

# 1998 and 1999 RAPTOR ROUND UP

Produced by the  
Scottish Ornithologists' Club  
on behalf of all  
Scottish Raptor Study Groups  
with grant aid from  
Scottish Natural Heritage



# SRSG



**SCOTTISH  
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## Introduction

This 2 year edition of the Raptor Round Up has had a long and sometimes painful gestation, bedevilled by a whole series of delays and problems. These have finally been overcome and this report – for 1998 and 1999 – is the final result.

During this period birds of prey continued to occupy the political stage in Scotland. A vigorous and not always well informed debate in the general and specialised press rumbled on, focussing on the inter-related issues of illegal raptor persecution and legalised raptor culling.

Against this background birds of prey generally did well but marked exceptions to this trend persisted. Hen Harriers, as ever, held the dubious distinction of being Scotland's most persecuted bird. Golden Eagles still had 'holes' in their breeding distribution with no obvious ecological explanation for such gaps. Some Northern Goshawk populations did not expand as well as others – the differences almost certainly attributable to persecution. Red Kites – in all other respects a great success story – experienced levels of poisoning that may restrict their rate of expansion. Not all poor performance was persecution related. Far northern and western Peregrine Falcons showed low levels of site occupancy in some areas. Orkney Hen Harriers – free of human interference – continued to decline, a situation that is being examined in a dedicated research programme. However, there was continuing good news for Common Buzzards, Ospreys and White-tailed Eagles and not all populations of the persecuted species suffered from this chronic problem.

The future of the Raptor Round Up itself is now in some doubt. Some RSG workers have expressed the view that the new SNH/BTO raptor monitoring proposals will automatically mean the end of the Round Up. Others have said that the 2 things are not mutually exclusive and should continue in parallel. I offer no view of my own on this issue except to say that it should be resolved by a collective decision of the Groups. A 2000 Raptor Round Up already exists in embryonic form.

Keith Morton

**This report was written by Keith Morton with layout and editing input from Sylvia Laing, Bob Dawson and Helen Cameron. It is based on material supplied by Scottish Raptor Study Group members. The Scottish Raptor Study Group logo was designed and drawn by Keith Brockie.**

## Red Kite

*Milvus milvus*

### Central Scotland

|             | occupied | successful | chicks fledged |
|-------------|----------|------------|----------------|
| <b>1998</b> | 2        | 2          | 5              |
| <b>1999</b> | 6        | 4          | 5              |

**1998** - A first year male was established on another territory. Territory occupation/breeding progress is 2 years ahead of that of the northern release. A Red Kite was found poisoned some distance to the north of the release area in March. Twenty further new birds were introduced from Germany.

**1999** - A seventh potential pair of birds spent some days together over an ill defined area that may prove to be a future territory. A sixth chick hatched but fell out of the nest and was predated. All young were wing tagged. One bird was found poisoned close to the eastern edge of the release area and a number of other poisonings in this immediate area gave cause for concern. Twenty further new birds were introduced from Germany.

### Highland

|             | checked | occupied | laid | hatched | successful | chicks fledged |
|-------------|---------|----------|------|---------|------------|----------------|
| <b>1998</b> | 38      | 28       | 23   | 21      | 20         | 44             |
| <b>1999</b> | 48      | 32       | 30   |         | 22         | 54             |

**1998** - In addition to the 28 territories occupied by pairs, 4 territories held single adults. The numbers of pairs laying eggs showed no increase on the previous year. This is thought to be due to a combination of poor spring weather deterring new pairs from nesting and low recruitment of new breeding pairs. However, in terms of the number of pairs rearing broods and the total number of young fledged, 1998 was the most successful breeding season experienced so far. Forty one of the 44 young reared were marked (bright blue tag on the left wing - regional colour code - lime green tag on the right wing - year colour code - with a unique inscription - single white letter, white number or red symbol - on both tags). A male Black Isle chick from 1996 was located at a kite roost in Central region in the company of locally released birds. He paired with a 2 year old local and successfully reared 2 young.

This is the first record of a North Scotland kite breeding away from the core area.

Four Red Kites were found dead during 1998 in Highland. Three of these were poisoned. No cause of death was found for the fourth, a tideline corpse near North Kessock.

A 1997 Black Isle chick was seen in south east Iceland from 15 December 1997 and throughout 1998. This remarkable sighting (1,017km north west) constitutes the first ever record of a Red Kite in Iceland. There were more normal winter sightings of Highland tagged birds from Tیره, Tayside, Kyle of Lochalsh and Strathspey. Further afield were 2 birds in Ireland (Co. Clare and Co. Cork) and a single bird at Rhayader in Wales.

**1999** - In terms of the number of pairs rearing broods and the total number of young fledged, 1999 was the most successful breeding season experienced so far. There was a 30% increase in the number of young reared compared to 1998. It has been suggested that there should be a greater number of pairs than actually exists at the present in North Scotland. Low recruitment in 1997 may be to blame for this.

The breeding results would have been even higher but for the miserably cold weather experienced during mid May and early June which caused several inexperienced pairs to fail. A bird from North Scotland area was recovered dead under power lines near Bilbao, Spain in May.



Angus Hogg

## White-tailed Eagle

*Haliaeetus albicilla*

| occupied    | laid | successful | chicks | fledged |
|-------------|------|------------|--------|---------|
| <b>1998</b> | 17   | 15         | 9      | 13      |
| <b>1999</b> | 18   | 15/16      | 6      | 11      |

## 10 Year Summary

|  | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997  | 1998  | 1999  |
|--|------|------|------|------|------|------|------|-------|-------|-------|
| No of pairs or trios                         | 9    | 9    | 8    | 8    | 10   | 10   | 12   | 13-15 | 18-18 | 15-16 |
| No of areas occupied                         | 12   | 10   | 10   | 10   | 11   | 14   | 14   | 14    | 18    | 20    |
| No of clutches laid                          | 9    | 8    | 9    | 6    | 8    | 9    | 12   | 11-13 | 16-17 | 15-16 |
| No of clutches known to have hatched         | 2    | 4    | 4    | 4    | 4    | 6    | 8    | 6     | 9     | 9     |
| No of broods fledging Young                  | 2    | 4    | 4    | 4    | 4    | 5    | 7    | 5     | 9     | 6     |
| No of young fledged                          | 2    | 7    | 7    | 5    | 5    | 7    | 9    | 9     | 13    | 11    |
| Cumulative no of territories producing young | 4    | 4    | 5    | 5    | 5    | 6    | 8    | 9     | 12    | 12    |

The second phase of the release programme begun in 1993 was concluded in 1998 with the import of the final batch of chicks from Norway. Between 1993 and 1998 a total of 59 birds were released.

In 1998&99 successful pairs fledged a total of 13 chicks. This included the first birds to breed from the second phase release - 2 pairs - and a new Scottish bred pair which had failed in 1997. Breeding success figures would have been better but for the attention of egg collectors who robbed 2 established and normally productive pairs. Eggs stolen at one of these sites were within a few days of hatching.

1999 was the second most successful year since the reintroduction project began 24 years ago. A total of 11 young fledged from Scottish nests, 2 less than in 1998. All nest failures were attributed to natural causes, although disturbance was suspected at one site. One pair failed when an apparently healthy 3 week old chick fell out of the nest. One of the birds released in 1998 was found dead (of natural causes) in Sutherland. Of the 59 released in the second phase only 3 have been recovered dead.

The cumulative number of pairs to have successfully produced young remains unchanged and 12.



*John Love*

## Hen Harrier

*Circus cyaneus*

### Orkney

|             | breeding<br>females | breeding<br>males | nesting<br>attempts | laid | hatched | fledged | chicks<br>fledged |
|-------------|---------------------|-------------------|---------------------|------|---------|---------|-------------------|
| <b>1998</b> | 46                  | 27                | 34                  | 26   | 14      | 9       | 20                |
| <b>1999</b> |                     | 17                | 24                  | 21   | 10      | 10      | 21                |

**1998** - This season saw the start of a PhD study into Orkney's Hen Harriers.

The results from 1998 show a very similar pattern to that of recent years. In Orkney as a whole where 46 females and 27 males of which 39 females and 21 males were in the West Mainland, 5 pairs were on Hoy and 2 females with one male were on Rousay. The number of males in the West Mainland is higher than thought in 1996/97 but the difference is mainly in the number of first year birds (5 in 1998). One of the Hoy males was also a first year.

Twelve of the females (11 in the West Mainland and one on Rousay) were non breeders but 34 females (28 West Mainland, 5 on Hoy and one on Rousay) did attempt to nest. Eight of the West Mainland females did not lay so the success of 26 nests with contents was followed. Twelve of these (9 in the West Mainland and 3 on Hoy) failed at the egg stage while a further 5 (all in the West Mainland) failed at the chick stage. There were thus only 9 successful nests (6 West Mainland, 2 Hoy, and one Rousay) which produced a total of 20 fledged young (11 West Mainland, 5 on Hoy and 4 on Rousay).

**1999** - In the West Mainland study area 32 females and 20 males - of which 4 were first year males - were located. Twelve of the females were non breeders but of the 20 which did attempt to nest only 18 laid eggs. Ten of the nests failed during incubation but 8 hatched young. In addition, one of the failed females successfully re laid to give a total of 9 broods. From these a total of 20 young fledged, a productivity of 2.2 young per successful nest of 1.0 per breeding female.

On Hoy, 4 pairs attempted to nest. At one site nesting material was carried in; it is not known whether eggs were laid but this site did not rear young. Another site failed during incubation and another at the chick stage. The fourth nest reared 2 chicks.

On Rousay a female and an adult male were seen occasionally but no nest was ever found and no young were reared.

The overall Orkney totals were thus 25 males (of which 4 were first years) and 37 females (of which 13 were non breeders). The 24 females which attempted to breed laid at least 21 clutches from which 22 young were reared. The improved breeding success of the birds which bred in the West Mainland is thought to be due to the supplementary feeding being carried out as an experimental part of a the PhD study.

## Lothian and Borders

**1998** – Five pairs were seen but only one was allowed to breed and this subsequently failed.

Lammermuirs – 1 pair seen early which then disappeared;

Moorfoots - 3 pairs possibly present, one predated at large young stage;

Pentlands - one territorial pair.

**1999** - Ten pairs were known but only 3 pairs within the Borders portion of the Langholm study area raised any young.

Pentlands - one pair and an extra female were seen in one area from mid April to early May. A male was seen 2-3km away from this in early May. There were no further sightings.

