

Scottish Birds

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**Amendments to the Scottish List
Breeding birds of the Isle of May
Wintering seafowl in Scapa Flow
Greylag Geese breeding in Shetland
Rookeries in East Ross**

Scottish Birds

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Amendments to the Scottish List

Incorporating an update to records of species recorded in Scotland on 5 or fewer occasions.

RONALD W FORRESTER
for the Scottish Birds Records Committee

The Scottish Birds Records Committee is responsible for maintaining the Scottish List first published in 1994 (*Scottish Birds* 17:146-159). The Committee also lists acceptable records for all species that have occurred in Scotland on 5 or fewer occasions. This is the third subsequent report of the Committee, the others being in *Scottish Birds* 18:129-143 and 19:259-261.

For over 100 years the British Ornithologists' Union (BOU) has maintained a list of birds that have been recorded in Britain and Ireland. This is undertaken by the BOU's Records Committee (BOURC), which periodically publishes checklists and reports. The first principle that was established for the Scottish List was that it would use identical categories (A, B, C and D) to the BOU.

During 1998, BOURC introduced a revised system of categorisation. In order to maintain the link it is therefore necessary to revise the definitions of the categories used for the Scottish List.

The main changes are that the start date for Category A has been changed from 1 January 1958 to 1 January 1950, Categories C and D have been re-defined, with a new Category E being created to accommodate species occurring as escapes.

The Scottish List – Categories

A Species which have been recorded in an apparently natural state at least once since 1 January 1950.

B Species which were recorded in an apparently natural state at least once up to 31 December 1949, but have not been recorded subsequently.

C Species that although originally introduced by man, either deliberately or accidentally, have established breeding populations derived from introduced stock, that maintain themselves without necessary recourse to further introduction. Category C has been further subdivided to differentiate between various groups of naturalised species: C1 naturalised introductions, C2 naturalised establishments, C3 naturalised reestablishments, C4 naturalised feral species, C5 vagrant naturalised species.

D Species that would otherwise appear in Category A or B except that there is reasonable doubt that they have ever occurred in a natural state. Category D species do not form any part of the species totals and are not regarded as members of the Scottish List.

E Species that have been recorded as introductions, transportees or escapees from captivity and whose breeding populations, if any, are thought not to be self sustaining. Category E species form no part of the Scottish List.

BOURC published on their web site during 1999 a provisional list of 276 species in Category E of the British List. A list of Category E species recorded in Scotland has not yet been produced.

As a result of the date change for Category A, Magnificent Frigatebird, Black-billed Cuckoo, Crested Lark and Buff-bellied Pipit all move from Category B to Category A of the Scottish List.

Egyptian Goose has appeared in Category D of the Scottish List but the species no longer falls within the new definition for that Category. The species does, however, remain on Category C of the British List due to the established breeding population in East Anglia. If it can be proved that at least one Scottish record refers to vagrants from the East Anglia population the species would meet C4 criteria. Until such time it requires to be removed from Category D, although it will probably be included in Category E.

Northern Flicker, previously in Category D, has been omitted from the BOURC's new list and as a result should now be removed from our Category D. We expect that BOURC will include it in Category E.

Red Kite previously Category A and D4 should now be Categories A and C, as a result of the re-introduction programme which has resulted in an increasing population since 1992, when pairs established from released birds bred for the first time. There now appears to be a self sustaining population which meets the definition for Category C3.

The genus *Butorides* was previously considered to be monotypic. BOURC has now followed most authorities in considering the form found in North America to be a separate species from the cosmopolitan *Butorides striatus*, now commonly called Striated Heron. The only Scottish record is of the North American species, now called Green Heron, and given the Latin name *Butorides virescens*.

The BOURC has adopted new generic names for the following species. It is our practice to follow their use of scientific names and we have therefore amended the scientific names accordingly in Table 1.

As a result of recent decisions by the British Birds Records Committee and BOURC, the following additional records have been accepted, of species recorded in Scotland on 5 or fewer occasions.

Pied-billed Grebe *Podilymbus podiceps*
Airthrey Loch, Stirling, Forth Area 3-7 June 1998 (*British Birds* 92:557); Loch Peallach, Mishnish Lochs, near Tobermory, Mull 8-15 June 1998 (*British Birds* 92:557). 5th and 6th Scottish records. Removed from the list of species recorded on 5 or fewer occasions.

Table 1 BOURC revised generic names.

	previous scientific name	new scientific name
Great White Egret	<i>Egretta alba</i>	<i>Ardea alba</i>
Sociable Plover	<i>Chettusia gregaria</i>	<i>Vanellus gregarius</i>
Gull-billed Tern	<i>Gelochelidon nilotica</i>	<i>Sterna nilotica</i>
Savannah Sparrow	<i>Ammodramus sandwichensis</i>	<i>Passerculus sandwichensis</i>
Song Sparrow	<i>Zonotrichia melodia</i>	<i>Melospiza melodia</i>

Red-breasted Goose *Branta ruficollis*

The 6th to 8th Scottish records occurred during 1998 and the species is now removed from the list of those recorded on 5 or fewer occasions.

Black Duck *Anas rubripes*

Female Alturlie, Highland 13 January – 1 April 1997 (*British Birds* 92:564). 6th Scottish Record. Removed from the list of species recorded on 5 or fewer occasions.

Lesser Scaup *Aythya affinis*

Male, Martnaham Loch, Ayrshire 13-17 September 1997 (*British Birds* 91:467). 5th Scottish record. The male at St John's Loch, Caithness from 1 February 1996, previously accepted as 4th Scottish record (*Scottish Birds* 19:259), remained until 20 January 1997 (*British Birds* 91:467). There were 3 further records during 1998 and the species is removed from the list recorded on 5 or fewer occasions.

Semipalmated Sandpiper *Calidris pusilla*

Juvenile Pool of Virkie and Scatness, Shetland 11-22 September 1996 (*British Birds* 90:471). 3rd Scottish record. Adult, Deerness, Orkney 25 July 1997 (*British Birds* 91:473). 4th Scottish record.

Western Sandpiper *Calidris mauri*

1st S or adult, Musselburgh, Lothian, 9-25 August 1997, probably since 25 July (*British Birds* 91:474). 3rd Scottish record. Juvenile, Deerness, Orkney, 28 September – 3 October 1998 (*British Birds* 92:572). 4th Scottish record.

Upland Sandpiper *Bartramia longicauda*

Foula, Shetland 2 September 1996, presumed same 14th-15th (*British Birds* 90:478) 6th Scottish record. Removed from the list of species recorded on 5 or fewer occasions.

Sooty Tern *Sterna fuscata* moved from Category B to Category A.

Isle of May, Fife, 14 July 1989 (*British Birds* 91:495). 3rd Scottish record.

Little Swift *Apus affinis*

Fetlar, Shetland, 29 May 1997 (*British Birds* 91:497). 3rd Scottish record.

Blue-cheeked Bee-eater *Merops superciliosus* added to Category A. Bressay, Asta, Tingwall Valley and Lerwick area, Shetland 20 June – 3 July 1997 (*British Birds* 91:497). 1st Scottish record.

Cedar Waxwing *Bombycilla cedrorum* transferred from Category D to Category A.

The record of one at Noss, Shetland 25-26 June 1985, originally placed in Category D (*Scottish Birds* 18:143) is now accepted as referring to a genuine vagrant (*British Birds* 91:500). It becomes the 1st Scottish record. The record predates the Nottingham bird 20 February -8 March 1996 as the first record for Britain & Ireland (*Ibis* 140:182).

Isabelline Wheatear *Oenanthe isabellina*

1st W, Fair Isle, Shetland 20 – 29 September 1998 (*British Birds* 92:591). 3rd Scottish record.

Hermit Thrush *Catharus guttatus*

Fetlar, Shetland 30 April – 1 May 1998 (*British Birds* 92:593). 3rd Scottish record.

Dusky Thrush *Turdus naumanni*

The 2 1993 records assigned to this species (*Scottish Birds* 18:140) should be deleted – the records should refer to Black-throated Thrushes. There are only 3 Scottish records of Dusky Thrush.

Hume's Warbler *Phylloscopus humei* added to Category A. BOURC has recently acknowledged Hume's Warbler as a separate species. It was formerly considered a race of Yellow-browed Warbler *Phylloscopus inornatus*.

Auchmithie, Angus & Dundee 13 October 1991 (*British Birds* 91:508).

South Ronaldsay, Orkney 4-6 November 1994 (*British Birds* 91:508).

Isle of May, Fife 10 November 1994 (*British Birds* 91:508).

Bullers of Buchan, NE Scotland 10-13 November 1994 (*British Birds* 91:508). 1st to 4th Scottish records.

Eastern Bonelli's Warbler *Phylloscopus orientalis* added to Category A. Sumburgh, Shetland 27-28 August 1998 (*British Birds* 92:599). 1st Scottish record.

In 1997, BOURC split Bonelli's Warbler into 2 species: Western Bonelli's Warbler *Phylloscopus bonelli* and Eastern Bonelli's Warbler *Phylloscopus orientalis*. Following an evaluation of all British records (*British Birds* 91:122-123), 6 Scottish records are now accepted as Western Bonelli's Warblers and the remaining 14 as Western/Eastern Bonelli's Warblers.

Southern Grey Shrike *Lanius meridionalis* 1stW, trapped Fair Isle, Shetland 21 September 1956 (*British Birds* 50:246-249 and 90:70). This pre dates the 1964 bird (*Scottish Birds* 19:260) as the 1st Scottish record.

1stW male North Ronaldsay, Orkney 14 September - 16 October 1994, trapped (*British Birds* 90:70). Probably 1stW, Boddam, Shetland 7-10 November 1994 (*British Birds* 90:70).

Papa Westray, Orkney 11-26 November 1994 (*British Birds* 90:70).

These records bring the Scottish total to 5, all of which are considered to be of the race *pallidirostris*.

Blackpoll Warbler *Dendroica striata* Stornoway, Lewis, Outer Hebrides 26-29 October 1996 (*British Birds* 90:509). 4th Scottish record.

Common Yellowthroat *Geothlypis trichas* 1stS female, Baltasound, Unst, Shetland 16-23 May 1997 (*British Birds* 91:513). 2nd Scottish record.

Yellow-browed Bunting *Emberiza chrysophrys* Hoy, Orkney 4-5 May 1998 (*British Birds* 92:604). 3rd Scottish record.

Bobolink *Dolichonyx oryzivorus* Durigarth, Shetland 28 September - 5 October 1998 (*British Birds* 92:606). 4th Scottish record.

Category D

Falcated Duck *Anas falcata* add to Category D. Male, Merryton Haugh, Clyde 8 - 15 March 1998 and 1 November 1998-24 May 1999 (*British Birds* 92:607). 1st Scottish record.

As a result of the above changes, 9 species have been added to Category A and 5 have been removed from Category B. In addition 3 species have been removed from Category C with one added. The revised totals are now:

Category A	467
Category B	9
Category C	<u>6</u>
	482
Category D	<u>10</u>
	492

SBRC wish to thank Angus Murray and Mike Pennington for drawing to our attention previous errors now corrected.

1999 records awaiting acceptance include Crag Martin in Orkney on 3 May. Short-billed Dowitcher at Rosehearty, Aberdeen 11-24 September and Royal Tern in Lothian on 9 August. All these species are potential additions to Category A.

The 'large white headed gull' complex continues to cause taxonomic difficulties. Although BOURC has not separated any of the 'yellow-legged gulls' from Herring Gull *Larus argentatus*, it appears only a matter of time before this happens. Accepted Scottish records of the race *michahellis* are now well into double figures and there are currently descriptions under consideration by BBRC of birds at Doonfoot, Ayrshire during 1992, 1997 and 1999, which, if accepted, will become the first

Scottish records of the race *cachinnans*. IfBOURC follows the lead already taken in several European countries, these 2 forms could become separate species Yellow-legged Gull and Caspian Gull.

Progress is now being made in producing a list of subspecies recorded in Scotland.

The current Scottish List appears in full on the SOC's web site www.the-soc.org.uk where there

is also a full list of records of those species occurring in Scotland on 5 or fewer occasions.

The Scottish Birds Records Committee, which is responsible for maintaining the Scottish List now consists of Kevin Osborn, David Clugston, Bruce Forrester, Ian Andrews, Colin Crooke, Martin Gray, Dougie Dickson and Ron Forrester, Secretary.

**Ronald W Forrester, Secretary, Scottish Birds Records Committee,
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Red-breasted Goose with Barnacle Geese

Sam Alexander

Breeding birds of the Isle of May, Firth of Forth, 1972-99

M P HARRIS, S WANLESS, I DARLING & C GALLACHER

During the last 28 years the numbers of auks and Eiders breeding on the Isle of May have increased dramatically, terns have recolonised and gull numbers have declined. With the exception of the feral pigeon, landbirds have done less well. Lapwing, Stock Dove, Swallow, Carrion Crow, Dunnock, Blackbird, Song Thrush and Meadow Pipit have not bred in recent years and numbers of Pied Wagtail and Starling are much reduced. Ringed Plover, Stock Dove and, probably, Black Redstart bred for the first time.

The Isle of May is the largest island (57 ha) off the east coast of mainland Britain. The west side is bounded by sheer cliffs some 45m high whereas on the east the land slopes gently into the sea. The centre of the island is well vegetated with a mixture of maritime grasslands and now defunct gardens and there are small areas of semipermanent freshwater. Thus there is a variety of habitats for breeding birds (Eggeling 1960). The last review of breeding birds was that of Eggeling (1974) who documented nesting by 41 species. Since 1972 we have been involved in research on the island and at least one of us has been resident there each year from April to July. This paper summarizes information on the status and numbers of the breeding birds collected by ourselves and the organisations that we represent, over the last 28 years. We refer to Eggeling's 2 papers for earlier records and changes of status.

Methods

Information comes from our own observations, those of visitors to the Isle of May Bird Observatory extracted from the observatory's records and reports up to 1984 which were published in *Scottish Birds* and subsequently in the annual Isle of May Bird Observatory Reports, and the Warden's reports and reports of Scottish Natural Heritage. Records up to, and including 1973, are detailed in Eggeling (1960, 1974) and some later counts of

seabirds can be found in Harris & Galbraith (1983). The seabird populations were counted in 1969 as part of Operation Seafarer and for some species we have calculated rates of increase (% per annum based on linear regression of log transformed counts) starting with these counts. In the figures we plot counts of seabirds back to 1960 to put recent changes into a longer context. For species not shown in the figures or where counts are not easily summarised in the text, annual estimates of the populations are given in an appendix.

Counting units were occupied nests omitting known relays for Shag, Eider, gulls and terns, Oystercatcher, Lapwing, apparently occupied sites for Fulmar and burrows for Puffin, and pairs for most other species; Counts of individual Guillemots and Razorbills were converted to pairs using year specific correction factors. For Shelduck, Oystercatcher and Rock Pipit we assume that the numbers of occupied territories reflected the breeding population. Since the early 1980s seabirds have been counted in a systematic way in late May or early June.

Species accounts

Fulmar *Fulmarus glacialis* (Fig 1a)

Breeding was first proved in 1930. In 1969, there were 53 occupied sites and the population has

since increased at an average rate of 6.8% pa. The highest count was 382 sites in 1997.

Shag *Phalacrocorax aristotelis* (Fig 1b)

Counts of nests can seriously underestimate the true population since in some years (eg 1973-76, 1993) many adults present in the colony did not nest (Aebischer 1986, Aebischer & Wanless 1992). Numbers increased during much of the 20th century and reached a peak count of 1919 nests in 1987. Numbers then fluctuated around c1,500 nests before declining. Figure 1b gives the impression that this decline occurred mainly between 1992 and 1993. This was not the case, however, since studies of colour ringed adults indicated clearly that no unusual mortality occurred over this winter, rather many adults present on the island in 1993 failed to breed and later died during a major mortality of adults in February 1994. It was this wreck that was responsible for the population crash (Harris & Wanless 1996). The population recovered slightly between 1995 and 1997 but declined again between 1998 and 1999 when the count of 259 nests was the lowest since 1955.

Eider *Somateria mollissima* (Fig 1c)

Starting in the early 1970s, numbers increased greatly (Calladine *et al* 1995). The highest count was 1,200 nests in 1999, and the average rate of increase between 1978, when the first systematic count was made, and 1999 was 7.6% pa.

Shelduck *Tadorna tadorna*

This species was first proved to breed in 1936 and now nests annually. Numbers peaked at 10-12 pairs between 1984 and 1987 but decreased to 3-6 pairs in the late 1990s.

Moorhen *Gallinula chloropus*

A pair bred at the pools at the north end of Rona in 1977 and 1978.

Lapwing *Vanellus vanellus*

The Lapwing colonised the island in 1976 and bred in each year until 1986. The peak number was 7 pairs in 1981.

Ringed Plover *Charadrius hiaticula*

A pair laid 2 eggs at Kirkhaven beach in 1977 but these were soon lost due to disturbance. This was the first recorded nesting on the island.

Oystercatcher *Haematopus ostralegus* (Fig 1d)

The population increased from 15 pairs in 1973 to 39 pairs in 1989 (Harris & Wanless 1997). Numbers then declined to 28 pairs by 1997. In 1999 there were 30 territorial pairs.

