



**A bat assessment and derogation application for phase 1A in  
Athlumney, Navan, Co Meath**

**For Orian Wave Ltd**



**By Donna Mullen M.P.P.M D.E.N.V.S. P**

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**Wildlife Surveys Ireland Ltd**

**Maio, Tierworker, Kells Co Meath**

**Date of survey July 2024**

**[www.wildlifesurveys.net](http://www.wildlifesurveys.net)**



## Summary

A survey took place in 2019 and found common pipistrelles roosting in at least 2 places in the barn on the site.

A second survey took place in May 2021. There was good bat activity on the site, with common and soprano pipistrelles feeding frequently around the barn and hedgerow, and some Leisler's bat activity was recorded. No bats were found roosting in the barn 2021, however there were high levels of bat activity around the barn, with bats feeding and social calling within the barn.

A third bat survey took place using remote detectors over 3 weeks in December 2023/ Jan 24. Although this survey took place in wintertime, there was bat activity over several nights within the barn. It may act as a sheltered feeding site. Social calls were also recorded, and bats may have mating roosts within the building. Most activity was of soprano pipistrelles, with activity seen over several nights and over a thousand sound files recorded. Common pipistrelles were also recorded within the barn, feeding and social calling.

A fourth survey took place in July 2024. No bats were found to be feeding or roosting within the barn on this occasion. Three species of bat were feeding outside.

### **Bat species found roosting on the site in July 2024.**

None

### **Bat species found feeding and commuting on the site 2024.**

Common pipistrelle -*Pipistrellus pipistrellus*

Soprano pipistrelle – *Pipistrellus pygmaeus*

Leisler's bat – *Nyctalus Leisleri*

### **Bat species found feeding and social calling within the barn Dec 2023**

Common pipistrelle -*Pipistrellus pipistrellus*

Soprano pipistrelle – *Pipistrellus pygmaeus*

### **Bat species found roosting on the site in Sept 2019.**

Common pipistrelle -*Pipistrellus pipistrellus*

### **Bat species found feeding and commuting on the site in 2019 and 2021.**

Common pipistrelle -*Pipistrellus pipistrellus*



Soprano pipistrelle – *Pipistrellus pygmaeus*

Leisler's bat – *Nyctalus Leisleri*

## Recommendations

(1) The barn was a roost of common pipistrelles in 2019. In survey, Dec – Jan 2023-2024, there was much soprano pipistrelle activity within the barn. However, no roosts were found in summertime (July 2024) when the most recent survey took place. A derogation licence must be applied for if the barn is being demolished, and the demolition must be supervised by an ecologist. Timbers in the roost area must be removed by hand. If the demolition takes place in the winter, a heater should be placed overnight in the barn, near the roost area, prior to demolition. This will allow the temperature to rise, so bats will not be in torpor.

(2) Five 2F and Six 1FF Schwegler bat boxes with built-in timber panel bat boxes must be put in place. These should be placed on trees or posts, at least 3m high, with a clear drop below (as bats need to drop to start their flight). These can be purchased from <https://www.veldshop.nl/en/schwegler-bat-box-2f.html> and <https://www.veldshop.nl/en/schwegler-flat-bat-box-1ff-with-built-in-wooden-re.html>

These have been used by common and soprano pipistrelles in Golashane Nature reserve in Kells, Co Meath. They must be placed in a dark area. These must be in place prior to any tree felling or demolition.

(3) Bats may suffer a loss of feeding. Native shrubs and trees will be used within the new development. Where other climbers and shrubs are required, they should be taken from the approved list from the All-Ireland Pollinator Plan - <http://www.biodiversityireland.ie/wordpress/wp-content/uploads/Pollinator-friendly-planting-code-temporary-draft.pdf>

Ponds will also be created within the site. See landscape plan, Appendix II.

(4) If bats are discovered at any stage of the development, building work must cease and myself and the wildlife ranger must be contacted.

(5) Light spillage and pollution must be kept to a minimum with the use of cowls, caps, and low-level bollard lighting where possible. See Appendix III for the proposed dark skies areas.

Lighting design will be in accordance with

[Bats and Lighting](#) – Guidance Notes for Planners, Engineers, Architects, and Developers (Bat Conservation Ireland, 2010).

- [Bats and Lighting in the UK](#) – Bats and the Built Environment Series (Institute of Lighting Professionals, September 2018).
- [Guidance Notes](#) for the Reduction of Obtrusive Light GN01 (Institute of Lighting Professionals, 2011).

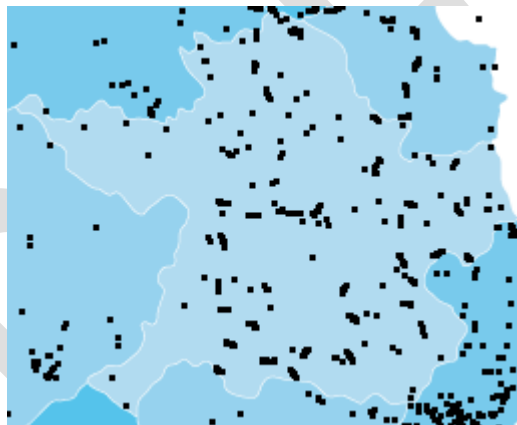


(6) Trees which are ivy clad, have trunks over 30cm diameter, or which have cracks or crevices must be checked for bats by an ecologist prior to felling. Where possible, mature trees should be retained. Dead trees may be pollarded and retained.

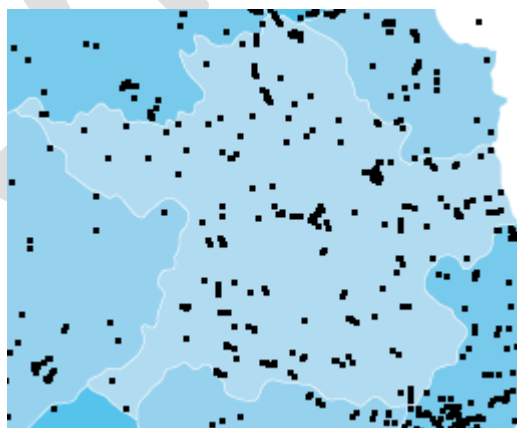
(7) If bats or nesting birds are discovered at any stage of the building work, building work must cease and a bat specialist and the Conservation Ranger must be contacted.

**Desktop data, including details of previous bat surveys on this site.**

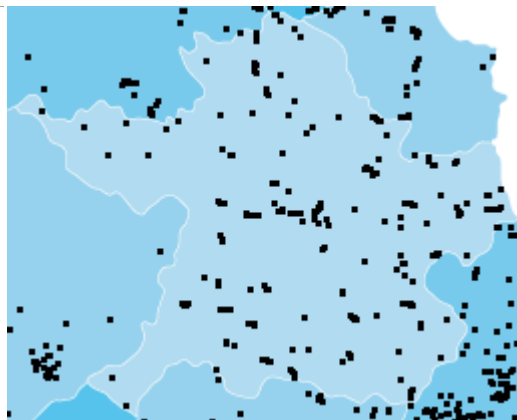
**Distribution data.**



**Distribution of common pipistrelles in Meath**



**Distribution of soprano pipistrelles in Meath**



### Distribution of Leisler's bats in Meath

Thanks to Bat Conservation Ireland for their data.

#### Bat data within 1km of the site

BCIreland data: search results 8 Jan 2024					
Search parameters: Roosts Transects Ad-hoc observation sites with observations of all species within 1000m of N8900168029					
Roosts					
Name	Grid reference	Grid ref easting	Grid ref northing	Address	Species observed
The Rectory Boyne Road	N888687	288800	268700	Boyne Road, Navan, County Meath	Pipistrellus pygmaeus
Transects					
Name	Grid reference start	Grid ref easting start	Grid ref northing start	Species observed	
Ramparts 1 Transect 1	N8816968393	288169	268393	Myotis daubentonii, Unidentified bat	
Ramparts 1	N8877268363	288772	268363	Myotis daubentonii	



Transect 10					
Ramparts 1 Transect 2	N8813268270	288132	268270	Myotis mystacinus/brandtii, Myotis nattereri, Myotis daubentonii	
Ramparts 1 Transect 3	N8808268167	288082	268167	Pipistrellus pygmaeus, Pipistrellus pipistrellus (45kHz), Unidentified bat, Myotis daubentonii	
Ramparts 1 Transect 4	N8803768074	288037	268074	Myotis daubentonii, Unidentified bat	
Ramparts Transect 2	N8825968497	288259	268497	Pipistrellus pygmaeus, Pipistrellus pipistrellus (45kHz), Pipistrellus spp. (45kHz/55kHz), Nyctalus leisleri, Myotis spp.	
Ramparts Transect 3	N8828968532	288289	268532	Myotis daubentonii, Pipistrellus pygmaeus, Pipistrellus pipistrellus (45kHz), Pipistrellus spp. (45kHz/55kHz), Nyctalus leisleri, Myotis spp.	
Ramparts Transect 4	N8836668619	288366	268619	Nyctalus leisleri, Pipistrellus spp. (45kHz/55kHz), Pipistrellus pygmaeus, Unidentified bat, Myotis spp.	
Ramparts Transect 5	N8844268699	288442	268699	Myotis daubentonii, Pipistrellus pygmaeus, Pipistrellus spp. (45kHz/55kHz), Myotis spp.	
Ramparts Transect 6	N8852768797	288527	268797	Myotis daubentonii, Unidentified bat, Pipistrellus pygmaeus, Nyctalus leisleri, Myotis spp.	
Ramparts Transect 7	N8854268904	288542	268904	Myotis daubentonii, Pipistrellus pygmaeus, Nyctalus leisleri, Myotis spp., Pipistrellus pipistrellus (45kHz)	
Ramparts Transect 8	N8852569018	288525	269018	Myotis daubentonii, Myotis spp., Nyctalus leisleri, Pipistrellus spp. (45kHz/55kHz), Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus	
Ad-hoc observations					
Survey	Grid reference	Grid ref	Grid ref	Date	Species observed





		east ing	north ing		
Bat Eco Services	N8857168873	288571	268873	#####	Nyctalus leisleri
Bat Eco Services	N8818768390	288187	268390	#####	Myotis nattereri
Bat Eco Services	N8869469010	288694	269010	#####	Pipistrellus pygmaeus
Bat Eco Services	N8856868876	288568	268876	#####	Pipistrellus pygmaeus
Bat Eco Services	N8856268883	288562	268883	#####	Pipistrellus pygmaeus
Bat Eco Services	N8853368863	288533	268863	#####	Pipistrellus pygmaeus
Bat Eco Services	N8852768798	288527	268798	#####	Pipistrellus pygmaeus
Bat Eco Services	N8850968779	288509	268779	#####	Pipistrellus pygmaeus
Bat Eco Services	N8847868720	288478	268720	#####	Pipistrellus pygmaeus
BATLAS 2020	N8813468440	288134	268440	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Nyctalus leisleri, Myotis daubentonii