Moorfoots - There was a pair in one area April-May, seen skydancing but with no evidence of nesting. An extra male was seen on one occasion. A pair at another site c 4km away was seen in mid April and were skydancing in late May.

Lammermuirs - A male was seen at one site in April and another displaying at another site in May. There was an unsubstantiated report that a male and 3 females were killed in the Lammermuirs.

Tweedsmuir Hills – a male was displaying in early April and pair at the end of the month. Nothing more was seen on 2 visits in mid and late May. A pair were prospecting and male displayed at different site but no nest was found.

Langholm Area (Borders only) Three pairs fledged 7 young.

Elsewhere - A pair was present in the Newcastleton area (outwith the Langholm study area) with no evidence of success. A pair was present south of Hawick.

## Argyll

**1998** - Selected 10km squares were surveyed in Argyll by RSG members and RSPB field staff as part of the national survey. Fifty two territorial pairs were located in these squares and the study area. Some of these survey squares in Kintyre, Islay and Jura held up to 5 pairs (probable plus possible). Quoting just these higher figures would obscure the overall picture. Some surveyors found no harriers in their chosen squares including one square in mid Argyll which supported none for the first time in 10 years of study. Based on this data an extrapolated figure of 124 pairs was estimated for Argyll (25% of the extrapolated Scottish population). The RSPB Loch Gruinart reserve had a good year for Hen Harriers with nine territories occupied and 5 successful pairs raising 12 chicks.

Where causes of nest failure were identified, most appeared to be natural including a site that was predated by a Fox on Cowal. However the presence of adult female feathers at another failed nest on Cowal and the remains of a dead adult female at a site on Bute are of more concern.

**1999** - sample sites were monitored on Mull, Islay (including the RSPB Reserve at Loch Gruinart) Mid Argyll, Knapdale, Kintyre, Cowal and Bute. At Loch Gruinart reserve it was a poor season with only 3 pairs producing 8 young. On Bute, one nest fledged 2 chicks and also contained 2 further chicks which failed to develop primaries and died. (These symptoms have been seen once previously, 2 years ago).



Andrew Stevenson

|             | occupied    | laid | fledged | chicks fledged | young per<br>successful territory |
|-------------|-------------|------|---------|----------------|-----------------------------------|
| <b>1998</b> | (47-52) 27' | -    | 18      | 52             | 2.88                              |
| <b>1999</b> | (27) 24''   | 21   | 16      | 39+            | 2.43                              |

1998 - The survey required proof of occupation but did not require nests to be located and breeding success to be followed up. This explains the discrepancy between the large numbers of occupied territories and the far smaller figures for nests completely monitored by group members.

⊘ 1998 - Numbers in brackets are all probable plus all possible pairs located.

⊘⊘ 1999 - Numbers in brackets include all pairs located, including territorial pairs present in early spring but which did not stay to breed.

\* 1998 No of sites fully monitored (included in the number of probable and possible pairs) for breeding success.

\*\* 1999 No of sites (included in the total) that were fully monitored for breeding success.

## North East

**1998** – The national survey resulted in good coverage. Persecution continued to be recorded as the major cause of failure with adults disappearing from a number of local populations.

**1999** – 1999 was a another poor year for harriers. In lower Deeside, where there were usually 15 or so pairs each year in the 1970s and 80s, there were only two pairs. One was definitely persecuted and the other probably so.

|             | pairs | outcome<br>unknown | failed | successful | chicks<br>fledged |
|-------------|-------|--------------------|--------|------------|-------------------|
| <b>1998</b> | 27    | 4                  | 17     | 6          | 18/19+            |
| <b>1999</b> | 14    | 1                  | 6      | 7          | 19                |

## Central

**1998** – The partial coverage of the area suggests a poor season. For one of the 3 failed pairs this was the second year running that this has happened. One pair may have been successful but the result was not confirmed.

**1999** – There were a few records from the south east of the group's area including 2 females and a male present in spring at one location. In Dunbartonshire one pair reared 4 young, one paired reared 3 young, one pair failed and one additional pair was present.

|             | checked | failed | fledged | chicks fledged |
|-------------|---------|--------|---------|----------------|
| 1998        | 4       | 3      | 1?      | ?              |
| <b>1999</b> | 5       | 1      | 2       | 7              |



## Tayside

**1998** – In Perthshire fewer pairs were located than previously but mean productivity of successful pairs was high. There were 17 pairs West of the A9 and 25 in the core area East of the A9. One bigamous male was successful with both broods but there were a lot of “spare” birds around.

In Angus 2 pairs were located, of which one was successful. In both cases the male of the pair was a first summer bird – indicative of persecution in the area. The successful pair laid 7 eggs of which 3 hatched. The number of pairs in Angus is far below the carrying capacity – again indicative of persecution.

**1999** – In Perthshire coverage was lower in the main study area than in 1998. Early failures were attributed to heavy rain and productivity was slightly down on the previous year. There appears to be a continued gradual decline in the west of the area.

|             | occupied | fledged | chicks fledged |
|-------------|----------|---------|----------------|
| <b>1998</b> |          |         |                |
| Perthshire  | 42       | 17      | 61+            |
| Angus       | 2        | 1       | 2+             |
| Total       | 44       | 18      | 63+            |
| <b>1999</b> |          |         |                |
| Perthshire  | 23       | 13      | 37             |
| Angus       | 3        | 2       | 6              |
| Total       | 25       | 15      | 43             |

In Angus 2 pairs succeeded – the best performance since monitoring started in 1983 but almost certainly only a fraction of the area’s true carrying capacity with persecution the most likely cause of this situation.

## Dumfries & Galloway and South Strathclyde

**1998** – Overall this was a record year for breeding in south west Scotland, with more pairs occupying territory than ever recorded before. However this number is certainly bolstered by the situation at

Langholm where the species continues to enjoy protection. In addition, the simple occupation figures mask a high level of persecution in many areas away from Langholm especially in upper

|             | occupied | laid | successful | failed (human) | outcome unknown | chicks fledged |
|-------------|----------|------|------------|----------------|-----------------|----------------|
| <b>1998</b> |          |      |            |                |                 |                |
| S.Strath.   | 44       | 31   | 13/14      | 22 (20)        | 9               | 46+            |
| D & G       | 34       | 27   | 20         | 9 (5)          | 5               | 63+            |
| Total       | 78       | 58   | 33/34      | 31 (25)        | 14              | 109+           |
| <b>1999</b> |          |      |            |                |                 |                |
| S.Strath    | 34       | 34   | 7          | 27(17)+        | 1               | 18             |
| D & G       | 20       | 16   | 10         | 6(5)           | 0               | 30+            |
| Total       | 54       | 50   | 17         | 33(22)         | 1               | 48+            |

Nithsdale and around Muirkirk where productivity is consistently low.

**1999** - Persistent persecution in upper Nithsdale is fast reducing the breeding population, with only 3 breeding attempts in 1999 (all unsuccessful). Several years ago some 10 to 12 pairs were regularly attempting to breed in this area but this has been greatly reduced by nest destruction and almost certainly by the killing of the females at the nest. This sub population is likely to be reduced to sporadic breeding attempts by prospecting pairs. Heavy persecution also remains apparent in South Strathclyde in the Muirkirk area resulting in a mean of only 0.53 chicks produced for each occupied territory.

## Highland

**1998** - The late spring and cool wet summer of 1998 resulted in a below average breeding season for unpersecuted pairs. A sample of 15 nests gave a mean clutch size of 4.8, slightly below the long term average. Brood sizes tended to be on the small size with 4 b/2, 5 b/3, 4b/4 and a single b/5 from the sample of 23 nests. This gives a mean brood size of 1.9 young per breeding pair and 3.1 per pair rearing young. Nine nests (39%) failed completely. The causes were: unknown (1-2); persecution (5-6); natural predation (2).

**1999** - In contrast to the 1998 survey year 1999 was a poor year for data collection of this species the Highland area. Only 10 active nests were checked, the lowest number since 1987. The high number of nests monitored in the period 1989 to 1995 correspond with a long term RSPB study involving wing tagging of young. There was a brief resurgence in the number of nests recorded in 1998, the year of a national Hen Harrier breeding survey. The recent reduction in the number of nest records submitted could reflect either a lack of effort by the group or may mirror a general decline in the number of breeding pairs present. There is some evidence to suggest the latter. No harriers were recorded at 5 traditional breeding sites which did receive repeated visits in the spring of 1999. All were on active grouse moors, 3 in east Inverness and 2 in Badenoch and Strathspey. This could suggest that persistent persecution is now having an impact on the number of pairs not only on sporting estates but also on other moors throughout our study area.

Most of the nest records submitted in 1999 were not on driven grouse moors, so that nesting success of the sample (70%) was higher than the long term average (see table below). Mean brood size in 1999 at 2.0 young per clutch laid and 2.9 young per successful nest was close to the long term average.

|              | laid | hatched | fledged | chicks fledged |
|--------------|------|---------|---------|----------------|
| <b>1998</b>  |      |         |         |                |
| Sutherland   | 7    | 6       | 5       | 13             |
| E Ross       | 2    | 2       | 2       | 7              |
| Bad & Strath | 4    | 0       | 0       | 0              |
| Nairn        | 1    | 1       | 1       | 4              |
| W Moray      | 9    | 8       | 6       | 20             |
| Total        | 23   | 17      | 14      | 44             |

**Hen Harrier breeding success in Highland and west Moray, 1989 to 1999**

| Year           | laid       | fledged    | nesting success % | chicks fledged | Mean brood per successful nest | Mean brood per clutch laid |
|----------------|------------|------------|-------------------|----------------|--------------------------------|----------------------------|
| 1989           | 36         | 19         | 53%               | 63             | 3.3                            | 1.8                        |
| 1990           | 38         | 25         | 66%               | 77             | 3.1                            | 2.0                        |
| 1991           | 34         | 21         | 62%               | 60             | 2.9                            | 1.8                        |
| 1992           | 47         | 28         | 60%               | 104            | 3.7                            | 2.2                        |
| 1993           | 50         | 24         | 48%               | 75             | 3.1                            | 1.5                        |
| 1994           | 51         | 25         | 49%               | 78             | 3.1                            | 1.5                        |
| 1995           | 43         | 24         | 56%               | 83             | 3.5                            | 1.9                        |
| 1996           | 19         | 13         | 68%               | 40             | 3.1                            | 2.1                        |
| 1997           | 12         | 9          | 75%               | 26             | 2.9                            | 2.2                        |
| 1998           | 23         | 14         | 61%               | 44             | 3.1                            | 1.9                        |
| 1999           | 10         | 7          | 70%               | 20             | 2.9                            | 2.0                        |
| <b>1989-99</b> | <b>363</b> | <b>209</b> | <b>58%</b>        | <b>670</b>     | <b>3.2</b>                     | <b>1.8</b>                 |

