

Barn owl

(comprehensive revision of SAP in 2004)

1. A Definition

The barn owl (*Tyto alba*) is a characteristic and much loved farmland species. Its ghostly white shape as it quarters the ground along ditches and field margins, in the half-light of dusk or dawn is surely one of the most evocative sights of the countryside.

The barn owl is perhaps the most widely distributed land bird in the world, and occurs locally throughout Europe. In the British Isles the barn owl is widely if patchily distributed in rural lowland areas.

Being a specialist small mammal feeder, the presence of the species is a good indicator of ecologically rich areas of habitat; good barn owl habitat means good habitat for a range of other animals and plants.

The barn owl has a close affinity with man, not least because barns and other buildings provide ideal nesting sites for them, in addition to old hollow trees and caves.



2. Why an Action Plan?

Like so many species of farmland birds, the barn owl has undergone a major decline during the present century, due to changes in agricultural practices. Losses of nesting sites due to building decay, demolition or conversions have further contributed to this decline.

Although much less common now than in former times, the barn owl is still widespread in Devon, and it is estimated that about 350-470 pairs occur in the County (2003 estimate).

This said, there is a good deal of scope to bring the barn owl population back towards the levels of its heyday, by striving towards a more equitable balance between the needs of food production and wildlife.

3. Relevant ecology

The barn owl is largely nocturnal and crepuscular (active at dawn and dusk) and feeds almost exclusively on small mammals, especially voles, but also takes shrews, mice, rats and, occasionally, birds. The diet of individual birds may vary according to the availability of rodent prey, whose abundance may vary with weather conditions, season, year and habitat. The three yearly vole cycles responsible for fluctuations in the success of barn owls in certain areas do not occur to any extent in Devon and are essentially a feature of more northern latitudes.

The food supply and hence feeding habitat of the barn owl is crucial to its success. Ideally it requires open areas of rough grassland, with hedgerows, and fields with rough grass margins. Rough grassland strips with fences are a favourite habitat. All these areas provide an ideal habitat for the small mammals on which the owl relies.

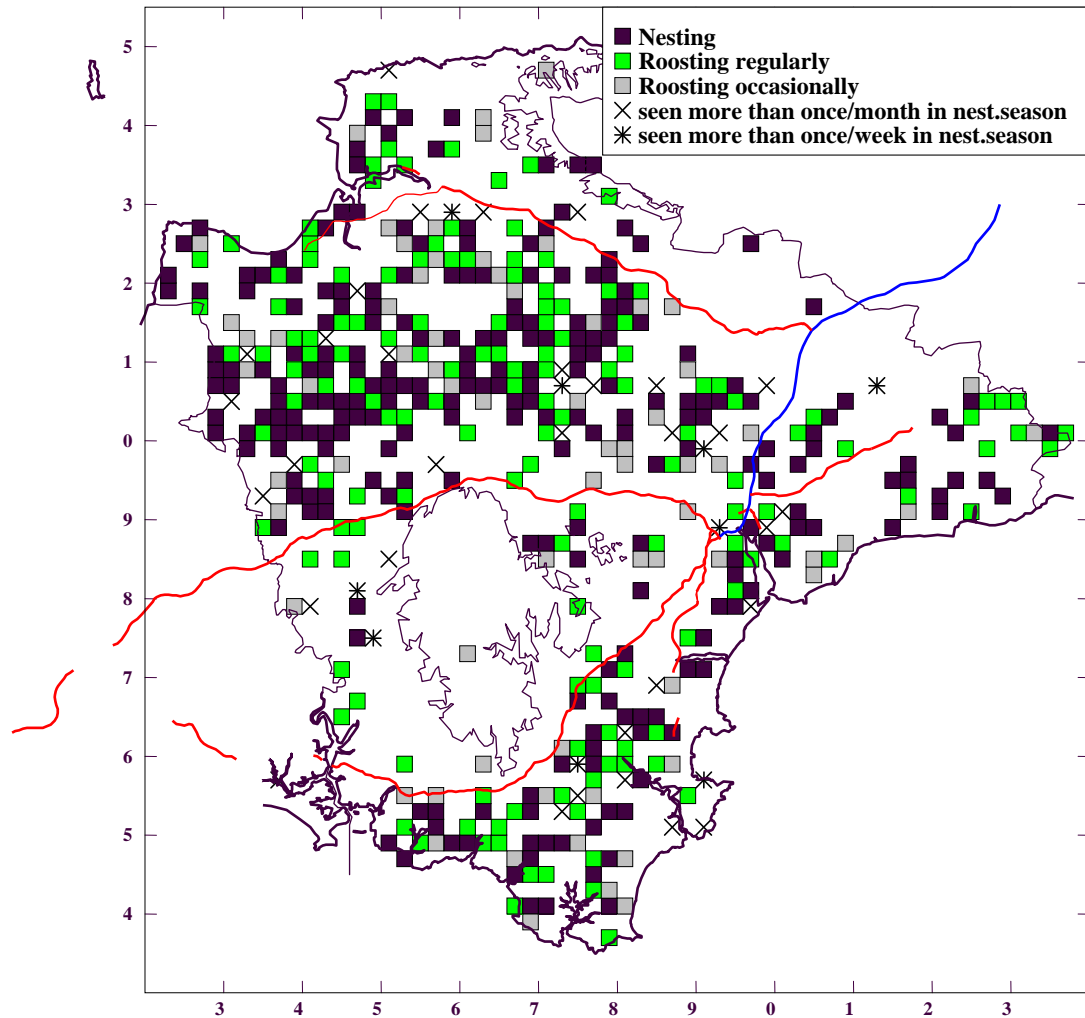
The barn owl hunts mainly by quartering suitable areas of rough grassland and pouncing on its prey from flight, although may also hunt from a perch. Barn owls, like many birds, eject indigestible parts of what they have eaten in pellets, which may accumulate in large piles at traditional roost and nest sites. The pellets give a good indication of the type of prey the owl has been eating, and a study showed that the average pellet contained the remains of 3-6 small mammals.

