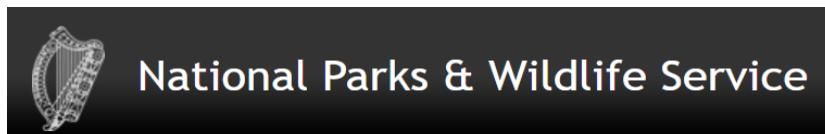


Barn Owls in County Wicklow, 2023 / 2024.

Report to NPWS & Wicklow County Council.

Oran O'Sullivan



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Summary

Barn Owl populations in County Wicklow are recovering after a prolonged period of decline. The current fieldwork and study in 2023 and 2024 provide the first evidence of Barn Owl breeding range increases in the county in the last 50 or so years. Barn Owls currently have a thin but widespread distribution and were recorded in just under 33% of 10km squares in County Wicklow. The breeding range of Barn Owls in the county has increased substantially over the last ten years, when compared to the historically low breeding range as defined by the Bird Atlas (2007-2011). The current breeding range of Barn Owls is now like the range as defined by the first Atlas of Breeding Birds in Britain and Ireland (1968-1972). That first Atlas was prior to the extensive population declines experienced throughout the county and nationally. These observed breeding range increases indicate that Barn Owl populations are currently faring well, also evidenced by the fact that this survey confirmed more occupied Barn Owl sites than has been recorded in the county over the last 50 years.

Take up of new nest sites, through provision of nesting boxes delivered an immediate response and presented an increase in nesting opportunities for the species.

Although Barn Owl populations have increased in range and numbers recently, there remains a good availability of nest sites for Barn Owl in the county, courtesy of the active nest box scheme. Currently occupancy rates of nesting boxes is 10%. This percentage is expected to grow annually as nest box sites are discovered by Barn Owls. Unlike some other counties, alternative sites, such as the availability of ruined and old built structures for nesting, appears not to be as prevalent in County Wicklow. Apart from nesting boxes, both indoor and outdoor, natural tree holes with suitable cavities were important and more traditional nesting sites for Barn Owls. This nesting habitat is likely to be more limited in availability as the increase in the population of Barn Owls increases well ahead of natural nesting sites (tree cavities) becoming available.

Barn Owls had a high breeding success in County Wicklow in 2023/24. Breeding attempts monitored over the two years (14) were successful in all but one case (93%) and broods of Barn Owls in the county were ringed from the first in 2021 followed by 2022 and expanded through this project in 2023/2024.

We also provided recommendations and advice for delivering practical conservation measures for Barn Owls including, habitat enhancement and the work of the Wicklow Barn Owl Group was promoted throughout 2023 and 2024 on social media channels as well as through library talks and face to face opportunities at County Shows and at Biodiversity and Heritage Week events organised by Wicklow County Council.

Summary Highlights

- Barn Owl populations are faring well in County Wicklow and have increased in range and numbers in recent years, following a prolonged period of extensive population declines over the last five decades.
- Barn Owls have a widespread distribution in County Wicklow and were recorded in 10 10km squares, just under 33% of the 31 10km squares in the county. Confirmed breeding was recorded in seven 10km squares and probable breeding in three 10km squares.
- The breeding range of Barn Owl in County Wicklow has increased very significantly (325%) over the past ten years, when compared to the breeding range as defined by the last Bird Atlas (2007-2011). The return for that Bird Atlas was just four pairs, the lowest in modern times.
- The current breeding range of Barn Owls in the county is up 25% compared to the breeding range a little over 50 years ago as defined by the first Atlas of Breeding Birds in Britain and Ireland (1968-1972). However, there is a possibility of under recording during the first Atlas especially when no specific survey for Barn Owls was undertaken then.
- There was little or no evidence of continued occupancy of known, historic breeding sites for Barn Owl in County Wicklow over the last ten-year period. Of the four sites known to have been occupied by Barn Owl between 2008 and 2012, only one remained suitable for Barn Owls in 2023/2024 and this was unoccupied. The other three sites no longer exist.
- In 2023/2024, most occupied Barn Owl sites were in nestboxes (n = 11). Indoor nest boxes (n = 6) were nearly always deployed in traditional frame, farm hay sheds. Outdoor nest boxes were nearly all sited in deciduous trees (n = 5)
- Natural nest sites were also used. Cavities in deciduous trees were used in all five cases, with Beech, Ash and Sycamore trees chosen.
- The availability of additional prey species to Barn Owls is thought to have fuelled an increase in range and breeding success for Barn Owls in Ireland, including County Wicklow.
- Barn Owls had a high breeding success rate in County Wicklow in 2024. Of 13 breeding attempts which were monitored to completion, 100% were successful and of 45 young hatched, there were 30 young raised to fledging (66.6%) or 2.3 per breeding attempt.
- Ringing of fledgeling Barn Owls in County Wicklow continued in 2023 and 2024. In 2024, 23 young were ringed from 8 nest sites.

1. Introduction

The Barn Owl *Tyto alba* is one of the most widely distributed terrestrial birds occurring on all continents except Antarctica. In Europe, Barn Owls breed in all countries except for Greenland, Fenno-scandia and Malta (Shawyer, 1998). Throughout their European range, Barn Owls are found in a wide variety of habitats, typically associated with lowland farmland, where they specialise on small mammal species (Shawyer, 1998). Although Barn Owls are listed as Least Concern in Europe, their population trends are declining (BirdLife International, 2021). This is the case in Ireland, where the Barn Owl is a Red-listed Bird of Conservation Concern in Ireland, due to extensive declines in their breeding population and range (Gilbert et al. 2021). The Breeding Bird Atlas (2007 – 2011) 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) (Sharrock, 1976; Balmer et al. 2013). The Barn Owl population declines reflect land use changes and the intensification of farming practices, which have resulted in a decline in the abundance and diversity of natural vegetation and have negatively impacted wildlife associated with farmed habitats (IPBES, 2018, Fitzpatrick et al. 2007; Copland and Lusby, 2009; Gilbert et al. 2021).

