



Barn Owls in Ireland

Information on the
ecology of Barn Owls
and their conservation
in Ireland

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Acknowledgements

As one of our most iconic birds, and a sentinel species for the health of our countryside, there have been significant concerns over extensive declines in the Barn Owl population recorded over the past 40 years. A previous obstacle to conserving the endangered population has been the limited knowledge of the ecology of Barn Owls in Ireland, as well as the factors which have influenced their decline. The Raptor Conservation Project was established by BirdWatch Ireland to address these gaps, to gain insights on the ecological requirements of Irish Barn Owls and the factors which affect the population in order to develop and implement effective conservation measures to help the population recover. The purpose of this booklet is to make accessible some of the findings from this research, to increase our understanding of Barn Owls in Ireland and their importance in the countryside, and to provide information on how to help their conservation. The Barn Owl research and monitoring through the Raptor Conservation Project has received significant support and assistance from a wide range of groups and individuals, without which this work and the production of this booklet would not have been possible.

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All illustrations & maps
Michael O’Clery



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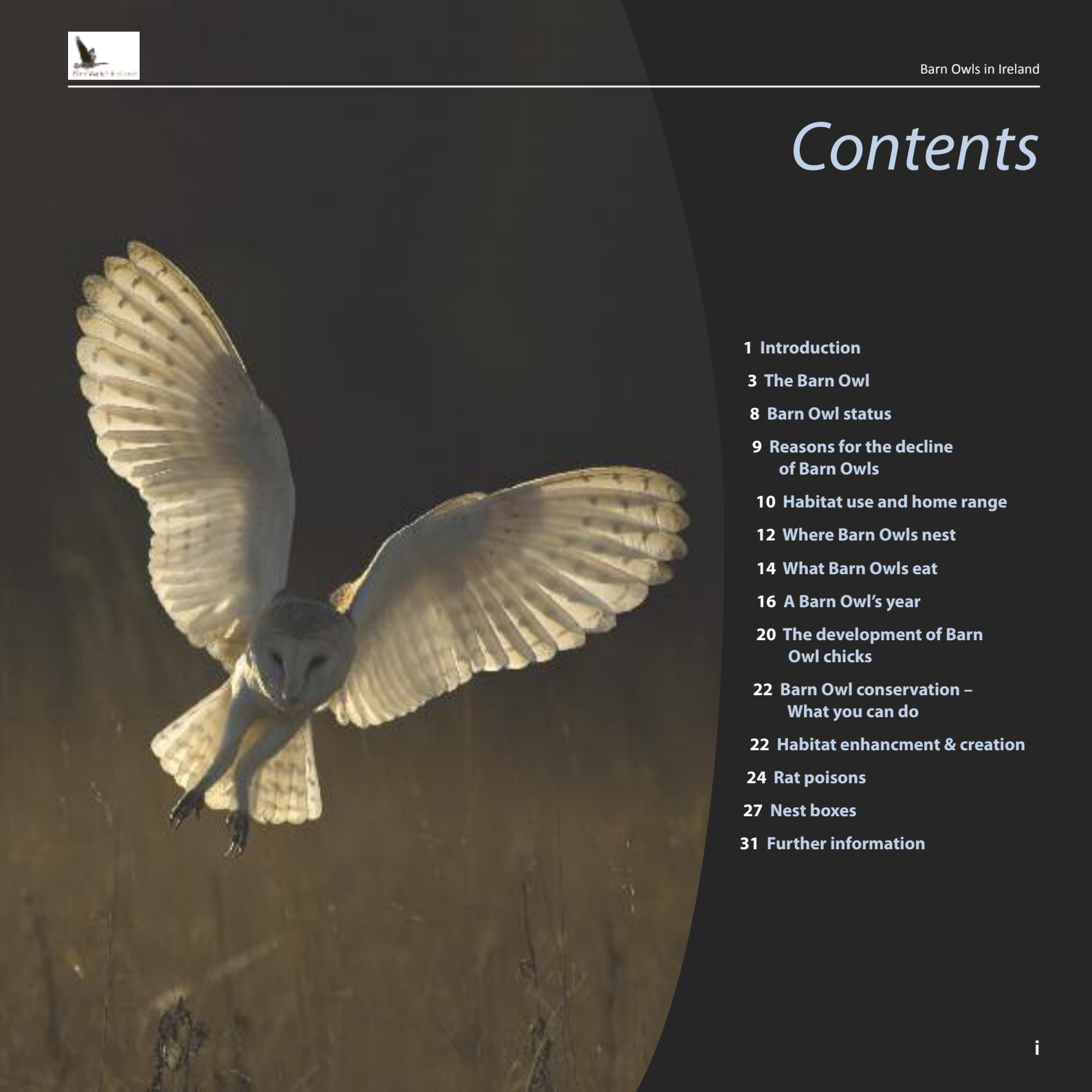
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Introduction

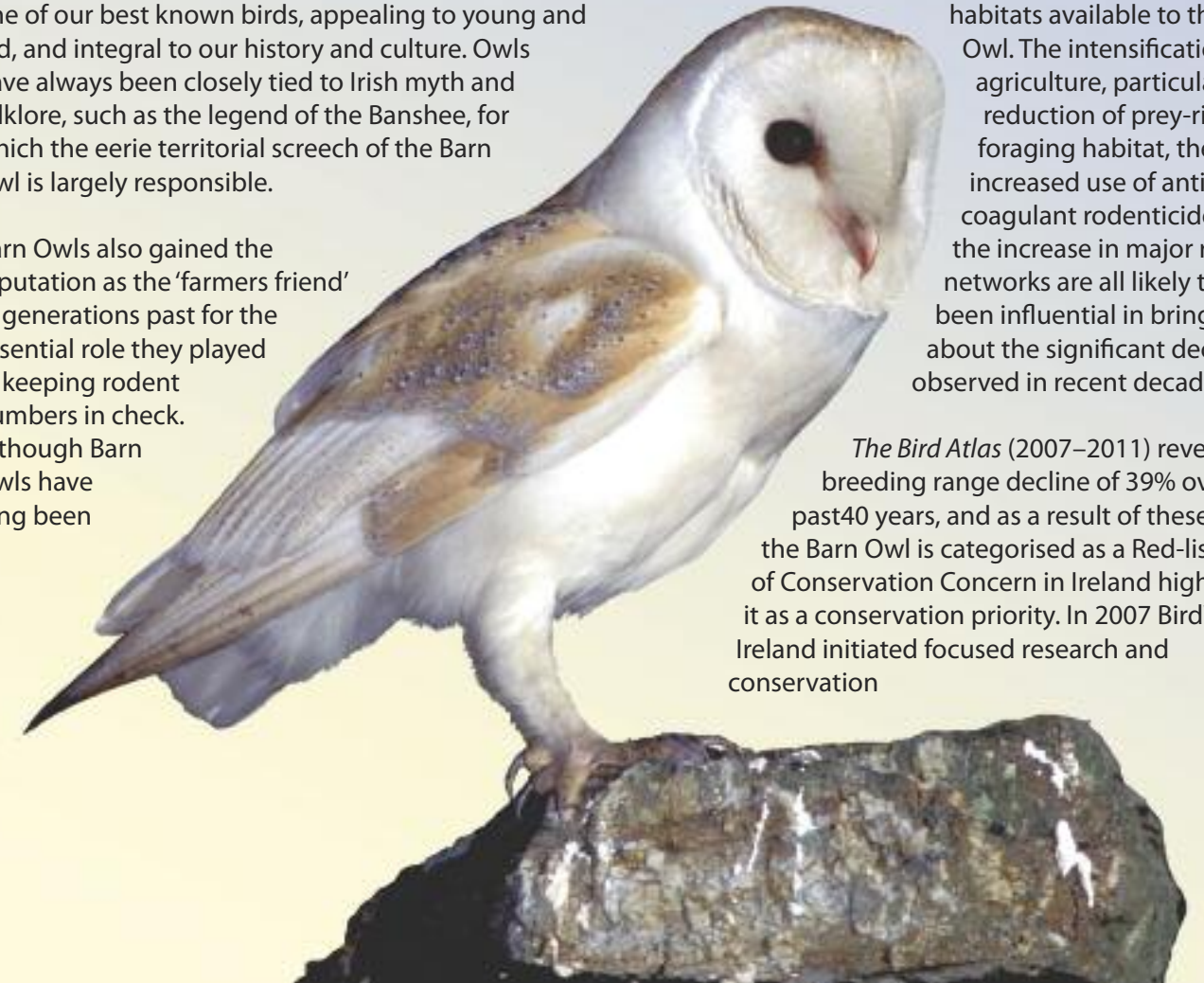
The Barn Owl holds a unique and mysterious allure for Irish people. Their dark, soul-piercing eyes and bloodcurdling screech are almost other-worldly. To glimpse its ghostly form, floating silently over their hunting grounds in the dead of night is one of the most magical natural spectacles in the Irish countryside. Although such sightings are increasingly rare in modern Ireland, the Barn Owl nevertheless remains one of our best known birds, appealing to young and old, and integral to our history and culture. Owls have always been closely tied to Irish myth and folklore, such as the legend of the Banshee, for which the eerie territorial screech of the Barn Owl is largely responsible.

