



# Barn Owl Report – 2018

Ulster Wildlife



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## **1. Introduction**

Since 2010, Ulster Wildlife has implemented a new project focusing on the conservation of Barn Owls (*Tyto alba*). Classed “Least Concern” on the IUCN red list on the global scale, the situation in Northern Ireland is yet highly concerning. Barn owls have been in decline for decades as a result of agricultural intensification and 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). 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, the Barn Owl Project aims to develop and advance barn owl conservation work throughout Northern Ireland. To do so, different actions are undertaken such as the creation of databases of sightings, roosting sites and nest sites that is provided by the general public, the construction and the erection of nest boxes and supporting landowners to improve their habitat. However one of our main prongs of activity takes place during the summer through the annual barn owl survey. Thanks to our dedicated volunteers, consecutive national barn owl surveys have been carried out, on an annual basis, since 2010, across the whole Northern Ireland. The aim is to visit sites that are most likely to host barn owls in order to discover new active roost or nest sites. Knowing the exact locations of roosting and breeding barn owls is essential to target our conservation effort. However, surveying for barn owls is not an easy task, particularly in the low population densities that they exist at 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 ambitious work plan for 2019 will be discussed at the end.

## **2. Barn Owl/Long-eared 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 Trusts “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 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 last year, 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 (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 struggling much more than long-eared owls.

## 2.2. Survey Methodology

In June, according to barn owl records, survey locations and volunteer numbers, 3 workshops were organised in Carrowdore, Lisburn and Peatlands Park. The aim was to give a general presentation about barn owls and long-eared owls, to present the results of the previous survey and to go through the methodology of the survey. In total, 35 people attended to workshops. We had a total of 20 new volunteers in the survey and 29 people who already surveyed at least once with us. The survey was performed during the summer, mid-July until the end of August.

Each volunteer, or pairing, received a survey pack with everything needed to perform the survey and up to 3 sites were delegated to them. The sites allocated for the 2018 survey were chosen on the basis that haven't been checked in the last two years, with the exception of some boxes which are checked every year by the same volunteers or landowners. Each site was inspected both, during the day and at night. The survey allows us to collect any barn owl evidence on site, investigate the integrity of our boxes and other sites the barn owls are using, and in the case of new reports the accuracy of the information provided (*i.e.* precise location).

- **Day visit**

For each site, a day visit was completed by the volunteers to get familiar with the area, talk to locals and get landowner's permission to access the site. Once this was done, each site was carefully inspected to search for any visual evidence of barn owl. Feathers, pellets or whitewash were noted in a survey form and the first two were collected and sent back to Ulster Wildlife for analysis. As the chicks are most vocal during the survey season (July-August), listening for "snores" was an important part of the survey.