The changing agricultural landscape has resulted in the loss of suitable habitats for Barn Owls, including a reduction of prey-rich foraging habitat and nesting sites (Shawyer, 1998; Nagle, 2007). Alongside these land use changes and the loss of habitat, the increased use and increased toxicity of anti-coagulant rodenticides (Roos et al. 2021), and the expansion of major road networks (Lusby et al. 2021a) are likely to be the main factors which have influenced the declines in the Barn Owl breeding range and numbers observed over recent decades (Balmer et al. 2013; Gilbert et al. 2021).

The **Barn Owl is a Red-listed Bird of Conservation Concern in Ireland**, due to extensive declines in their breeding population and range. As a top predator and sentinel species for the health of our countryside, the declines in Barn Owl populations are extremely worrying. These declines reflect land use changes and the intensification of farming practices. Alongside these land use changes and the loss of habitat, the increased use and increased toxicity of anti-coagulant rodenticides, and the expansion of major road networks are likely to have affected Barn Owl populations. Although Barn Owl populations have declined over recent decades, there are firm indications in 2023 and 2024 that the Barn Owl population is recovering its range in Ireland, including county Wicklow.

2023 saw a set of milestones for Barn Owls on the island of Ireland. In August, a record total of 114 Barn Owl nests were recorded in County Cork alone. Additionally, for the first time ever, BirdWatch Ireland recorded a brood of six young Barn Owls in nests in several counties which included Offaly, Kilkenny, Limerick, Wexford and Clare. The spread and range expansion of two non-native rodent species, Greater White-toothed Shrew and Bank Vole, is thought to have fuelled increased breeding success of the Barn Owl and a recovery of range (Tosh et al. 2008; McDevitt et al. 2014). Nationwide, Barn Owls are breeding in and using over 250 nest boxes to date, with this number increasing on an annual basis as new nesting boxes schemes are rolled out. The population is estimated to be at least 1000 pairs countrywide and on the increase.

1.1 Wicklow Barn Owl Project Objectives

- **Determine the distribution and abundance of Barn Owls in County Wicklow**
- Gather historic and current Baseline Information to better understand the changing breeding status and distribution in County Wicklow.
- Establish and manage ARC GIS mapping tools for tracking Wicklow Barn Owls.
- Implement a successful and widespread Nest Box Scheme and set a target number of boxes, indoor and outdoor.
- Define nest site selection and preferences from gathered data.
- Analyse prey from pellet remains retrieved from nest sites and plot changes in availability of prey species available to Barn Owls in Wicklow.
- Carry out Annual Monitoring, establish Occupancy and Breeding Success at nest sites.
- Generate Population Estimate for Wicklow.
- Define Conservation Requirements and implement Conservation Actions.
- Raise awareness of Barn Owls in the community, through talks, publications, print, broadcast and social media.

2. Survey Design

Two primary approaches were employed to obtain information on Barn Owls throughout County Wicklow, with the objectives of ensuring extensive survey coverage over the county and to take advantage of the potential to gather information on the species using local sources and citizen science techniques. These approaches included 1) assessing occupancy at all sites where the presence of Barn Owl has been determined through previous surveys over the past 25 years; 2) initiating a citizen science appeal and survey to gather information on Barn Owl breeding sites and sightings to assess distribution and nest site selection. 3) acting on all leads regarding sightings and nest box requests.

These combined methods were used to confirm Barn Owl sites throughout the county and to provide data to assess the specific objectives of the study, including occupancy, nest site selection and breeding performance of Barn Owls. From an early stage we were able to map Barn Owl reports and nesting box locations from a dedicated Arc GIS app provided by Wicklow County Council. However, the location of individual Barn Owl nesting sites is not presented or revealed publicly, to keep specific breeding locations confidential.

2.1 Survey area

Barn Owls were reported on and surveyed throughout County Wicklow. To assess breeding range and changes in status over time, presence and breeding status were determined, mapped on the thirty-one 10x10 km squares of the National Grid within County Wicklow. This approach facilitates direct comparisons with the ranges defined by the Breeding Atlases of Britain and Ireland, from 1972 to 2011 and ongoing Barn Owl survey work in the neighbouring counties of Wexford, Carlow and Kildare.

3 Methods

Given the paucity of historical records of Barn Owls in the county, the process of checking these sites for current occupancy by Barn Owl was straightforward. Results from 4 known historic sites were negative. With the passage of time, the 4 or so sites were either degraded (urban development) or non-existent (trees felled) and in one case, a disused Church, was vacated by Barn Owls but occupied by a Kestrel. The process of checking 'likely looking' sites in the countryside was informed by the widespread reporting (+70) by members of the public of casual sightings of Barn Owls in 2022 and 2023 and into 2024. These reports were plotted using Arc GIS. Where a reasonable density of reports existed, such as in the east and south of the county, landowners were approached and encouraged to take actions for Barn Owls and nestboxes were deployed as appropriate. Several likely looking sites were 'staked out' and repeated transects were made where birds were reported. This was carried out in the east of the county but provided negative results in terms of sightings. With quick take up of some of the nesting boxes we concentrated our fieldwork efforts on monitoring boxes already in place and providing additional boxes. This has already delivered the bulk of breeding pairs and is likely to provide an increase in occupancy rates going forward. The quickest take up of a nestbox by a pair of Barn Owls was just a matter of weeks in spring 2023.

3.1 Barn Owl breeding range in county Wicklow

To define the breeding range of Barn Owls in County Wicklow all sites confirmed to be occupied by Barn Owls and all sightings of Barn Owl during the breeding season in 2023 & 2024 (mid-March to mid-August) were mapped in ARC GIS to visually explore the data. Each 10km x 10km square in County Wicklow was categorised according to the presence and status of Barn Owls within. These categories included:

- 'Confirmed breeding' (if one or more breeding pairs were recorded in the 10km square)
- 'Probable breeding' (if Barn Owls were observed during the breeding season) and
- 'Not seen' or 'Absent' (if there was no evidence of Barn Owl recorded in that 10km square).