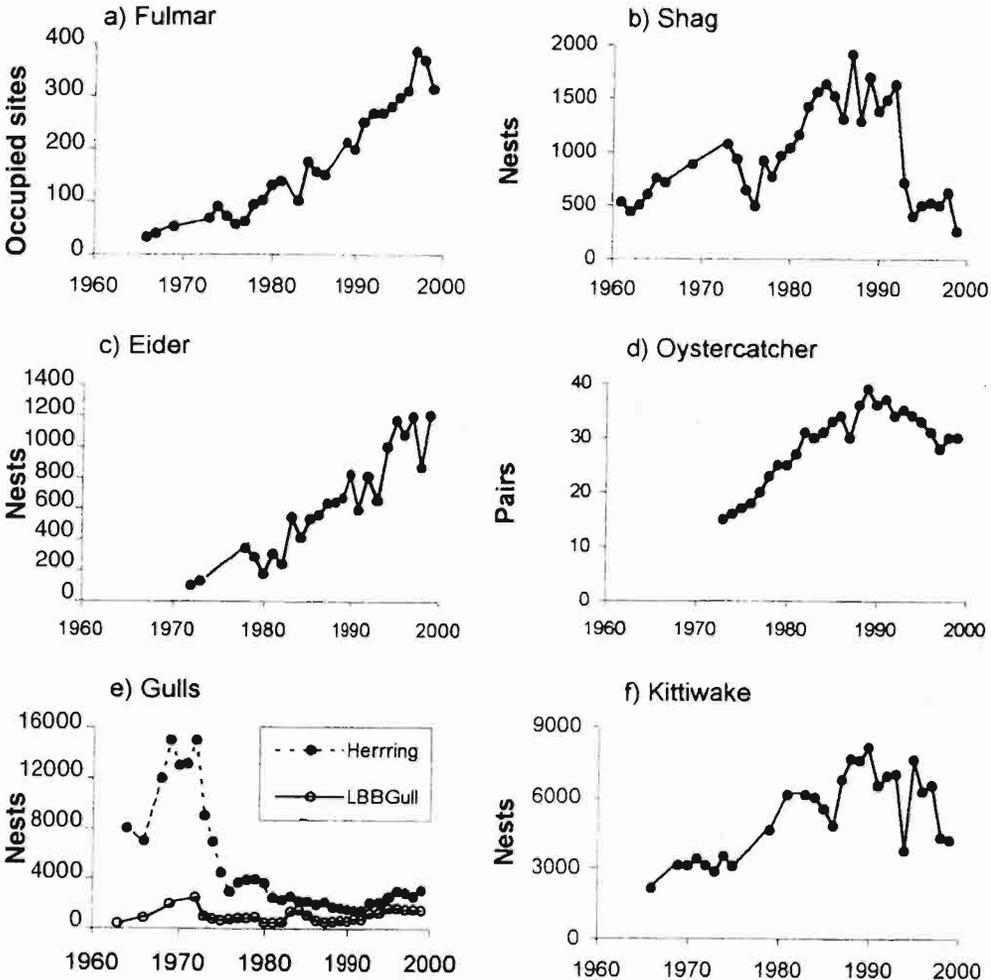
Great Black-backed Gull *Larus marinus*

The first pair bred in 1962 and numbers increased to 4 pairs between 1969 and 1972. The species then ceased to nest, possibly as a result of the culling of the next 2 species. One pair bred in 1982 and 1985 since when numbers have increased steadily up to the present with 19 pairs recorded in 1999.

Herring Gull *Larus argentatus* (Fig 1e)

This species first bred in 1907 and the numbers increased at a rate of 13% pa to about 15,000 pairs in 1972 (Eggeling 1974, Chabrzyk & Coulson 1976). It was considered that such large numbers of gulls were harming the island's fauna and flora so, between 1972 and 1986, many adults of this and the next species were killed. Numbers were reduced to 1,711 nests in 1988 but have since increased. The 1999 count was 3,115 nests. Numbers, culling and population dynamics of this and the next species are well documented – see Wanless *et al* 1996 for the most recent review.

Figure 1 Changes in the numbers of Fulmar, Shag, Eider, Oystercatcher, Herring and Lesser Black-backed Gull and Kittiwake on the Isle of May, 1961-99.



Lesser Black-backed Gull *Larus fuscus* (Fig 1e)

Breeding was first recorded in 1930 and numbers increased at 14% pa to 2,100 pairs in 1972 (Duncan 1981). Control measures apparently had less

impact on this species than on the Herring Gull but even so numbers had declined to 534 pairs by 1987. Numbers subsequently increased to 1,635 nests in 1995. There were 1,519 nests in 1999.

Kittiwake *Rissa tridactyla* (Fig 1f)

Numbers of this species increased throughout most of the 20th century and by 1969 there were 3,100 nests. The increase continued, averaging 4.8% pa 1969-90 to a peak count of 8,129 nests in 1990. Apart from a very low count in 1994, which was due to many adults not nesting, the population then fluctuated between 6,300 and 7,600 nests until 1997 after which numbers started to decline. In 1999 there were 4,196 nests.

Common Tern *Sterna hirundo* (Fig 2a)

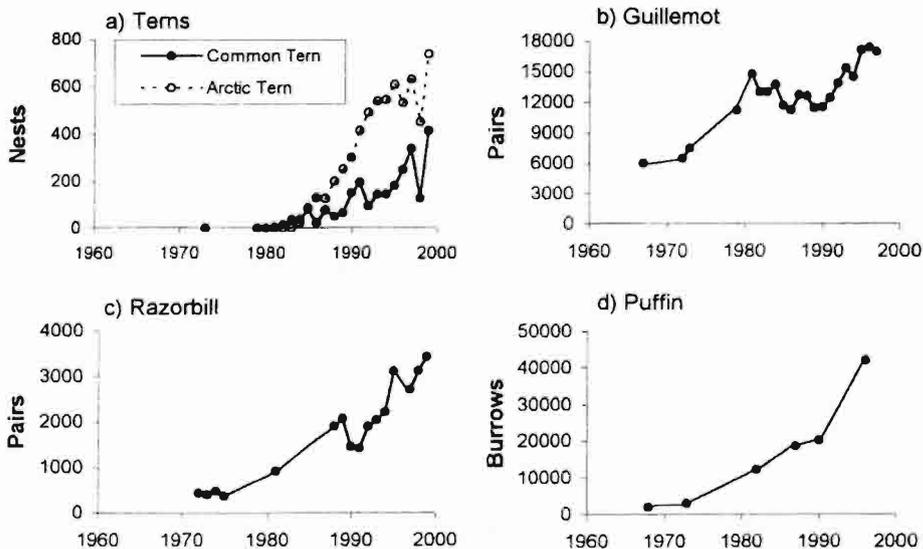
In the 1940s this was the most numerous species on the island and some 5,000-6,000 pairs were estimated to have bred in 1946 and 1947. Numbers then declined rapidly and no breeding was recorded between 1958 and 1972. Isolated breeding attempts

were recorded in 1973, 1979, 1980, and 1981, and a small colony of 15 nests was reestablished in 1982 (Wanless 1988). There were 37 nests the next year and the population increased at 13.8% pa between 1983 and 1999 when the count of 415 nests was the highest since 1947.

Arctic Tern *Sterna paradisaea* (Fig 2a)

The species was common during the 1930s, eg there were up to 800 pairs in 1936, but numbers declined and the species became extinct as a nesting species in 1957. A single pair bred in 1980 but it was not until 1984, when 19 pairs bred, that real recolonisation occurred (Wanless 1988). There were 87 pairs the following year and the population subsequently increased to 737 nests in 1999. Figure 2a suggests that the rate of increase slowed in the late 1990s.

Figure 2 Changes in the numbers of Common and Arctic Terns, Guillemot, Razorbill and Puffin on the Isle of May, 1968-99.



Roseate Tern *Sterna dougallii*

During the 1930s and 1940s up to 20 pairs bred and a single pair nested in 1956. There was no further nesting until a single pair bred in 1995 (Harris & Harding 1995) and 1996.

Sandwich Tern *Sterna sandvicensis*

Up to 1,400 pairs bred during the 1940s. The population became extinct on the Isle of May in 1957. A single pair laid in 1990, there were 2 pairs in 1998 and at least 110 pairs in 1999 (Hemsley 1999).

Guillemot *Uria aalge* (Fig 2b)

In 1969, the population was estimated at 9,000 birds which suggests a breeding population of about 6,000 pairs. Annual counts of incubating and brooding individuals between 1972 and 1976 ranged from 3,360 to 3,920. Such methods seriously underestimate the true breeding population and counts of 9,730 and 11,300 individual birds in 1974 and 1975 respectively indicate that 6,500-7,500 pairs were present. By 1981 the population had increased to 11,250 pairs and there was a further increase to 14,750 pairs by 1983. The population declined somewhat during the next 8 years but between 1991 and 1999 numbers increased again at an average rate of 5.8%pa.

Razorbill *Alca torda* (Fig 2c)

Between 1969 (200-300pairs) and 1999 (3,429 pairs) the population increased at an average rate of 8.1%pa.

Puffin *Fratercula arctica* (Fig 2d)

Since the 1960s, when there were only a few pairs on the Isle of May, the population has increased dramatically with whole island counts of 2,000 pairs in 1970, 12,200 burrows in 1984, 20,100

burrows in 1992 and 42,000 burrows in 1998, an average rate of increase of 11%pa.

Feral Pigeon *Columba livia*

A common breeder whose number increased from less than 20 pairs in the 1970s and early 1980s to 'hundreds' by 1994. This increase has been associated with birds starting to nest down Puffin and Rabbit burrows.

Stock Dove *Columba oenas*

One to 3 pairs bred each year between 1979 and 1989. These are the only records of breeding on the island.

Swallow *Hirundo rustica*

The species bred each year between 1972 and 1994 with a maximum of 6 pairs in 1990.

Carrion Crow *Corvus corone*

One pair has been present each year since 1921. In some years a nest is built but only rarely does laying occur. In our period eggs were recorded only in 1984, 1990, 1991 and 1994.

Wren *Troglodytes troglodytes*

Wrens bred in 1996, 1997 and probably also in 1975 and 1998, when 2-3 males were recorded singing.

Song Thrush *Turdus philomelos*

Two pairs bred in 1972, following a colonisation of the island by a single pair in 1971. 3 pairs in 1973 and one pair in 1974.

Blackbird *Turdus merula*

Two or 3 pairs bred in 1972 and 1973.

Black Redstart *Pheonicurus ochruros*

A pair probably bred in 1994 when a male regularly sang during May and 3 recently fledged, but proficiently flying, young accompanied by 2 adults were present from July to October. This would be the first recorded nesting on the island. However, the possibility that this was immigration of a family group after successful breeding on the mainland cannot be ruled out. Such immigration by recently fledged juveniles, with and without adults, has also been recorded for Song Thrush, Blackbird, Wheatear, Starling and Carrion Crow. The appearance of 4 birds including 2 recently fledged young in mid August 1997 was thought less likely than the former record to indicate successful breeding on the island.

Wheatear *Oenanthe oenanthe*

One pair bred in 1991 and 2 pairs were present the following year. A male sang but probably did not breed in 1993. Up to 4 pairs bred between 1994 and 1999.

Dunnock *Prunella modularis*

Two or 3 pairs bred in 1972 and one pair in 1973.

Meadow Pipit *Anthus pratensis*

This species nested in most, if not all, years between 1972 and 1987. Usually there was just a single pair but an additional pair may have bred in up to 6 years and there were 4 pairs in 1980 (Appendix).

Rock Pipit *Anthus petrosus*

Few thorough censuses have been made (Appendix) but it is obvious that the population varies considerably. The highest estimate was 40-50 pairs (1975-76, 1992-93) and the lowest 6-10 pairs (1977-79).

Pied Wagtail *Motacilla alba*

The species did not breed in 1972 or 1973. The status in 1974-76 was uncertain but 2 pairs nested in 1977. Numbers increased to 5 pairs in 1982, declined to a single pair in 1986, increased to 7 pairs in 1990-92 and then declined gradually to 2 pairs in 1999. Most adults were *M a yarrellii* although there were several records of *M a alba* breeding.

Starling *Sturnus vulgaris*

The population was assessed at 10 pairs during the 1970s and guessed at around 30 pairs in 1989, 1990 and 1991. There were 9 pairs in 1992, less than 10 in 1993, 7 in 1994, 3 in 1995 and 1998 and one in 1999.

Linnet *Carduelis cannabina*

At least 2 pairs bred in 1973. The species was not recorded breeding for the next 25 years until one pair nested in 1998.

Previous and possible breeding species

Eggeling reported the following definite or probable breeding species in earlier years: Gannet *Morus bassanus* present in the 19th century and a pair started to build a nest in 1922, Cormorant *Phalacrocorax carbo* a pair carried nesting material to a cliff in 1938, Mallard *Anas platyrhynchos* 2 pairs in 1965, Teal *Anas crecca* one nest in 1960, Peregrine *Falco peregrinus* bred until 1929 and possibly in 1941, Redshank *Tringa totanus* bred in 1912, Black Guillemot *Cepphus grylle* present in the 19th century, Willow Warbler *Phylloscopus trochilus* in 1922, House Sparrow *Passer domesticus* breeding until 1947 and Tree Sparrow *P montanus* breeding until 1922. The occasional Peregrine still displays in the winter and spring and there were a few records of single adult Black Guillemots near the island in several springs, and

one bird ashore with Puffins, during the 1970s and, early 1980s.

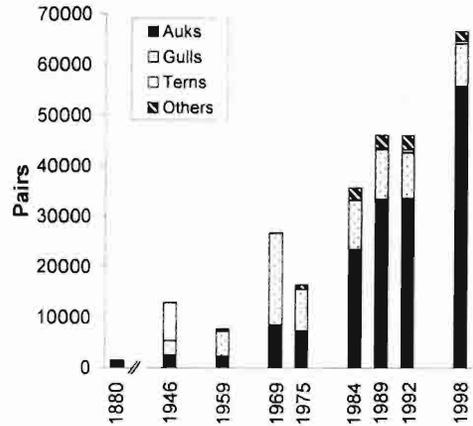
In several years, eg 1991-92 and 1996-98, Manx Shearwaters *Puffinus puffinus* have been heard calling in flight and from burrows in late summer but there was no evidence of nesting. In most recent years Black-headed Gulls *Larus ridibundus* have shown a passing interest in the tern colony and, since this species breeds on other tern islands such as the Farne Islands and Coquet, this seems a likely candidate to colonize the May.

Discussion

There have been dramatic changes in the numbers of seabirds on the Isle of May during the last 100 years (Fig 3). First, the very large numbers of terns which bred during the 1940s and 1950s disappeared and only in the last 10 years can the island again be considered to have a thriving ternery. Second, during the 1970s the very large numbers of large gulls then nesting were considered to pose a threat to the fauna and flora of the island and their populations were substantially reduced. Whether or not this contributed to the return of the terns is unclear. Third, the numbers of auks have increased dramatically. The Isle of May now has one of the largest concentrations of Puffins in Britain and auks are now the dominant component of the avifauna. Finally, Eider have increased so that the island now holds nationally important numbers. As long as ground predators such as rats and feral Mink, both of which are abundant at the harbours on the nearby Fife coast, do not find their way to the island the Isle of May should remain a safe haven for breeding seabirds. Nest sites do not appear to be limiting for any species. We speculate that there is potentially room on the island for maybe a quarter of a million pairs of Puffins and double the numbers of species which breed on the cliffs.

The landbirds have done less well. In 1959, there were possible 100 pairs of 8 species nesting

Figure 3 The numbers of seabirds breeding on the Isle of May between the 1880s and 1998. Gulls include the Kittiwake. Data 1880-69 from Eggeling (1960, 1974).



(Eggeling 1960); in 1999, there were less than half this number of 4 'native' species, although there were several hundreds of pairs of feral pigeons. During the period covered by our records Stock Dove, Lapwing, Wren and Wheatear colonised the island; all but the latter soon became extinct. Meadow Pipit, Swallow, Blackbird, Dunnock and Song Thrush no longer breed and it remains to be seen whether the long established Starling and Wheatear will persist. Only the Rock Pipit appears to be secure. The island has changed considerably during the time that we have known it. In 1972, the lighthouse keepers and their families were present and several gardens were cultivated. Although the Sheep and Ferrets had already gone, Dogs were still present, Rabbits and gull eggs were harvested and sent ashore to market. Gulls were nesting over much of the island, except for the top and near the lighthouse buildings, and some areas such as Rona had little vegetation (see photographs in Eggeling 1974). Now the island has no permanent human residents, dogs are not allowed ashore,

birds have complete protection, there are terns nesting on the top of the island and there are Puffin burrows virtually everywhere. It is, therefore, not surprising that the land avifauna has changed though the processes involved are far from clear. More unexpected is the lack of breeding corvids and birds of prey. If the Buzzard *Buteo buteo* continues its spread in Fife it might well consider the Isle of May with its abundant Rabbits to be attractive.

Acknowledgements

We are extremely grateful to all the many people who, while staying at the Low Light or undertaking wardening duties or their own research, made and documented the observations and counts on which this paper is based.

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Appendix: Counts of pairs of some breeding birds on Isle of May, 1972-1999.

nc indicates no count, ? indicates uncertainty whether the species bred

Year	Shelduck	Lapwing	Great Black- backed Gull	Stock Dove	Swallow	Wheatear	Meadow Pipit	Rock Pipit	Pied Wagtail
1972	1	0	4	0	3	0	1	nc	0
1973	1	0	1	0	3	0	2	nc	0
1974	0	0	0	0	1	0	?	43	?
1975	0	0	0	0	1	0	2	45-50	?
1976	0	2	0	0	2	0	?	40-50	?
1977	0	6	0	0	1	0	?	6-8	2
1978	1	4	0	0	1	0	1	nc	3
1979	3	5	0	1	3	0	1	8	3
1980	2	4	0	1	4	0	3-4	13	3
1981	3	7	0	2	6	0	1	17	4
1982	3	5	1	2	4	0	2	25	5
1983	6	4	0	2	3	0	1-2	23	3
1984	9-11	4	0	2	3	0	1	31	3
1985	10	2-3	1	1	3	0	1-2	20+	2
1986	12	1	3	1	3	0	1	25+	1
1987	10	0	3	2	3	0	1	20-30	2
1988	5	0	3	1	3	0	0	31	4
1989	4	0	3	1	5	0	0	37-39	6
1990	7	0	3	0	6	0	0	nc	7
1991	7	0	4	0	3	1	0	39+	7
1992	3	0	8	0	4	3	0	44	6-7
1993	7	0	7	0	2	0	0	49	3
1994	8	0	6	0	4	2	0	nc	4
1995	6	0	7	0	0	1	0	30	4
1996	6	0	7	0	0	2	0	25+	4
1997	3	0	9	0	0	4-5	0	25+	5
1998	4	0	14	0	0	2-3	0	nc	3
1999	3	0	19	0	0	4	0	nc	2

Wintering seafowl in Scapa Flow, Orkney, October 1998 to March 1999

E. J. WILLIAMS

Monthly counts of all seafowl were carried out in Scapa Flow for the 6 months from October 1998 to March 1999, utilising both shore and boat based observations. Thirty species were recorded and the maximum number of individuals of all species recorded in any month was 14,886. Two species, Great Northern Diver and Slavonian Grebe, were present at levels of international importance, and a further 11 species were present at levels of national importance. The maximum of 781 Great Northern Divers recorded was an unprecedented figure for this species in any single locality in the UK and represents 26% of the GB and 15.6% of the European winter population respectively. Slavonian Grebes peaked at 124, representing 31% of the GB and 2.5% of the European winter population. The other species of national importance were Red-throated Diver, 1.2% of GB winter population, Black-throated Diver (8.1%), Red-necked Grebe (14%), Shag (9%), Wigeon (1.4%), Teal (1%), Eider (3%), Long-tailed Duck (6.7%), Goldeneye (1.7%), Red-breasted Merganser (6.2%), and Black Guillemot (2.6%). Surface feeding duck numbered 6,300 and diving duck 4,200. Wigeon was the most abundant species with a maximum of 3,895. Overall numbers of most species exceeded those recorded during previous surveys in 1974-78 and in 1988-89.