Barn Owls also gained the reputation as the 'farmers friend' in generations past for the essential role they played in keeping rodent numbers in check. Although Barn Owls have long been

replaced by chemicals as the most popular means of rodent control, the goodwill towards them within the farming community, as well as the general public, remains as strong today.

Sadly, like many other farmland birds in Ireland, the changing agricultural landscape has resulted in dwindling resources and suitable habitats available to the Barn Owl. The intensification of agriculture, particularly the reduction of prey-rich foraging habitat, the increased use of anti-coagulant rodenticides and the increase in major road networks are all likely to have been influential in bringing about the significant decline observed in recent decades.

The Bird Atlas (2007–2011) revealed a breeding range decline of 39% over the past 40 years, and as a result of these declines the Barn Owl is categorised as a Red-listed Bird of Conservation Concern in Ireland highlighting it as a conservation priority. In 2007 BirdWatch Ireland initiated focused research and conservation





efforts for Barn Owls through the Raptor Conservation Project, to learn more about their status and ecology in Ireland, and what we need to do to help the population recover. This work has incorporated many different elements including extensive survey and monitoring efforts, radio tracking, assessing diet through pellet analysis and via nest cameras, toxicology analysis, provision of nest boxes and collating information on mortality incidents.

Through this work we hope we have made some positive progress in understanding the habitat, nesting and conservation requirements of Irish Barn Owls. The purpose of this booklet is to share some of these findings, as well as providing practical conservation advice, which anyone can carry out to help their local population.

Survey work has identified the south-west of the country as an important stronghold for the population, which still holds relatively good numbers compared to other

parts of the country, where the Barn Owl has all but disappeared. The population does face difficulties, but the situation is not all bleak, and many positives have been revealed through this work. In particular is the overwhelming enthusiasm and willingness to help conserve Barn Owls encountered throughout the country. Conservation actions for Barn Owls will also have wider biodiversity benefits as Barn Owls are top predators, much of the advice provided in this booklet will also benefit a wide range of other species.

Everyone can play their part in conservation, and for Barn Owls this can be reporting sightings, installing nest boxes, or if you are a landowner, making small changes to the way you control rodents, or creating space for wildlife to flourish. Individuals can make a difference and help ensure that this important part of our natural heritage becomes a more common sight throughout the Irish countryside.

John Lusby & Michael O'Clery BirdWatch Ireland



The many facets of Barn Owl research and conservation work

All photographs of birds taken during ringing operations under license from the National Parks and Wildlife Service



The Barn Owl

There are over 200 species of owl throughout the world, all of which belong to the order Strigiformes. The Strigiformes are divided into two different families: the Strigidae, to which the majority of species, also known as the “typical owls” belong, and the much smaller family, the Tytonidae, to which the Barn Owl belongs.

There are some 30 different sub-species or races of Barn Owl. This number varies depending on the classification system used and is also subject to change due to our poor knowledge of certain races. Most bear a strong resemblance to our “Irish” Barn Owl, and together occupy a range of habitats throughout the world, from rainforests to open savannah. This global range makes the Barn Owl one of the most widely distributed terrestrial birds, and it is found on every continent with the exception of Antarctica.

The Barn Owl in Ireland and other parts of western Europe is of the race *Tyto alba alba*. *Tyto* comes from the Greek word *tuto*, meaning owl and *alba* is Latin for white. In Ireland many people know the Barn Owl as the “white owl”. Throughout their world range they have been given many other local names, to describe their features , behaviour and local superstitions towards them. However it is their Irish name, ‘*Scréachóg*

reilige’ which conjures up one of the most appropriate and haunting images, which literally translated means, ‘the graveyard screecher’.

Description

As Barn Owls are nocturnal in Ireland, encounters with them are rare and generally occur in dark of night. However, even with a fleeting glimpse they can be readily identifiable, the only confusion generally being with the Long-eared Owl, which is our other resident and widespread owl.



Note the long, broad wings, white undersides and long legs.

Barn Owl facts

Name: Barn Owl
Latin name: *Tyto alba*
Irish name: *Scréachóg reilige*
Length: 37–39 cm
Wingspan: 84–93 cm

Estimated Irish breeding population: 400–500 pairs.

Habitat: Hunts over rough grassland, grassy margins, woodland edge and wetland. Nests predominantly in ruined or derelict buildings, and occasionally hollow cavities of mature trees.

Diet: Mainly small mammals such as rats, mice, voles and shrews, birds, and occasionally frogs may also be taken.

Nesting season: Predominantly April to August, although pairs have been known to breed earlier or later than this.

Eggs: Usually 4–6 eggs are laid, which are matt white and spherical.

Incubation period: 29–33 days, incubated exclusively by the female.

Fledging time: 54–62 days.

Number of broods reared per year: One, rarely two.

Lifespan: 3–5 years in the wild.



Barn Owls are a medium-sized owl. Many people are surprised by their small appearance when perched, but in flight their size is significantly more impressive due to their long and broad wingspan. If observed from beneath, they appear to be 'ghostly' pale in colour, due to their almost pure-white undersides. Their upperparts are honey-combed in colour with beautiful, intricate patterns. One of their most characteristic features is the pronounced heart-shaped facial disc, as well as their dark eyes.

Special adaptations

Barn Owls are highly efficient predators, perfectly adapted to locate and catch the

small mammal prey on which they specialise. Their slow and wavering "moth-like" hunting flight is almost completely silent, which helps to conceal their presence from potential prey and allows them to detect the subtle rustlings of small mammals in the undergrowth. Their heads can turn 270° in both directions, due to their S-shaped neck bones. Long, densely feathered legs enable them to dive into deep vegetation, with sharp, powerful talons to grasp and dispatch their prey. A large wing surface area, coupled with their light body weight facilitates their slow, drifting hunting flight and also allows them to carry large prey items over long distances.



On silent wings

The Barn Owls plumage is incredibly soft. This helps to reduce noise as the wind passes through the feathers in flight. In addition, specially adapted barbs on the leading edge of the wings make their flight almost completely silent.

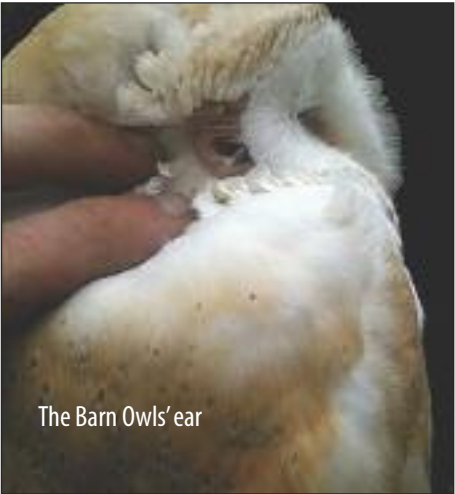


Hunting by hearing

Barn Owls have relatively small, dark eyes, and although they have excellent eyesight, it is actually their acute hearing which is their most valued hunting tool. The heart-shaped facial disc acts like a

Catching prey in complete darkness

Work on captive Barn Owls in the 1950's showed that when birds were placed in completely dark rooms with live mice and a bed of leaves on the floor they could still catch their prey effectively by pinpointing their position by sound alone.



'satellite dish' to channel and amplify the sounds of small mammals moving in the undergrowth. Their ears, which are internal, are located just behind the disc and positioned at slightly different heights so that they can precisely pinpoint the location of small mammal prey from minute noises alone.

More often heard than observed

Although Barn Owls have a diverse range of calls, within this repertoire they don't include the classic 'hoot' or 'twit-twoo' for which owls are associated. It is the Tawny Owl that makes the latter call, although it is not a sound of the Irish countryside given the absence of this species.

Barn Owl calls are instead much less 'owl-like' and to those unfamiliar with the call, may not be even considered to be 'bird like'. They use an extensive range of twitters, chirrups, hisses, squeaks and clicks, to communicate, to establish pair bonds and to warn off predators, but it is

Other owls in Ireland

Long-eared Owl

The Long-eared Owl is the commonest owl in Ireland, although it is rarely seen. They are similar in size to the Barn Owl but can be



Long-eared Owls don't use buildings for nesting but rather choose the disused stick nests of the Hooded Crow or Magpie in deciduous or coniferous forests, copses, shelter belts, plantations, hedgerows or isolated trees and can even be found nesting in gardens.

Long-eared Owls are generally elusive but are most obvious when they have young, which will call repeatedly throughout the night from the nest site and surrounding trees. A loud 'EEEE!' is repeated every few seconds, which has been likened to the sound of a 'squeaky gate'.

Short-eared Owl

The Short-eared Owl is a scarce winter visitor to Ireland, generally found in coastal areas. It is also a rare and sporadic breeding species in upland and moorland habitats, particularly in the south-west. It is the only owl species likely to be seen hunting during the day in Ireland. It is similar in





The stiff feathers of the facial disk help channel faint noises toward the ears

their mpressive screeches and snores that we are more likely to hear.

