

SCOTTISH BIRDS



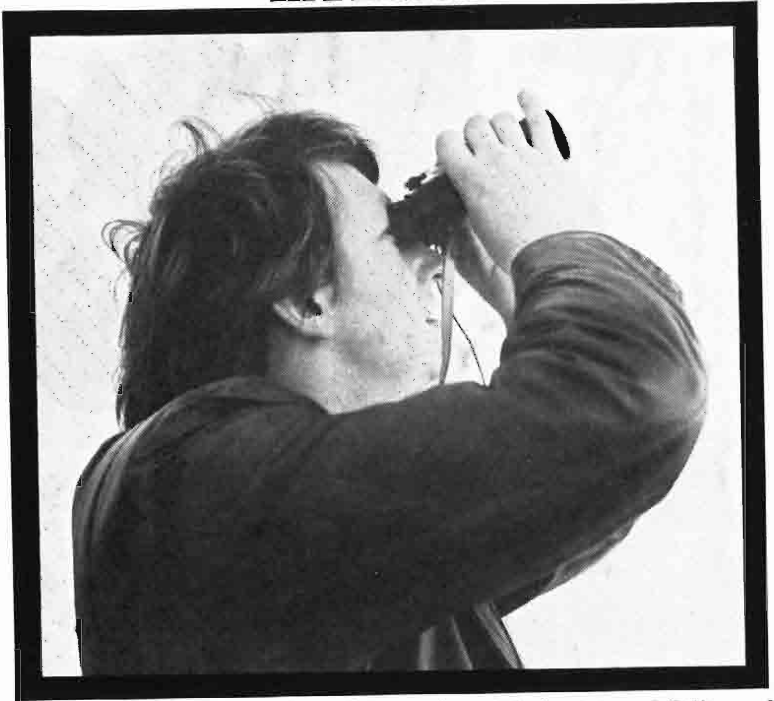
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SCOTTISH ORNITHOLOGISTS' CLUB

Volume 6 No. 3

AUTUMN 1970

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THE JOURNAL OF THE SCOTTISH ORNITHOLOGISTS' CLUB



Vol. 6 No. 3

Autumn 1970

Edited by A. T. Macmillan, assisted by D. G. Andrew

Editorial

Ducks delight. Birdwatchers may at times be regarded as odd by the unconverted. In their attraction to sewage farms and sewer outfalls, at least, their behaviour might be thought to set them apart from more normal folk, who tend to find their enjoyment of the country scene in more salubrious surroundings.

Recently an outcry has been heard from citizens of the Forth about the 50 million gallons of untreated sewage that Edinburgh Corporation pours into the sea daily. In spite of reassurances that salt water takes care of any risk to health, there is a not unnatural objection to the smell and to the filth and rubbish deposited on the beaches by the tide. Somewhere we heard that this was the largest volume of untreated sewage discharged into the sea anywhere in Britain; certainly it must be the worst in Scotland. Edinburgh is legally bound to do something about it by 1976, though it seems likely to take longer than that (and may even delay further the building of an opera house).

As naturalists, no less than as residents in the area, we must deplore the gross pollution of the Forth. But it cannot be entirely coincidence that increasingly huge numbers of duck winter off the shores of Edinburgh, apparently attracted by the mussel-beds there. The flocks of Scaup (up to 35,000) and Goldeneye (up to 4000), and the Pochard which flight from Duddingston to feed at Seafield at night (up to 8000) are the largest in the country. It will be most interesting to see what happens to the ducks if plans to stem the flood of crude sewage come to be. Obviously the fauna of the area will be changed, though it does seem that there will still be rich nutrients in the water released from the sewage plant.,

Lost volumes. Despite an appeal on the contents page of the summer issue, no trace of the bound editorial copy of volume 5 has been found. If you had *Scottish Birds* bound by the official binder this year would you please check that you got your own copy back, and not one of the annotated editorial volumes (recognisable from the dates written on the first pages of the quarterly issues).

The seabird wreck—autumn 1969

A. G. STEWART

During late September to November 1969 large numbers of seabirds were found dead on the west coast of Scotland, the northeast and southeast coasts of Ireland, the Isle of Man, the north coast of Wales and Anglesey, and the northwest coast of England. This incident is now sometimes called the birdkill in the Irish Sea.

Altogether, by mid November, a probable total of between 15,000 and 20,000 seabirds perished in the wreck along these coasts. This report is concerned only with records from the Scottish coasts.

The weather

During the first week of September a high-pressure ridge predominated, followed by a deep depression drifting NE over Scotland on the 7th, lasting two days, with associated troughs giving rain and moderate winds. A further complex depression moving east over northern England brought a few days of lower pressure, but then an anticyclone intensified, bringing sunny weather to Scotland.

This was followed on the 21st by a wave depression deepening and moving across Scotland and northern England, bringing winds up to 96 m.p.h. during the night of the 21st-22nd. With a pressure rise following, a SW airstream was maintained until the 25th, with low cloud and rain. By the 27th the wind had veered to the NW, caused by another wave depression approaching from the Atlantic and bringing a severe gale, with wind speeds of up to 103 m.p.h. recorded in Caithness as the depression moved towards Scandinavia.

October started with reasonably high pressure, giving moderate SW to NW winds over Scotland, though strong in the north. Lighter winds then followed from the effects of a high-pressure system over Scandinavia, with a few troughs of low pressure passing over Scotland to give some rain and moderate south to SW winds. Then in mid October another SW gale, with winds of up to 63 m.p.h., passed over northern England and central/southern Scotland, caused by a depression moving over the country. While southern districts of England enjoyed warm sunny weather Scotland had heavy rain, but this was followed by a fine spell to the 22nd. Another unsettled period of weather then affected Scotland, bringing showers and drizzle, though day temperatures were above average for the time of year.

November opened with mild rainy weather brought by wave depressions moving south over the country, followed by colder

weather with wintry showers on the 4th, and winds from the north. Intense cyclonic movement gave rise to gale-force west to NW winds by the 8th, followed by cold wintry showers and some snow in Scotland. After a high-pressure ridge passed over Scotland on the 23rd, more wave depressions brought northerly gales to all parts of the country on the 28th, with low temperatures and snow in some areas, giving way to much cloud and occasional showers of rain.

The wreck

From the later part of July until September, abnormal behaviour of Guillemots was observed around the shores of the Irish Sea and along the west coast of Scotland. On 23rd July JASN reported Guillemots near Fort William (well up Loch Linnhe and in Loch Eil), while fishermen reported this species in large numbers approaching unusually close to their boats and feeding very close inshore in the Firth of Clyde (DM). This was also noticed off the Troon-Ayr shore during July and August (AGS). Towards the end of July large numbers of seabirds were found dead along the north shore of the Mull of Kintyre (TMM).

A report on 21st September in the *Sunday Post* noted "scores" of Guillemots having "invaded" Kinlochleven, where they entered a factory and other premises, also wandering aimlessly around the streets (per JJDG).

This was followed on 25th September by a large number of exhausted seabirds getting caught in an oil patch on the sea just south of Ayr after the gale of 21st-22nd September. Up to 1500 birds perished in this unfortunate accident, many having to be destroyed by the local SSPCA Inspector (AM).

On 28th September a dozen or so Guillemots were found dead on the east coast of Arran along with some gulls (EEG *et al.*). Just after this, on 29th and 30th September, the main mass of dead and exhausted seabirds was found on the Ayrshire coast between Irvine and Ballantrae, with the heaviest concentration at Ayr and Prestwick. A reasonably accurate estimate of 6000 birds perished along a 48-mile stretch (AM, GAR, AGS), which with the 1500 oiled birds at Ayr (total 7500) gives an average of some 160 birds per mile. The Ayr-Prestwick shore itself had an average of about 300 birds per mile, with bodies piled up to a depth of 5 or 6 feet against the Prestwick bathing lake and parts of the promenade. Seaweed, torn up by the gales, came ashore from the 29th onwards, to be itself piled up along the open shore to about 3 feet or so, making further accurate counts impossible; but at least another 500 dead birds were washed up here during the first fortnight of October to bring the total to about 8000.

Further reports of dead seabirds quickly followed from the west and southwest coasts of Scotland. Arrochar at the head

of Loch Long had about 50 on 17th October (SSPCA Inspector), and there were some 250 sickly-looking Guillemots in Stranraer harbour and a further 250 dead in Loch Ryan and Luce Bay in late September/October (FDH). Just south of Portpatrick JBN-B reported 300 dead seabirds, mainly Guillemots, in coves along the Galloway peninsula during early October, obviously an underestimate for this rocky and inaccessible coast. In Loch Caolisport 200 bodies were counted (RKM), again mainly Guillemots, but also a few Razorbills and a Brünnich's Guillemot. From the Solway reports were received of about 600 dead birds along the Dumfries, Kirkcudbright and Wigtown shores (ELR, RHM, MIN *et al.*).

Small numbers of live, exhausted, dying and dead auks were also reported from such places as Skelmorlie, Loch Lomond (ETI, JDM), and the Great Glen at Spean Bridge and Fort Augustus (JC). Others were found in Perthshire; these included a Little Auk north of Perth on the River Tay (SFP), a Guillemot at Newtyle (FT), "many" Guillemots killed against wires after being driven inland (SFP), and three Guillemots on the Tay at Caputh (*Dundee Courier* per JJDG).

Other reports are included in the county summaries below.

Species and numbers involved

The coastline of Scotland is very rugged and in some places inaccessible, making the job of counting dead seabirds on the rocks, in coves and on the shoreline very difficult. Nevertheless, a large number of reports was received, indicating the wide spread of the mortality, with many reports of weak and sickly birds in addition.

From known figures it appears that the total mortality along the Scottish coasts was at least 11,000 birds. Of this figure approximately 90% were Guillemots (of which 80% were of the southern race *Uria aalge albionis*). Ringing recoveries of this species indicate that the birds came from such island colonies as Saltee (Wexford) and Skokholm (Pembroke).

The next most numerous species (about 5% of the total) was the Razorbill, of which perhaps about 500 were involved, though this figure cannot be confirmed, as only a total number of dead "auks" was reported for many places. Ringing recoveries show that a number of juvenile Razorbills from the Skokholm and Skomer colonies were involved. Less than 100 Puffins were reported, mainly juvenile birds in the Clyde area.

Many gulls were found, mainly juvenile Herring, Lesser Black-backed and Great Black-backed; these were reported from all along the coasts. A well oiled Great Skua was washed ashore at Prestwick, and 11 Common/Arctic Terns, also oiled, were found on this stretch of shore. Gannets, too, suffered; 23 (17 first-year and 6 adult) were found oiled at Ayr and were

destroyed, while another 12 (7 first-year and 5 adult) were found exhausted. These were treated and fed, after which the first-year birds and three of the adults were released when they seemed fit; the other two adults died. The total for these 'miscellaneous' species affected is estimated at about 5% of the total birds involved.

Two very interesting birds were found. One was the Brünich's Guillemot, already mentioned, at Loch Caolisport in mid October, found decomposing by R. K. Macgregor; it was well into moult, but from the wing and skull which were collected it was identified as the third Scottish record of this species. The other was a Leach's Petrel found by G. A. Richards at Ayr on 30th September; this was a dead adult in good condition, the first Ayrshire record for 17 years, and the body was sent to the Glasgow Art Gallery and Natural History Museum for preserving.