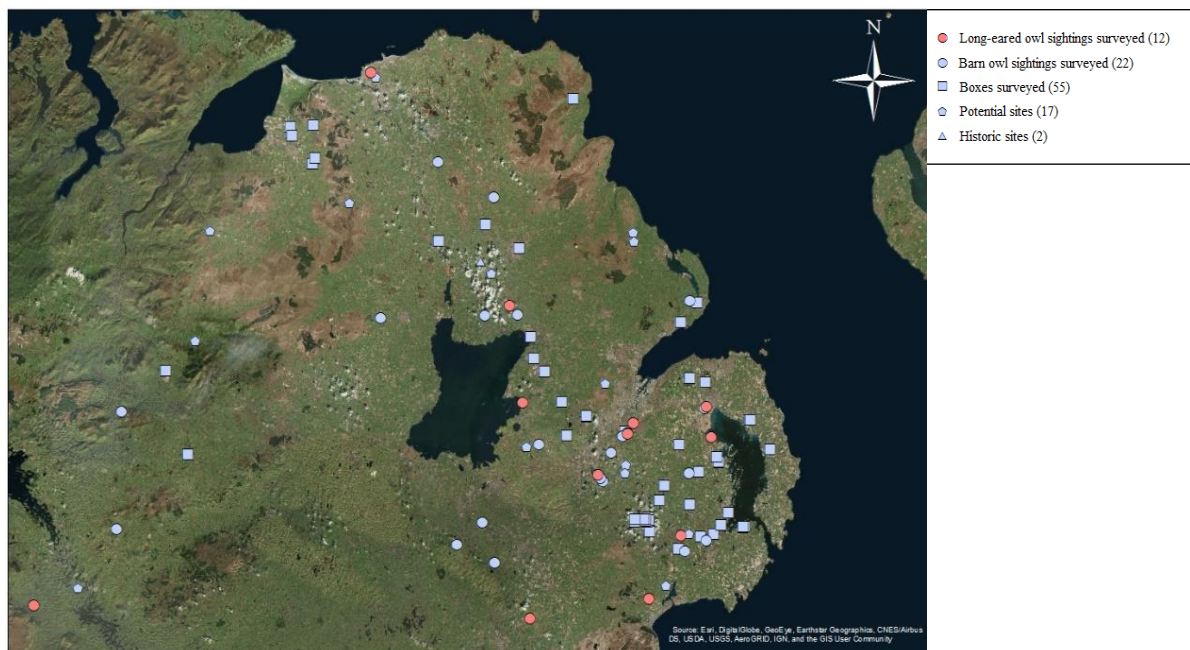
- **Night visit**

When surveying for a nocturnal bird, a night visit is essential to complete the survey. Thus, for each site, volunteers stayed from dusk for at least an hour. It was advised to perform it during on a clear, moonlit night and to choose a discrete vantage point to survey from with an uninterrupted view. Parents might be seen flying and chicks can be heard begging for food. Any activity at a site was reported to Ulster Wildlife to enable a licensed surveyor to check the site for evidence of nesting.

### 2.3. Results

In total, 108 sites were checked for signs of barn owl/long-eared owl activity over the summer (Figure 1) comprising 2 historical sites, 17 potential sites, 55 barn owl boxes, 22 sighting sites (site with numerous and/or recent sightings) for barn owl and 12 sighting sites for long-eared owls.

Based on the volunteers who indicated the number of hours that they surveyed, an average of 1.7 hour per site were calculated. This suggests a total of 183.6 hours spent on the field to check the 108 sites which equate to almost an entire month of full-time work for a single person (without taking into account travel time).

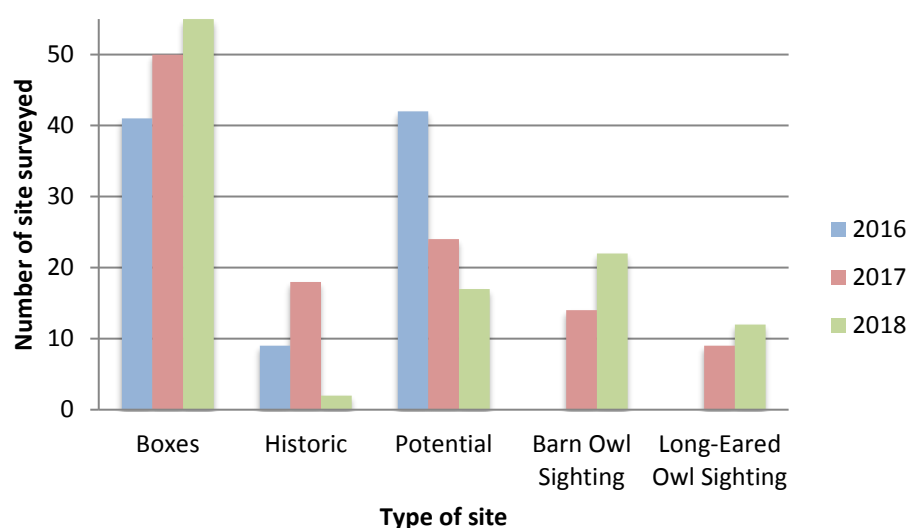


**Figure 1:** Location of the different sites surveyed

During the survey, no barn owls were sighted or heard directly by the volunteers but 10 sightings were reported while talking to locals/landowners. We are keeping an eye on these sites to try to locate the roost/nest place. No pellets was found either and while several possible feathers were send to Ulster Wildlife for further identification, none originated from barn owls. Whitewash was spotted at some locations but without additional evidence. New potential sites