*Nick Picozzi*

## Northern Goshawk

*Accipiter gentilis*

### Borders

| chicks      | checked | occupied | laid | hatched | fledged |    |
|-------------|---------|----------|------|---------|---------|----|
| <b>1998</b> | 46      | 38       | 35   | 26      | 23      | 46 |
| <b>1999</b> | 50      | 43       | 36   | 31      | 29      | 73 |

**1998** – Twenty four of the nests were on Forest Enterprise ground, the rest in private woodlands. A high proportion of the many failures were around egg laying time and also around hatching time. This was attributed to the severe weather which had a marked effect on the season as a whole. There were 1.2 chicks produced per occupied site. No incidents of direct persecution were recorded although human interference is still considered to be the main factor limiting Border Goshawks. Six new sites were discovered, which highlights the feeling that if more woods could be checked yet more new sites would be discovered. Goshawks are now confirmed to be established in Berwickshire, although one of the

chicks from the site was found dead on the nest from frounce - not recorded in South Scotland/ North England since 1991. All previous cases of frounce have resulted in the death of the entire brood.

**1999** – A marked improvement on 1998 with over 50% more chicks fledged. Clutches of 5 were common and one clutch of 6 was recorded. There were 1.7 chicks produced per occupied site.

### Central Scotland

**1998** - One successful pair was recorded with at least two young reared and a second pair seen elsewhere. It is suspected that up to five or six pairs may attempt to breed annually in the Group's area.

**1999** – The single recorded pair reared 4 young. There were various records of single birds seen elsewhere.



Arthur Gilpin

## North East

**1998** – No specific data are available but the general picture reported was of a high failure rate due to spring snow.

| checked | pairs found | nests found | fledged | chicks fledged |
|---------|-------------|-------------|---------|----------------|
| 21      | 17          | 16          | 13      | 31+            |

North East RSG fieldworkers have noted the marked difference in rate of expansion between their Goshawk population and that in the English/Scottish Border country. Borders goshawks have had at least a 25-fold increase in breeding numbers between the 1970s and the present whereas the

**1999** – The following data are from the Dee and Don catchments between Huntly and Fettercairn

North East population has barely doubled over the same period. This has been attributed to substantial differences in the levels of direct persecution.

## Tayside

**1998** - One successful nest was reported in Angus which fledged 3 young. There may be a second site.

**1999** – Two successful nests were recorded in Angus with 2 and 4 young of which at least 4 certainly fledged

## Dumfries & Galloway

**1998** – Prior to 1999 there was no attempt made to assess the size of the breeding Goshawk population in the region, although there is no doubt that the species is fairly widespread with breeding pairs reported in all three counties. The following information is derived from a few ad hoc records recorded from various sources.

In the Forest Park at least 2 pairs bred, one successfully, with a single male seen regularly in a third location. In Dumfriesshire 2 pairs were located, one known to be successful with 3 chicks, and 2 further sites were apparently unoccupied. There were reports of persecution in Nithsdale but nothing substantive was discovered.

**1999** - More quantitative data were available for 1999 with results as follows.

| checked | occupied | laid | fledged | chicks fledged |
|---------|----------|------|---------|----------------|
| 10      | 8        | 7    | 5       | 9+             |

## Common Buzzard

*Buteo buteo*

### Argyll

| 1998 & (1999)<br>young fledged | checked      | occupied      | laid         | fledged       |
|--------------------------------|--------------|---------------|--------------|---------------|
| SW Mull<br>20 (25)             | 22+ (-)      | 22+ (-)       | 17 (-)       | 15 (16)       |
| Colonsay<br>7 (14)             | - (48)       | 19 (18)       | 8 (-)        | 5 (10)        |
| Cowal: Glenbranter<br>8 (29)   | - (-)        | 26 (31)       | - (-)        | 8 (23)        |
| Cowal: Elsewhere<br>5 (-)      | - (-)        | 12 (40)       | - (-)        | 4 (-)         |
| Bute<br>8 (3)                  | 4 (-)        | 4 (4)         | 4 (-)        | 4 (2)         |
| <b>Total</b><br><b>48 (-)</b>  | <b>- (-)</b> | <b>83 (-)</b> | <b>- (-)</b> | <b>36 (-)</b> |

**1998** - Monitoring data was obtained from several areas including data from 16 nests on SW Mull and coverage of all of Colonsay/Oronsay.

**1999** - Large samples were monitored again in several areas. On Colonsay/Oronsay Rabbit populations were low in 1999. Coupled with poor weather during the breeding season this led to the

poorest productivity recorded in 10 years. In the Cowal, Glenbranter study area 26 occupied territories were identified and 8 successful pairs fledged only 8 young. Only one of the monitored pairs throughout Cowal produced more than one chick. Observations suggest that pairs nesting in the extreme south of Cowal, south of Tighnabruaich, may have fared a little better.

### North East

The Buzzard population in the 15km<sup>2</sup> area between Kemnay and Dunecht on the Old Castle Fraser estate was surveyed in both 1998 and 1999. A total of 20 breeding sites were located by searching woods or shelter belts for old nests. Breeding pairs were then located as they displayed in the spring and their subsequent breeding success recorded. The density of breeding pairs varied from 1.26/km<sup>2</sup> (1998) to 1.13/km<sup>2</sup> (1999) and site occupancy fell from 100% to 80%. There was no evidence of persecution. Productivity was similar in both years (1.59 young/occupied site in 1998; 1.58 young/occupied site in 1999) as was the

number of young fledged per successful site (1.88 young/successful site in 1998; 1.93 young/successful site in 1999).

In 1998 only, the Buzzard population on a large part (35km<sup>2</sup>) of Dunecht estate was also surveyed. The density was 1.0 pairs/km<sup>2</sup>. Site occupancy in 1999 was known to be similar but breeding data were not collected. The difference in breeding density between the 2 study areas is thought to reflect habitat differences with more open areas without suitable breeding sites on Dunecht estate. The results are shown in the following table.

|                             | Kenmay/Dunecht (15km <sup>2</sup> ) |      | Dunecht (35km <sup>2</sup> ) |
|-----------------------------|-------------------------------------|------|------------------------------|
|                             | 1998                                | 1999 | 1998                         |
| checked                     | 19                                  | 19   | 37                           |
| sites/km <sup>2</sup>       | 1.27                                | 1.27 | 1.06                         |
| occupied by a single bird   | 0                                   | 0    | 2                            |
| occupied by a pair          | 19                                  | 17   | 34                           |
| pairs/ km <sup>2</sup>      | 1.27                                | 1.13 | 1.03                         |
| failed                      | 2                                   | 3    | 6                            |
| successful                  | 17                                  | 14   | 30                           |
| min. no. young fledged      | 32                                  | 27   | 61                           |
| mean young/occupied site    | 1.68                                | 1.59 | 1.69                         |
| mean young/ successful site | 1.88                                | 1.93 | 2.03                         |
| mean young/ km <sup>2</sup> | 2.0                                 | 1.8  | 1.74                         |

## Highland

The Highland RSG received details of the breeding performance of 96 pairs of Buzzards in 1998 and 102 pairs in 1999 (of which 99 were

sufficiently complete to include in the table). The most complete and detailed study in both years was that done in Easter Ross to the east of Tain.

| 1998 & (1999)                     | occupied | laid    | hatched | fledged | chicks fledged |
|-----------------------------------|----------|---------|---------|---------|----------------|
| N & W Sutherland                  | 12 (24)  | 12 (22) | 11 (20) | 11 (19) | 18 (34)        |
| Skye and Small Isles <sup>+</sup> | 14 (8*)  | 14 (8*) | 14 (8)  | 14 (8)  | 22 (10)        |
| Easter Ross                       | 58 (52)  | 53 (49) | 45 (42) | 42 (38) | 94 (71)        |
| Strathspey                        | 58 (8)   | 53 (8)  | 45 (8)  | 42 (7)  | 94 (18)        |
| Others                            | 7 (7*)   | 7 (7*)  | 7 (7)   | 7 (7)   | 18 (18)        |
| Total                             | 96 (99)  | 91 (94) | 78 (85) | 75 (79) | 155 (151)      |

+ 1999 figures are for Skye only

\* These figures should be treated with caution as nests were mainly checked late in the season and early failures may have been missed

1998 - Overall a good year for breeding Buzzards in the Highland area. In the main Easter Ross study area 58 pairs were carefully followed. Mean clutch size was once again 2.8. The mean brood 6 of successful pairs was 2.4, but due to the 21% of pairs that failed, only 1.6 young were fledged per territorial pair. These productivity figures were slightly higher than normal and the highest recorded since 1992.

In the second main study area, the north and west of Sutherland, breeding success was slightly lower than in Easter Ross with most birds rearing only 1 or 2 chicks. None reared more than 2, whereas in Easter Ross, of the 39 successful broods, 19 had more than 2 chicks. However, only one of the Sutherland pairs failed totally, compared with 11 of the Easter Ross pairs. The breeding success in Sutherland was well below the 1997 record of

2.3 young per pair. This was almost certainly due to the summer weather conditions which were far wetter and windier than the unusually warm, dry summer of 1997.

Details were received from a new area in the west, Skye and the Small Isles (mainly Eigg and Canna). The overall pattern of success there was very similar to that in NW Sutherland.

Strathspey productivity was again very low with 4 out of 5 monitored nests failing. At 3 of these sites persecution from estates engaged in game management was strongly suspected. Prior to an increase in game management, these 3 sites had been very successful over a 15 year period.

The figures from other areas suggest a very high success rate. These figures, however, are almost certainly biased towards successful nests as very little systematic searching is done to locate all nests early on in the breeding cycle, so that early breeding failures were missed, inflating the overall success rate.

1999 – this was considered an average year for Buzzards in the Highland Group's area. The close study of 52 pairs in the Tain area of Easter Ross revealed a mean clutch size of 2.8. Mean brood size of successful pairs was low at 1.9 and a 22% failure rate meant that only 1.4 chicks fledged per territorial pair. This is at the bottom end of the recorded range of productivity. This was attributed to cool, wet weather during June.