Barn Owls are known as ‘Screech Owls’ in many parts of their range for good reason. Both adults emit a long and far-carrying screech as part of their courtship and territorial behaviour. This screech can be heard at dusk or during the night at any time of year, but particularly in the lead up to and during the nesting season, providing a good indication that you are within an active Barn Owl territory.

Owlets and females also ‘snore’. This can be described as a ‘hissing’ sound that resembles a rough, wheezy intake of breath. This is their hunger call basically stating, “I want to be fed”. During the breeding season, the female or owlets will generally start snoring at dusk, and this may continue right throughout the night or until they have been adequately fed. The hungrier the chicks, the louder their snoring, which can reach a feverish pitch when an adult arrives to the nest with prey!

Barn Owls in history and folklore

Owls have always featured prominently in the mythology and folklore of cultures throughout the world. They are one of the few birds found in prehistoric cave paintings and have been both revered and feared by civilisations since ancient times. They are symbols of wisdom and good fortune in some cultures in that they are associated with new life, curing sickness and warding off evil spirits. In other cultures they are associated with curses, linked with witches and devils and harbingers of death and doom.



A Barn Owl entering an old barn

In Ireland, the eerie, blood curdling screech of the Barn Owl is likely to be responsible for the legend of the Banshee, a female spirit who

Historically in Ireland, before the days of rat poisons, the Barn Owl was greatly valued for their role in controlling rats and mice around grain stores and farmyards, and special ‘owl windows’ were built in many farm buildings to allow the owls access to nest in the loft space. Their popularity has continued, if not increased since, likely helped by the Barn Owl featuring on the opening of the ‘Late Late Show’, and also the film, ‘Harry Potter’.



"Banshee" by W.H. Brooke

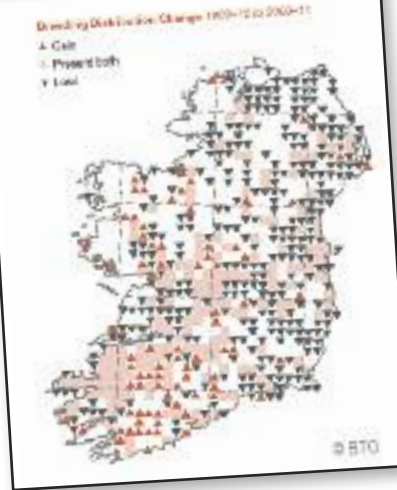


Barn Owls are the source of many myths and superstitions, due to their ghostly appearance, the fact that they are nocturnal, inhabit ruined buildings and emit a strange and eerie call.

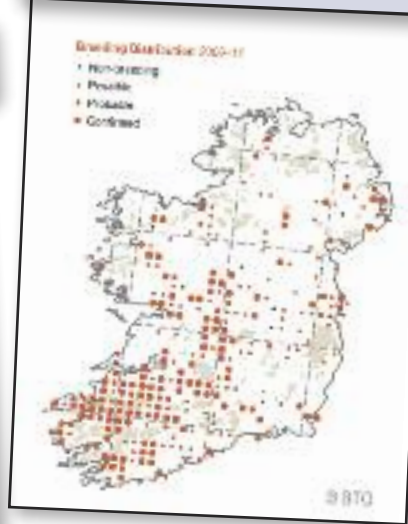
Barn Owl status

In recent decades, the Barn Owl population in Ireland has experienced a dramatic decline in their breeding range and numbers. Once a much more common bird throughout Ireland, a decline was first noted from around the 1950's. The *Breeding Birds Atlas* (2007–2011) has highlighted a breeding range decline of 39% over the 40 year period since the original *Atlas of Breeding Birds in Britain and Ireland* (1968–1972). The fact that the recent atlas coincided with an increase in monitoring effort suggests that actual losses over this period may be even more substantial. A partial survey in the mid 1990's which was updated between 2008 and 2013, also revealed a worrying short-term decline in that, of 84 sites registered, only 26 were active when revisited 15 years later. As a result of this decline, the Barn Owl is categorised as a Red-listed Bird of Conservation Concern in Ireland.

Change in the distribution of Barn Owls from 1968 to 2011

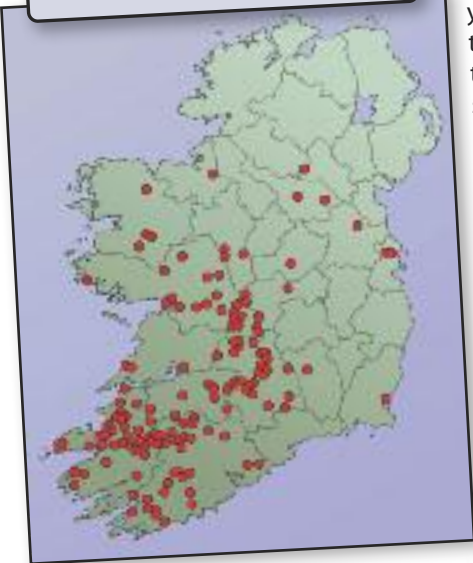


Distribution of Barn Owls 2008–11, from the *Bird Atlas*



The Atlas maps show a serious decline over much of Ireland, with a remaining stronghold in the south-west

Known nest sites in Ireland



Survey work each year confirms the loss of some traditional nest sites, but new sites are also discovered. There are currently 145 active sites which have been used on a regular basis over recent years which have been registered by BirdWatch Ireland throughout the country. Although it is believed there are many more

unknown sites and, from density work, the actual population is estimated to be approximately 400–500 pairs. Although rare, Barn Owls are still widespread and breed in every county. However numbers vary considerably throughout the country, with Munster and, in particular, the south-west being the national stronghold.

The **Birds of Conservation Concern in Ireland (2014-2019)** is a list of all breeding species in Ireland which are assigned to each of three categories, namely green, amber or red depending on their status. Barn Owls, along with 26 other species are placed on the **Red list**, identifying them as a conservation priority. The reason that the Barn Owl has been placed on the Red list is because its population is thought to have declined by over 50% in the past 25 years.

Reasons for the decline of Barn Owls

Throughout their range, several different factors have been attributed to a decline in the Barn Owl population. Research has shown that the ecology of Barn Owls in Ireland can differ to populations elsewhere, so it is essential to determine the specific factors which influence the status and trends of Barn Owls in the Irish context. The main aspects which are known to cause mortality and affect breeding success and survival in Ireland are outlined below.

Loss of habitat

Like many other birds which are dependent on farmland, the intensification of agriculture has negatively impacted Barn Owls in Ireland. Significant changes to the Irish landscape, such as the removal of hedgerows, the loss of small scale tillage, the switch from hay to silage and the increased use of pesticides has resulted in the reduction of prey rich foraging habitat for Barn Owls and is likely to be the main reason behind the long term population decline.

Exposure to rodenticides

With the intensification of agriculture has come the increased use of anticoagulant rodenticides, which have also become significantly more toxic over time. Barn Owls are exposed to rodenticides by feeding on rodents which have ingested the



Barn Owls can be exposed to rat poisons by feeding on rodents

poisons. Barn Owls can die as a direct result of secondary exposure to rodenticides, and it is now known that the majority of owls in Ireland are exposed to sub-lethal concentrations of these toxins. It has not yet been possible to determine the impact of rodenticides at the population level but this aspect is one of the major concerns for Barn Owls in Ireland.

Loss of nesting and roosting sites

Research has shown that the population in Ireland is unlikely to be limited by the availability of suitable nest sites to the same extent as has been previously recorded in Britain and in other parts of its range. Extensive survey work in different parts of the country has generally revealed a good availability of suitable yet unoccupied sites. However there are likely to be gaps in the population in some areas due to the lack of suitable nest sites, particularly in more intensive agricultural landscapes. In addition, the renovation or dilapidation of traditional nesting sites may have an impact on local populations, especially where numbers are low.

Increase in major road networks

Several European studies have linked the increase in major road networks to a decline in the Barn Owl population. Due to their hunting behaviour, low flight and poor peripheral vision Barn Owls are especially vulnerable to collision, and this is also influenced by the road type, physical characteristics, speed and volume of traffic. Many Barn Owls are killed on roads in Ireland each year, with most being reported from motorways, particularly in the autumn when juveniles are dispersing.



Many Barn Owls are killed on roads, particularly motorways



Habitat use and home range

In Ireland, Barn Owls are non-migratory and also sedentary; once a pair establishes in an area they tend to remain in the same territory throughout their lives. They are not a strongly territorial species, and will only actively defend the immediate area of the nest site, so territories can often overlap. A good Barn Owl territory, in addition to suitable foraging habitat, will also have suitable nesting sites as well as a number of roost sites which are used at different times of the year. As Barn Owls are birds which favour lowland farmland, the majority of nests are below 150 m, with the highest recorded sites in Ireland being close to 300 m in altitude.

The size of a Barn Owls home range depends of the quality of habitat and abundance of prey. Tracking adults fitted with special radio transmitters revealed that home range sizes in Ireland are significantly larger than in the UK where birds generally focus the majority of their hunting within 1–2 km of the nest site during the breeding season. In Ireland, breeding birds travel up to 6 km and sometimes even further in search of food.