The barn owl nests in sheltered sites within buildings (especially old hay barns) or a tree cavity, although the latter is relatively unusual in Devon. Barn owls require a nesting site which is not subject to unexpected disturbance. Eggs are often laid in April, and the number laid varies from four to seven, although larger clutches may be laid when food is especially abundant. Double brooding is uncommon. Incubation takes from 29-34 days and the young hatch at slightly different intervals as a mechanism to ensure that temporary shortages in food availability does not jeopardise the success of the whole brood. Young leave the nest site at about sixty days and disperse by about 14 weeks of age.

The average recovery distance of ringed birds is around 12 km.

Juvenile mortality is always quite high, with 56-75% surviving less than one year.

4. Distribution of barn owl in Devon



The distribution of Barn Owls as recorded during the 2003 Devon Barn Owl Survey (2km squares) including regular sightings in the main nesting season (March-August incl.)

(Data supplied by Barn Owl Trust, 2004)

5. Current population

The British population during 1995-97 was estimated at 4,000 pairs (Toms *et al.* 2000).

The 2003 Devon Barn Owl Survey recorded 281 nests (plus 348 roosts) and

estimated the county's population level at 350-470 pairs (around 10% of the British total). This represented an increase of 37% on the 1993 estimate. The 2003 survey also revealed the patchiness of the species Devon distribution and the fact that it's numbers in the southern half of West Devon Borough appeared to have declined in the period 1993 to 2003 when numbers elsewhere in the county were increasing.



6. Current problems for barn owl in Devon

- The widespread proliferation of intensive farming continues to limit population recovery through reduced food availability causing high mortality and low reproductive success. Factors include a reduction in the area of rough grassland, a switch from hay to silage, a switch from spring-sown to autumn-sown cereals, and loss of hedgerows and headlands which harbour mice, voles and shrews.
- Pesticide use continues to cause concern for barn owls, as they sometimes prey upon rodents that have ingested poisoned food. Pesticides of current concern in Devon are largely "second generation" rodenticides (including; difenacoum, bromadiolone, brodifacoum and flocoumafen) widely-used to control warfarin-resistant rodents. Up to 40% of Barn Owls contain rodenticides (CEH).
- Loss of old farm buildings (which historically provided the majority of roosting and breeding sites) through conversion to human dwellings, decay through neglect, and demolition. As 95 % of barn owls in Devon nest in buildings, this is a crucial factor. In other parts of Britain there may be less reliance on buildings and here loss of hollow trees is the primary factor in relation to nest site availability. Hedgerow loss results in fewer hollow

trees, as does felling of isolated trees.