In the other main study area in north and west Sutherland breeding success was similar to 1998 and similar to that recorded in Easter Ross. There were few total failures but most pairs reared only 1 or 2 chicks.

In contrast to 1998 productivity from the few pairs monitored in Strathspey was good with only one

failure and half the pairs producing 3 chicks. No persecution was recorded in 1999 whereas it was considered to be the main factor in failures in 1998.

Skye appeared to have a poor season and the figures may overstate productivity since many sites were only checked late in the season and some early failures may have been missed. A similar situation applies with the "others" data in the table (mainly from the Black Isle and Strathpeffer areas).

Overall, however, Highland Buzzards continue to do well with productivity fluctuating only slightly and being sufficient to sustain a healthy and expanding population.

## **Lothian and Borders**

During 1998 and 1999 both the Borders and Lothian continued to see substantial re-colonisation by Buzzards. In the Borders the species remained significantly commoner in its core areas in the north and west of the region with an estimated minimum there of 350 pairs in 1998 and 357 in 1999. In the south and east of the region the species is still much more thinly spread but re-colonisation continues. In this part the minimum number of pairs was 56 in 1998 and 41 in 1999.

The Lothian Buzzard population also continued its spectacular success story and further expansion and in filling took place. The following table summarises the productivity this situation between 1993 and 1999.



| <b>Lothian Buzzards</b>     | <b>1999</b> | <b>1998</b> | <b>1997</b> | <b>1996</b> | <b>1995</b> | <b>1994</b> | <b>1993</b> |
|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Territorial pairs           | 86          | 82          | 62          | 52          | 50          | 33          | 20          |
| Successful pairs            | 66          | 56          | 45          | 38          | 33          | 21          | 11          |
| Total young recorded        | 159         | 120         | 128         | 102         | 91          | 37          | 25          |
| Chicks per successful pair  | 2.4         | 2.14        | 2.86        | 2.68        | 2.76        | 1.76        | 2.27        |
| Chicks per territorial pair | 1.85        | 1.46        | 2.05        | 1.96        | 1.82        | 1.12        | 1.25        |



Andrew Stevenson

## Golden Eagle

*Aquila chrysaetos*

### Central Scotland

|      | checked | occupied | successful | chicks fledged |
|------|---------|----------|------------|----------------|
| 1998 | 9       | 7        | 5          | 5              |
| 1999 | 8       | 8        | 5          | 6              |

1998 - Full coverage was achieved. Single birds were recorded in the 2 unoccupied ranges.

1999 - At one otherwise successful site the uneaten remains of the 4 week old second chick were found at a regular perch used by the adults.

### Tayside

| 1998 and (1999) | checked | occupied | fledged | chicks fledged |
|-----------------|---------|----------|---------|----------------|
| W of A9         | 16 (14) | 10 (13)  | 2 (2)   | 2+ (2)         |
| E of A9         | 13 (13) | 12 (11)  | 7 (6)   | 11+ (9)        |
| Total           | 29 (27) | 22 (22)  | 9 (8)   | 13+ (11)       |

1998 - West of the A9 had a very poor year, even by West Perthshire standards. Two sites failed on eggs - both clutches were analysed and both had failed with no embryo development having taken place. One clutch was from a home range with extremely poor food resources in the west of the area which habitually fails at the egg stage. The other was on the edge of a grouse moor with good bird and Hare resources close by but on a very open ledge, probably a victim of poor weather. The anomaly of no breeding in part of the relatively food rich east end of the study area continues. Although forestry plantation in one range is likely to be affecting food supply, a further 5 territories are apparently ideal for these birds. A complete lack of signs of birds in the most western territory in Perthshire is worrying, particularly as it follows a long term failure to produce.

East of the A9 there was a reasonable season with weather probably the cause of poor success in areas like Glen Clova.

1999 - West of the A9 only 4 nests reached the laying stage and 2 of these failed. The production

of the few successful nests in the study area - and always the same ones - must be crucial to the whole local population.

### Argyll

1998 - the number of successful pairs was a little lower than the previous year dropping to 22 (25 in 1997) and 27 fledged young produced compared to 31/32 in 1997. Five sets of twins were fledged for the second consecutive year. In the study area on South mainland Argyll the season was described as pretty poor and extremely confusing in some areas where it proved difficult to assign non-breeding birds to particular territories.

An adult Golden Eagle was caught in a Fox snare on the Cowal in April and although released unharmed this may have contributed to the lack of a breeding attempt in this territory. A Golden Eagle was found poisoned close to a known nest site in a mid Argyll territory that has had a singular lack of breeding success for many years. While it was estimated that it had been dead for 3 to 4 weeks a very freshly dead Hare and lamb were

|             | checked | occupied | fledged | % occupied territories to fledge | chicks fledged | chicks per successful pair |
|-------------|---------|----------|---------|----------------------------------|----------------|----------------------------|
| <b>1998</b> | 61      | 54       | 22      | 40.7%                            | 27+            | 1.22                       |
| <b>1999</b> | 61      | 57       | 16      | 28.0%                            | 17             | 1.06                       |

found laid as poisoned baits nearby and a live immature eagle was seen in the area.

**1999** Overall this year had a poor breeding season in Argyll especially in the south Argyll

mainland study area where it was described as 'utterly miserable and the worst year on record' by the RSG workers concerned. Although site occupancy was slightly up on 1998 productivity was much poorer and only one set of twins fledged.

## Dumfries & Galloway

**1998** - Two pairs attempted to breed, both producing eggs but only one pair being successful, fledging a single chick. This latter success was due in large part to the dedicated efforts of 2 local RSG members who together co-ordinated and largely carried out a nest protection scheme. At least one immature bird continues to be seen in a recently deserted territory.

**1999** Two pairs again attempted to breed. One pair hatched at least one chick which disappeared after about a week. This was probably due to the severe weather in mid May but human interference has not been entirely discounted. The eggs at the other site failed to hatch, possibly due to inadvertent disturbance by stalkers. Discussions with the site managers have hopefully prevented this happening again in future.

The Golden Eagle's tenure in Dumfries and Galloway as a breeding species remains precarious and every effort to enhance habitat and protect sites should be made.

## North East RSG

|             | occupied | laid | successful | chicks fledged |
|-------------|----------|------|------------|----------------|
| <b>1998</b> | 18       | 15   | 10         | 14(+2)         |
| <b>1999</b> |          |      |            |                |

**1998** Eighteen pairs is now the usual number of birds present. No singles were reported. One chick was reared in each of two sites on one estate where persecution has been rife, probably because both were in new eyries and so avoided notice and persecution. Generally a good year

although all the birds that use high nests failed due to the cold wet spring. One site seems to have been occupied by an old bird or pair of old birds for several years now and they do not appear to be laying eggs.

## Highland

**1998** - The 92 pairs monitored for breeding success throughout the Highland area in 1998 was much the same as in previous years. Records were well distributed across the area, with the usual tendency for more pairs to be checked in the west than the east. Comparatively few pairs were checked in North Lochaber (the area between Kyle of Lochalsh and Fort William) compared with previous years. Typically, for most pairs, information was incomplete for the middle part of the breeding season, notably for the nestling period. Therefore, as in previous years, the results are presented to show ultimate breeding success figures only. A small number of pairs for which data on ultimate breeding success were either incomplete or uncertain have been excluded.

The overall breeding success was substantially higher than the long term average. The shortage of records from North Lochaber, where success is generally quite poor, probably contributed to this. However, all areas tended to show relatively good success, especially in the west, and in both Skye and the Small Isles performance was conspicuously good.

One clutch of 3 eggs was reported from Strathspey, although none of these hatched. There is continued evidence of human persecution at a number of

sites in the east of the region. Although the summer period was wetter than average, the early spring was comparatively mild. The latter was probably one factor contributing to the generally good breeding success reported in 1998.

**1999** - The number of pairs monitored was appreciably less than the usual 90 to 100 although records continued to be well distributed across the area albeit with the usual tendency for more pairs to be checked in the west. As in 1998, few North Lochaber pairs were checked and this year fewer than usual were visited in Wester Ross and Sutherland. Again, for most pairs, information was incomplete for the middle part of the breeding season, notably for the nestling period. Therefore, as in previous years, the results are presented to show ultimate breeding success figures only and data on a small number of pairs for which data on ultimate breeding success were either incomplete or uncertain have been excluded.

Productivity was below the long term average and was generally similar across the region except in South Lochaber where it was low. Several failures were attributed to human persecution, notably in Strathspey where an adult and chick were found poisoned on the nest. This pattern is consistent with previous years.

| 1998 & (1999)       | checked | fledged | chicks fledged | yng/successful pair |
|---------------------|---------|---------|----------------|---------------------|
| NW Suth./NW Ross    | 18 (8)  | 10 (4)  | 10 (4)         | 1.00 (1.00)         |
| E Ross/E Suth/S'pey | 15 (15) | 7 (6)   | 8 (9)          | 1.14 (1.50)         |
| Skye & Lochalsh     | 32 (32) | 16 (15) | 24 (17)        | 1.50 (1.13)         |
| N Lochaber          | 2 (1)   | 0 (0)   | 0 (0)          | 0.00 (0.00)         |
| S Lochaber          | 20 (20) | 6 (5)   | 8 (5)          | 1.33 (1.00)         |
| Small Isles         | 5 (3)   | 4 (2)   | 5 (2)          | 1.25 (1.00)         |
| Total               | 92 (79) | 43 (32) | 55 (37)        | 1.26 (1.16)         |

**Osprey***Pandion haliaetus*

| 1998 & (1999) | occupied         | laid             | hatched        | successful     | chicks fledged   |
|---------------|------------------|------------------|----------------|----------------|------------------|
| Highland      | 64 (69)          | 59 (65)          | 53 (56)        | 47 (47)        | 99 (98)          |
| Tayside       | 41 (45)          | 36 (39)          | 32 (26)        | 28 (25)        | 61 (51)          |
| Rest          | 25 (22)          | 21 (21)          | 17 (17)        | 17 (15)        | 32 (34)          |
| <b>Total</b>  | <b>130 (136)</b> | <b>116 (125)</b> | <b>102(99)</b> | <b>92 (87)</b> | <b>192 (183)</b> |

**1998 - Highland**

1988 was another good year for Highland Ospreys with a good start to the season and a record number of successful pairs. Sixty four pairs were found - 5 more than in 1997 - with one other site holding a single male. Egg collectors destroyed 5 breeding attempts. Only one other nest failed to hatch. In the third week of May, the wind moved to the north east and was cold and there were frequent, but not heavy, rains throughout the rest of the season in the breeding areas. Heavy rains in the mountains caused high river levels which prevented male Ospreys catching enough fish in one estuary, resulting in the loss of 3 small broods. The failure of 3 further broods was attributed to cold, wet weather. Forty seven pairs raised flying young (7 more than in 1997) and 99 chicks fledged (22 more than in 1997). There were 15 broods of 3, 22 broods of 2 and 10 singles. Productivity was 1.55 young per pair with an eyrie, 1.68 young per pair laying eggs. Mean brood size was 2.11. Twelve chicks were collected under licence by Roy Dennis for the English release project. All of these fledged and migrated successfully from Rutland Water.

