



# Barn Owl Report - 2020

## Ulster Wildlife



**Ulster  
Wildlife**



## Acknowledgements

We would like to thank all the people involved, directly or indirectly, in the barn owl project. Thank you to every single **volunteer** that carried out the survey for us, and those that reported sightings. A special thank you to our **nest minders** who go out of their way to protect barn owls in Northern Ireland. Thank you to everyone that made us a barn owl **nesting box** and assisted in the project. As this project has limited funding, we rely on our superb volunteers to achieve the objectives of our conservation work. It is always humbling to see that so many of you stand in solidarity with us to try to help this iconic species thrive in Northern Ireland. 2020 has been a strange year due to the impacts of Covid-19; we have been limited in what we have been able to do, but with the help of staff, trainees and volunteers, have still managed to continue our conservation efforts for barn owls in NI. This year's programme delivery would not have been possible without your help.

Thank you also to the BTO, CEDaR, Comber Rotary, National Trust, NBDC, NIRSG, RSPB, The Boys Brigade 4<sup>th</sup> Dromore, UW Grassroots Challenge and the Young Farmers Club.



**Picture 1:** Comber Rotary: These fabulous volunteers spent lockdown making barn owl boxes and squirrel feeders for Ulster Wildlife.

# Contents

<b>1. Introduction.....</b>	<b>4</b>
<b>2. Barn Owl/Long-eared Owl Survey.....</b>	<b>4</b>
<b>2.1. Background.....</b>	<b>4</b>
<b>2.2. Survey Methodology.....</b>	<b>5</b>
<b>2.3. Results.....</b>	<b>5</b>
<b>3. Other key points.....</b>	<b>6</b>
<b>3.1. Sightings.....</b>	<b>6</b>
<b>3.2. Dead barn owl reports.....</b>	<b>7</b>
<b>3.3. Known active nest sites.....</b>	<b>7</b>
<b>3.4. Boxes.....</b>	<b>9</b>
<b>4. MSc Project.....</b>	<b>10</b>
<b>4. Limitations.....</b>	<b>12</b>
<b>5. Future plans.....</b>	<b>12</b>
<b>6. Conclusion.....</b>	<b>13</b>
<b>7. References.....</b>	<b>14</b>

## Introduction

Since 2010, Ulster Wildlife has undertaken work focusing on the conservation of Barn Owls (*Tyto alba*) in Northern Ireland. Classed as “Least Concern” on the IUCN red list on the global scale, the situation in Northern Ireland however is highly concerning. Barn owls have been in decline for decades as a result of habitat loss. The last population estimate in the 1980s put the breeding population at only 30 to 50 breeding pairs (Northern Ireland Species Action Plan, 2006); but we estimate there are now likely less than 30 pairs. Fortunately, they are now protected and appear as a priority species in the Northern Ireland Biodiversity Strategy and are also “Red Listed” in Birds of Conservation Concern in Ireland.

As an important part of our natural and cultural heritage, our Barn Owl work aims to develop and advance barn owl conservation throughout Northern Ireland. A range of actions are undertaken, such as the management of sightings, roosting sites, and nest sites, that are provided by the general public, the construction and the erection of nest boxes, and supporting landowners to improve their habitat for barn owls. In addition, one of our main prongs of activity takes place during the summer through the annual barn owl survey. Thanks to our dedicated volunteers, consecutive barn owl surveys have been carried out across the whole of Northern Ireland, on an annual basis since 2010. The aim is to visit sites that are most likely to host barn owls in order to discover new active roost or nest sites; although this had to change this year due to the restrictions from Covid-19. Knowing the exact locations of roosting and breeding barn owls is essential to target our conservation efforts. However, surveying for barn owls is not an easy task, particularly due to the low population densities that exist in Northern Ireland. In addition, the fact that they are nocturnal and one of the most elusive birds make them even harder to find.

This report will give an overview of the work that has been done throughout the year, with an important focus on the barn owl survey. It will compare some results with the findings of the previous years, and the work plan for 2021 will be discussed.

## 2. Barn Owl Survey

### 2.1. Background

The Ulster Wildlife Barn Owl Survey started in 2010. During the first years, the field work concentrated on 2x2 km survey tetrads in areas where barn owls had been sighted. After talking to locals and landowners and conducting field based surveys, historic and potential nest/roost sites, as well as locations of barn owl boxes within each tetrad were identified, surveyed and recorded into the mapping database.