have been reported, essentially in trees and but one, located in a derelict house, was no longer suitable because it had been renovated. Five boxes were noted to be “in poor condition” and will be replaced in the coming years. Finally, long-eared owls were heard directly by 4 teams of volunteers and 6 new long-eared owl nest sites were discovered including, post survey, a long eared winter communal.

**Figure 2** (below) compare the number of different type of sites surveyed the past three years. Since 2016, more than the half of all the boxes currently recorded in our database have been checked (146 out of 233 boxes). While the majority remain empty with no signs of any activity, some of them host jackdaws and will need to be cleared out. Each of our known historic nest sites have been checked over the past 3 years and we will continue to check them over the coming surveys. Historical nest sites are critical as once a nest site is used it can attract new pairs of barn owls in the future.



**Figure 2:** Types and number of barn owl sites surveyed during the last 3 years.

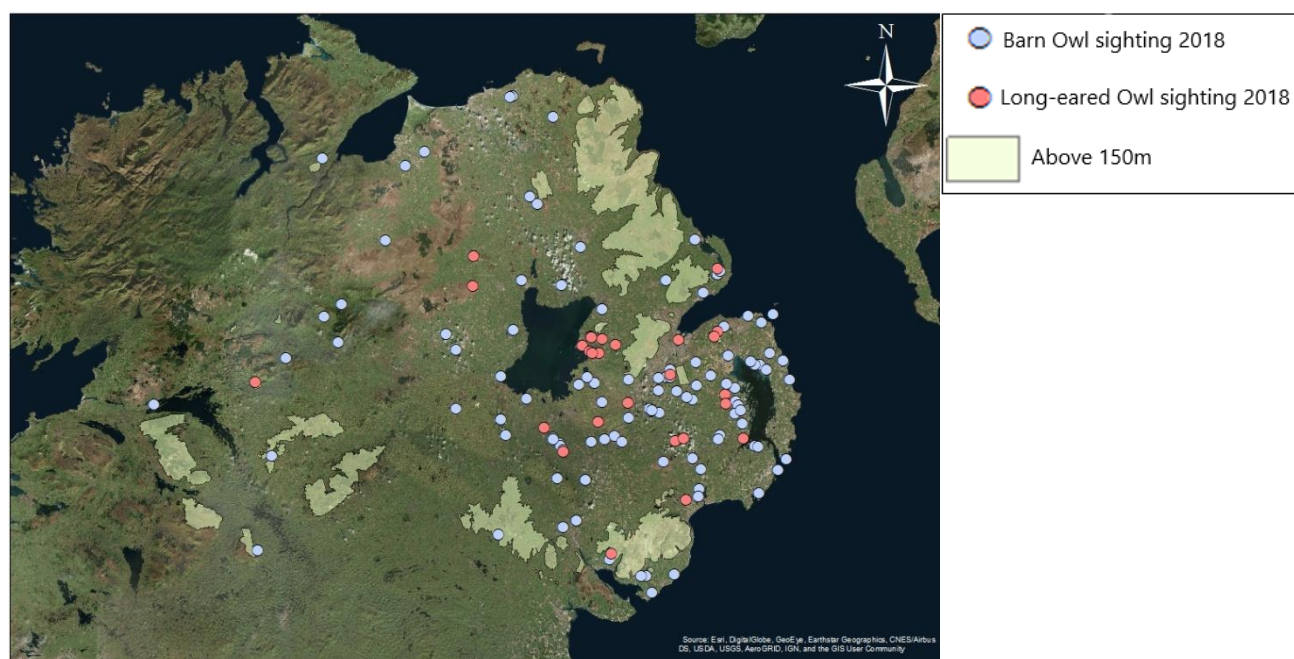
By conducting this survey on an annual basis we are able to maintain a database with up-to-date records of box condition and collate location of known roost and nest sites and their use. All this information allows us to create population distribution maps of barn owl across Northern Ireland, and strategically target our conservation efforts around key areas.