Introduction

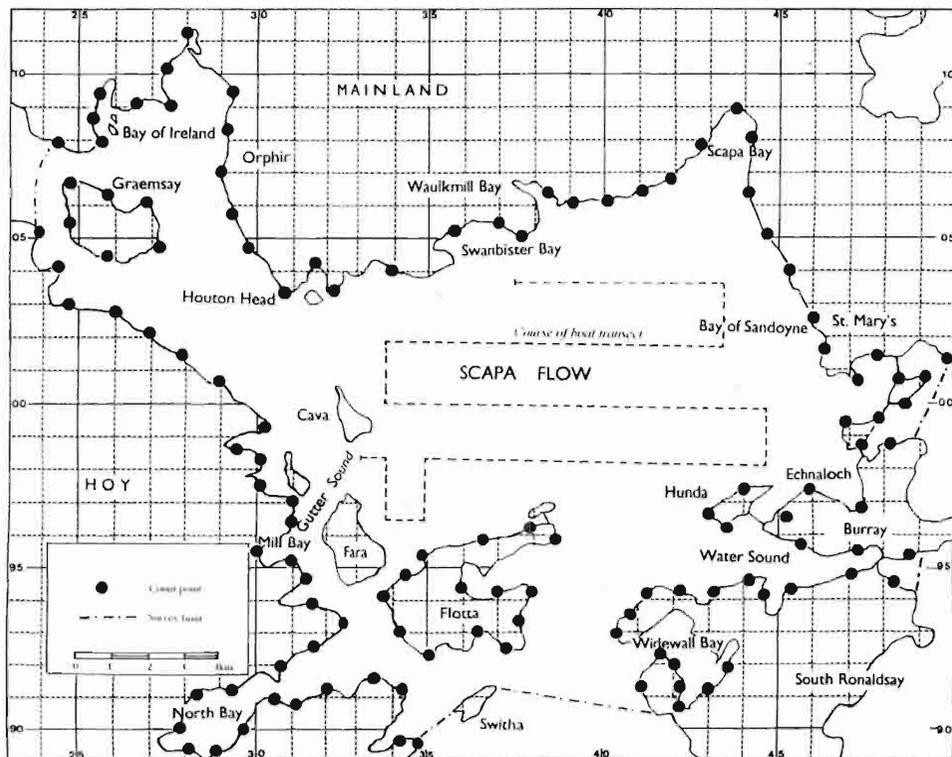
Scapa Flow is a sea area almost entirely surrounded by the southern islands of the Orkney archipelago and forms one of the largest areas of sheltered seawater in the UK. It covers c230km², and is approximately 20kms x 20kms wide with a shoreline of c170kms including the smaller islands within the Flow (Fig 1). It reaches a maximum depth of 60m although the majority of birds are found in the shallower bays where water depth is less than c20m. The combination of a long shoreline and sheltered water makes the area attractive for wintering seafowl. Its importance has long been recognised, and the first land based survey in 1974-78 (Lea 1980) quantified this. A repeat survey in 1988-89 (Christer 1989) incorporated additional counts of the central Scapa Flow area which was not visible from shore. The present survey updates the situation.

Methods

Counts were made from 132 points on the shore each month, covering waters up to c1.5kms from the shore, while waters in Central Scapa Flow not visible from shore were counted from an 8m boat, also on a monthly basis. Boat transects were run east to west and spaced 2kms apart, the counts being completed in a single day. Days when winds were Force 1 or less were selected for these counts, when the sea was mirror smooth or nearly so, and birds could be spotted easily. Up to 3 observers were used for this part of the survey.

Complete surveys were possible in all months except February, when bad weather prevented counting in the Flotta/Graemsay/South Walls area and no boat count was possible. Counting was not carried out when winds were in excess of Force 4, and as the winter weather was not so severe as

Figure 1 Map of Scapa Flow, Orkney, showing extent of survey area and count points.



usual, it proved possible to count all sectors on good days at least once during the winter.

Results

Thirty species were recorded during the 6 months. Many of the winter visitors were arriving during October, joining the locally bred birds already present. Numbers continued to build up through November, and peaked in January. By February, birds were beginning to leave, although the incomplete coverage that month masked the effect. By March, numbers had returned to a similar level

to October. The winter maximum of 14,886 birds was present in January. The figures for November and December were similar, at 14,385 and 13,833 respectively and the average for the 6 months October to March was 11,424 (Table 1). These figures indicate that the birds had settled into their winter quarters by November, and that consistency was being achieved with the counting methods employed.

In October, the bulk of the birds were thought to be largely of local origin, with high numbers of Shags and Eider, these 2 species accounting for

Table 1 1998/99 monthly counts of wintering seafowl in Scapa Flow, Orkney. Total GB winter population estimates, Scapa Flow maxima & % of GB population in Scapa Flow.

Species	Month	Monthly totals 1998/1999						GB winter population*	Scapa Flow monthly max	% GB winter population	
		Oct	Nov	Dec	Jan	Feb#	Mar				Mean
Red-throated Diver		50	59	26	29	6	38	35	4850	59	1.2
Black-throated Diver		22	49	57	47	39	42	43	700	57	8.1
Great Northern Diver		166	540	644	591	145	781	478	3000	781	26.0
Little Grebe		0	7	10	8	4	2	5	3290	10	0.3
Red-necked Grebe		0	3	4	21	5	23	9	150	23	14.0
Slavonian Grebe		35	102	91	124	105	74	89	400	124	31.0
Cormorant		60	92	50	55	34	32	54	13200	92	0.7
Shag		2665	3393	2276	2154	628	744	1977	37500	3393	9.0
Mute Swan		5	4	4	8	14	13	8	25750	14	<0.1
Greylag Goose		0	1	0	0	0	0	0		1	<0.1
Shelduck		0	2	20	42	77	72	36	73500	77	0.1
Widgeon		1281	2862	3715	3895	2758	1171	2614	277800	3895	1.4
Gadwall		0	3	0	0	0	0	1		3	<0.1
Teal		173	730	776	1322	392	123	586	135800	1322	1.0
Mallard		582	1038	1010	1127	603	154	752	500000	1127	0.2
Pintail		0	0	3	0	1	0	1		2	<0.1
Showeler		0	0	3	0	0	0	1		3	<0.1
Eider		1869	2308	1792	1680	1301	2038	1831	77500	2308	3.0
Long-tailed Duck		689	1224	1433	1582	767	1246	1157	23500	1582	6.7
Common Scoter		1	3	0	2	2	2	2		3	<0.1
Surf Scoter		1	0	0	0	0	0	0	0	1	?
Velvet Scoter		1	7	9	19	8	7	9	3000	19	0.6
Goldeneye		2	71	248	282	239	231	179	17000	282	1.7
Red-breasted Merganser		533	628	477	477	249	324	448	10000	628	6.2
Goosander		0	1	0	3	1	1	1		3	<0.1
Guillemot		146	404	385	366	33	330	277		404	?
Razorbill		7	9	13	31	40	161	44		161	?
Black Guillemot		568	778	652	794	358	970	687	36500	970	2.7
Little Auk		10	56	129	214	3	172	97		214	?
Puffin		3	11	7	13	0	7	7		13	?
Total		8869	14385	13833	14886	7812	8758	11424			

 #February 1999 count incomplete. *GB winter population figures from Stone *et al* 1997.

51% of the birds present. Red-breasted Mergansers and Black Guillemot accounted for a further 12%. At the end of the month, numbers had been augmented by winter visitors, the bulk of the Great Northern and Black-throated Divers, Slavonian Grebes, surface feeding ducks and Long-tailed Ducks arriving at this time. Numbers remained on a plateau during December and January and into early February, after which there was a marked drop in numbers, especially among surface feeding duck. Bad weather at this time prevented complete coverage, and the numbers of Great Northern Divers recorded in particular reflect this, as no count of their main wintering area in the central Flow was possible. By March, overall numbers had returned to a similar level to October, although the proportion of many species present was very different. Great Northern Divers and Long-tailed Ducks were still numerous, with 23% of the March total of seabirds compared to just 10% in October, reflecting the late departure for the breeding grounds of these 2 species. Shag numbers were down to 744 from 2,665 in October, much of this drop being accounted for in presumed mortality of first year birds. Of all the species recorded, Black Guillemot was the most difficult to census accurately due to its small size and overall grey colouration. This species was easily overlooked. The high March figure therefore is thought to represent a more accurate winter figure than those obtained earlier as by this time, birds were returning to their breeding areas, and easier to count.

Species of national and international importance

Red-throated Diver *Gavia stellata*

Monthly maximum 59

Present throughout the period in small numbers. Numbers were highest in late autumn, with a peak of 59 recorded in November (Fig 2a). This represents 1.2% of the GB wintering population. For the rest of the winter, numbers were much fewer, the lowest total being 6 in February, which

preceded a gradual build up of birds to 38 in March. Two colour ringed individuals were seen which had been ringed in Shetland in 1988 and 1990. A third individual, metal ringed on the left leg, was almost certainly an Orkney ringed bird as Shetland birds are ringed on the right leg and Orkney birds on the left. Thus, at least some of the Shetland breeding population winter in Orkney, and a few Orkney birds may also remain in Scapa Flow close to their breeding grounds throughout the winter.

Black-throated Diver *Gavia arctica*

Monthly maximum 57

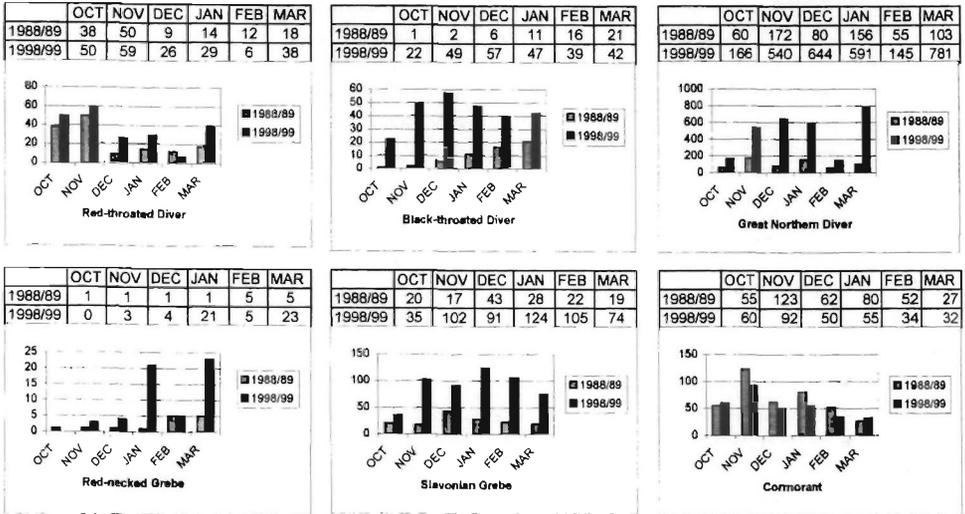
Flocks of up to 15 birds were noted at widely varying locations following the first bird on 12 October. Nearly all the early birds were adults, still in breeding plumage. A flock of 15 in Swanbister Bay on 13 October contained only 4 juveniles. After the main arrivals were complete at the end of October, the month on month figures were similar (Fig 2a), varying from 39 to the maximum 57 which represents 8.1% of the GB wintering population.

Great Northern Diver *Gavia immer*

Monthly maximum 781

Arguably the most important species in Scapa Flow, the area holding 26% of the GB wintering population, or 15.6% of the European winter population. These birds are almost certainly mostly of Nearctic origin. Small numbers are present in the Flow throughout the summer, these being mostly first year birds. The first returning adults were noted on 19 October, with 8 adults off Fara followed by a flock of 24 adults off Graemsay on the 20th, and from then on numbers built rapidly, continuing into mid November, by which time the bulk of the wintering population had arrived (Fig 2a). At this time it was estimated that over 95% of the birds were adults in breeding plumage – it was not until later that first year birds began to arrive.

Figure 2a Monthly maximum counts of wintering divers, grebes and Cormorant in Scapa Flow, Orkney, 1988-89 and 1998-99.



Note: counts for October 1988, December 1988, February 1989 and February 1999 were incomplete

During November, in calm weather, some large flocks were sighted. On the 3rd there were 2 flocks of 25 and 55 birds, and the largest flock recorded during the winter, 66 on 17 November, was off Hunda.

The November boat survey revealed 167 birds in the central Flow, with 373 observed in the shore sectors. By December, birds moved further offshore, and during this month there were 391 in the central Flow, compared to 149 in the shore sectors, followed by 282 and 309 respectively in January. No complete count was made in February, and the figures for this month reflect this, but in March, when the highest monthly figure was recorded, there were 438 in the central Flow, and 342 in the shore sectors, giving a grand total and winter maximum of 781. It is evident, therefore,

that counts from the shore alone can give a very unrepresentative picture of the total birds present. The numbers recorded are thought to be the highest totals for a single area in Europe.

During most of the winter, birds were distributed throughout the Flow, and they were recorded in almost every kilometre square. There were marked concentrations in the first half of the winter in the southern half of the Flow, particularly off Flotta and across to Hunda.

Red-necked Grebe *Podiceps grisegena* Monthly maximum 21

Recorded in every month except October (Fig 2a). The first 3 birds were recorded on 17 November. The maximum for any locality was 13 on 6 March.

at Bay of Sandoyne. Otherwise, there was a scattering of records from as far west as Houton Head, along the north and east coast of the Flow as far as Echnaloch Bay. No birds were encountered on the west side of the Flow. The maximum figure represents 14% of the GB wintering population.

Slavonian Grebe *Podiceps auritus*

Monthly maximum 124

Although present in much lower numbers than Great Northern Divers, Slavonian Grebes are the most important species present in the Flow in terms of national importance, holding 31% of the UK population. Already present in the Flow by 1 October, when 8 were noted at Echnaloch Bay, the bulk of the wintering population had arrived by the beginning of November (Fig 2a). The localities holding most birds were the traditional sites of Echnaloch Bay/Bay of Sandoyne area in the east of the Flow and Swanbister Bay/Waulkmill Bay. The peak for any one locality was 38 in Echnaloch Bay on 31 January. Swanbister Bay generally held between 20 and 30 birds. The maximum day count covering Echnaloch – St. Mary's Bay, but excluding Bay of Sandoyne, was 50 on 31 January.

Shag *Phalacrocorax aristotelis*

Monthly maximum 3,393

9.0% of the GB wintering population was recorded in Scapa Flow. The highest numbers occurred in the early part of the winter (Fig 2b), with peak counts of 1,011 birds in Burra Sound on 20 October and 929 in Switha Sound on 18 November. In the early part of the winter, at some localities up to 90% were first year birds, this proportion dropping rapidly as winter progressed. By the end of January into February, overall totals dropped drastically as birds departed for their breeding grounds, leaving behind what was presumed to be the local breeding population.

Wigeon *Anas penelope*

Monthly maximum 3,895

Numbers built rapidly through October, and reached a maximum 3,895 in January representing 1.4% of the GB wintering population (Fig 2b). A sharp decline in numbers began in mid February, continuing into March, as birds left their winter quarters. Five areas held almost 90% of the wintering birds with the Water Sound area from Hunda and Burray to South Ronaldsay holding a maximum of 1,227 in January.

Teal *Anas crecca*

Monthly maximum 1,322

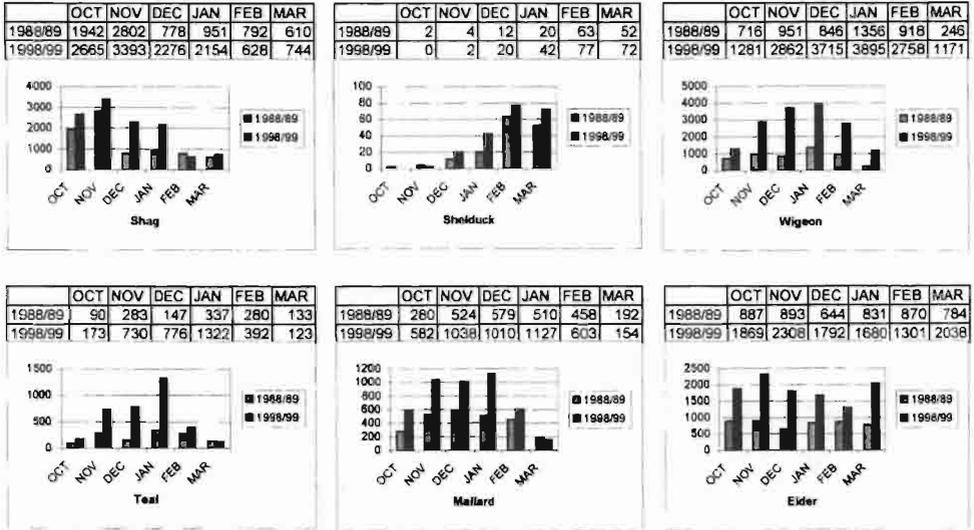
Small numbers present in October built up through the following months to peak at 1,322 in January, 1.0% of the GB wintering population (Fig 2b). As with Wigeon, there was a rapid drop in numbers after mid February. Hunda held the largest single gathering, with 322 in November. Several other localities supported up to 100 birds.

Eider *Somateria mollissima*

Monthly maximum 2,308

Present throughout the period with 3.0% of the GB wintering population present. Numbers built from the October figure of 1,869 to a peak in November of 2,308 (Fig 2b). Thereafter, numbers declined gradually to a February low of 1,301, then in March there was a rise to 2,038. The prime area for this species is the northwest corner of the Flow, where around 600-700 birds were located. This includes the area off the south shore of Graemsay, the Bay of Ireland, and the coastline southeast to Houton Head. Off Graemsay, a maximum count of 466 was made in November. Birds were still numerous here until March with around 300 birds present while the Orphir coast from Clestrain to Petertown held a maximum of 200.

Figure 2b Monthly maximum counts of wintering Shag, surface feeding duck and Eider in Scapa Flow, Orkney, 1988-99.



Note: counts for October 1988, December 1988, February 1989 and February 1999 were incomplete

Long-tailed Duck *Clangula hyemalis*
 Monthly maximum 1,582

Birds arrived from early October with the first record from Scapa Bay on 12th, and then built rapidly during November, peaking at 1,582 in January, 6.7% of the GB winter population (Fig 2c). The single most important area for this species is off the south side of Graemsay, where the January count of 610 was the maximum for any locality. Several sectors held up to 100 birds, in particular, Gutter Sound, Scapa Bay, Holm Sound east of No 1 and 2 Barriers, east of No 4 Barrier, Echnaloch Bay and Bay of Ireland. They were almost absent from the central Scapa Flow area.

Goldeneye *Bucephala clangula*
 Monthly maximum 282

The first bird was not recorded until 16 October,

and the species was still uncommon at the end of November. Numbers built rapidly then to a maximum of 282 in January, 1.7% of the GB wintering population, and remained at much the same level till the end of the period (Fig 2c). Highest numbers were found in Widewall Bay, peaking at 42 in January. The Bay of Ireland area also held over 40 birds but they were spread over a much wider area. North Bay (Hoy) maintained a population of around 20 birds as did St. Mary's Bay and Weddell Sound (Burray).