**1998 - Tayside**

More pairs were located in 1998 but the final outcome, in terms of numbers of young fledged, was the same as 1997 at 61 chicks. Two new

eyries were found on electricity pylons – there are now 4 such nests. One long established female was probably killed by another female which took over the site. The original bird was a 1990 chick from Aberdeenshire, the interloper was a 1994 chick from Nairn. Two large chicks died when their nest fell out in high winds. The wind and rain caused other nests to fail particularly at hatching time. Fifty five young were colour ringed.

**1998 – Elsewhere**

A slow expansion continues in the north east with new fish ponds proposed in one part of the region which will probably increase the attractiveness to ospreys.

One new pair was found in Argyll which had a markedly better season than in 1997. Several other summering birds were seen and 6 Argyll chicks were colour ringed.

Despite 2 new pairs recorded, Central Scotland had a poor 1998 season. One pair failed to lay and another produced a single runt chick without proper feather growth. Two pairs used artificial nests.

A number of summering birds were seen in

Dumfries and Galloway and some stick carrying activity was recorded.

### 1999 – Highland

Although the numbers of occupied territories continued to increase in 1999 and more pairs laid eggs and hatched chicks than ever before, the final score of fledged chicks was one down on 1998. A severe storm on 21 May destroyed 2 occupied nests. Two other nests suffered broken eggs when intruding Ospreys fought with the incubating bird. Egg collecting accounted for 2 failures. As in 1998 high river levels limited fishing success in one area and 2 broods died as a result. Other brood failures were also attributed to poor weather conditions. The Loch Garten pair tried to buck the trend by laying 4 eggs, although only 3 chicks were fledged. Forty seven pairs raised flying young (the same as in 1998) and 98 chicks fledged (99 in 1998). There were 13 broods of 3, 26 broods of 2 and 8 singles. Productivity was 1.42 young per pair with an eyrie, 1.51 young per pair which laid eggs. Mean brood size was 2.08. Twelve further chicks were taken under licence by Roy Dennis for the Rutland Water release project and all these fledged and migrated successfully. Two of the 1997 released Rutland males returned to summer there.

### 1999 – Tayside

As in Highland site occupancy and breeding attempts in Tayside were up on the previous year but productivity was ultimately disappointing. A series of losses during incubation were attributed to poor weather in late May. Four pairs continued to nest on electricity pylons and a further pair used a lower, two pole, power line support. This nest was struck by lightning on 1 August, killing the single chick. This was the only nest to reach the hatch stage that failed to fledge young. Fifty one

chicks fledged (10 less than in 1998). There were 6 broods of 3, 14 broods of 2 and 5 singles. Productivity was 1.13 young per occupied nest, 1.31 young per pair that laid and 2.04 per successful nest.

### 1999 – Elsewhere

There was little hard evidence of the hoped for continued expansion in the north east with fewer active nests found than in 1998 although some of these were at new sites. Failures during incubation and at nestling stage were attributed to poor weather and a male found dead at one regular site appeared to have suffered a collision injury. There were, however, pairs rumoured at a number of other sites and so no actual contraction of the regional population may have taken place.

In South and West Scotland the populations remained stable with further sightings of non-breeding birds giving continued hope of further expansion. Unlike the longer established Highland and Tayside populations the numbers of fledged young increased from 1998 figures although 2 fledged birds are thought to have died before migration. Seventeen chicks were ringed.

### Satellite tracking

A number of transmitters have been attached both to Rutland released ospreys and to birds from Scotland. These can be tracked by satellite (as part of the Rutland project). Much fascinating information has emerged. Ospreys, unlike most large migratory raptors, have long been thought to be capable of long flights over water. This allows a broad front migration without using 'pinch points' like Gibraltar or the straits around Sicily. The satellite work has confirmed this and also shown the birds' ability to make long, single flight crossings of the western Sahara. This and much more of interest can be seen at [www.ospreys.org.uk](http://www.ospreys.org.uk).

**Common Kestrel***Falco tinnunculus*

## Ayrshire study area

|  | 1998 | 1999 |
|--|------|------|
| Number of territories checked            | 44   | 40   |
| Number of territories occupied           | 33   | 21   |
| % occupation                             | 75   | 52   |
| Number of clutches known                 | 25   | 10   |
| Average clutch size                      | 5.1  | 5    |
| % of eggs which hatched                  | 70   | 90   |
| Number of results known                  | 27   | 17   |
| Average young reared per breeding pair   | 3    | 2.76 |
| Average young reared per successful pair | 4.1  | 4.3  |
| Number of breeding attempts failed       | 7    | 6    |
| % failed                                 | 26   | 35   |
| % brood survival                         | 86   | 91   |
| Number of young ringed                   | 71   | 36   |
| Number of adults trapped/ringed          | 13   | 6    |

**1998** - As expected, vole numbers declined from the 1997 peak but by no means crashed, being found readily at nests until the end of the season. Weather played a very significant role and may have contributed to several late breeding attempts with poor results. January to mid February was mild, dry and sunny, a "false spring" that had many pairs inspecting sites and even making scrapes. This ended with a poor spell of weather into March with heavy snow in March and April. Site occupancy was good (75%) and the first egg was laid on 11 April, two weeks later than 1997. The early start to the season produced a long period between display/site inspection and laying - in 5 cases as long as 3 months. These birds may have lost condition after the early start and nested late after recovering with - ultimately - poor productivity. Nevertheless overall productivity was above average though not approaching 1997's record figures.

Thirteen of the known first egg laying dates were in April, 7 in May, the latest being on 15 May. Mean clutch sizes (5.1) were down from 1997 with 6 hens laying 6 eggs (8 in 1997). The hatching rate was also reduced.

Thirteen adults were trapped under licence and all hens (11) except one weighed over 290g. The exception (229g) - a first year bird - reared only one chick. Four of the captured birds were retraps: one hen on the same territory as 1997; one adjacent to the territory from which it fledged in 1997; one 18 km. from its 1997 natal site; one - the most interesting - 2 territories from where it was ringed as a breeding adult in 1992.

Of the 7 failures, one was at pre laying stage 4 during incubation and 2 during the brood period. Three failures were due to desertion in poor weather, one was due to egg collecting and 2 were

for reasons unknown. Brood survival was high - as is usual.

A bird ringed as a chick in 1995 at the Ardeer ICI plant was found dead at Cumnock nearly 3 years later and 37 km from its natal site.

**1999** - Productivity hinged on 2 factors, a dearth of voles which was apparent until well into July and a critical spell of very bad weather from 5-26 April. One pair which laid early did persist through this period but territory occupation was very low at 52% and at least 5 pairs which had been well settled left their without laying. Once this bad spell was over the weather was dry and sunny for a few weeks and the remaining pairs began to breed. The mixed weather which followed did not adversely affect breeding and those pairs which eventually laid were very successful and on a par with the 1998 results. Several nest boxes were lost during the severe weather on Boxing Day and some conifer belts were flattened.

The first laid egg was in a lowland site on 8 April, the remaining pairs laying between 27 April and 3 May, a very narrow time band but indicative of pairs starting to lay as soon as the weather improved. Only 2 hens laid clutches of 6 (6 in 1998; 18 in 1997). Hatching rate was exceptionally high at 90%.

Very few adults were trapped due to the low numbers of breeding pairs found, one hen was caught in the same territory for the third year in succession and another was caught in the same breeding territory as in 1998. Six hens averaged 295g, well within 'good condition' limits.

Six pairs failed, 5 at pre laying stage during the bad weather, the other for an unknown reason. The pairs which did breed had a successful season. Mean clutch size was high (5.0). Ninety per cent of eggs hatched and brood survival was also 90%.

One bird ringed as a nestling in the Carrick Forest in 1998 was found dead under powerlines on Newtonmore Golf course in March 1999.



*Arthur Gilpin*



## Highland

The most complete Kestrel data for Highland came from Easter Ross and East Sutherland study areas in both 1998 and 1999 and these are shown below.

All are from nest box sites.

|              | pairs | laid | hatched | fledged | chicks fledged | Mean clutch (n) | Mean brood (n) |
|--------------|-------|------|---------|---------|----------------|-----------------|----------------|
| 1998         |       |      |         |         |                |                 |                |
| E Ross       | 7     | 7    | 7       | 6       | 26             | 4.8 (6)         | 4.3 (6)        |
| E Sutherland | 6     | 6    | 5       | 5       | 21             | 5.0 (6)         | 4.2 (5)        |
| 1999         |       |      |         |         |                |                 |                |
| E. Ross      | 6     | 6    | 6       | 6       | 24             | 5.1 (6)         | 4.8 (5)        |
| E Sutherland | 3     | 3    | 3       | 2       | 7              | 4.0 (3)         | 3.5 (2)        |

## Argyll

**1998** - on SW Mull at least 10 successful pairs were located and the 5 pairs for which fledging information was obtained reared approximately 18 young. A pair located on Colonsay is thought to have failed. On Cowal, where numbers of voles were falling following a 1997 peak, 26 nests were

located (Glenbranter study area and elsewhere) and the monitored pairs that were successful continued to have a high productivity fledging a minimum of 70 young. Two successful pairs were monitored on Bute.

|          | Territories Occupied | Territories known to have fledged young | Min no of young fledged | No of young per successful territory |
|----------|----------------------|---|-------------------------|--------------------------------------|
| SW Mull  | 10                   | 5                                       | 18                      | 3.6                                  |
| Colonsay | 1                    | 0                                       | 0                       | 0                                    |
| Cowal    | 26                   | 14                                      | 70                      | 5.0                                  |
| Bute     | 2                    | 2                                       | 7                       | 3.5                                  |
| Total    | 39                   | 21                                      | 95                      | 5                                    |

**1999** - data were less complete than for 1998 (and have not been tabulated) but monitoring revealed much lower numbers of birds with very low vole numbers across wide areas of Argyll.