However birds will not use the entirety of their home range equally and will focus on the optimal foraging areas while avoiding areas which are unsuitable for hunting. Barn Owls are also very set in their ways and generally have favourite flight paths, perches and hunting patches, which are used routinely or even nightly.

For a territory to hold a successful pair of Barn Owls, it must have prey-rich hunting habitats with a plentiful supply of small mammals. Rough grassland, species rich grassland or unmanaged grassy margins at the edge of fields, hedgerows and woodlands are all optimal foraging habitats, with wetlands, areas of rank vegetation also important and in certain cases, cereal crops will also be used. Barn Owls can still thrive in intensively farmed landscapes as long as there is a sufficient quantity of such rough grassland or edge habitats available, but a landscape devoid of these will also be lacking in Barn Owls.



Rough grassland – ideal hunting habitat for Barn Owls



✓ A good landscape for Barn Owls



Safe, undisturbed nest site

Rough grassland
One of the richest areas for prey



Wetland edge
Good hunting area

Woodland edge
Good grassy margins at the edge of woodland can provide excellent hunting

Native hedgerow
Well-managed hedgerows, with a good base layer and wide margins, provide suitable habitat for small mammals



Wide grassy margins
Grassy margins at the edge of forestry and other habitats will provide good hunting

Roost site
Dry, undisturbed roost in a disused shed

Cereal crops
A mixed landscape provides a multitude of hunting opportunities

Wild bird cover
Good hunting area

✗ A poor landscape for Barn Owls

Intensive farming
Large fields, with improved pasture and poor diversity means a lack of prey

Unsuitable buildings
Without a nest box, modern barns are usually unsuitable for nesting

No suitable buildings
Nowhere to roost or nest

Lack of hedgerow
A lack of hedgerow, or low, 'manicured' hedgerows which lack grassy margins, don't provide suitable hunting

Fast road
Few owls survive long with a busy road nearby



Where Barn Owls Nest

Barn Owls require a dry, dark and secluded site for nesting. In Ireland the most common nest sites are old, ruined buildings, such as castles, churches, ruined mansions, derelict farm houses and farm buildings. Within these structures, chimneys are the most frequently used for nesting, where nests can be up to 30 ft deep within a chimney system. Roof spaces and wall cavities are also popular choices within ruined buildings.

Although Barn Owls generally tend to avoid human activity, as long as the nest site itself is free from disturbance, they can occasionally nest in occupied houses, busy farm buildings and in towns and villages. In addition to man-made structures, they will also use a range of other sites which meet their nesting requirements including cavities in cliffs or quarries, hollow cavities in old mature trees, as well as purpose built nest boxes, with examples of all of these recorded in different parts of the country. Survey work has confirmed that the most commonly used sites across Ireland are derelict cottages and farm houses, which can be widely available in some areas, and also castles.

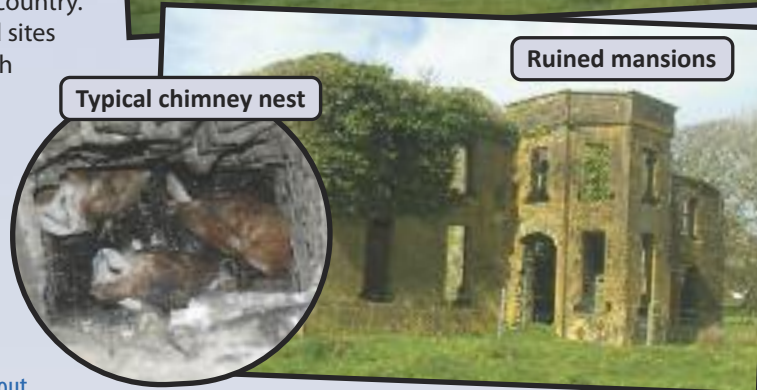
Traditional nest sites can be used by successive generations of owls, with records of buildings being occupied for over 40 years in Ireland. As well as being important for Barn Owls, many of the ruined buildings are also shared with other species such as Kestrel, Peregrine, Raven and Swift as well as Bat species.



Strategic survey work carried out in a range of 10 km squares throughout the country, shows that there is often a greater availability of suitable sites than there are Barn Owl pairs in certain areas. In the survey area shown, there is a relative abundance of suitable nest sites in the form of derelict cottages and two story farmhouses.



Castles



Ruined mansions



Typical chimney nest

The 'NAMA' nest

This is one of the more unusual Barn Owl nest sites in Ireland. Birds took advantage of the recession and moved into the roof space of a new house which was left unfinished.



Derelict cottages



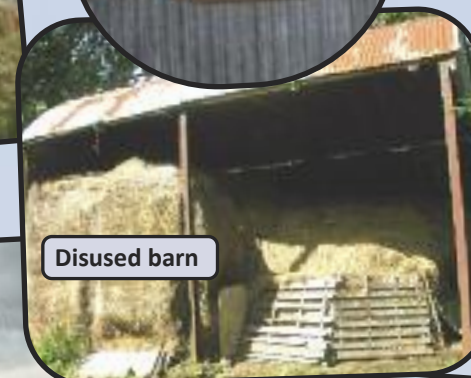
Derelict farm houses



Quarries



Nest boxes



Disused barn



Tree cavities



Jackdaw



Disused farm buildings

Jackdaws – friend or foe?

Most building sites in which owls nest in Ireland are also used by Jackdaws. Generally there is competition for nest sites between the two species. Jackdaws can displace Barn Owls or block nests with sticks making them unsuitable, while Barn Owls will attack and even kill Jackdaws. However as Barn Owls don't build a nest themselves, they rely on Jackdaws to initially block a chimney before they can use it, and the vast majority of Barn Owl nests in chimneys are situated on top of old Jackdaw nests. So despite all the trouble between them, without the Jackdaws the owls would be looking elsewhere for a nest.



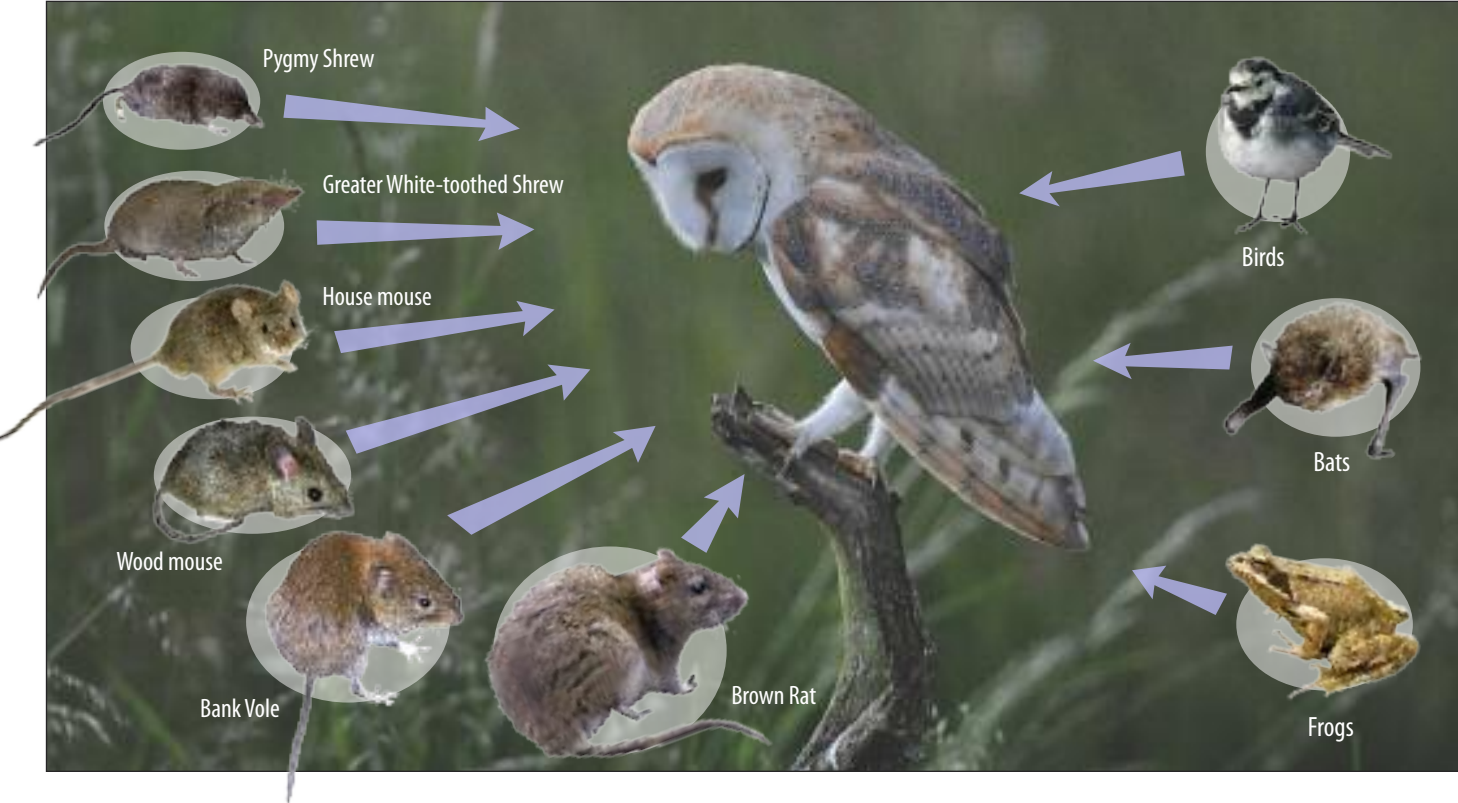
What Barn Owls eat

Barn Owls predominantly feed on small mammals, however they are opportunistic hunters and will take other prey items when available, such as birds, particularly communally roosting species in autumn and winter such as Starling, Swallow and Pied Wagtail. An adult Barn Owl will typically consume three to four small mammals a night but, when young are in the nest, prey demands increase significantly, and deliveries of over 25 small mammals to the nest per night have been recorded in Ireland.