- In Devon, major roads kill up to 18% of all the young produced in an average year. It is highly probable that almost the entire Devon population is to some extent suppressed by the presence of major roads because of their (partial) dispersal-barrier effect.
- The natural fluctuation in small mammal populations is reflected by similar fluctuations in the breeding success of barn owls.
- Many nest sites are unsafe causing increased nestling mortality. However, the provision of improved nest boxes may be benefiting the breeding success of barn owls. There is evidence to suggest that owls breeding in deep nest boxes are more productive than birds using "natural" nest sites or old-fashioned all-on-one-level nest boxes.
- Blocking off of church tower entrances to exclude pigeons and jackdaws has reduced the availability of such buildings as roost and nest sites.

7. Recent changes in population

The barn owl has undergone a significant decline in numbers during the 20th century. The first national census of barn owls was conducted in 1932 by RSPB (Blaker 1934), and the population for England and Wales was then estimated at 12,000 breeding pairs; highest densities (41-50 pairs per 100 square miles) were recorded from Devon and Cornwall, Essex, Suffolk, Hertfordshire, Anglesey and Cumberland/Westmorland. The BTO Atlas of Breeding Birds (Sharrock 1976) gave a conservative estimate of 4500 to 9000 pairs for the 1968-72 population for England, Scotland, Wales and Northern Ireland. The mid-eighties British population was estimated as 5000 pairs (Shawyer 1987). In the late nineties the first reliable British population estimate was produced by Project Barn Owl, calculated at 4,000 pairs.

In Devon, a barn owl survey by BOT and DBWPS in 1993, recorded 137 nests (plus 151 roost sites) and estimated the county population at 250-350 pairs. Ten years later the 2003 Devon Barn Owl Survey recorded 281 nests (plus 348 roosts) and estimated that the county's population level had increased by 37% to 350-470 pairs (around 10% of the British total). In 1993, 149 out of Devon's 260 5km squares contained Barn Owls. By 2003 the number of squares containing Barn Owls had risen to 202. However, part of this apparent increase in distribution was due to increased recording effort (see Ramsden and Howells, 2004).



8. Current protection

- Protected by law under Schedules 1 and 9 of the Wildlife and Countryside Act 1981. Protection against disturbance enhanced under the CROW Act 2000.
- Listed in the EC Birds Directive and Listed under Appendix II of the Bern Convention.
- Amber Listed in "Birds of Conservation Concern" (RSPB et al. 1996) as a bird of unfavourable conservation status in Europe; stated to be in "moderate decline".
- Listed as globally threatened on the UK Biodiversity Steering Group Report (1995) "Long List".

9. Current positive initiatives for barn owl in Devon

- In 1998, the Devon Biodiversity Action Plan was the first BAP in the UK to include a Barn Owl Species Action Plan and has facilitated the conservation efforts which it is believed were responsible for the increase in numbers between 1993 and 2003.
- The Barn Owl Trust (BOT), whose headquarters is in Devon (Ashburton) is a registered charity, the aims of which are to conserve the barn owl and its environment. BOT provides a free national information and advice service, and is involved in research and education initiatives. In Devon and Cornwall BOT collects records of sightings, roosts, and nest sites and undertakes practical conservation work and site monitoring.

