from the W side of the compass between SW and N, generally following the passage of a front or after a period of strong headwinds following the decline of a depression.

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Status and breeding biology of Swallows in Banffshire

D. B. MCGINN

Introduction

Despite the fact that the Swallow is our bird of summer, little recent work has been published on its breeding biology or status. Parslow (1967) states: "probably decreasing, particularly in Scotland but evidence not quite definite enough—changes poorly documented." In an attempt to contribute some information on both fronts, the study described was undertaken.

The study area was the 10-km square NJ46 around Buckie, Banffshire, the land area approximating 82 sq km (20,500 acres). The area, rising to just over 330m (1,000 ft) combines coastal and upland environments devoted predominantly to agriculture and some forestry. Amalgamation of small farms into larger units has left a number of now derelict buildings as well as occupied farms, in addition to the dwellings of the small towns along the coast.

The observations were carried out during the seasons 1970 to 1973, but only in the latter two years was near complete coverage possible.

Experience in 1970 and 1971 taught the observers to be proficient in ageing nestlings simply by inspection of the chicks, but throughout the 1972 and 1973 seasons each checked the other's accuracy by ageing chicks whose date of hatching was known initially only to the other. Although hardly quantitative, these checks found the accuracy to be no worse than ± 1 day, where occasionally error did occur.

Table 1. Occupation of sites

Year	No. of sites visited	No. of sites in use	No. of pairs at used sites	No. of pairs per site in use	Proportion of sites visited in use
1970	22	9	13	1.44	0.40
1971	48	16	16	1.00	0.33
1972	85	42	52	1.23	0.49
1973	77	45	56	1.24	0.58

Status

Survey of the area indicated 80-90 unoccupied or inhabited sets of farm buildings that might be potential nesting sites. Urban areas were not included in the study.

Table 1 shows the sites visited and those having breeding Swallows present. Sites having no Swallows in early years were not all visited in the final year of the study. All 1970 sites were visited in 1971 and 1972. All the 1971 sites were

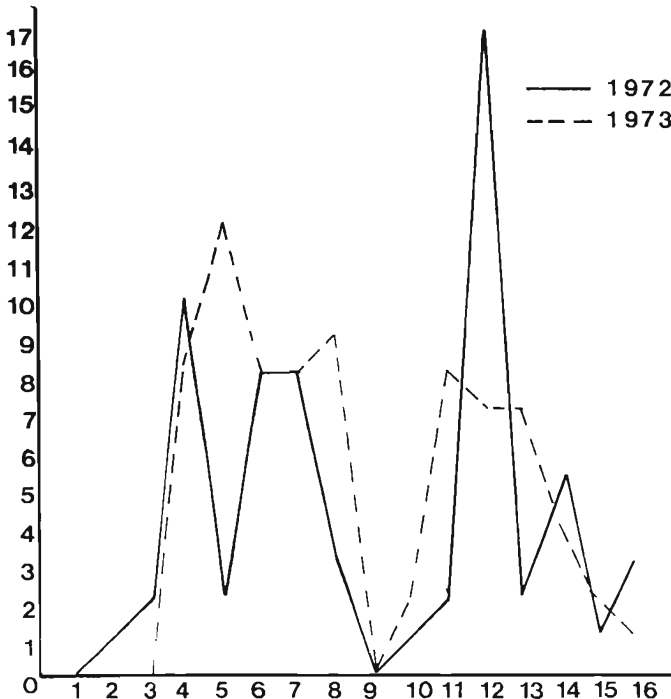
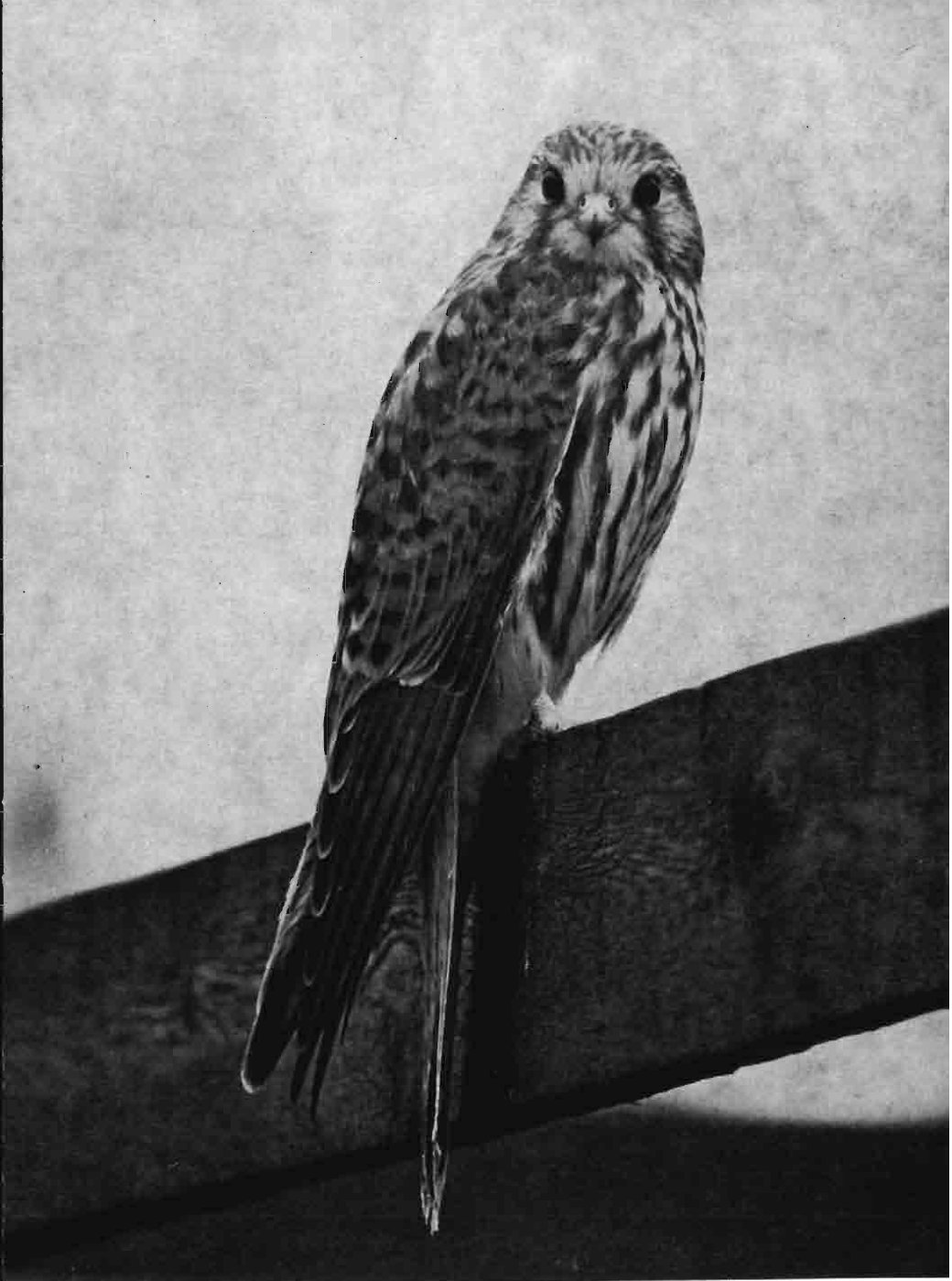


Fig. 1. Clutches begun each week (vertical axis) against time in weeks (horizontal axis). The weeks commencing 7th May, 4th June, 2nd July and 6th August correspond to week numbers 2, 6, 10 and 15 respectively.



PLATES 21-24. The Kestrel in Ayrshire (p. 201).

PLATE 21. Female/immature Kestrel on fence rail, Ayrshire 1976.

D. A. Smith



PLATE 22 Female Kestrel at nest with prey, Ayrshire 1976.