The highest level of breeding was used to define each square (e.g. if a square held a confirmed breeding pair and sightings of Barn Owl, then this square was classed as 'confirmed breeding')

3.2 Nest Site Selection by Barn Owls in county Wicklow.

In 2023 and 2024 we categorised all occupied nest sites according to existing criteria adopted by BirdWatch Ireland. Using this methodology, one of four main site categories was identified, further defined to one of 13 site types. The actual nest site type is defined over another 10 types.

Table 1. Nest site selection

| Site | Site Type | Nest Site Type |
|----------|-------------------------------|-----------------------------|
| Building | Castle | Belfry |
| Tree | Church | Cavity (in building) |
| Pole Box | Derelict Cottage | Chimney |
| Quarry | Derelict 2 storey House | Ledge |
| | Farm Building | Roof Space |
| | Mill | Nest Box (including barrel) |
| | Nest Box in farm Building | Hollow Cavity (tree) |
| | Nest Box in Derelict Building | Alcove |
| | Nest Box on Tree | Water Tank |
| | Nest Box on Pole | |
| | Occupied House | |
| | Other Building | |
| | Quarry | |
| | | |

3.3 Barn Owl Breeding Performance in Wicklow

Nest sites were visited under licence by members of the project team including NPWS field staff, and often the landowners, to collect information on Barn Owl breeding success, productivity, the timing of breeding and the condition of young. Information on mortality incidents and any relevant characteristics of the nest site that could impact breeding success were recorded.

Three measures were used to define the breeding performance of Barn Owls. The outcome of breeding attempts was determined as successful, if the breeding attempt resulted in one or more young fledging, or failed, if a breeding attempt did not result in any young fledging. Productivity was determined as the number of young at or close to fledging for all breeding attempts, and fledging success was determined as the number of young at or close to fledging for successful breeding attempts.

4. Results

4.1 Active Barn Owl nest sites in 2023.

In 2023 we discovered and monitored several active nest sites. We had a total of 5 confirmed nesting pairs & 4 successful broods across the county, with 12 young fledged.

Table 2. showing the number eggs and young recorded at each nest site in 2023.

| 10km Square | Site | Eggs | Young | Fledged |
|-------------|--------------------------|------|-------|---------|
| S97 | Ash Tree Outdoor Box | ? | 3 | July |
| T06 | Indoor Box, | 4 | 4 | July |
| S89 | Ash Tree Outdoor Box, | 6 | 3 | August |
| T39 | Ash Tree Outdoor Box, | 5 | ----- | ----- |
| S96 | Indoor Box, | ? | 2 | August |

Four of these were new nest sites where known breeding took place for the first time though one of the above pairs nested in an Ash tree in 2022, close to the nestbox chosen in 2023.

Ringling of young birds was carried out under license by NPWS at one of the nest sites. Details of one of the nest sites in 2023 was not confirmed until 2024, when access was granted to visit and monitor the site.

The 2023 return of 5 occupied nest sites in County Wicklow (4 of which were new sites) was up from just one confirmed nest site in 2022. Of the five known active nests, four were successful and one failed, with a nest of five eggs abandoned. Hopes for 2024 were buoyant, based on the increase in nesting boxes in the countryside and the continuation of sightings coupled with public interest and support from landowners and rural dwellers across the county.

4.2 Active Barn Owl Nest sites in 2024.

In 2024 we monitored a total of 13 confirmed nesting pairs & 13 successful broods across the county, with a total of 30 young fledged.

Barn Owls were confirmed breeding in seven (24 %) of the 31 10km squares in County Wicklow in 2024. An additional three 10km squares had Barn Owls reported in the breeding season, defined as probable breeding. Combining confirmed and probable totals of Barn Owls recorded gives a total of 10 squares in the breeding season, or just under 33% of the 31 10km squares in County Wicklow in 2024. At least three of 10km squares in County Wicklow would be deemed unsuitable for Barn Owls due to altitude (land over 350 meters).

Table 3. showing the number eggs and young recorded at each nest site in 2024.

| 10km Sq | Site and first use | Eggs | Young | Fledged |
|----------------|---------------------------|-------------|--------------|----------------|
| S97 | Ash Tree | | 5 | 1, July |
| T06 | Indoor Box | | 4 | 4, July |
| S89 | Ash Tree | 6 | 3 | 3, August |
| S97 | Beech Tree | 5 | 3 | 2, August |
| S98 | Beech Tree | 5 | 4 | 2 |
| S96 | Beech Tree | | 3 | 2 |
| S96 | Indoor Box | 2 | 2 | 1 |
| S96 | Indoor Box | | 4 | 3 |
| S89 | Beech Tree | | 4 | 3 |
| T07 | Indoor Box | | 4 | 4 |
| S89 | Ash tree | | 2 | 1 |
| T29 | Beech Tree | | 2 | 2 |
| T06 | Oak Tree | | 5 | 2 |
| TOTALS | | | 45 | 30 |

4.3 Barn Owl Nest Site Selection in County Wicklow

Barn Owl sites were straightforward in terms of selection, compared to some neighbouring counties. This may reflect a lack of options in the landscape with few ruined buildings such as castles, ruined mansions, derelict farm buildings etc. available in County Wicklow. In 2024 a total of 9 nest sites were recorded in, or on mature deciduous trees and the balance, 4, were in farm buildings.

Actual nest site locations used were nest boxes (9) and natural tree cavities (4). The natural tree cavities were all in Beech (n=4)

4.4 Barn Owl Nest Boxes in County Wicklow

Beginning in 2022, a programme of supply and fitting of nest boxes was initiated. By August 2024, over 116 nest boxes were fitted in the County Wicklow countryside and this total continues to increase. This relatively high total was achieved by an active sponsorship partnership of NPWS, landowners and some key volunteers and sponsorship of nesting boxes by Wicklow Mountain Rescue.

Five outdoor nestboxes, sited in trees and four indoor nestboxes sited in farm domed sheds were used for nesting in 2024. Seven of the nine nest boxes were newly fitted. Two older and somewhat dilapidated boxes were replaced and upgraded in the autumn of 2024.

4.5 Barn Owl Breeding Performance in County Wicklow in 2024.

Breeding success was measured at all 13, known nesting sites in 2024.

A total of 45 chicks hatched over the 13 nest sites, with an average clutch size of 3.5. The number of chicks hatched ranged between two and five.