Since 2016, Ulster Wildlife have carried out a national presence-absence survey based on these identified sites and they are included in our adaptation of the Barn Owl Trust’s “Three Step Survey Method”. The steps consist of the following:

- **Desktop Survey** to identify the most likely sites barn owls will be found through the use of sightings reports from communities and individuals, habitat maps, aerial photos and precipitation records.

- **Interviewing Local People.** This is carried out throughout the year at local events such as country fairs, agricultural shows and through submissions from the general public by phone and on our website. Volunteers are also seeking to discuss barn owls with local landowners and erect posters calling for sightings in their local areas.
- **Intensive Surveying.** Volunteers survey for activity at the most likely sites across Northern Ireland, such as historic nest sites, nest boxes, active nest sites, potential sites or area where we have an important number of confirmed sightings.

Since 2018 we have also included long-eared owls (*Asio otus*) in our survey. While they are considered to be common and widespread across the whole of the island of Ireland (NIRSG, Birdwatch Ireland, Bird Atlas 2007-11), there is a lack of information on their distribution across Northern Ireland. With common characteristics between barn owl and long-eared owl, like the fact that, to a large degree, they rely on the same food sources (*i.e.* small rodents), we are trying to understand why barn owls are seemingly struggling much more than long-eared owls.

## 2.2. Survey Methodology

For our 2020 survey, due to the impacts of Covid-19, we were unable to hold our usual workshops. Instead we contacted anyone on our list that had a barn owl box and asked that the landowner check the box themselves for any signs of occupation during the months of July and August. This meant that no one was walking on other people's land in order to keep people safe. Each surveyor received a copy of the Survey Methodology, a Recording Form and a Risk Assessment.

We asked that people provided us with up-to-date information regarding the nesting box: whether it was being used, the grid reference, and whether it needed repaired or replaced. That way we can see whether we need to replace a box or add boxes in an area. We also carried out a number of surveys at key sites. The area was visited during the day to check for any signs; feathers, pellets, whitewash, and then an evening visit was also carried out where possible.

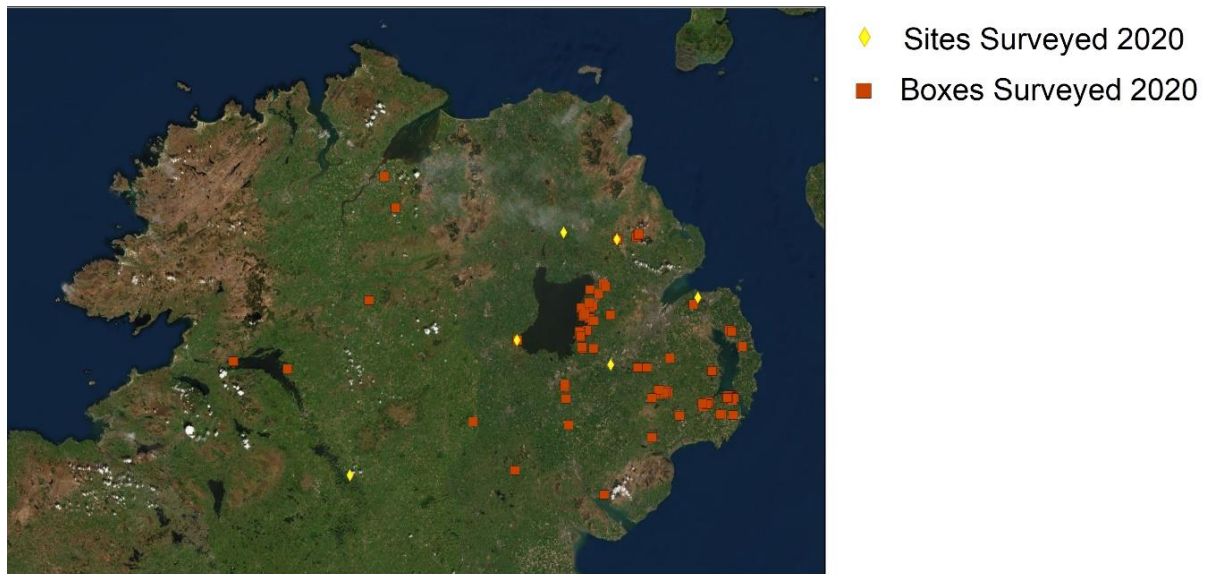
Our nest minders had been monitoring their sites all year so we were keeping in touch with them regarding the known barn owl pairs (see **3.2**).