### 3. Other key points

#### 3.1. Sightings

We are pleased to see support from the public continue with regular sightings reported to us via phone call, email, social media (Facebook/Twitter) or online through CEDaR website

(Centre for Environmental Data and Recording). By the end of 2018, more than 140 sightings have been entered onto our database and mapped (**Figure 3**). It seems that each year, more and more sightings are reported, with respectively 111, 117 and 140 sightings for 2016, 2017 and 2018. With a clear bump in the number of sightings during the summer, it appears that the distribution of postcards, leaflets and posters by our volunteers during the survey is more than important. In addition to collecting useful information, the survey is also a key point to raise awareness.



**Figure 3:** Sightings of barn owls and long-eared owl reported to Ulster Wildlife in 2018

Once again, very few sightings ( $n=5$ ) were reported above 150m supporting the idea that barn owls in Northern Ireland are tied to lower altitudes than in Great Britain..

### 3.2. Known active nest sites

This year was one of mixed fortunes concerning the nest sites. Last year's breeding male at the south Down site was injured by a car and unfortunately could not be released back into the wild. This played a critical part in fact that the nest located in South Down didn't have chicks this year. This led to a decrease in the number of active known nest sites from 3 the previous years, to only 2 this year (**Table 1**).

Nest site	Number fledged 2016	Number fledged 2017	Number fledged 2018
Ards	2	2	2
S. Down	1	3	-
Crumlin	1	2	5
<i>Mean</i>	<i>1.3</i>	<i>2.3</i>	<i>3.5</i>

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



However, it has been a good year for the two breeding pairs that we have in the Ards Peninsula and Crumlin. Following the previous year's figures, the site in the Ards raised 2 chicks (**Picture 1**), showing a very stable reproductive success since 2014. The chicks, one male and one female, were ringed early July. A team from BBC went that day to film the process and the coverage was showed early September as part of a Home Ground episode. The two chicks fledged successfully in July and more nest boxes will be erected around the site to offer wider possibilities for the young to settle in.

Because it was a particularly tough winter, very cold and wet, our nest minder in Crumlin provided some supplementary feed to the parent owls with dead day old chicks. In an incredible result, the pair managed to raised 5 barn owl chicks (**Picture 2**), 4 males and 1 female, that all fledged successfully. It was the first time at Crumlin that we were able to get down to the site to ring the chicks. The youngest of the brood (named Seamus) had an injured eye, possibly a result of brood competition. However, with time, it appeared that his eye has healed well, it is now impossible to distinguish Seamus from his siblings.



