

# Bat Survey Report

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## Carnegie Library, Swords, Co. Dublin

January 2021

Prepared for:  
Fingal County Council



O'DONNELL   
ENVIRONMENTAL

## Summary

**Project:** Renovation and extension of Carnegie Library, Swords, Co. Dublin.

**Report by:** Tom O'Donnell BSc (Hons) MSc CEnv MCIEEM.

**Statement of Competence:** Tom O'Donnell is a Chartered Environmentalist and a full member of the Chartered Institute of Ecology and Environmental Management. He was awarded a BSc in Environmental and Earth System Science [Applied Ecology] in 2007 and an MSc in Ecological Assessment in 2009, both from UCC. Tom has over 10 years professional experience in the environmental industry, including working on projects such as windfarms, overhead power lines, roads, cycleways and residential developments. Tom is licensed by NPWS for roost disturbance (Ref: DER/BAT 2021-04) and to capture bats (C181/2020).

Project Reference: 2020/50			
Document Rev. No.	Status	Contributor	Date
A	Draft Issue	TO'D	17.12.2020
1	Final Issue	TO'D	18.01.2021

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# 1 Introduction

O'Donnell Environmental was commissioned by Fingal County Council to undertake a Bat Survey in relation to proposed works at Carnegie Free Library, Swords, Co. Dublin.

Fingal County Council (FCC) intends to undertake refurbishment and extension works at Carnegie Free Library, Swords, Co. Dublin. The proposed works will be the subject of a Part 8 planning application.

The aims of the study were to determine the following:

- If bat roosting is occurring or likely to occur in the zone of influence of the proposed works.
- The diversity and relative abundance of bats present in the environs of the study area.

The purpose of this report is to assess and evaluate the importance of the existing structures to bats. Where appropriate avoidance or mitigation measures will be suggested.

The site of the proposed works is within the urban area of Swords Co. Dublin. A site location map is presented in **Figure 2.1**.

Elements of the proposed works which have potential to impact on bats include the following:

- Repair, alteration or replacement of existing roofing, fascia or soffit of the building.
- Alteration or demolition of the associated outbuildings (toilet block) on the northern side of the existing library building.
- Extension of the building or other associated works (incl. external lighting) which has potential to cause disturbance directly or indirectly to bats roosting within the structure of the library building or adjoining (unrelated) buildings.

## 1.1 LEGAL STATUS OF BATS

All bat species and their roosting sites are strictly protected under both national and international law. The purpose of this legislation is to maintain and restore bat populations within their natural range. Where human activities have the potential to compromise bat populations, measures are required to be put in place to avoid impacts or compensate and mitigate for those impacts.

The key legislation which provides protection to bats is as follows:

- Wildlife Act (1976) and subsequent amendments which makes it unlawful to intentionally disturb, injure or kill a bat or disturb its resting place without a licence to derogate from Regulation 23 of the Habitats Regulations 1997, issued by NPWS.
- The EU Habitats Directive (which has been transposed into Irish law with the European Communities (Birds and Natural Habitats) Regulations 2011) which seeks to protect rare species, including bats, and their habitats and requires that appropriate monitoring of populations be undertaken. All Irish bat species are listed in Annex IV, while Annex II provides additional protection for the Lesser Horseshoe Bat.

## 2 Methodology

### 2.1 DESKTOP REVIEW

A desktop review of publicly available relevant data was undertaken on the National Biodiversity Data Centre (NBDC) and National Parks & Wildlife Service (NPWS) websites<sup>1</sup>. The National Biodiversity Data Centre was reviewed for relevant data, specifically i) existing species records for the 2km square in which the study site is located (O14Y) and ii) an indication of the relative importance of the wider landscape in which the study site is located, based on Model of Bat Landscapes for Ireland (Lundy et al. 2011). In the latter, the index ranges from 0 to 100, with 0 being least favourable and 100 most favourable for bats.