In suitable hunting conditions, and when there is a good availability of prey, food caches may build up in nests, particularly during courtship when the male may deliver prey to the female far in excess of what she can consume.

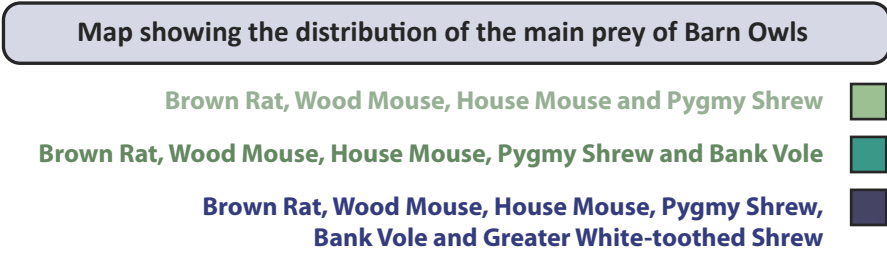
Headless prey deliveries

Barn Owls will often decapitate larger prey items such as rats before carrying them back to the nest to feed young. The heads don't provide much nutrition and make swallowing the prey a lot harder. In Ireland, birds can feed to a large extent on rats and may hunt a long distance from their nests, so decapitating large prey before carrying it four or five kilometres back to the nest site makes sense!



From analysis of Barn Owl pellets we have good information on the diet of Barn Owls in Ireland, which varies significantly throughout the country. In recent times, due to the arrival of two introduced small mammals to Ireland, distinct zones with different assemblages of small mammals have been created. Across large parts of the country including the north-west, east and south-east, Wood Mice are the primary prey item, generally followed by the Brown Rat, House Mice and Pygmy Shrew. Where the Greater White-toothed Shrew occurs, it is the main prey item, generally followed by Bank Vole. Within the Bank Vole range, this rodent tends to dominate the diet, and it is the main prey item for Barn Owls particularly in the south-

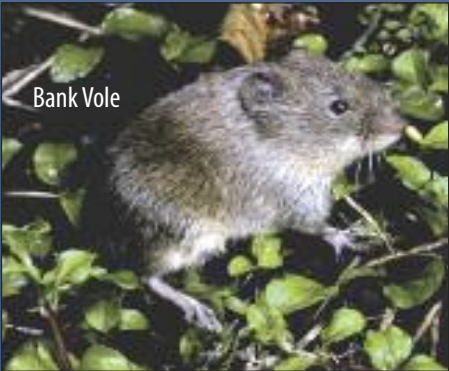
west, with pellet analysis studies showing it can comprise up to 80% of the diet in biomass. Both introduced small mammals are continuing to expand their range, and as with arrival of any non-native species there is the potential for impacts on the local ecosystem. Negative effects on the Pygmy Shrew population due to the presence of the Greater White-toothed Shrew have been observed, and the potential impact of the continued spread of these small mammals on the Barn Owl and other raptors is being closely investigated.



Introduced small mammals

The Bank Vole and Greater White-toothed Shrew are non-native species to Ireland. The Bank Vole was accidentally introduced from Germany to west Limerick in the 1920's and has since colonised the south-west, mid-west and parts of the midlands. The Greater White-toothed Shrew was first discovered in Barn Owl pellets from a nest in Tipperary in 2008. Both species are continuing to expand

their range, and assessing Barn Owl diet has been used as a method to track their spread and impact on other small mammals. The introduction and spread of these species creates a very interesting situation which is likely to have significant implications for Barn Owls and other raptors. Research is being conducted to determine how these introductions may affect Barn Owls in terms of their densities, breeding success and risk of exposure to rodenticides and how this varies across the different small mammal zones.





A Barn Owl's year

Barn Owls have one of the longest breeding seasons of any terrestrial bird in Ireland. Courtship begins as early as January, when the male and female start to roost together at the chosen nest site. The male is at his most vocal at this time of year, his loud, drawn out screeches, often heard after dark, declare his ownership of the territory and advertise himself to the female. As the season progresses, the pair will regularly engage in courtship flights, soaring together, or indulging in high speed vocal pursuits around the nest site at dusk.

From around March onwards, the male will present prey to the female at the nest with increasing frequency, which is usually followed by copulation. In the days prior to egg-laying, the female will become less and less active and eventually cease hunting altogether. She will now diligently remain in the nest for the next two months, only leaving for brief periods to preen and stretch her wings but remaining within view of the nest. She is attended to by the male throughout this period who will deliver prey to the nest from dusk till dawn. The first eggs are usually laid in late April or early May, but this varies according to the weather and local prey availability. Only the female

Courtship

Mating

Egg laying

Eggs hatching

Young in nest

Young take first flight

Young disperse away from nest



Male roosting away from the nest

Female continuously at nest

Male and female roosting together at nest



incubates the eggs, and if the male hasn't already left the nest during the day to roost close by, the female will now force him to leave.

Usually four to six eggs are laid, two or three days apart. The female starts to incubate as soon as the first egg is laid, which results in a noticeable age difference between the youngest and oldest chicks. The eggs hatch after 30 to 31 days.

For about two days before hatching, the young will start to 'chitter' from inside the egg, announcing that hatching is imminent, and the female becomes particularly attentive at this stage. It can take up to 48 hours for the



Three chicks in a nest

young to hatch. They are tiny, blind and have virtually no feathering. The male continues to bring all the food to the nest. The food is torn up into small pieces by the female before feeding the young. The female will stay in the nest and continue to brood the young until they are approximately three weeks old, at which time they can swallow prey whole and can control their own body temperature due to their recently developed covering of downy white feathers. At this point she will leave the nest and roost elsewhere during the day, which may be alongside the male.

About mid-way through their development the chicks' weight will reach a maximum, which will be far in excess of that of the adults. This is also the time when prey demands are highest, and both parents will return to the nest each night to feed the chicks, although the male still does the majority of the hunting. During the course of the night, the adults can bring as many as 25 food items to the rapidly developing young. At this stage the owlets are extremely vocal and will 'snore' loudly from the nest throughout the night.

As they develop, they become more active, furiously flapping their wings and pouncing on imaginary prey items in what can become a very cramped nest. They also start to focus on the nest entrance with increasing interest. Between 55-60 days, their feathers are nearly fully grown, and they make their first



Juvenile dispersal – where do they go?

Ringling of owlets in the nest has revealed important insights on the survival and dispersal of juvenile birds once they leave the nest site. Studies on young owls, fitted with special rings, which have been encountered again months or sometimes years later, have shown that some birds don't travel very far from where they have hatched, settling just a few kilometres away, while others may move as far as 120 km.

Some examples include a young female owlet ringed as a chick in a nest on the Offaly-Tipperary border,



This female crossed county Kerry, but stopped short of the border

and was encountered two years later as a breeding female in a castle in Galway. Another chick, ringed at a nest site near Tralee in Kerry, was found two years later as a breeding male just across the bay from the nest where it hatched, 11 km away.

Another female, from a nest close to the tip of the Dingle Peninsula, travelled 80 km right across Co. Kerry, but obviously wasn't keen to leave the Kingdom as she settled just 100 m from the Kerry-Cork border!

proper flight from the nest. Initial attempts are clumsy and not very elegant, but they gradually develop into competent flyers over the following days and weeks. They resemble adults at this stage but can be distinguished by their behaviour and exaggerated 'head-bobbing' which is characteristic of young birds. They are also intensely curious and any intruders which come into view are met with deafening screams. The process of learning to hunt also begins at this stage, which isn't entirely instinctive, and the female may drop food from a height for the young to pounce on which helps them to hone the hunting skills that will be essential to their survival.

A young owl will encounter many hazards before it finds a suitable territory in which to settle. Mortality is very high (up to 80%) during their first few months; many will starve, and others may become victims of vehicle collisions as they disperse into uncharted territories. The birds that do make it through these dangerous few months, and find a suitable territory, may breed that summer, less than twelve months after they hatched.