D. A. Smith



PLATE 23. Female Kestrel at nest about to feed young, Ayrshire 1978. *G. S. Riddle.*



PLATE 24. (a) Clutch of Kestrel eggs on a typical cliff ledge site, Ayrshire 1978.

(b) Two Kestrel chicks reared by Peregrines, Ayrshire 1975 (p. 205). *G. S. Riddle*



visited in 1972. In 1973 eight sites visited in all previous years were not visited as in those earlier years they had not been occupied by Swallows.

Considering the measures of density derived in columns 5 and 6, it is clear that the numbers fluctuated during the period, there being a drop in numbers in 1971 and a recovery during the following two seasons.

Nest sites

Nest building occurred in early May in virtually any type of building and at heights of between 2-8m (7-25 ft). Nests were more commonly built against the side of a beam or wall rather than on top of a support, the ratio being approximately 4:3. In a small number of cases a nest from a previous year was used, being patched up and relined. Second clutches were as commonly laid in the first nest as in a second nest.

Laying dates

Data for the years 1972 and 1973 are shown in fig. 1. First arrival dates were later in 1973.

Clutch size

The number of clutches started each week is shown in fig. 2. All clutches were between 3-6 eggs. The average clutch size for each month is shown for each year in table 2.

Nestling growth

Of the broods studied, three readily accessible of precisely known age were weighed every two days to establish rate of growth patterns. Average nestling weight against time is shown in fig. 3 for a brood of three and two broods of five. All other nestlings were weighed on ringing and aged at that time, either from the actual date of hatching being known or by deducing it from the growth state of the chicks. In this way, samples of chick weights of various ages were obtained for a larger sample. As a result, the sizes of samples used in calculating average weights vary (fig. 4).

Discussion

The mean density of pairs in 1972 and 1973 was 0.66 pairs per square kilometre. Since pairs breeding within the small townships are not included in this study, this is bound to be an underestimate of the true figure for the area. Experience further south since the time of the study, however, suggests that the above density is lower than in southern Scotland (McGinn and Clark 1978). It would be not unreasonable, however, to estimate that some 90% of the pairs in the area were accounted for.

Batten (1971-5) has shown fluctuations in Swallow populations through the Common Bird Census. The population index

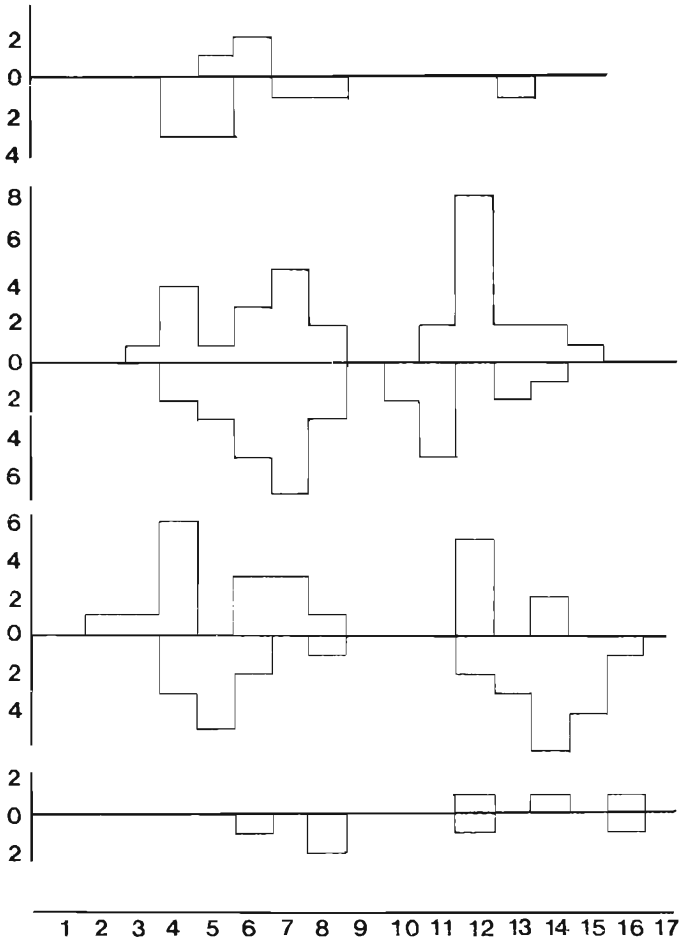


Fig. 2. Numbers of clutches of given sizes begun each week (vertical axes) against time in weeks (horizontal axis). See fig. 1 for dates of week numbers. The upper half of each part of the diagram shows 1972 numbers, the lower half of each part 1973 numbers. Clutch sizes from top to bottom are 6, 5, 4, and 3.

given by Batten and data from table 1 are compared in table 3 and fig. 5. They show a similar direction of change during 1970 to 1971 and 1971 to 1972 although the fluctuations in the Buckie area are much larger. However, whereas the CBC Index shows a further reduction from 1972 to 1973, the Buckie population shows little further decrease. The bias introduced by not visiting a few sites in the last year, because they had remained unoccupied for the three previous years,

Table 2. Average sizes of clutches started in each month

	1972	1973	1972 & 1973
May	4.43 (16)	4.90 (19)	4.67 (35)
June	4.74 (19)	4.24 (23)	4.49 (42)
July	4.36 (25)	4.36 (27)	4.36 (52)
August	4.50 (4)	3.00 (3)	3.75 (7)

Numbers in brackets are sample sizes

can only mean that if any change had occurred it would be a slight increase in the population in 1973.

It is not possible to say whether the different fluctuations recorded in northeast Scotland are due to real differences in the Swallow populations of that locality as compared to populations covered by the Common Bird Census. It is interesting to note, however, that the total number of nests involved in the Common Bird Census of 1972 and 1973 were respectively 161 and 142. The number of pairs present in the Buckie area were 52 in 1972 and 56 in 1973. Although smaller samples, these nevertheless approximate to one third of sample sizes used in the CBC and the differences between the two populations may therefore be of some significance. Failing further study, however, any conclusion can only be speculative.

Fig. 1 shows clearly the double brooding of the Swallow. An interesting feature is that in the main years of the study all first clutches had been started before midsummer despite the later arrival of 1973.

Fig. 2 suggests a tendency for larger clutches to occur earlier in the season, particularly clutches of six, and for smaller clutches, notably three eggs, to occur later. This tendency only shows itself clearly when the figures for both 1972 and 1973 are combined as shown in table 2. When larger samples are used from any one season the same trend is found (McGinn and Clark 1978). This trend was also shown by Adams (1957).

Boyd (1935 and 1936) found that average brood size increased with latitude and suggested that the increase in feeding time with daylight hours might be an explanation. If this hypothesis is true, daylight hours diminishing beyond midsummer might offer an explanation for the trend to smaller clutch sizes later in the season. Several other hypotheses are possible, amongst which might be included change in food supply, change in condition of the females, and alteration in the actual composition of the breeding population by experienced early breeders leaving or dying without laying second clutches and their replacement by yearling adults. Food supply