For bat data within 10km of the site see Appendix IV

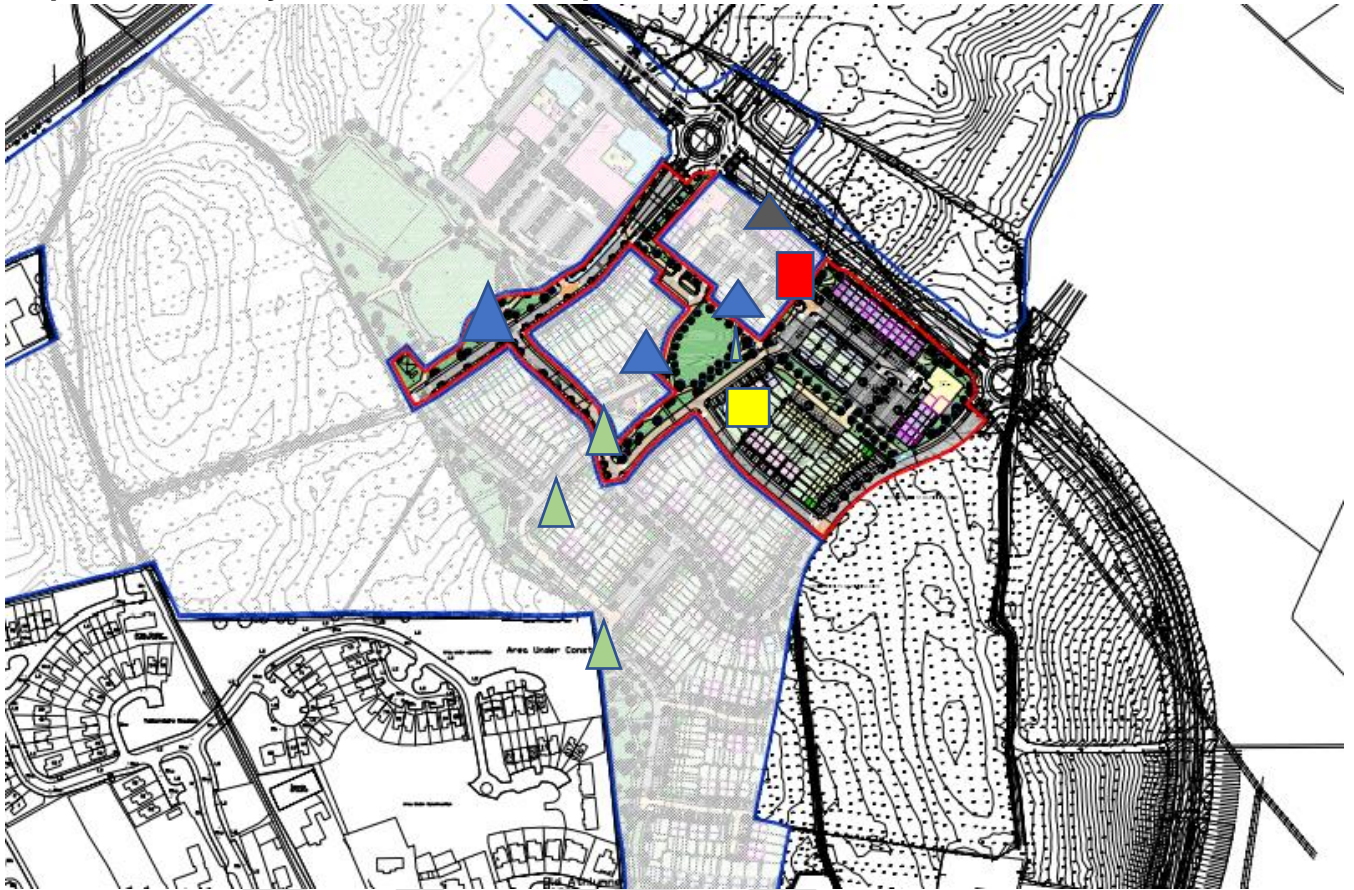
Previous roosts identified in the barn in 2019 – Common pipistrelles.



**Roost areas in joists**



**Map of bat activity on site in 2019 - September**



**Blue triangle – Common pipistrelle**

**Green Triangle- Soprano pipistrelle**

**Grey triangle – Leisler's bat**

**Yellow Square – Barn owl**

**Red square – Common pipistrelle roost**

**Map of bat activity as recorded by EM3 Brian Keeley May 2021**



**Blue paddle Soprano pipistrelle Starred blue paddle Last soprano pipistrelle signal.**

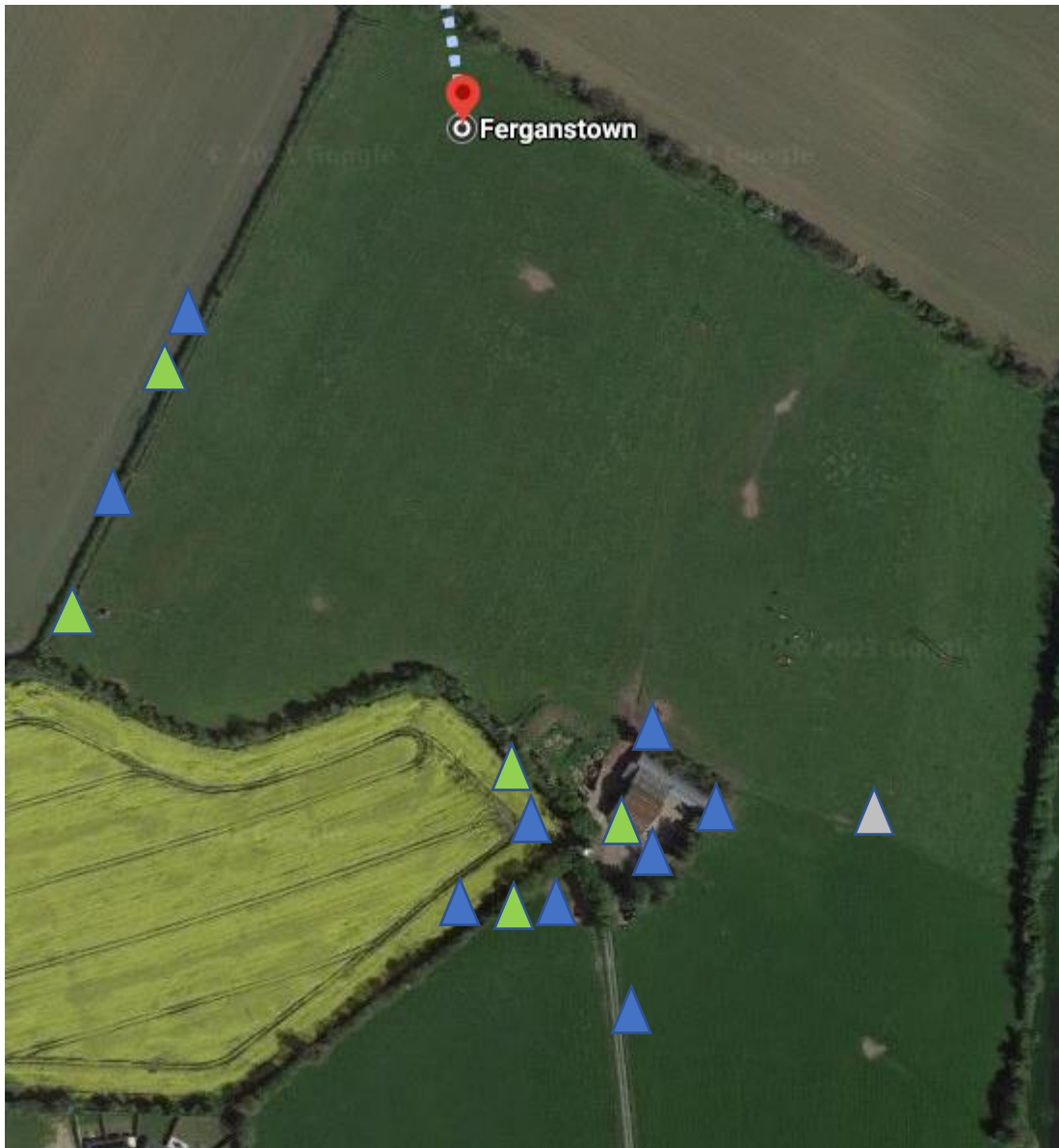
**“2” Both pipistrelle species green paddle Common pipistrelle**

**Yellow paddle Leisler’s bat**

**Mini Location of Song meter Mini from circa 22.20 hours to 05.14 hours**



**Map of main bat activity May 2021**



**Blue triangle – Common pipistrelle**

**Green Triangle- Soprano pipistrelle**

**Grey triangle – Leisler's bat**

**Proposal**

Application for 98 dwellings, with access, services etc. The barn is due for demolition. See Appendix I for details.



**Complexity of lands and ability to cover ground during surveys** –All areas were accessible.

### **Survey constraints**

(1) Mobility of bats – Bat species are mobile and can move from roost to roost, depending on roost availability, feeding availability and weather conditions. They may move to roosts which have not been identified in this report in order to hibernate or create mating or feeding perches. A bat survey is a snapshot of bat activity over the survey time.

(2) Identification of bats- It can be difficult to differentiate myotis species. For this reason, sound files are included within the report. Brown long eared bats are very quiet, and their presence can be overlooked in bat surveys as they may not register on bat detectors.

(3) Timing of survey. Bat surveys generally take place when the bats are active – May – September. A bat survey which takes place outside these dates may miss roosting activity. Because of this the precautionary principle is applied and the building will be checked manually for roosting bats prior to any demolition.

### **Methodology for Bat Survey**

Bat Survey – Equipment

Exide Lamp

Petzl Tikka Head torch

Two Mini song meter Bat plus time expansion detector and analysis software, in place for 3 weeks Dec – Jan

In July Song Meter Mini Bat remote detectors with Kaleidoscope Pro sound analysis

One thermal imager

One ladder

One handheld Echo meter Touch detector one Anabat walkabout.

Surveys are designed with reference to the recognised documents below:

- Heritage Council's Bat Survey Guidelines for the Traditional Farm Buildings Scheme
- National Parks and Wildlife's Bat Mitigation Guidelines for Ireland



- Bat Surveys: Surveying Buildings (Including Bat Identification) Developed on behalf of the Bat Conservation Trust
- English Nature's Bat Mitigation Guidelines
- - Bat surveys for Professional Ecologists - good practice guidelines; fourth edition (2023); Bat Conservation Trust; London.
- - A conservation plan for Irish Vesper Bats , Irish Wildlife Manual No. 20; National Parks and Wildlife Service; Department of Environment, Heritage and Local Government. - The status of E.C. Protected Habitats and Species in Ireland - Conservation status in Ireland of habitats and species listed in the European Council directories on Conservation of Habitats; Flora and Fauna 92/43/EFC. ( Department of Environment, Heritage and Local Government) –
- Bat Mitigation Guidelines for Ireland (Irish Wildlife Manual no.25) Department of Environment, Heritage and Local Government.

**Date** -15/12/2023 - 5/1/2024

9 July 2024

**Sunrise / Sunset** 21.54, 5.09 July 9th

**Weather Conditions** Winter survey -Bats generally hibernate below 7C, so surveys are best undertaken in summertime. However, on several nights' temperatures were above 11C and there was bat activity seen in Meath.

Summer survey -12C to 8C Light rain

### **Habitat Classification**

GA1, WL1, WI5, WD5, BL1, BL3, BC1

### **Proposal**

Application for 98 dwellings, with access, services etc. The barn is due for demolition. See Appendix I for details.

## Bat Survey Winter 2024

The building and trees were checked for signs of bats, droppings, staining etc. None were seen. Two remote detectors were put in place to see if bats were active within the barn over the Christmas and new year period.