Over the coming weeks and months, the young will gradually start to disperse further afield from the nesting area and eventually begin their search for a suitable territory and partner. Some birds may leave the nest territory soon after fledging, while others may linger into November or December.

The adults may occupy the nest throughout the winter, or they might use a variety of alternative roost sites within their territory until their return to the nest site early in the year, which is usually the same nest as that used previously. Barn Owls generally mate for life, but if one partner dies the other will attempt to call in another bird. Some nest sites have been continuously occupied by successive pairs of Barn Owls for many decades.



Breeding success... and failure

There are many factors which govern the success or failure of a pair of Barn Owls, most important of which are the quality of the habitat, availability and abundance of small mammal prey and weather patterns. Breeding success is the main factor which dictates the long term status and viability of a population.

Monitoring nesting success is therefore important in assessing the health and trends of a local population, which helps inform the need and type of conservation action that may be required. Each breeding season, significant efforts are made to visit a minimum of 80 nest sites throughout the country to confirm if there are birds still present, whether they attempt to breed and how they fare in terms of number of young raised.



A Barn Owl chick is carefully ringed, weighed and measured before being returned to the nest



Three chicks in a nest in a chimney



Routine monitoring at a nest site

Breeding success has been monitored at **over 600 sites** to date, with **over 550 owlets** ringed.

Breeding success and productivity can vary significantly from year to year. When conditions aren't suitable, many pairs won't breed at all; however in good years, Barn Owls can be quite prolific breeders. In recent years, the number of pairs which breed successfully in a particular year has varied from less than half of pairs monitored to over 90%. Successful pairs usually fledge two or three chicks, although we have recorded nests which raised five young on rare occasions!

Wherever possible owlets are fitted with special rings, which each have a unique code that allow us to identify each bird as an individual. All ringing is carried out under licence from the National Parks and Wildlife Service. Nest visits are timed to reduce disturbance. Ringing provides essential information, which would otherwise be impossible to collect.



The development of Barn Owl chicks

The egg
Barn Owl eggs are almost round, white, and are 35–43 mm in size. The female lays one egg every 24 to 48 hours. Typical clutch size is four to six eggs, although up to eight have been recorded in Ireland, and if food is scarce, sometimes only two or three.

Day 1 – hatching
The eggs hatch after 30 to 31 days. When the chick emerges, it has no feathers and is completely blind.

Day 7 – first feathers begin to grow
By the first week, the chick is able to see and starts to develop soft, white downy feathers on the body.

Day 15 – feathers for warmth
By now, the young Barn Owl has well developed downy plumage, and the first of the main feathers on the wing and tail have started to grow.

Day 22 – fully down-covered
The chick is covered in a thick downy coat of feathers which keeps it warm. It no longer needs to be brooded by the female and it can now regulate its own body temperature, and swallow food whole.

Day 39 – losing the down
The owlet gradually loses its fluffy down as their main body and flight feathers begin to emerge. They now begin to take on a more adult-like appearance as the feathering of the facial disc develops. Their body weight reaches its maximum and exceeds that of the adults.

Day 55 – starting to fly
Feathers are nearly fully grown and the owlet has shed most of its fluffy down, with some remnants at the top of the legs. It starts to spend more time at the nest entrance and exploring the immediate surroundings and making its first clumsy flights from the nest.

Day 70 – independence
The young owl is now fully grown and an accomplished flyer. They are mostly indistinguishable from adults in appearance.

How a feather grows
Individual feathers grow from a ‘pin feather’, a stiff sheath of keratin (a similar material to your fingernails) which protrudes in rows from the young bird’s skin.

The feather unfurls as the feather shaft grows from the base of the sheath, gradually attaining its full length over a number of days. The longest feathers on a Barn Owl, the primaries, or main flight feathers in the wing, take approximately 55 days to develop.

Pin feathers from a young Barn Owl





Barn Owl Conservation – What you can do

As birds of farmland, the fate of the Barn Owl population is inextricably linked with farming practices and policy. Landowners are in the best position to help the ‘farmer’s friend’, and the simple, yet effective, conservation measures described here will have benefits not only for Barn Owls but for the wider countryside.

If you are not a landowner you can get involved in local conservation in many different ways such as encouraging neighbours to create suitable habitat for wildlife, providing nest boxes and limiting the use of rat poisons. Also, by reporting information on Barn Owls in your local area, or by supporting BirdWatch Ireland’s work, you will be taking positive actions towards enhancing and protecting biodiversity.



Habitat enhancement and creation

Intensification and widespread changes to agriculture are the main reasons that have caused the long-term decline of Barn Owls, and therefore it makes sense that the best way to halt and reverse the decline is through conservation at the farming and landscape scale. In co-ordination with environmentally friendly pest control, habitat enhancement and creation are the most important conservation measures for Barn Owls.

If suitable conditions are provided, Barn Owls will re-establish and thrive in an area, and whether you have a small plot of land or an extensive farm there is something you can do. Rough, tussocky grassland is one of the best habitats for Barn Owls. Improving and extending existing grassy margins or

creating new areas of rough grassland, or other wildlife friendly habitats, will benefit Barn Owls and a wide range of other species.

What is rough grassland?

Rough grassland can be found along field margins such as hedgerows, woodlands and ditches or as separate plots which

For information on agri-environment schemes visit www.teagasc.ie or www.agriculture.gov.ie



are not intensively managed. The grass itself is not regularly grazed or mowed and is at least 20 cm in height, consisting of a wide variety of native grass and herb species. One of the most crucial features is the presence of a good ‘litter layer’ at the base of the grass which is ideal habitat for small mammals. **Rough grassland should not be confused with rough grazing land.** Although rough grazing may not be intensively managed, and might appear rough due to the presence of rushes, bracken, scrub or bramble, the grass itself is short due to the grazing of livestock and is therefore of less value to Barn Owls when compared with rough grassland.

Good for Barn Owls, good for biodiversity

Barn Owls are ‘apex predators’ which sit at the top of the food chain and their survival depends on a healthy ecosystem. Habitat enhancement measures which benefit Barn Owls will also benefit a wide range of wildlife, all the way down the food chain from small mammals, seed-eating birds, bees and butterflies, to insects and flowers.

Small Tortoiseshell butterfly

Wild bird cover

How to create and manage rough grassland

A native grass/seed mix should be used which best suits the local conditions, and most closely resembles the original unimproved grassland in the area. Tall, tussock-forming species (e.g. cocksfoot, false-oat and timothy) as well as softer, shorter grasses (e.g. Yorkshire fog, fescue and bent species) are best. During the first year, new grass should be left to grow tall and collapse in the autumn to form the ‘litter layer’. Following establishment, areas should be topped or lightly grazed every second or third year in the autumn. Avoid using herbicides where possible and fence off to prevent grazing.

Habitat management for Barn Owls

- Maintain or extend existing rough grassland**
Grass margin strips of even 1m in width are beneficial, but if possible, an increase to 4–6 m in width will provide significant benefits.
- Create new rough grassland**
New grass margins along field boundaries or small plots set aside for wildlife will encourage a range of birds, small mammals and insects.
- Create other habitats for wildlife**
Native wild flower margins and wild bird cover are important for bees, butterflies, seed-eating birds and small mammals, and their predators such as Barn Owls and other raptors.
- Management of hedgerows**
Planting new native species hedgerows, and appropriate management of existing hedgerows, will provide food and shelter for a host of species.
- Limit the use of herbicides and pesticides**



Rat poisons

Rodents pose significant economic and health related risks as they can consume and contaminate crops, damage property and transmit human and animal diseases, and therefore need to be controlled in many agricultural and urban situations. In Ireland, the most common method of controlling rodents is through the use of rat poisons, also known as rodenticides.

Modern rodenticides are highly toxic and extremely effective in controlling rats and mice. However, as well as the pest species for which they are targeted, these toxins can also affect a range of other wildlife through primary and secondary poisoning. Non-target wildlife and domestic animals can consume the bait directly (primary poisoning), or predators can become exposed by feeding on an animal which has come into contact with the baits (secondary poisoning). These substances are persistent and can accumulate within the ecosystem, and studies have shown that these toxins are present in small mammals and their predators.

The farmer's friend

The Barn Owls' reputation as the 'farmer's friend' is well deserved. Before rodenticides, owls were one of the best means of keeping rodent numbers in check.

Ironically the compounds which have replaced Barn Owls as the popular means of rodent control can be deadly to Barn Owls.

Encouraging Barn Owls to nest on your land can have an impact on local rodent populations, as a breeding pair of owls can dispatch over 2,000 rats and mice in one year!



A Barn Owl with a rat

Rodenticide exposure in Irish Barn Owls

Toxicology analysis on the livers of 69 Irish Barn Owl carcasses revealed **detectable residues of rodenticides in over 85% of birds**. A similar proportion of the UK population is exposed, however Irish birds had much greater concentrations of the poisons in their system which provides serious cause for concern. The greater exposure in Ireland may be in part due to the fact that we have fewer small mammal species when compared with the UK, and therefore rats and mice are more important elements of the diet in Irish owls.