**Merlin***Falco columbarius***Central**

In both 1998 and in 1999 3 pairs were recorded but no results were obtained.

**Tayside**

| 1998 & (1999) | checked | occupied | fledged     | chicks fledged |
|---------------|---------|----------|-------------|----------------|
| Perthshire    | 39 (42) | 22 (23)  | 12+ (8f+4?) | 40+ (25+)      |
| Angus         | 22 (28) | 12 (12)  | 9 (9)       | 26+ (30+)      |
| Total         | 61 (70) | 32 (35)  | 21 (17f+4?) | 66+ (55+)      |

**1998** – In Perthshire fewer territories were checked than in previous years. Despite the weather there was a higher production of young per successful pair than in recent years. Five pairs not checked through to fledging would almost certainly have been successful. A number of territories appeared not to have been occupied in Glen Lyon (this is also true for Peregrine territories) but this area has a number of treenesting pairs which may have been more difficult to locate. The Angus the breeding season was again very wet – the wettest on record. Several sites which are usually successful failed, with some not being occupied at all. This was partly offset by the finding of 2 new (successful) sites. Brood depletion was also higher than usual. Seven broods were colour ringed. One pair re-laid and raised a brood of 2.

**1999** – In Perthshire extremely bad April weather seemed to affect some areas more than others. Breeding pairs were scarce in West Perthshire especially Farragon, East Rannoch and Glen Lyon. There also appeared to be a lack of prey, in particular Meadow Pipits, in these areas in late April and May. In Angus the 1999 season was one of the most successful since monitoring began in 1983 with the most fledged young since 1990 and the second best since 1994. Losses at successful sites of 2 to 3 years ago are balance by new successful sites. One site failed at chick stage due to Fox predation.

**South Strathclyde Dumfries & Galloway**

| 1998 & (1999) | checked | occupied | successful | chicks fledged |
|---------------|---------|----------|------------|----------------|
| S. Strath.    | 26 (17) | 17 (9)   | 5 (1)      | 11+ (1+)       |
| D & G         | 31 (16) | 18 (13)  | 6 (10)     | 17+ (22+)      |
| Total         | 57 (33) | 35 (22)  | 11 (11)    | 28+ (23+)      |

**1998** – The extra effort of the Hen Harrier survey produced a reduced effort on Merlins. There is certainly an unknown number of additional pairs and the outcome at many known sites was not discovered. The species continues to be rather scarce in the region and largely confined to heather moors and a few suitable forest edges with adjacent moorland.

**1999** – This species is difficult to census and Dumfries and Galloway group workers record breeding outcome in only a few areas. Generally the population appears to be low but stable following the declines that resulted from afforestation. In Galloway a much reduced population breeds in a few places around the forest edge where there is sufficient productive moorland nearby.

## Argyll

|      | checked | occupied | successful | chicks fledged |
|------|---------|----------|------------|----------------|
| 1998 | 9       | 5        | 2          | 7              |
| 1999 | 7       | 5        | 3 [4*]     | 7 [12*]        |

\* includes a brood of 5, 10/14 days old at last visit

**1998** - Four previously regular sites were apparently vacant in 1998 and evidence of occupation was established in only 5 areas including Mull, Colonsay, Islay and Cowal. A few additional sightings of adults in the breeding season were reported from suitable breeding habitat during the course of other field work but no follow up searches were possible.

**1999** – On Mull birds were reported from 4 separate areas in the breeding season (more than usual) and included one pair where 10 to 14 day old chicks were present on the last visit. A bird was reported in a suitable location on Jura. In Mid Argyll birds were absent from on regularly used site but a bird was seen in a new suitable area. A Knapdale pair were on territory but the nest was not found. One Kintyre site was seemingly vacant and a second pair fledged 2 to 3 young. In Cowal 2 new successful pairs were found.

## North East

| 1998 & (1999)     | checked | occupied | laid    | hatched | fledged | chicks fledged |
|-------------------|---------|----------|---------|---------|---------|----------------|
| Lower Deeside     | 21      | 10 (8)   | 10 (8)  | 8 (7)   | 8 (6)   | 24 (13)        |
| Mid/upper Deeside | 26*     | 10 (11)  | 10 (11) | 9 (10)  | 9 (9)   | 31 (30)        |
| Donside/Moray     | 41*     | 20 (18)  | 17 (18) | 12 (15) | 10 (14) | 38 (46)        |
| Total             | 88      | 40 (37)  | 37 (37) | 29 (32) | 27 (29) | 93 (89)        |

\*partial coverage

**1998** - full coverage was achieved in Lower Deeside with the rate of occupation and success matching that of recent seasons. There were some brood reductions associated with heavy rain late in the season.

In Mid and Upper Deeside there was only partial coverage. Site occupation was low in the Braemar area but occupied sites did well and there was very good breeding success elsewhere.

Some parts of Donside and Moray were only partly covered. Site occupation was patchy in Donside and overall success was only average due to poor weather. Persecution was again suspected at one Donside estate where some sites have had birds present every year - but only first year males - and one site has young every year but none have fledged since 1990.

**1999** - Lower Deeside had full coverage which found the lowest number of birds breeding there since the study began 20 years ago. Some brood reduction was noted.

In Mid and Upper Deeside there was partial coverage with a similar pattern to 1998 with low occupancy in the Braemar area but good productivity from active sites, especially in Mid Deeside.

In Donside and Moray there was almost full coverage of the areas normally monitored. Occupation was patchy being poor in Mid Donside and Cabrach but an increase was noted in Upper Donside. One new site was found and active sites had good breeding success.

## Shetland

|      | checked | occupied | laid | hatched | fledged | chicks fledged |
|------|---------|----------|------|---------|---------|----------------|
| 1998 | 34      | 17       | 15   | 13      | 12      | 36+            |
| 1999 | 33      | 14       | 13   | 12      | 11      | 27+            |

Coverage of Merlins in Shetland has been less complete in the 1990s than during the 1980s but it would appear that there has been a steady decline since 1996 with reductions noted in both core and peripheral areas.

## Lothian & Borders

| 1998 & (1999) | checked  | occupied | hatched | fledged | min. chicks fledged |
|---------------|----------|----------|---------|---------|---------------------|
| Lammermuirs   | 30 (30)  | 16 (13)  | 7 (6)   | 5 (4)   | 20 (12)             |
| Moorfoots     | 10 (10)  | 4 (3)    | 3 (2)   | 2 (2)   | 7 (6)               |
| S. of Tweed   | 7 (5)    | 5 (3)    | 3 (2)   | 3 (2)   | 9 (6)               |
| Pentlands     | - (10+)  | 4 (6)    | 1 (4)   | 0 (4)   | 0 (9)               |
| Other         | 2 (2)    | 0 (0)    | 0 (0)   | 0 (0)   | 0 (0)               |
| Total         | 49 (57+) | 29 (25)  | 14 (14) | 10 (12) | 36 (33)             |

**1998** - Some briefly glorious early spring weather raised hopes of a good breeding season for Merlins this year. These were dashed when the weather turned poor and remained so throughout most of April, May, June and July. April was reported as the wettest this century. Breeding success was undoubtedly adversely affected by cold, wet weather and poor visibility. Overall success was markedly down in all areas compared with the 1997 season.

In the Lammermuirs, although there was evidence of early occupation at 16 sites, only 9 definitely reached the egg stage (2 pairs may have laid and quickly failed) and the others appeared deserted before egg laying was likely. Five nests had 5 eggs and 4 laid 4. Only 5 pairs managed to raise young (20) to ringing age.

Two of the failed pairs had small young disappear and 2 failed to hatch. At one of the latter the female was found long dead by the nest. She had not been predated. After the season an adult male was found long dead in a crow trap within about 4km of this nest, conceivably the mate of the dead female who may have starved on the nest.

In the Pentlands full details are not available but it is understood that there were breeding attempts, none of which succeeded.

It was one of the poorest years on record in the Moorfoots with only 4 sites certainly occupied. One clutch failed to hatch and another failed at the small young stage. The 2 others were last visited when the nests contained 2 and 5 small chicks respectively.

South of the Tweed 5 occupied sites were located and 4 were known to lay - each with 4 eggs. The fifth pair formed a scrape but did not seem to get any further. Lack of signs and sightings suggests that one nest probably failed. The remaining 3 nests were seen to contain 4, 3 and 2 young respectively. The brood of 3 were ringed but the others were not revisited beyond 10 days old.

Two other sites in the west of the area were checked but found not to be occupied.

**1999** - this year saw a third poor year in a recent run of such years (1996, 1998 and 1999) with the fewest successful nests and the lowest number of chicks in the Lammermuir and Moorfoot parts of the study area since monitoring began. Most worrying was the low levels of early season site occupancy (other than in the Pentlands) which suggest an underlying population decline rather than a series of individual seasons with poor productivity. This begs the question, are declining farmland bird numbers affecting Merlin winter

survival rates? Continued monitoring is essential in order to try and answer this question.

The Lammermuirs were characterised by low occupancy with some "occupied" sites holding only single birds for a brief period. Only 8 sites definitely laid and 2 of these failed before hatching. At one the female was killed at the nest, probably by a Stoat. Stoats were also suspected of preying on 2 broods. The 12 chicks ringed from only 4 successful nests were the fewest ever recorded for the area by the study.

In the Moorfoots coverage was somewhat patchy but still revealed a low level of site occupancy

## Orkney

| checked | occupied | laid | hatched | successful | chicks fledged |      |
|---------|----------|------|---------|------------|----------------|------|
| 1998    | 58       | 20   | 17      | 12         | 9              | c.32 |
| 1999    | 57       | 17   | 14      | 10         | 10             | c.30 |

**1998** - All 58 known sites were checked. Ten were found occupied in the West Mainland, one on Rousay and 9 on Hoy. At one of these 20 sites the birds are known not to have laid, at another no nest was ever found but the site was definitely unsuccessful while at a third, the scrape was not found until after the eggs had apparently been predated. Eggs were thus confirmed at 17 sites, the mean clutch size being 3.8. There were a further 5 failures at egg stage but chicks were hatched at 6 West Mainland and 6 Hoy sites, the mean brood size at this stage being 4.3 (n = 11). Three broods were lost to predators (a Short-eared Owl being implicated at one) but the remaining 3 sites in the West Mainland and 6 on Hoy were successful.

with previously used areas confirmed as unoccupied. The outcome at one occupied site is unknown and only 2 sites were known to raise young.