**Placement of bat detectors, one below the old 2019 roost area, and one in the annex**

The external shed was also checked for bat usage. No bats were seen.



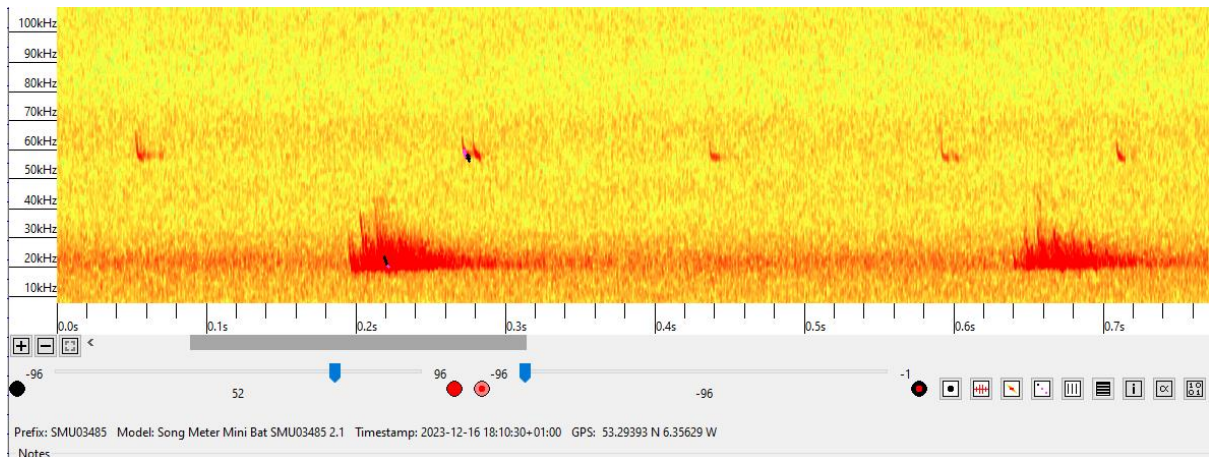
**Shed**

The trees surrounding the barn are conifers and have low bat roosting potential.



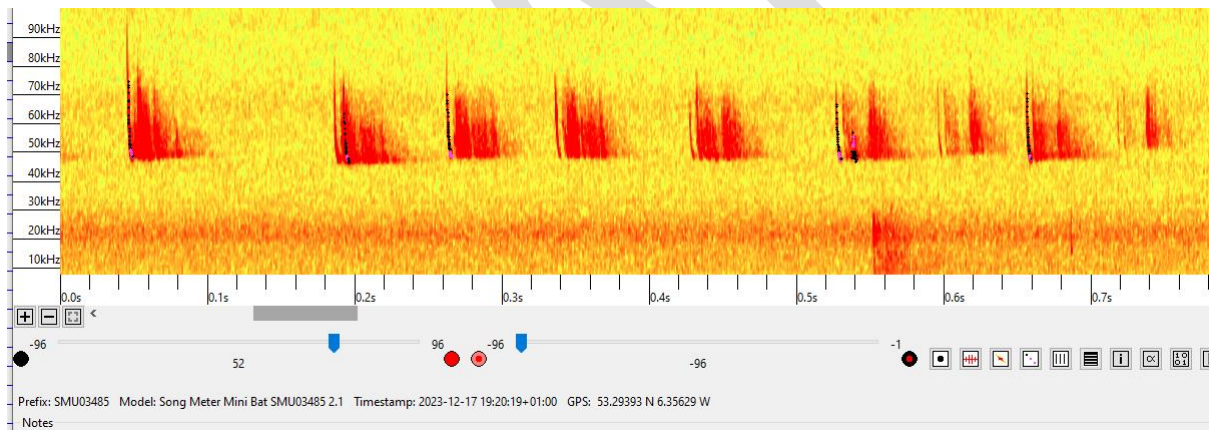


On 16 Dec 2023, a soprano pipistrelle was social calling within the barn at 18.10.



**Soprano pipistrelle**

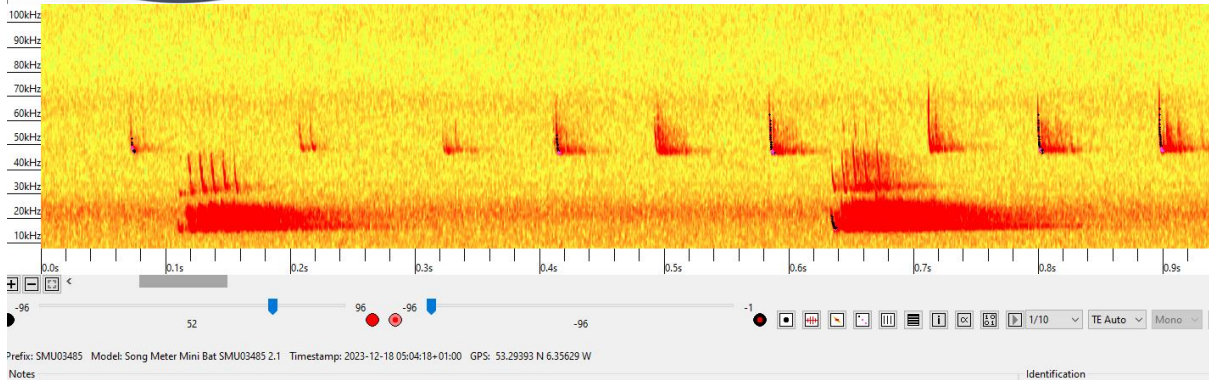
On 17<sup>th</sup> of December, a common pipistrelle was flying close to the tin (see the echoes bouncing on the trace) within the barn at 17.20.



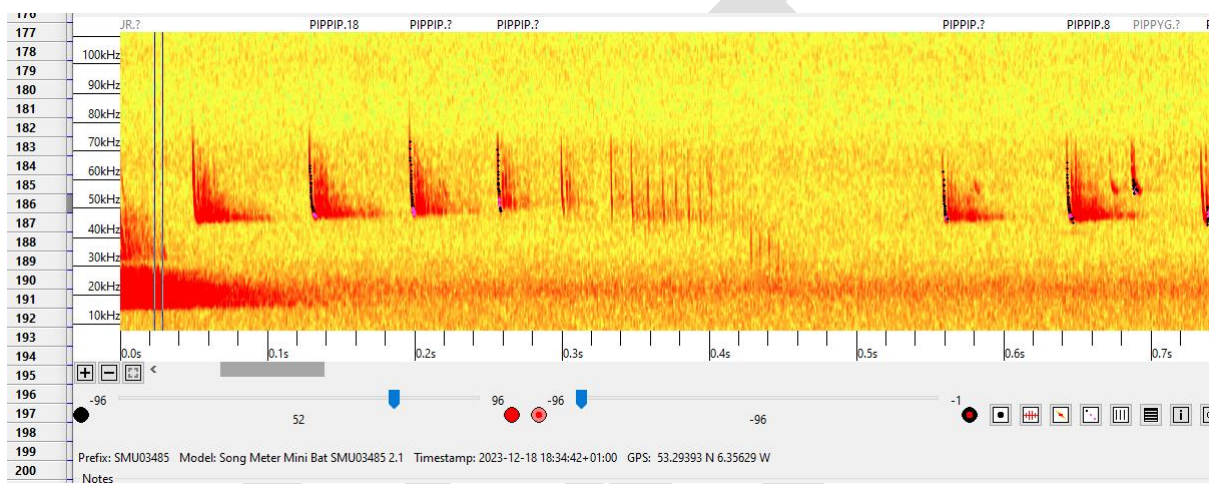
**Common pipistrelle**

On 18<sup>th</sup> dec at 5.14 a common pipistrelle was social calling within the barn.





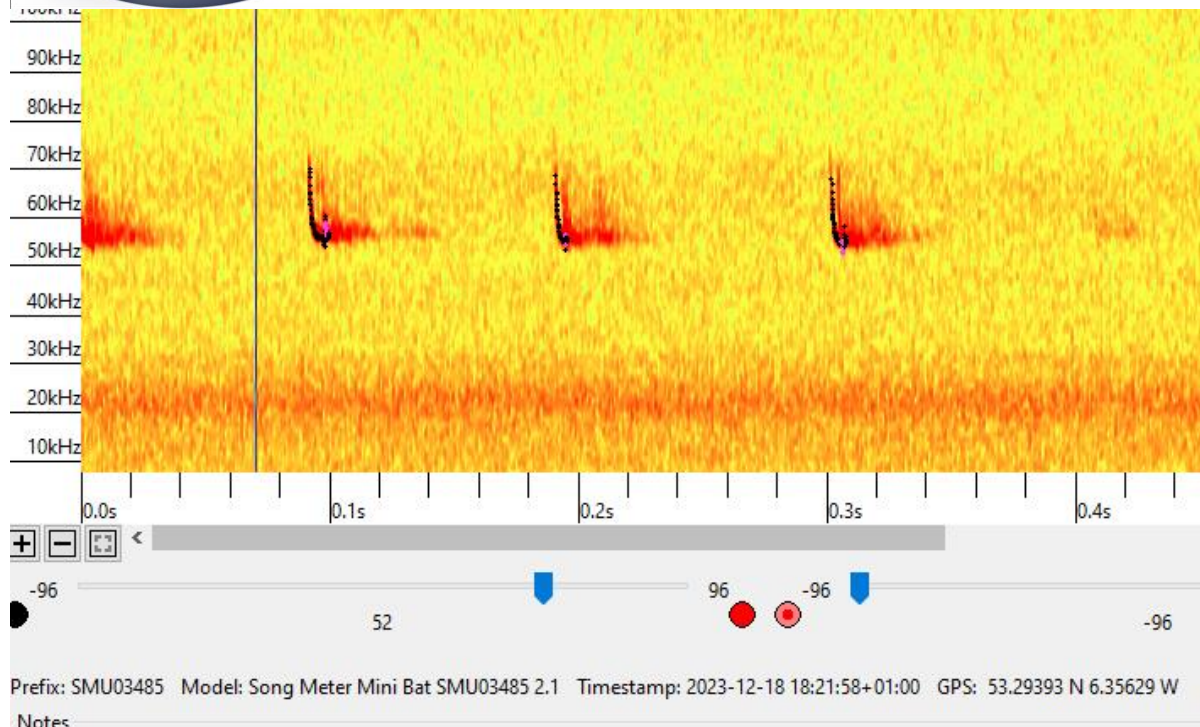
### Common pipistrelle social calling



### Common pipistrelle feeding buzz Dec 2023

Most common pipistrelle bat activity within the barn took place on the 15, 16 and 18 Dec, with 29 bat calls recorded in the main barn.

There was a lot of soprano pipistrelle activity within the barn, with 1511 sound files recorded within the main barn, on 15,16, 17,18, 22, and 23<sup>rd</sup> December. The bats were often present between 17.00 and 19.00 and a roost may be present.