Cage rat trap

Barn Owls can be exposed to rodenticides when they feed on a rodent which has previously consumed the poison baits, and the toxins can build up in the owl's system in this way. Owls can die as a result of feeding on poisoned rodents, however the effects of sub-lethal concentrations on a bird's hunting, breeding success and survival is not well understood. It is now known that the majority of Barn Owls in Ireland are exposed to rodenticides.



Help to reduce the exposure of wildlife to rodenticides

Many steps can be taken to mitigate the negative effect of rodents before resorting to laying down poisons. Even if rodenticides are used appropriately, exposure to wildlife may still occur. Therefore, avoiding or limiting the use of rodenticides is one of the best ways to reduce the threat of secondary poisoning to wildlife. Before considering using rodenticides, you should first try to prevent rodents from becoming established in an area. If rats or mice do become established, natural methods to control outbreaks should be used. In certain situations, such as large scale infestations it may be necessary to use rodenticides, however by following a series of best practice measures you can reduce the spread of these toxins into the wider ecosystem.

1. Prevention

Prevention is always better than cure. Making farmyards and buildings unsuitable for rodents will reduce the risk of them becoming established and will help curtail their spread.

- Remove all food spills
- Keep food stuffs and refuse sealed in rodent proof containers
- Proof buildings to prevent access to rodents

2. Natural control

Trapping or use of rodent predators can be effective in controlling outbreaks

- Use approved traps to control small infestations
- Encourage predators such as Barn Owls or use cats to keep rodent numbers in check

3. Rodenticides

If it is deemed necessary to use rodenticides, a pulse baiting technique followed by monitoring, using a placebo bait, must be used. Rodenticides must always be used strictly in accordance with the label instructions. The Campaign for Responsible Rodenticide Use has outlined best practice to reduce the threat to Barn Owls and other wildlife.

Always have a planned approach Conduct a thorough survey to assess the extent of an infestation and to plan an appropriate baiting procedure

- Note changes which can make the site less attractive to rodents after baiting, and implement them
- Remove all possible food stuffs
- Baits should only be used for as long as necessary to achieve control, which is usually no longer than 35 days

Always record quantity of bait used and where it is placed Prepare a site plan and record all bait points

Always use enough bait points Follow the label instructions regarding the size and frequency of bait points. Sufficient bait points will mean that treatment will be effective over the shortest possible time

Always collect and dispose of rodent bodies Carry out regular searches for rodent bodies, which may be taken by predators or scavengers and may be a source of exposure to rodenticides

Never leave bait exposed to non-target animals and birds Always used approved bait stations

Never fail to inspect bait regularly Baits should be replenished according to the product label. Conduct a thorough search to remove and dispose of rodent bodies

Never leave bait down at the end of a treatment All bait should be removed and appropriately stored after treatment

For further information on the best practice use of rodenticides check out The Campaign for Responsible Rodenticide Use

www.thinkwildlife.org





Avoid disturbance

Barn Owls can occupy buildings without the knowledge of their owners. During the course of our survey work there have been countless encounters with landowners who are adamant that there are no Barn Owls in the area, and are subsequently shocked to discover that there is a family of owls living on their land! It is important to know whether Barn Owls, other birds or bats are using a particular site so that disturbance can be limited. Barn Owls are a Schedule II species which means that it is illegal to disturb them during the nesting season. If you suspect there might be Barn Owls using a building, or are unsure, then contact BirdWatch Ireland for advice.

When renovating buildings, it is particularly important to consider the impacts on Barn Owls, as works can cause a pair to abandon their young or unknowingly trap birds within a building. If Barn Owls are breeding in a building, all renovation work should be carried out between September and March to avoid the most sensitive nesting period. Provision of nesting boxes before works commence (at least 3 months) will give the owls alternative accommodation opportunities. Nesting sites can be easily incorporated into the renovation plans for the building to include a nesting chamber on the roof or chimney.

Studying diet by analysis of pellets

Barn Owls usually swallow their prey whole, even large rats and birds. As they have a low acid content in their stomach, which isn't sufficient to break down the bones, teeth and fur of the prey they consume, they need to get rid of this waste from their system in the form of pellets. Generally two pellets are coughed up every 24 hours. The skulls and bones of prey items are kept well intact within pellets, and by breaking them open, it is possible to figure out exactly what the owls have been feeding on.



Even if there are no owls present before renovation, works are carried out, incorporating a simple nesting space in many old or modern buildings will encourage new settlers.

How to tell if Barn Owls are in your building

Even though Barn Owls will be well hidden from sight during the day, in the majority of buildings which are used frequently by owls, there will be tell-tale signs to indicate their presence. Look out for pellets – at traditional sites there can be large scatterings of pellets and piles of thousands of small mammal skulls and bones! Moulded feathers and 'white-wash' splashings under regular perches or at the nest entrance are also useful signs. If you hear screeching or 'snoring' and 'hissing' calls at night then these are also a good indication that you have owls as neighbours. Never disturb an owl at its nest or roost, if you suspect there are owls on your land contact BirdWatch Ireland for advice.



'White wash' – droppings of a Barn Owl roosting in the chimney of a derelict house

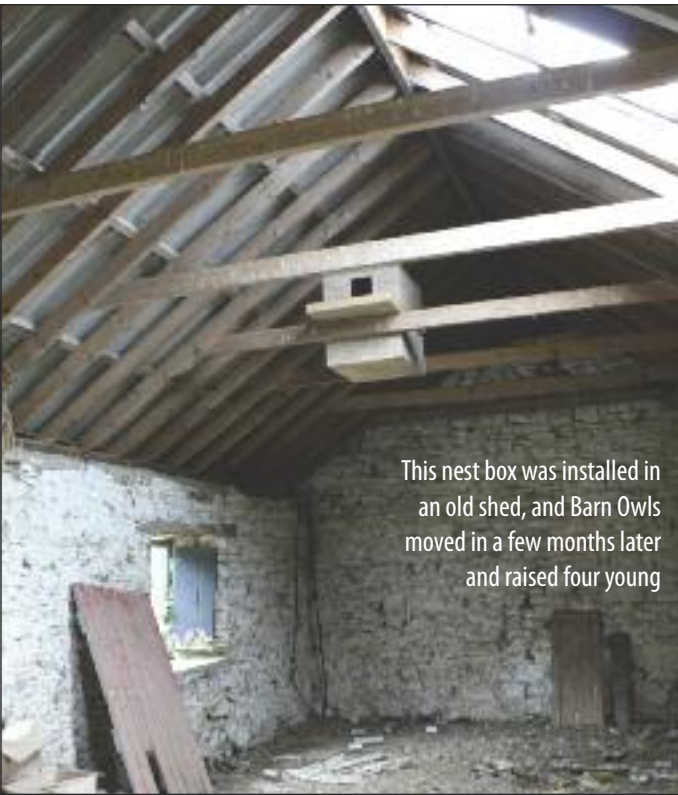


Nest boxes

Create a home for Barn Owls

Across much of Ireland, the Barn Owl population is not limited by the lack of suitable nest sites. Therefore, the blanket provision of artificial nest boxes will not solve all the problems that Barn Owls face, or lead to an automatic population recovery. Nevertheless, provision of nest boxes can be an extremely useful conservation tool as they provide safe and secure nest sites which can be monitored easily.

Nest boxes are a great way to encourage owls to nest in an area which has good quality hunting habitat but where there



This nest box was installed in an old shed, and Barn Owls moved in a few months later and raised four young

The benefits of nest boxes

One of the more unusual Barn Owl nests was discovered by locals after a young chick was found on the ground at this barn in county Kerry. The birds had nested on top of material (top left of the photo) which was left hanging in the barn after it was used as a film set. The chick had fallen through the deteriorating material and, after the flimsy nest was temporarily repaired, the chick was returned. That autumn, a nest box – which was a much safer option – was installed (inset) and the owls moved in straight away.



As well as nest boxes for Barn Owls, boxes can also be provided for other species. A Kestrel nest box was erected in this barn at the same time, and was quickly taken up also. Both pairs have nested in this barn ever since. In one particularly productive summer there were **13 raptors sharing this small barn** because of the nest boxes in place. Not a good place to be a small mammal!

Another site which has been used for owls for many generations became unsuitable when the roof of an old mansion on which they were nesting collapsed. With the assistance of the farmer, a nest box was placed close to where the owls had originally nested and the following year the resident pair were once again able to breed within the building, raising four young in the new nest box! The following year a nest camera was



Live camera view of the owlets

installed inside the box in collaboration with the 'Mooney Show' and the development of two owlets were broadcast live, endearing all who watched and quickly becoming national celebrities.



may not be any suitable buildings or mature trees with hollow cavities. In addition, many traditional nest sites in ruined buildings or dead trees are prone to further dilapidation or being destroyed in storms, so providing nest boxes in close proximity can provide alternative, safe and secure nesting options. If a building used by owls is due for renovation, providing nest boxes will allow the birds to remain in the immediate area when the old nest site is no longer suitable.