## 2.3. Results

In total **96** boxes were checked for signs of barn owl activity throughout July and August. We also carried out a total of **6** surveys at potential sites. **Figure 1** shows the majority of the boxes checked are in the east of the country as this is where the majority of them are, but there is still a spread across the whole of NI. We were also limited in the amount of surveys we could do due to Covid-19. The work completed was definitely a success during a global pandemic; thank you to all our volunteers, Ulster Wildlife staff, and volunteers from the NIRSG who helped out.

During the survey, barn owl feathers and pellets were found by two of our volunteers at a new site; this box was put up previously in collaboration with the NIRSG. The site has previously had sightings in the area and so it is great to see a barn owl using the

box to roost in. On inspection the box is actually letting in water and so a new box will be installed in early 2021, along with other boxes nearby. This gives the birds in the area more options when looking for a nesting site.



**Figure 1:** Location of the boxes and sites surveyed in 2020.

### 3. Other key points

#### 3.1. Sightings

We are pleased to see support from the public continue with regular sightings of barn owls reported to us via phone call, email, social media (Facebook/Twitter) or online through CEDaR's website (Centre for Environmental Data and Recording), and on iRecord. By the end of 2020, **63** sightings have been entered onto our database and mapped (**Figure 2**). We have a good idea where the birds are so now our focus is on finding nest sites. In addition to collecting useful information, the survey is also a key point to raise awareness.

We also received **24** sightings of long-eared owls (8 of these were chicks at nest sites) (**Figure 2**). Due to the dry weather it seems like long-eared owls have had a very good year. We also think that more people were noticing these birds due to the lockdown. We got many reports of long-eared owls nesting in peoples gardens and farms. Long-eared owls are actually more common than barn owls but they are not reported as frequently. We will continue to encourage sightings of long-eared owls.



**Figure 2:** Sightings of Barn Owls and Long-eared Owls in 2020

### 3.2. Dead barn owl reports

At the end of 2020, we got a report of a sick adult barn owl. Sadly, this bird didn't make it. The cause of death is unknown and so it has been sent for post mortem. We will hopefully get the results in early 2021.

### 3.3. Known active nest sites

In 2020 we monitored five active nest sites; two of these unfortunately failed so we had three successful nests (**Table 1**). These were at the same sites as 2019 but the pair at Ards moved over to Mount Stewart; although they still used their previous farm to roost. All chicks born in 2020 were in nest boxes on trees. We believe that there was also a late second brood at the Crumlin site which brings the total number of known fledged chicks to **12**. We were able to ring chicks at these three nest sites during the summer; four chicks at Mount Stewart (three of which fledged), four at Crumlin (first brood) and three at Strangford. This was carried out by BTO licenced ringers and enables us to find out vital information.

Nest site	Number fledged 2018	Number fledged 2019	Number fledged 2020
Ards	2	2	-
Mount Stewart	-	-	3
Crumlin	5	6 (2 broods)	6 (2 broods of 4 + 2)
Strangford	-	2	3
<i>Mean</i>	3.5	3.3	4

**Table 1:** Number of fledged barn owl chicks within the known nest sites



**Pictures 2 & 3:** Two chicks from 2020 at the Mount Stewart nest site.

The birds on the Ards Peninsula decided to move to a new box this year on the Mount Stewart estate. This is still within their range and they are hunting in the same place. This can be put down to the fantastic habitat management by both the farmer and the National Trust. Four chicks were ringed in June (**Pictures 2 & 3**), sadly the youngest chick died but three successfully fledged. We will be putting up another box in the area in early 2021.

The pair at Strangford returned to their box again and managed to fledge three healthy chicks. This farm is so well managed that one of the chicks from the previous year also bred on the same farm. Unfortunately, this nest failed but there is hope for a second returning pair in 2021. There is an amazing network of boxes at this site and the habitat is able to support more than one pair.