Bat Conservation Ireland (BCI) conducted a search of their records database at the request of O'Donnell Environmental on 5<sup>th</sup> November 2020. The relevant search area included a 1km radius from a central point within the proposed site.

### 2.2 VISUAL ROOST SURVEY

Daytime visual assessments were carried out by Tom O'Donnell BSC (Hons) MSc CEnv MCIEEM to identify any bat roosting potential which may exist within the zone of influence of the proposed works. Photographs of the study area are shown in **Appendix A**.

The assessment was carried out on 5<sup>th</sup> October 2020 and followed guidance set out in Collins (2016). The survey was non-destructive, and relevant Potential Roost Features (PRFs) were visually inspected to identify any evidence of bat roosting. Signs of bat use include bat droppings, feeding remains, potential bat access points identified by characteristic staining and scratches, noise made by bats etc.

Potential Roost Features (PRFs) are described according to the scheme outlined in **Table 2.1**, below.

**Table 2.1. Scheme for describing the potential suitability of features for bats**

Suitability	Description
Negligible	Negligible features which are likely to be used by roosting bats.
Low	A feature with one or more potential roost sites that could be used by individual bats opportunistically. Potential roost sites which do not provide appropriate conditions and / or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.

<sup>1</sup> Accessed 15<sup>th</sup> December 2020

Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to characteristics and surrounding habitat but unlikely to support a roost of high conservation status.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

*After 'Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition)', Collins (2016).*

## 2.3 BAT ACTIVITY SURVEY

An emergence (dusk) survey was carried out on 5<sup>th</sup> October 2020 following Collins (2016) to characterise bat activity in the area and to seek to identify any bat access or egress. The survey was carried out by two Surveyors, Tom O'Donnell BSc (Hons) MSc CEnv MCIEEM and Dr. Emmett Clarkin BSc, MSc, PhD. BSc, MSc, PhD. One surveyor (TO'D) was positioned at the front (west) of the building and the other (EC) was positioned at the back (east) of the building, to ensure sufficient coverage of the structure. The survey commenced at 18:20 and continued until 20:35. Sunset in Dublin on the 5<sup>th</sup> October 2020 was 18:51.

The survey was carried out during suitable weather conditions. Wind speed was estimated at F1 or 2, temperature was 12 °C, visibility was good, and no precipitation occurred during the survey. Recordings were made on handheld Echo Touch Meter Pro 2 full spectrum recorders.

### 2.3.1 Data Analysis

Bat activity sonograms were analysed using Wildlife Acoustics Kaleidoscope Professional sound analysis software and identifications were manually verified.

## 2.4 EVALUATION & IMPACT ASSESSMENT

Evaluation of ecological features follows the NRA (now TII) publication 'Guidelines for Assessment of Ecological Impacts of National Roads Schemes' (2009). Impact assessment follows 'Guidelines on The Information to be Contained in Environmental Impact Assessment Reports' published by the EPA (2017).

Reporting follows Chartered Institute of Ecology and Environmental Management (2018) 'Guidelines for Ecological Impact Assessment in the UK and Ireland - Terrestrial, Freshwater, Coastal and Marine'.

## 2.5 SURVEY LIMITATIONS

The survey occurred in early October which is in the transition period between autumn activity and winter hibernation periods. The survey occurred in suitable weather conditions at a time when bat activity was occurring elsewhere. Seasonality of the emergence survey is not considered to be a limiting factor in this instance.

Full access to the interior and exterior of the building (and associated outbuildings) was available. The building does not contain an attic space. Survey at height was not carried out and the survey was non-destructive.



## 3 Results

The proposed site occurs in an urban context in Swords, Co. Dublin. The site and its immediate environs contain no natural or semi-natural habitat. Foraging habitat is suboptimal or absent in this area. The study site has limited landscape connectivity for most Irish bat species (which tend to follow landscape features in flight) as a result of a lack of linear landscape features such as treelines and an abundance of artificial light and noise pollution.