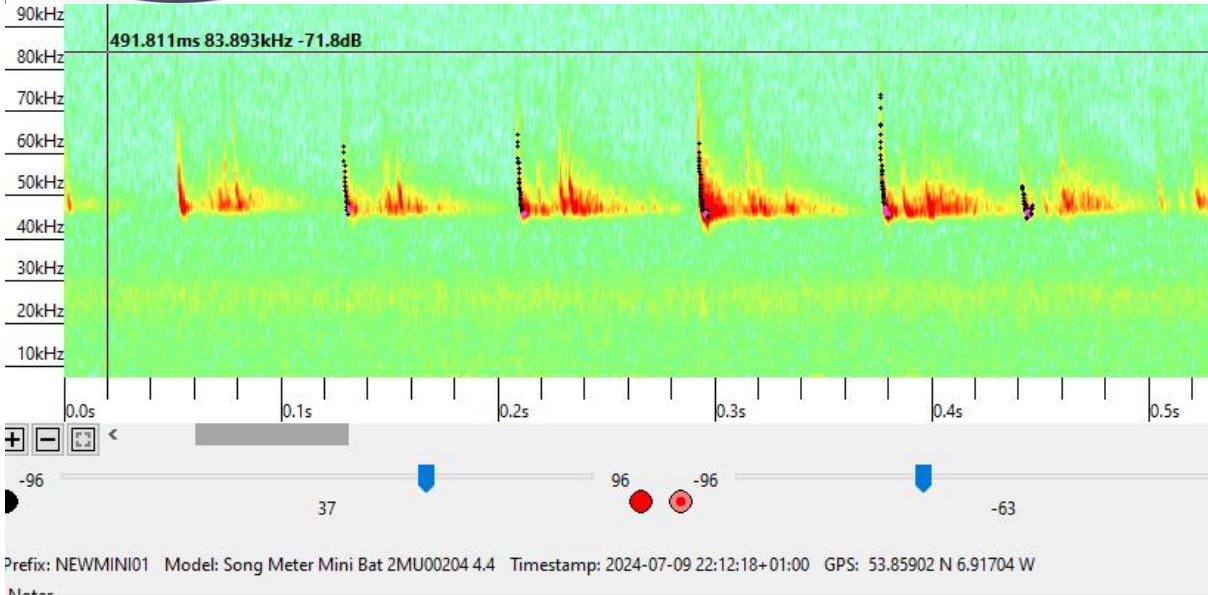
### **Soprano pipistrelle 18.21 on 18th Dec**

#### **Bat survey 2024 July 9<sup>th</sup>**

The survey commenced at 21.30. A badger was seen walking near the building and into the field behind the barn. Two birds' nests were seen in the building. One was disused and it was not possible to see if the other was in use.

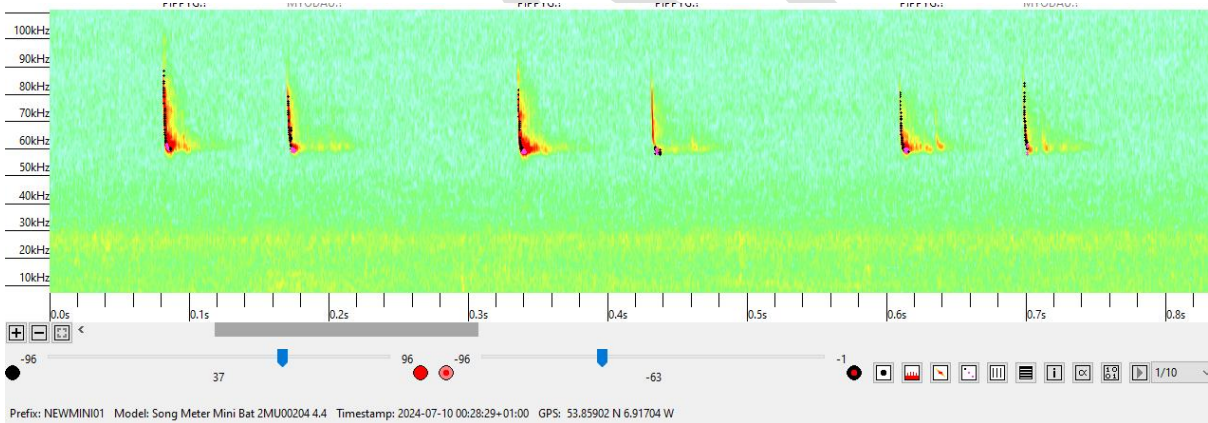
No signs of bats, droppings, etc were seen. The barn has deteriorated since 2019, with burning in places. A static detector was placed under the beams where the roost was found in 2019.

At 22.05 a Leisler's bat flew over the barn. A common pipistrelle was also seen flying through the small shed attached to the barn at 22.15. A common pipistrelle and a Leisler's bat were seen to the south of the site at 22.22.



### Common pipistrelle

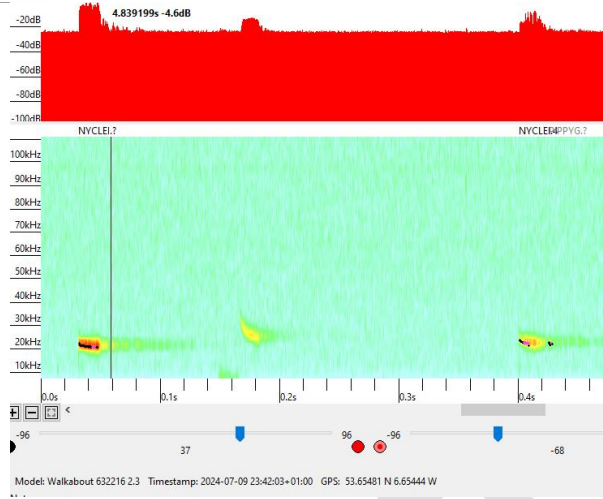
A Leisler's bat fed over the buildings from 22.32 until 22.56 .A soprano pipistrelle flew to the west at 23.02. A Leisler's bat flew to the west of the building at 23.43.



### Soprano pipistrelle

The survey commenced 1.5 hours before dawn. The only bats present were Leisler's bats , feeding in the fields around the barn from 4.10 until 4.52. There was no swarming within the barn.





Leisler's bat

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## Map of main bat activity 2024 – July 9



**Blue triangle – Common pipistrelle**

**Green Triangle- Soprano pipistrelle**

**Grey triangle – Leisler's bat**

### Results

#### Winter 2024

Although this survey took place in wintertime, there was bat activity over several nights within the barn. It may act as a sheltered feeding site. Social calls were also recorded, and bats may have mating roosts within the building. Most activity was of soprano pipistrelles, with activity seen over several nights.

#### Summer 2024 – July 9



No bats were seen swarming or roosting within the barn. Bats frequently fed within the barn, however there was no swarming behaviour. The barn is not currently being used as a roost.

### **Bat species found roosting on the site in July 2024.**

None

### **Bat species found feeding and commuting on the site July 2024.**

Common pipistrelle - *Pipistrellus pipistrellus*

Soprano pipistrelle – *Pipistrellus pygmaeus*

Leisler's bat – *Nyctalus Leisleri*

**Recommendations- Details of any mitigation measures planned for the species affected by the derogation at the location, along with evidence that such mitigation has been successful elsewhere.**

### **Recommendations**

(1) The barn was a roost of common pipistrelles in 2019. In survey, Dec – Jan 2023-2024, there was much soprano pipistrelle activity within the barn. However, no roosts were found in summertime (July 2024) when the most recent survey took place. A derogation licence must be applied for if the barn is being demolished, and the demolition must be supervised by an ecologist. Timbers in the roost area must be removed by hand. If the demolition takes place in the winter, a heater should be placed overnight in the barn, near the roost area, prior to demolition. This will allow the temperature to rise, so bats will not be in torpor.

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Ponds will also be created within the site. See landscape plan, Appendix II.

(4) If bats are discovered at any stage of the development, building work must cease and myself and the wildlife ranger must be contacted.

(5) Light spillage and pollution must be kept to a minimum with the use of cowls, caps, and low-level bollard lighting where possible. See Appendix III for the proposed dark skies areas.

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(6) Trees which are ivy clad, have trunks over 30cm diameter, or which have cracks or crevices must be checked for bats by an ecologist prior to felling. Where possible, mature trees should be retained. Dead trees may be pollarded and retained.

(7) If bats or nesting birds are discovered at any stage of the building work, building work must cease and a bat specialist and the Conservation Ranger must be contacted.

**Evidence that actions permitted by a derogation licence will not be detrimental to the maintenance of the populations of the species to which the Habitats Directive relates at a favourable conservation status in their natural range as is required under Section 54(2) of the European Communities (Birds and Natural Habitats) Regulations.**

**Data from The Status of EU Protected Habitats and Species in Ireland SPECIES ASSESSMENTS Volume 3 2019**

### **Common pipistrelle**

5.10 Favourable reference range- Favourable Reference Range is the same as the current range, as there is no evidence of decline since the Directive came into force. There is also no reason to assume that the area of the current range is not large enough to allow the long-term survival of the species.

8.3 Additional information - Despite the identification in the 2013 assessment of numerous low and medium-level threats and pressures, it is clear now that the population of this species has been increasing significantly and steadily. On this basis and given the widespread distribution and very large population present in the country, no threats or pressures are considered significant at this point.



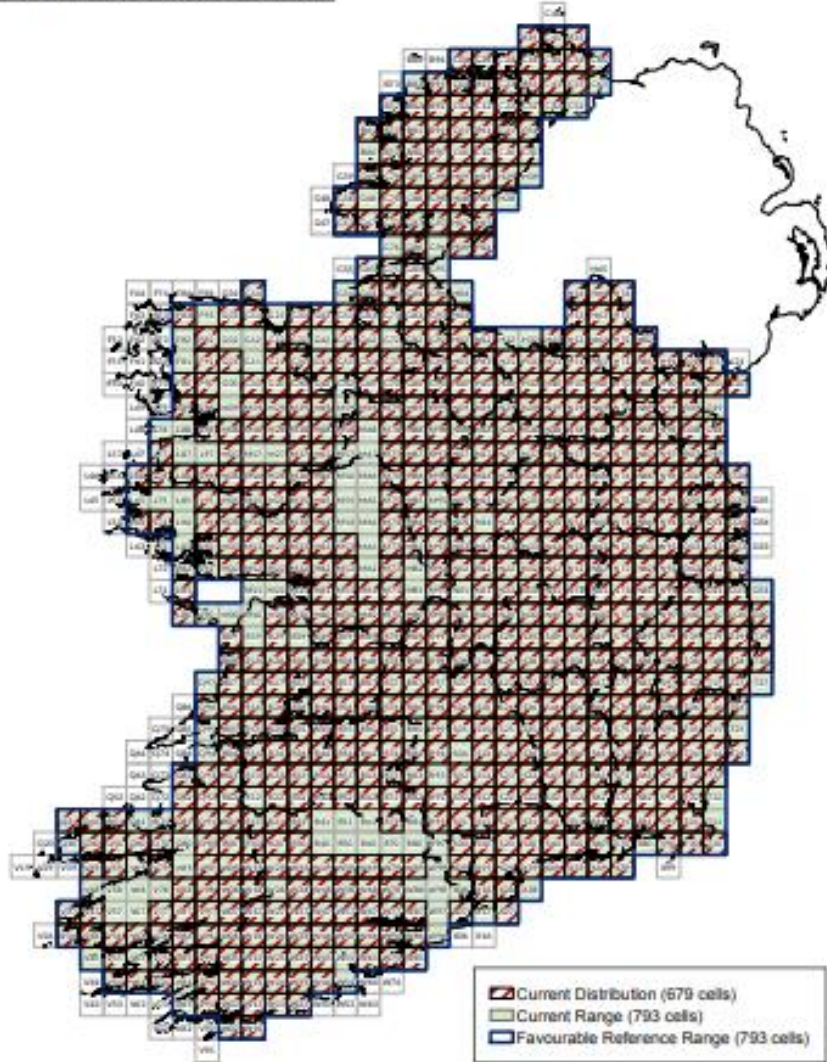


11.8 Additional information - This species has a very wide distribution across the island including some off-shore islands and there is no evidence of any decline in Range or in Habitat. The most recent estimates suggest a population size in the order to 1-2 million animals, making it one of the most common mammals in Ireland. Ongoing car-based bat monitoring 465 1309 Common Pipistrelle (*Pipistrellus pipistrellus*) indicates that the population is increasing. Furthermore, there is no indication of any major pressures currently impacting populations and Future prospects are considered good. Overall, the species is assessed as Favourable, and the overall trend is demonstrating an ongoing increase. There were no qualifiers for Favourable assessments in 2013.