**Pictures 4 & 5:** The adult female and one of the chicks at the Crumlin site.



The birds at Crumlin had another successful year. They had four chicks which were ringed in June 2020 (**Picture 5**); this was the third year in a row. We were also able to ring the adult female (**Picture 4**). The nest minder at Crumlin provided some supplementary feeding in times of very bad weather when the birds could not hunt, he also provided grain to feed rodents to increase the food supply in the area. This pair then had a late second brood, the nest minder thinks there were two chicks. A pair also started to nest in a box at the old nest site; this nest failed early on and the birds then moved on.

With the help of our volunteers we hope that these nests will continue to thrive and new nests will be established in 2021 and beyond.

### 3.4. Boxes

Since the beginning of the year, **15** barn owl boxes have been erected throughout Northern Ireland (Figure 3). Due to the impacts of Covid-19 this number is lower than normal; it is impossible to socially distance while erecting a barn owl box. However, the boxes that are up are in prime locations and we hope to add to this number in 2021. We did however carry out over **30** site visits to landowners where we provided advice on boxes and land management. More nest boxes have been erected at existing nest sites to increase the network of boxes in the area and to offer roosting or nesting opportunities for fledglings. We have a number of organisations and volunteers making nesting boxes for us. Our thanks to all the adults, young people and volunteers who helped make this happen.



**Figure 3:** Locations where barn owl boxes were erected in 2020.

While we aim to support everyone who gets in contact with us, as there is a high demand for boxes, we have to prioritise possible sites which are the most suitable for

barn owls. We make the decision on whether to visit a site based on certain parameters such as; proximity to an existing nest site, the number of sightings in the area, the abundance of rough grassland, thick hedgerows and other suitable habitat features and also (negatively) the proximity to main roads. We have to come out to see a site before we make the decision on whether the site is suitable for a box. In the winter of 2020 (Jan/Feb and Nov/Dec) we carried out a number of site visits to establish whether the area was suitable for barn owls and suitable for a nesting box.



**Picture 6:** Our last box erected in 2020; with help from the RSPB.

#### **4. MSc Project – QUB**

In 2020 we hosted an MSc student from Queen’s University Belfast; Alexandra Efthymiou, who was studying on the course Ecological Management and Conservation Biology. Alexandra has a keen interest in owls and was delighted to be able to study them in Northern Ireland. Unfortunately, due to the restrictions from Covid-19 she was unable to carry out everything she wanted to do but still managed to complete a very worthwhile project.

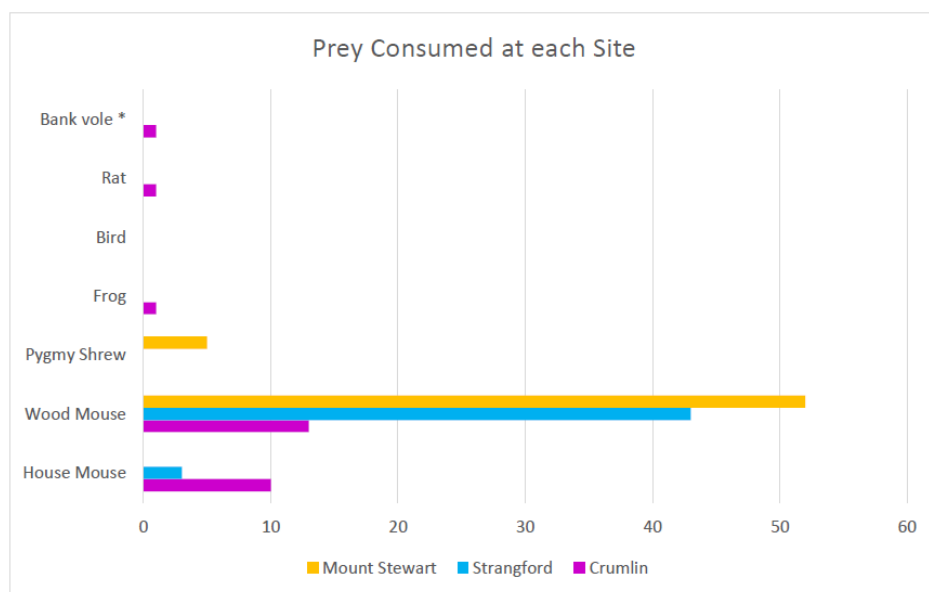
Alexandra wanted to ask the question; ‘Will Northern Ireland’s habitats be enough to sustain future barn owl generations based on current prey consumption data and chick production?’, by comparing prey items found in pellets at three different nest sites.