Red-breasted Merganser *Mergus serrator*
 Monthly maximum 628

Numbers peaked at 628 in November, 6.2% of the GB wintering population (Fig 2c). Bay of Ireland held over 40 birds throughout the period, with a peak of 96 in December. Echnaloch Bay and Water Sound between them held about 210 birds

in November, but numbers dropped rapidly later. The bulk of these were moulting birds which traditionally gather at these 2 locations. Pegal and Lyrawa Bays held 94 birds between them in October, but again numbers dropped away later. On occasion, large numbers were seen off the south side of Gramesay feeding with the Eider and Long-tailed Ducks. Otherwise, birds could generally be found in ones and twos around the bulk of the coastline, with larger numbers in the shallow bays.

Black Guillemot *Cephus grylle*

Monthly maximum 970

The maximum of 970, 2.65% of the GB wintering population, occurred in March (Fig 2c) The count in the central Flow area for this month was also the

maximum, at 238, around 25% of the birds present. Apart from the high counts in the central Flow, numbers were regularly seen in Bay of Ireland, Scapa Bay, St. Mary's Bay, Outer Water Sound, and off Houton Head with up to 64 being recorded. Otherwise smaller numbers were distributed widely. Many birds roost communally on marker buoys scattered throughout Scapa Flow, particularly in early to mid winter, with a maximum of 120 at the Mill Bay buoy, Hoy.

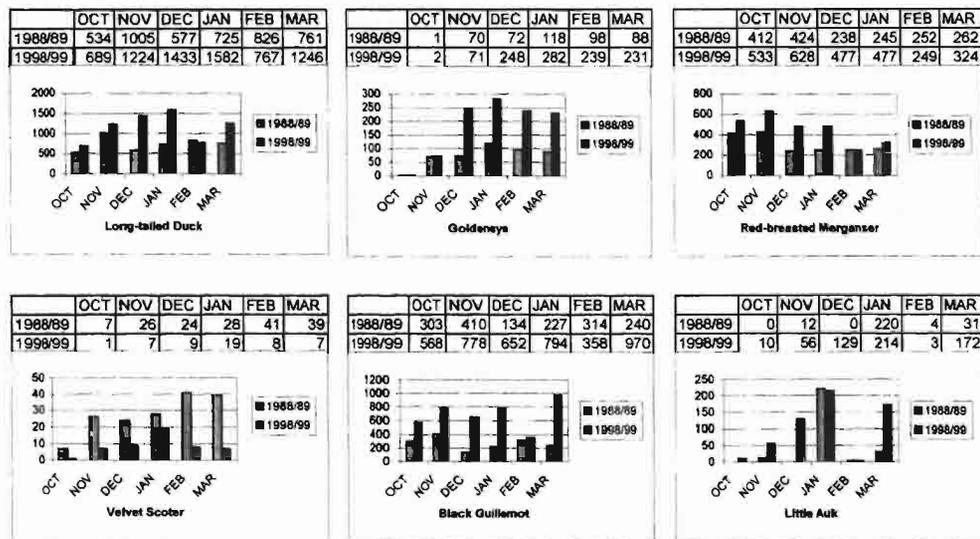
Other species

Cormorant *Phalacrocorax carbo*

Monthly maximum 92

A build up occurred from October into November peaking at 92, with a steady decline thereafter, as

Figure 2c Monthly maximum counts of wintering diving ducks and auks in Scapa Flow, Orkney, 1988-89 and 1998-99.



Note: counts for October 1988, December 1988, February 1989 and February 1999 were incomplete.

birds began to come into breeding plumage (Fig 2a).

Shelduck *Tadorna tadorna*

Monthly maximum 77

Small numbers in October and November began building in December as birds returned from their annual moult (Fig 2b). The peak of 77 occurred in February.

Mallard *Anas platyrhynchos*

Monthly maximum 1,127

Numbers built up through October, and reached a plateau from November to January, following which there was a sharp decline in numbers from mid February continuing into March (Fig 2b). The winter peak in January of 1127 was only slightly above the figures for November and December. By far the largest concentrations were in the Bay of Ireland area, where the maximum count was 326. Widewall Bay with 117 in November was the next highest, while several bays held up to 100 birds.

Velvet Scoter *Melanitta fusca*

Monthly maximum 19

Small numbers of this species built up steadily from October to the peak of 19 in January, declining thereafter (Fig 2c).

Little Auk *Alle alle*

Monthly maximum 214

Recorded regularly from November onwards with a maximum of 214 in January (Fig 2c). While not forming an important proportion of the winter population occurring in British waters, it was nevertheless present in numbers not normally found regularly so close inshore. The first birds were found in the central Flow on 31 Oct. Thereafter it was seen regularly from various shore locations, especially off the north coast of Flotta where

flocks of up to 25 were not unusual. However, the bulk of the birds were recorded from the boat transects. All birds appeared to be in good health, and as numbers were maintained through the winter, it must be assumed that the birds were not storm driven casualties, but found Scapa Flow a suitable wintering area.

Maxima of 10 Little Grebe *Tachybaptus ruficollis*, 14 Mute Swan *Cygnus olor*, 1 Greylag Goose *Anser anser*, 3 Gadwall *Anas strepera*, 2 Pintail *Anas acuta*, 3 Shoveler *Anas clypeata*, 3 Common Scoter *Melanitta nigra*, 1 Surf Scoter *Melanitta perspicillata*, 3 Goosander *Mergus merganser*, 404 Guillemot *Uria aalge*, 161 Razorbill *Alca torda*, and 13 Puffin *Fratercula arctica* were also recorded during the survey.

Discussion

The peak number of seafowl in the Flow was 14,886 in January 1999, and the average for the 6 months October to March was 11,424. These numbers are around twice those recorded during the 1988-89 survey (Table 2). A similar distribution of birds was found in all 3 surveys, with most species being concentrated in the shallower inshore waters, but with Great Northern Divers distributed over the full expanse of the Flow. The survey in 1974-78 covered only selected areas of Scapa Flow and included counts from the adjacent Loch of Stenness. The loch was excluded from both subsequent surveys. The figures obtained from the 1974-78 survey are therefore not directly comparable with those of the later 2, and are included for information. All but 2 species, Cormorant and Velvet Scoter, were more plentiful in 1998-99 than 1988-89, some markedly so. The decline in Velvet Scoter numbers continues a trend evident since the 1974-78 survey and this species is now no longer of national importance. Great Northern Divers have seen a more than threefold increase in the past 10 years, having been apparently static since 1974-78. The October

Table 2 *Maximum counts of wintering seafowl in Scapa Flow, Orkney, in 1998-99 and 1988-89 and estimates for 1974-78.*

Species	Max 1998-99	Max 1988-89 <i>Christer 1989</i>	Max 1974-78 (estimate) <i>Leu 1980</i>
Red-throated Diver	59	50	
Black-throated Diver	57	21	
Great Northern Diver	781	172	200
Little Grebe	10	5	
Red-necked Grebe	23	5	
Slavonian Grebe	124	28	60
Cormorant	92	123	
Shag	3393	2802	4000
Mute Swan	14		
Greylag Goose	1		
Shelduck	77	63	
Wigeon	3895	1356	
Gadwall	3		
Teal	1322	337	
Mallard	1127	579	
Pintail	2	2	
Shoveler	3		
Eider	2308	893	2000
Long-tailed Duck	1582	1005	2400
Common Scoter	3	1	
Surf Scoter	1		
Velvet Scoter	19	41	100
Goldeneye	282	118	270
Red-breasted Merganser	628	424	350
Goosander	3	2	
Guillemot	404	188	
Razorbill	161	124	
Black Guillemot	970	410	1000
Little Auk	214	220	
Puffin	13	10	
Total	14886	7973	

1998 figure alone approached the maximum recorded in either of the previous surveys. For many of the species of major importance the figures for 1998-99 are much closer to the estimates in 1974-78 than those of 1988-89. The estimate for Black Guillemot in 1974-78 was c1000, which is very close to the present survey's maximum of 970, whereas the 1988-89 figure was less than half of this. A similar situation exists for Eider and Goldeneye. All 3 abundant surface feeding ducks, Wigeon, Teal and Mallard, were present in significantly higher levels in 1998-99 than 1988-89, and the winter peak for all these species was c6,300. In the past 10 years there has been a threefold increase in Wigeon numbers. Teal and Mallard show between two and threefold increases. During the present survey, the 2 most abundant diving ducks were Eider and Long-tailed Duck, which averaged c1,925 and c1,400 birds respectively through the mid winter period. Along with c550 Red-breasted Merganser and c250 Goldeneye, the total of diving ducks in the Flow was c4,200 birds. This compares with c2,500 in 1988-89, and c4,700 in 1974-78. The present figures thus come close to those of the earliest survey. However, the proportion of each species is different. In particular, Long-tailed Duck, an Arctic breeding species, while more abundant in 1998-99 than 1988-89, has not returned to the 1974-78 levels, and is presently at about 62% of the population at that time. Eider on the other hand, which are thought to be largely of local origin, are now at a very similar level to 1974-78, having been very much scarcer in 1988-89, dropping at that time by 60% from the 1974-78 figure. During the last few years, Long-tailed Ducks have become less numerous over much of their GB range, and the Scapa Flow numbers are likely to be a reflection of this national trend.

At a local level, the population trends between the 1988-89 and 1998-99 surveys of various species do however reveal some similarities. Thus, in both surveys Red-throated Divers were commonest in

October and November, with minimal numbers remaining in February, before the return of local breeding birds boosted the figures in March. The peak month for Shag in both surveys was November, with a steady decline afterwards, and a similar March total for both. Cormorants exhibited a very similar trend to Shag over the 2 periods, although numbers were slightly lower in the 1998-99 survey. Red-breasted Mergansers had an early peak, with high numbers in October peaking in November, then dropping during the final part of the winter.

A number of species did not exhibit this similarity. Black-throated Divers had been fairly uncommon in 1988-89, but they were encountered frequently in 1998-99, with numbers peaking in December, and then tailing off. Another species that has increased significantly in the intervening 10 years is Red-necked Grebe, with totals peaking at 23 birds, compared to 5 in 1988-89.

The maximum of 220 Little Auks recorded in 1988-89 was a very similar figure to that of the present survey. The bulk of the birds were found in the central Flow area and it would appear that Scapa Flow is a regular wintering area for this species, supporting good numbers of this species in an inshore area.

Conclusions

There is no doubt that Scapa Flow continues to be of national importance as a wintering area for seafoal. Almost all species are at the highest levels ever recorded and birds were found widely distributed over the whole of the Flow.

The Great Northern Diver population in Scapa Flow has been recognised as of considerable importance for a long time. The present hugely increased winter numbers, peaking at 781 in March, make them of prime conservation concern, with 26% of the GB and 15.6% of the European

population present in the area. With Slavonian Grebe, the other species present in internationally important numbers, and a further 11 species of national importance, Scapa Flow rates as one of the most important areas for wintering seafoal in Great Britain.

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Great Northern Divers in winter plumage

David Mitchell

Greylag Geese breeding in Shetland

M G PENNINGTON

Greylag Geese from the Icelandic breeding population have migrated through Shetland for many years. As the Icelandic population has increased, Greylags have become more common in Shetland as migrants and wintering birds, while more recently an increase in reseeded hillsides in the islands has apparently tempted some to remain to breed. Unst was colonised in 1985, possibly earlier, and birds have also been seen in suitable breeding habitat on Mainland since the late 1980s. The current breeding population in 1998-99 is estimated at between 80 to 100 pairs. About half are on Unst with most of the others on Mainland. The Shetland population is of particular interest as it forms a third distinct British breeding population, presumably of Icelandic origin, in addition to the native Scottish population and feral birds.

Introduction

The Greylag Goose *Anser anser* is the only species of goose that breeds naturally in temperate areas of Europe, although its distribution has been greatly influenced by man, especially in recent years (Harrison 1982). Formerly, the species was widespread as a native breeding bird in Britain, south to the East Anglian fens, but by the beginning of the twentieth century native stock were restricted to north west Scotland (Owen *et al* 1986, Thom 1986).

Despite a continuous breeding presence in Scotland, there is no evidence that Greylag Geese bred in Shetland in the past. George Low (1879), who visited Shetland in the summer of 1774, does not mention the species, while 'wild geese' are only mentioned as visitors to Shetland in the *Old Statistical Account of Scotland*, published in 1791-99. Dunn (1837) states that "considerable numbers of this bird visit ... but do not breed there." However, Greylag Geese appear to have been scarce in Shetland at the end of the nineteenth century as neither Saxby (1874) nor Evans and Buckley (1899) could give many dated records,

although they were told that the bird was common on migration. Venables and Venables (1955) also found Greylags to be scarce in the middle of the twentieth century. All their records were between October and May and their largest count was a flock of 37 at the Loch of Spiggie in October. Bobby Tulloch recorded a small flock at Spiggie in the mid 1960s, this being the first regular wintering flock for several decades. The Greylag Goose is now a regular migrant in Shetland, with flocks of several hundred frequent in autumn. There is also an increasing wintering population, centred in South Mainland around Spiggie where up to 350 have overwintered in recent years. Smaller numbers, usually less than 30, winter elsewhere, especially around Sullom Voe and in the north isles. Dymond (1991) also recorded a post war increase in records on Fair Isle, where it is still principally an autumn migrant.

Summering Greylag Geese were recorded with increasing frequency in Shetland during the 1970s, especially in Unst, where there have been almost annual summer records since 1973 according to the *Shetland Bird Report*. In retrospect, it can be seen that these birds were the vanguard for the species' colonisation of the islands.

In the most recent review of Western Palearctic geese populations Mitchell (1999) stated "Greylag Geese also breed in Shetland and Orkney although there is little evidence that these birds form part of the indigenous [*ie* Scottish] population." This paper is intended to present a review of breeding records in Shetland as well as presenting the evidence for the origins of the population, which is presumed to be Iceland.

Breeding in Unst

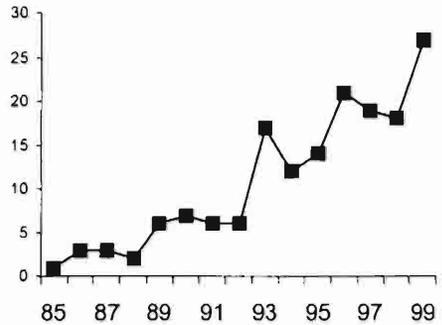
Colonisation and population

Breeding was first confirmed on Unst in 1985 when Mike Peacock discovered a pair with goslings during moorland bird survey work. However, breeding almost certainly took place before this. The late Ian Spence of Uyeasound, Unst recalled a group of 4 geese on the island of Haaf Gruney on 7 June 1981 that were behaving suspiciously in the light of later observations. He also had a brood of goslings reported to him in 1983. This report was never confirmed but 4 birds summered on Unst that year and, rather suspiciously, the number increased to 8 in August (*Shetland Bird Report* 1983).

Breeding numbers on Unst have been monitored principally from counts of the number of broods sighted (Fig 1). In the first 4 years after breeding was first confirmed, only one to 3 pairs were known to breed, but since then the population has slowly increased. In 1998, most of the suitable breeding areas on the island were visited at least once in April or May and this confirmed that most pairs were breeding close to areas where broods were being sighted. However, one group of about half a dozen pairs was found in area where it was unlikely that broods would be located, and it is suspected this group has not been included in previous estimates of the Unst population. From counts of broods and visits to breeding areas the

Unst breeding population was estimated at about 30 pairs in 1998. In 1999, however, a record 27 broods were sighted, including the first confirmation of breeding in the southwest and in the north of the island. Allowing for pairs that failed with eggs and birds in unvisited areas, the breeding population on Unst in 1999 was probably at least 40 pairs.

Figure 1 Number of broods of Greylag Geese sighted on Unst, 1985-1999.



Nest sites

All nest sites found so far have been in reasonably tall Heather *Calluna vulgaris*, up to 30-40 cm high, usually on permeable bedrock in an area of heathland between Uyeasound and Baltasound. Occasionally, nests are adjacent to small pools or lochans, but others are up to a 0.5 km from the nearest body of freshwater. All nests have been in fairly prominent positions, on a slope or knoll with a good view of the surrounding land in most directions. Other pairs which, judging by their behaviour, probably had active nests have been encountered in similar sites. However, a few pairs are now breeding in the north of the island, either in lowland marsh or heather moorland on impermeable bedrock. Eggs are laid in late April or early May judging by sightings of the first broods; young goslings are usually first sighted

between 21-25 May. Not surprisingly, this puts the timing of the breeding season in Shetland between the dates for England and Iceland given by Cramp and Simmons (1977).

Brood sites

Once hatched, broods are usually taken to reseed on the edge of the heath. One particular reseed is especially favoured, and was the site for most of the initial sightings of broods despite being 2-3 km from some nest sites. It is situated on serpentine bedrock, with the native vegetation reestablishing itself in several areas. The surrounding heathland is used as a refuge in case of disturbance; water is rarely used and the site has only a few shallow pools. In recent years, other reseeded areas in the vicinity of the heathland breeding areas have been used with increasing frequency. Brood sites are in use from the hatching of goslings in late May through to late June or early July. Although goslings have not fledged at this time, adults have already begun to moult and many will be flightless.

Moult sites

Moulting birds are very cautious and even harder to locate than broods. Although there are several large freshwater lochs on Unst that would appear to be suitable moult sites, these have been searched frequently in July without success. In July 1997, a flock of up to 100 adults and goslings was discovered on the sea, east of the main breeding area. These birds were also present in July 1998 and 1999, using a small island and the adjoining coast for feeding and resting, but swimming out to sea when disturbed, to a distance sometimes in excess of a kilometre from land (*pers obs* and D & J Sandison *pers comm*). Occasional sightings of small flocks on the Unst hills, and the regular location of fresh droppings on reseeded in July, suggests that the moulting geese come further inland to feed on occasion.

Non breeding status

After adults regain the power of flight in late July or early August, geese wander around Unst and they use a wider variety of habitats than usual, with bogs and mires often favoured. Migrants may join the local flocks in autumn and this confuses subsequent movements of local birds. In midwinter geese are usually found on reseeded areas. It is rare to find more than about 50 birds on Unst in midwinter and in most years there is just a small flock of about 20, although about 70 wintered in 1999-2000. It is not clear whether the birds that remain on Unst are locally bred, but as the numbers present are at their lowest at this time of the year, then at least some birds must leave the island in winter. It is possible that birds disperse elsewhere in Shetland, especially to Fetlar where small flocks overwinter regularly, but they could be moving further afield.

In spring, in late March or early April, birds return to Unst, often gathering in one or 2 large flocks on reseeded areas around Uyeasound and Baltasound. These flocks usually consist of obvious pairs, which feed on fresh grass before moving on to territory on the heaths.