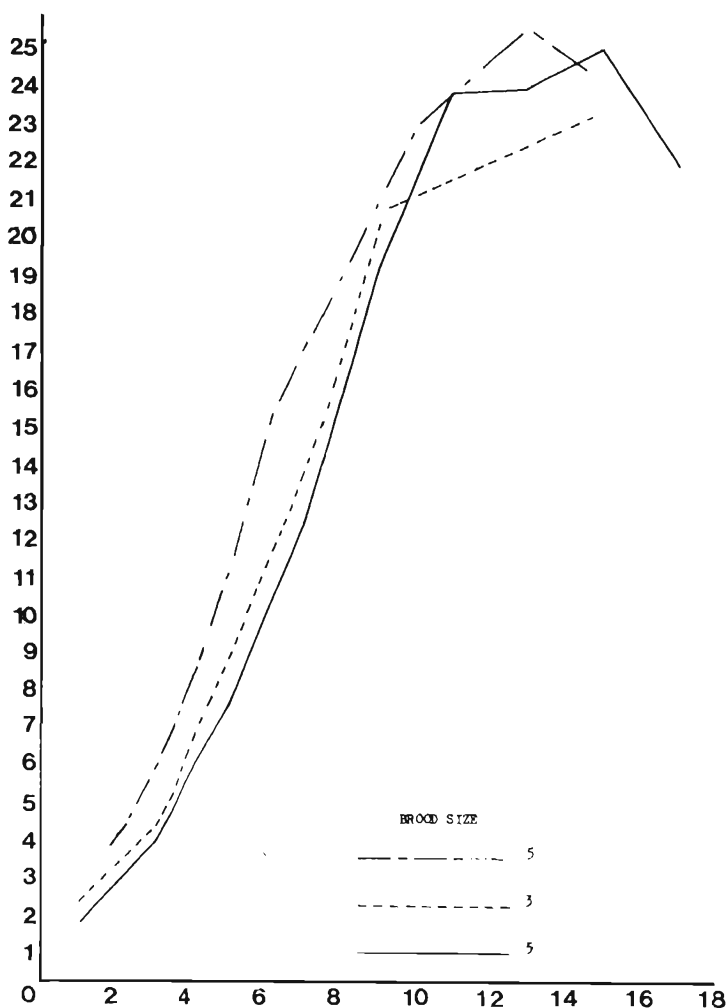


Fig. 3. Average weight in grams of nestlings (vertical axis) in three broods, with age in days from hatching (horizontal axis).

is likely to be an important factor, as has been shown by several workers including Lack (1954).

Acknowledgments

I wish to thank Hugh Clark, my right hand throughout the greater part of the study and without whom the work could not have been carried out.

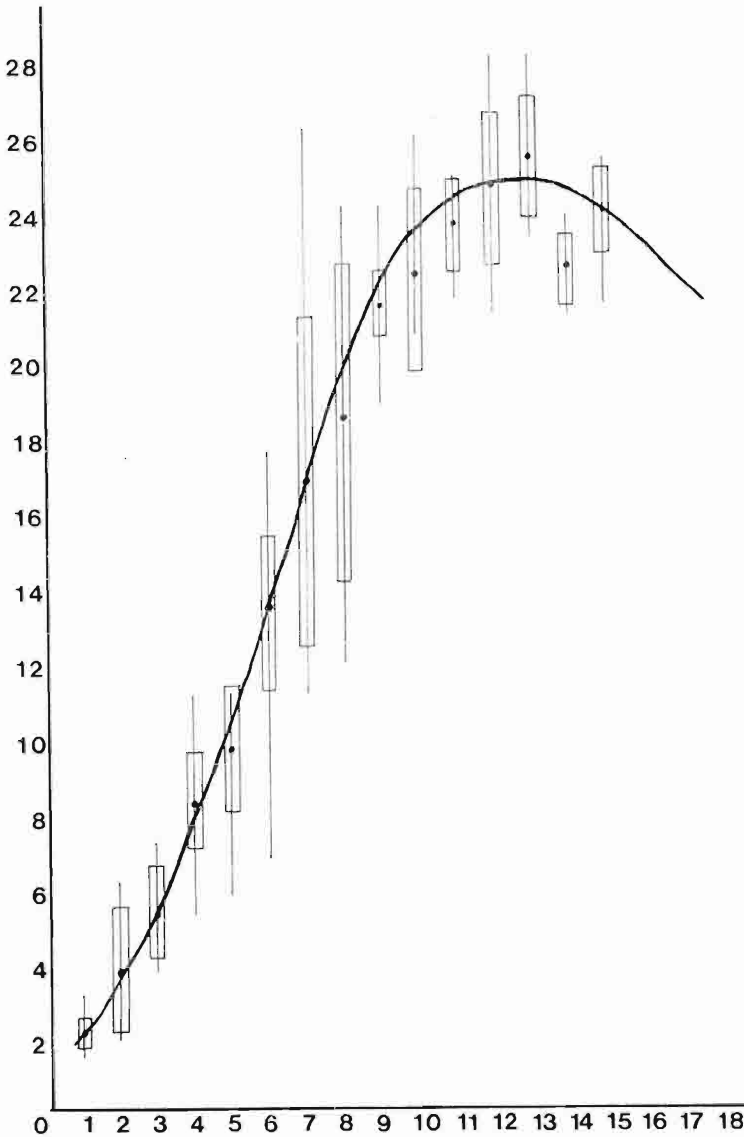


Fig. 4. Mean weight in grams of nestlings (vertical axis) with age in days (horizontal axis) showing range (vertical lines) and \pm deviation (vertical bars).

Table 3. Comparison of population in study area with Common Bird Census Index

Year	Common Bird Census Index	No. of pairs per site in use expressed as an index	Proportion of sites visited in use
1970	107	107	0.40
1971	95	74	0.33
1972	98	91	0.49
1973	87	92	0.58

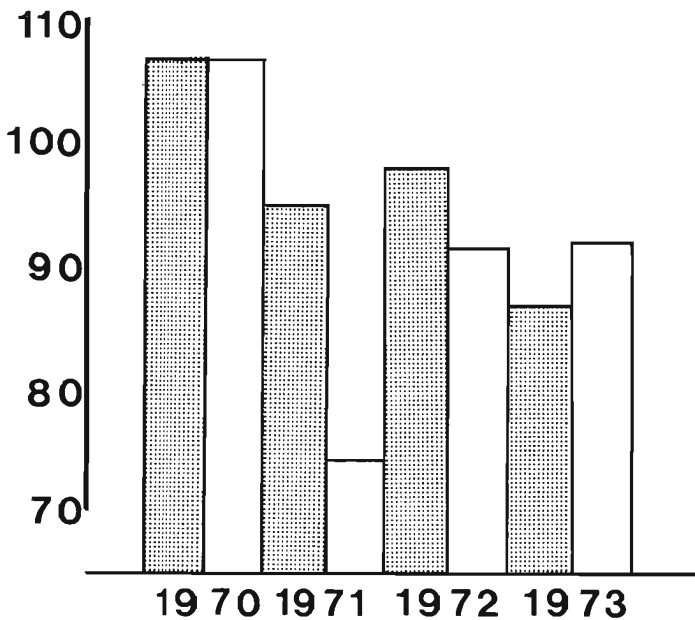


Fig. 5. Comparison of CBC index (shaded bars) with local index of population in given years.

Summary

In 10-km square NJ46, Banffshire, up to 56 pairs of Swallows were located each year 1970-3, a density of 0.66 pairs/km². The numbers of pairs present fluctuated in a way not dissimilar to that shown by the Common Bird Census for the years concerned. Laying dates showed double brooding and mean clutch decreased as the season progressed. Data are given on the growth of nestlings from three nests and for the average nestling.

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D. B. McGinn, 24 Delnies Road, Inverness

Birdwatching at Aberlady Bay Nature Reserve

R. G. NISBET

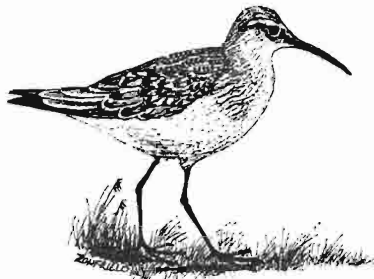
Picture the sight of 6,000 Pink-footed Geese tumbling down towards the mudflats at dusk, and imagine the sound of this nightly autumn spectacle; picture the winter scene of 30 Whooper Swans flying over the timber bridge calling incessantly at the sight of a night-time sanctuary; picture an idyllic loch with a pair of nesting Mute Swans on a tranquil morning in May, with the sounds of Moorhens and Coots and the trilling of a Dabchick; and picture a June evening, the sun about to set behind the Lomond Hills, with the tern colony in front of you, and adult birds bringing in the last fish of the day. If you can visualize all this you will have an inkling of what Aberlady Bay Nature Reserve is all about.