<b>10 Future prospects</b>	
<b>10.1 Future prospects of parameters</b>	a) Range <i>Good / Poor / Bad / Unknown</i>
	b) Population <i>Good / Poor / Bad / Unknown</i>
	c) Habitat of the species <i>Good / Poor / Bad / Unknown</i>
<b>10.2 Additional information</b> <i>Optional</i>	Ongoing car-based bat monitoring provides evidence for a significant increase in the population; there is no evidence of any decline in Range or Habitat. In general the Future prospects of these parameters are considered to be good.

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**Common Pipistrelle**  
*Pipistrellus pipistrellus* (1309)  
 Article 17 (2013 - 2018) Assessment





## Soprano pipistrelle

Range within the biogeographical/marine region concerned.

5.1 Surface area 79,900 km

5.2 Short-term trend Period 2007–2018 470 5009 Soprano Pipistrelle (*Pipistrellus pygmaeus*)

5.3 Short-term trend Direction stable

5.10 Favourable reference range a) 79,900 km<sup>2</sup>

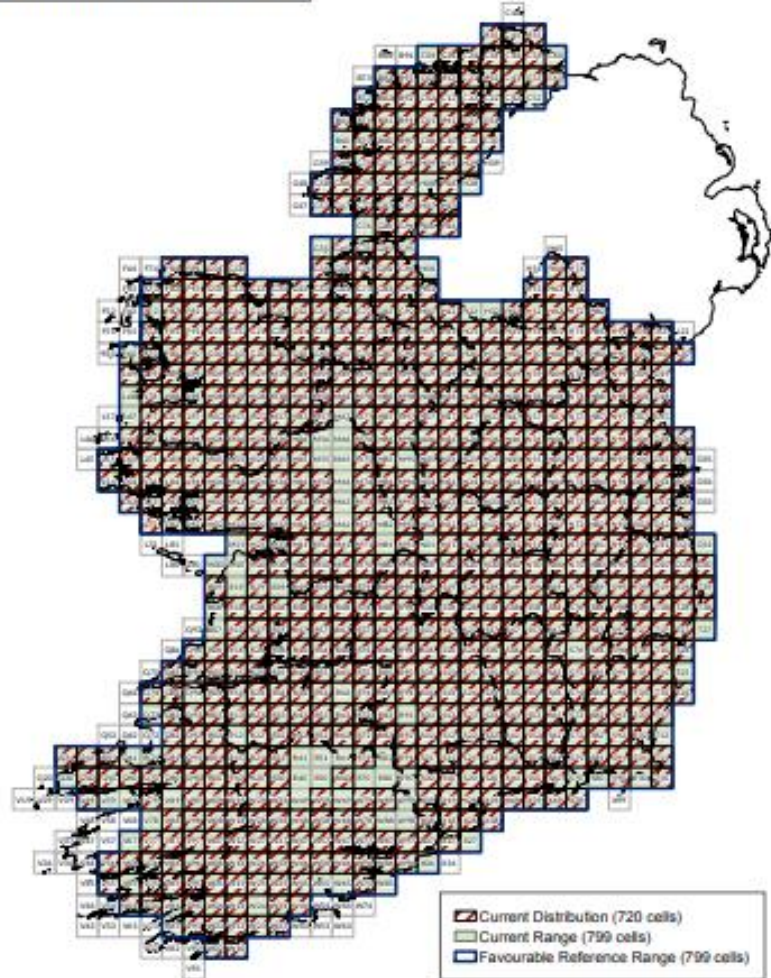
Favourable Reference Range is the same as the current range, as there is no evidence of decline since the Directive came into force. There is also no reason to assume that the area of the current range is not large enough to allow the long-term survival of the species.

8.3 Additional information - Despite the identification in the 2013 assessment of numerous low and medium-level threats and pressures, it is clear now that the population of this species has been increasing significantly and steadily. On this basis and given the widespread distribution and very large population present in the country, no threats or pressures are considered significant at this point.

11.8 Additional information - The soprano pipistrelle is the most widespread bat species on the island of Ireland. Recent estimates for this species suggest a population size in the order of 500,000 – 1,000,000 animals. Ongoing car-based bat monitoring provides evidence for a significant increase 477 5009 Soprano Pipistrelle (*Pipistrellus pygmaeus*) in the population; there is no evidence of any decline in Range or Habitat. Furthermore, there is no indication of any major pressures currently impacting populations, and Future prospects are considered good. Overall, the species is assessed as Favourable, and the overall trend is demonstrating an on-going increase. There were no qualifiers for Favourable assessments in 2013.

10 Future prospects		
10.1 Future prospects of parameters	a) Range	<u>Good</u> / Poor / Bad / Unknown
	b) Population	<u>Good</u> / Poor / Bad / Unknown
	c) Habitat of the species	<u>Good</u> / Poor / Bad / Unknown
10.2 Additional information <i>Optional</i>	Ongoing car-based bat monitoring provides evidence for a significant increase in the population; there is no evidence of any decline in Range or Habitat. In general the Future prospects of these parameters are considered to be good.	

**Soprano Pipistrelle**  
*Pipistrellus pygmaeus* (5009)  
 Article 17 (2013 - 2018) Assessment



 **An Roinn Cúilte,**  
**Óifigeas na Gaibhne**  
 Department of Culture,  
 Heritage and the Gaeltacht

Prepared by Diarda in  
 Bialannúcháir Múinteoirí Gúir, An tAonán Múinteoirí/Bhailiúcháir  
 National Parks and Wildlife Service, An tAonán Múinteoirí/Bhailiúcháir  
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 Ministerial Order no. 028/06/06  
 on Status of Endpoints 028/06/06



  
 Map - 0001  
 Date - 06/11  
 Scale - 1:100,000





## Legislation

Bats are protected under the 1996 Wildlife Act, the 2000 Wildlife (Amendment) Act, Stat Ist 94 of 1997, Stat Ist 378 of 2005, The Habitats Directive, The Bonn and Bern Convention, and the Euro bats agreement.

The European Community (Natural Habitats) Regulations S.I. No 94 of 1997 states:

23(1) The minister shall take the requisite measures to establish a system of strict protection for the fauna consisting of the animal species set out in Part 1 of the First Schedule prohibiting –

- a) All forms of deliberate capture or killing of specimens of those species in the wild.
  1. The deterioration or destruction of breeding sites or resting places of those species.

### The EU Habitats Directive

Article 12(1) of the 'Council Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora (Habitats Directive) states:

“Member States shall take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV(a) and their natural range, prohibiting:

- a) all forms of deliberate capture or killing of specimens of these species in the wild.
- b) deliberate disturbance of these species, particularly during the period of breeding, rearing, hibernation, and migration.
- c) deliberate destruction or taking of eggs from the wild.
- d. deterioration or destruction of breeding sites or resting places.”

The EU Habitats Directive (92/43/EEC) lists all Irish bat species in Annex IV and one Irish species, the lesser horseshoe bat (*Rhinolophus hipposideros*), in Annex II. Annex II includes animal and plant species of community interest whose conservation requires the designation of Special Areas of Conservation (SACs) because they are endangered, rare, vulnerable, or endemic. Annex IV includes various species that require strict protection. Article 11 of the Habitats Directive requires member states to monitor all species listed in the Habitats Directive and Article 17 requires States to report to the EU on the findings of monitoring schemes.

### The Bern and Bonn Conventions

Ireland is also a signatory to a number of conservation agreements pertaining to bats such as the Bern and Bonn Conventions. The European Bats Agreement (EUROBATS) is an agreement under the Bonn Convention. Ireland and the UK are



two of the 31 signatories. The Agreement has an Action Plan with priorities for implementation. Devising strategies for monitoring of populations of selected bat species in Europe is among the resolutions of EUROBATS.

### 1.3.1 The Berne Convention

Article 6 of the "Convention on the Conservation of European Wildlife and Natural Habitats" (Berne Convention) reads:

"Each Contracting Party shall take appropriate and necessary legislative and administrative measures to ensure the special protection of the wild fauna species specified in Appendix II. The following will in particular be prohibited for these species:

- a) all forms of deliberate capture and keeping and deliberate killing.
- b) the deliberate damage to or destruction of breeding or resting sites.
- c) the deliberate disturbance of wild fauna, particularly during the period of breeding, rearing and hibernation, insofar as disturbance would be significant in relation to the objectives of this Convention; ...

Appendix II lists strictly protected fauna species and this list includes "Microchiroptera, all species except *Pipistrellus pipistrelles*".

### The EUROBATS Agreement

The 'Agreement on the Conservation of Populations of European Bats' (EUROBATS) was negotiated under the 'Convention for the Conservation of Migratory Wild Species' (Bonn Convention) and came into force in January 1994. The legal protection of bats and their habitats are given in Article III as fundamental obligations:

1. Each Party shall prohibit the deliberate capture, keeping or killing of bats except under permit from its competent authority.
2. Each Party shall identify those sites within its own area of jurisdiction which are important for the conservation status, including for the shelter and protection, of bats. It shall, taking into account as necessary economic and social considerations, protect such sites from damage or disturbance. In addition, each Party shall endeavour to identify and protect important feeding areas for bats from damage or disturbance."

The Agreement covers all European bat species.

## **Bat Biology**

Female bats gather in groups known as maternity roosts in summer to have their young. They generally have one baby each year, so are slow to reproduce, and disturbance of a maternity roost can be catastrophic.



In winter bats move to old stonework, trees, and caves to hibernate. They are especially vulnerable here as they are slow to awaken, and if tree felling is carried out without checking for bats, they can easily be killed.

