



Merlin

Falco columbarius

Status

Red listed: HD
Non-SPEC
Schedule 1 of WCA 1981

National monitoring

National surveys: 1983–84, 1993–94, 2003–04.

Population and distribution

Merlins in Britain breed on moorland, notably in the Scottish Highlands and islands, the Welsh mountains, the Pennines and the southern uplands. In the last 20 years there has been some evidence of a decline in south-west England, south-west Scotland and the Borders (88–91 *Atlas*). There are estimated to be 1,330 pairs of merlin breeding in the UK (*Population Estimates*).

Ecology

Merlins require open ground for hunting, preferably heather moorland. They may nest on the ground in heather, on a rocky outcrop or in crows' old stick nests. Some pairs nest well into woodland, including conifer plantations, but always with open moorland nearby. A clutch of 3–5 eggs is laid in late April or May. There is usually a single brood, but early egg losses are sometimes replaced (*Red Data Birds*).

Breeding season survey – population

These methods are based on those developed for the 1993–94 national survey (Rebecca and Bainbridge 1994, 1998).

Information required

- number of breeding pairs
- a map showing the boundary of the survey area and location of breeding pairs.

Number and timing of visits

At least four visits, one each month (April–July), with follow-up visits where necessary to confirm breeding.

Time of day

Any time of day.

Weather constraints

Avoid surveying in wet or windy conditions (winds above Beaufort force 4).

Sites/areas to visit

Areas of heather moorland or bracken, young plantations with small trees and heather cover, plantation edges, including the edges of open

areas within afforested blocks and the edges of rides within 100 m of the plantation / moorland boundary and open woodland (eg birchwood and Caledonian pine forest), usually below 600 m altitude.

The following can be excluded from the survey: towns and villages, enclosed in-bye pastures, arable farmland, areas of grassy moorland which lack trees, bushes, crags and stream banks (all areas of heather moorland must be checked), land above the 600 m contour (where merlins are known or suspected to nest above 600 m, they should be included with a note made of the altitude).

Equipment

- 1:25,000 OS map of survey area
- A4 photocopies of the map for use in the field
- prepared recording forms (see Figure 1 for example)
- Schedule 1 licence.

Safety reminders

Ensure someone knows where you are going and when you will return. Do not climb trees or crags. Always carry a compass. If possible, do not work alone or in more remote upland areas. Carry spare warm clothing, plastic survival bag, whistle, first-aid kit and food supplies.

Disturbance

Disturb the birds as little as possible and do not visit nests. If your presence does disturb a bird, **withdraw** immediately and observe from a distance. Always try to observe birds from a discreet vantage point.

Methods

Make sure the survey boundary is clear and is mapped.

The first visit in April will require more detailed gathering of information than subsequent visits:

- get to within 500 m of every spot in the survey site
- map all those areas that are unsuitable as potential nest-sites (see above) so that these areas can be excluded from further searching
- locate all crows' nests, as these may be used by nesting merlins
- search for merlin activity and signs of merlins.

In May, June and July:

- search all suitable areas, recording **all** merlin observations and attempt to confirm breeding (without nest visits) at all potential nesting sites (it is not necessary to revisit any sites at which breeding has already been confirmed in a previous month).

Work out the most effective route beforehand and mark it on the map. Alternate the direction the route is travelled between visits. On each visit to the site, whether the observer is visiting the **whole** area as on the first visit, or only suitable nesting habitat, **the** following search methods should be used:

In moorland habitat, check along fence-lines and around crags, steep stream banks, rocks, grouse butts, stone walls / dykes, hummocks, recently burned areas, isolated trees and other perches for whitewash (faeces), prey remains, pellets and moulted merlin feathers. Check old crows' nests.

In open birch, pine or alder woods, tree-lined gorges and rivers, search the woodland for crows' nests and check for birds leaving the site as you approach.

Bird monitoring methods – merlin

At sites with forest edge and open areas within afforested blocks, inspect fence posts, etc, for feathers and whitewash. Check plantation edges along rides for about 100 m from the plantation/moorland boundary. Check perches such as boulders and walls in moorland near the forest edge.