In Ayrshire 550 birds of all species were destroyed by SSPCA Inspectors, as being too badly oiled or in too poor shape to warrant treatment.

County summary

The following list shows the distribution of the wreck around the Scottish coasts. The county totals (given in brackets after the names of the counties) are reasonably accurate estimates, erring on the low side; where figures are not given in the text, numbers were generally less than 10 birds; undated records refer to the period from late September to mid October.

Dumfries and Kirkcudbright (400). Solway estuary to Rough Firth 200 (ELR), mainly auks, some in November. Rough Firth to Wigtown Bay 200 (ELR, RHM), mainly auks again, some in November.

Wigtown (600+). Some 200-300 sickly Guillemots in Loch Ryan and Stranraer harbour in late September and October (FDH). 200 dead auks Wigtown Bay-Luce Bay (FDH, RHM, MIN). 100 dead seabirds ashore at Mull of Galloway (SSPCA). Over 300 dead auks in coves south of Portpatrick (JBN-B).

Ayr (8060). Guillemots feeding very close inshore July-September (AGS), and also after wreck until November. 1500 birds caught in local oil Ayr-Maidens 25th-28th September (AM). Main wreck 30th September-3rd October, about 1800 seabirds Ballantrae to Maidens, 2000 Maidens to Ayr, 1200 Ayr to Troon, 1000 Troon to Saltcoats (AM, GAR, AGS), followed later by about 500 more dead birds in October (AGS). Seamill to Ardsneil Bay 50 dead auks (CEN). Largs (FMF). A few sick Guillemots were fed at Skelmorlie but died.

Renfrew (20). A few auks at Wemyss Bay, including Razorbill ringed Skomer 4th July 1969 as juvenile. Razorbill swimming at Port Glasgow dived and reappeared dead.

Bute (60). Guillemots unusually 'tame', seen near fishing boats and feeding close inshore off Millport during summer (DM). Near Brodick 14 dead seabirds on 28th September (EFG *et al.*). Some dead Guillemots at Etrick Bay on 19th October (DNM). 45 birds, mainly Guillemots, dead on Newton sands and Kames Bay (Cumbrae) on 23rd October (BH).



Seabird wreck, autumn 1969, showing distribution of Scottish records: cross, 1-9 birds; circle, 10-99 birds; triangle, 100-999 birds; square, 1000 birds or more; question mark, number uncertain.

Dunbarton (60). 50 fresh Guillemot bodies at Arrochar on 17th October (SSPCA), and a few dead auks at Finnart Bay on 18th October. A few live Guillemots and two dead ones were reported from the west side of Loch Lomond during late October (JDM).

Stirling (6). Six dead Guillemots near Drymen and Balloch in early October (ETI).

Argyll (400). Few reports received from Kintyre, so total is a very conservative estimate. A local oil spillage at Bruichladdich, Islay, on 22nd October affected an unknown number of seabirds and ducks. "Scores" of Guillemots were wandering around Kinlochleven before 21st September (*Sunday Post* per JJDG). About 200 dead auks, mainly Guillemots, with a few Razorbills and a Brünnich's Guillemot decomposing, Loch Caolisport early October, then large rafts of Guillemots and Razorbills flying in the loch on 11th and 12th October (RKM). 26 dead Guillemots Loch Riddon (per JJDG) and a further 30 in Lochs Eil and Linnhe during October (LAE). A coastal survey by Dr T. H. Pearson and staff of the Scottish Marine Biological Association, Oban, in late October revealed dead auks at Southend (Kintyre) (JM), Bridgend (Islay) (HTP), Dunstaffnage (THP), Ardmuckinsh Bay, Tralee Bay (JM, THP), Seil Island (MPM, THP), and Kemacraig (JM, THP). Other reports came from Toward Point (by Dunoon) (ABR), Lochgilphead (per JJDG), Muasdale (by Tarbert) (MWM), Corran Narrows (EASB), Benderloch (by Loch Etive) (per JJDG), Inveraray (ER), Sound of Jura (JDM), and Keilmore (JC).

Inverness (350+). Dead Guillemots at Caol from 3rd October, increasing

from 25 to about 200 by 18th (JC). Some live Guillemots seen after gales in Great Glen at Spean Bridge and Fort Augustus 28th September-3rd October (JC); others flying in Lochs Eil and Linnhe, July-September, which is unusual; about 150 dead on shores of Loch Linnhe in early October (JASN).

Caithness (10). Small assortment of dead seabirds found oiled along Dunnet sands 3rd September-11th October (PM).

Aberdeen (50). Some 50 dead birds near Rattray Head during September and October (MRW).

Fife (50). Assorted seabirds on Tayport-Kinshaldy shore during September and October (JPK). Similar reports from Kirkcaldy area, mainly of oiled birds (JCn).

Perth (50). Numbers of seabirds driven inland by main gales of early October, including Little Auk on Tay (see text).

It should be noted that these totals are the most probable figures; full coverage was not achieved. The total kill in Scotland was approximately 11,000 birds, which is no doubt an underestimate, but does show that the heaviest mortality in the wreck was in Scotland. This figure cannot of course measure the total death roll, as many bodies must have sunk at sea. A conservative estimate of total mortality in the Irish Sea has been given by some as 20,000, while others think 30,000 would be a more realistic figure.

Some check can be made on these figures from the 1970 breeding census, which, although not yet completely correlated, has shown a disastrous decline in the breeding population of the Irish Sea colonies, with Guillemots possibly 50% down in numbers and Razorbills 30% down. These figures tend to support the higher estimate of around 30,000 birds killed. Until final census figures are available for these breeding colonies it is not possible to be more precise.

Discussion

The exact causes of this heavy loss of life to seabirds have not been fully established, although a number of factors have been examined. Owing to the extended period covered by the wreck the full implications were not realised until late on, so that much time was lost before samples of corpses were collected for examination, and it was therefore impossible to make conclusive tests for certain infections, while some of the chemical analyses became difficult to interpret owing to post-mortem changes.

At this time of year the auks are flightless during their moult, and are generally in a weakened condition. It has also been established that many of the Scottish birds had ingested heavy concentrations of polychlorinated biphenyls (PCBs), a product of industry, along with smaller amounts of other chemical pollutants.

It is not known with certainty where the main concentrations of auks died; many were dead when washed ashore and

therefore must have died at sea, but others were alive, though exhausted, on coming ashore. The 1500 birds oiled in the first wave arriving on the coast south of Ayr would probably have died anyway, even if they had not also had to contend with the effects of the local oiling.

The unusual behaviour of many Guillemots feeding close inshore prior to the wreck has not been explained, but could indicate a generally poor condition of birds already weakened by moult. This condition could have been caused by various factors: starvation through failure of food supply; starvation during bad weather; poisoning from a marine algal 'bloom'; poisoning by chemical pollution; epidemic disease; or a combination of these factors.

A number of seabird wrecks are known to have occurred over the last 100 years or so around the same time of year. The latest incident follows the same pattern as these previous wrecks, but on a much larger scale. It cannot be explained solely as a bad-weather wreck, as it started (in the Irish Sea area) before the severe gales struck the region. Thus the necessity to monitor the environment at all times has again been highlighted, for it is often natural conditions and wildlife that signal first the unexpected dangers of pollution from industrial man's interaction with his environment, as may be suspected on this occasion.

An official report on the wreck is in the late stages of production by the Natural Environmental Research Council, and this will be published by HMSO. It will embrace the full history of the wreck and all the evidence available to the NERC Inquiry that followed, and will cover such things as conditions at sea, marine life, the condition of the birds, and the programme and results of the analyses carried out.

Acknowledgments

Reports and counts were received from the following, to whom thanks are extended: Capt. E. A. S. Bailey, J. Cowan (JCn), J. Currie, L. A. Edwards, Miss F. M. Ferguson, Mrs E. E. Greene, F. D. Hamilton, B. Hardy, E. T. Idle, J. P. F. Keddie, J. D. MacEachern, R. K. Macgregor, D. McLaughlan, Miss M. P. Macmillan, Dr P. McMorrán, Mrs M. W. McNeill, Dr D. N. Marshall, Dr J. Mauchline, Inspector A. Miller, R. H. Miller, T. M. Moore, Dr C. E. Nash, M. I. Nelson, J. A. S. Newman, Col. J. B. Norman-Ballantyne, Mrs S. F. Patton, H. T. Powell, G. A. Richards, E. L. Roberts, Miss E. Room, Miss A. B. Rough, F. Tyler, M. R. Williams.

Dr T H. Pearson organised a count along the Scottish coast after the incident; his figures, along with data supplied by J. J. D. Greenwood, are acknowledged with thanks. I would like to thank Dr W. R. P. Bourne for information and for all the

help and advice he has given me, and especially for his criticisms of this paper; and also Andrew T. Macmillan for valuable criticism and help with the paper.

Summary

Large numbers of seabirds were wrecked on the west coast of Scotland, particularly in Ayrshire, and in the Irish Sea from the last ten days of September 1969 onwards, estimates of the birds killed ranging from 15,000 to 30,000, mainly (90%) Guillemots, with smaller numbers of Razorbills and other species. Details of the wreck are examined in relation to the very high winds at the time, the weak condition of the moulting birds, the presence of residues of polychlorinated biphenyls in the birds, and other possible causes of their weak condition and mortality. Some birds were affected by oil. The exact combination of these causes responsible for the wreck is unknown, but it provides further evidence of the need to monitor the natural environment at all times against the unexpected consequences of industrial man's interaction with it.

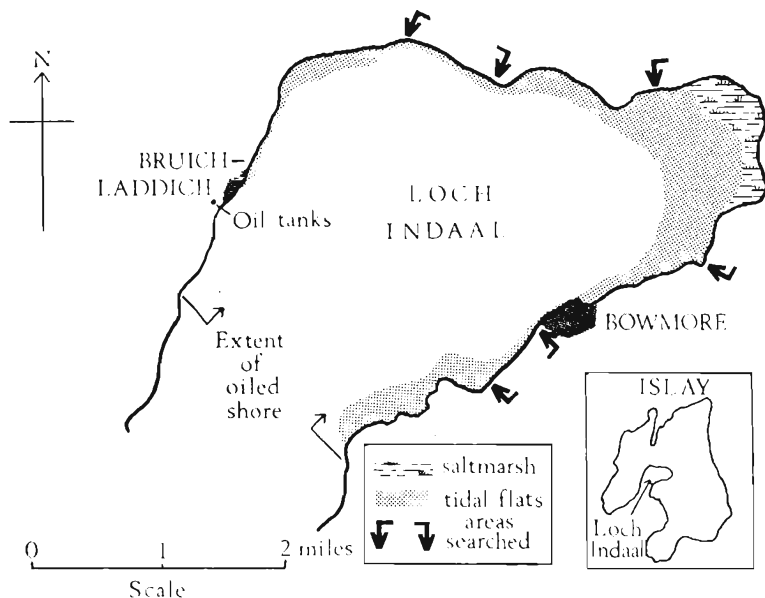
An oil spillage on Islay in October 1969

M. A. OGILVIE and C. G. BOOTH

Topography and details of the spillage

Loch Indaal is a large shallow sea inlet on the south side of the island of Islay in Argyll (see map). Much of the shoreline is low and rocky or with shelving shingle beaches. There is an area of saltmarsh about two miles by a quarter of a mile at the head of the loch. Two large tanks holding 150,000 gallons each of heavy fuel oil are situated near Bruichladdich on the west side of the loch. The tanks stand together on the banks of a small stream which empties into the loch about a hundred yards away. No barrier exists between tanks and stream.