South of the Tweed of the 5 sites checked only 2 certainly raised chicks. Success was not confirmed for a third site still in use in mid May. In contrast with other areas and previous years good occupancy was recorded in the Pentlands. At least 6 sites laid (4 clutches of 4 and 2 of 3), one in a tree nest. The clutches of 3 both failed but all others at least reached large brood stage with the tree site confirmed to fledge.

**1999** - Fifty seven sites were checked with 9 found occupied on the West Mainland, one on Rousay and 7 on Hoy. At least 14 sites had eggs and a further 2 may have laid before failure. All 10 sites that hatched are also thought to have fledged.

## Highland

**1998** - Although information was received from 51 territories, only 26 sites were followed through all stages of the breeding cycle. Breeding success differed significantly from area to area. Pairs in West Moray, Nairn, and Badenoch and Strathspey had a relatively good breeding season, despite continuous rainy weather during the summer. Although continuous, the rainfall was generally light in nature and did not seem to impair the Merlins' ability to obtain enough prey for

| 1998 & (1999) | checked | occupied | laid    | hatched | fledged | chicks fledged |
|---------------|---------|----------|---------|---------|---------|----------------|
| Bad./Strath.  | 4 (0)   | 2 (0)    | 2 (0)   | 2 (-)   | 2 (0)   | 7 (0)          |
| W Moray/Nairn | 17 (17) | 8 (7)    | 7 (7)   | 7 (-)   | 7 (6)   | 24 (21)        |
| Caith/Suth    | 16 (34) | 16 (19)  | 13 (17) | 11 (-)  | 6 (10)  | 12 (32)        |
| E/W Ross      | 2 (1)   | 1 (1)    | 0 (1)   | 0 (-)   | 0 (1)   | 0 (4)          |
| Inverness     | 12 (11) | 2 (5)    | 1 (1)   | u/k (-) | u/k (1) | u/k (2)        |
| Skye          | - (1)   | - (1)    | - (1)   | - (-)   | - (1)   | - (3)          |
| Total         | 51 (64) | 29 (33)  | 23 (27) | 20 (-)  | 14 (19) | 43 (62)        |

successful breeding. Nine out of 10 pairs which laid eggs, successfully fledged young giving a fledging rate of 3.4 per young per successful nest which was just below the ten year average for the area. (In comparison, heavy torrential rainfall during the crucial fledging period in 1997 resulted in Merlins in the same area having the poorest ever breeding success recorded).

Approximately 50% of breeding sites checked in West Moray, Nairn, and Badenoch and Strathspey during 1998 were unoccupied. Most of these sites were located in West Moray. The reasons for this low occupancy are difficult to understand for some formerly regularly occupied territories. At least one site appears to have been affected by surrounding moorland being lost to now maturing forestry. Two other regularly occupied sites may also have been affected by planting of trees on site in recent years.

Some other sites checked were not core sites but are irregularly occupied and generally only used in peak years. This may be due to lack of territorial males in some years, as it is thought to be males that hold the sites.

Further north in Sutherland, Merlins had a relatively poor breeding season with 50% of the pairs followed through failing to breed successfully. Breeding success, as measured by successful nests, was well below average and

when measured by the number of pairs laying eggs, gave a mean of only 1.0 young per pair, which was less than half the 10 year average for the area (2.2 young per pair). Three pairs failed at the egg stage (remains of one female were found near the nest). Three failed at small young stage (young were known to be predated at one nest). Although reasons for failure were unknown at some nests, predation would appear to be a likely factor.

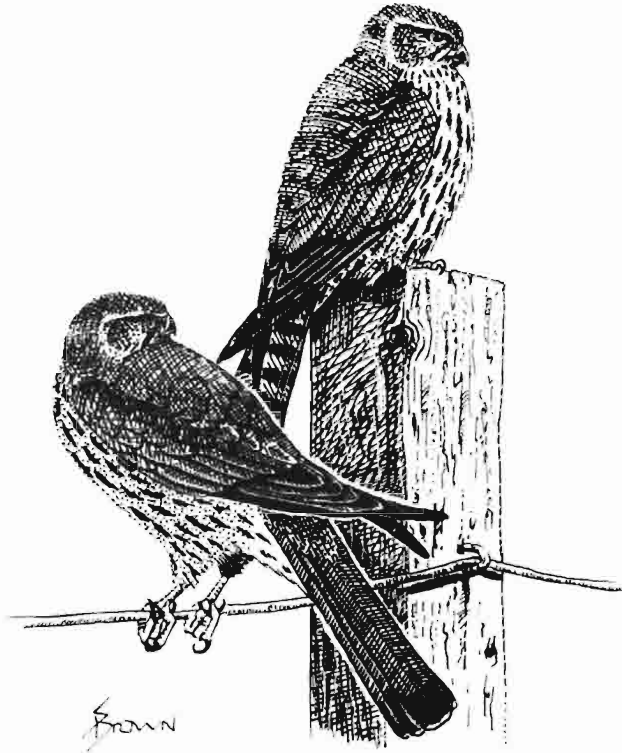
Only 2 sites were checked in Ross reflecting a lack of observers in this area which contains much suitable habitat. Only one site was occupied and the pair subsequently failed to breed successfully. Twelve breeding sites were checked in Inverness-shire, far more than has hitherto be usual. Two sites were definitely occupied. Single males were seen at 2 sites. Signs of occupancy were found at 2 other sites. Approximately 45% of breeding sites checked were unoccupied.

**1999** - Thirty three sites were found occupied by pairs. Records from a further 5 sites were not complete enough for inclusion in the totals.

In west Moray only 36% of sites were occupied, though many of these are not regularly occupied. In Inverness 50% of sites were unoccupied. It is thought that excessive burning for grouse management contributes to this low occupancy. Early season weather was poor with much rain but

this was mostly light and does not seem to have affected clutch size or incubation. Improved weather during the critical fledging period meant that successful pairs had a fairly productive season. From the 14 sites where clutch size was known a mean of 4.0 eggs per nest was at the upper end of the usual range. . Overall a mean of 3.2 chicks per successful nest was near the Highland long term average. Nine nest failures were recorded, 5 of these attributed to predation.

Monitoring effort was substantially improved in Sutherland and continues to be much better in Inverness. Nevertheless Inverness-shire could still do with more Merlin workers and Ross-shire is very short of coverage with much of the county appearing very suitable for the species.





**Peregrine Falcon***Falco peregrinus***Central Scotland**

|      | checked | occupied pairs | occupied single | successful | chicks fledged |
|------|---------|----------------|-----------------|------------|----------------|
| 1998 | 36      | 26             | 3               | 19         | 39+            |
| 1999 | 32      | 25             | 2               | 12         | 30+            |

1998 - Although the general perception is that the 1998 summer was a poor one, the weather did not break until towards the end of May by which time most young Peregrines were past the early, vulnerable stage. Thus weather conditions in the incubation and early fledgling periods were favourable for the Peregrine in 1998, even if not for some other species.

1999 - There appear to have been problems - some at least being persecution related - in the south of the Group's area. The apparent drop in occupancy was offset to some extent by the appearance of a "new" - probably hitherto undiscovered - site in the middle of the area.

**Tayside**

| 1998 (1999)   | checked | occupied | fledged | chicks fledged |
|---------------|---------|----------|---------|----------------|
| Perth W of A9 | 37 (34) | 26 (23)  | 18 (12) | 42+ (28)       |
| Perth E of A9 | 19 (20) | 17 (17)  | 7 (8)   | 11+ (19+)      |
| Angus         | 35 (25) | 26 (21)  | - (-)   | 30 (11)        |
| Total         | 91 (79) | 69 (61)  | - (-)   | 83+ (58+)      |

1998 - There was a noticeable lack of success on some grouse moor estates and 1998 was considered overall to be a poorer year than normal.

1999 - There was concern that Peregrines are showing a decline in Tayside particularly in the west and north of the area. Fewer immature birds were recorded around territories during the season.

**South Strathclyde and Dumfries & Galloway**

| 1998 (1999)     | checked   | occupied | laid    | fledged | no. chicks fledged |
|-----------------|-----------|----------|---------|---------|--------------------|
| S.Strath coast  | 9 (9)     | 6 (7)    | 4 (6)   | 4 (4)   | 10+ (10+)          |
| S Strath inland | 30 (32)   | 13 (18)  | 13 (14) | 8 (7)   | 22+ (15)           |
| S.Strath Total  | 39 (41)   | 19 (25)  | 17 (20) | 12 (11) | 32+ (25+)          |
| D & G Coast     | 28 (32)   | 24 (22)  | 22 (18) | 18 (14) | 33+ (29 ?+)        |
| D & G inland    | 69 (76)   | 52 (56)  | 48 (53) | 35 (31) | 76+ (64 ?+)        |
| D & G Total     | 97 (108)  | 76 (78)  | 70 (71) | 53 (45) | 109+ (93 ?+)       |
| Total           | 136 (149) | 95 (103) | 87 (91) | 65 (56) | 141+ (118+)        |

1998 - Peregrines in South West Scotland have produced more young than ever recorded before (the previous best year being 1997). Coverage was again generally very good with occupation being about 'normal', which indicates that the anticipated reduction in pairs (perhaps associated with pigeon interests) in south Ayrshire has not occurred. Having said that, one or 2 grouse moor sites in East Ayrshire and Upper Nithsdale which became active in recent years have since ceased to be occupied due to persistent persecution.

1999 - Peregrines continued to do well in the south west and the population now appears to be largely stable although there may be some room for further expansion in the east of the area. Persecution now appears to almost entirely confined to grouse moors in East Ayrshire and Upper Nithsdale and to one or 2 pigeon racing valleys in East Ayrshire. The taking of eggs and chicks has reduced, although some of this still does occur. There is, however, a widespread feeling in the Groups that prey availability in early spring is reduced. If this proves to be true it may yet bring about a reduction in breeding numbers.