Of the total of 45 hatched chicks, 30 survived to fledging, a survival rate of 2.3 per pair. Two nest sites, both indoor boxes in sheds, fledged 4 out of 4 young hatched. Breeding performance is affected by several factors, with summer weather conditions a relevant and variable factor in 2024 when wet conditions prevailed.

4.6 Barn Owl Prey in County Wicklow

31 pellets were removed from three Barn Owl nest sites and analysed. The results are summarised in Table 4 below. From this sample the presence in county Wicklow of both the Bank Vole and Greater White toothed Shrew was clearly demonstrated.

Table 4. Barn Owl pellet analysis, 2024

| NEST SITE | GWT Shrew | Wood Mouse | House Mouse | Pygmy Shrew | Bank Vole | Bird Spp. | Number of pellets |
|---------------|-----------|------------|-------------|-------------|-----------|-----------|-------------------|
| West Wicklow | 65% | 29% | | | 6% | | (4) |
| South Wicklow | 56% | 31% | 3% | 4% | 6% | | (20) |
| East Wicklow | | 71% | | 19% | 5% | 5% | (7) |

4.7 Changes to the status of the Barn Owl in Wicklow

To assess breeding range change over time, we compared the number and distribution of 10km squares in which confirmed breeding and probable breeding of Barn Owl was recorded in 2023/2024, with the breeding range of Barn Owl as defined for the Bird Atlases, using the same metrics.

To determine change in the long-term breeding range, we compared the current range of Barn Owls in County Wicklow (2023 - 2024) with the range defined by the Atlas of Breeding Birds in Britain and Ireland (1968 – 1972) (Sharrock, 1976), this provided an assessment of breeding range change over the last 50 years.

To determine the medium-term breeding range change we compared the current range of Barn Owls in County Wicklow with the range defined by the New Atlas of Breeding Birds in Britain and Ireland (1988-1991) (Gibbons et al. 1994). This provided an assessment of the change in breeding range of Barn Owl in County Wicklow over the last thirty years.

To determine the short-term breeding range change we compared the current range of Barn Owls in County Wicklow with the range defined by The Breeding Bird Atlas (2007 – 2011) (Balmer et al. 2013). This provided an assessment of the change in breeding range of Barn Owl in County Wicklow over the last ten or so years.

Results from this comparative analysis are summarised in the table below

Table 5 Barn Owl breeding numbers in County Wicklow over 50 years

| | Confirmed Pairs | Probable Pairs | TOTAL | % Up / Down | | | |
|------------------------------|-----------------|----------------|-------|-------------|--|--|--|
| 1972 | 7 | 7 | 14 | | | | |
| 1991 | 2 | 7 | 9 | -36% | | | |
| 2011 | 0 | 4 | 4 | -56% | | | |
| 2023/24 | 14 | 3 | 17 | +325% | | | |
| | | | | | | | |
| 52 years % increase = | | | | 21% | | | |

