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Improving habitats for barn owls

Land management advice for farmers
and landowners in Northern Ireland



**Ulster
Wildlife**

Our landscape has changed dramatically in the last two centuries. Agricultural intensification has been important in meeting an ever-increasing demand for food and resources; however, it has drastically affected our wildlife and the habitats that they live in.

“Land management is the biggest factor affecting barn owls.”
The Barn Owl Conservation Trust

Barn owl populations have catastrophically declined in the UK and Ireland over the past 100 years

The barn owl is listed as a Schedule 1 species under the Northern Ireland Wildlife Order (1985) giving the highest possible legal protection to the species and their nest sites all year round. As a result of surveys by Birdwatch Ireland, which observed population declines of 50% in a 25 year period, the barn owl was added to the Irish Red List.

In recent years, populations in the Republic of Ireland have seen a slight increase, but in Northern Ireland the news is more varied.

The last official estimate in 1997 speculated there were as few as 50 nesting pairs left in Northern Ireland. Ulster Wildlife currently estimate that there are fewer than 30 pairs in Northern Ireland due to data collection across the country and recent work with the British Trust for Ornithology (20-40 pairs).

Conservation work has maintained the population numbers but they face a number of threats including lack of hunting habitat, rodenticide poisoning, risks from traffic and the increase in extreme weather.

For barn owls to thrive they need small mammals to be an **abundant food source all year round, suitable foraging habitats** in which to hunt for these small mammals, as well as a **continuity of nesting and roosting sites**. The value of certain habitats for barn owls can change throughout the year, therefore having a range of different habitats is vitally important to support breeding barn owls.

What do barn owls need?

Abundance of prey items

A barn owl's success, like all animals, is dependent upon a reliable food supply and their ability to catch their prey. In Northern Ireland, barn owls feed predominantly on wood mice, brown rats, house mice and pygmy shrews. They will also very occasionally predate small birds, amphibians and even invertebrates. Their main food source, wood mice (**Figure 1**), are abundant in woodland and hedgerows, as well as moving through open habitat in Ireland. Barn owls do not usually hunt under tree cover and need open habitats to forage.



Figure 1: The wood mouse, *Apodemus sylvaticus*, also known as field mouse, is predominantly found in woodlands. However, in Ireland they are commonly found in open habitats, filling the niche of absent native voles. Wood mice make up 72% of a barn owl's diet in Ireland. Their diet consists of grain, weed seeds, invertebrates and fruit/berries. Thick, healthy, hedgerows next to open habitats are important for food, shelter and nesting, especially in winter.

Barn owls need a large number of prey items to survive. An adult barn owl needs 3 or 4 prey items a night to sustain itself. In periods of poor weather, barn owls are unable to hunt effectively. In times of prey abundance barn owls will stockpile food at their nest/roosting sites. They will rely on these stockpiles in periods of bad weather or when their prey is not as active.

For hunting, barn owls rely on their hearing and silent flight. They fly low to the ground listening for rodent activity, their prey unaware of their presence above. Barn owls have specially adapted primary feathers, which have 'combs' upon the leading edge (**Figure 2**). These combs cut through the air in order to make their flight silent. Barn owls lose their silent flight in the rain when the special combs on the feather matt together.



Figure 2. Combs on the leading edge of the primary feathers

For barn owls to be successful in Northern Ireland, they need access to a bountiful supply of wood mice. Open habitats adjacent to woodland or small copses of trees, as well as thick, healthy hedgerows, are vital for barn owls.

Cutting hedgerows every other year keeps them growing thick and producing significantly more flowers and berries. Hedge plants only produce flowers and fruits on two years of growth. Rotational management of hedge cutting ensures there is a plentiful food supply for all wildlife.

Barn owls can provide natural pest control and are known as the 'farmer's friend.' The use of rodenticides should be limited, or stopped altogether, in the presence of barn owls. Rodenticides can cause secondary poisoning in barn owls when rodents contaminated with rodenticides are eaten; the chemicals do not break down and begin to build up which can lead to the bird's death. Reducing the impact of rodents should be the first step in rodent control, including rodent-proofing grain stores, clearing up grain spills and tidying yards to remove hiding spaces for rodents. If rodenticide must be used follow best practice as directed in the Campaign for Responsible Rodenticide Use Code (CRRU) - <https://www.thinkwildlife.org/crru-uk/>

What do barn owls need?

Suitable foraging habitats

Barn owls hunt over large open areas and along borders such as hedgerows and woodland edges. The key thing to remember is that they are searching for small rodents that are hidden in the undergrowth that they can access. Great woodland and hedgerow habitats for wood mice are not enough; barn owls need accessible habitats in which to hunt their prey. Barn owls cannot catch rodents within a hedgerow itself, they need rough vegetated areas adjacent to these habitats, such as rough grassland and wild margins.

Rough grassland is grassland that has not been grazed or cut for at least one year. Rough grassland has a deep litter layer of grass for small rodents to forage and nest in. This is ideal for barn owls, as rodents prefer to be under cover for protection, however the barn owls can not only hear them but also have unobstructed access to capture them. Areas dominated by rush, heath or scrub DO NOT count as rough grassland. Areas of rush and heathland are poor habitats for small rodents. Scrub areas do host small rodents, however they are under cover and cannot be preyed upon readily by barn owls. This habitat tends to be dominated by species such as Cocksfoot grass, *Dactyla glomerata*, False Oat grass, *Arrhenatherum elatius*, Timothy grass,

Phleum pratense and Yorkshire Fog, *Holcus lanatus*. Rough grassland is now a scarce habitat, as most lowland grassland is utilised for pastoral or arable farming.