The name Aberlady conjures up different thoughts and impressions to different people. I wonder what the first thoughts really are for each reader? These memories may be seasonal, and those of you who know the bay will appreciate its changing seasonal outlook. Most people will consider the reserve as a wintering stronghold for waders and ducks, and the thousands of Pinkfeet which begin to arrive in the middle of September, and as a summer haunt of terns and Eiders, Red-shanks and Lapwings.

For me, it affords the unique opportunity to observe all the seasonal changes, but in particular the large migration movements during spring and autumn. With suitable weather con-

ditions, spectacular passages can be witnessed. In April thousands of Meadow Pipits pass along Aberlady's coastline, and over 950 have been counted flying by in an hour. One of these migrants had a damaged wing which it could only half open, but the urge to migrate forced it to keep up with the others. In May, when most species of migrants occur, over 500 Swallows can be seen in a day feeding over the wetlands and dunes, up to 25 Whinchats perched on hawthorn bushes or fences in readiness to make sallies after insects, Willow Warblers singing from buckthorn spinnies, and Sedge Warblers grating from the Marl Loch's burr-reeds. It is during this month too that the northern breeding Ringed Plovers augment the bay's breeding population of 20-25 pairs to around 230 birds. The more unusual species tend to occur in June, such as Hobby, Temminck's Stint, Red-backed Shrike, Little Gull, Turtle Dove, and on one recent occasion two Avocets which remained near the timber bridge for a day.

In July hundreds of Curlews and Golden Plovers flock to the saltmarsh after the breeding season, and this is the peak time for Swift movement too. One evening over 800 headed southwest. Waders are very much in evidence in August and Green Sandpipers are recorded annually, Curlew Sandpipers



CURLEW SANDPIPER *B. Zonfrillo*

are often seen, as well as Greenshanks and Spotted Redshanks. There are small migrants also, such as Yellow Wagtails, Tree Pipits, Blackcaps and Garden Warblers. In September skuas are in the Forth, and observers seawatching one day were rewarded with 37 Arctic, six Great and one Pomarine. The first of the Pinkfeet are arriving at this time, and if you are lucky you may be able to pick out the occasional Brent. By the end of the month Jack Snipes and Snow Buntings can be seen, but the main finch movement takes place a few weeks later.

In October I have experienced the best migration movements of all. One windy morning I was walking past the Marl Loch when a flock of Redwings flew low overhead, shortly

followed by another flock. I noted the numbers, and was about to put my notebook away when a third and fourth large flock of between 80 and 100 each flew past. I noted flock after flock coming in at buckthorn height, and within about an hour 4,675 Redwings had flown over my head. Over 200 Song Thrushes came in with them, as well as small flocks of Bramblings. In calm weather I have watched flocks of Redwings passing over almost out of sight. The Fieldfares tend to come later and not quite in the same numbers. Over 60 Siskins, over 50 Snow Buntings and occasional Crossbills and Waxwings have been seen on a single day. This is the time too for small parties of Barnacles to be seen passing Gullane Point. October is Great Grey Shrike time, and the small hawthorn bushes spread out over the wet grassland make ideal perches. In November the finch and thrush movements continue, and the geese have by then reached their peak of around 6,000.

Readers will have by now realized that Aberlady can support a varied birdlife, due to the diversity of habitat on its 1,500 acres and nine kilometres of coastline. It varies through extensive mudflats to stable sand dunes, including saltmarsh, fresh water marsh, deciduous and coniferous woodland, fresh water loch, buckthorn spinnies, a small burn, dune slacks, rocky outcrops, the sea itself, and a man-made habitat of sewage works. The latter always has some form of birdlife around it, and in the migration seasons Black Redstart, Lesser Whitethroat, Willow Warblers and Whinchats appear there. This is the area in which the Lesser Grey Shrike turned up.

To reap the full benefit of Aberlady's potential, you should be there at the correct state of tide, during suitable weather conditions, and at the best time of day and season for whatever you wish to see. Knowledge of the area too is very important. For example, February can be a quiet time, but during that month, for over three weeks, a male Hen Harrier came in to roost at dusk in the wet grassland, and over 100 Corn Buntings did likewise. And if you were really lucky, you could see up to 12 Short-eared Owls which spend the winter here. There are few facilities in the way of hides for birdwatchers, but the existing concrete blocks can prove useful in this respect. Also, as the bay faces westwards, the light conditions for viewing waders and wildfowl are often poor, but a walk along the Kilspindie shoreline can prove to be very fruitful. From this vantage point in the middle of winter the wheeling masses of Bar-tailed Godwits, Knots and Dunlins can be observed flocking to the high tide roosts after feeding on the invertebrate-rich mudflats which comprise almost two-thirds of the reserve.

You will notice that each species has its own section of the bay for the high tide roost. Redshanks prefer the Peffer Burn

area and have their roost 100m down from the car park. Oystercatchers, Godwits and Knots prefer the saltmarsh below the old curling pond. Grey Plover and some of the Dunlin enjoy the sand until it is completely covered over, and along at the shingle spit the Ringed Plovers are still feeding with the remainder of the Dunlin as this is the area the tide reaches last. By the time the tide has reached the edge of the saltmarsh, most of the Curlews and Golden Plovers have left the bay for adjacent fields. Right along the sand dunes is the place for the Sanderlings, and up to 200 have been counted.



SANDERLING A. Dowell

Little Stints are often with the Ringed Plovers in autumn, and up to 80 have been seen at one time. At the northern end of the reserve are the rocky outcrops where you will find Purple Sandpipers associating with Turnstones.

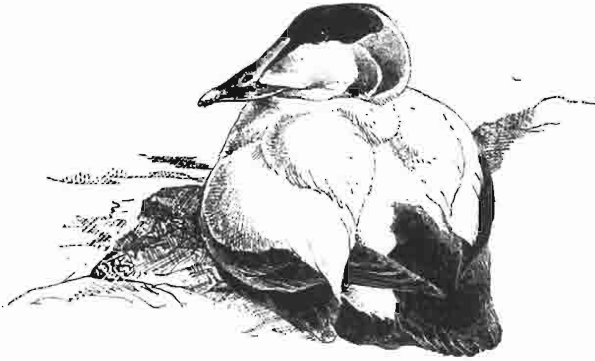
Pectoral and Buff-breasted Sandpipers have been found in the bay, and once a Baird's Sandpiper appeared. When watching waders you might be lucky to spot a Peregrine or Merlin in search of a winter meal. This can be a nuisance, however, especially if you happen to be counting them at the time. 'One thousand four hundred and six, one thousand four hundred and seven, one thousand four hundred...' and then suddenly all the birds take off. You glance up from behind a bleary telescopic eye to observe a Merlin flying off clutching the one thousand four hundred and eighth bird.

So far, 230 species have been seen on the reserve, and I am sure all birdwatchers are interested in the rarities. The list is quite long, so a few choice species include White-billed Diver, Spoonbill, Surf Scoter, Red Kite, Lesser Yellowlegs, Cream-coloured Courser, Sabine's Gull, Gull-billed Tern, Hoopoe, and Golden Oriole.

Many birdwatchers travel up from the deep south to watch the divers and grebes which we tend to take for granted.

March is the best time to look for these when peak numbers occur. Over 100 Red-throated Divers have been counted and usually between 30 and 40 each of Red-necked and Slavonian Grebes can be seen. There are a few reports of Black-necked Grebes, and occasionally Black-throated and Great Northern Divers are observed. English birdwatchers also travel long distances to watch the sea-duck off Aberlady's shore, in the form of 3-4,000 Eiders, over 1,000 scoters, and up to 90 Long-tailed Ducks. Aberlady became a nature reserve in 1952 for its plant communities and not purely for the bird populations, so spare a thought for the ground flora when in hot pursuit of the birdlife.