**Contact Details:** I can be contacted at 087 7454233. My email is [donnamullen@wildlifesurveys.net](mailto:donnamullen@wildlifesurveys.net) and web site is [www.wildlifesurveys.net](http://www.wildlifesurveys.net)

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## Appendix I

### Song meter mini recordings from within the main barn under old roost

File Help

	FOLDER	IN FILE	OUT FILE FS	OUT FILE ZC	AUTO ID	PULSES	MATCHING	MATCH RATIO	MANUA
177		SMU03485_20231222_213710.wav	SMU03485_20231222_213710_000.wav		Noise				
180		SMU03485_20231223_071648.wav	SMU03485_20231223_071648_000.wav		Noise				
181		SMU03485_20231217_192019.wav	SMU03485_20231217_192019_000.wav		PIPPIP	136	123	0.904000	PIPPIP
182		SMU03485_20231218_220722.wav	SMU03485_20231218_220722_000.wav		PIPPIP	84	80	0.952000	PIPPIP
183		SMU03485_20231218_050459.wav	SMU03485_20231218_050459_000.wav		PIPPIP	75	72	0.960000	PIPPIP
184		SMU03485_20231218_183350.wav	SMU03485_20231218_183350_000.wav		PIPPIP	101	69	0.683000	PIPPYG
185		SMU03485_20231218_050418.wav	SMU03485_20231218_050418_000.wav		PIPPIP	71	64	0.901000	PIPPIP
186		SMU03485_20231218_183442.wav	SMU03485_20231218_183442_000.wav		PIPPIP	97	64	0.660000	PIPPIP
187		SMU03485_20231215_202615.wav	SMU03485_20231215_202615_000.wav		PIPPIP	75	63	0.840000	PIPPIP
188		SMU03485_20231218_175458.wav	SMU03485_20231218_175458_000.wav		PIPPIP	63	61	0.968000	PIPPIP
189		SMU03485_20231218_195401.wav	SMU03485_20231218_195401_000.wav		PIPPIP	73	56	0.767000	PIPPIP
190		SMU03485_20231217_191938.wav	SMU03485_20231217_191938_000.wav		PIPPIP	52	50	0.962000	PIPPIP
191		SMU03485_20231218_050522.wav	SMU03485_20231218_050522_000.wav		PIPPIP	53	50	0.943000	PIPPIP
192		SMU03485_20231216_182734.wav	SMU03485_20231216_182734_000.wav		PIPPIP	49	49	1.000000	PIPPIP
193		SMU03485_20231218_183458.wav	SMU03485_20231218_183458_000.wav		PIPPIP	76	43	0.566000	PIPPIP
194		SMU03485_20231218_175531.wav	SMU03485_20231218_175531_000.wav		PIPPIP	40	40	1.000000	PIPPIP
195		SMU03485_20231218_184200.wav	SMU03485_20231218_184200_000.wav		PIPPIP	62	36	0.581000	PIPPIP
196		SMU03485_20231218_050433.wav	SMU03485_20231218_050433_000.wav		PIPPIP	35	33	0.943000	PIPPIP
197		SMU03485_20231218_220748.wav	SMU03485_20231218_220748_000.wav		PIPPIP	32	30	0.938000	PIPPIP
198		SMU03485_20231218_175426.wav	SMU03485_20231218_175426_000.wav		PIPPIP	26	26	1.000000	PIPPIP
199		SMU03485_20231218_175514.wav	SMU03485_20231218_175514_000.wav		PIPPIP	37	26	0.703000	PIPPIP
200		SMU03485_20231218_220737.wav	SMU03485_20231218_220737_000.wav		PIPPIP	25	22	0.880000	PIPPIP
201		SMU03485_20231218_175445.wav	SMU03485_20231218_175445_000.wav		PIPPIP	20	20	1.000000	PIPPIP
202		SMU03485_20231218_041259.wav	SMU03485_20231218_041259_000.wav		PIPPIP	15	14	0.933000	PIPPIP
203		SMU03485_20231218_175547.wav	SMU03485_20231218_175547_000.wav		PIPPIP	12	12	1.000000	PIPPIP
204		SMU03485_20231218_222806.wav	SMU03485_20231218_222806_000.wav		PIPPIP	12	12	1.000000	PIPPIP
205		SMU03485_20231218_041259.wav	SMU03485_20231218_041259_000.wav		PIPPIP	9	9	1.000000	PIPPIP
206		SMU03485_20231215_202610.wav	SMU03485_20231215_202610_000.wav		PIPPIP	7	7	1.000000	PIPPIP
207		SMU03485_20231218_221745.wav	SMU03485_20231218_221745_000.wav		PIPPIP	7	7	1.000000	PIPPIP
208		SMU03485_20231216_023635.wav	SMU03485_20231216_023635_000.wav		PIPPIP	3	3	1.000000	PIPPIP
209		SMU03485_20231217_192035.wav	SMU03485_20231217_192035_000.wav		PIPPIP	4	3	0.750000	PIPPIP
210		SMU03485_20231218_024156.wav	SMU03485_20231218_024156_000.wav		PIPPIP	2	1	0.500000	PIPPIP
211		SMU03485_20231218_091817.wav	SMU03485_20231218_091817_000.wav		PIPPYG	158	154	0.975000	PIPPYG
212		SMU03485_20231223_173405.wav	SMU03485_20231223_173405_000.wav		PIPPYG	158	154	0.975000	PIPPYG
213		SMU03485_20231218_023602.wav	SMU03485_20231218_023602_000.wav		PIPPYG	161	150	0.932000	PIPPYG
214		SMU03485_20231218_091848.wav	SMU03485_20231218_091848_000.wav		PIPPYG	146	145	0.993000	PIPPYG
215		SMU03485_20231217_173346.wav	SMU03485_20231217_173346_000.wav		PIPPYG	150	144	0.960000	PIPPYG
216		SMU03485_20231216_174704.wav	SMU03485_20231216_174704_000.wav		PIPPYG	147	143	0.973000	PIPPYG
217		SMU03485_20231215_175247.wav	SMU03485_20231215_175247_000.wav		PIPPYG	144	141	0.979000	PIPPYG
218		SMU03485_20231218_005821.wav	SMU03485_20231218_005821_000.wav		PIPPYG	139	139	1.000000	PIPPYG

	FOLDER	IN FILE	OUT FILE FS	OUT FILE ZC	AUTO ID	PULSES	MATCHING	MATCH RATIO	MANUA
1782		SMU03485_20231218_200632.wav	SMU03485_20231218_200632_000.wav		PIPPYG	5	5	1.000000	PIPPYG
1783		SMU03485_20231218_200825.wav	SMU03485_20231218_200825_000.wav		PIPPYG	5	5	1.000000	PIPPYG
1784		SMU03485_20231218_200859.wav	SMU03485_20231218_200859_000.wav		PIPPYG	5	5	1.000000	PIPPYG
1785		SMU03485_20231218_201408.wav	SMU03485_20231218_201408_000.wav		PIPPYG	5	5	1.000000	PIPPYG
1786		SMU03485_20231218_205405.wav	SMU03485_20231218_205405_000.wav		PIPPYG	5	5	1.000000	PIPPYG
1787		SMU03485_20231218_210026.wav	SMU03485_20231218_210026_000.wav		PIPPYG	5	5	1.000000	PIPPYG
1788		SMU03485_20231216_175037.wav	SMU03485_20231216_175037_000.wav		PIPPYG	4	4	1.000000	PIPPYG
1789		SMU03485_20231218_075912.wav	SMU03485_20231218_075912_000.wav		PIPPYG	4	4	1.000000	PIPPYG
1790		SMU03485_20231218_181225.wav	SMU03485_20231218_181225_000.wav		PIPPYG	4	4	1.000000	PIPPYG
1791		SMU03485_20231218_184458.wav	SMU03485_20231218_184458_000.wav		PIPPYG	4	4	1.000000	PIPPYG
1792		SMU03485_20231218_191107.wav	SMU03485_20231218_191107_000.wav		PIPPYG	4	4	1.000000	PIPPYG
1793		SMU03485_20231218_194043.wav	SMU03485_20231218_194043_000.wav		PIPPYG	4	4	1.000000	PIPPYG
1794		SMU03485_20231218_194107.wav	SMU03485_20231218_194107_000.wav		PIPPYG	4	4	1.000000	PIPPYG
1795		SMU03485_20231218_194306.wav	SMU03485_20231218_194306_000.wav		PIPPYG	4	4	1.000000	PIPPYG
1796		SMU03485_20231218_200950.wav	SMU03485_20231218_200950_000.wav		PIPPYG	4	4	1.000000	PIPPYG
1797		SMU03485_20231218_201808.wav	SMU03485_20231218_201808_000.wav		PIPPYG	4	4	1.000000	PIPPYG
1798		SMU03485_20231218_204033.wav	SMU03485_20231218_204033_000.wav		PIPPYG	4	4	1.000000	PIPPYG
1799		SMU03485_20231218_210134.wav	SMU03485_20231218_210134_000.wav		PIPPYG	4	4	1.000000	PIPPYG
1800		SMU03485_20231223_174623.wav	SMU03485_20231223_174623_000.wav		PIPPYG	4	4	1.000000	PIPPYG
1801		SMU03485_20231218_201844.wav	SMU03485_20231218_201844_000.wav		PIPPYG	5	4	0.800000	PIPPYG
1802		SMU03485_20231215_195613.wav	SMU03485_20231215_195613_000.wav		PIPPYG	3	3	1.000000	PIPPYG
1803		SMU03485_20231218_072427.wav	SMU03485_20231218_072427_000.wav		PIPPYG	3	3	1.000000	PIPPYG
1804		SMU03485_20231218_182158.wav	SMU03485_20231218_182158_000.wav		PIPPYG	3	3	1.000000	PIPPYG
1805		SMU03485_20231218_190654.wav	SMU03485_20231218_190654_000.wav		PIPPYG	3	3	1.000000	PIPPYG
1806		SMU03485_20231218_193426.wav	SMU03485_20231218_193426_000.wav		PIPPYG	3	3	1.000000	PIPPYG
1807		SMU03485_20231218_195819.wav	SMU03485_20231218_195819_000.wav		PIPPYG	3	3	1.000000	PIPPYG
1808		SMU03485_20231218_200016.wav	SMU03485_20231218_200016_000.wav		PIPPYG	3	3	1.000000	PIPPYG
1809		SMU03485_20231218_200936.wav	SMU03485_20231218_200936_000.wav		PIPPYG	3	3	1.000000	PIPPYG
1810		SMU03485_20231218_202339.wav	SMU03485_20231218_202339_000.wav		PIPPYG	3	3	1.000000	PIPPYG
1811		SMU03485_20231218_204336.wav	SMU03485_20231218_204336_000.wav		PIPPYG	3	3	1.000000	PIPPYG
1812		SMU03485_20231218_204809.wav	SMU03485_20231218_204809_000.wav		PIPPYG	3	3	1.000000	PIPPYG
1813		SMU03485_20231218_210819.wav	SMU03485_20231218_210819_000.wav		PIPPYG	3	3	1.000000	PIPPYG
1814		SMU03485_20231218_080341.wav	SMU03485_20231218_080341_000.wav		PIPPYG	2	2	1.000000	PIPPYG
1815		SMU03485_20231218_175954.wav	SMU03485_20231218_175954_000.wav		PIPPYG	2	2	1.000000	PIPPYG
1816		SMU03485_20231218_192539.wav	SMU03485_20231218_192539_000.wav		PIPPYG	2	2	1.000000	PIPPYG
1817		SMU03485_20231218_192711.wav	SMU03485_20231218_192711_000.wav		PIPPYG	2	2	1.000000	PIPPYG
1818		SMU03485_20231218_193926.wav	SMU03485_20231218_193926_000.wav		PIPPYG	2	2	1.000000	PIPPYG
1819		SMU03485_20231218_195315.wav	SMU03485_20231218_195315_000.wav		PIPPYG	2	2	1.000000	PIPPYG
1820		SMU03485_20231218_191323.wav	SMU03485_20231218_191323_000.wav		PIPPYG	3	2	0.667000	PIPPYG
1821		SMU03485_20231222_005201.wav	SMU03485_20231222_005201_000.wav		PIPPYG	3	2	0.667000	PIPPYG