In order to help barn owls, leave an area of rough grassland. The more ground the better, however a 2-6 metre strip at a field margin can provide ample habitat for lots of small rodents. A strip like this will also benefit other wildlife, such as invertebrates, birds and hedgehogs. Options within the current agri-environment scheme that can benefit barn owls are wild bird cover, rough margins, pollinator margins and winter stubble.

To create rough grassland, do not cut or graze an area for 1-2 years. The fallen grass will create a thick litter layer itself. To maintain rough grassland, and to prevent scrub development, graze lightly with cattle in the autumn. If you do not have cattle, you can cut the grass with a topper, or in small areas with a strimmer. The key point is do not graze or cut to ground level, leave the litter layer uncut, a depth of around 4 – 6 inches. If leaving an entire area is not an option, managing with rotational grazing or cutting can ensure that there is always some rough grassland available for foraging barn owls.

Field margin at a barn owl site



Typical rough grassland



Other suitable foraging habitats

Wild bird cover

Wild bird cover is a seed mix of plants that produces a bounty of seed. Primarily designed for game birds, it has the additional benefit of being a fantastic food and shelter resource for lots of traditional farmland songbirds such as yellowhammer, linnet, skylark, and tree sparrow, but also for small mammals such as wood mice and pygmy shrew. This in turn attracts barn owls.



Wild bird cover is a brilliant provision for mice and barn owls throughout the year.

Wetland margins

Wetland margins are often too difficult to bring into agricultural production or are inaccessible to large machinery. As a by-product of those circumstances they become an effective area for hunting barn owls. Connecting these areas to hedgerows, woodlands, rough grassland or wild bird cover enables small mammals to access them, and is extremely beneficial for barn owls.



Arable fields and winter stubble

Cereal crops are a great temporary foraging habitat for owls. The inevitable grain spillage after a harvest attracts small mammals. However, this is not a permanent feature of the landscape and alone is not enough to sustain barn owls. Winter stubble is a significant improvement, provisioning rodents throughout the winter months which is the most challenging period for barn owls.



Winter stubble is a great winter foraging habitat for barn owls.

What Do Barn Owls Need?



An example of mixed habitat used by hunting barn owls.

Woodland rides

Woodland edge habitats are perfect for barn owls. Often they have good cover for small mammals and there is a natural spillover of wood mice from the woodland source population, which is of great benefit to barn owls.

Mixed habitat

Unlike most other species, foraging areas for barn owls do not need to be adjacent. A nesting pair of barn owls will forage up to 5km radius from the nest site. Therefore, large swathes of land do not need to be converted into rough grassland to assist barn owls. Pockets of foraging habitat across a landscape, often created by many different landowners, can be just as effective.



Nesting/roosting provision

Barn owls are cavity-nesting birds, meaning they would use tree cavities created from fallen limbs. The cavity has to be large enough to accommodate a number of fledglings. However, mature trees are now scarce in the Northern Irish landscape, often confined to large private estates.

Traditionally, farm buildings and barns were also utilised. These buildings were attractive as many had wide ledges atop walls for the owls to lay their eggs on. Over time, these buildings have been lost or replaced by modern developments. Modern farm buildings and barns often have sheer edges and lack these

ledges for owls to lay their eggs on; they also lack access holes. Barn owls will still use abandoned buildings for nesting, as long as they are undisturbed during the breeding season.

An alternative to these naturally occurring features in a landscape is an artificial nest box. Ulster Wildlife, and a number of other organisations, have been erecting nest boxes across Northern Ireland for over a decade. These can be either indoor in buildings or outdoor on trees, but we find in Northern Ireland they are fonder of tree nesting boxes.



Ulster Wildlife staff erecting an outdoor barn owl nesting box.

A network of nesting/roosting sites is important for a nesting pair of owls. Initially only the female will incubate the eggs and young chicks in the nesting cavity. The male will roost at a separate site, whilst the female incubates the eggs or broods the young chicks. Once the chicks are large enough to thermoregulate themselves, she will roost in another cavity, often not the same site as the male. So giving the nesting pair as many options as possible is ideal.

Ulster Wildlife encourages landowners to contact them if they are interested in hosting a box. An initial site assessment is carried out to see how viable the land is for barn owls. A desk assessment is also carried out to discover how close the proposed site is to existing barn owls and if there are negative features such as roads or areas of high rodenticide use. Then that data is used to inform effective site selection for nest boxes. Boxes are placed in areas where we know barn owls are nesting to ensure there is a suitable network of roosting and nesting places in the area. The more nesting/roosting provision in the landscape, the better for both resident and dispersing barn owls.

Summary of actions landowners can take

- **Maintain wooded areas** and woodland edges for wood mice and other small mammals.
- Maintain, create and **enhance hedgerows** through native planting and trimming regimes.
- Provide 2-6m **field margins** that are grazed lightly or rotationally cut every other year.
- Plant **wild bird cover** or pollinator margins.
- Retain **winter stubbles** throughout the winter months.
- Retain large **mature trees** for natural nesting cavities and perch points.
- Retain old **stone buildings**.
- Put up **nest boxes** if suitable (indoor or outdoor).
- **Stop rodenticide use** or follow the guidance for the **safe use of rodenticides**.
- Look out for barn owls and **report them** to **barnowls@ulsterwildlife.org** or scan the QR code to record online.



Join Ulster Wildlife today and become one of over 14,000 members supporting conservation of our precious wildlife and wild places throughout Northern Ireland.

ulsterwildlife.org/join

If you think you have suitable land for barn owls and are interested in further advice or a possible nesting box please contact us at:
barnowls@ulsterwildlife.org or call
028 9045 4094

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