R. G. Nisbet, Warden, Aberlady Bay Nature Reserve,
Aberlady, East Lothian.



EIDER K. Brockie

Short Notes

Seals and water birds

Following the notes of seals taking Guillemots and Eider (9: 346-7, 10: 66-67) an incident off Peffer Sands near Tynninghame, East Lothian, on 17th April 1978 may be of interest. I noticed a large seal with something protruding from its mouth. Through binoculars this proved to be the body of a fairly large grey bird. The head and neck could not be distinguished but a narrow, pointed wing hung down from the seal's mouth. The seal shook the bird vigorously and submerged, repeating the procedure several times before swallowing it, possibly to escape harassment by Herring Gulls which often associate with fishing seals. The only bird which fits the description is one of the divers and I counted eleven Red-

throated Divers in the area. It was impossible to determine whether the bird was in good condition before the seal took it; however an oiling incident had occurred near the area a few days previously so the bird may have been affected by this.

E. S. da PRATO

Peregrine apparently killed by Golden Eagle

On 13th July 1978, while checking an occupied Golden Eagle eyrie in Ross-shire, I found the dried, almost featherless carcass of a Peregrine on an adjacent feeding perch. Beside it lay the pad of a Mountain Hare *Lepus timidus* and the leg of a Red Deer *Cervus elaphus* calf. There remained sufficient feathers to show it was not a bird of the year. Talon punctures in its back with bruised blood darkening indicated it had been killed and not picked up as carrion. It was virtually uneaten though almost completely plucked.

LEA MACNALLY

[In America a Golden Eagle once killed a Red-shouldered Hawk that was annoying it (in Brown, 1976. *British Birds of Prey* p. 184) and evidence of a similar fate befalling a Hen Harrier was given by A. D. Watson (5: 379-380).—Ed.]

Waders feeding on grain in cold weather

Although most species of waders have been observed to ingest small quantities of vegetable matter, such as various seaweeds, the diet of most species consists almost entirely of animal matter. Two common exceptions concern situations in which animal food is temporarily unavailable or where vegetable material in a form easily obtainable by wader feeding techniques is artificially abundant in wader habitat. The first situation arises fairly commonly in the arctic or upland breeding grounds of several waders when insect food may not be available until sometime after the arrival of the birds. Waders may then eat the shoots and leaves of tundra plants (see, e.g., Nettleship 1973). The second situation occurs notably in West Africa where the cultivation of rice provides food for Black-tailed Godwits and Ruffs (Morel & Roux 1966). Observations at Aberlady Bay, East Lothian, in the winter 1977/8 provide a further case where both these factors probably applied.

As part of a study of Shelducks, wheat grain was placed daily on a small part of the bay during three periods over the winter. The morning air temperatures during these periods and the birds seen to feed on grain are summarized in the

Table. Birds feeding on grain during three periods in winter 1977/8

Dates when grain provided	Air temperature (°C)	Birds seen to feed on grain
1. 23 Nov-5 Dec	0 to 8	c.100 Shelducks, 50 Wigeon, 20 Mallard.
2. 10-18 Jan	0 to 5	Ducks as above, 14 Ruffs.
3. 8-11 Feb	-2 to 8	Ducks as above.
12-16 Feb	-2 to 2	Ducks as above, 4 Ruffs, 4 Black-headed Gulls.
17 Feb	-1	Ducks as above, c.200 Knots, 100 Dunlins, 3 Ruffs, 2 Redshanks, 5 Black-headed Gulls.
18 Feb	1	Ducks as above, c.200 Knots, 100 Dunlins, 2 Ruffs, 1 Redshank, 6 Black-headed Gulls, 6 Skylarks, 1 Bar-tailed Godwit (briefly).
19 Feb	3	Ducks as above, c.100 Knots, 20 Dunlins, 2 Ruffs.
20 Feb	5	Ducks as above, 3 Knots, 1 Ruff.

table. Observations were made at about 100m distance using a 15x to 60x telescope. The third period of grain provision, 8-20th February, coincided with heavy snow falls and hard frosts, the daily temperatures from 10-19th rarely exceeding freezing point. Large areas of the intertidal flats, particularly the higher ones, were frozen.

On the morning of the 17th, after a week of the cold weather, waders were seen to be taking the thinly scattered grain remaining after Shelduck and Wigeon had taken most of the wheat. The upper marsh and flats were still frozen hard on the 18th and waders and other species fed rapidly on the grain within a few minutes of this being scattered. They were eventually displaced by the arriving Shelducks but most continued to feed on the grain in places away from the ducks. Despite a rise in temperature on the morning of the 19th much of the upper flats remained frozen and many waders fed on grain, avoiding the Shelducks, but a further 100 Knots were seen to be feeding at the nearby tide edge in a manner more typical of this species. On the morning of the 20th the air temperature reached 5°C and only three Knots and a Ruff fed on the grain.

It is likely that the waders switched to feeding on grain when their normal food, intertidal invertebrates, became un-

available during a prolonged spell of low temperatures. Generally such invertebrates reduce their activity and burrow deeper in cold weather and thus become difficult for birds to detect and capture (Goss-Custard 1969, Evans & Smith 1975, Pienkowski in press). When the surface of the mud freezes prey generally becomes totally unavailable to waders, and at such times many shorebirds may suffer high mortality (e.g. Dobinson & Richards 1964). Whether or not waders could survive for any long period on grain alone is unknown but such a food source (almost entirely carbohydrate) probably assists the birds in meeting energy requirements at least over a short period, when the birds would otherwise have to depend on fat reserves for survival. It is notable that the waders appeared to prefer an invertebrate diet as soon as temperatures rose again. Also it seems that Ruffs had a greater preference for grain than other species and this is of interest in view of its acquisition of a diet of rice in parts of West Africa and elsewhere.

I would like to thank N. C. Davidson, Dr P. R. Evans, L. R. Goodyer and S. da Prato for helpful comments on an earlier draft of this note.

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M. W. PIENKOWSKI

The relationship between wintering seaduck flocks and effluent discharges, especially those containing grain, is well known (Pounder 1976, Milne and Campbell 1973). Experience during the cold weather of February 1978 suggests that waders can also exploit these resources.

At Seafield, Midlothian, quantities of grain accumulate on the shore at high water mark and in winter up to 400 Greenfinches feed on it. Although large numbers of waders feed on the Seafield mudflats, most birds roost elsewhere at high tide, leaving up to 400 Redshanks and, less regularly, a few Oyster-

catchers and Turnstones roosting on the sea wall or reclaimed land.

On 19th February hundreds of Knot, Dunlin and Redshank fed vigorously on the mud ahead of the rising tide; they were much more tolerant of human disturbance than usual and returned to feed immediately any walker crossed the shore. When the mud was completely covered, over 60 Redshank, 20 Knot and a few Turnstone continued to feed on the grain piles along with many Greenfinches and Black-headed Gulls and a few Brambling, Skylarks and pipits. Through binoculars the birds were seen picking what seemed to be grain as it was washed free from the surrounding debris by the waves. One Redshank swallowed large yellow seeds which could only have been maize, presumably discharged through the sewer. Sampling showed that animal food became scarcer towards high tide mark but the birds may have ingested some animal food along with the grain in the form of small worms.

Although several species of waders regularly take berries and seeds on their inland breeding grounds, this type of food is rarely recorded in winter. In the Forth we have occasionally seen Knot picking at the green seaweed *Enteromorpha* but we have never seen numbers of waders actively feeding on vegetable matter. We consider that the Seafield birds were responding to the unusually cold weather which would simultaneously increase their food requirements and reduce the availability of invertebrates which tend to burrow deeper into the mud in cold weather. It seems significant that Redshanks were the commonest species on the grain piles, as many Redshank feed inland on playing fields and parkland which were unavailable due to frost.

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E. S. DA PRATO, S. R. D. DA PRATO, J. M. DICKSON.