Barn owls regurgitate pellets; these are small compact masses composed of the indigestible part of their prey like fur and bones. They can provide useful information about a barn owls diet and allow us to build a picture of what prey items the birds are predated in certain areas. Pellets were collected from barn owl nests boxes at three different nest sites. These were then analysed; this is done by soaking the pellets in water and carefully removing the bones using tweezers. By looking at the bones it

can tell us what the birds were eating. Results from the pellet analysis is shown below in **Table 2**, and a comparison of prey items in **Figure 4**.

Species	Crumlin	Strangford	Mount Stewart
House Mouse	10	3	0
Wood Mouse	13	43	52
Pygmy Shrew	0	0	5
Frog	1	0	0
Bird	0	0	0
Rat	1	0	0
Bank vole *	1	0	0

**Table 2:** The number of each species of small mammal at each nest site.



**Figure 4:** The prey items consumed at each nest site.

It is important to note that this is just snapshot of what the birds are eating as they can alter their prey consumption throughout the year. From all the pellets that we have looked at from the winter they contained more rats than pellets from the spring. We hope to repeat this project with another student in 2021 to find out more information.

One of the key things that came out of this project was the fact that a bank vole skull (asterisked above) was found in one of the pellets from the Crumlin site. Upon further investigation and analysis, we found four more bank vole skulls in further pellets. This aligned with the video footage the nest minder had found at the Crumlin site. We then carried out small mammal trapping in the area and found the first confirmed record for bank vole in Northern Ireland. This is an invasive species and more field work is needed to establish the extent of the population. We are also unsure of the potential impact this species might have on the native small mammal population. More work will be done in 2021; in collaboration with Dave Tosh, to try and answer these questions.

## **5. Limitations**

Barn owls are very scarce in Northern Ireland and so there are difficulties in locating nest sites. Since the start of the barn owl project, more than 600 sites have been checked, but unfortunately, we still only know of too few nest sites. In each survey, the majority of potential nest/roost sites that are assigned to volunteers are derelict buildings. It is possible that barn owl nests are more often located in trees in NI. Trees are obviously harder to check because they are more numerous, but also because the holes can be hidden, either by their position (e.g. too high) or by the presence of surrounding vegetation such as ivy.

Another factor which can limit locating nests is the lack of equipment, because barn owls are rare, nocturnal and elusive birds, having more access to adequate gear to perform the survey could make a big difference. Equipment like night vision cameras or parabolic microphones could enable us to survey a site more effectively. However, this gear is expensive and we cannot afford one for each surveyor. Instead, it could be possible to have a few but allocate them in sites where barn owls are more likely to be found. We were able to purchase thermal imaging binoculars in early 2020 which have been very useful.

Finally, our idea of barn owl distribution in Northern Ireland can be biased towards areas where communities are more aware or where population densities are higher. Awareness effort needs to be put into areas where we are lacking sightings in order to see whether or not the actual distribution is reflective of our data.

## **5. Future plans**

For 2021 we hope that we can get our events up and running again once Covid restrictions have lifted. We will be carrying on and trying to do lots of things that were planned for 2020 but were unfortunately cancelled. Our main aim is still to find new nest sites; and to increase our understanding of this elusive and iconic bird in Northern Ireland.

Our main aim this year will again be to find new nest sites. Our target audience through our communications will be farmers and landowners. We want to ensure that land is managed properly for barn owls and that anyone that knows of a nest site is engaged with and supported. We gave a talk, along with the RSPB, to the Nature Friendly Farming Network in December 2020 and we aim to provide further events for the farming community in 2021. We will continue to carry out site visits and provide advice on nature-friendly land management.

We will be carrying out an annual survey again in 2021 and hope to increase the number of potential sites checked. Getting landowners to check their own boxes proved successful in 2020 and so we will repeat this again in 2021.

For early 2021 we are planning on creating a video that will cover why barn owls are important and what people can do to help them. There will be a version aimed at farmers and one for the general public. This resource will be invaluable for our engagement and our ability to reach a wide range of audiences.