In summer a single, discrete non breeding flock of about 15-25 birds was formerly present, but in recent years the number of non breeding birds has increased, with several small flocks present, often close to breeding areas.

Breeding elsewhere in Shetland

Foula

The first probable breeding record in Shetland was on Foula in 1970. Two adults were seen throughout the summer, and 2 adults with 3 flying young were recorded on 24 August (*Shetland Bird Report* 1970). The significance was apparently

not realised at the time, but in retrospect this would appear to suggest a successful breeding attempt. Single birds summered on Foula in 1971 and 1972 and there were 5 in July 1975, but there have been no further indications of breeding on the island.

Fetlar

It is rather surprising that geese have taken so long to colonise Fetlar given the similarity in habitat with the breeding areas in Unst. Small numbers have wintered regularly since the late 1980s, with up to 50 in the early 1990s while birds summered for the first time in 1995, with 2 or 3 in that year increasing to 14 in 1997 (D Suddaby and B Thomason *pers comm*). Breeding was first confirmed in 1998 when a nest was found in heather on Vord Hill and 2 broods were seen in this area later in the summer (M Smith *pers comm*). Birds summered in 1999 but breeding was not confirmed.

Yell

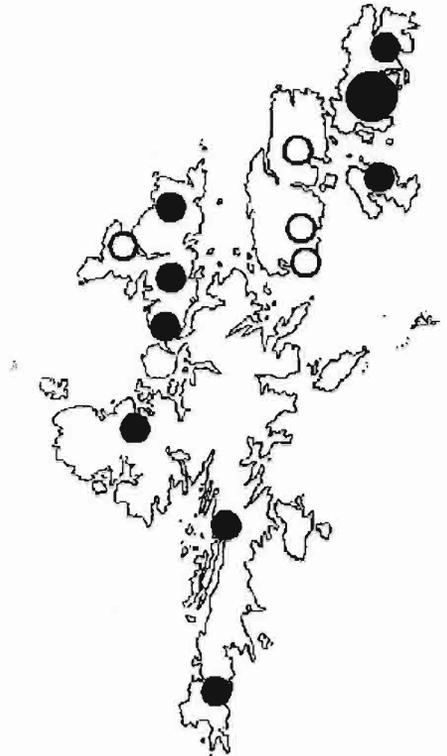
Occasional pairs have been seen in late spring since the late 1980s but although they do not usually summer there have been a few breeding attempts. In June 1996 a brood of 4 goslings was seen on a small reseed at Colvister (K Osborn *pers comm*). In 1998 a pair appeared to be attempting to nest beside the Loch of Littlester, Burravoe but they departed in May (M Odie *pers comm*). A creche of goslings, comprising one or 2 broods, was found on hills northwest of Otterswick in July 1999 (R Riddington *pers comm*).

North Mainland

Pairs on territory have been seen regularly in spring since 1989 but no attempt has been made to survey this area. There is a large amount of suitable breeding habitat: heather moorland dotted with

small lochans and interspersed with reseeded hillsides, often far from metalled roads.

Figure 2. Location of Greylag Goose breeding areas in Shetland used since 1990. The main breeding area on Unst is shown by a large closed circle. Areas with smaller populations are shown by small closed circles. Open circles denote areas with summering birds but no confirmation of breeding or single breeding records.



The most accessible breeding site is around Yamna Field and Eela Water where birds have been present since at least the early 1990s (P Ellis *pers comm*). In June 1997, a crofter reported a creche of goslings on reseeds at Yamna Field, with

goslings seen in the area for at least 3 years previously (J Swale *pers comm*). Post breeding flocks of up to 30 birds have been seen on Eela Water in late summer (P Ellis *pers comm*), suggesting a minimum of 5 pairs in the area. An even more remote breeding area is on the plateau north of between Ronas Hill with birds seen on territory here in several areas since 1989. Although broods are only seldom reported from this remote area there are several reports from late summer. A moulting flock of 30 was found on a loch in the area in 1999 (D Okill *pers comm*). Post breeding flocks of about 40 birds were found on Collafirth Hill in late summer 1997 and 1998 (T Rogers *pers comm*), while there were 63 at Ollaberri on 10th August 1999. In 1997 a nest and at least one brood were found at Mangaster (H Towill *pers comm*) and a few pairs have been seen there in each subsequent summer. Although rarely visited, large amounts of goose droppings are often seen around lochs at Tingon in summer (D Okill *pers comm*), suggesting birds may breed there as well.

With breeding taking place in 3 or 4 areas in North Mainland, the total breeding population is probably at least 15 pairs, but given the large amounts of suitable habitat and the post breeding counts from North Roe, it could easily be double this figure.

West Mainland

Pairs have been seen on territory since the early 1990s, mainly around Moor Field at the head of Brindister Voe and in the vicinity of West Burrafirth (P Ellis *pers comm*). This is another area with a large amount of suitable habitat, similar to areas used in North Mainland, with a mixture of heather moorland, small lochans and reseeded hillsides. Although, no census has been attempted and breeding is seldom confirmed, regular sightings of pairs in spring suggest that small numbers breed regularly, possibly as many as 10 pairs.

Central Mainland

Pairs on territory have been seen since the early 1990s on the Heather hills north and east of Scalloway and, although no census has been attempted, the area is relatively accessible and broods or nests have been seen in most years (P Ellis, D Okill and K Osborn *pers comm*). From the various sites known to be used it is likely that a small number breed here regularly, possibly as many as 10 pairs.

South Mainland

A pair summered on the island of South Havra in 1989 (P Ellis and D Okill *pers comm*). There are no indications that geese have used this island since. In 1992, a pair with 2 goslings was seen at the Loch of Clumlíe. The following year 2 broods were seen in this area and breeding has been confirmed in each subsequent year. In 1998 nests were found in 3 areas around Clumlíe, in damp rough grassland at Scousburgh (per P Harvey) and between Virði Field and the loch (A Fitchett *pers comm*), and in heather on Virði Field (M Mouatt per P Harvey). In 2 of these localities the observers had found nests for about the last 3 years. Broods were also seen to the north of this area at Levenwick in 1998 and 1999 (N Dymond and P Harvey *pers comm*). Although birds are surprisingly elusive in this area, figures over recent years suggest a current total of at least 10 breeding pairs.

Total Shetland population

The total number of pairs of Greylag Geese estimated to breed in Shetland is given in Table 1. The late summer population has been estimated by multiplying the number of pairs by a factor of 5. This is assuming both of the pair are still alive in late summer, each pair raise 2 goslings to fledging and the non breeding population is equivalent to the number of pairs. This last

assumption is based on observations on the size of the non breeding flock on Unst, but is likely to be a slight overestimate as the population grows. However, Thom (1986) estimated the number of pairs in the native Scottish population from the late summer population using similar calculations. The figures broadly agree with observations of flocks of birds in Shetland in late summer. The late summer population is estimated at about 4-500 birds and the breeding population at 80-100 pairs.

Table 1 *Estimated number of breeding pairs and estimated late summer populations of Greylag Geese in Shetland in 1998-99.*

Area	Estimated number of pairs	Estimated late summer population
Unst	40	200
Fetlar	1-2	5-10
Yell	1-2	5-10
North Mainland	15-30	75-150
West Mainland	5-10	25-50
Central Mainland	5-10	25-50
South Mainland	10	50
Total	77-104	385-520

Discussion

Origins of the Shetland population

Four separate populations of Greylag Geese occur in Britain - a small native breeding population, a larger feral breeding population, wintering Icelandic birds and Scandinavian breeding birds, the last population wintering in Iberia and only occurring occasionally (BOU 1971).

The native British breeding population has bred only in Northern Scotland and the Hebrides since the turn of the century (Sharrock 1976). The population is essentially sedentary with most birds wintering within 100km of their breeding areas (Mitchell 1999). A considerable increase in Scottish breeding birds has occurred recently, with just 500-700 pairs in the early 1980s (Owen *et al* 1986) but most recent estimates put the population at about 9000 birds (Mitchell 1999). Although Scottish birds may have spread as far as Orkney, as discussed later, there is no evidence of Scottish breeding birds moving to Shetland.

A population of feral Greylag Geese has colonised many lowland areas of Britain over the last few decades (Delaney 1993). These introduced birds, many of which were obtained from the Hebrides, are largely sedentary, undertaking mainly short local movements. There is no evidence that Greylag Geese breeding in Shetland originate from anything other than wild sources despite comments in recent *Shetland Bird Reports*, although a male Greylag Goose bred with a domestic goose at Benston Loch, Nesting, in Mainland in 1997. There have been no recorded releases of Greylag Geese in Shetland and the closest established feral flocks are in Sutherland (Thom 1986, Brown and Dick 1992), although there have been releases in Orkney.

Icelandic Greylag Geese winter entirely in Britain and mainly within Scotland (Cramp and Simmons 1977). This population is monitored by counts of wintering birds in Britain with an almost fourfold increase between 1960 and 1984 to a total in excess of 100,000 birds (Owen 1986). Numbers have declined since, with the population in 1997 standing at just under 80,000 birds (Cranswick *et al* 1999). There is little doubt that migrant and wintering Greylag Geese in Shetland originate from Iceland. A few ringing recoveries help confirm this. An Icelandic bird ringed in 1988 was found on an oilrig in the Brent Oilfield in April 1993, while another ringed in Iceland in 1997 was

shot in Shetland in November of the same year. A bird ringed on Fair Isle in October 1979 was recovered in Iceland in April 1980 and several others ringed on passage on the island have been recovered in winter in Mainland Scotland. Several birds colour ringed on wintering grounds in Scotland have been seen in the Sumburgh area in early spring since 1995, presumably on their way back to Iceland.

The recent increase in reseeded hillsides in Shetland has probably encouraged Icelandic wintering birds to remain and breed. The amount of grass, excluding rough grazing, in Shetland increased from 7000 ha in 1981 to almost 20,000 ha in 1996 (*Shetland Islands Council* 1997). Rough grazing decreased by almost 7000ha during the same period and most of this lost rough grazing will have been reseeded. The sudden appearance of lush grass on the edge of moorland will have been appealing to Greylag Geese, creating the mosaic of grassland, moorland and freshwater which appears to be their favoured breeding habitat in Shetland. Moorland nests in heather are the preferred sites amongst the Shetland population, as is the case in the Outer Hebrides (Paterson *et al* 1990), although this habit is largely restricted to Scotland. Icelandic birds usually nesting in rank vegetation (Cramp and Simmons 1977).

Comparison with Orkney

The following account is based on information supplied by Eric Meek. Greylag Geese started breeding in Orkney in the 1980s. Releases of feral birds on Shapinsay, beginning in 1984, have confused the situation, although birds of presumed wild origin started nesting at about the same time. These wild birds may have come from the Scottish breeding population, as marked birds were seen in Orkney in the winter of 1996-97. However, it is suspected that some of the large population of wintering Icelandic birds may have remained to breed as well. It is estimated that between 50-100

pairs currently nest in Orkney, with the true figure rapidly heading towards the upper end of this range. Most Orcadian birds breed on small islands, especially in Wide Firth near Shapinsay, although some nest around large lochs on Orkney Mainland and others, believed to be birds from wild populations, nest on moorland.

Comparison with Faroe

The following account is based on information supplied by Dorete Bloch of the Faroese Natural History Museum and Jens-Kjeld Jensen. Greylags formerly bred in Faroe in relatively large numbers until the middle of the nineteenth century, their extirpation being largely due to hunting, particularly by Danish officials. There were only a few sporadic breeding records for most of the twentieth century (Williamson 1970).

However, a feral population was established in the capital Tórshavn in the 1960s, originating from 2 injured wild birds released by a local resident and encouraged to breed. In 1976 there were 15-20 pairs in this area. Breeding by Icelandic migrants was not regular until the 1970s, and by 1981 there were still fewer than 10 wild pairs. Surveys of Faroese birds in 1987 and 1989 located just 18-24 pairs, presumably mainly feral birds. Since then the population has increased, and in 1993 there were 61-78 pairs, breeding in about a dozen areas, and a post breeding population of about 500 birds (Olsen 1994). The population has increased slightly since to an estimated 80-100 pairs. Faroese birds nest in a variety of habitats, including mountains and islets, but the semi tame Tórshavn population, which now accounts for about a third of the total, nests beside lakes in the town. Wild and tame birds mix, partly because birds from Tórshavn have been translocated to reduce their impact on gardens. Some birds remain in the islands to winter. About 200 were estimated to be present in 1993 (Olsen 1994) but others emigrate and there are single recoveries of Faroese ringed birds in Scotland and Denmark.

The evidence from Faroe, with a rapid increase in the wild breeding population at the same time as the colonisation of Shetland, supports the view that the Shetland population originates from Icelandic migrants.

Conservation implications

With an expanding native Scottish population, the c400 birds in Shetland do not yet form a substantial part of the native stock. The numbers also pale into insignificance compared with a total British population of over 30,000 birds including the feral population, which numbered almost 20,000 in a census in summer 1991 (Delaney 1993), although only the wild population is considered to have conservation value (Batten *et al* 1990). Shetland birds have the added conservation interest of being the only population in Britain presumed to originate entirely from Icelandic stock.

Although native breeding Greylag Geese are protected by special penalties during the close season as they are on Schedule 1 of the Wildlife and Countryside Act (1981), this protection only applies to specific areas and does not extend to Shetland breeding birds. Despite or often because of their protected status, geese are infamous for their involvement in conflicts between conservationists and agriculture. Conflicts involving native Scottish Greylag Goose already exist. On Uist a goose management committee is attempting to control geese through organised shooting and scaring, and on Tiree crofters have organised 2 autumn culls by shooting and have applied, unsuccessfully, for licences to take or prick eggs (Mitchell 1999, Malcolm Ogilvie *pers comm*). The situation in Shetland has the potential to be added to the list of conflicts. As the favoured breeding habitat of Greylag Geese in Shetland has been created by the reseeded hills, this has inevitably led to conflict with the crofters who have stock on these hills. Indeed it is already

known that crofters in one area have been shooting birds on their land in summer in an attempt to control numbers.

One further consideration is the question of why a population of birds should suddenly start breeding to the south of their normal breeding range. While it would appear that the stimulus for breeding in Shetland was reseeded providing suitable breeding habitat, it is possible that some other factor is involved. Barnacle Geese have also begun to colonise areas along their normal migration route. Birds from the Russian breeding population birds have been breeding in the Baltic since the 1970s (Ganter *et al* 1999). More recently, small numbers of the Greenland population have been breeding in Iceland (Ogilvie *et al* 1999). The large numbers of feral geese breeding in Britain have already established that geese are capable of thriving in a far wider range of habitats than those found in their normal breeding range. It will be interesting to see if the colonisation of Shetland by Icelandic Greylag Geese is a further part of a continuing trend.

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East Ross Rookeries in 1998-99

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East Ross rookeries were surveyed in 1998-9 and the results compared with those of the 1975 survey organised by the BTO. Overall, there was a 33% decline in the number of nests and a 20% decrease in the number of rookeries between 1975 and 1998. Declines were pronounced on the Black Isle and in Easter Ross, but there was a 13% increase in the number of nests in Mid Ross and a 65% increase in the number of rookeries. The median rookery size declined in all 3 areas. Rookeries in farm woodland and forestry plantations showed greater declines than those in the vicinity of villages and gardens and the majority of new rookeries were established in villages and gardens.

Introduction

Ross-shire, rookeries were last surveyed in 1975, as part of the national survey organised by the BTO (Castle 1977, Sage and Vernon 1978). A comparison of the results of this survey with the 1946-47 national survey (Anon 1947-48) demonstrated that there had been widespread declines in the numbers of Rook *Corvus frugilegus* nests and that rookery sizes had declined in many areas including Ross-shire. Further declines have been reported from Sutherland since the 1975 survey (Bremner and Macdonald 1996). I conducted a full survey of East Ross rookeries in 1998 and 1999 and compared the results with the 1975 survey data to establish whether or not there had been any further change in the status of rookeries.

Study area and methods

The study area consisted of East Ross east of Garve to the district boundaries in the vicinities of Beauly (south boundary) and Kincardine (north boundary); this area encompassed the entire East Ross range of rookeries found by the 1975 survey. Searches were restricted to land below 250m above sea level (asl) so as to include all agricultural

land in the area excepting sheepwalk. The centres of large conifer plantations (>0.75km from edge) were not searched as these were not known to be used as a breeding habitat from extensive previous experience and from published accounts (eg Sage and Vernon 1978).

The study area was divided into 3 geographical areas on the basis of differing land use. The Black Isle (c230km²) was defined as that area lying east of the main Conon Bridge to Inverness road (A835 and A9). Easter Ross (c159km²) was defined as that area lying east of NH76 of the National Grid which runs from near Invergordon to near Tain. Both of these areas consist of rich agricultural land developed over Old Red Sandstone (ORS). Whilst Easter Ross is low lying, mainly <50m asl, good quality arable land extends to 150 m asl on the Black Isle. Mid Ross (c300km²) was largely developed within Moinian schists to the west and ORS to the east. Farmland was restricted to the floors of alluviated valleys and drift covered slopes in the west but was more widely developed towards the east.

Nests or groups of nests separated by more than 100 metres were regarded as separate rookeries, as is usual practice (Anon 1947-8, Sage and Vernon 1978). Rookeries were counted in 1998 and 1999

with most counts being carried out between late March and the end of April 1998. Most areas were rechecked several times in 1998 and in 1999 when several previously overlooked rookeries were located. Similarly, 2 rookeries were located when sites that had been occupied in 1975 were checked but had been missed in 1998. Coverage was good in terms of the amount of time spent searching each area and in discussion with land users and naturalists. No rookeries were considered to have been missed. Four rookeries were counted in both 1998 and 1999 and showed little change (<10%); the direction of change was not the same for these rookeries and it was deemed permissible to combine data from the 2 years. A degree of subjectivity was required when counting large amalgamated nests in long established rookeries; simultaneous independent counts by several observers at several rookeries produced generally consistent numbers (<5% difference) and this demonstrated that the count method was sound. One rookery on an island on Loch Ussie was not counted directly but the maximum number of pairs was estimated from the size of the feeding flock.

Rookeries were classified into 4 types: village rookeries, defined as those within 200m of settlements of more than 20 houses, garden rookeries, defined as those being situated within 100m of more isolated habitations, usually in gardens themselves but also in farm woodlands within 100m of isolated habitations, farm woodland rookeries included those in shelterbelts, coverts, policy woodlands and one on an island in a loch; all woodlands were under 5ha and most under 2ha. Forestry plantation rookeries consisted of those in large (>5ha) stands of conifers.

Rookeries which showed a change in numbers in excess of 10% of the 1975 count were considered to be increasing or decreasing. Statistics follow Fowler and Cohen (BTO Guide 22) throughout.