Probable breeding of Ruff in the Hebrides

A reeve was observed behaving as if it had young in a marshy pasture 400m (440 yds) from a eutrophic loch in the Hebrides on 17th July 1977. It may be best not to reveal its whereabouts more precisely. When first approached it performed a rodent-run distraction display with body in a crouched posture and shuffling wings. It then flew low round the observer in arcs of 30-50m (33-55 yds) radius, uttering a quiet double call, *wee-weer*, before returning to the site where it

had been initially located. This bird was watched for a further 30 minutes from a car parked 50m away. The reeve spent some of this time on the alert while perched on a field boundary bank that was slightly elevated above the surrounding land, but it eventually walked back about 30m to the same spot in the marsh. When it was seen briefly two hours later the reeve had moved nearer the loch shore. This particular bird had orange legs.

Though dry weather had prevailed for several weeks, the ground frequented by the reeve was wet and spongy. The sward was lightly grazed with numerous tussocks of the sedge *Carex nigra*. Other plants abundant in the vicinity were two horse-tails, *Equisetum fluviatile* and *E. palustre*, Marsh Marigold *Caltha palustris*, Ragged Robin *Lychnis flos-cuculi*, Marsh Willowherb *Epilobium palustre*, Pennywort *Hydrocotyle vulgaris*, Fool's Watercress *Apium nodiflorum* and Jointed Rush *Juncus articulatus*. Associated breeding birds were a pair of Redshanks with young, and Snipe.

In spite of careful scanning with binoculars no young were observed but this is not surprising in view of the height of the vegetation (c.30 cm/1 ft). An intensive search was avoided. Nevertheless the behaviour of the adult was strongly indicative that young were present. Injury feigning by the reeve when disturbed from a nest is described by Andersen (1951 *Dansk Orn. Foren. Tidsskr.* 45: 145-173) but in his experience the circling flight was seldom observed before the young hatch. Mildenberger (1953 *J. Orn.* 94: 128-143), however, considered that reeves with eggs also perform such flights in the presence of a human intruder. Breeding reeves in Cambridgeshire responded similarly when they were suspected of having young (personal observation).

There are no previous records of breeding Ruff in Scotland, although birds displayed in two localities in 1976. In the 1968-72 *Atlas* survey breeding was only confirmed in six 10-km squares and considered probable in a further two in Britain and Ireland as a whole. Published information indicates that the Ruff is a rather scarce passage visitor, chiefly in autumn, to the Hebrides and there are no records of leks.

C. J. CADBURY

Great Skuas killing young Shelducks

On 21st August 1977 I was overlooking the bay at Kinneil, West Lothian, where 234 Shelduck were out on the water. Two Great Skuas got up, flew around for several minutes, then landed in the middle of the flock where each began to pounce on immature Shelduck. They were picked up, shaken vigorous-

ly several times, then tossed up in the air. The skuas would then dip their bills in the water several times and preen. After five to ten minutes the same procedure would start again. The Shelduck attacked were about fully grown but unable to fly or did so only weakly. Four of them were pursued in flight, caught by the wing and allowed to drop to the water. Then the skua would follow it down and maul the Shelduck by tossing it up in the air.

At least 12 young Shelduck were killed in about an hour before the skuas gave up the sport. No attempt was made to eat any of the kill. During the attacks the Great Skuas were constantly dive-bombed by Common and Sandwich Terns, but to no effect. At one point an Arctic Skua chased some of the terns. The many adult Shelduck feeding in the area were apparently completely unconcerned at the attacks on the young.

R. BERNARD

[The diversity of Great Skua feeding is shown by R. W. Furness in *Ibis* 121: 86-92 (1979).—ED.]

Leucistic Swallows

On 28th August 1978 I was told about two white Swallows that had been seen feeding over a playing-field at Cove, near Aberdeen, for at least a week. That evening I saw the birds myself at very close range. They were both juveniles, probably from the same brood.

Description of both birds Entire upperparts (except foreheads), rectrices and remiges pure white. Chin, throat and narrow band across forehead pale chestnut; rest of underparts pale pinkish buff, being most conspicuous on under tail- and under wing-coverts. Bill and legs pale pink; claws white; inside of mouth of one bird yellowish pink; eye colour not seen clearly but appeared to be normal.

I was told they suffered from mobbing by other Swallows, although I did not see it.

It is interesting to note the complete lack of melanin in the plumage, legs and bill, while the (presumably carotenoid) pigments of the underparts and forehead were retained much as in normal Swallows. This is apparently a different type of leucism to that described by J. F. Young (10: 22-23) in Swallows in Dumfriesshire.

ALAN KNOX.

Reviews

The Golden Eagle by Michael J. Everett. Edinburgh, Blackwood, 1977, 60 pp, 10 plain photos, 21 x 15 cm. 95p.

Mike Everett has worked on the Golden Eagle for the RSPB and this

book relates many of his own experiences to give a clear, concise picture of this magnificent bird. Statistics have been avoided which makes the book comprehensible to both amateur and professional. Charles Palmar's superb photographs do not date but enhance this comprehensive and excellent short monograph. How the publishers have kept the price down is a mystery.

Everyday Birds by Tony Soper. Newton Abbot, David & Charles, 1976, 126 pp, 14 plain photos, 27 drawings, 22 x 14 cm. £2.95.

People take up birdwatching for many reasons, one being that their interest becomes whetted by the sight of the common birds around them. The author gives us an intriguing insight into the private lives of nine species and carries one's interest at least one stage further to being hooked. The photographs are well chosen and, as usual, Robert Gillmor's illustrations are excellent and complement the content of this book.

Birds of Coast and Sea : Britain and Northern Europe by Bruce Campbell. Oxford University Press, 1977, 151 pp, 64 colour plates, 25 plain illustrations, 22 x 15 cm. £3.75.

Bruce Campbell describes 74 species concisely yet thoroughly. His selection may be controversial, nevertheless this book is good value as a reference and is well produced on good paper. Raymond Watson's excellent illustrations define each habitat of the various species as well as their differing seasonal plumages.

A. G. STEWART

Atlas of Breeding Birds of the London Area. Edited by D. J. Montier for the London Natural History Society. London, Batsford, 1977. Pp. 288; numerous line drawings, 3 text figures, 16 tables, 120 maps, 25½ x 19½ cm. £12.50

LNHS members have atlased their way into ornithological history by becoming the first inhabitants of any major city to accurately map the distribution of their avian neighbours. Although the base data has been seen already in 10 km² format in *The Atlas of Breeding Birds in Britain and Ireland* it is shown here on a scale 25 times more detailed, since tetrads (2 km²) were the units for survey. The introduction covers methods and changes in London's birdlife, and is followed by a chapter on geology and habitats that sets the scene admirably.

The area surveyed is a 20 mile radius from St Paul's. For each species there is a two-tone map showing breeding distribution in relation to the built-up area. The whereabouts of five vulnerable species are not plotted. Opposite every map the text summarizes information available to 1974, though occasionally up to 1976 for Inner London. Each species account is enhanced by a line drawing from one of five talented local artists. A figure showing the number of species recorded in each of the 856 tetrads provides a clue to observer effort, and hence bias in coverage, as well as highlighting some species diverse localities. Only 14 tetrads received no coverage, amounting to 1.6% of the total.

The high quality of production of this book plus its apparent limited appeal combine to push the price up. Unfortunately, in achieving this it becomes beyond the means of the average birdwatcher, so that the person who would most benefit from this hard won knowledge of fellow amateurs is only likely to encounter a library copy. As Stanley Cramp points out in the foreword, the distribution maps present a far more complicated picture of London birdlife than any previous account, and little room for the simplistic view of the grey and sterile landscape of

the concrete jungle that we so often hear about. Not only will this book provide an objective basis from which to monitor future changes, it gives all of us a first insight into the effects of urbanisation on birdlife. Many more species breed in central London now than at the turn of the century, and as more people concern themselves with the quality of city life there is room for optimism for the future.