## 6. Conclusion

In Northern Ireland, barn owls remain very scarce and hard to find. The annual survey, performed by our volunteers during the summer, had allowed us to check 96 boxes and 6 sites. A number of long-eared owl nesting sites have also been reported. We had challenges due to the impact of Covid-19 but still managed to complete our survey due to the help of our volunteers and nest minders.

Despite the obvious setbacks 2020 was still a positive year for barn owls. We had 3 successful nest sites, and 4 broods of chicks. We also had a number of other birds that attempted to breed which is a good sign. We are very hopeful that our number of known nest sites will be increased in 2021. We had 13 chicks born (12 that fledged) which is our highest number for a few years. The Crumlin site continues to do well with a further two broods. The site in Ards has expanded but still supported 4 chicks and 3 fledglings. The site in Strangford had 2 pairs this year; which is amazing. We hope that both pairs can breed successfully in 2021. At all 3 sites, the chicks were ringed to help us monitor dispersal. In addition, 30 site visits were carried out, and 15 boxes were erected throughout Northern Ireland since January 2020.

Finally, 2021 brings exciting opportunities to forward plan for the future of our barn owl conservation work. We want to be able to find more nest sites, support more landowners and nest-minders, and ultimately help protect our small population of barn owls in Northern Ireland. We are looking forward to the year 2021 and the continuation of our conservation work on this iconic species.

We anticipate that this year will build on the successes of recent years and we hope that once again we can rely on your support, as we have relied on it historically, to help build a future for one of Northern Ireland's most iconic species.



**Picture 7:** Farmer Ian Suffern and his family at the Crumlin nest site.

## 7. References

### Books/Articles

Barn Owl Trust (2012) *Barn Owl Conservation Handbook*, Pelagic Publishing, Exeter  
*Bird Atlas 2007-11. The breeding and wintering birds of Britain and Ireland*. Balmer, Gillings, Caffrey, Swann, Downie and Fuller. (456-457)

Bunn, D.S., Warburton, A.B. & Wilson, R.D.S. (1982). *The Barn Owl*. Calton: T & AD Poyser.  
Fick, S.E and R.J. Hijmans, 2017

Hossein Vahidi, Brian Klinkenberg and Wanglin Yan (2017), *Trust as a proxy indicator for intrinsic quality of Volunteered Geographic Information in biodiversity monitoring programs*, GIScience & Remote Sensing, 10.1080/15481603.2017.1413794, (1-37).

Lusby, J. and O'Clery, M. (2014) *Barn Owls in Ireland: Information on the ecology of Barn Owls and their conservation in Ireland*. BirdWatch Ireland.

Lusby, J., O'Clery, M., McGuinness, S., Tosh, D., & Crowe, O. (2019). *The interactions between Barn Owls and major roads: informing management and mitigation*. BirdWatch Ireland.

Paul, K., Quinn, M. S., Huijser, M. P., Graham, J., and Broberg, L. (2014). An evaluation of a citizen science data collection program for recording wildlife observations along a highway. *J. Environ. Manage.* 139, 180–187. doi: 10.1016/j.jenvman.2014.02.018.

Worldclim 2: *New 1-km spatial resolution climate surfaces for global land areas*. International Journal of Climatology.

### Websites

<https://www.barnowltrust.org.uk/uk-barn-owl-population-latest/>

[https://www.cieem.net/data/files/Resource\\_Library/Technical\\_Guidance\\_Series/SoSM/TGSS\\_oSM-Barn\\_Owl\\_Survey\\_Methodologyrevised2012.pdf](https://www.cieem.net/data/files/Resource_Library/Technical_Guidance_Series/SoSM/TGSS_oSM-Barn_Owl_Survey_Methodologyrevised2012.pdf)

<http://www.nirsg.com/long-eared-owl/>

<https://www.birdwatchireland.ie/IrelandsBirds/Owls/LongearedOwl/tabid/1123/Default.aspx>

<http://gis.epa.ie/GetData/Download>

[https://www.daera-ni.gov.uk/sites/default/files/publications/doe/Natural-plan-species-action-barn-owl\\_0.pdf](https://www.daera-ni.gov.uk/sites/default/files/publications/doe/Natural-plan-species-action-barn-owl_0.pdf)

<https://www.eea.europa.eu/publications/COR0-landcover> accessed 2017

<https://www.gov.ie/Environment/LandMarineWildlife/Birds/Pages/Owls.aspx#anchor-3>