Results

The 1975 survey showed that rookeries were scattered across the whole of the Black Isle and Easter Ross, and in the lowlands of Mid Ross as far west as Marybank. In 1998-9, rookeries were found slightly (3km) further west to Contin, the western limit of cereal cultivation with 74% of rookeries being below 50m asl and 15% 50-100m asl. Most (75%) of the rookeries which were above 100m asl were on the Black Isle, where good quality agricultural land was developed at higher altitudes due to differences in underlying geology. These figures were remarkably similar to those found in the 1975 survey (76% and 90% below 50 and 100m asl respectively), and there was no significant difference in the proportions nesting at different altitudes in 1975 and 1998-99 (not significant; chi-squared, 2 degrees of freedom). The highest and most isolated rookery which was located in 1975, at 180m asl in Strath Rusdale, was not in use in 1998.

Of 139 rookeries used in 1975 and/or 1998-9, 56% were in stands of old pines (Scots *Pinus sylvestris* in 77 rookeries and Corsican *P nigra* in 3); 7% were in stands of other conifers, mainly Norway Spruce *Picea abies*; 25% of rookeries were in broadleaved woodland, with Beech *Fagus sylvatica* constituting 9%; 4% of rookeries were in mixed conifer/broadleaved woodland. A variety of tree species was thus involved, with more unusual ones including Chilean Pine *Araucaria araucana* in 2 rookeries, Western Hemlock *Tsuga heterophylla* in one rookery and birch *Betula sp* in 2 rookeries. In 3 rookeries in young conifers, rook nests were constructed one above the other in the tiers of branches of young conifers. Woodlands which were apparently suitable for nesting were well distributed throughout Mid Ross and the Black Isle and, whilst large woods were more scattered in Easter Ross, small farm woodlands and plantings along field boundaries were still

abundant there. Breeding habitat was not considered to limit the distribution of rookeries.

On the Black Isle, the 1975 survey found 3,376 nests divided between 23 rookeries (Tables 1 and 2). Four rookeries, all on the south side of the crest of the Black Isle, contained over 300 nests whilst a quarter of rookeries contained less than 50 nests. The 1998-9 survey found a 54% decline to 1539 nests in 17 rookeries and only one rookery exceeded 300 nests. Two thirds of 1975 rookeries were not in use in 1998-9 and median rookery size decreased significantly ($P < 0.01$, Mann-Whitney U test). There was variation in the pattern of change within the area: on the north side of the Black Isle, there was a 19% reduction in the number of nests and half of the 1975 rookeries were extant in 1998-9. On the south side of the Black Isle there was a 62% reduction in the number of nests and only 21% of 14 rookeries were used in both years.

In Easter Ross, the 1975 survey located 2,361 nests divided between 43 rookeries (Tables 1 and 2). Only 2 rookeries exceeded 200 nests; median rookery size was significantly lower than in the other 2 areas in both 1975 and 1998-9 ($P < 0.01$, Mann-Whitney U tests). The 1998-9 survey found 1209 nests, a decline of 49%, which were divided between 20 rookeries. Of the 43 rookeries found in 1975, 26% were used in both years. There were no rookeries containing over 200 nests in 1998-9 and the median rookery size had declined significantly ($P < 0.01$, Mann-Whitney U test).

In Mid Ross in 1975, a total of 2,284 nests were located in 20 rookeries (Tables 1 and 2). Three rookeries exceeded 200 nests. The 1998-9 survey found 2570 nests in 32 rookeries, a 13% increase on the number found in 1975; 2 of these exceeded 200 nests. Mid Ross was the only area in which the numbers of nests and rookeries increased between 1975 and 1998-9. Of the 20 rookeries found in 1975, 60% were used in both years, a higher proportion than in the other two areas. The median

rookery size was higher than in the other 2 areas in both 1975 and 1998-9 although the difference between Mid Ross and the Black Isle was not significant (Mann-Whitney U tests). The median rookery size declined significantly between 1975 and 1998-9 ($P < 0.01$, Mann-Whitney U test). Changes in the numbers of nests varied within the area: numbers around Muir of Ord and Marybank were stable (2% increase), but there were increases west of Dingwall and along the north side of the Cromarty Firth (13% increase). Numbers decreased along the north side of the Beaully Firth (48% decrease).

The density of Rook nests was greater in the Black Isle and Easter Ross with 14.7 nests per km² and 14.8 nests per km² respectively than in Mid Ross with 7.6 nests per km² in 1975. This situation was reversed in 1998-9, when Rook nests were found at greatest density in Mid Ross at 8.6 nests per km²; density had halved in the Black Isle and Easter Ross to 6.7 nests per km² and 7.6 nests per km² respectively.

When the 1975 and 1998-9 counts were compared, large declines (>40%) were found at 93% of rookeries in woodland habitats and 77% were completely unused in 1998. Large declines were fewer in gardens (46% of rookeries) and villages (25% of rookeries). Large increases (>40%) were found at 3%, 31% and 25% of rookeries in woodland, gardens and villages respectively. There was some variation in this between the 3 areas: in woodland habitats, large decreases were highest in the Black Isle (96% of rookeries) and lowest in Mid Ross (82% of rookeries). Declines were noted at a higher proportion of garden rookeries in Mid Ross (72%) than in the Black Isle (20%) or Easter Ross (34%) although it was difficult to draw conclusions from these comparisons as the number of rookeries in each category was small.

In 1975, rookeries in farm woodland and forestry represented 83%, 88% and 60% of colonies in the

Table 1 Change in numbers of Rook nests 1975-98/9.

	No of nests		Median rookery size		Maximum rookery size		
	1975	1998-99	% change	1975	1998-99	1975	1998-99
Black Isle	3376	1539	-54%	62	55	897	334
Easter Ross	2361	1209	-49%	35	28	271	199
Mid Ross	2284	2570	+13%	100	74	524	253
Total	7962	5318	-33%	50	52	897	334

Table 2 Change in status of rookeries 1975-98/9.

	No of rookeries		Number of rookeries				
	1975	1998/99	used in 1975 & 98/99 ¹	abandoned 1975-98-99	decreasing 1975-98/99 ²	increasing 1975-98/99 ²	new in 1998/99
Black Isle	23	17	7 (0.30)	16 (0.70)	4 (0.17)	3 (0.13)	10
Easter Ross	43	20	11 (0.26)	32 (0.74)	7 (0.16)	4 (0.09)	9
Mid Ross	20	32	12 (0.60)	8 (0.40)	6 (0.30)	4 (0.25)	20
Total	86	69	30 (0.35)	56 (0.65)	17 (0.20)	11 (0.13)	39

1 Figures in brackets represent the proportion constituted by each class of the total number of 1975 rookeries.

2 Rookeries showing >10% change in numbers of nests between 1975 and 1998.

Black Isle, Easter Ross and Mid Ross respectively (Table 3). In 1998-9, these figures had dropped to 53%, 50% and 44% respectively. This was due to significant increases in the numbers of nests in gardens and villages ($P < 0.01$; chi-squared tests, 1 degree of freedom) and decreases in the numbers of nests in woodland habitats ($P < 0.01$; chi-squared tests, 1 degree of freedom). In the Black Isle and Easter Ross, gardens and villages were the only

habitats in which the numbers of nests and rookeries increased in real terms, whilst in Mid Ross the proportional increase was fivefold that in woodland habitats. Half of 10 rookeries established on the Black Isle between 1975 and 1998-9 were in gardens or villages, a large proportional increase considering the small extent of these habitats when compared to woodland. In Easter Ross, two thirds of 9 rookeries established between 1975

Table 3 Changes in nesting habitat 1975-98.

		Farm woodland		Forestry		Gardens		Villages	
		1975 ¹	1998-99	1975	1998-99	1975	1998-99	1975	1998-99
Black Isle	Nests	2775 (0.82)	799 (0.52)	466 (0.14)	55 (0.04)	38 (0.01)	261 (0.17)	97 (0.03)	424 (0.27)
	Rookeries	17 (0.74)	8 (0.47)	2 (0.09)	1 (0.06)	1 (0.04)	4 (0.24)	3 (0.13)	4 (0.23)
Easter Ross	Nests	2127 (0.90)	832 (0.69)	0	0	234 (0.10)	314 (0.26)	0	63 (0.05)
	Rookeries	38 (0.88)	10 (0.50)	0	0	5 (0.12)	6 (0.30)	0	4 (0.20)
Mid Ross	Nests	931 (0.41)	1252 (0.49)	524 (0.23)	0	708 (0.31)	665 (0.26)	121 (0.05)	653 (0.25)
	Rookeries	11 (0.55)	14 (0.44)	1 (0.05)	0	7 (0.35)	11 (0.34)	1 (0.05)	7 (0.22)
Total	Nests	5833 (0.73)	2883 (0.54)	990 (0.12)	55 (0.01)	980 (0.12)	1240 (0.23)	218 (0.03)	1140 (0.21)
	Rookeries	66 (0.77)	32 (0.46)	3 (0.03)	1 (0.02)	13 (0.15)	21 (0.30)	4 (0.05)	15 (0.22)

1 Numbers in brackets represent the proportions constituted by each class of the total for each year in each area.

and 1998-9 were in gardens and villages. In Mid Ross, a third of 20 rookeries set up between 1975 and 1998 were in villages and a quarter were in gardens.

Discussion

The numbers of nests in rookeries is known to vary through the breeding season as late breeders settle to breed and as the nests of failed breeders are dismantled by other rooks securing sticks. Dunnet and Patterson (1968) recommend that repeat counts of rookeries are made and the maximum count is used. Counts should ideally be made in April but time constraints meant that this was not possible in the present study; however, the majority of

counts were made between late March and April 1998. This was undoubtedly the single largest source of error but this has been a problem of all previous surveys (eg Sage and Vernon 1978). There were general correlations between declines in the number of nests, which is related to survey date, and the proportions of rookeries which were completely abandoned, which is not related to survey date, for each area and for each habitat. This provides circumstantial evidence that the differences between the 1975 and 1998-9 surveys were real and were not artefacts of the survey method. The study area was searched on a more or less random basis, with small sections being surveyed on each day, so that the large differences between the 3 sections of the study area were not

attributable to the date on which they were surveyed.

The numbers of Rook nests declined in the Highlands between the 1880s and 1945-46 (Anon 1947-48), followed by large increases between 1945-46 and 1975 in Sutherland (41%) and Caithness (14%) but no figure is given for Ross-shire (Sage and Vernon 1978). A national sample survey of rookeries suggested that there was a 5-9% increase between 1975 and 1980 (Sage and Whittington 1985) and some of the changes in Mid Ross were known to have occurred around this time.

The timings of establishment and change in rookeries were imperfectly known. Much of the change on the Black Isle was thought to have occurred in recent years (post 1990), as nests and nest debris could be seen in some of the disused rookeries; this was supported by discussions with locals. The growth of the village rookeries on the Black Isle was a recent phenomenon, providing circumstantial evidence that at least some of the birds had moved from nearby farm woodland. Most of the new rookeries in Mid Ross, on the other hand, were known to be well established in 1982 although there were also more recent increases in Muir of Ord: one rookery which was established c1983 by c15 pairs contained 122 nests in 1998. A rookery which was established in nearby Beauly (Invermess-shire) by 4 pairs in 1997 contained 10 nests in 1998 and 12 nests in 1999. A further rookery of c10 pairs which was established in Muir of Ord in 1999 was not included in the present survey as these birds could have relocated from a nearby rookery which had been counted in 1998. In an area of c5km² near Dingwall, there was a 43% net increase in numbers between 1975 and 1998, with a 27% increase between 1976 and 1977 (R Graham *pers comm*).

Persecution was heaviest on the south side of the Black Isle and in Easter Ross, where syndicates of

farmers targetted rooks, but occurred at lower levels throughout the study area. Many rookeries suffered low levels of shooting with air rifles, mainly by children, but this method did not destroy many birds. More extreme persecution was in the form of blasting nests from below with shotguns during the breeding season, or by disturbing incubating birds and preventing them from resettling by discharging guns into the air. The 2 main persecution methods thus left the adult birds alive.

The greatest declines between 1975 and 1998 were on the south side of the Black Isle and this area also demonstrated the greatest shift away from nesting in woodland habitats to nesting in villages and gardens. In an area of c82km² of prime agricultural land, the proportion of rookeries in woodland habitats fell from 69% in 1975 to 25% in 1998-9. Declines on the north side of the Black Isle were much smaller than on the south side. These 2 areas have similar land use and apparently differ only in the extent of persecution, with much more severe persecution on the south side. This suggested that persecution did at least contribute towards the decline of rookeries on the south side and to the shift from woodland habitats into villages and gardens. The contribution made by persecution towards declines in other areas is unknown although there is heavy shooting pressure in Easter Ross. Dunnet and Patterson (1968) and Sage and Vernon (1978) had found persecution to be of negligible importance in controlling the numbers of rooks; however Feijen (1976) found that persecution was responsible for large declines in the Netherlands. It is unknown whether different methods of control or some other factor associated with persecution were responsible for the difference in efficacy of persecution between the present study and those of Dunnet and Patterson (1968) and Sage and Vernon (1978).

The widespread declines on the Black Isle and in Easter Ross may also be related to changes in the

food supply. There have been large increases in the acreage of cereals throughout the study area in recent years (*pers obs*); these have been most marked in the Black Isle and Easter Ross and may have reduced the area of pasture. In Mid Ross, where agriculture is less intensive, increases in cereals have not reduced the amount of grazing land to the same extent as the steep sides of the straths are unsuitable for cereal cultivation. Brenchley (1984) found that Rooks favoured agricultural regimes in which the acreages of pastoral and arable land were approximately equal. Increases in the acreage of cereals may have approached a balance more favourable to Rooks in Mid Ross but may have reduced the proportion of pastoral land to a less favourable regime dominated by cereals in the Black Isle and Easter Ross.

Rookeries have shown persistent long term declines in size (eg Sage and Vernon 1978); in the present study, rookeries declined in size in Mid Ross although there was an overall increase in numbers. The reduction of colony sizes may be a response to changes in food supply, possibly due to changes in the availability of invertebrates during the summer when Rooks have most difficulty in obtaining food (Dunnet and Patterson 1968, Feare *et al* 1974). The trend towards breeding in the vicinity of gardens and villages may indicate that Rooks are obtaining a greater proportion of their diet from human refuse or from food deliberately put out for birds or it may be in avoidance of persecution. These are offered as possible causes of the changes in numbers of Rooks but are speculative.

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SHORT NOTES

Breeding success of Merlins in Galloway

Galloway, in south west Scotland, is the most heavily commercially afforested area in Scotland and upland Kirkcudbrightshire is the only region with over 30% forest cover. Conifer planting commenced in 1921 and by the 1970s over 80% of land below 300m had been planted; the district still has amongst the highest levels of current planting in Scotland (Avery & Leslie 1990, *Birds and Forestry*, London). This note summarises the breeding success of Merlins *Falco columbarius* in Galloway mainly in afforested areas between the years 1965-98 for which few data have been published before.

Fieldwork commenced in 1965 and covered about 70-80% of the 310km² where most Merlin breeding pairs were concentrated. The results (Table 1) show that of the 337 nest areas monitored, 234 (69%) were occupied. Only 89 (38%) of those pairs reached the clutch stage and of those, 61 (68.5%) were successful in fledging young; the average number of fledged young per breeding attempt was 2.5 (ground nests) and 2.3 (tree nests). Merlin nests were widely dispersed but were found to be separated by an average distance of 2.8km (1-6 pairs/100km²).

Although the first tree nest was found in an isolated tree in 1955 (A D Watson *in litt*) it was not until 1982 that the first nest was found in a Sitka Spruce *Picea sitchensis* plantation. In 1993-95 a forest edge survey of tree nests was made. Of the 37 breeding areas checked, 13 (35%) were situated in trees, 100% of those reached the clutch stage and 84.6% were successful. The number of fledged young per breeding attempt was 2.2, about the same as at tree nests overall. There was 28 (31.5%) breeding attempts which failed completely. The causes include Fox *Vulpes*

Table 1 Breeding success of Merlins monitored in Galloway 1965-98.

Year	Nest areas checked	No occupied	No nests eggs laid	No nests young fledged
1965	7	7	2	1
1966	8	8	3	1
1967	7	7	2	1
1968	9	9	4	1
1969	11	11	3	1
1970	10	10	1	1
1971	9	9	6	5
1972	6	6	4	3
1973	13	13	5	3
1974	17	17	9	7
1975	13	9	3	2
1976	14	10	4	3
1977	14	8	4	3
1978	12	7	5	3
1979	12	8	2	1
1980	13	9	3	2
1981	13	6	1	1
1982	12	5	2	2
1983	11	7	2	-
1984	10	5	1	1
1985	6	3	1	1
1986	7	5	1	1
1987	7	5	2	2
1988	8	6	1	1
1989	6	4	1	1
1990	9	-	-	-
1991	14	5	2	1
1992	8	3	2	2
1993	17	15	7	4
1994	11	10	5	5
1995	9	3	1	1
1996	4	1	-	-
1997	5	2	-	-
1998	5	1	-	-
Totals	337	234	89	61

vulpes (3) and Adder *Vipera berus* (2) predation; egg desertion (1); eggs burnt (1) eggs or young disappeared, cause unknown (17); young died (1); female found dead at nest (1); young fell through tree nest (1); nest robbed (1).

Clutch sizes ranged from 2–5 eggs with a mean of 4.11 ± 0.93 SD. Of the 89 nests, 51 (57%) were situated on the ground; 17 (19%) were tree nests; 13 (15%) on rocky shelves amongst Heather *Calluna vulgaris*; 5 (6%) on sheer cliff faces on Heather ledges; 2 (2%) on top of boulders and 1 (1%) at the base of a Rowan *Sorbus aucuparia*. The altitudinal range of the nests ranged from 76m (250') to 364m (1200') with 52.6% of nests situated within the 152m (500') to 242m (800') contours.

The results obtained in this study show that the overall success rate (68%) was exactly the same as that obtained in north east Scotland (where the habitat is different) in 1980–89 (Rebecca *et al* 1992, *Scottish Birds* 16:165–183), but 8% lower than for Scotland as a whole in 1988–90 (Table 2). The occupancy rate overall was 69% comparable to the data from north east Scotland but lower than the 78% for the Scottish national average in 1988–90.

There are 54 known Merlin breeding sites in Galloway (42 in Kirkcudbrightshire, 12 in Wigtownshire) but not all are now occupied annually or regularly. At least 12 (40%) of the 30 traditional ground nests in the core areas in

Kirkcudbright which were regularly used in the 1960s–1970s have now been completely abandoned with gaps in use of 20–30 years. The reasons are apparent with the sites being displaced by large blocks of dense mature conifer plantations. This in turn has had a direct effect on Merlin foraging activities by reducing open ground for hunting and a complementary decrease in the numbers of their most common prey species, Meadow Pipits *Anthus pratensis* (unpublished data; see also Watson, 1979 *Bird Study* 26:253–258). With a decrease in the number of ground nests in core areas there may be a reciprocal increase in the use of tree nests at moor edges as has happened at Kielder Forest (Little *et al* 1995, *Forest Ecology and Management* 79:147–152) and in Wales (Parr 1991, *Bird Study* 38:103–111). The results show that tree nests, when these are available, have a success rate of 76%, exactly the same as the overall success rate of all nests in Scotland (Table 2). I thank all those who provided data including E L Roberts, R Roxburgh, G Shaw and A D Watson amongst others.