### 3.1 DESKTOP SURVEY

#### 3.1.1 Sites of International Importance

Special Areas of Conservation (SAC) are sites that are deemed to be of European (i.e., international) importance. They form part of a network of sites to be designated across Europe in order to protect biodiversity within the community, known as Natura 2000 sites.

The development site is not located within such a site and is not proximal to any Natura 2000 site which includes bats in its conservation interests, and therefore is not relevant to the current assessment.

#### 3.1.2 Sites of National Importance

At a national level, the basic unit of conservation is the Natural Heritage Area or proposed National Heritage Area (NHA/pNHA). NHAs are designated to protect habitats, flora, fauna and geological sites of national importance.

There are no NHAs within 5km of the proposed site. Three pNHAs occur within 5km of the proposed site, the nearest of which is Malahide Estuary pNHA (0205) (see **Table 3.1**). Bats are not relevant to the qualifying interests of Malahide Estuary and Rogerstown Estuary pNHA's. No site synopsis is available for Feltrim Hill pNHA.

**Table 3.1 - Proposed National Heritage Areas within 5 km of the proposed site**

Site Name	Site Code	Distance
Malahide Estuary	0205	920m
Rogerstown Estuary	0208	4.2km
Feltrim Hill	1208	2.6km

#### 3.1.3 Data Search

National Biodiversity Data Centre holds no previous records of bat presence from within the 2km square (O14Y) in which the proposed site is located. The absence of species records reflects lack of data as opposed to an absence of bats from the relevant area. The following species have previously been recorded in the 10km square (O14) in which the site is located:

- Brown Long-eared Bat (*Plecotus auritus*)
- Daubenton's Bat (*Myotis daubentonii*)



- Leisler's Bat (*Nyctalus leisleri*)
- Natterer's Bat (*Myotis nattereri*)
- Pipistrelle (*Pipistrellus pipistrellus*)
- Soprano Pipistrelle (*Pipistrellus pygmaeus*)

Bat Conservation Ireland holds no records of bat roosts within 1km of the study site.

The overall bat suitability index value (35) according to 'Model of Bat Landscapes for Ireland' (Lundy *et al.* 2011) suggests the landscape in which the proposed site is located is of moderate suitability for bats in general. Species specific scores are provided in **Table 3.2**. The Annex II (EU Habitats Directive) listed bat species, Lesser Horseshoe Bat, is assigned a score of zero as the proposed site is outside the known range for this species.

**Table 3.2 - Suitability of the study area for the bat species according to 'Model of Bat Landscapes for Ireland' (Lundy *et al.* 2011).**

Common name	Scientific name	Suitability index
<i>All bats</i>		31.22
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	45
Brown long-eared bat	<i>Plecotus auritus</i>	42
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	44
Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>	0
Leisler's bat	<i>Nyctalus leisleri</i>	46
Whiskered bat	<i>Myotis mystacinus</i>	38
Daubenton's bat	<i>Myotis daubentonii</i>	31
Nathusius pipistrelle	<i>Pipistrellus nathusii</i>	1
Natterer's bat	<i>Myotis nattererii</i>	34

### 3.2 VISUAL ROOST SURVEY

The proposed project will involve works affecting or in close proximity to structures such that disturbance to roosting bats would be caused should they be present. Daytime visual inspection was carried out with the aim of identifying bat roosts by either the presence of bats or the presence of signs of past bat roosting. A detailed visual survey was carried out inspecting all internal areas of the building including adjoining toilet buildings. All visible areas of the external facade of the building were viewed from ground level with a view to identifying any access/egress points. The survey was non-destructive.