**Picture 1:** The 2 chicks born in the Ards Peninsula

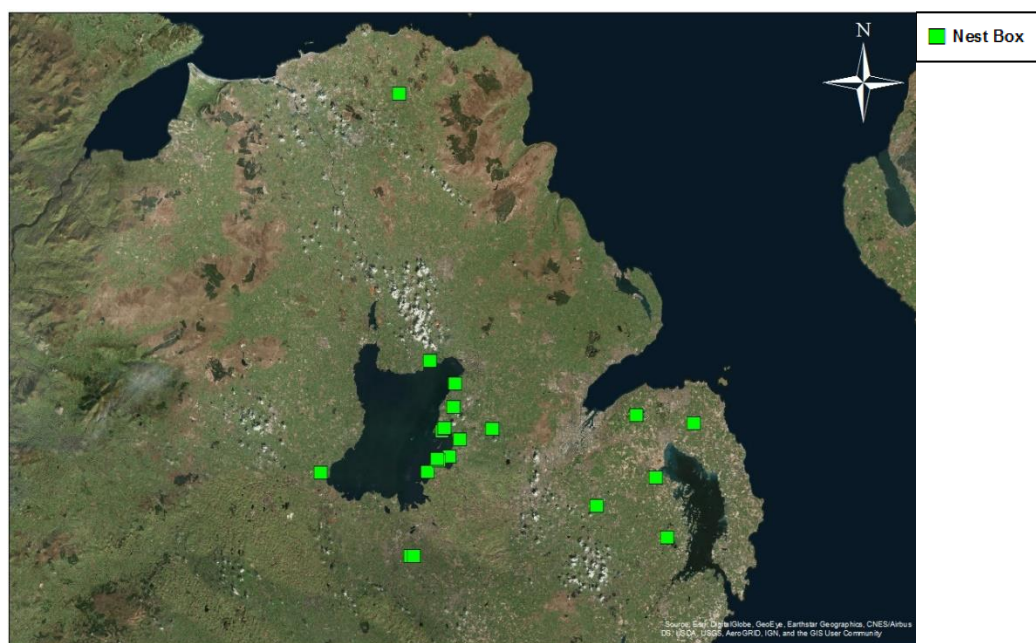


**Picture 2:** The 5 chicks born near Crumlin

Two known active nest sites are quite low for the whole Northern Ireland but it is just a matter of time before we find new ones. Indeed we have had some very encouraging reports this year. Barn owl chick calls were reported this summer near Ballymoney and while we couldn't find a nest site, a box was erected in the area and we will keep a close eye on it. Later on this year, a landowner outside of Downpatrick, who hosts several barn owl boxes, found in two of those boxes, a couple of feathers and pellets. The owls were not there during the summer but came after the harvest. It thus appeared that they are using the boxes more as a roost than as a nest site. The landowner said he saw what he think was a juvenile, which might be establishing a new territory. Several camera traps have been placed around in order to understand more how many owls are present and how they are using the boxes and hopefully we will see continued success in 2019.

### 3.3. Boxes

Since the beginning of the year, 28 barn owl boxes have been erected throughout Northern Ireland (Figure 4). A large number have been put around existing nest sites to offer suitable nesting opportunities for fledglings from existing sites. Several partnerships were created with collages including Dungannon and Limavady, as well as Ulster Wildlife's Grassroots Challenge project who, together, helped us to create 14 barn owl boxes. Our thanks to all the adults, young people and volunteers who helped make this happen. While we aim to support everyone who gets in contact with us as there is a high demand to host a box, we have to prioritise possible sites which are the most suitable for barn owls. To help us make this decision we use a suitability matrix containing different 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. Higher scores place interested parties further up the table and those sites that score higher are selected for barn owl box erection.



**Figure 4:** Barn owl boxes erected in 2018.

Noted: 1 square can represent 2 boxes if there were erected at the same location

### 3.4. Pellets analyses

Barn owls regurgitate what is called a pellet (**Picture 3**). It is a small compact mass composed of the indigestible part of their prey like fur and bones. They can provide a lot of useful information about a barn owl's diet. They allow us to identify precisely what prey species are being preyed upon by barn owls, allowing us to build up a picture of what they are eating and the abundance of the prey species in their diet in Northern Ireland. Pellets can also give an indication of when barn owls might be struggling to get sufficient prey. For example, it is rarer

for a barn owl to eat bats, frogs, beetles or little birds than on mice, shrew and rats. Thus, it can indicate that the main prey items are particularly hard to find.

**Table 2** summarizes the contents of pellets from different sites. In Crumlin, the number of prey items per pellet was equivalent to the mean of prey items found across the other sites, even though they received supplementary feeding. This result is positive as it provides some indications that barn owls at that site don't rely on this extra source of food and continue to actively hunt. Another interesting point was the fact that no bird bones or skulls were discovered in the Crumlin's pellets. We assume that, the bones of day-old chicks might be very thin and that, consequently, barn owls can digest them.