Table 2 Pooled data extracted from Raptor Round Up Reports of breeding success of Merlins in Scotland 1988–90. Data from *Scottish Bird News* 14:6–7, 18:8–9, 22:8–9.

Sites checked	909	
Sites occupied	707	(78%)
Sites eggs laid	548	(78%)
Sites young fledged	419	(76%)
No. young per success	1264	(2.3)

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Revised manuscript accepted September 1999

Mute Swans rearing Greylag Geese

Glendevon Pond is a small farmyard pond in rural West Lothian. For many years a small island has been used by nesting Mute Swans *Cygnus olor*. On 5 April 1998 a pair of Mute Swans along with several Greylag Geese *Anser anser* were present but as yet there were no signs of breeding. However, a subsequent visit on 20 April found the pair of Mute Swan building a nest on the island. On 8 and 10 May the swans were on their nest apparently incubating eggs while several Greylag were loafing around. On 20 May the unusual news that the swans were tending a brood of 4 young Greylag goslings was reported to me. A visit on 23 May confirmed this. The pair of swans had abandoned their nest and eggs (visible in nest)

and were caring for 4 young Greylag goslings. Given the vigilance and aggression of nesting Mute Swans it seems unlikely that the Greylag Geese would be able to lay their eggs in the swan's nest. Therefore, it would appear the Mute Swans built their nest on top of an already existing Greylag nest and eggs. Presumably the Greylag eggs having been laid earlier and with a shorter incubation period than the swan eggs hatched first and the goslings were adopted by the swans at the expense of their own clutch. One of the 4 goslings vanished shortly after hatching. However, the remaining 3 developed well and dispersed the following spring. Unusually for Greylags, the geese fed for a short while by upending, a habit seemingly copied from their foster parents. However, they did not appear very adept and soon abandoned this method and fed by grazing.

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A new record of successful tree nesting Peregrines

In Europe, Australia and North America Peregrines *Falco peregrinus* have often been recorded nesting in old stick nests in trees (Ratcliffe D A 1993, *The Peregrine Falcon*. T & A D Poyser, London; Emison W B, White C M, Hurley V G and Brimm D J 1997, Factors influencing breeding distribution of the Peregrine Falcon in Victoria Australia. *Wildlife Research* 24:433-444; Campbell R W, Paul M A and Rodway M S 1978, Tree-nesting Peregrine Falcons in British Columbia. *Condor* 80:500-1). In Britain only 3 reports of tree nesting have been recorded: 2 unsuccessful attempts in one nest (1983 & 1985) in a Scots Pine *Pinus silvestris* tree (Ratcliffe D A 1984, Tree nesting by Peregrines in Britain and Ireland. *Bird Study* 31:232-233; Ratcliffe D A 1993, *The Peregrine Falcon*. T and AD Poyser, London) and one

successful attempt in a Scots Pine tree in Wales (I Williams in Ratcliffe 1993). Both of these nests were in old Raven *Corvus corax* sites and the sites appeared to be alternatives to local cliff sites.

Ratcliffe (1984, Tree-nesting by Peregrines in Britain and Ireland. *Bird Study* 31:232-233) suggested that tree nesting may have started in the 1980s because of the increase in the Peregrine population and thus a decrease in the number of available cliff sites. However, since these reports from the mid 1980s we know of no other documented tree nesting Peregrines. This is despite the population increasing from 768 notional pairs in 1981 to 1283 in 1991 (Ratcliffe D A 1984, The Peregrine breeding population of the United Kingdom in 1981. *Bird Study* 31:1-18; Crick H Q P and Ratcliffe D A 1995, The Peregrine *Falco peregrinus* breeding population of the United Kingdom in 1991. *Bird Study* 42:1-19). Here we

report the successful breeding by Peregrines in a tree nest in Scotland in 1999.

The site has been checked since 1992 and birds have been present on territory each year since 1994. Small ledges are available in the area along the course of some moorland streams and birds have attempted to breed in these sites on a number of occasions, though not successfully. The territory is on the edge of an area of Heather moorland and rough sheep grazing. There were no other Peregrines nesting within a 5km radius of this pair.

During the spring of 1999 a pair of territorial Peregrines were again noted in the area. This year the usual sites were not used, and the birds settled further down the valley, laying their eggs in an old Buzzard *Buteo buteo* tree nest (Photo). The large

stick nest was situated 7-8m up in a fork of an Ash *Fraxinus excelsior* tree growing from the bottom of a steep sided gully. When found (21 April 1999), the female was sitting on 4 eggs. Three small chicks were present on 14 May 1999 and these 3 chicks successfully fledged.

In other parts of the world, tree nesting is relatively localised and the reasons for it not spreading remain unclear (Newton I 1979, *Population Ecology of Raptors*. T & A D Poyser, London). It will be interesting to see if these Peregrines and their offspring utilise stick nests in future years. Good cliff sites are scarce in the general area, whilst populations of Ravens are increasing and Buzzards *Buteo buteo* are at high density. Stick nests are therefore relatively abundant and a switch from cliffs to trees could lead to an increase in the local Peregrine population.

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Manuscript accepted October 1999.



Tree nesting Peregrine

Steve Campbell

Post breeding congregations of adult Black-throated Divers in Wester Ross

Knowledge of the distribution and movements of Scottish Black-throated Divers *Gavia arctica* away from breeding territories is poorly known. This note describes the post breeding congregations of adult Black-throated Divers that occur in Loch Gairloch and around the Applecross peninsula on the southwest coast of Wester Ross (Fig 1). From July to December in 1997 and 1998, I noted all sightings of Black-throated Divers on the sea. Counts were attempted once per week but regarded as accurate only when optimum weather conditions and calm seas prevailed allowing good visibility.

Table 1 gives the peak monthly count for each location. The counts, especially at Loch Gairloch during July to September, may have included adults still attending chicks on breeding lochs. However, I have assumed that the majority had finished breeding. Numbers built up during the late summer, peaking in September and October, and then declining during late autumn and winter. Only 2 juveniles were seen both at Applecross in 1998. These are not included in Table 1.

The divers completed their post breeding body moult during the period of the counts, and the majority attaining winter plumage by late November. In calm conditions, birds tended to gather in flocks while in rougher conditions single

Figure 1 Location of Loch Gairloch and the Applecross Peninsula on the coast of Wester Ross



Table 1 Peak monthly counts of adult Black-throated Divers.

	July	August	September	October	November	December
Applecross Peninsula						
1997	11	15	47	49	27	9
1998	4	5	44	58	11	7
Loch Gairloch						
1997	28	17	25	33	0	0
1998	13	17	27	17	21	0

birds were more often encountered. The peak counts at Applecross in September 1997 and 1998, and October 1997 and 1998 consisted of single flocks of 47, 44, 49 and 58 respectively. When conditions were calm and the flocks were close to land, birds could often be heard calling with a soft 'honk'.

The Black-throated Diver is a rare breeding bird in Britain with an estimated population size of 151 summering pairs (Campbell L H & Talbot T R. 1987 Breeding Status of Black-throated Divers in Scotland. *British Birds* 80:1-8). It is an amber list in 'Species of Conservation Concern in the UK, Channel Islands and Isle of Man' (Gibbons *et al.* 1996 *RSPB Conservation Review*), and is classed

as a species of European Conservation Concern category 3 – vulnerable (Tucker G M & Heath M F. 1994. Birds in Europe: Their Conservation Status. *Birdlife International*).

The stretch of sea encompassing Loch Gairloch and the Applecross peninsula is a regular thoroughfare for commercial, military and leisure craft. As these congregations occur soon after the breeding season it would seem that a high proportion of the total Scottish breeding population may be present at these 2 locations and therefore vulnerable to any oiling incident.

I would like to thank Dr Ron Summers for commenting on an earlier draft of this note.

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Manuscript accepted November 1999.

Swifts in Speyside

Tree nesting Swifts *Apus apus* were referred to in *Scottish Birds* 20:27-30. In the later half of the 1980s a triple storeyed nest box based on a successful Swedish pattern was attached to a Birch *Betula sp* on the edge of Abemethy Forest. This box is believed to have been continuously in use since 1990. In 1999 it was altered to allow access. In 1990 a similar box was fastened to a Scots Pine *Pinus sylvestris* some 250 metres away from the first site. Both boxes are fixed to the north side of the tree, with holes facing north, east and west. The Birch box has roughly circular holes, the Pine horizontally segment shaped. The latter box was not used by Swifts until 1997. Also fastened to the Pine is a large Robin/Tit type box with removable front. This has been *in situ* for a number of years and has often been occupied by Starlings *Sturnus vulgaris*. Swifts had, on

occasion, prospected, so to encourage them the circular holed removable panel was replaced with one of segment shape. This failed to deter the Starlings but, in 1998 and 1999, Swifts moved in within days of the young Starlings fledging. This box faces east.

Swift arrival dates at Scots Pine site were 10 June 1997, 6 June 1998 and 27 May 1999. The only known fledging date is for the 1997 pine site when the single young fledged between 8 and 11 September.

Starlings have used 4 of the 6 nest box compartments over the years and also the smaller box.

There have been 6 occupied Swift nests in the past 3 years. Entrance holes facing all 3 compass points have been used. None appear to have laid

more than the normal clutch of 2 eggs. Three pairs have produced 2 young and 3 pairs a single chick. All the young have been ringed, plus 7 adults. Two of the latter have been retrapped at the nest. Until 1999 the contents of the Birch tree site remained unknown.

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Mallard eating Eel

On 9 November 1999 on the Water of Leith, in Edinburgh, I came across a female Mallard *Anas platyrhynchos* with a small Eel *Anguilla anguilla* in its bill. The Eel was wriggling actively and was about 15cm long, with a body diameter of about half the width of the duck's upper mandible – it was difficult to be more accurate about the dimensions due to the Eel's coiling. The duck was swimming with 2 other females and a male in shallow water at the river's edge. The duck was manoeuvring the Eel in its bill and shaking it in the water. Eventually, after a minute or so, the duck managed to swallow the Eel head first, despite close attention from the accompanying Mallards which had made token efforts to steal the Eel. The Eel stayed down, but the Mallard had to make several neck stretches and gaping motions, presumably to aid swallowing. The duck then drank some water and swam off. Although the Mallard is described as an opportunistic feeder, with "fish" listed among its food items (*BWP* Vol 1, p 509), this note may be of some interest given the specific identification and size of the prey item involved.

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My thanks are due to RSPB staff for information and agreeing to nest box alterations and ringing; and also to generous friends who for many years have kindly allowed me to festoon their garden trees with a variety of nest boxes.

Jackdaw killing and carrying newly fledged Blackbird in its feet

On 30 May 1999 we watched a newly fledged Blackbird *Turdus merula* begging for food on the lawn of a cottage garden in Wigtownshire. A Jackdaw *Corvus monedula*, which had young in a nest nearby, landed beside the fledgling as did the male Blackbird. The Jackdaw struck the juvenile a couple of blows to its head and body and then a near fatal blow to its head, picked it up in its feet, and flew up towards its nest pursued by the adult Blackbird. The Jackdaw soon dropped the dying fledgling, still pursued by the Blackbird. On inspecting the fledgling there was no outward sign of injuries, its skin was unbroken but it died soon after. *Birds of the Western Palearctic* Volume 8 states that food is usually carried in the Jackdaw's bill but gave one record of a Jackdaw transporting a nestling thrush in its foot, flying some distance pursued by 4 adult thrushes.

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Merlins selectively preying on Chaffinches

In Galloway the most common prey species of Merlins *Falco columbarius* in the breeding season is the Meadow Pipit *Anthus pratensis* (unpublished data, see Watson D 1979, *Bird Study* 26:253-258). Because most of the uplands below 300m in Kirkcudbright have been planted with exotic conifer plantations (Avery M & Leslie R 1990, *Birds and Forestry*) there has been a complementary decrease in the number of Meadow Pipits available as prey. The spread of these plantations has undoubtedly influenced the increase in the number of scrub and woodland species. At one Merlin breeding site in 1995, which produced one young in a tree nest situated at the edge of open moorland, there was some

evidence to indicate that the adults were selectively preying on one woodland species, Chaffinches *Fringilla coelebs*.

On the 8 and 16 July 1995 I collected the prey remains from all plucking posts in and around the nest and they consisted of the usual varied remains of 11 Meadow Pipits, one Chaffinch, one Siskin *Carduelis spinus*, one Snipe *Gallinago gallinago* and one Northern Eggar Moth *Lapsiocampa quercus*. I returned on 25 July and again collected all the remains, but in the intervening period they were composed entirely of 9 Chaffinches. This suggests that the adult Merlins had been selectively preying on this readily available food source rather than search in the surrounding moors for pipits. On 30 July prey remains were of 2 Meadow Pipits and 2 Chaffinches.

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Merlin prey

R C Dickson

Ringed Plover using a covered nest site

On 12 July 1999, during a visit to the island of Auskerry, Orkney, R G Adam found a Ringed Plover's *Charadrius hiaticula* nest with 3 eggs, hidden in a tunnel under a sloping concrete slab situated close to the shore. The nest was about 40cm inside the tunnel and the birds could only gain access to the nest through one end of the tunnel, as the other end was blocked by a stone. Fairly regular visits have been made to the island over the last 30 years and a number of Ringed Plover nests found, but all of these have been in the open.

It is unusual for a Ringed Plover to use a covered nest site but this has been recorded before in Orkney. Laidlaw in 1913 (*Scottish Naturalist* 1913:212) found 4 pairs on Auskerry with nests under stones. Pennington in 1987 (*British Birds* 85:498-499) noted that, on the island of North Ronaldsay, 7 out of 18 Ringed Plover nests located were under cover. These nests appeared to fare better than those in the open and he suggested that this type of site would give protection from predation by birds as well as from North Ronaldsay sheep, which feed around the shore. These sheep trample on nests and have also been recorded eating Ringed Plover eggs. It is perhaps of interest that, in the last few years, North Ronaldsay sheep have been introduced to Auskerry and now form the major part of the sheep flock on the island.

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Interaction between Greylag Goose, Great Northern Diver and Bottle-nosed Dolphins

The waters around the Isle of Tiree have been the home of a mother and calf Bottle-nosed Dolphin *Tursiops truncatus* since 1994. The mother, nicknamed Sparkle by the Hebridean Whale and Dolphin Trust, and her calf Starlight are regularly seen throughout the summer months, though less so during the winter, in Gunna Sound, between Tiree and Coll. Here on 4 July 1999, Carl Mitchell, Gregg Corbett and I observed a Greylag Goose *Anser anser* behaving oddly 150m away from the boat. The bird was diving then surfacing after a short distance before frantically flapping across the surface of the water. This continued for about a minute until an adult Bottle-nosed Dolphin breached in front of the Greylag. The Greylag headed in the opposite direction, flapping across the surface of the water. The dolphin kept appearing

just behind the bird or breaching ahead of it. We did not see the dolphin attempting to bite or catch the Greylag; it seemed to be enjoying the chase. After 4 or 5 minutes the dolphin appeared to lose interest and drifted off with her calf, which was nearby during the incident. The Greylag, apparently exhausted but unharmed, swam for the shores of Gunna.

Whilst scanning offshore at Crossapol, Isle of Tiree, on 19 December 1999, I noticed a winter plumaged Great Northern Diver *Gavia immer* flapping across the surface of the water then looking under the surface. Two Bottle-nosed Dolphins surfaced alongside the bird. The next 2 to 3 minutes were similar to what I had observed with the Greylag. The diver tried to escape, and I can only assume it had become too waterlogged to actually take off. Unlike the Greylag, the diver would lower its head into the water to look for the

dolphins and just before the dolphins got close the diver would flap across the surface of the water. Whilst the dolphins were nearby the diver did not attempt to dive. After a short period of time both dolphins continued south along the coast. The diver headed north, swimming hard then diving, surfacing 30-40 metres further up the coast.

Although not seen to fly the diver did appear unharmed but exhausted by the experience.

I have heard of seals catching birds from the surface of the water but not cetaceans playing with birds apparently just for fun.

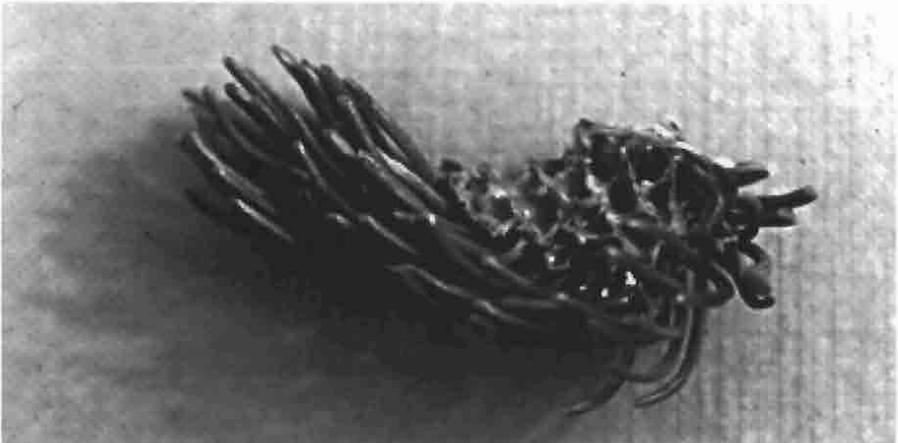
A J Leitch, Shepherd's Cottage, Heylipol, Isle of Tiree, Argyll PA77 6TY

Revised manuscript accepted February 2000

Common Crossbill eating adelgids

On 25 July 1997 I came across a group of Common Crossbills *Loxia curvirostra* (identified from a sonogram) feeding in a mature stand of Norway Spruce *Picea abies* trees at Farr Forest, Inverness-shire.

While watching the birds for around 10 minutes, the only object which fell from the tree was not a cone but a fresh Pineapple Gall. This is a growth deformity found in spruce shoots caused by an adelgid (a type of bug, *Hemiptera*). The gall, which was still green had been freshly broken into and all the adelgids removed. Because there were no insects left on the specimen it was not possible to determine with confidence the species of adelgid. Possible species involved are *Adelges abietis*, *A*



Remains of a Pineapple Gall on Norway Spruce eaten by Common Crossbill, Farr Forest, Inverness-shire. July 1997

Ron Summers

viridis or *A laricis*, with *A viridis* the most likely. It appeared that both the adelgids and the surrounding green plant tissue had been eaten by the Crossbill (Photo) as no parts of the discarded gall were found below the tree.