On the night of 19th-20th October 1969 a leak developed in one of the tanks which was not discovered until the morning, by which time it is estimated (officially) that up to 30,000 gallons had escaped into the stream and thence into the loch. Action was initially swiftly taken. A boom was brought on a special sailing of the ferry and placed across the mouth of the stream; an oil tanker was recalled to pump out the leaking tank; and a quantity of detergent was made available. By the evening of the 20th the bulk of the oil had been contained behind the boom. However at this point a 24-hour delay occurred, which proved disastrous. During the hiatus very high spring tides lifted the oil out from behind the boom, and the prevailing southwest winds drove it into the loch. The combination of winds and high tides deposited the oil on the shore from Bruichladdich round the head of the loch to Saltpan Point, two miles south of Bowmore on the east side. The oil was pushed well up the beaches and rocks into a comparative-



Loch Indaal, Islay, showing extent of oiling in October 1969, and limits of areas searched in November 1969.

ly narrow belt, though some parts of the saltmarsh received a more spread-out deposit. Approximately 10 miles of shore were affected (see map).

The birds of Loch Indaal

The loch supports a fairly large and diverse bird life by reason of its sheltered nature and the extensive feeding areas for diving and dabbling ducks and shorebirds. The main species present in October/November and their approximate numbers are as follows :

Barnacle Goose. About 2000 birds roost on the sandflats off the saltmarsh. In some autumns they feed on the saltmarsh, but this was not happening in November 1969.

Scaup. A flock of several hundred winters in the loch, feeding to a large extent on the barley residue poured into the loch from the Bowmore and Bruichladdich distilleries. The flock was not seen before the spillage.

Eider. There is no precise figure available for this species, which occurs in many scattered small flocks all round the loch. It is estimated that a normal autumn population might be about 300 birds, but it is known that 1969 was an excellent breeding season in the area and that there were noticeably more young birds in the flocks than usual before the oil leak-

age. It is thought that 600 birds may have been present in the area before the leakage.

Other ducks. Up to 200 Wigeon, 100 Mallard and small numbers (under 50) of Teal, Red-breasted Merganser, Common Scoter and Tufted Duck.

Waders. Flocks of up to 250 Oystercatcher, 100 Bar-tailed Godwit and small numbers of Dunlin, Knot, Ringed Plover, Snipe and Turnstone are to be found mostly round the head of the loch, though the Oystercatchers move around a good deal. Several hundred Curlew and Lapwing roost on the sand-flats or saltmarsh but feed on inland fields.

The effect of the oil on the birds

As soon as it became known that the birds were being affected a number of steps were taken. The Oban Inspector of the SSPCA came over to the island for a few days. The Factor of Islay Estates Ltd, which owns much of the shoreline affected, sent out his keepers to collect dead birds and put still-living ones out of their misery. The Bowmore Police Station was used as a collecting centre for birds brought in by members of the public. Dying birds were gassed and they and the dead ones burnt or buried, though not before an accurate tally had been made. Small numbers of dead birds continued to be found even several months after the incident, in part a reflection of the extraordinary behaviour exhibited by at least some of the Eiders, namely a strong movement away from the water, so that oiled birds were found walking inland up to half a mile from the water. Spring farming activity in the fields brought to light several more corpses. Some birds were picked up in the main street of Bowmore, which runs down to the water.

On 16th and 17th November, four weeks after the oil spillage, one of the authors spent a day searching four miles of the shoreline (see map) on a further check for corpses and to see what state the oil and shore were in. Sixty-five corpses were found, and it has been assumed that these are extra to the totals of those collected earlier. The oil was now of a colour and consistency similar to that of road surfacing tar. On the shingle beaches it was generally above more recent tide marks and fairly well mixed with seaweed and small pebbles and sand. The band of oil and oiled seaweed was usually up to a foot wide. On the saltmarsh there were some patches of several square yards where the vegetation was thickly smeared with oil and beginning to die back, though most of the area had escaped and the oil was confined to the high-tide mark. In places here it was over an inch thick and up to three feet wide.

By March 1970 the remains of the oil had been further buried in tide-wrack and sand, but were still obvious if these

Table 1. Number of birds known to have been killed by oil, Loch Indaal, Islay, October/November 1969

Eider	338
Red-breasted Merganser	31
Guillemot/Black Guillemot	27
Cormorant/Shag	19
Scaup	18
Common Scoter	7
Grebe sp.	3
Barnacle Goose	1
Red-throated Diver	1
Razorbill	1
Oystercatcher	1
Unidentified	2
	449

Note. Species identification may not always be accurate.

were dug into. However it was clearly of little danger to birds by this time.

Totals of the different species known to have died are given in table 1. It should be noted that these are absolute minima, based on corpses and dying birds collected, and on the search in November. The latter was only along part of the shoreline affected by the oil, and even there many corpses could have been missed under the piles of seaweed and other debris. No attempt was made to search inland.

Conclusions

In terms of quantity of oil spilt and the numbers of birds affected this was not a major disaster, though serious enough in a local context. In November 1969 there were only some 100-150 Eiders in Loch Indaal, compared with the estimated 600 before the incident. Thus upwards of three-quarters of the population, almost certainly a sedentary resident one, perished. The Scaup were certainly lucky to escape so lightly. This flock is one of the largest in the country, even though tiny compared with the flock in the Forth. It is of interest that all the dead Scaup (18) were found during the November search, indicating deaths subsequent to the initial mortality period.

Auks are not very commonly seen in Loch Indaal, though some may shelter there in rough weather such as existed at the time of the spillage. The possibility cannot be excluded that some of the auks may in fact have died earlier at the time of the major wreck at the end of September. Only a few were found on Islay at that time, though larger numbers were picked up on the Mull of Kintyre, not far away.

A few other species were affected though not apparently seriously. Up to six Mute Swans were noted with small

patches of oil on their plumage. On 11th November some Oystercatchers feeding on the tide-wrack were seen to have oil patches on them.

It has been shown recently that sea ducks are threatened by oil pollution as much as or more than the auks, because although the actual numbers dying may be smaller the proportional effect on the whole population is usually very much greater (Tanis & Morzer Bruijns 1968; Greenwood 1970 and pers. comm.). The latter is clearly true here of the Eiders, and it is hoped to keep a check on their numbers over the next few years.

Finally it must be pointed out that much concern was expressed to the authors by the islanders with regard to the procedure adopted to clear the oil. The initial steps were taken with commendable promptness but apparent administrative inefficiencies thereafter allowed the situation to get much worse than it might otherwise have been.

Acknowledgments

We are indebted to many people for information and help, and especially to Councillor Robert Hodgkinson of Bowmore for letting us use the careful records he kept during and after the incident.

Summary

A minimum of 450 birds were found dead or dying after the leakage of about 30,000 gallons of heavy fuel oil in Loch Indaal, a sea loch on Islay, Argyll, in October 1969. The species most affected was the Eider (338 found dead). Others killed included Red-breasted Merganser (31), Guillemot and Black Guillemot (27), Scaup (18) and Common Scoter (7). The normal populations of these species in the area include up to 600 Eider, 800 Scaup, and smaller numbers of the other species. In addition part of the area affected is used as a roost by up to 2000 Barnacle Geese and several hundred Curlew and Lapwing.

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Wrynecks breeding in Scotland

H. BURTON, T. LLOYD EVANS and D. N. WEIR

Introduction

Peal (1968) has described the decline of the Wryneck *Jynx torquilla* in England during the past 100 years, from a breeding distribution covering most of the country to, recently, just a few pairs in the lower Thames valley and in east Kent. During most of this period the species was known only from Scotland as a vagrant or a rare passage migrant at a few stations. Since 1950, however, there has been an increasing number of summer records in Scotland, principally in East Inverness, and most of these on Speyside (*Scot. Birds* 3: 418; 5: 338). This short paper describes the nesting of at least three pairs on Speyside in 1969, the first records of breeding in Scotland.

Spring migration

In May 1969 there were exceptional falls of presumed Scandinavian night migrants on the east coast and islands of Scotland, with unusual numbers of Wrynecks between 3rd and 8th May (and a few to early June); 45 Wrynecks on Fair Isle on 3rd May greatly exceeded the previous best total of 12 since the observatory opened in 1948; calling birds were noted inland from 20th May in North Kincardine, 22nd May in East Ross, late May in North Argyll, and 30th May at two Speyside localities (*Scot. Birds* 6: 106). Locally uncommon birds first recorded at the end of May or early in June in Speyside included Spotted Crake, Chiffchaff, Blackcap and Grasshopper Warbler, and unusual numbers of singing Wood Warblers and Pied Flycatchers were noted about this time.

Summering numbers and breeding data

Wrynecks were eventually found in five localities within the area covered by the valley of the Spey and its tributaries between Newtonmore and Grantown. Details of the three nests found are given below, but detailed description of nesting habitat and information on any connection between 1969 localities and previous published records has been omitted.

Site A. Calling pair prospecting dead birches found on 30th May; became increasingly secretive in next eight days; bird flushed from hole in dead birch 8th June, but actual nest, 50m away, not found until 16th; incubation may already have begun as a bird refused to leave nest on 18th; at least six young in it on 3rd July, well grown but appeared blind and naked; both adults repeatedly seen feeding young until 17th July, when one or more visible at mouth of nest hole. On 19th July the nest was empty and a party of five or six Wrynecks was

found on the ground about 200m away. This pair was very tolerant of disturbance; a scout camp was pitched about 40m from the nest on 6th July and remained in use until about the time the young flew. The nest was in a rotten birch stump 5m high and 38cm in diameter at the nest hole, 2.7m from the ground in a natural cavity formed by the loss of a branch; the nest cavity was narrow, about 30cm deep, and not readily visible from the ground; there was no nest material, but the bird had removed some rotten wood from the hole.

Site B. Bird flushed off eggs on 26th June; clutch 8 on 30th when no bird on nest; bird sitting tight on 7th July with egg or shell visible beside it; only three young in nest on 23rd July, but one flew 15 minutes after inspection and others may already have done so (there were no eggs in the nest). This nest was in a live Scots pine 20m high and 1.5m across at nest hole, about 2.7m up in a double hole, barely visible from the ground, formed by the loss of one fork of the tree; the nest cavity was of roughly even width, 15cm-17cm across, over 30cm deep, and with no nest material.

Site C. Nest found on 13th July from noise of young; by 15th two young, out of probably three, were appearing at the entrance, and a calling adult may have been enticing them from the nest; two had apparently flown by the 16th, a third was found dead in the nest on the 19th. This nest was in a live rowan 10m high and 33cm in diameter at the nest hole 1.8m from the ground, a split in the trunk leading to a complex cavity, narrow at the entrance, broadening into a large double chamber; the nest was on the mossy remains of another bird's nest.