Community involvement with nest boxes

Many nest box schemes have been coordinated by local community groups and through schools, which have constructed and installed nest boxes with the assistance of the Raptor Conservation Project. This can be a great way to get involved in local conservation.

There are now over 300 nest boxes in place around the country which have been put up by BirdWatch Ireland or through interest groups or individuals under advice from the project. Over 50 of these nest boxes have been used for nesting or roosting by owls, with uptake continuing to increase, showing the value of this conservation measure.



Barn Owl nest boxes under construction at Tralee Mens' Shed

Abandoned and derelict buildings such as this make excellent sites for an indoor nest box












An outdoor Barn Owl nest box



Nest box, for an indoor site

Buildings, particularly those which are relatively free from disturbance and which might be naturally investigated by Barn Owls are one of the best places to install a nest box. Indoor nest boxes are easy to construct and can be made from normal 9–11 mm plywood (provided they are protected from the elements).

Useful tips – Do's and Don'ts

-  **Pick a suitable site** Quiet or disused barns, derelict or ruined houses or other abandoned buildings can be excellent places for indoor nest boxes (for outdoor sites see the following page)
-  **Avoid disturbance** Barn Owls generally don't tolerate regular human intrusion, so choose a site well away from normal human activity to increase chances of uptake
-  **Pick a suitable position** The position of the box depends on the site itself; boxes don't need to be very high but, if possible, place 3 m (10 ft) or more off the ground and well away from predators. Take great care with ladders and get someone to help
-  **Be patient!** It can be several years before an owl might find and use the nest box
-  **Keep your distance** If owls start to use the box, leave them well alone, as they can be particularly sensitive to disturbance at a new site and can abandon it if they are disturbed
-  **Don't put a box near a busy road** Barn Owls are vulnerable to being hit by cars, so don't place the nest box within approximately 200 m of a major road (National route or Motorway)
-  **Don't hide the box** Make sure an owl is likely to encounter the nest box to give it the best chance of being used – leave a clear flight path to the nest box entrance



A perfect home for a Barn Owl family – a dry, secure location, high in a disused barn.

Indoor nest box

Use 9 mm or 11 mm standard plywood.

A standard 8' x 4' sheet of plywood will make 1 box.

Lid, can simply be weighed down, or held in place with battens on the underside

50 mm x 25 mm battens strengthen the corners

Entrance hole is 13 cm x 13 cm

50 mm x 25 mm battens

Inspection hatch (optional)

Use standard wood screws throughout. Stainless steel screws last far longer but are more expensive.

It is usually easier to attach the completed shelf section after the box has been lifted into place and secured.

An inspection hatch can be fitted on the front or side (depending on the site). Use a small hasp, or lock, to secure the door.

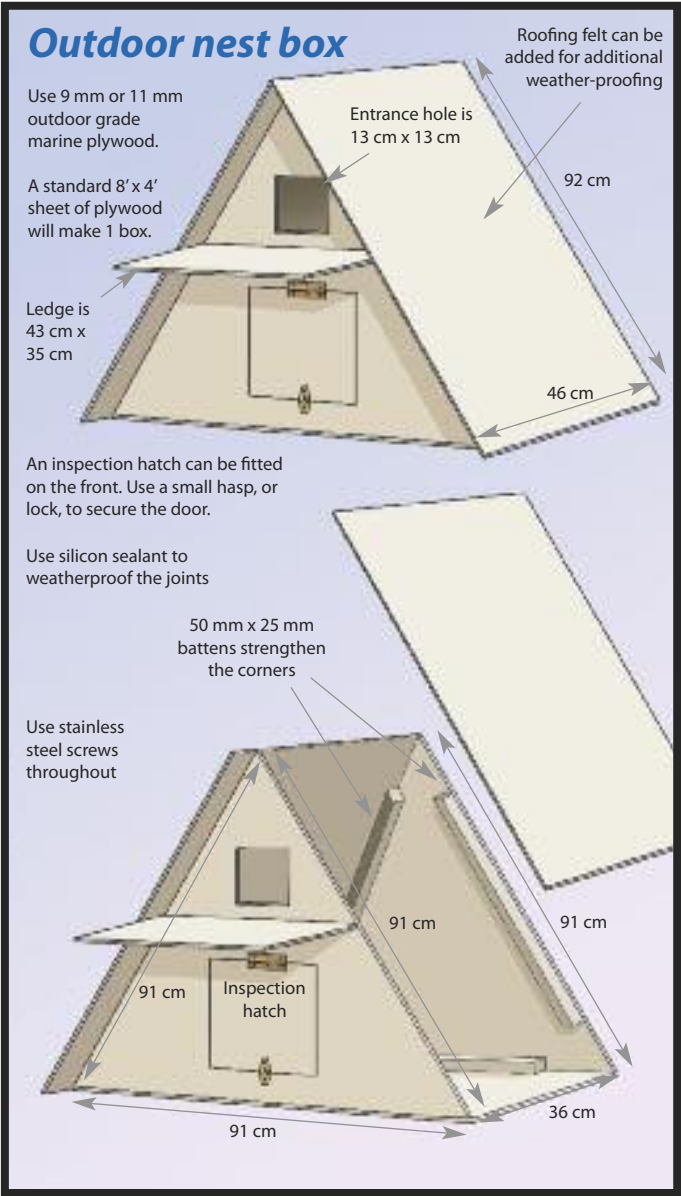


Nest box, for an outdoor site

If there are no suitable buildings on your land, then a mature tree is also a perfect site for a nest box. Choose an isolated tree where possible, or else a large tree which stands out in a hedgerow or at the edge of woodland. The design of outdoor nest boxes is a little more complicated than the indoor boxes, but still relatively straightforward. To stand up to the elements, it is necessary to use exterior grade marine plywood and to seal the joints.

Useful tips – Do’s and Don’ts

- Pick a suitable site** Place the box high on a mature isolated tree, or place on a large tree on the edge of a woodland or along a hedgerow
- Avoid disturbance** Barn Owls generally don’t tolerate regular human intrusion, so choose a site well away from normal human activity to increase the chance of uptake
- Pick a suitable position** The weight of the box can be rested on branches close against the trunk. Place the box approximately 3 m (10 ft) or higher, and position the box so it faces away from prevailing winds and faces out onto open land (preferably good quality hunting habitat)
- Be patient!** It can be several years before an owl might find and use the nest box
- Don’t put a box near a busy road** Barn Owls are vulnerable to being hit by cars, so don’t place the nest box within approximately 200 m of a major road (National route or Motorway)
- Don’t hide the box** Make sure an owl will see the nest box easily from a distance and has a clear flight path to the box. Bear this in mind if installing the box in winter before the leaves come on the tree



Further information

How you can help

Even if you are not a landowner, there are many steps that you can take to help with the conservation of Barn Owls and other wildlife in your local area: by encouraging neighbours to create space for wildlife; getting your local community groups involved in conservation action such as creating habitats or through nest box schemes; by reporting information on Barn Owls to us, or by becoming a member of BirdWatch Ireland, which supports our conservation work on Barn Owls.

Reporting important information allows us to build a better picture of how Barn Owls are doing in different parts of the country, the factors which affect them and how we can best conserve the population.

If you find an injured Barn Owl
Barn Owls may sometimes be found injured or sick, which might be due to young birds falling out of the nest, starvation during periods of bad weather or being hit by vehicles. The best course of action to take depends on the nature of the situation or injury.

You can contact BirdWatch Ireland for advice, or visit the Irish Wildlife Matters website www.irishwildlifematters.ie

Please let us know if...

- **You have Barn Owls in your area** or know of a potential nest site
- **You find a dead Barn Owl**, regardless of whether it is ringed or not (if it is ringed please make a note of the ring number)
- **You have installed a nest box** or if you plan on installing a nest box and need some advice
- **You are renovating an old building and think there may be owls present** or want to consider incorporating space for nesting owls within the designs

Contact details Phone queries should be directed to BirdWatch Ireland on (01) 2819878, or email jlusby@birdwatchireland.ie or info@birdwatchireland.ie

to find someone with the relevant experience in your area who may be able to help.

Animal Magic is an excellent wildlife rehabilitation clinic which specialises in caring for sick and injured raptors and may be able to provide assistance. Contact details are on their website www.animalmagic.ie or find them on Facebook.

Support our work

As a voluntary organisation, the financial support we receive from our members and supporters is vital if we are to be able to continue all facets of our bird and habitat conservation work.

You can assist with the conservation of Barn Owls by donating to the Raptor Conservation Project, or you can become a BirdWatch Ireland member to support our work and become actively involved in conservation.

Contact details (01) 2819878 & www.birdwatchireland.ie

Useful Irish websites

www.birdwatchireland.ie
The website of Ireland’s largest conservation group, dedicated to saving birds and their habitats.

www.irishraptors.blogspot.ie
Information of Irish birds of prey and owls, with news, ongoing projects, surveys and more.

www.duhallow.blogspot.ie
Latest news on the Raptor Conservation Project in north-west Cork and east Kerry. Lots of images, videos and information on Barn Owls, Kestrels and Long-eared Owls.