Pulliainen (1972. Summer nutrition of crossbills *Loxia pytyopsittacus*, *L curvirostra* and *L leucoptera* in north eastern Lapland in 1971. *Ann Zool Fennici* 9:28-31), working from crop contents of dead birds, records aphids, which are closely related to adelgids, as a component of the summer diet of both Common and Two-barred Crossbills *L leucoptera* in north eastern Lapland. Storer 1921 (American Crossbill eating Elm aphid,

Condor 23:98) and Traverer (1922. Crossbills eating aphid *Condor* 24:96) both reported crossbills eating aphids in North America, and there are many other references to invertebrates being eaten (Cramp & Perrins 1994 *Birds of the Western Palearctic* Vol 8, Oxford). In many, however, it was not possible for the observers to differentiate the species involved because the birds consumed the evidence. In this instance the remains of the gall allowed identification with some confidence.

Insect food at this time of year is likely to provide animal proteins valuable for the production of new feathers during the moult.

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Oystercatchers usurping Lapwings' nests

Dougall (*Scottish Birds* 18:184 and 19:181) reported cases in both 1995 and 1996 where Oystercatchers *Haematopus ostralegus* had apparently taken over nests of Lapwings *Vanellus vanellus* at Colquhar, Borders. In the 1995 case the Oystercatcher hatched 3 Lapwing eggs and at least one survived to 12 days.

During a study of Lapwings breeding around Newtonmore, Strathspey carried out by Pat French between 1996 and 1998, 627 nests were monitored. While none of the nests checked in 1996 or 1997 were affected, in 1998 3 of the 185 nests studied were taken over by Oystercatchers, suggesting that while unusual this is not necessarily uncommon.

In each of the 3 cases found in 1998 the outcome was different. The first nest was found at Pitmain Farm (NN736999) on 22 April when an

Oystercatcher was incubating a clutch of 3 Lapwing eggs at 1200 GMT. An hour later a Lapwing was seen sitting on the same nest and the following day at 1200 an Oystercatcher was again seen on the nest which then contained 4 eggs, with the agitated Lapwings standing at times within 5m of the sitting bird. Between the 24 and 26 April both of the pair of Oystercatchers and both Lapwings were seen on or near the nest and on one occasion the male Lapwing was seen to dive at the Oystercatcher which responded with a threat display towards one of the Lapwing pair before settling on the eggs. On 1 May the clutch was found to have been trampled and the eggs crushed by cattle.

The second example was found on uncultivated ground beside Newtonmore Golf Course (NN718987). This nest was first found on 24 April when it contained 3 warm Lapwing eggs. When the nest was rechecked on 30 April in addition to the 3 Lapwing eggs it contained an

Oystercatcher egg: all 4 were cold. On 6 May the nest contained the 3 Lapwing eggs and 2 Oystercatcher eggs all of which were warm. One of the Lapwing eggs was missing on 15 May and later when the nest was observed at 0900 on 19 May all 4 of the remaining eggs were being incubated by an Oystercatcher. At 0900 on 27 May one Oystercatcher egg was chipping and the other had hatched. On 29 May 2 cold Lapwing eggs remained in the nest together with fragments of the hatched Oystercatcher eggshell.

It is not known at what stage the third Lapwing nest was taken over by Oystercatchers. When found at 1700 on 19 May this nest at Nuide Farm (NN726984) contained a newly hatched Lapwing chick together with 2 eggs, one chipping and the

other apparently unviable. At 1700 GMT on 20 May the nest contained 2 Lapwing chicks and the unhatched egg, all of which were being brooded by an Oystercatcher. Although the area contained a high density of both Lapwings and Oystercatchers, interspecific competition was not readily apparent.

Acknowledgements

Access to the land on which these nests were studied was freely given by the committee of Newtonmore Golf Club, Mr John and Mrs Eira Drysdale of Ralia and Mr Donald Munro of Pitmain Farm. Pat French died in 1999 and Hugh Insley is indebted to Mrs Ann French for making the records and diaries of his Lapwing study available.

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Manuscript accepted February 2000

Roof nesting Oystercatchers using a Herring Gull nest

On 26 May 1998 we were checking a known site for roof nesting Oystercatchers *Haematopus ostralegus* at Cauldeen School, Inverness when we were surprised to find a Herring Gull *Larus argentatus* nest containing 2 eggs together with an Oystercatcher egg. A second Oystercatcher egg lay on the flat roof near the side of the gull nest, which was a substantial structure used the previous year. We assumed that what we were seeing represented an Oystercatcher clutch laid in an old Herring Gull nest which had been repossessed by the returning gulls.

When we revisited the site on 18 June we found the nest occupied by a Herring Gull chick

approximately 7 days old together with an unhatched egg, and an Oystercatcher chick about 3 to 4 days old, which jumped out of the nest cup on our approach and ran to hide elsewhere on the roof. There was no evidence of any other nest site on the roof.

Since *Birds of the Western Palearctic Volume 3* gives the incubation period for Herring Gull as 28 to 30 days and that for Oystercatcher as 24 to 27 days it was clear that the Oystercatcher had laid its clutch in the nest while it already contained one or both of the gull eggs. The age of the Oystercatcher chick also suggested that it had somehow been finding food. No adult Oystercatchers were seen at the site on either visit, so there was no evidence to suggest that they had been feeding the chick.

Because of the nature of the site it was not convenient to continue observations to discover whether the Oystercatcher.

We are grateful to Mr Bill Reid, janitor at Cauldeen School, who allowed us access to the site.

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Manuscript accepted March 2000

Observations on a Lesser Whitethroat in a Dundee suburb in winter

On Sunday 30 January 2000 at 1410hrs my attention was drawn to a warbler in the garden. I immediately identified it as a Lesser Whitethroat *Sylvia curruca*. Using 8 x 42 binoculars, at distances between 15 and 20 metres, I was able to get very good views. I have had experience of the species locally during the breeding season and ringed several juveniles between late June and early August. This individual was a very clean looking bird with a uniformly grey head and nape, no obvious rufous on the wings and distinct dark 'eye mask' on the ear coverts.

The bird foraged in and around the flowers of a *Mahonia* bush. Observations lasted about 10 minutes before the bird left the garden. The bird reappeared about 20 minutes later and again its activities were centred on the flower heads of the *Mahonia*. An unsuccessful attempt to photograph the bird resulted in it leaving the garden and it was not seen again that day. On 5 February at 0900hrs the bird was again observed feeding on the flower spikes of the *Mahonia*. At 1000hrs I walked to within 3m of the bird; shortly after it flew off into adjacent gardens.

I have observed wintering Blackcaps *Sylvia atricapilla* foraging in a similar manner but Blackcaps tend to remove whole flowers. It is possible that foraging visits to *Mahonia* are associated with the sequential maturation of the flowers on this shrub.

The bird was seen on 2 occasions before 1040hrs on 6 February but at no other time that day. On 9 February I had made some porridge using fine oatmeal and a little honey. The mixture was put out on the grass at 0800hrs for the awaiting Blackbirds *Turdus merula* and Starlings *Sturnus vulgaris*. I observed the Lesser Whitethroat leave the *leylandii* hedge, make its way along the top of the stone boundary wall and then fly down onto the grass, procure some of this porridge and immediately fly back to the cover of the hedge. This was the last observation of the Lesser Whitethroat, although I spent some time watching for it. Although Lesser Whitethroats are regularly recorded on the east coast in late autumn the latest records (Dundee and Angus Bird Report 1998) were of 2 singles on 3 October, both on the Angus coast.

I know of no other records of this species during the winter, at least locally.

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Revised manuscript accepted March 2000

OBITUARIES

Robert Marshall Craig Lambie

1935-1999

Big Bob, as he was known to his friends, was a man of many parts. Keen golfer, hillwalker, naturalist, artist, traveller and, above all, bird photographer and lecturer.

Born in Carmunnock on 10 September 1935 he spent his life in this small village on the south side of Glasgow. Encouraged by his parents, he and his brother took an early interest in natural history, collecting birds' eggs when it was still socially acceptable but denouncing it in later life as keen conservationists. He loved to walk in the hills, glens and islands of his beloved Scotland and knew intimately many of its wildest places.

As a young man he joined the railways and spent the rest of his working life with them, taking full advantage of an early retirement deal when nearing 40 years service.

Sport, particularly golf and football, had always played an important part in his active life. For 36 years he was a member of his local Cathkin Braes Golf Club, playing off 9 and in his retiral years played almost daily whenever weather and health permitted.

To further his birdwatching interest he joined W K Richmond's University of Glasgow class in the late 1960s. With Kenneth at the helm the group became known by the somewhat unflattering name 'Richmond's Raiders', a title not wholly inaccurate. Eventually the University class disbanded and reformed as The Glasgow University Birdwatchers Club and in 1976 simply Glasgow Birdwatchers Club which continues to this day. Bob was a leading light within this group

and also the SOC where he served on the Clyde branch committee and was for a short period its branch treasurer. By his own admission he was not a committee man, preferring the freedom of open spaces, particularly during the spring and summer.

Bob was a good organiser and when in May 1988 he hatched up a plan to visit far off St Kilda I was invited to join his select group. A boat was chartered and a memorable trip ensued with much hilarity, some interesting meals and the exhilaration of reaching and exploring our goal. The return leg was very rough and most of the party were seasick; it was a dishevelled, wet and weary group which disembarked at Oban.

Apart from numerous short trips to many parts of Scotland he caught the foreign travel bug and made visits to South Africa, Goa, Australia, New Zealand, Arizona, British Columbia and Nepal.

Another of his talents, not generally known, was his ability as an artist. He produced good watercolours and some wood carvings which adorned his home.

Above all else Bob will be remembered as a very good wildlife photographer. His camera was always to hand to record as much of the wildlife and scenery as he was able. I think I was instrumental in fostering his interest in bird photography some time in the early 1970s, but he soon far surpassed anything I could produce as he had an artistic eye and far more patience. This was to become a major pastime and he spent countless hours in uncomfortable hides in all sorts of conditions and places at ungodly hours just to capture that 'special picture'.

As a result of all these pictures he was to become a very popular speaker on the lecture circuit and his superb images and self effacing commentary were much in demand. Visiting photographic clubs he would announce, 'I present myself as a

naturalist' but with a naturalist audience he would say, 'I am an ignorant photographer'. This was typical of the man, always modest and eager to learn from others. His photographs appeared in several books. *The Sunday Post* newspaper, *The Scots Magazine* and many other places. In recent years he won a major prize in an international photographic competition with a presentation at Vane Farm which gave him much pleasure and encouragement.

One facet of his life which caused much amusement to his friends and family was the fact the Bob was always hungry! Many will remember his opening remark when returning to camp after many hours

in the field, 'What's fer eatin', and stories about his prodigious appetite.

Throughout his active life Bob was supported by his wife Una and they journeyed together to the far reaches of the globe in search of wild places and wildlife. When he became seriously ill a few years ago she nursed him back to apparent good health. Sadly, a further short spell of illness ended with his death in hospital at the age of 64. The 'whistling big yin' will be remembered for his quiet and friendly manner and thought for others. He was a good companion, always cheery, and he will be sorely missed by his family and friends.

David Clugston



Bob Lambie

Photographer unknown

Gerard Lionel Sandeman

1909-1999

People smile when they speak about Gerard Sandeman. 'Courteous', 'kind and helpful', 'unassuming' and 'compassionate' are words they use. They evoke a figure familiar to generations of birdwatchers in the Forth area, striding along a beach or crouched on a reservoir bank, wrapped in mackintosh and hat. Austere, whiskery, craggy features, weatherbeaten by daily exposure to wind and rain, would often break into a grin and a laugh. He was deeply caring about people and passionate about recording birds.

This passion began early for him and his brother Pat, first on teenage golfing holidays and later when they were dragooned by their cousin George Waterston into the Inverleith Field Club founded by 6 young former Edinburgh Academy pupils in 1929. Not that entry was immediate; Gerard, a Watsonian, attended meetings initially only as a guest.

The study of birds in those prewar days was handicapped by the lack of good identification guides, and a benign view was still held of egg collecting. Members of the IFC would take a string held low between them over, say, the Red Moss of Balerno to put up sitting birds, take the eggs, and then make up nests out of moss and twigs in a chest of drawers at home.

Having fun was the highest priority and many a boisterous weekend was spent in tents or bothy around the Highlands and Islands, birdwatching by day and piping, singing and story telling by night. The bagpipes, the violin and drums played a prominent part in Gerard's life. The Midlothian Ornithological Club grew out of the IFC in 1933, limited to 10 members who were enthusiastic early ringers as well as recorders. Gerard confessed to being terrified by the ferocious keenness of some of the other members.

It was during the 1930s that he started the series of records of his frequent trips to half a dozen areas in and around Edinburgh which marked his unique contribution to Scottish ornithology. Not for him dry, academic studies of bird biology or behaviour, or indeed the analysis or even publication of the very information he gathered, to the irritation of some people. His genius lay simply in observation, and noting and counting, and in the disciplined and meticulous recording process itself, combined with a great joy at the natural wonder of birds and experiencing the sight and sounds of them.

The scale and detail of his records, now in the SOC archives, almost beggar belief: Count Registers of Leith Docks 1946-97, Penicuik to Hermitage 1933-96, Aberlady and Threipmuir 1931-96, Isle of May and Gladhouse 1934-97, Joppa to Tynninghame 1931-98, and Lothian reservoirs 1931-97. And all these are backed up by 47 thick Bird Record Books 1931-98. On each of thousands of day trips every single species seen was counted and entered neatly in notebook and cross referenced even more neatly in register: certainly hundreds of thousands, perhaps more than a million observations.

Nor did this relentless avian scrutiny diminish when he was off to the Second World War, serving in North Africa and Italy, having been commissioned in the Territorial Royal Artillery. Further notebooks record all his sightings, (kit bag laden with *Coward* 3 volumes, *Dresser* 2 volumes, and the unillustrated *The Birds of Europe and North Africa* by Colonel Wardlaw Ramsay). Observations included 3 subspecies of Great Grey Shrike (subspecies were a great preoccupation of everyone in those days), and his single views of Slender-billed Gull and White-spotted Bluethroat, together with innumerable columns of commoner species.

After the War he and his brother Pat joined forces with their elder brother Norman in the Sandeman family wine and spirits business. This operated

separately from, but in association with, the more widely known London based Sandeman port and sherry firm, for whom they acted as agents in Scotland. While Pat looked after sales, Gerard took up whisky blending and became one of the leading exponents in the business. Working with up to 30 single whiskies, malts from Islay, lowlands and highlands, and grain spirits, he had the exacting task of producing consistent, high quality blends, at which he excelled.

The 2 Sandeman firms eventually combined, Gerard becoming Managing Director of its Scottish operation until he, a little thankfully one suspects, took early retirement in 1969 at the crest of his company's success. Slightly diffident by nature, he found ornithology somewhat more congenial than the hard nosed business of the drinks industry. Now he was free to fill up more of those notebooks, travelling often 6 days a week round his familiar haunts, his piercing gaze focused through an old pair of binoculars, never a telescope. For some years he was frequently accompanied on these daily jaunts by Bill Harper, the SOC Honorary Librarian, and following these excursions he was a regular attender at the Wednesday evening discussion groups at 21 Regent Terrace. There he would take up his usual place hunched in the maroon armchair in a corner of the Waterston Library and quietly reveal more ornithological activity during the previous month than any of the other and younger people present. Retirement is a

great thing when you know how to fill it.

Most years he would spend some days at the Isle of May Bird Observatory, where he had been one of the pioneers in the 1930s, but travelling over always on a Monday rather than on the regular Saturday sailing to ensure his presence at home on the Sabbath. At the centre of his life was his deep religious conviction as a committed member of the Glasites, a Christian sect founded in 1730 by a Church of Scotland minister John Glas, deposed from his ministry during the continuing feuds over the secular content of the covenants. It placed emphasis on Christian life and love rather than dogma, and practised its weekly devotions without clergy. Services at its Meeting House were taken by an elder, such as Gerard, who also led the singing of the psalms: no hymns, no organ. John Glas's son in law Robert Sandeman took this form of worship to London and then America, where its adherents became known as Sandemanians.

His abiding faith sustained Gerard after the sad death of his first wife, Isobel, and later buoyed him throughout his long and happy marriage to Peggy, with their 3 children. He cared about people. When you talked to him you felt that his whole attention was concentrated in a direct, genuine concern for you. He was a friendly, able, conscientious, old fashioned, gentle, man.

John Arnott



Gerard Sandeman

Judith Sandeman

Advice to contributors

Authors should bear in mind that only a small proportion of the *Scottish Birds* readership are scientists, and should aim to present their material concisely, interestingly and clearly. Unfamiliar technical terms and symbols should be avoided wherever possible and, if deemed essential, should be explained. Supporting statistics should be kept to a minimum. All papers and short notes are accepted on the understanding that they have not been offered for publication elsewhere and that they will be subject to editing. Papers will be acknowledged on receipt and are normally reviewed by at least 2 members of the editorial panel and, in most cases, also by an independent referee. They will normally be published in order of acceptance of fully revised manuscripts. The editor will be happy to advise authors on the preparation of papers.

Reference should be made to the most recent issues of *Scottish Birds* for guidance on style of presentation, use of capitals, form of references, etc. **Papers should be typed on one side of the paper only, double spaced and with wide margins and of good quality; 2 copies are required and the author should also retain one.** We are also happy to accept papers on disc; or by email at, mail@the-soc.org.uk however, please state the type of word processing package used. If at all possible use Microsoft Windows 97. Contact Sylvia Laing on 0131 556 6042 for further information.

Headings should not be underlined, nor typed entirely in capitals. Scientific names in italics should normally follow the first text reference to each species unless all can be incorporated into a table. Names of birds should follow the official Scottish list (*Scottish Birds* 1994 Vol 17:146-159). Only single quotation marks should be used throughout. Numbers should be written as numerals except for one and the start of sentences. Avoid hyphens except where essential eg in bird names. Dates should be written:....on 5 August 1991.....but not on the 5th (if the name of the month does not follow). Please **do not** use headers, footers and page numbers. Please note that papers shorter than c700 words will be treated as short notes, where all references should be incorporated into the text, and not listed at the end, as in full papers.

Tables, maps and diagrams should be designed to fit either a single column or the full page width. Tables should be self explanatory and headings should be kept as simple as possible, with footnotes used to provide extra details where necessary. Each table, graph or map should be on a separate sheet, and if on disc each table, graph, map etc should be on a separate document. Please **do not** insert tables, graphs and maps in the same document as the text. Maps and diagrams should be either good quality computer print out and in black and white (please **do not** use greyscale shading) or drawn in black ink, but suitable for reduction from their original size. Contact Sylvia Laing on 0131 556 6042 for further details of how best to lay out tables, graphs, maps etc.

Scottish Birds

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Front Cover Puffins, Fidra, Firth of Forth. *Ian Andrews*

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