Locality D. Pair 10th June, thought from behaviour to be nesting (W. K. Richmond). We made several brief searches but were unable to locate these birds in the extensive woodland where they were seen.

Locality E. One heard 30th May. We were unable to find a nest or even to discover if two birds were present, but a Wryneck was heard calling about 200m from this site when a Buzzard flew over on 29th July.

All five sites were in open woodland, either natural and semi-natural Scots pine forest or woodland associated with it.

In 1970, late May and early June arrivals of locally uncommon birds on Speyside were markedly different from 1969: no Spotted Crakes or Grasshopper Warblers were recorded, Chiffchaffs were even scarcer than usual, there were almost no Pied Flycatchers, and Wood Warblers may have been less common than in 1969. None of the Wryneck sites (A, B or C) was used, and no birds were seen or heard nearby. A calling Wryneck was recorded on 3rd June in locality E (G. Stewart), and there was one next day in a new locality (DNW), but neither bird

was seen or heard again. On 7th July a calling bird was heard in another new locality when a hawk passed overhead (DNW); the late date suggested a possible breeding bird, but the area was not searched.

Discussion

There are three main reasons for suggesting a Scandinavian origin for these east Highland Wrynecks: first, the colonisation began when the species had already disappeared southeast from most of England, suggesting that another source must be involved; second, all summering birds in the east Highlands have been associated with natural or semi-natural Scots pine forest, a common breeding habitat in Scandinavia (Peal 1968) but not in Britain (Witherby *et al.* 1938); and third, the 1969 spring migration described above strongly suggests a Scandinavian origin. Calling birds were first found in two of the five Speyside localities on the same day, and fledging dates at the three nests covered a period of not much more than a week, suggesting a nearly simultaneous arrival of the summering birds. Speyside provides a greater acreage of natural or semi-natural Scots pine forest than any other British faunal area and offers a rich food supply to a bird which feeds largely on ants (Witherby *et al.* 1938); Darling & Boyd (1964) point out that "there are more species of ants in the Rothiemurchus-Abernethy-Glenmore pine country than elsewhere in the Highlands."

Acknowledgments

The nests were found by two of the authors (HB and TLE) and an observer who wishes to remain anonymous; Miss J. Howie, B. Noyes and N. Picozzi helped with field observations on Speyside. We are grateful to all those who provided details of other 1969 Scottish records; and we also wish to thank R. E. F. Peal and G. Waterston for help and advice based on their considerable field experience of Wrynecks.

Summary

In the latter part of the decline of the English Wryneck population from about 1950, there was an increasing number of summer records in the east Highlands, especially Speyside. In 1969 Wrynecks were present at five localities there and three nests were found, most birds probably arriving at the end of May. Broods of about 2, 6 and 8 young fledged in the period 15th-23rd July, the first breeding records for Scotland. Details of nests and observations of the birds are given and it is suggested that they were of Scandinavian origin.

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Food and feeding behaviour of the Hen Harrier in Orkney

E. BALFOUR and M. A. MACDONALD

Introduction

This study of the food and feeding behaviour of the Hen Harrier *Circus cyaneus* in Orkney was carried out in the breeding season of 1969, and the results are based mainly on observations made from a hide placed near enough to the nest so that most of the prey brought in could be identified and the behaviour of the birds in the nest easily observed. The final part of the paper consists of an analysis of pellets taken from nests in the area to supplement the feeding data.

The nest, situated in the northwest side of a long valley among mixed heather and rushes, was a late one, and almost certainly a second attempt. The hide was finally placed about 15 feet from it, and observations began on 27th July, when the young birds were approaching two weeks old. The brood consisted of three males and one female, the latter being the largest; two of the males were about equal in size, but the third was disproportionately smaller and weaker.

Daily observations were made between 0900 and 1700 hrs, although the time spent at the nest varied and some days were missed because of bad weather. In all about 60 hours observation was made, ceasing after 14th August, when two of the young made their first flight.

Behaviour of adults near nest

During the first few days the female stayed mostly in the vicinity of the nest, either brooding for short periods (especially during rain), sitting nearby, or patrolling the area and occasionally making short hunting forays. In contrast, the male made only brief appearances, usually but not always carrying prey. Both birds would defend the nest strongly against humans. Although the female was the more aggressive we were twice challenged by the male when about a mile from the nest.

As the brood developed the female began to take over the main hunting role, though staying much nearer the nest than the male and often returning during forays to hover over and inspect the nest. The male's visits to the nest with prey became more irregular and transient.

If the hen was present when the male came with food she would fly to him giving the food call (see below) and take the prey from him in the air (the food pass) before bringing it to the nest. If she was absent the male would drop the food into

the nest and usually depart without alighting.

The *Handbook* and other works have stated that the male approaching the nest with food calls the female off to take it. In our experience, at the study nest and many others, it has always been the female that calls (often repeatedly) when she sees her mate approaching. This is without doubt the squealing wail described by Walpole-Bond (1914) and which we know as the food call. The female uses this call frequently, not only in the food context, but also in courtship, mating, and while under stress. The male also uses this call, but only rarely, and apparently only in cases of great stress. However he does give a low, soft chuckling call at about the same time he delivers the pass; this only carries a very short distance.

Feeding behaviour at the nest

The hen did all the feeding of the chicks until they were about three weeks old, when they began to make attempts to feed themselves. She did however do most of the tearing up, especially of larger items, throughout the feeding period.

Small prey items were usually brought in entire; large birds and rabbits were eviscerated or decapitated away from the nest, and possibly in some cases at the place of capture. When feeding the chicks, the hen would stand on the prey and strip the meat off the bones, presenting the small bits to the chicks, which would gather in a semicircle in front of her, uttering short chirping hunger calls. As the food was held forward, the chicks would lunge forward and the quickest one would get the prize. Sometimes a tug-of-war would develop between two or three of the chicks over a particularly large scrap. The largest chick received more, and the smallest less, than a fair share. The smallest was often robbed of food by its larger siblings. The hen appeared to have some drive to tear up prey and feed the chicks herself, as on several occasions she took food from the oldest chick (which was feeding itself) and fed them all in the usual way. This probably aided in achieving a reasonably fair distribution of the food.

We have been unable to find any support for Hamerstrom's (1968) suggestion that the hunger calls and white down of the smallest member of the brood inhibit the older ones from taking food, causing them to move away and thus allowing it to obtain a larger share of the available food. In our experience at the study nest and elsewhere the older chicks are not inhibited; the smallest 1969 chick was continually crowded out and sometimes bullied.

Cannibalistic behaviour

Over the years there has been ample evidence of the smallest member of a brood being eaten on the nest. This type of



PLATES 9-11. Scottish birds. Being for once without illustrations to the papers in this issue, we are taking the chance to publish a selection of photographs by William S. Paton ARPS, simply on the basis of the high quality of his work. *Above* Wren at nest in hawthorn stump (plate 9). *Over* Rook at nest 24 feet up in hawthorn (plate 10a); portrait of Jackdaw (plate 10b); Buzzard with brood, Isle of Mull, June 1965 (plate 11a); Kittiwake with young (plate 11b).







PLATE 12. Captive Great Bustard, Fair Isle, where it remained from January to March 1970, with Gordon J. Barnes, who fed it (see page 171).

Photograph by Dennis Coultts

cannibalism occurs in a number of raptors and is fairly frequent among Short-eared Owls.

A suspected case occurred with the study brood, as on arrival at the nest on 4th August, after an absence of two days when rain had prevented observations, we found the smallest chick missing. A number of partly grown wing quills lying on the nest certainly came from a Hen Harrier chick, and suggested that the missing bird had been eaten. We were however unable to determine whether it was killed by other members of the family or had died naturally. On a few occasions it had been pecked about the head by the big female chick. Once, when the adult female accidentally stood on the small chick's wing, forcing it to lie prone on the nest, she made a few tentative pecks at its head and abdomen before releasing it.

This kind of behaviour provides a useful regulating mechanism between brood size and food supply, by reducing the number to be fed and at the same time providing a stop-gap meal which might be critical for the survival of the rest of the brood, usually when bad weather prevents hunting for long periods. In fact it only seems to operate under such conditions.

A confirmed case of cannibalism occurred a few years ago, when the adult female was seen to carry off the smallest chick, which had died, and bring it back decapitated, and feed it to the rest of the brood.

Nest sanitation

As a rule Hen Harriers keep their nests rather clean. The young invariably defecate over and well clear of the edge of the nest, and the female removes pellets and uneaten food remains, which she drops usually between 50 and 150 yards from the nest. When returning from disposing of such items the 1969 female almost always brought back beakfuls of rushes, grass or pieces of heather for the nest.

She brought nesting material in other situations as well, such as after disturbance at the nest, or on returning from an unsuccessful hunt, or when the male failed to appear with food. We have little doubt that it is then a kind of displacement activity, although it still serves a useful purpose.

At between two and three weeks old the young begin to spend a lot of their time in little tunnels or hideouts among the heather near the nest, especially during their mother's absence. This is a useful survival mechanism but may also serve as a secondary aid to nest sanitation.

Food analysis

Observational data. The food taken into the nest (table 1) shows that the Orkney vole was the commonest item, but young rabbits and a variety of fledgling birds were regularly

Table 1. Items of prey brought to nest by Hen Harriers

	Number brought by		Total
	Female	Male	
Rabbit <i>Oryctolagus cuniculus</i>	5	0	5
Orkney Vole <i>Microtus arvalis orcadensis</i>	14	4	18
Corncrake <i>Crex crex</i>	1	0	1
Lapwing <i>Vanellus vanellus</i>	1	1	2
Golden Plover <i>Charadrius apricarius</i>	0	1	1
Skylark <i>Alauda arvensis</i>	1	1	2
Meadow Pipit <i>Anthus pratensis</i>	5	2	7
Starling <i>Sturnus vulgaris</i>	2	2	4
Unidentified (1 small wader, 5 small birds, 3 small items)	5	4	9
	34	15	49

taken. Of the 49 items, we have credited the female with catching 34 and the male with 15. On two occasions two victims were brought in at the same time by one bird; the male with two Meadow Pipit chicks and the female with two voles, one in each foot. The absence of young Curlew, usually a common prey item, was probably due to the lateness of the nest.

Pellet data. In order to supplement hide observations, 82 pellets taken from various nests in which the young were about full size, though not necessarily fledged, were analysed for prey remains.

Hen Harrier pellets can be distinguished from those of the Short-eared Owl, which are commonly found on the same moors in Orkney, by their less dense texture, lack of bony remains, and the large amount of vegetable matter. They often have an unpleasant smell of decaying flesh. They varied in colour from mid-grey to black, the paler ones having a higher proportion of fur, while the black ones tended to have more feather in the matrix. Thirty-three pellets averaged 21 x 48 mm, very much smaller than those quoted in the *Handbook*, which gives 35-38 x 64 mm.

The one factor common to all the pellets was the presence of fragments, often quite large, of heather twigs or rushes. These were ingested in two ways, as seen from the hide: accidentally when they adhere to food from the floor of the nest; and deliberately. The hen was seen pulling off and swallowing heather shoots from bushes around the nest, and both adults and chicks were seen to swallow pieces of rush deliberately. The hen often gave bits of rush to the chicks when feeding them. These might aid in breaking up food during digestion in the same way as grit in passerines and the copious bone fragments in owls.