### Horizontal Illuminance (lux)

Grid 2



#### Results

Eav	6.19
Emin	1.24
E <sub>max</sub>	17.70
E <sub>min</sub> /E <sub>max</sub>	0.07
E <sub>min</sub> /E <sub>av</sub>	0.20



### Bat data within 10km of the site

BCIreland data: search results 8 Jan 2024					
Search parameters: Roosts Transects Ad-hoc observation sites with observations of all species within 10000m of N8900168029					
Roosts					
Name	Grid reference	Grid ref easting	Grid ref northing	Address	Species observed
Ardbraccan Church of Ireland	N8283668243	282836	268243	Ardbraccan, Navan, County Meath	Pipistrellus spp. (45kHz/55kHz), Plecotus auritus, Nyctalus leisleri, Pipistrellus pygmaeus, Rhinolophus hipposideros
Ardmulchan Church	N9078870185	290788	270185	Ardmulchan Church (ME025-020), Navan, Co. Meath	Nyctalus leisleri, Pipistrellus pygmaeus
Babes Bridge, Navan	N8902169889	289021	269889	Babe's Bridge, Navan, County Meath	Myotis daubentonii
Beauparc, 2-storey house	N970695	297000	269500	Beauparc, Navan, County Meath	Pipistrellus pipistrellus (45kHz)
Dowdston Cottage	N9001763884	290017	263884	Kilcarn, Navan, Co. Meath	Plecotus auritus
Duignans Bungalow	N8700067000	287000	267000	Convent Road, Navan, Co. Meath	Pipistrellus spp. (45kHz/55kHz)
Fennor, derelict house	N972728	297200	272800	Slane, County Meath	Pipistrellus pygmaeus
Janeville Cottage	N974735	297400	273500	Slane, County Meath	Myotis nattereri, Pipistrellus pygmaeus
Johnston Bridge	N8966	289000	266000	Navan, County Meath	Myotis daubentonii
Oak tree Slane Castle demesne	N9500774348	295007	274348	Courtyard Slane Castle Slane Co. Meath	Nyctalus leisleri



Rail underbridge	N9670	296000	270000	Drogheda-Navan Railway Line, County Meath	Unidentified bat
Skryne Tower	N9514660525	295146	260525	Skryne Tower, Skryne, Co. Meath	Plecotus auritus, Pipistrellus pipistrellus (45kHz)
Slane Bridge Georgian House	N967737	296700	273700	Slane, County Meath	Pipistrellus pygmaeus
Slane Castle-Tree roost 1	N954745	295400	274500	Slane, County Meath	Nyctalus leisleri
St Martha's College and School	N892668	289200	266800	Athlumney, Navan, County Meath	Unidentified bat
St Patricks Church of Ireland, Slane	N960742	296000	274200	Slane, Navan, County Meath	Pipistrellus pygmaeus, Nyctalus leisleri
St Patricks Donaghpatrick	N819725	281900	272500	Donaghpatrick, Kells, County Meath	Myotis daubentonii
Tara	N921598	292100	259800	Tara, Navan, County Meath	Plecotus auritus
The Rectory Boyne Road	N888687	288800	268700	Boyne Road, Navan, County Meath	Pipistrellus pygmaeus
Thompson domestic dwelling	N8363471112	283634	271112	Kevin Thompson, Riverview House, Donaghpatrick, Navan, Co. Meath	Nyctalus leisleri
Unknown	N8717061047	287170	261047	Bonfield, Bective, Navan Co. Meath	Pipistrellus pipistrellus (45kHz)
Transects					
Name	Grid reference start	Grid reference east	Grid reference north	Species observed	



		ng start	ing start	
2km	N87400 67400	287 400	2674 00	Unidentified bat, Myotis daubentonii, Nyctalus leisleri, Pipistrellus pygmaeus, Pipistrellus pipistrellus (45kHz), Pipistrellus nathusii
2km d/s Blackwater Cfl	N88520 69110	288 520	2691 10	Myotis daubentonii, Nyctalus leisleri
Aghnaska Bridge Transect , Spot 1- 10	N80600 70500	280 600	2705 00	
Beaulieu Bridge Transect	N88168 66286	288 168	2662 86	Myotis daubentonii, Unidentified bat
Broadbo yne Bridge Transect	N91671 2	291 600	2712 00	Myotis daubentonii
Convent Road River Boyne Transect	N87000 67000	287 000	2670 00	Myotis daubentonii, Pipistrellus pygmaeus
Donagh patrick Bridge Transect	N81938 72326	281 938	2723 26	Myotis daubentonii, Unidentified bat
Donagh patrick Bridge Transect spot 1	N81266 72190	281 266	2721 90	Myotis daubentonii, Nyctalus leisleri, Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus
Donagh patrick Bridge Transect spot 10	N81938 72326	281 938	2723 26	Myotis daubentonii, Unidentified bat, Nyctalus leisleri
Donagh patrick Bridge Transect spot 2	N81272 72642	281 272	2726 42	Myotis daubentonii, Unidentified bat
Donagh patrick	N81307 72699	281 307	2726 99	Myotis daubentonii, Unidentified bat





Bridge Transect spot 3				
Donaghpatrick Bridge Transect spot 4	N81489 72691	281 489	2726 91	Unidentified bat, Myotis daubentonii
Donaghpatrick Bridge Transect spot 5	N81489 72694	281 489	2726 94	Myotis daubentonii, Unidentified bat
Donaghpatrick Bridge Transect spot 6	N81574 72676	281 574	2726 76	Unidentified bat, Myotis daubentonii
Donaghpatrick Bridge Transect spot 7	N81709 72539	281 709	2725 39	Myotis daubentonii, Unidentified bat
Donaghpatrick Bridge Transect spot 8	N81782 72475	281 782	2724 75	Unidentified bat, Myotis daubentonii
Donaghpatrick Bridge Transect spot 9	N81897 72409	281 897	2724 09	Myotis daubentonii, Unidentified bat
N74 (1) 2006-	N85334 67628	285 334	2676 28	Pipistrellus pipistrellus (45kHz), Nyctalus leisleri, Pipistrellus pygmaeus, Pipistrellus spp. (45kHz/55kHz)
N74 (18) 2006- 2008	N98177 66457	298 177	2664 57	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Pipistrellus spp. (45kHz/55kHz), Nyctalus leisleri
N74 (19) 2006- 2008	N93629 68402	293 629	2684 02	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Pipistrellus spp. (45kHz/55kHz), Nyctalus leisleri
N74 (2) 2006-	N79046 67407	279 046	2674 07	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Nyctalus leisleri, Pipistrellus spp. (45kHz/55kHz), Unidentified bat



N74 (20) 2006- 2008	N89547 65869	289 547	2658 69	Pipistrellus pipistrellus (45kHz),Nyctalus leisleri,Pipistrellus pygmaeus
Ramparts 1 Transect 1	N88169 68393	288 169	2683 93	Myotis daubentonii,Unidentified bat
Ramparts 1 Transect 10	N88772 68363	288 772	2683 63	Myotis daubentonii
Ramparts 1 Transect 10	N87400 67400	287 400	2674 00	Myotis daubentonii,Nyctalus leisleri,Pipistrellus pygmaeus,Myotis nattereri,Myotis mystacinus,Pipistrellus pipistrellus (45kHz)
Ramparts 1 Transect 2	N88132 68270	288 132	2682 70	Myotis daubentonii,Myotis nattereri,Myotis mystacinus/brandtii
Ramparts 1 Transect 3	N88082 68167	288 082	2681 67	Myotis daubentonii,Unidentified bat,Pipistrellus pipistrellus (45kHz),Pipistrellus pygmaeus
Ramparts 1 Transect 4	N88037 68074	288 037	2680 74	Myotis daubentonii,Unidentified bat
Ramparts 1 Transect 5	N87970 68031	287 970	2680 31	Unidentified bat,Myotis daubentonii
Ramparts 1 Transect 6	N87831 67948	287 831	2679 48	Unidentified bat,Myotis daubentonii,Pipistrellus pipistrellus (45kHz)
Ramparts 1 Transect 7	N87790 67963	287 790	2679 63	Myotis daubentonii,Nyctalus leisleri
Ramparts 1 Transect 8	N87706 67941	287 706	2679 41	Myotis daubentonii,Nyctalus leisleri,Pipistrellus pygmaeus
Ramparts 1 Transect 9	N87495 67928	287 495	2679 28	Unidentified bat,Myotis daubentonii,Nyctalus leisleri



Ramparts Transect 1	N88168 66286	288 168	2662 86	Myotis daubentonii, Pipistrellus pygmaeus, Pipistrellus pipistrellus (45kHz), Pipistrellus spp. (45kHz/55kHz), Nyctalus leisleri, Myotis spp., Unidentified bat
Ramparts Transect 10	N88530 69162	288 530	2691 62	Myotis daubentonii, Pipistrellus pygmaeus, Nyctalus leisleri
Ramparts Transect 2	N88259 68497	288 259	2684 97	Pipistrellus pygmaeus, Pipistrellus pipistrellus (45kHz), Pipistrellus spp. (45kHz/55kHz), Nyctalus leisleri, Myotis spp.
Ramparts Transect 3	N88289 68532	288 289	2685 32	Myotis daubentonii, Pipistrellus pygmaeus, Pipistrellus pipistrellus (45kHz), Pipistrellus spp. (45kHz/55kHz), Nyctalus leisleri, Myotis spp.
Ramparts Transect 4	N88366 68619	288 366	2686 19	Unidentified bat, Pipistrellus pygmaeus, Pipistrellus spp. (45kHz/55kHz), Nyctalus leisleri, Myotis spp.
Ramparts Transect 5	N88442 68699	288 442	2686 99	Myotis daubentonii, Pipistrellus pygmaeus, Pipistrellus spp. (45kHz/55kHz), Myotis spp.
Ramparts Transect 6	N88527 68797	288 527	2687 97	Myotis daubentonii, Unidentified bat, Pipistrellus pygmaeus, Nyctalus leisleri, Myotis spp.
Ramparts Transect 7	N88542 68904	288 542	2689 04	Myotis daubentonii, Pipistrellus pygmaeus, Nyctalus leisleri, Myotis spp., Pipistrellus pipistrellus (45kHz)
Ramparts Transect 8	N88525 69018	288 525	2690 18	Myotis daubentonii, Pipistrellus pygmaeus, Pipistrellus pipistrellus (45kHz), Pipistrellus spp. (45kHz/55kHz), Nyctalus leisleri, Myotis spp.
Ramparts Transect 9	N88501 69110	288 501	2691 10	Myotis daubentonii, Pipistrellus pygmaeus, Pipistrellus spp. (45kHz/55kHz), Myotis spp.
Ramparts, Foot Bridge Transect	N87447 67932	287 447	2679 32	Myotis daubentonii