Figure 1 showing Barn Owl breeding abundance, 2023 - 24

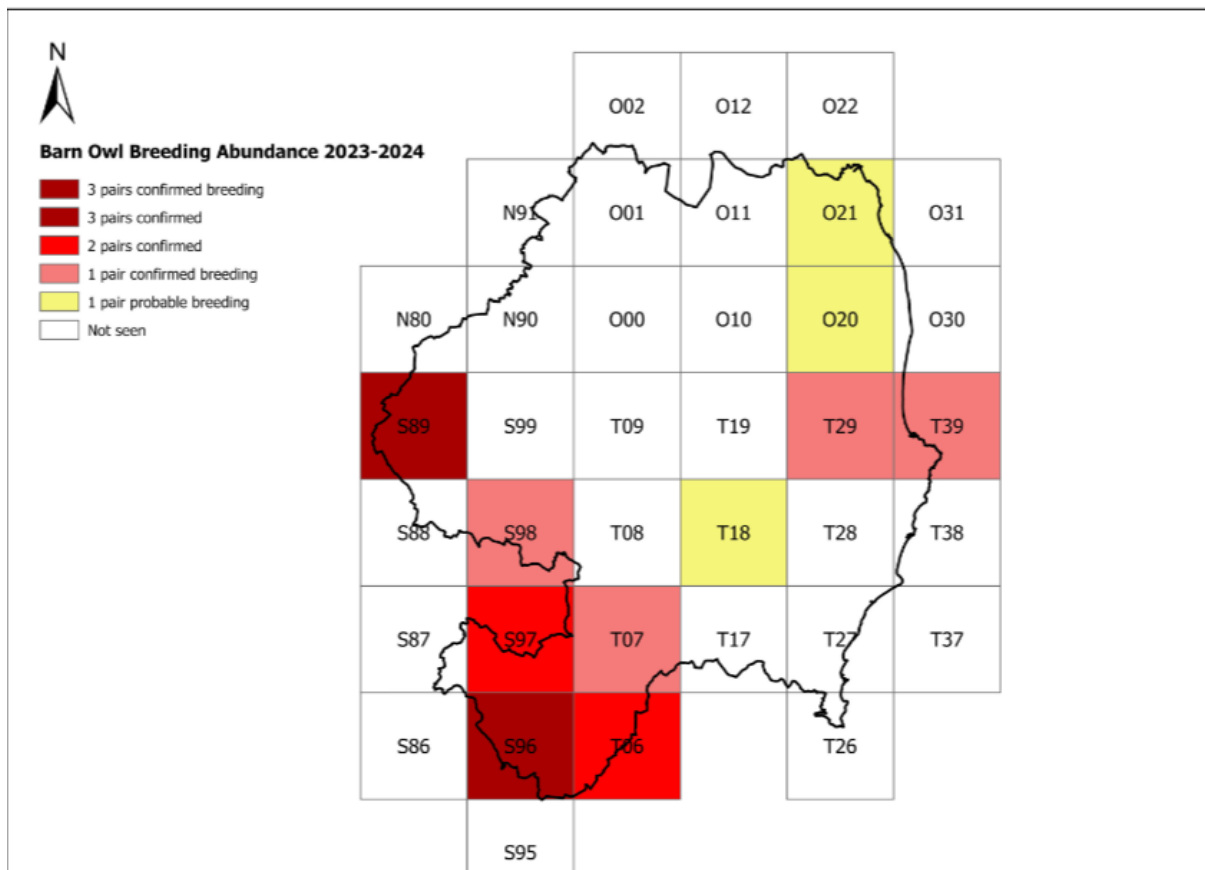


Figure 2 showing distribution from Breeding Atlas Data, 1968-1972

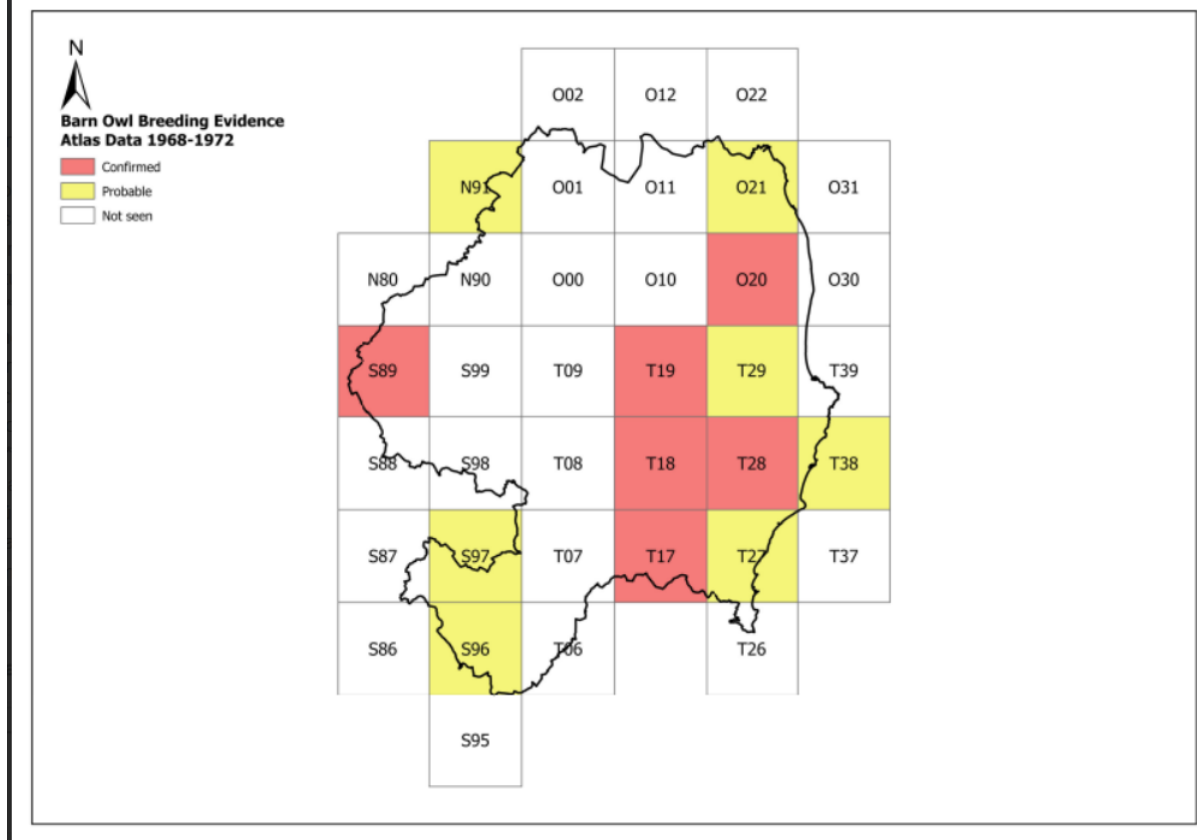


Figure 3 showing distribution from Survey work, 2023-2024

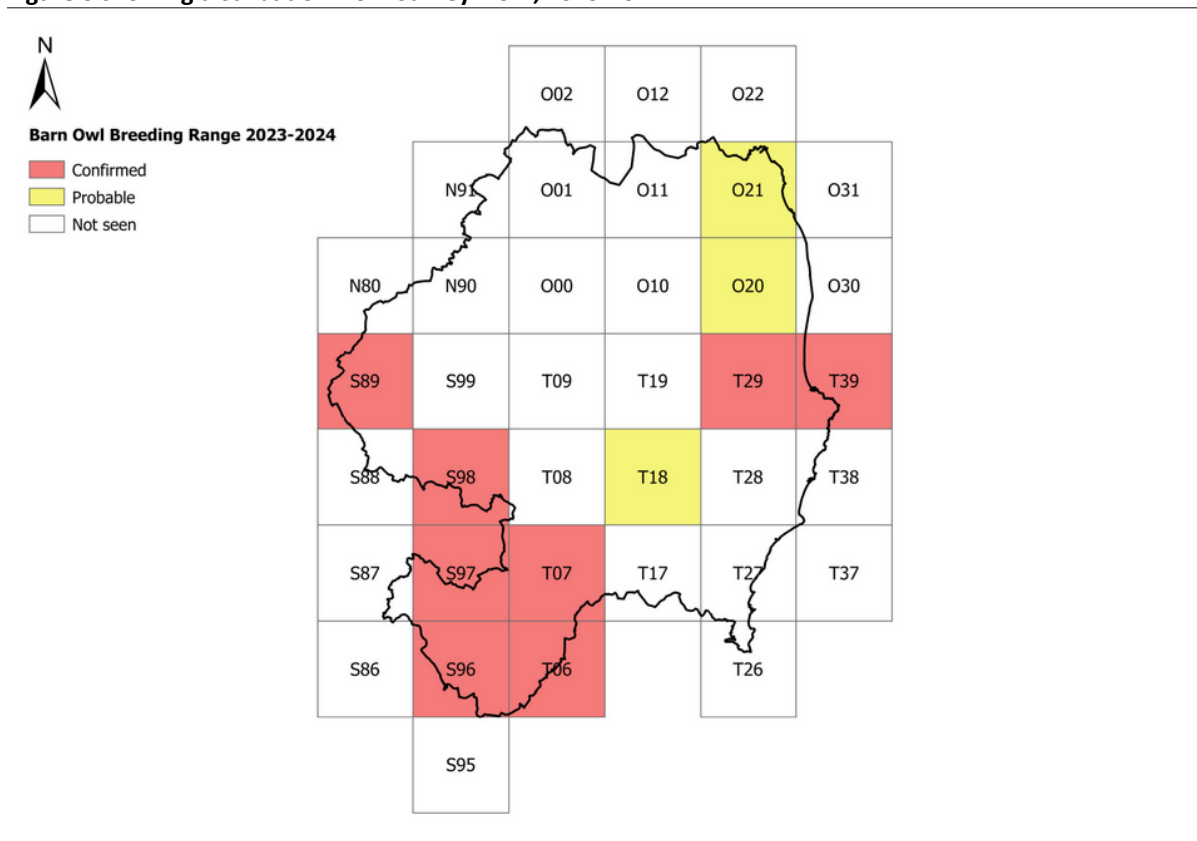


Figure 4. Image used for Library Card by the Wicklow Library Service. photo c. Gavin Bickerton-Jones.



5. Discussion

Availability and range of prey

The Barn Owl is a specialist, apex predator, concentrating on small mammal species as prey both in Ireland and across its range. (Bunn et al. 1982, Mikkola, 1983). Small rodents and Shrews make up the bulk of its prey and until recently this would have confined its options in County Wicklow to Brown Rat, Wood Mouse, House Mouse and Pygmy Shrew. These prey species have been recently joined by the Bank Vole and Greater White-toothed Shrew, both through accidental introduction to the island of Ireland. The Bank Vole is believed to be present in the mid-West of Ireland since the 1920s, arriving from Germany (Stuart et al. 2007) while the Greater White-toothed Shrew is a more recent arrival from France, and is believed to be in the country since 2004 (Tosh et al. 2008). From initial and admittedly small prey samples, analysis from pellets collected from nest sites in 2024, already show new trends. We have established / confirmed the presence of these invasive small mammal species in County Wicklow, in apparently prolific numbers. This is particularly obvious in the south and west of County Wicklow where the two species form the bulk of prey consumed. The nest site in east Wicklow (further north of the other two regions), still retains the traditional prey items in bulk. It is expected that this will change as the Bank Vole and Greater White-

toothed Shrew expand their range. This will have at least short-term positive effect for Barn Owls but the long term effect is less certain.

The impressive headline figures for 2023/24 and the increases over the last 50 or so years are very welcome. However, one must consider heightened and targeted effort in the current study period, concentrated on one species, compared to Atlas fieldwork, a broad study which encompasses recording all bird species in each 10km square. The numbers are of course, still low, from a very low base and as a species, Barn Owls are still Red Listed in Ireland, and their populations are fragile enough.

This additional prey appears to have fuelled a spread or re-colonisation of Barn Owls in county Wicklow, from preliminary analysis of prey items in the County. Recent studies carried out in counties Cork and Waterford (Smiddy, P. 2022), confirm this.