Most of the pellets had a mainly fur matrix (79 per cent) while the rest (21 per cent) were mainly feather. All the pellets examined had very few bony remains. This is because harriers

Table 2. Contents of 82 Hen Harrier pellets

	Remains found	Number of pellets
Rabbit	jaws, teeth	3
Orkney Vole	skulls, jaws, teeth, limb bones, vertebrae	28
Brown Rat	teeth	1
Large birds	limb bones, synsacra	10
Small birds	skulls, limb bones, claw sheaths	15
Insects	elytra, limbs, abdominal segments	12
No hard remains		
fur	—	23
feathers	—	5

tend to strip the meat off their prey, rather than swallow prey or limbs entire. Although most of the fragments were very small, birds' legs as big as Lapwings' were occasionally found. We suspect that the pellets with these came from chicks, which often swallow limbs whole in the face of severe competition from the other members of the brood.

Table 2 shows the analysis of the contents. The categories were chosen for convenience. Birds which were specifically identified from remains were Meadow Pipit, Starling, Lapwing and Red Grouse.

Scraps of undigested skin are commonly present. Two vole skulls were found in a very poorly digested state, with the tongues and many of the jaw muscles still intact. In one pellet containing vole remains the semi-digested stomach of the animal was found still containing many small seeds. Seeds were commonly present in pellets and probably came from the stomachs of the prey. Insect remains were found in several pellets. Beetles are eaten from the floor of the nest, and adult and chicks have been seen snapping at and catching blue-bottles flying around the nest. Insects form only a very minor part of the diet.

Acknowledgments

We are grateful to A. J. Deadman and P. O. Macdougall for helpful suggestions and criticisms of the manuscript.

Summary

The hunting, feeding, and nest sanitation behaviour of a pair of Hen Harriers in Orkney is described. Observations from a hide combined with a pellet analysis showed that the most common prey species was the Orkney vole. Other species taken included a variety of fledgling birds, rabbits, and insects. It was suspected that the smallest chick in the study brood was eaten by the others. A list of prey items is appended.

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Appendix 1. Prey of Hen Harrier recorded in Orkney, 1950-1969

Mammals

Pygmy Shrew	Orkney Vole
Rabbit (young)	Wood Mouse
Brown Hare (leveret)	House Mouse
Mountain Hare (leveret)	Brown Rat

Birds

Mallard	Redshank
Teal	Woodpigeon (young)
Merlin (young)	Short-eared Owl (young)
Kestrel (young)	Skylark
Red Grouse (young)	Song Thrush
Corncrake	Blackbird
Moorhen	Meadow Pipit
Oystercatcher	Starling
Lapwing	Linnets
Golden Plover	Twite
Snipe	Crossbill
Curlew (young)	Reed Bunting

Scottish winter Rook roost survey

J. H. B. MUNRO

Introduction

During the winter months, usually between October and early March, Rooks do not normally spend the night at their nesting colonies, but gather to roost socially, often in large numbers. The communal roost is sometimes at a large nesting colony.

Each winter roost may drain an extensive area and contain also many Jackdaws. Roosts found in 1969/70 held approximately 1000 to 10,000 birds each, and the pattern of their distribution makes it probable that there are only some 150 roosts in Scotland.

The survey has been adopted as an SOC enquiry, and with cooperation from SOC members it should be possible to find most of these Scottish roosts during the winters of 1970/71, 1971/72 and 1972/73. If you know of any roosts in Scotland or are willing to help in finding them please write to me, J. H. B. Munro, 9 Capelaw Road, Edinburgh, EH13 0HG.

Method of finding roosts

In winter one may see flocks of Rooks homing to a roost about dusk, and one can then follow the birds by car. A nor-

mal speed is about 25 m.p.h. If a flock is found on the ground in the afternoon one can sometimes persuade the birds to move nearer to or direct to the roost. Care should be taken to make quite certain that the birds are at the roost, and the only really satisfactory way of achieving this is to remain at the roost until after dark.

The birds usually collect at a 'stonk' or final concentration, often on the ground, some 200 yards to a mile from the roost, before making the final flight to the roost; sometimes the final flight is made in the dark. In early spring, when the birds are spending longer each day at their nesting colonies, they often fly direct from the colony to the roost, and care has to be taken not to mistake a concentration at a nesting colony for a roost.

Known winter roosts at 31st March 1970

ABERDEENSHIRE

1. Arnage, 1967 (GMD, IJP)
2. Dens of Peterhead, 1967 (GMD, IJP)
3. Foveran, 1967 (GMD, IJP)
4. Hatton, 1967 (GMD, IJP)
5. Ruthen, 1967 (GMD, IJP)
6. Straloch, 1967 (GMD, IJP)

Roosts about 8-12 miles apart.

BERWICKSHIRE

1. Foxcovey Simprin, 4000+ birds 1969/70 (WML-H)
2. Hoprig Farm, Cockburnspath, under 1000 birds 1969/70 (JHBM)
It is likely that this roost replaces the Dean Burn, Dunglass, roost known to Muirhead in 1877 (*The Birds of Berwickshire* 1889).
3. Allanshaws, 1969/70 (RWJS)
Suspected in 1946/47 (*Scot. Nat.* 1948 : 25).

EAST LoTHIAN

1. Stevenson Mains, Haddington, under 10,000 birds
Appears to have been in use since 1947 (*Scot. Nat.* 1948 : 21); it probably takes place of very old roost at Tynninghame, in use in 1794 (G. Buchan-Hepburn *General View of the Agriculture of East Lothian*).

FIFE

1. Balcaskie House, Pittenweem, 1969/70 (WJE)
2. Craighill, 1500 birds or more 1969/70 (WJE)
3. Kippo Farm, 1969/70 (WJE)
4. Kirktonbarnes, 1500 birds or more 1969/70 (WJE)
5. Otterston, under 2000 birds 1969/70 (JHBM)
6. Pitcairlie, "big" 1969/70 (WJE)
7. Ramornie, under 2000 birds 1969/70 (JHBM)

An old roost known to the Misses Baxter and Rintoul in 1949, when they recorded very large numbers (in correspondence).

KINROSS-SHIRE

1. Barnhill-Powmill, under 5000 birds 1969/70 (JHBM)

LANARKSHIRE

1. Carstairs House, under 5000 birds 1969/70 (JHBM)
Appears to take the place of roost at Lee Castle, Lanark, known to Stewart in 1924 (*Scot. Nat.* 1924 : 72)

2. Hamilton Palace Low Parks, 1969/70 (HSCH)
Known to Stewart in 1924 (*Scot. Nat.* 1924 : 69).
3. Spittal Farm, Biggar, under 5000 birds 1969/70 (JHBM)
Known in 1949 and probably many years before (RGM, farmer, in correspondence).

MIDLOTHIAN

1. Borthwick Church, 1969/70 (WB, JHBM, RWJS)
Probably takes place of the "great winter-roost" at Hurley Cove in Penicuik House policies (W. Evans, *Scot. Nat.* 1922 : 12), which was discontinued shortly after 1922 (W. J. Ross, Factor to Penicuik Estates, in correspondence). The roost moved to Harvieston House on the west side of the Galashiels road for at least 16 years before moving to Halkerston Farm (*Scot. Nat.* 1948 : 26) and later to Borthwick Church.
2. Dalmahoy Hill, 1969/70 (GLS)
Probably takes place of the very old roost at Newliston, known in 1844 and possibly there for many years before that. The roost moved to Westfield House about the early 1930s (*Scot. Nat.* 1948 : 26). In 1969 the roost was at Livingston New Town, and it moved from there in 1969/70.

PEEBLESSHIRE

1. Burnhead Farm, east of Eddleston
Known in 1946/47 (*Scot. Nat.* 1948 : 29). Present position not known, but 1969 flight lines suggest that roost has not moved (JS).

ROSS-SHIRE (OUTER HEBRIDES)

1. Stornoway Castle Woods, about 200 birds 1970 (WAJC)
Established in last 15 years since former roost in nearby conifers blown down.

ROXBURGHSHIRE

1. Bedrule, under 5000 birds 1969/70 (JHBM).
2. Hoselaw, 1969/70 (RSB)
There appears to be a subsidiary roost 4 miles south at Kirk Yetholm.

SELKIRKSHIRE

1. Sunderland Hall farm, 1969/70 (AJS)
Probably a very old roost (AJS) (see also *Scot. Nat.* 1948 : 29).

STIRLINGSHIRE

1. Dunmore House, Airth, about 2000 birds 1969/70 (Dunmore gardener)
Known in 1946/47 (*Scot. Nat.* 1948 : 29).

WEST LOTHIAN

1. Lochcote House, under 2000 birds 1969/70 (JHBM)
Known to have been in existence for at least 50 years by 1946/47 (*Scot. Nat.* 1948 : 28). A subsidiary roost is reported at Muiravonside in 1969/70 (CKM).

Key to initials of observers

R. S. Baillie, W. Brotherston, W. A. J. Cunningham, Dr G. M. Dunnet, Dr W. J. Eggeling, Mrs H. S. C. Halliday, Lt.-Col. W. M. Logan-Home, J. H. B. Munro, R. G. Murray, C. K. Mylne, Dr I. J. Patterson, G. L. Sandeman, A. J. Smith, R. W. J. Smith, J. Stewart.

Notes on the rookeries in the City of Edinburgh in 1970

J. H. B. MUNRO

A count of Rooks' nests within the City boundary was made during April and early May 1970. A late spring made such late counting advisable. In table 1 the results are compared with figures for 1957 and 1964 given by Cowper (1964).

Table 1. City of Edinburgh rookeries—number of nests in 1957, 1964 and 1970

	1957	1964	1970
Gogar and Hanley (including Gogar Mount outside city)	471	298	172
Kirk Loan, Corstorphine	1	—	—
Zoo	19	1	—
Turnhouse Farm	53	38	—
Lenny Port	13	5	—
Craigiehall Temple, Barnton	129	39	14
Cammo Tower, Barnton	16	—	—
Cammo Road, Barnton (by Cammo Home Farm in 1970)	22	10	21
Bonnyfield, Barnton	28	3	—
Whitehouse Crossroads	104	29	5
Cramond House	30	—	—
Cramond Manse	—	—	15
Queensferry Road at Davidson's Mains	10	—	—
Lauriston Farm Road	2	1	2
Northern General Hospital	4	—	—
Royal Victoria Hospital	5	—	—
Portobello Main Street (St Marks)	6	1	—
Milton Road	7	—	—
Duddingston Crossroads	9	—	—
Niddrie House	19	2	—
Craigmillar Explosives Factory	22	20	—
Croft an Righ, Holyrood	7	—	—
Hope Park Terrace	3	21	21
Drum, Gilmerton	768	327	335
Greenend	6	—	—
Ellens Glen	47	7	21
Liberton Church	6	3	1
St Katherines, Liberton	27	100	—
Kaimes, Frogston Road East	20	—	—
Mortonhall South Gate	135	65	193
Woodburn Nurses Home	38	5	—
Hermitage of Braid	113	47	16
Buckstone, Braids	20	7	3
Fairmilehead	3	—	9
City Hospital	—	—	11
Cockit Hat Plantation	102	13	12
Merchiston Castle School	7	—	—
Kingsknowe	—	4	—
Colinton Tram Terminus	20	1	—
Allermuir, Woodhall Road	8	—	—
Munro Drive, Colinton	3	—	—
Convent of Good Shepherd, Colinton	45	14	—
Woodhall, Juniper Green	370	272	72
	<hr/> 2718	<hr/> 1333	<hr/> 923

It will be seen that while the 1970 figures are down by 31% on 1964, this decrease is less than that between 1957 and 1964. While many of the smaller rookeries have disappeared there is, as is reasonable to expect, a shift to other nearby areas—for example at Cammo and Cramond. Rather surprisingly the Drum has held its population. The Mortonhall Estate rookery has trebled since 1964, but evidently largely as a result of a shift from the nearby St Katherines site. The most serious drop is at Woodhall, Juniper Green, where the numbers have fallen 74%. This may be due to the housing development in west Colinton and Currie.