P. K. KINNEAR

Encyclopedia of Aviculture, vol. 3. Edited by A. Rutgers, K. A. Norris and Cyril H. Rogers. London, Blandford, 1977. Pp. xii + 242; 44 colour plates, 228 line illustrations, 30 x 21 cm. £12.00.

This volume completes the work which will be widely regarded as the leading work for aviculturists. Birds now kept and often bred which were not covered in previous volumes are dealt with, as well as the Passeriformes with special attention to Canaries. Diets are given for soft-billed birds and seed-eaters and general hints on acclimatisation in addition to details under species. A general index to all three volumes would have been useful. The book is well produced on good paper and well-bound, and the colour plates, particularly those by J. F. van den Broecke and H. J. Slijper, are very good indeed. The work is of considerable value to all interested in birds, whether aviculturist or not, and for the plates alone is very reasonably priced.

RITCHIE SEATH

Current literature Articles and reports on the status and distribution of birds in Scotland are listed here. Strictly biological studies such as ecology and behaviour are excluded, as are references from widely read journals such as *British Birds* and *Bird Study*. Most listed items and many others are in the club library, and we would be grateful to authors for reprints of any ornithological work, biological or otherwise, published outwith the main bird journals.

- The roost-flights of Whooper Swans in the Devon valley. C. J. Henty 1978. *Forth Naturalist and Historian* 2: 30-35 (1977).
- Stirling and Clackmannan bird report (1976). C. J. Henty 1978. *Forth Naturalist and Historian* 2: 36-48 (1977).
- The breeding bird community of the hillside oakwoods of Loch Lomondside. G. Shaw 1976. *Western Naturalist* 5: 41-51 (1978).
- Early nesting of the Heron in Renfrewshire/Ayrshire. J. A. Gibson 1976. *Western Naturalist* 5: 112-3 (1978).
- Fair Isle Bird Observatory Report for 1977*. G. Waterston (ed) 1978. £1.
- Caithness Bird Report 1977*. (No address).
- 1978 BTO/SOC survey of Corncrakes in Britain—interim report. C. J. Cadbury 1978.
- Birds of West Water Reservoir, Tweeddale (Peeblesshire)*. A. W. & L. M. Brown 1978.
- Historical Notes on Eagles, Peregrines and other Birds of Prey in Arran*. S. King 1978. Arran Nature Centre.
- A Report on the Peregrine Falcon on the Isle of Arran* 1977. S. King 1978. Arran Nature Centre.
- Report on the Peregrine Falcon on Arran* 1978. B. Anderson 1978. Arran Natural History Society.
- A Report on the Golden Eagle in Arran* 1978. B. Anderson 1978. Arran Natural History Society.
- BTO Golden Plover Survey 1976-77, 1977-78: the Lothians*. A. W. Brown 1978.
- The Great Crested Grebe in West Stirlingshire and Dunbartonshire in 1978*. J. Mitchell 1978.

- 1978 *Heronry Report for Loch Lomondside and Neighbouring Areas*. J. Mitchell 1978.
- BTO Mute Swan Survey 1978: the Lothians* A. W. Brown 1978.
- 1978 *Census of Breeding Waders on the Ring Point, Loch Lomond National Nature Reserve*. J. Mitchell 1978.
- Check List of Morvern Birds* 1978. R. A. M. Coyne 1978. Ardtornish Estate Office, Morvern, by Oban.
- Distribution Maps of the European Swans*. (No address).
- The decline of the Raven, *Corvus corax*, in relation to afforestation in southern Scotland and northern England. M. Marquiss, I. Newton, D. A. Ratcliffe 1978. *Journal of Applied Ecology* 15: 129-144.
- Hawk Trust Conference 1978: abstracts*. Includes polygyny in Hen Harriers in Orkney, patterns of predation by Peregrines breeding in northern Scotland, territory usage and feeding ecology of farmland Tawny Owls in Aberdeenshire, habitat preference in male and female Sparrowhawks in S.W. Scotland, and Goshawk establishment in Britain. Proceedings will be published.
- 1977-1978 *Canna Report*. R. L. Swann & A. D. K. Ramsay, 14 St Drostan's, Drumnadrochit, Inverness-shire. Includes 1969-78 systematic list.
- Orkney Bird Report 1976-7*. D. Lea (ed). £1 post free from David Lea, 6 Old Scapa Road, Kirkwall, Orkney.

Notices

Diver nest rafts In 1979 two artificial floating nest sites installed in hill lochs in Argyll in 1976 to attract divers to breed were both used. From one a pair of Red-throated Divers raised two young and from the other a pair of Black-throated Divers reared one young. These contributed 75% of the total production of young divers in this area of hill lochs which have few islands and suffer heavily from disturbance by fishermen walking the shore. This year a concerted effort is being made, supported by a major industrial organization, to extend the provision of nest rafts, initially to obtain nearly full coverage of suitable lochs in the original area of hill-lochs, and secondarily to other suitable sites in west Scotland where landowner co-operation can be obtained. I would be interested to hear from anybody who is either willing to assist in installing such rafts in the field during this summer or any landowner who would be willing to allow such rafts in lochs on his/her land and could help in some practical way with installation. Please write to T. D. H. Merrie, Kirklea, Oyne, by Inch, Aberdeenshire.

Moorhen eggs Photographs of completed Moorhen clutches are needed for a study of intra-clutch variation. If anyone is willing to help (film provided) please contact Ms Jane J. Labno, Zoology Dept, Sheffield University.

Crested Tit survey The breeding distribution of the Crested Tit is being surveyed in 1979. Although much of the fieldwork will be done by local observers, records from visitors would be much appreciated, and acknowledged, giving date, locality (including map reference) and any breeding activity. Please send any April, May and June records to M. J. H. Cook, Rowanbrae, Clochan, Buckie, Banffshire.

Influx of Red-necked Grebes and associated species A widespread influx of the rarer grebes, particularly Red-necked, and various other water-birds occurred in Britain, apparently over the weekend of 17-18th February 1979. It is proposed to carry out an analysis of this movement,

leading to a paper in **British Birds**. To establish the timing and extent of the influx, all records of Red-necked, Slavonian and Black-necked Grebes in Britain and Ireland during December 1978 to March 1979 are requested. Information on other species which seem to have been associated with the influx, such as divers, Velvet Scoters, Red-breasted Mergansers and Goosanders are also required. All records will be acknowledged; please send full details, including numbers and species involved, locality, dates of first occurrence and length of stay (if known) to Dr R. J. Chandler, 2 Rusland Avenue, Orpington, Kent, BR6 8AU.

The Scottish Ornithologists' Club

Dr D. A. BANNERMAN OBE, FRSE

It is with very great sadness that we announce the death of Dr David Bannerman on 6 April 1979, in his 93rd year; he had been an Honorary President of the Club since 1959.

An obituary will appear later this year.

ANNUAL CONFERENCE

The 32nd annual conference and 43rd annual general meeting of the club will be held in the Marine Hotel, North Berwick, East Lothian, during the weekend 26-28 October 1979. The conference programme and booking form is enclosed with this number of the journal; the AGM agenda will be printed in the autumn number.

BRANCH MEETINGS

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

- | | |
|------------------|---|
| September | 20th Dundee |
| | 24th Aberdeen |
| | 25th Edinburgh, Inverness and Wigtown (in Newton Stewart) |
| | 26th Ayr, St Andrews and Thurso |
| | 27th New Galloway and Stirling |
| October | 1st Glasgow |
| | 3rd Dumfries |

The venue and times of all meetings are unchanged; full details of all winter meetings will be published in the Syllabus of Lectures and sent to all members with the autumn journal early in September.

WIGTOWN BRANCH SECRETARY

Please note that Mr Geoff Sheppard is now on the telephone. His number is Leswalt 685.