- The Barn Owl Trust website is a valuable resource for information: www.barnowltrust.org
- The Hawk and Owl Trust (HOT) is a national charity that aims to conserve all birds of prey, including owls. It is a partner in Project Barn Owl (see below).
- Species Action Plan for barn owl, produced jointly by RSPB and JNCC in 1992.
- "Barn Owls on Site - a Guide for Developers and Planners", published by BOT in 1995 is supplied to every Local Authority in the UK, and contains a set of recommendations for changes in planning policy. Its second edition was published by English Nature in 2001.
- Agri-environment schemes such as Countryside Stewardship, Environmentally Sensitive Areas and Set-Aside may be increasing suitable barn owl foraging habitat.
- Nest box provision, being carried out by bodies such as Barn Owl Trust and numerous independent individuals and land owners.
- Advice to landowners/managers on land management to encourage barn owls, by organisations such as FWAG, BOT, DWT, encouraging uptake of agri-environment schemes.
- A study of the effects of major roads on barn owls, conducted by BOT in Devon, was published in 2003 and called for changes in the design and management of major road verges.
- Barn Conversion Research Project Report (1995) by BOT, reported the results of a study of; a) effects of site loss on local barn owl distribution and status, b) the loss of potential barn owl sites and overall site availability, c) the number and use of barn conversion planning applications in Devon.
- British Trust for Ornithology runs the national bird ringing scheme and the national Nest Record Scheme. Data from Devon is gathered through both these schemes. This data is used to examine movements and survival of barn owls in relation to changes in environmental variables such as weather, land use and use of rodenticides. A Barn Owl Monitoring Project was established across Britain in 2001 involving site occupancy and nest recording by three visits/year at c.350 sites approximately ten of which are in Devon.

10. Biodiversity planning context

National BAP Context

Barn owl is not listed as Species of Principal Importance in England (NERC Act, S.41).

However, the RSPB and JNCC in 1992 produced a Species Action Plan with the following objectives:

- In the short term, to maintain the present range and numbers of barn owl throughout the UK, Isle of Man and Channel Isles, recognising that its distribution is limited by altitude and latitude.
- In the medium term, to seek a substantial (by at least one half in the next 20 years) increase in the population of the barn owl, (making allowance for any short-term fluctuations in population), and re-establishment of its former widespread breeding distribution (as shown in Sharrock (1976)).

Associated Action Plans within the Devon BAP:

- Rhôs pasture
- Coastal and floodplain grazing marsh
- Flower-rich meadows and pastures
- Species-rich hedges
- Rivers, streams, floodplain and fluvial processes
- Cirl bunting
- Brown hare
- Greater horseshoe bat
- Great green bush-cricket

11. Biodiversity objectives and targets for barn owl in Devon

Objective 1

At least maintain the present range and numbers of barn owl in Devon.

Targets:

- No fewer than 202 out of the 260 5 km² squares in Devon to contain barn owls.
- No net loss of barn owl feeding habitats particularly rough grasslands.

- No net loss of breeding sites.

Objective 2

Increase the population of barn owls in Devon.

Targets:

- A further 13% increase in the population as estimated from the 2003 survey (*i.e.* no fewer than 375 pairs) to be achieved by 2012.
- Secure appropriate management (through agri-environment schemes, management agreements and advice) on at least 10 ha of land within the normal foraging range (about 3km²) of each barn owl breeding pair by 2010.

Objective 3

Achieve a better understanding of the ecology of barn owls, particularly habitat requirements for foraging, nest-site selection and breeding success in relation to habitat availability in Devon.

Target:

- Ongoing.

Objective 4

Foster a greater understanding and awareness by land managers and the general public of the importance of habitat and nest site requirements of the barn owl, and of the role of modern agriculture in determining the biodiversity of our countryside.

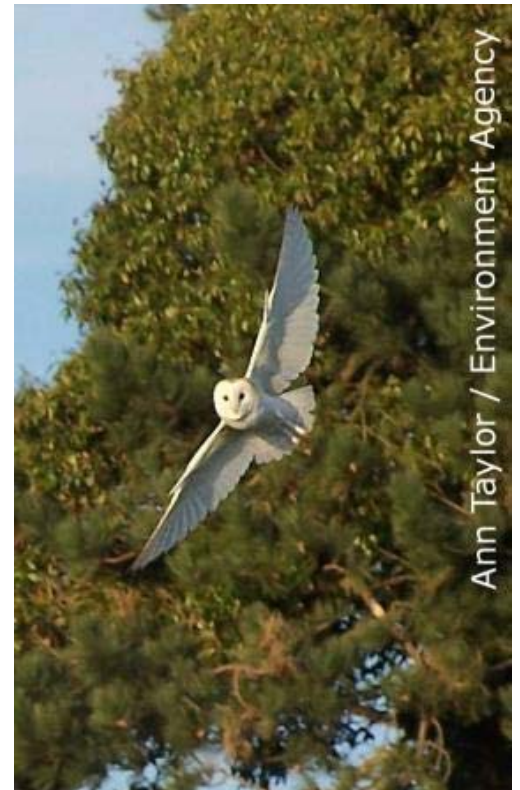
Target:

- Ongoing.

12. Wider benefits from pursuing these objectives

The pursuit of the objectives and targets set out in this plan will not only benefit the barn owl. Conservation has wider benefits and advantages for society, by providing a resource which is the basis of many aspects of the local economy, and by adding to the quality of life of the people of Devon in ways which are beyond financial measure. Thus enhancing the interests of biodiversity will also enhance the interests of society as a whole. Some of the wider benefits are as follows:

- **Benefits to other declining farmland wildlife:** Many of the issues which have contributed to the decline of the barn owl have affected many other species of farmland wildlife. Hence, habitat management to encourage barn owls will benefit a suite of other declining species.
- **Enhanced protection of farm building roosts of bats:** Measure taken to maintain farm buildings for barn owls will also benefit certain species of bats, which use buildings in which to roost.
- **Landscape benefits:** Conservation of traditional farm buildings and extensively-managed habitats in the landscape contribute to the characteristic countryside which is the basis for many leisure and tourism activities in the County, thereby contributing to an enhancement of revenue from tourism.



13. Priority or indicative actions for barn owl in Devon

Action	Key Partners
1. Ensure that agri-environment schemes include the provision of suitable barn owl habitat (in the form of rough tussocky grassland) in their farm plans.	DEFRA; DWT; FWAG; EN
2. Encourage landowners to maintain and increase suitable barn owl habitat (e.g. field margins, rough grass) even if barn owls are not present.	DEFRA; FWAG; EA; BOT; DWT
3. Ensure that all planning authorities take into account barn owls when granting planning permission, especially for barn conversions. Seek policies in Local Development Documents to encourage provision for barn owls even if they are not already present (except in urban areas or above 300m). Mitigation for loss of habitat if barn owls are present should also be required. Suitable training of planning officers should continue.	LAs; BOT; EN
4. Continue to encourage the provision of nest boxes at suitable sites, even if barn owls are not present.	BOT; DBWPS; HOT; LAs

Action	Key Partners
5. Establish at least one demonstration site in Devon at which practices of good land management for Barn Owls are carried out. Set up and promote training days.	BOT; DEFRA; EN; DWT
6. Visit known nest and roost sites carrying out practical and advisory work to ensure that occupied sites are maintained and nest productivity enhanced wherever possible.	BOT; LAs
7. Continue to monitor populations by use of a database, surveys and ringing. Promote co-operation between all bodies holding records of Barn Owls in Devon.	BOT; DBWPS; BTO; DWT
8. Continue to raise awareness of the plight and needs of barn owls in the press, and with the public, planning authorities, landowners and advisory bodies.	BOT; HOT; RSPB; DWT
9. Continue research into the habitat requirements of barn owls and the impact of mortality causes (such as rodenticides).	BOT; BTO; DBWPS

Barn Owl Action Plan Champion - Barn Owl Trust
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Abbreviations used in text and table

BAP	Biodiversity Action Plan
BOT	Barn Owl Trust
BTO	British Trust for Ornithology
DEFRA	Department of Environment, Food and Rural Affairs
DBWPS	Devon Bird Watching and Preservation Society
EA	Environment Agency
EN	English Nature
FWAG	Farming and Wildlife Advisory Group
HOT	Hawk and Owl Trust
JNCC	Joint Nature Conservation Committee
LAs	Local Authorities
NPAs	National Park Authorities
RSPB	Royal Society for the Protection of Birds