Table 2 shows totals of various years from 1921 to 1970.

Table 2. City of Edinburgh rookeries—number of nests 1921 to 1970

Year	Nests
1921	1642
1928	2316
1935	2824
1944	2289
1945	2300
1954	2406
1955	2384
1956	2588
1957	2718
1964	1333
1970	923

The city development plan (mid 1965 to 1985), if carried out, involves a loss of 3534 acres of agricultural land from the total of 10,297 acres in 1965, a loss of about one third of the total agricultural area. The Bonaly (Colinton) and Bush (Newington) developments have already reduced the agricultural land by some 41 acres. It seems likely therefore that the Rook population within the present city boundary must continue to fall.

I am grateful to the following who took part in the counts: L. W. G. Alexander, R. M. Blindell, C. N. L. Cowper, J. P. Knowles, K. S. Macgregor, J. A. Stewart.

References

- MACMILLAN, A. T. 1957. Notes on the rookeries of Greater Edinburgh with counts for 1954, 1955 and 1956. *Edinburgh Bird Bull.* 7: 40-43, 51-54.
- COWPER, C. N. L. 1964. Notes on the rookeries in the City of Edinburgh in 1957 and 1964. *Scot. Birds* 3: 177-179.

Short Notes

Prey taken by Hen Harriers in winter

In December 1966, January 1967 and September 1968 I collected 32 pellets dropped by Hen Harriers at a communal roost in SW Scotland in a moorland area dominated by heather, with a field layer of sphagnum moss and cotton grass. The Hen Harrier, however, hunts over a wide range of habitats in the county, from the coast, agricultural land and marshes to the higher moors.

The pellets were grey and fairly firm and were kindly analysed by I. H. J. Lyster of the Royal Scottish Museum, Edinburgh. The prey remains were fragmentary, but examination showed the remains of 35 birds, 3 mice/voles, a shrew and 2 small beetles. All the pellets were packed solid with contour feathers, and very few flight feathers were found. Seven species of birds were identified with reasonable certainty, analysis of the bird remains showing 1 grouse (species unknown), 1 Redshank, 1 unidentified wader (Redshank or larger), 6 Skylarks, 5 pipits (probably Meadow), 1 Wren, 2 Starlings, 2 Greenfinches, 1 Chaffinch/Brambling, 10 finches (possibly mostly Linnets), 1 Yellowhammer, 4 unidentified passerines (possibly 2 Skylarks, a Starling and a Corn Bunting).

As Bannerman (*The Birds of the British Isles* 1956, vol. 5) points out, comparatively little is known of Hen Harriers' feeding habits in Britain. He cites a long list of prey species from Norway (where the habitat is different) and voles figure largely in the totals—all from breeding areas. Their winter diet, however, is little known. The strikingly small range of prey items obtained in the present study suggests that birds could form the main winter diet of Hen Harriers, at least in this particular area. Of the prey species recorded above, the *Handbook* does not mention Redshank, Wren, Starling, Greenfinch or Yellowhammer.

R. C. DICKSON.

Great Bustard at Fair Isle

In the evening of 11th January 1970 Teddy Stout saw a very large, unusual bird in a field of sheep on his father's croft near the Reeves. Next day he and Brian Wilson saw it again in fields a few hundred yards away, and by this time they thought it was a Great Bustard; they telephoned me in Inverness-shire and described the bird, and I identified it as a Great Bustard from their description. On 13th January it moved to croft-land belonging to Gordon J. Barnes, and he confirmed that it was a Great Bustard, probably a young male.

It stayed on his land, and watching it carefully over the next

couple of days he noted that it was not finding much food, if any. With the very short days and coarse weather the bird was obviously in very poor condition; this was confirmed when Gordon caught it by torchlight at night on 16th January. It was fed in captivity on cabbages, and rapidly took to this diet, eating several large Shetland cabbages a day as well as dead mice. My wife and I, Dr Brian Marshall and Iain Robertson saw the bird when we arrived on the island on 19th January.

It fed well in captivity and put on some weight, but the weather on Fair Isle was harsh with frequent snow, so we did not release the bird until 24th February, when there was some improvement. Previous to this we had measured, weighed and ringed it in preparation for release, and recorded a plumage description. After release the bird was seen in various parts of the croft-land; it was shy and difficult to approach closely. It obviously had difficulty in finding sufficient food, because when the weather again deteriorated in the first days of March it started walking into the stackyards to try to find food, its footprints being seen in the snow. Instead of letting it die of starvation we retrapped it at night on 5th March and returned it to Gordon Barnes, who fed it again on cabbages and sheep food pellets. Finally on 6th April it was flown south to England in a crate for Christopher Marler to release at some later date on Salisbury Plain.

It was a tremendous bird in the field, looking like a pale sandy brown turkey with white underparts and grey head and neck. It walked sedately with its head held high; when flushed its wings showed much white, and it flew well with slow powerful wingbeats. A full description was taken in the hand; its measurements were wing 510 mm, bill 41 mm, tarsus 138 mm, and tail 220 mm. In February it weighed 3.2 kg, but it had increased to 4.6 kg by 24th March. We considered it was an immature male.

Plumage description. Head and neck dove grey; feathers on crown elongated and some rufous, barred black; hind neck rufous, washed grey; whole of rest of upperparts rich cinnamon-buff, barred black, the base of the feathers being grey and the down pink; more rufous on lower back and upper tail-coverts; some grey whiskers but not very long; throat grey; breast grey with rufous at sides; rest of underparts white; underwing white; tail, 15 feathers, some missing, mainly white, especially outer feathers, marked with thick black band, and rufous on either side of black; centre tail feather with 3 broken black bands; primaries grey-brown with white on inner part of feathers and ends nearly black; 3rd-6th paler; 4th-8th emarginated; secondaries darker, some nearly glossy black, basal third white; lesser coverts like upperparts but paler; greater coverts all white edged grey; median coverts all grey, some with rufous centres and black shafts; bastard wing darker grey-white; primary coverts greyish-white shading into dark grey; large brown eye; white orbital ring; bill horn, lower mandible paler, large nostril; legs and feet grey-brown; toes and claws short and stubby;

centre toe 64 mm; plumage all very loose and liable to fall out; upper-parts, especially back and scapulars, very worn.

ROY H. DENNIS.

(In 1526 a few Great Bustards were said to be breeding in Scotland, but these had disappeared long before 1800, since when there have been only five satisfactory records, all apparently of females : Orkney, 1 shot 29th March 1876, 1 shot 6th-8th February 1892, 1 caught 4th January 1924; Ayrshire, decomposed bird washed ashore 20th June 1895; Shetland, 1 obtained, the most recent Scottish record, 19th May 1936. The January arrival of the 1970 bird at Fair Isle seems to fit a pattern with the three Orkney records, and it may have been linked with easterly gales at the time. The species breeds in SW Europe (also NW Africa) and in eastern Europe and Asia; there are few places in western Europe where it can now find the space and conditions it needs.

One of Dennis Couotts's fine pictures of the Fair Isle bird appears in this issue of *Scottish Birds* (plate 12).—Ed.)

Ivory Gulls in Shetland and off North Argyll

On 6th November 1969 Sonny Williamson saw what he was sure was an Ivory Gull at Ollaberry on the Shetland Mainland, directly opposite the north of Yell. On the 8th, in the rather vague hope that the bird might have flown across, I examined as much as possible of the north coast of Yell from the road. As the light was starting to fade I saw a bird sitting alone on the sand at the head of Basta Voe.

Even before I stopped the car I could make out the special paleness of the gull, and also the short-legged tern-like stance, and I knew that my luck was in and it was an Ivory Gull. From 80 yards I watched it for about 3 minutes with 10 x 43 binoculars, and I could see the plumage details reasonably well while it preened occasionally and gave a few desultory pecks at the sand. It got up for no obvious reason, letting me see the dark terminal band on the tail, and I watched for several minutes as it flew out to sea. In flight it reminded me strongly of a small Iceland Gull, flying in a rather wavering manner with frequent sideslips and small changes of direction; I had the impression it was not hunting, but was on a 'going somewhere' flight.

On the ground it had a distinctive horizontal stance, giving a slightly out-of-balance impression with its biggish head and chesty look, but the body was long and tapering, with the wings coming beyond the tail. It was about the size of a Common Gull. My first impression was that it had been eating something which had given it a dirty face, but that otherwise it was white. A closer look showed that there was a sprinkling of darker feathers on the head, more concentrated between bill

and eye, and that the wing coverts had a light dusting of dark spots, with a more noticeable spot on the end of each primary. The bill looked greyish, and the short legs were dark. The bird did not call. I am quite certain it was a 1st-winter Ivory Gull.

From what Sonny Williamson told me in Lerwick a week or two later about his bird I concluded that it was also an Ivory Gull in 1st-winter plumage, very probably the same bird. He saw it only in flight, but close enough to see the sprinkling of little dark spots on the wings and the dark band on the tail on the otherwise white plumage. He described it as about Common Gull size. It was flying to and fro along the shoreline, occasionally dipping to pick something off the water but never settling. He watched it for a few minutes before it flew out of sight along the shore.

Another Ivory Gull was seen about 30th November 1969 between Ardnamurchan Point and the island of Coll in the Inner Hebrides. The report reached me in a rather roundabout way from L. R. Inkster, one of the crew of the Scalloway scallop-fishing boat *Brighter Hope*, together with a diagnostic Instamatic colour photograph of the rather dove-like gull sitting on the boat's rail.

R. J. TULLOCH.

Ross's Gull in Shetland

On 22nd October 1969, while fishing between Whalsay and Fetlar, the seven-man crew of the Whalsay boat *Zephyr* watched a very small gull which flew around the boat continuously for 3-4 hours until darkness came, sometimes coming within a few feet of them. It was a Ross's Gull.