Thanks to the pellets that were analyzed, we can say that wood mice constitute the main prey item (75%), following by house mouse (14%), shrew (7%) and rats (4%). Only one bird skull was found, probably a sparrow, with the beak part missing (**Picture 4&5**).



**Picture 3:** Barn owl pellet with a rodent lower jaw bone appearing



**Picture 4&5:** Skull of a bird found in a barn owl pellet

Site	Wood Mice	House Mice	Shrew	Rat	Bird
<b>Ards Peninsula (n=5)</b>	3	1	2	0	0
<b>Crumlin (n=34)</b>	49	12	2	4	0
<b>South Down (n=9)</b>	25	1	3	0	1
<b>Total</b>	77	14	7	4	1
<b>Percentage (%)</b>	74.8	13.6	6.8	3.9	0.9

**Table 2:** Composition of barn owl pellets coming from three different sites in Northern Ireland

#### 4. Limitation

Since the start of the barn owl project, more than 437 (or 525) sites have been checked, but unfortunately, we still only know of too few nest sites. Despite the fact that barn owls are very scarce in Northern Ireland, here are some hypothesis about the difficulties faced finding 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 here. 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 us finding 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 interesting to have a few but allocate them in site where barn owls are more likely to be found.

Finally, as highlighted last year, 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 area where we are lacking sightings in order to see whether or not the actual distribution is reflective of our data.

## 5. Future plans

In order to facilitate our work, and increase our knowledge on barn owls in Northern Ireland, some ambitious projects are under discussion and we hope to set them up next year. First, we would like to install a webcam in one of the active known nest site, with an appropriate licence. This webcam will be running out 24/7 and everyone would be able to follow the pair in live. In addition to engage more people and raise awareness, it will give us access to an incredible amount of information about barn owl ecology and behaviour.

Secondly, since we monitor active known nest site, none of the young produced were found after fledging. To be able to locate where they are establishing their new range and where they are nesting/roosting, we would like to investigate placing radio tracking or satellite tracking devices on them.

Finally, one of our nest minders, has trained his young dog to sniff barn owl pellets. The well named Tyto (**Picture 6**) will hopefully become an iconic member of the project by helping us locate new nest site thanks to her highly developed sense of smell.



**Picture 6:** Tyto, the future barn owl conservation dog.

## 6. Conclusion

In Northern Ireland, barn owls remain very scarce and hard to find. The annual survey, performed by our 49 volunteers during the summer, had allowed to check 108 sites. Whereas 6 new long-eared owl nest sites have been recorded, including the identification of a winter communal site, no evidence of Barn Owl have been discovered by the survey. We have increased the amount of data however with sightings by locals, new potential nest sites and boxes that needed replacing all being reported back to us. We are delighted to see that the survey represent an important way to raise awareness among people as we noted a clear peak in the number of sightings reported to us during the survey season.

The year 2018 was one of mixed success, one of the three sites from last year was recorded as inactive this year. In 2017, the male was injured by a car and is not fit to be released. Out of the two other known nest sites the north Down site successfully fledged 2 chicks, an average for the site. Meanwhile in Crumlin the nest-minder of the site helped the breeding pair to raise 5 healthy barn owl chicks with limited supplementary feeding during poor hunting weather. At both sites, the chicks were ringed to help us monitor dispersal. In addition much of our barn owl box erection effort has focused on these areas, in total, 28 boxes were erected throughout Northern Ireland since the January 2018.

In addition, we received two very encouraging records of potential nest sites. Barn owl chicks were heard this summer in a new location, and even though the precise location was not found, we are hoping to pin-point it soon. Finally, a farmer reported the presence of barn owls on his land later on this year, and feathers and pellets were found in two barn owl boxes previously erected by the project.

Finally two ambitious projects are under discussion for the future. We are investigating the potential of radio tracking the young fledglings at these sites and investigating the installation of a permanent webcam in one of our known nest sites. This will enable us to gather essential information about barn owl ecology and behavior and to raise awareness amongst local people. We are looking forward to the year 2019 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.



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