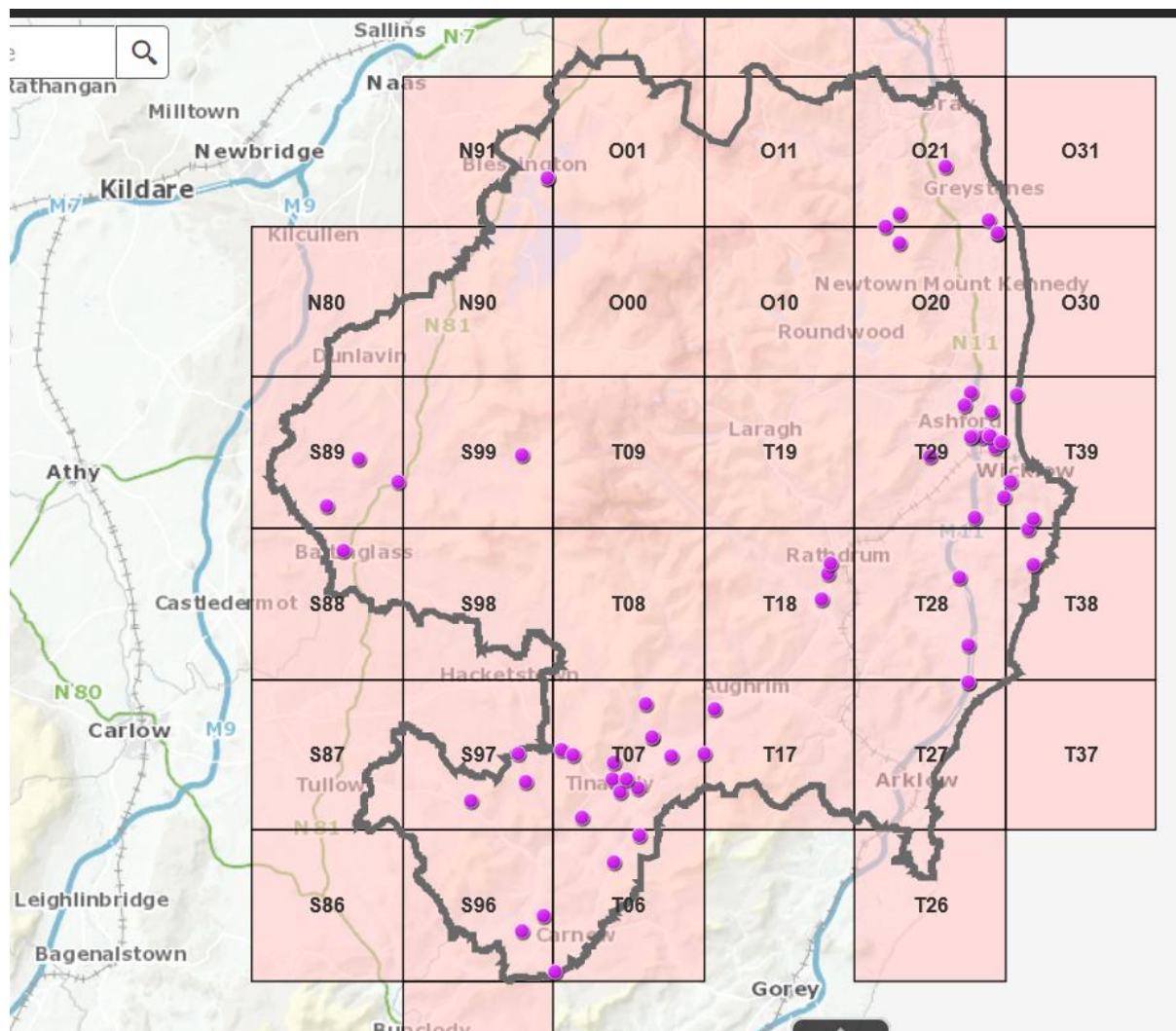
Sightings

The table below shows both a concentration of sightings to the south and east of the county and extending up the western fringe. These areas contrast with the hillier and more mountainous centre of the county where Barn Owl activity is reduced or absent altogether. Whether our sightings are being fed to some extent by a spread from the neighbouring counties of Wexford, Carlow and Kildare has yet to be proven but it is strongly suspected.

The total number of sightings in 2022 /23, ca. 65, is matched by the deployment of nest boxes in the same period. Most sightings were provided by landowners and members of the public, often working at night. Social Media outlets such as a dedicated Barn Owl survey Gmail address and Facebook / Messenger account proved to be very useful contact points.



Figure 5 Barn Owl sightings in Wicklow, 2022-23



Mortality.

Barn Owls face several risks as a nocturnal predator in the countryside. The failure of the nest in 2023, in 10k square T39 has not been attributed to a particular cause, other than a clutch of 5 eggs was confirmed, abandoned. The nest site was in an outdoor nestbox, situated in a quiet and undisturbed location, a good distance from major road infrastructure.

At least 5 Barn Owl corpses were recovered by NPWS staff and members of the public in 2023/2024 on the M11, on two stretches between Arklow North and the Beehive/ Wicklow South and from Ashford to Newtownmountkenedy. Cause of death is assumed to have been because of collision with motorway traffic. Another recovery of a dead Barn Owl from outside the study period is however very interesting and relevant: A female Barn Owl ringed as a young bird in June 2020 in Curracloe, county Wexford was recovered dead adjacent to

the M11 at Scratnagh, Wicklow some 10 months later. The ringing recovery is perhaps the first such recovery for the county and confirms to some extent the suspicion that neighbouring counties south and east of us will aid recovery in County Wicklow.

Not unusually in bird populations, mortality is often acute in the first autumn and winter in the life of a Barn Owl. Young birds, recently fledged, are particularly vulnerable to adverse weather conditions and predation at or near the nest site. Once grounded, fledglings are left to fend for themselves and are prone to attacks from mammalian predators and corvids and can suffer hypothermia in damp grass and rain. Our (limited) experience observing food passes at the nest site suggest that the landing shelf, in-built to all our nest boxes could be usefully replicated at natural tree sites where the cavity entrance often features a sheer drop for foraging youngsters anxious to collect food from a passing adult.

Nest Boxes

Nestboxes were initially provided under a sponsored scheme operated by the NPWS. This was promoted under the Project Facebook address and launched in February 2022: not surprisingly proved very popular. The ACRES (Agri-Climate Rural Environment Scheme) also encouraged landowners to undertake a Barn Owl measure as part of their grant submission to the Department. Nest boxes fall into two categories, indoor boxes and outdoor boxes. The former is lighter, less expensive and easier to construct and fit than the latter, designed to be weatherproof and deployed largely in suitable, mature hedgerow trees such as Ash, Beech and Oak.

We aim to support everyone who gets in contact with the Wicklow Barn Owl Group, we have had to prioritise possible nest sites which are the most suitable for barn owls. The decision is made following a site visit to view local conditions and based on positive and negative parameters including:

- Proximity to an existing nest site.
- The number of sightings in the area.
- The presence and abundance of habitat such as rough grassland, thick hedgerow and other suitable habitat including headlands, pollinator strips etc.
- Any negative site features, such as proximity to a main road or motorway. (The minimum distance from major roads is set at 500 meters).

By the end of autumn 2023, over 70 barn owl boxes had been erected throughout county Wicklow. That 3 out of 4 nesting attempts in 2023 were in nestboxes provided by the project proves the importance and success of providing boxes. The quickest take-up of a nesting box was at a site in south Wicklow where the box was visited within two weeks of siting in an old hay shed in the south of the county. The total of nestboxes deployed in County Wicklow rose to over 114 in autumn 2024.

Looking to the future, there are at least six 10km squares that would benefit from further deployment of nest boxes. All boxes allow for relatively straightforward monitoring of the

species going forward and the database will provide future researchers with known localities and breeding history from any nest box site.

As indicated above, we focused on priority areas where we knew Barn Owls were present, (from public responses to requests on social media) and areas with suitable foraging habitat. As well as supplying and fitting boxes we also provided advice on boxes, land management and highlighted conservation issues such as poisons in the countryside and the negative effect of these in relation to Barn Owls.



6. Media and Public Affairs opportunities in 2023 and 2024.

We arranged and participated in a total of 16 public / media events in 2023/2024.

2023

- 28 February radio Interview, Terry Flanagan, RTE Mooney Goes Wild, on site @ Kilpatrick House.
- 23 May Talk, Baltinglass Library, National Biodiversity Week
- 23 June Training Day, Kilafin, with key volunteers and BWI
- 22 July Barn Owl Interviews, RTE Radio 1 Countrywide
- 5 August County Show, Tinahely.
- 15 August Talk, Heritage Week, Wicklow Library.
- 23 September, Honey Festival, Ashford
- 13 November 2023, Talk, Wicklow ICA group.