The members of the crew, whom I know well, included L. Irvine Sr and L. Irvine Jr, P. S. Irvine, and John A. Irvine, my son-in-law, who knowing my interest in birds brings me good descriptions of anything he sees. This note is the story and descriptions as I got them from the *Zephyr's* crew. They took particular notice of the features, and described the bird to me the same night, several of them separately. I did not show them books nor help in any way until I had their full descriptions; on the contrary, for instance, when they were comparing the bird with Kittiwakes, which were numerous round the boat, I pretended that a dark underwing would have been likely (having Little Gull in mind) but they all turned that down without hesitation, saying the underwing was as light as a Kittiwake's. At this stage they had told me about the tail having the corners off, as they put it, and the very small black beak, etc. When I asked if the wingtips were black they said there was no black on the wings except a thin dark line along the forward edge.

The bird never settled on the sea but was continually swoop-

ing down to peck things off the water; it did not take fish off thrown overboard but was thought to be picking up small particles of food. It was very active and graceful in flight, and amusing to watch evading the bigger gulls, which chased it a lot.

As the *Zephyr* planned to fish the same area the following morning, I spent until 2.30 a.m. making a long-handled net for the crew to try catching the bird. Unfortunately the weather took control, and they were not back in the area for more than a week. I asked several boats to keep a lookout, but the bird was never seen again.

The skipper of the *Zephyr* was in the Whalsay boat when the 1936 Ross's Gull was taken (I now have that bird, not in too good condition). He was very young then, and said he could remember little of the bird—only the small size, clever flight, and that there was something peculiar about the tail. The details of the 1969 bird that I took down from the crew of the *Zephyr* were:

A much smaller gull than a Kittiwake, flight very clever, more like a tern as it continually swooped to peck things off the water and evaded the other gulls; head white with some dark marking around and especially behind eyes; top of head seemed a little greyish; back and upperwing bluish-grey (similar to Kittiwake), no black on wings except thin dark line along fore-edge; tail white with corners off, not like square tail of Kittiwake; throat, breast and belly white; underwing as light as a Kittiwake's; bill black and very small; legs and feet reddish.

JOHN H. SIMPSON.

(The 1936 Ross's Gull, an exhausted 1st-winter bird caught between Whalsay and Skerries on 28th April (*Brit. Birds* 35: 276), is the only previous Scottish record for which satisfactory details are available.—Ed.)

Crop Contents of a Tawny Owl

At 10.15 p.m. on 21st November 1969 a female Tawny Owl was killed on the road about 10 miles north of Jedburgh. It was put in cold storage and skinned on 23rd November. The crop was full and contained:

Large yellow underwing <i>Noctua pronuba</i> (larvae)	22
Earthworm <i>Allolobophora</i> sp.	1
Earthworm <i>Lumbricus</i> sp.	1
Slug <i>Agriolimax laevis</i>	1
Short-tailed vole <i>Microtus agrestis</i>	(1)

The vole remains were in a pellet; the other prey species were fresh and undigested. The larvae were measured after preservation in alcohol. Twelve were intact and averaged 45 mm (38-54). The others had been broken and the viscera

removed to varying degrees, some being only empty skins; they averaged 38 mm (22-46) and had probably suffered some shrinkage. Both the earthworms had been cut into sections, and the slug had been slightly torn.

Earthworms are now recognised as regular food items of Tawny Owls, identifiable in pellets as *chatae*. Caterpillars have been less often recorded, though the *Handbook* cites Noctuid larvae among their prey. Possibly microscopic examination of fibrous pellets from Tawny Owls would reveal the presence of hard parts (e.g. mandibles) of lepidopterous larvae, which may be taken more commonly than is supposed.

M. A. MACDONALD, P. O. McDUGALL.

Black-headed Wagtail in Shetland

From 8th to 11th May 1969 there was a Black-headed Wagtail *Motacilla flava feldegg* on Out Skerries, and I watched it for some five or six hours. It had an extremely loud *tsee-eeet* call, much louder than the other Yellow Wagtails *M. f. flavissima* present, and it was also rather aggressive, chasing White Wagtails that came within 20 feet, though tolerating *flava* Wagtails unless they came very near. It fed on insects in the grass by a small pool and at times searched the seaweed along the nearby high-water mark. It could be picked out at long range by its call and pugnacious habits.

The plumage was typical of a *flava* Wagtail, but with glossy black crown, faint trace of a greyish eyestripe, and bright yellow chin and moustache; the legs and bill were black. The plumage was exceptionally bright, much brighter than the *flavissima* birds present, and this colouring was remarked upon by several non-ornithological islanders.

IAIN S. ROBERTSON.

(As the bird was not examined in the hand it is only accepted by the Rarities Committee as "showing the characters of" the race. The few other Scottish records of this most striking race, which breeds in the Balkans and Asia Minor, are also sight records: 14th June 1925 Dumfriesshire (*Scot. Nat.* 1925: 107); 20th May 1936 Shetland (*Scot. Nat.* 1937: 27); 2nd July 1952 East Lothian (*Brit. Birds* 46: 219; *Scot. Nat.* 1955: 103); and mid May 1960 Shetland (*Fair Isle Bird Obs. Bull.* 4: 179). This last record was evidently not submitted to the Rarities Committee at the time, but the published account has now been considered, together with additional comments from P. E. Davis, and accepted as showing the characters of the race.—Ed.)

Reviews

Bird Records of the Tay Area, 1961/1967. By Henry Boase. Unpublished typescript, 1970. Leaves 179 + blanks (title 1, contents 1, foreword 6, text and index 171, numbered 4-163 (39 omitted), 12A, B (2 leaves), C, 19A, 21A, 28A, 49A, 64A, 67A, 70A, B).

This brings up to date (1967) the records that have accumulated since the appearance of the author's accounts of the birds of North and East Perthshire (1961), Angus (1962) and North Fife (1964), all of which have been reviewed in *Scottish Birds* (2 : 266, 388; 3 : 379). As with the earlier works, a copy has been deposited in the SOC Library.

The greater part of this work (to page 128) is taken up with a species list of records that have accumulated since the production of the three original accounts. These records consist, in roughly equal proportions, of published and unpublished observations, and it is a gratifying tribute to editorial efficiency that virtually all the more important ones have already been published in these pages. Of particular value in this section is a table of all the records of Little Gulls in Angus and the east-facing coast of Fife during the period 1951/1967. This illustrates very clearly the substantial passage that takes place at both seasons, with maxima of 180 recorded in Angus in both April and October; but one is left wondering whether the near-absence of autumn records in East Fife since 1955 is due to a real change in distribution or merely to a lack of observers.

The work closes with a number of short chapters on individual subjects, of which the most important is the first comprehensive account of the birds of the Montrose Basin—or rather of the larger birds of the Montrose Basin, for the list stops short with the terns. There is also an account of the song periods of 53 species, which will be of interest to anyone studying local variation in song duration.

The value of Henry Boase's earlier works has already been recognised by his reviewers, and his latest production shows the same high standard of research and presentation. May we all be spared to make some comparable contribution in the golden years of our retirement!

DOUGAL G. ANDREW.

Ecology and Land Use in Upland Scotland. By D. N. McVean & J. D. Lockie. Edinburgh University Press, 1969. Pp. x + 134; 18 photographs. 21½ x 14 cm. 40/-.

This book is the distillation of the wisdom of two highly competent and enthusiastic scientists, both of whom have an intimate knowledge of upland Scotland. In the short space of 130 pages they describe the shaping of the uplands, their past and present uses and abuses, and how it is possible to avoid their abuse in the future by the application of wise management.

Rudimentary knowledge of rocks, soils, plants and animals on the part of the reader has been assumed, technical terms being avoided as far as possible. There is an adequate glossary to explain those which have had to be used, for despite its title this book is not aimed just at the scientist and student but at all who are interested in the use and conservation of the countryside. Its scope embraces such diverse interests as hill farming, forestry, wildlife conservation and tourism, showing how seeming incompatibilities between them may be reconciled. Although on the authors' own admission the two subjects of ecology and land use are so wide-ranging as to preclude their being fully conver-

sant with all aspects of them, they have nevertheless managed to present a remarkably complete account of the interactions involved.

It is perhaps invidious to select for comment particular sections from this book, which is essentially meant to be regarded as a whole. In view of the controversy they arouse, however, those on moor burning, on afforestation—especially with exotic species—and on the position of Golden Eagles and foxes in the Highland ecosystem, are enlightening reading. The chapter on erosion may also prove surprising to those who think it is not a problem in this country.

Assuming birdwatchers and ornithologists, as land users themselves, are already interested in the countryside, then this book will deepen their enjoyment and understanding of it. For all who own, manage or plan for the use of the countryside it ought, perhaps, to be mandatory reading.

There are surprisingly many typesetting errors, and a reference to Hunter (1960) on p. 76 is omitted from the bibliography. Possibly it is a comment on the times that, in spite of using not very attractive paper and putting all plates together at the back, the publishers must still ask 40/- for this slender volume.

D. R. GRANT.

Enquiries

BTO/RSPB Birds of Estuaries Enquiry. Pressures on this limited habitat continue to increase, with the growth of industry, population and reclamation schemes; and the need for increased knowledge about the distribution, numbers and movements of estuarine birds is very considerable. The aims of the enquiry have already been described (*Scot. Birds* 5: 359), and the response from observers in Scotland has been magnificent. During the pilot survey in the 1969/70 winter, counts were made regularly in 43 estuarine or intertidal areas, and occasionally in 8 more; in all, 62 observers helped. Of the months so far analysed, August revealed just under 30,000 waders, rising to a peak of 48,200 in October and dropping slightly to 40,300 in November, the most abundant species being Redshank 14,500, Oystercatcher 11,500, Curlew 5,500 and Dunlin 5,500.

Though coverage has been very good there are still some gaps, and it is hoped that it will be possible to fill most of these this winter; the more important areas for which help is needed are Loch Fleet (Sutherland), south Dornoch Firth, south Moray Firth (especially Whiteness, Culbin Bar and Findhorn Bay), the Firth of Tay, the Eden estuary and the Firth of Clyde.

In both the Clyde and the Moray Basin the Nature Conservancy is organising more general surveys to determine the importance of the estuaries. The Clyde organiser (E. T. Idle, The Castle, Loch Lomond Park, Balloch, Dunbartonshire) has agreed to act as regional organiser for the present enquiry. In

the Moray Basin A. Currie (Balnabeen House, Duncanston, Conon Bridge, Ross-shire) and C. G. Headlam (Foulis Mains, Evanton, Ross-shire) are jointly organising counts.

If anyone would like to help with counts would they please contact A. J. Prater, BTO, Beech Grove, Tring, Hertfordshire, or the regional organiser if they wish to help in the Clyde or the Moray Basin.

Colour-ringed Turnstone and Knot. Studies in Morecambe Bay, Lancashire, have included colour-ringing of Turnstone and Knot with single colours (white, yellow, blue, black) based on different areas of the Bay. Any sighting should be reported to A. J. Prater at the BTO (as above).

Ornithological Atlas 1968-72. The Scottish coordinator (C. G. Headlam, as above) asks us to appeal to those who have not yet sent in their 1970 Atlas cards to do so as soon as possible.

The Scottish Ornithologists' Club

WINTER EXCURSIONS—AYR AND DUNDEE BRANCHES

Details of the winter excursions for Ayr and Dundee Branches which are planned for 1970 were given in the summer issue (*Scot. Birds* 6: 140). Winter excursions for both Branches planned for the beginning of 1971 are given below.

AYR Depart from outside the County Hotel, Wellington Square, Ayr.