Bats were not confirmed to be roosting at the study site and no evidence of current or historic roosting was found during internal and external inspections of the Carnegie Free Library building and associated outbuildings. Based on visual observations and discussion with the Client Representative (Morgan O'Shea, Fingal County Council), a small gap is thought to exist between the boards which form the internal ceiling and the underside of the roof slates. The roof slates are sealed internally with a mortar mix which was applied to the underside of the slates. Fragments of mortar are widely distributed on surfaces in the upper stories where it has fallen through the gaps in the ceiling boards. It is considered likely that bat droppings

would also fall through these gaps and would be visible in the first-floor rooms, should bats be roosting in this space between ceiling boards and roof slates. Most areas of the first-floor rooms appear to have been largely undisturbed in the months prior to the site survey.

Based upon the results of the visual roost survey, and considering the local context of the target buildings, the study site is considered to be of 'low' likelihood to support roosting bats.

Potential roosting opportunities are present in the study site (and widely in the surrounding area) as it often the case in urban areas.

### 3.3 BAT ACTIVITY SURVEY

No evidence of bat roosting was observed during the emergence (dusk) survey carried out on the 5<sup>th</sup> of October 2020. A very low level of bat activity was recorded during this survey, by both Surveyors. Of the nine species resident in Ireland, three species of bats were encountered namely Common Pipistrelle (*Pipistrellus pipistrellus*) Soprano Pipistrelle (*Pipistrellus pygmaeus*) and Leisler's Bat (*Nyctalus leisler*). These species are common and widespread species in Ireland.

The results of the analysis of the data collected during the emergence survey are presented below in **Table 3.3**.

Two surveyors were simultaneously observing the buildings, aided by the use of ultrasonic detectors. One Surveyor (TO'D) was positioned on the western side of the site while the second (EC) was positioned on the eastern side of the site.

The majority of detections were recorded by the Surveyor positioned on the west of the study site. All Soprano Pipistrelle recordings which were recorded on the western side of the site (see **Figure 3.1**) were made when the Surveyor was positioned on the west of North Road (i.e. opposite side of the road from Carnegie Library - to maximise visibility of the target building). From the location of the Surveyor at the time of detection, the uninterrupted views of the study site available at the time and the weakness of the signal recorded, it is inferred that the Soprano Pipistrelle(s) was west of North Road (behind the Surveyor) at the time of detection. This area is well-connected to grassland, treelines and riparian habitat which is likely to represent suitable foraging habitat for bats.

Soprano Pipistrelle registrations were recorded from this western location included some registrations recorded 7 minutes after sunset. The early recording time of these calls' relative to the average emergence time of pipistrelles (approximately 20 minutes after sunset) indicates proximity to a roost. As discussed, these early-night Pipistrelle registrations were faint which indicates the bats were not in proximity to the detector when recorded and at a distance greater than approximately 20m. Uninterrupted views of the target buildings were available at the time of these detections and therefore it can be stated that the bat(s) had not emerged from the study site or its immediate environs.

One Soprano Pipistrelle registration was detected by the Surveyor on the eastern side of the study site (ED) and this bat was relatively close to the Surveyor at the time of detection. This recording was made 74 minutes after sunset and was not visually detected by the surveyor. Again, it can be stated that the bat(s) had not emerged from the study site or its immediate environs.

Small numbers of Leisler's Bats were detected by both Surveyors. These large and relatively high--flying species tend not to follow landscape features in flight. They are a relatively early emerging species, which emerge an average of 18 minutes after sunset (Jones & Rydell, 1994). The times of first detection and lack of direct observation of these bats by Surveyors indicate that the individuals recorded had not emerged from the target buildings or their environs.

**Table 3.3 - Results of the analysis of data from emergence (dusk) survey on 5<sup>th</sup> October 2020.**

Time	Species	Surveyor	Comment
18:58:45	Soprano Pipistrelle	TO'D	Bat distant from recorder at time of detection. Not observed and inferred to be from west of North Street.
18:58:55	Soprano Pipistrelle	TO'D	Bat distant from recorder at time of detection. Not observed and inferred to be from west of North Street.
19:10:48	Soprano Pipistrelle	TO'D	Bat distant from recorder at time of detection. Not observed and inferred to be from west of North Street.
19:33:11	Leisler's Bat	TO'D	Bat not observed and likely flying at height.
19:44:19	Common Pipistrelle	TO'D	Bat distant from recorder at time of detection. Not observed and inferred to be from west of North Street.
20:05:22	Soprano Pipistrelle	EC	Bat not observed but strength of recording indicates relative proximity to Surveyor.
20:11:45	Leisler's Bat	EC	Bat not observed and likely flying at height.
20:11:45	Leisler's Bat	TO'D	Bat not observed and likely flying at height.