**Shetland**

|      | checked | occupied | laid | hatched | fledged | chicks fledged |
|------|---------|----------|------|---------|---------|----------------|
| 1998 | 8       | 1        | 1    | 1       | 1       | 4              |
| 1999 | 8       | 0        | 0    | 0       | 0       | 0              |

There is now less coverage of Peregrines than during the 1980s but sufficient to confirm that the species is close to extinction as a breeding bird in Shetland. Since 1995 successful

breeding has been recorded in only 2 years with single pairs nesting successfully in 1996 and 1998.

**Argyll**

| 1998 (1999) | Checked | occupied | successful | chicks fledged |
|-------------|---------|----------|------------|----------------|
| Cowal       | 16 (19) | 11 (14)  | 7 (2)      | 17 (5)         |
| Other areas | 26 (9)  | 21 (9)   | 7 (9)      | 16 (12+)       |
| Total       | 42 (28) | 32 (23)  | 14 (11)    | 33 (17+)       |

\*incomplete survey

The Cowal is shown separately because it is the only area where systematic Peregrine monitoring is carried out.

1998 - the overall productivity of all monitored sites was considerably better than in 1997 and on the Cowal it was judged to be the best year since the study began. The 4 failed sites on the Cowal all occurred at the egg/small young stage. An adult female found dead below a nest site on Bute was thought to have died from natural causes.

1999 - As is usually the case, with the exception of the of the well worked study area on the Cowal, the monitored sites were widely scattered and coverage was far from complete. A certain amount of incomplete data were obtained at a number of other sites not included in the table. There was a very poor season on the Cowal. Five sites used in recent years had no birds present. Ten failures of occupied sites were at egg/small young stage and data were incomplete for the 2 remaining sites.

**Highland**

| 1998 & (1999) | checked   | occupied | laid    | hatched | fledged | min. chicks fledged |
|---------------|-----------|----------|---------|---------|---------|---------------------|
| Caithness     | 0 (0)     | - (-)    | - (-)   | - (-)   | - (-)   | - (-)               |
| N&W Suth.     | 3 (3)     | 3 (3)    | 3 (3)   | 3 (1)   | 3 (1)   | 5 (2)               |
| W Ross        | 2 (0)     | 1 (-)    | 1 (-)   | 1 (-)   | 1 (-)   | 2 (-)               |
| E Suth.       | 7 (3)     | 6 (2)    | 5 (1)   | 4 (1)   | 4 (1)   | 7 (3)               |
| E Ross        | 6 (7/5/1) | 6 (4)    | 6 (3)   | 4 (2)   | 4 (2)   | 5 (5)               |
| E Inverness   | 8 (4)     | 8 (3)    | 6 (3)   | 5 (3)   | 5 (2)   | 9 (4)               |
| Bad & Strath  | 1 (3)     | 1 (2)    | 0 (2)   | - (1)   | - (1)   | - (1)               |
| Moray & Nairn | 2 (1)     | 2 (1)    | 2 (1)   | 2 (0)   | 2 (0)   | 5 (1)               |
| Small Isles   | 1 (1)     | 1 (1)    | 1 (?)   | 1 (?)   | 1 (?)   | 2 (?)               |
| Lochaber      | 0 (1)     | - (0)    | - (-)   | - (-)   | - (-)   | - (-)               |
| Total         | 30 (23)   | 28 (16)  | 24 (13) | 20 (8)  | 20 (7)  | 35 (15)             |

1998 - in addition to the 28 sites found occupied one other site held a single bird. Only 4 of the 24 pairs known to lay failed during incubation. All 20 pairs that hatched young were ultimately successful. Productivity figures, overall, indicate an average year despite the poor weather in June. Some nests were not followed through to fledging and this caused problems with calculating productivity. The small sample size for some areas also continues to be a problem. The overall productivity recorded was a mean of 1.3 chicks per territorial pair, 1.5 per pair that laid and 1.8 per successful pair.

1999 - whilst there was some decrease in the level of monitoring in 1998 there was also a more worrying decrease in site occupancy. Pairs were absent from 43% of the sites checked and no occupancy by single birds was detected. It is suspected that the underlying cause is a decline in prey availability. Some failures were unexplained, in particular a fully incubated clutch that failed to hatch. Other post laying failures had more obvious causes with one case of egg collecting, an eyrie in a ravens nest washed out by heavy rain and a brood of large chicks predated by a Pine Marten. Productivity was therefore poor overall at a mean of 0.94 chicks per territorial pair but good amongst the relatively few (7) successful pairs at 2.14 chicks per pair.

### Lothian and Borders

|             | checked | occupied | successful | chicks fledged |
|-------------|---------|----------|------------|----------------|
| <b>1998</b> | 49      | 39       | 30         | 93             |
| <b>1999</b> | 58      | 44       | 29         | 83             |

1998 - 93 fledged young is the most ever recorded, although mean brood size is down. New sites continue to be found and there is currently little evidence of thefts.

1999 - the population continues to expand with 5 new sites found in 1999 although productivity was less than in 1998. Human interference is still detected - at 3 nests - but most failures appeared to be natural. Coastal sites had a good year.

### Orkney

|             | checked | occupied | laid    | hatched | fledged | chicks fledged |
|-------------|---------|----------|---------|---------|---------|----------------|
| <b>1998</b> | 27      | 16       | 7+      | 7+      | 5+      | 10+            |
| <b>1999</b> | 21      | 14       | 6 (7+?) | 6 (7+)  | 1+      | 1+             |

1998 - Information was more than usually incomplete in 1998 but sufficient monitoring was carried out through the season to confirm that at least 10 chicks fledged.

1999 - A good deal was found out about the extent of site occupancy but monitoring was less intensive in the later stages of the season. A single bird was

present at one otherwise unoccupied site. Although the single confirmed fledgling is probably an underestimate of the local productivity the overall impression was one of a poor season (for instance no young are thought to have emerged from any of the 6 occupied Mainland sites).

**North East**

|                     | unoccupied<br>(% all sites) | occupied<br>(% occupied<br>sites) | laid<br>(% occupied<br>sites) | fledged<br>(% occupied<br>sites) | min young<br>fledged |
|---------------------|-----------------------------|-----------------------------------|-------------------------------|----------------------------------|----------------------|
| <i>1998</i>         |                             |                                   |                               |                                  |                      |
| Grouse Moor         | 23 (45%)                    | 28 (55%)                          | 15 (54%)                      | 4 (14%)                          | 7                    |
| Other Inland        | 10 (26%)                    | 28 (74%)                          | 22 (79%)                      | 17 (60%)                         | 35+                  |
| Coast               | 5 (24%)                     | 16 (76%)                          | 12 (75%)                      | 5 (31%)                          | 9+                   |
| <b>Total</b>        | <b>38 (35%)</b>             | <b>72 (65%)</b>                   | <b>49 (68%)</b>               | <b>25 (35%)</b>                  | <b>49+</b>           |
| <i>1999</i>         |                             |                                   |                               |                                  |                      |
| <i>Grouse Moor</i>  | 21 (48%)                    | 23 (52%)                          | -                             | 11 (48%)                         | 18                   |
| <i>Other Inland</i> | 7 (21%)                     | 26 (79%)                          | -                             | 15 (58%)                         | 38                   |
| <i>Coast</i>        | 2 (11%)                     | 17 (89%)                          | -                             | 8 (47%)                          | 15                   |
| <b>Total</b>        | <b>30 (31%)</b>             | <b>66 (69%)</b>                   | -                             | <b>34 (52%)</b>                  | <b>71</b>            |

**1998 - inland grouse moor sites**

At grouse moor sites occupancy declined further and productivity was extremely low – 0.25 young fledging per occupied site. Young fledged on only 3 grouse estates with 1.75 young fledging per successful nest. This is linked to continued high levels of persecution. Poisoned baits were found at 3 eyries with adults known to have disappeared from another 9 sites. This part of the population is not rearing enough young to be self sustaining. Unless persecution pressure is significantly reduced, this part of the Peregrine population will continue to decline.

**1998 - other inland sites**

Other inland sites were much more successful with 1.25+ young fledging per occupied site and occupancy of 74%, the highest level for 2 years. This part of the population continues to expand with 2 new sites being confirmed in 1998, although the rate of occupancy of new sites is

believed to be depressed by the low productivity of the population as a whole.

Higher eyries (above 600m altitude) all failed in the poor weather although adults were observed at all of the sites checked (3) with breeding attempted in at least 2 sites. Deer forest pairs had reasonable success. Eight pairs reared 15 young (1.88 young fledged per occupied site) out of 11 occupied sites (1.36 fledged young per occupied site). This is the most productive section of the population. The remaining sites were associated with either farm land or forestry. Fourteen occupied sites produced 15 young (1.07 fledged young per occupied site) from 4 successful pairs (1.88 young per successful site).

**1998 - coastal sites**

Site occupancy increased with 4 new pairs located. Three were in new sites; the fourth involved a territory being split between 2 pairs. Productivity was low (0.68 fledged young per occupied site)

with only 5 pairs out of 16 occupying sites fledging young (1.80 fledged young per successful site). Terrible weather in early April was involved in 2 and possibly more of the failures.

#### 1999 - inland grouse moor sites

The year saw an improvement on some grouse moor sites so that, although occupancy showed a slight decline, productivity at occupied sites was much higher than of late. This is due to Operation Falcon, a joint Grampian Police/SNH/RSG initiative in conjunction with some local estates. Peregrines consistently failed to occupy sites or breed successfully on 14 other estates not involved in the initiative, a high level of failure linked directly to persecution. A worrying trend is the lack of adult Peregrines to replace lost birds. In former years adult birds were quickly replaced. This is no longer the case. The decrease in occupied sites – a decline from 79% to 52% in 5 years – is an indication of the lack of a large non breeding population.

#### 1999 – other inland sites

Site occupancy (79%) was greater than on grouse moors (52%) and breeding success was higher with 58% of occupied sites fledging young. Five sites at higher altitude in deer forest suffered the effects of bad weather and only 2 pairs fledged young, both in north facing corries. Eight lower deer forest sites performed similarly to 1998 with 7 pairs producing 15 chicks (eight pairs/15 chicks in 1998). Quarry sites did well with 5 pairs raising 13 young. Inland sites off grouse moors continue to be the most productive element of the north east population.

#### 1999 – coastal sites

No new sites were located. Success was very low on the north coast (only one chick fledged from eight occupied sites). By contrast east coast pairs did better (7 pairs from 9 occupied sites produced at least 14 young). The reason for this difference is not apparent.



*Crispin Fisher*

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