Saturday 9th January DOONFOOT. Depart 1 p.m.

Saturday 6th February DIPPLE SHORE, GIRVAN. Depart 10.30 a.m.

Saturday 6th March BARASSIE, TROON. Depart 1 p.m.

Saturday 3rd April LOCHINCH, near STRANRAER. Depart 9 a.m.

DUNDEE Depart from the City Square, Dundee. All excursions leave at 10 a.m. (except 25th April 9 a.m.) by private cars. Those requiring transport should contact the Branch Secretary, Miss Jenny Stirling, 21 Johnston Avenue, Dundee, DD3 8HE.

Sunday 24th January TAYPORT.

Sunday 21st February SCURDYNESS and MONTROSE BASIN.

Sunday 21st March STORMONT and DUNKELD LOCHS.

Sunday 25th April RESCOBIE and BALGAVIES LOCHS (Depart 9 a.m.).

INVERNESS BRANCH

At the time of going to press we have to report with very deep regret the death of Mr James MacGeoch, Secretary of the Inverness Branch and a member of Council.

A new Secretary will be appointed, but in the meantime all correspondence and enquiries regarding the Inverness Branch should be sent to Mr H. A. Maxwell, Greenacres, Culloden Road, Inverness.

An obituary will appear in the next issue of the Journal.

DUMFRIES BRANCH MEETINGS

Will Members please note that, starting in December 1970, all Meetings of the Dumfries Branch will be held in the County Buildings, Dumfries.

SOLWAY WEEKEND - 1971

The weekend excursion will take place on 13th-15th March 1971. Full details will appear in the next issue of the Journal.

A SPECIAL APPEAL

Everyone must be aware that publishing costs are rising annually. Your Council is nonetheless determined that the high standard of *Scottish Birds* should be maintained and that the quality of its production should not be allowed to suffer. In addition, with the increasing burdens of editorship, it is clearly desirable that in future there should be no difficulty in the way of instituting payment of a reasonable honorarium for this exacting work.

Accordingly, a scheme has been approved by Council inviting members known to have a special interest in the journal to help by making a donation, apart from their normal subscription, specifically for *Scottish Birds*. It is suggested that any member who feels able to help in this way might consider subscribing an annual sum of, say, £5 (or more) under Deed of Covenant. Only sixty such donations together with the tax reclaimable, would give an income of over £500 each year. Such a sum would go far towards securing the future health of our journal, which is so important to the Club's standing within and without Scotland.

Already, by mid September, as a result of personal approaches by Members of Council, four members have subscribed by Deed of Covenant, including one for an annual sum of £25. May I ask that any members who are prepared to support the journal in this way please contact the Club Secretary? I should like to emphasise that all donations will be received extremely gratefully and will be treated in confidence if so desired.

A. DONALD WATSON, President.

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LOCAL RECORDERS

- Shetland (except Fair Isle)** R. J. Tulloch, Reafirth, Mid Yell, Shetland.
- Fair Isle** R. H. Dennis, Bird Observatory, Fair Isle, Shetland:
- Orkney** E. Balfour, Isbister House, Rendall, Orkney.
- Outer Hebrides (except St Kilda)** W. A. J. Cunningham, Aros, 10 Barony Square, Stornoway, Isle of Lewis.
- St Kilda** Dr I. D. Pennie, Varkasaig, Scourie, Lairg, Sutherland.
- Caithness** D. M. Stark, 2 Harland Road, Castletown, Thurso, Caithness.
- Sutherland, Ross-shire (except Black Isle)** D. Macdonald, Elmbank, Dornoch, Sutherland.
- Inverness-shire (within 18 miles of Inverness) Ross-shire (Black Isle only)**
Dr Maeve Rusk, Arniston, 51 Old Edinburgh Road, Inverness.
- Inverness-shire (mainland more than 18 miles from Inverness)** Hon. D. N. Weir, English Charlie's, Rothiemurchus, Aviemore, Inverness-shire.
- Nairnshire, Morayshire, Banffshire** J. Edelsten, 14 South High Street, Portsoy, Banffshire, AB4 2NT.
- Aberdeenshire, North Kincardineshire** N. Picozzi, Nature Conservancy, Blackhall, Banchory, Kincardineshire, AB3 3PS, and W. Murray, Culterty Field Station, Newburgh, Aberdeenshire, AB4 0AA.
- South Kincardineshire, Angus** G. M. Crighton, 23 Church Street, Brechin, Angus.
- Perthshire** Miss V. M. Thom, 19 Braeside Gardens, Perth.
- Kinross-shire** J. H. Swan, Vane Farm Reserve, Kinross.
- Isle of May** Miss N. J. Gordon, Nature Conservancy, 12 Hope Terrace, Edinburgh EH9 2AS.
- Fife (east of A90)** D. W. Oliver, 4 Lawview Cottages, Abercrombie, St Monance, Fife.
- Fife (west of A90), Clackmannanshire, East Stirlingshire** T. D. H. Merrie, West Faerwood, Stirling Road, Dollar, Clackmannanshire.
- West Lothian**, Dr T. C. Smout, 19 South Gillsland Road, Edinburgh EH10 5DE.
- Forth Islands (except May), Midlothian** R. W. J. Smith, 33 Hunter Terrace, Loanhead, Midlothian.
- East Lothian, Berwickshire** K. S. Macgregor, 16 Merchiston Avenue, Edinburgh EH10 4NY.
- Peeblesshire, Roxburghshire, Selkirkshire** A. J. Smith, Glenview, Selkirk.
- Clyde faunal area, North Argyllshire, Skye, Inner Hebrides** Prof. M. F. M. Meiklejohn, 16 Athole Gardens, Glasgow W2.
- Dumfriesshire** J. G. Young, Benvannoch, Glencaple, Dumfriesshire.
- Kirkcudbrightshire, Wigtownshire** A. D. Watson, Barone, Dalry, Castle Douglas, Kirkcudbrightshire.

Boundaries are shown in 'The Birds of Scotland'. Note that Skye and the Hebrides are treated separately from the counties in which they lie.

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, St Andrews, Stirling and elsewhere 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 and direct the study of Scottish ornithology; (b) co-ordinate the efforts of Scottish Ornithologists; (c) encourage ornithological research in Scotland; (d) hold meetings at which Lectures are given, films exhibited and discussions held, and (e) publish information regarding Scottish ornithology.

There are no entry fees for Membership. The Annual subscription is 40s, or 10s in the case of Members under twenty one years of age or University undergraduates who satisfy Council of their status as such at the time at which their subscriptions fall due. The Life subscription is £50. Joint Membership is available to married couples at an Annual subscription of 60s, or a Life subscription of £75. 'Scottish Birds' is issued free to Members but Joint Members will receive only one copy between them. Subscriptions are payable on 1st October annually.

'Scottish Birds' is the Journal of the Club. Published quarterly it includes papers, articles and short notes on all aspects of ornithology in Scotland. The Scottish Bird Report is published in the Journal.

The affairs of the Club are controlled by a Council composed of the Hon. Presidents, the President, the Vice-President, the Hon. Treasurer, the Editor of 'Scottish Birds', the Hon. Treasurer of the House Fabric Fund, and ten other Members of the Club elected at an Annual General Meeting. On the Council is also one Representative of each Branch Committee appointed annually by the Branch.

The Scottish Bird Records' Committee, appointed by Council, produces an annual Report on 'Ornithological Changes in Scotland'.

The Club tie in dark green, navy or maroon terylene and a brooch in silver and blue, both displaying the Club emblem, a Crested Tit, can be obtained by Members only from the Club Secretary or from Hon. Branch Secretaries.

The Club-room and Library at 21 Regent Terrace, Edinburgh EH7 5BT is available to Members during office hours (Monday to Friday 9 a.m. to 1 p.m. and 2 to 5 p.m.), and, by prior arrangement, in the evenings during the week in the winter months from 7 to 10 p.m. Members may use the Reference Library, and there is a small duplicate section, consisting of standard reference books and important journals which can be lent to students and others wishing to read a particular subject.

The Bird Bookshop is also at 21 Regent Terrace, Edinburgh. It is managed by the Club and the profits help to maintain services to ornithologists at the Scottish Centre.

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).

NOTICE TO CONTRIBUTORS

1. General notes (not of sufficient importance to be published on their own as Short Notes) should be sent to the appropriate local recorders for inclusion in their summary for the annual Scottish Bird Report, not to the editor. A list of local recorders is published from time to time, but in cases of doubt the editor will be glad to forward notes to the right person. All other material should be sent to the editor, Andrew T. Macmillan, 12 Abinger Gardens, Edinburgh 12. Attention to the following points greatly simplifies the work of producing the journal and is much appreciated.

2. If not sent earlier, all general notes for January to October each year should be sent to the local recorders early in November, and any for November and December should be sent at the beginning of January. In addition, local recorders will be glad to have brief reports on matters of special current interest at the end of March, June, September and December for the journal. All other material should of course be sent as soon as it is ready.

3. All contributions should be on one side of the paper only. Papers, especially, should be typed if possible, with double spacing. Proofs will normally be sent to authors of papers, but not of shorter items. Such proofs should be returned without delay. If alterations are made at this stage it may be necessary to ask the author to bear the cost.

4. Authors of full-length papers who want copies for their own use MUST ASK FOR THESE when returning the proofs. If requested we will supply 25 free copies of the issue in which the paper is published. Reprints can be obtained but a charge will be made for these.

5. Particular care should be taken to avoid mistakes in lists of references and to lay them out in the following way, italics being indicated where appropriate by underlining.

DICK, G. & POTTER, J. 1960. Goshawk in East Stirling. *Scot. Birds* 1:329.
EGGELING, W. J. 1960. *The Isle of May*. Edinburgh and London.

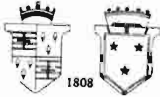
6. English names should follow *The Handbook of British Birds* with the alterations detailed in *British Birds* in January 1953 (46:2-3) and January 1956 (49:5). Initial capitals are used for names of species (e.g. Blue Tit, Long-tailed Tit) but not for group names (e.g. diving ducks, tits). Scientific names should be used sparingly (see editorial *Scottish Birds* 2:1-3) and follow the 1952 B.O.U. *Check-List of the Birds of Great Britain and Ireland* with the changes recommended in 1956 by the Taxonomic Sub-Committee (*Ibis* 98:158-68), and the 1957 decisions of the International Commission on Zoological Nomenclature (*Ibis* 99:369). When used with the English names they should follow them, underlined to indicate italics, and with no surrounding brackets.

7. Dates should normally be in the form "1st January 1962", with no commas round the year. Old fashioned conventions should be avoided—e.g. use Arabic numerals rather than Roman, and avoid unnecessary full stops after abbreviations such as "Dr" and "St".

8. Tables must be designed to fit into the page, preferably not sideways, and be self-explanatory.

9. Headings and sub-headings should not be underlined as this may lead the printer to use the wrong type.

10. Illustrations of any kind are welcomed. Drawings and figures should be up to twice the size they will finally appear, and on separate sheets from the text. They should be in Indian ink on good quality paper, with neat lettering by a skilled draughtsman. Photographs should either have a Scottish interest or illustrate contributions. They should be sharp and clear, with good contrast, and preferably large glossy prints.



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