2024

- 9 January 2024, Talk, Wicklow Branch of BirdWatch Ireland
- 8 May, Talk, Dunlavin Historic Society
- 23 May, Talk, National Biodiversity Week, Clarmont Campus, Rathnew
- 25 July, NPWS Workshop, Clarmont Campus, Rathnew
- 5 August, stand at County Show, Tinahely
- 21 August, Heritage Week, Talk & Workshop, Rathdrum Library
- 24 September, stand at Honey Festival, Ashford
- 13 December, Talk, Carnew Library,

The Wicklow Barn Owl Group is active on social media with 1,300 followers on Facebook. An active Gmail account is also maintained: wicklowbarnowlgroup@gmail.com. Wicklow Library Service adopted the Barn Owl as the featured image on the 2024 /2025 Library Card.

7. Recommendations

The survey and monitoring have already provided very good feedback and some positive news in relation to the range of Barn Owls in County Wicklow and the wider countryside. The continued financial and technical support of the Heritage Office of Wicklow County Council and NPWS is vital in maintaining the effort and momentum already gained. This support is reciprocated by the rural community and key volunteers through reporting and practical assistance in the nestbox programme. The existence and health of a Barn Owl population in the county is therefore very well supported by landowners and reflects positively on the Government agencies.

In 2025 we will, subject to continued funding:

- Monitor existing and expanded nestbox programme of over 125 nest boxes around the county.
- Target up to six 10km squares for deployment of up to 20 new nest boxes
- Network with NPWS field staff and conservation rangers to develop a shared or 'buddy system' for monitoring nest sites.
- Collect pellets from nest sites to analyse rodent prey items across County Wicklow and report on the spread and colonisation of 'new' rodent prey and report on any negative effects on traditional prey species.
- Engage groups such as Pure Mile, using their network of volunteers and routes in the rural environment to search for and identify potential nesting sites in tree cavities in mature hedgerow trees along Pure Mile sites.
- Scope funding possibilities and develop live filming of an active Barn Owl nest in the county in 2025.
- Continue media and event programme in tandem with WCC Environment section.
- Distribute Barn Owl Information and Conservation brochure, in digital and hard copy.
- Disseminate information on habitat creation and enhancement, best practice rodent control, the provision of nest boxes, encourage reporting, to be targeted at farmers and circulated through farming organisations and Agri Environment Schemes.
- Use the data generated through this study to direct conservation efforts in developing a landscape suitability map for Barn Owl in the county.
- Review the inventory of built heritage structures and other large, ruined structures and assess their importance and potential for nesting Barn Owls in County Wicklow.



REFERENCES

- Balmer, D., Gillings, S., Caffrey, B., Swan, B., Downie, I. & Fuller, R. (2013). Bird Atlas 2007-11. The breeding and wintering birds of Britain and Ireland. British Trust for Ornithology.
- Bunn, D.S., et al. (1982). The Barn Owl, A&C Black.
- Copland, A. & Lusby, J. (2009). Lowland Farmland. In: R. Nairn & J. O'Halloran, eds. Bird Habitats in Ireland. pp. 124-137. The Collins Press, 2012.
- Copland, A.S., Lusby, J. and Watson, D. (2008) Irish Barn Owl Conservation Project – 2008 survey. BirdWatch Ireland.
- Gibbons, D.W., Reid, J.B. & Chapman, R.A. 1993. The New Atlas of Breeding Birds in Britain and Ireland: 1988–1991. T. & A.D. Poyser, London.
- Gilbert G., Stanbury A. and Lewis L (2021). Birds of Conservation Concern in Ireland 2020 – 2026. Irish Birds 9: 523–544
- Hutchinson, C.D., (1988). Birds in Ireland, T & AD Poyser, Calton.
- Lusby, J., Purcell, D. & Kavanagh, L. (2022). Barn Owl population status and trends in County Westmeath. BirdWatch Ireland.
- Lusby, J., O'Clery, M., McGuinness, S., Tosh, D., & Crowe, O. (2021a). The interactions between Barn Owls and major roads: informing management and mitigation. TII Publications reference RE-ENV07004.
- Lusby, J., McCarthy, A., O'Clery, M., Lynch, Á., Bayley, S., Nagle, T., Forkan, C., Stanley, M., & Nolan, B. (2021b). Barn Owl Monitoring Report 2020. BirdWatch Ireland.
- Lusby, J., & O'Clery, M., (2014). Barn Owls in Ireland: Information on the ecology of Barn Owls and their conservation in Ireland. BirdWatch Ireland.
- McDevitt, A.D., Montgomery, W.I., Tosh, D.G., Lusby, J., Reid, N., White, T.A., McDevitt, D.C., O'Halloran, J., Searle, J.B., & Yearsley, J.M. (2014). Invading and Expanding: Range Dynamics and Ecological Consequences of the Greater white-Toothed Shrew (*Crocidura russula*) Invasion in Ireland. PLoS ONE 9(6).
- Mikkola, H. (1983). Owls of Europe, T & A D Poyser, Berkhamsted.
- Nagle, T. (2007). The loss of Barn Owl *Tyto alba* breeding and roosting sites in County Cork: A contributory factor in the species decline. Irish Birds. 8: 314-315.
- Nairn, R., & Crowley M. (1998). Wild Wicklow, Town House Dublin.
- Sharrock, J. T. R., (1976). The Atlas of Breeding Birds in Britain and Ireland. T. & A. D. Poyser, Berkhamsted.

Shawyer, C.R. (1998). *The Barn Owl*. Arlequin Press, Wheathampstead.

Smiddy, P. (2022). Small mammal diet of Barn Owls before and after the arrival of Bank Voles and Greater , BerkWhite-toothed Shrews. *Irish Birds* number 44:23-26.

Sullivan, I. & Lusby, J. (2021). *Wildlife in Buildings: Linking our built and natural heritage*. BirdWatch Ireland.

Tosh D.G., Lusby, J., Montgomery, W.T. & O'Halloran, J. (2008). First record of Greater White-toothed Shrew *Crocidura russula* in Ireland. *Mammal Review* 38, p321-326.

Transport Infrastructure Ireland (2017). *Barn Owl Surveying Standards for National Road Projects*. T.I.I. Publication no. RE-ENV-07005.

Transport Infrastructure Ireland (2021). *Survey and Mitigation Standards for Barn Owls to inform the Planning, Construction and Operation of National Road Projects*. TII Publications reference PE-ENV-07005.

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