In order to confirm that bats were otherwise active and foraging in other suitable areas (i.e. that the survey was not limited by seasonality or weather conditions) a brief survey was undertaken in the grounds of Swords Castle, adjoining the Ward River, following the emergence survey. Several Common and Soprano Pipistrelles were actively foraging in this area.



**Figure 3.1**  
**Active Survey Results**

**Project:**

Carnegie Library, Swords, Co. Dublin

**Prepared for:**

Fingal County Council

Tom O'Donnell CEnv MCIEEM  
D: 15/12/2020


*Aerial photography - © Bluesky Geospatial Ltd.*


**Legend**

 Site Boundary

**Bat Registrations**

 Leisler's Bat

 Common Pipistrelle

 Soprano Pipistrelle

### 3.4 SUMMARY OF RESULTS

Three bat species have been recorded foraging in the environs of the Carnegie Free Library Buildings, Swords, Co. Dublin.

The potential importance of buildings within the study area to bats is limited by the unavailability of proximal foraging and commuting habitat and the high level of anthropogenic disturbance (light in particular but also noise) which occurs in this location.

No evidence of bats roosting, current or historic, was recorded during daytime visual inspection.

Good views were available to both Surveyors of the target buildings through the emergence (dusk) survey (aided by the above-mentioned public lighting). No bats were observed to be departing the target buildings or adjoining buildings.

Analysis of bat data recorded provides no evidence of bat roosting at the study site. With one exception, Pipistrelle bat registrations recorded were faint and relatively distant from the Surveyor. The signals were inferred to be coming from the area to the west of North Road. One Pipistrelle was recorded in relative proximity to the target buildings but had not emerged from them. The timing of Leisler's Bat calls and the lack of visual observation indicate that this species also had not emerged from the target buildings.

### 3.5 RECOMMENDATIONS

No specific timing restrictions are recommended.

Ecological supervision during roof stripping works is not considered warranted in this instance.

Removal of slates and fascia and soffit will be carried out by hand and using hand-tools only.

A toolbox talk will be provided to construction staff in advance of roof stripping of the main roof and the demolition of the associated outbuildings. This tool-box talk will set out the actions to take in the event bats are discovered during works. In that event, works will stop immediately and the advice of an Ecologist will be sought.

## 4 Discussion

The Carnegie Free Library, Swords, Co. Dublin, is considered to have low potential for roosting bats due to its local context. A comprehensive and appropriate study has been carried out and no evidence of bat roosting, current or historic, could be found. The study area and its immediate environs does not contain semi-natural habitat or any habitat that could be important for commuting or foraging bats. The proposed site is considered to be of 'lower local importance' to bats.

No further survey effort is considered warranted in this instance. Recommendations are presented herein to reduce the likelihood of injury to bats during works, in the unlikely event that bats are present. No additional avoidance or mitigation measures are considered warranted in this instance. Similarly, enhancement measures are not considered to be warranted in this instance.

Overall, the proposed works are likely to have a 'neutral' impact on bat conservation locally.

## 5 References

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# Appendix A – Photographic Record





**A1.** Western elevation of Carnegie Free Library, Swords.  
Associated outbuildings visible on left.



**A2.** Eastern elevation of Carnegie Free Library, Swords.



**A3.** Outbuildings.



**A4.** First floor ceiling of main building.



**A5.** First floor ceiling of main building.



**A6.** Ground floor of main building.

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