On the May–July visits, alternate searching with watching from a vantage point. Look for displaying birds and males bringing food. Listen for calls. Watch crows, herons, harriers and other raptors to see if they provoke alarm calls or mobbing from merlins. Be prepared to watch for at least two hours if there is a good view over a large area.

If you find merlins on the first visit, note the location on a map and retreat to a safe distance to watch. No further searching is required within a 1-km radius of that location. On subsequent visits, return to watch from a vantage point to see whether the birds are nesting there. If breeding is not yet confirmed, return again on another occasion.

Signs of merlin presence such as moulted merlin feathers, prey remains and pellets can only be taken as indicating presence by those experienced enough to be able to distinguish merlin signs from those of

Records form Confidential

Merlin breeding survey
 Observer: G. Rebecca Geographical Area: North east Scotland Year: 1993
 Nesting area name: Glen Tumshie Grid Reference No.: NH 876543
 Altitude (m): 300

SUMMARY

| signs found (tick) | occupation confirmed (no. of birds) | breeding confirmed (tick) | nest site (symbol) | brood (no. of birds) | fledged young (no. of birds) |
|--------------------|-------------------------------------|---------------------------|--------------------|----------------------|------------------------------|
| ✓ | 2 | ✓ | G | >3 | ✓ >2 |

Nest site symbols: G = ground site; T = tree site; C = crag site; only enter "C" if the crag site is inaccessible to fox, if not enter "G".

Nesting area first located during present survey: Known nesting area: ✓

DETAILS

| Date | 6 figure grid reference | signs | birds | Comments |
|------|-------------------------|---------------|--------------|--|
| 26/4 | NH 876551 | Pellets, prey | ♀ | ♀ Mobbed by buzzard |
| 20/5 | NH 876553 | | ♀ | On ground, seen in heather |
| 28/6 | " | | ♂ ♀ | ♀ alarmed for 5 mins 3 young clearly visible |
| 15/7 | " | | ♀ 2 >2 young | 3 brown birds present, but ♀ in area ∴ only sure of 2 fledged young. |

Figure 1
 An example of a completed recording form used in a breeding merlin survey.

other species. Experienced observers can use these signs to confirm the continued presence of merlins in an area by removing the signs and then checking to see if they are present again a week or more later.

You can confirm occupation of a new site and count the observations as evidence of a probable breeding pair if you see or hear at least one merlin, or find fresh signs (experienced observers only) on two visits separated by one week or more.

You can confirm breeding if you see an adult returning to a nest, if you find eggs or young, if the adults are repeatedly alarm calling at the appropriate time or if the signs of occurrence indicate that a pair has probably bred and failed.

Use a new map for each visit. Each map should have the areas of excluded habitat marked. Mark suspected nest-sites, observations of birds and signs of occupation on the maps. Transfer the information to the recording forms for that site (see Figure 1 for an example), using a new form for each pair. Put all merlin sightings or signs on a recording form.

If you see any chicks or fledged young, record this on the form. Do not disturb birds to get this information; it is likely that during more lengthy observations you may see young.

On the recording form there is a box in the summary section labelled 'nest-site'. Enter a letter 'G' for a ground site, 'T' for a tree site or 'C' for a crag site. Only enter 'C' if the crag site is inaccessible to foxes, if not enter 'G'.

At the end of the season, the number of confirmed breeding pairs of merlin in the survey area and the number of other registrations should be obvious from the recording forms. Draw a summary map that includes the survey boundary, the habitat searched, the habitat excluded, the locations of all breeding pairs (with the suspected nest-site also marked) and the locations of any other registrations.

References

- Bibby, C J and Nattrass, M (1986) Breeding status of merlin in Britain. *British Birds* 79: 170–185.
- Rebecca, G and Bainbridge, I (1994) *Survey of Merlins in Great Britain 1993–1994: survey instructions*. RSPB unpubl.
- Rebecca, G and Bainbridge, I (1998) The breeding status of the merlin *Falco columbarius* in Britain in 1993–1994. *Bird Study* 45: 172–187.