BOOKSHOP ORDERS POST FREE AGAIN

Club membership now gives a financial incentive to book buyers. Orders of **£5 or more** will be sent post free provided your SOC membership is **clearly stated**. Orders under £5 remain subject to a 50p charge.

Branch News

Argyll weekend Despite the squally weather, 88 species including a Light-bellied Brent and scarlet cock Crossbill made an eminently satisfying weekend's birdwatching for the members from the Stirling, Glasgow and Dundee Branches who attended the Stirling Branch's Argyll Weekend on 2nd-4th March. However, the pleasures of the palate and the ear now vie with the pleasures of the binocular on this venture. Saturday evening's sumptuous spread again kindly prepared by Mrs H. Greig set the scene for the vivacious vocal talents of Stirling's chairman, Russell Young, and others in an evening that will be remembered. The Stirling Branch hope to repeat this weekend next year.

S. MITCHELL

Current Notes

These notes include unchecked reports and are not intended as a permanent record, nor will they be indexed. Please send reports via local recorders at the end of March, June, September and December.

The cold weather brought a small influx of waterfowl in February, although not as pronounced as further south, and the continuing cold gave another late spring. **Red-necked Grebe** small influx mid Feb—e.g. 4 Dornoch (Suth) 10th—but fewer in main haunt Gosford-Gullane (E Loth). **Fulmar** 3 blue Musselburgh (Midl) 17 Mar in NE gale. **Leach's Petrel** 2 dead upper Forth Feb. **Bittern** dead Whalsay (Shet) 19 Dec. **Bean Goose** dead St Combs (Aber) 28 Jan; 3 Fair Isle 1-10 Mar. **European White-fronted Goose** *A. a. albifrons* 2 North Berwick (E Loth) Jan-Feb; 2 Strathbeg (Aber) 28 Jan. **Brent Goose** several small flocks East Lothian Feb-Mar. **King Eider** wintered L Ryan (Wig), L Fleet (Suth) (3). **Rough-legged Buzzard** S Mainland (Shet) Feb; (?) 5 in NE in Feb; 2 Coldingham Moor (Ber) Mar. **Gyr Falcon** Sullom Voe (Shet) Jan; Islay (Arg) 22 Dec-19 Mar (found dead); Murray's Monument (Kirk) early Mar. **Crane** still on Ythan (Aber) Feb-Mar. **Green Sandpiper** only report Mintlaw (Aber) Jan/Feb. **Grey Phalarope** Collieston (Aber) 17-21 Feb; Musselburgh-Port Seton (Midl-E Loth) 17-23 Feb; 1-2 Musselburgh 17 Mar; S Queensferry (W Loth) 17 Mar. **Pomarine Skua** Barns Ness (E Loth) 31 Mar; Musselburgh 1 Apr. **Arctic Skua** several winter sightings Forth-St Abbs (Ber). **Great Skua** Aberlady (E Loth) Jan. **Ring-billed Gull** Lossiemouth (Moray) early Feb. **Mediterranean Gull** 4+ sightings Forth Bridges-Musselburgh. **Sandwich Tern** S Forth Feb-Mar. **Brunnich's Guillemot** dead Rattray Head (Aber) 25 Feb. **Long-eared Owl** many wintered Shetland: 17 Veensgarth, 9 Scousburgh, 5 Boddam. **White Wagtail** 1st Fair Isle 26 Mar. **Black Redstart** 1st Fair Isle 25 Mar, 4 on 26th. **Wheatear** 1st Musselburgh 24 Mar. **Ring Ouzel** 1st St Abbs 25 Mar. **Chiffchaff** 1st Fair Isle 26 Mar. **Firecrest** 2 St Abbs 8-9 Apr. **Great Grey Shrike** only report Belhelvie (Aber) 17 Feb. **Rustic Bunting** St Abbs 7 Apr.

D. J. BATES

NOTICES TO CONTRIBUTORS

Papers, longer articles and short notes

1. The high cost of production and distribution means that it is of the utmost importance that contributions are concise, interesting and readable to justify their publication. Authors of papers are advised to submit a draft to an expert referee before offering it to the editor. Material should be typed on one side of the sheet only, in duplicate, with double spacing and wide margins.

2. Authors are urged to consult recent issues of *Scottish Birds* for style of presentation, in particular of headings, tables and references. Headings should not be in capitals nor underlined. Tables and figures must be designed to fit the page. Tables should be used sparingly and be self explanatory, and, like figure captions, typed on a separate sheet.

3. Short notes, if not typed, must be clearly written and well spaced.

4. English names of species (but not group names) of birds, other animals and plants, except domestic forms, have initial capitals for each word, except after a hyphen. English names and sequence of birds follow Voous (1973-7) 'List of recent Holarctic bird species' (*Ibis* 115: 612-638; 119: 223-250, 376-406). Scientific names are generally unnecessary for species in this list but they are required (underlined, with no brackets) for subspecies, species not in the list, and for other animals and plants, except domestic forms, where these receive significant mention.

5. Proofs are sent to all contributors and these should be returned without delay. Authors of papers and longer articles are entitled to 25 free copies of the journal but these must be requested when returning proofs. Extra copies can be supplied at cost.

6. Illustrations of any kind are welcomed, whether alone or to illustrate an article. Drawings and figures should be up to twice the size they will finally appear, in Indian ink, neatly lettered, on good quality paper separate from the text. Photographs, either glossy prints or colour transparencies, should be sharp and clear with good contrast.

Scottish Bird Report

1. Records should be sent to the appropriate local recorders, a list of whom is published regularly, but in cases of difficulty they can be forwarded by the editor.

2. These records should be on one side of the sheet only, well spaced and in species order, following the Voous sequence (see 4. above). The only exception is that Aberdeenshire and north Kincardineshire records should be in place and date order. Observers should consult previous reports for the sort of information required. To avoid duplication of records by the recorders, names of other observers present should be given where appropriate.

3. Notes for the year should be sent promptly, generally in early January, but some recorders prefer more frequent records and regular contributors are asked to consult local recorders about this. Reports of occasional visits to areas outwith the observer's regular territory, such as holiday lists, should usually be sent to recorders as soon as possible. Records of rarities, including species only locally rare, should be sent to recorders without delay. The editor invites short notes on rarities for publication, with any illustrations, up to the third Scottish record or after a long gap since the previous occurrence.

4. The editor will be glad to receive, preferably via the local recorders, records of special interest for publication in Current Notes. Please send them at the end of March, June, September and December for publication in the issues following.

5. To save recorders' (often considerable) time and expense, correspondents should enclose a stamped addressed envelope or indicate that no acknowledgment is required.

THE SCOTTISH ORNITHOLOGISTS' CLUB

THE 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, 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 £5, or £2 in the case of Members under twenty one years of age or Students under 25, who satisfy Council of their status as such at the times at which their subscriptions fall due. The Life subscription is £100. Family Membership is available to married couples and their nominated children under 18 at an Annual subscription of £7.50, or a Life subscription of £150. *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 5BT (tel. 031-556 6042).

APPLICATION FORM

Date.....

Name(s)

Address

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(or nominated child under 18 on family membership)

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(If you do not know any members who can propose or second you please leave blank)

Please detach and send with your subscription to The Club Secretary, Scottish Ornithologists' Club, 21 Regent Terrace, Edinburgh, EH7 5BT.

Notes—

1. Those entitled to draw the State old age pension may pay a reduced subscription of £3 (single) or £4.50 (family) on application to the Club Secretary.
2. Banker's Order and Deed of Covenant forms can be supplied by the Club Secretary.

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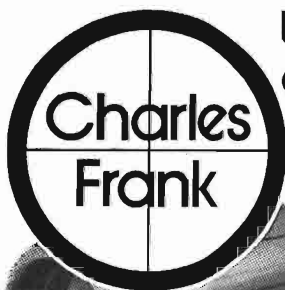
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