Slane Bridge Transect	N9640073610	296400	273610	Myotis daubentonii, Unidentified bat, Pipistrellus nathusii	
Slane Transect B	N964737	296400	273700	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Nyctalus leisleri, Myotis daubentonii, Myotis mystacinus, Myotis spp.	
The Ramparts (Navan) Transect	N8740067400	287400	267400	Myotis daubentonii, Unidentified bat	
Ad-hoc observations					
Survey	Grid reference	Grid ref easting	Grid ref northing	Date	Species observed
Ad Hoc Records collected during Monitoring	N9640073610	296400	273610	#####	Pipistrellus nathusii
Bat Conservation Ireland Bat Detector Workshop	N967737	296700	273700	#####	Myotis mystacinus, Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Nyctalus leisleri
Bat Eco Services	N8889062431	288890	262431	#####	Nyctalus leisleri, Pipistrellus pygmaeus, Pipistrellus pipistrellus (45kHz), Plecotus auritus, Myotis spp.
Bat Eco Services	N9514660525	295146	260525	#####	Nyctalus leisleri, Pipistrellus pipistrellus (45kHz), Plecotus auritus
Bat Eco Services	N8850064400	288500	264400	7/2/2020	Nyctalus leisleri, Myotis daubentonii, Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Plecotus auritus



Bat Eco Services	N89284 70044	289 284	2700 44	#####	Nyctalus leisleri, Pipistrellus pygmaeus
Bat Eco Services	N89967 70101	289 967	2701 01	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus
Bat Eco Services	N87524 67559	287 524	2675 59	#####	Pipistrellus pipistrellus (45kHz)
Bat Eco Services	N87573 67542	287 573	2675 42	#####	Pipistrellus pipistrellus (45kHz)
Bat Eco Services	N87667 67496	287 667	2674 96	#####	Pipistrellus pipistrellus (45kHz)
Bat Eco Services	N87524 67559	287 524	2675 59	#####	Pipistrellus pipistrellus (45kHz)
Bat Eco Services	N87670 67494	287 670	2674 94	#####	Pipistrellus pipistrellus (45kHz)
Bat Eco Services	N89498 70054	289 498	2700 54	#####	Nyctalus leisleri
Bat Eco Services	N89380 70038	289 380	2700 38	#####	Nyctalus leisleri
Bat Eco Services	N89210 70044	289 210	2700 44	#####	Nyctalus leisleri
Bat Eco Services	N88980 69519	288 980	2695 19	#####	Nyctalus leisleri
Bat Eco Services	N88951 69395	288 951	2693 95	#####	Nyctalus leisleri
Bat Eco Services	N88571 68873	288 571	2688 73	#####	Nyctalus leisleri
Bat Eco Services	N87373 67861	287 373	2678 61	#####	Nyctalus leisleri
Bat Eco Services	N87373 67866	287 373	2678 66	#####	Nyctalus leisleri
Bat Eco Services	N88187 68390	288 187	2683 90	#####	Myotis nattereri
Bat Eco Services	N89179 70036	289 179	2700 36	#####	Pipistrellus pygmaeus
Bat Eco Services	N89077 69962	289 077	2699 62	#####	Pipistrellus pygmaeus
Bat Eco Services	N89023 69832	289 023	2698 32	#####	Pipistrellus pygmaeus
Bat Eco Services	N88998 69739	288 998	2697 39	#####	Pipistrellus pygmaeus
Bat Eco Services	N88994 69681	288 994	2696 81	#####	Pipistrellus pygmaeus
Bat Eco Services	N88984 69585	288 984	2695 85	#####	Pipistrellus pygmaeus



Bat Eco Services	N88833 69155	288 833	2691 55	#####	Pipistrellus pygmaeus
Bat Eco Services	N88694 69010	288 694	2690 10	#####	Pipistrellus pygmaeus
Bat Eco Services	N88568 68876	288 568	2688 76	#####	Pipistrellus pygmaeus
Bat Eco Services	N88562 68883	288 562	2688 83	#####	Pipistrellus pygmaeus
Bat Eco Services	N88533 68863	288 533	2688 63	#####	Pipistrellus pygmaeus
Bat Eco Services	N88527 68798	288 527	2687 98	#####	Pipistrellus pygmaeus
Bat Eco Services	N88509 68779	288 509	2687 79	#####	Pipistrellus pygmaeus
Bat Eco Services	N88478 68720	288 478	2687 20	#####	Pipistrellus pygmaeus
Bat Eco Services	N87642 67505	287 642	2675 05	#####	Pipistrellus pygmaeus
Bat Eco Services	N87373 67856	287 373	2678 56	#####	Pipistrellus pygmaeus
Bat Eco Services	N87443 67739	287 443	2677 39	#####	Pipistrellus pygmaeus
Bat Eco Services	N87535 67562	287 535	2675 62	#####	Pipistrellus pygmaeus
Bat Eco Services	N87537 67563	287 537	2675 63	#####	Pipistrellus pygmaeus
Bat Eco Services	N87536 67563	287 536	2675 63	#####	Pipistrellus pygmaeus
Bat Eco Services	N87528 67561	287 528	2675 61	#####	Pipistrellus pygmaeus
Bat Eco Services	N87438 67589	287 438	2675 89	#####	Pipistrellus pygmaeus
Bat Eco Services	N87347 67654	287 347	2676 54	#####	Pipistrellus pygmaeus
Bat Eco Services	N87349 67761	287 349	2677 61	#####	Pipistrellus pygmaeus
Bat Survey - Scott Cawley	N87267 7	287 200	2677 00	8/8/2010	Pipistrellus pygmaeus, Pipistrellus pipistrellus (45kHz), Myotis spp., Unidentified bat
Bat Survey - Scott Cawley	N85834 66570	285 834	2665 70	6/5/2013	Pipistrellus pipistrellus (45kHz), Nyctalus leisleri
Bat Surveys	N82000 68000	282 000	2680 00	#####	Pipistrellus pygmaeus





- Tina Aughney					
Bat Surveys - Tina Aughney	N82000 68000	282 000	2680 00	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Nyctalus leisleri, Plecotus auritus
Bat Surveys - Tina Aughney	N82626 67965	282 626	2679 65	#####	Unidentified bat, Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Nyctalus leisleri, Myotis spp., Myotis daubentonii, Myotis nattereri
Bat Surveys - Tina Aughney	N97394 75700	297 394	2757 00	#####	Pipistrellus pygmaeus
Bat Surveys - Tina Aughney	N96369 73877	296 369	2738 77	#####	Pipistrellus spp. (45kHz/55kHz)
Bat Surveys - Tina Aughney	N96418 74643	296 418	2746 43	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus
Bat Surveys - Tina Aughney	N96769 74855	296 769	2748 55	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus
Bat Surveys - Tina Aughney	N97395 75679	297 395	2756 79	#####	Pipistrellus pipistrellus (45kHz), Myotis spp.
Bat Surveys - Tina Aughney	N98833 75936	298 833	2759 36	#####	Pipistrellus pygmaeus
Bat Surveys - Tina Aughney	N97280 74055	297 280	2740 55	#####	Pipistrellus pygmaeus
Bat Surveys	N96501 73198	296 501	2731 98	#####	Pipistrellus pygmaeus, Pipistrellus spp. (45kHz/55kHz)



- Tina Aughney					
Bat Surveys - Tina Aughney	N874675	287400	267500	#####	Myotis daubentonii, Pipistrellus pygmaeus, Plecotus auritus, Myotis nattereri, Pipistrellus pipistrellus (45kHz)
Bat Surveys - Tina Aughney	N8283068240	282830	268240	6/6/2013	Nyctalus leisleri, Plecotus auritus, Pipistrellus pygmaeus, Myotis spp., Pipistrellus pipistrellus (45kHz)
Bat Surveys - Tina Aughney	N874668	287400	266800	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Myotis spp., Myotis nattereri, Nyctalus leisleri, Plecotus auritus
Bat Surveys - Tina Aughney	N8889062431	288890	262431	#####	Pipistrellus pipistrellus (45kHz), Plecotus auritus, Pipistrellus pygmaeus, Nyctalus leisleri, Myotis spp.
Bat Surveys - Tina Aughney	N8888362414	288883	262414	#####	Nyctalus leisleri, Pipistrellus pygmaeus, Myotis spp., Pipistrellus pipistrellus (45kHz)
Bat Surveys - Tina Aughney	N8884162355	288841	262355	#####	Nyctalus leisleri, Pipistrellus pygmaeus, Myotis spp., Pipistrellus pipistrellus (45kHz), Plecotus auritus
Bat Surveys - Tina Aughney	N8891562512	288915	262512	#####	Nyctalus leisleri, Pipistrellus pygmaeus, Pipistrellus pipistrellus (45kHz), Myotis spp.
Bat Surveys - Tina Aughney	N9514660525	295146	260525	#####	Pipistrellus pipistrellus (45kHz), Nyctalus leisleri, Plecotus auritus



Bat Surveys - Tina Aughney	N8155575803	281555	275803	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Plecotus auritus, Nyctalus leisleri
Bat Surveys - Tina Aughney	N8143673036	281436	273036	#####	Pipistrellus pygmaeus, Pipistrellus pipistrellus (45kHz), Nyctalus leisleri
Bat Surveys - Tina Aughney	N8053270308	280532	270308	#####	Pipistrellus pipistrellus (45kHz)
Bat Surveys - Tina Aughney	N8152068917	281520	268917	#####	Pipistrellus pygmaeus
Bat Surveys - Tina Aughney	N8173767822	281737	267822	#####	Pipistrellus pygmaeus, Pipistrellus pipistrellus (45kHz)
Bat Surveys - Tina Aughney	N8187267094	281872	267094	#####	Pipistrellus pygmaeus, Pipistrellus pipistrellus (45kHz)
Bat Surveys - Tina Aughney	N8150364284	281503	264284	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Myotis spp.
Bat Surveys - Tina Aughney	N8184962622	281849	262622	#####	Pipistrellus pygmaeus, Pipistrellus pipistrellus (45kHz)
Bat Surveys - Tina Aughney	N8410660791	284106	260791	#####	Pipistrellus pygmaeus, Pipistrellus pipistrellus (45kHz)
Bat Surveys - Tina Aughney	N8395460269	283954	260269	#####	Myotis daubentonii, Pipistrellus pygmaeus
BATLAS 2010	N9637673557	296376	273557	#####	Pipistrellus pygmaeus, Pipistrellus spp. (45kHz/55kHz), Nyctal



					us leisleri, Myotis daubentonii
BATLAS 2010	N9799576806	297995	276806	#####	Myotis spp., Unidentified bat
BATLAS 2010	N827768	282700	276800	9/1/2009	Pipistrellus pipistrellus (45kHz), Nyctalus leisleri, Myotis spp.
BATLAS 2010	N819724	281900	272400	9/1/2009	Pipistrellus pipistrellus (45kHz), Myotis daubentonii
BATLAS 2010	N824760	282400	276000	9/1/2009	Pipistrellus pipistrellus (45kHz), Pipistrellus spp. (45kHz/55kHz)
BATLAS 2020	N8143269123	281432	269123	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Nyctalus leisleri, Plecotus auritus
BATLAS 2020	N9568959410	295689	259410	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Nyctalus leisleri
BATLAS 2020	N9575959431	295759	259431	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Nyctalus leisleri
BATLAS 2020	N8600559798	286005	259798	#####	Pipistrellus pygmaeus, Myotis daubentonii
BATLAS 2020	N9202259857	292022	259857	#####	
BATLAS 2020	N9210859987	292108	259987	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus
BATLAS 2020	N8395960274	283959	260274	#####	Pipistrellus pipistrellus (45kHz)
BATLAS 2020	N8395760288	283957	260288	#####	Pipistrellus pygmaeus, Myotis daubentonii
BATLAS 2020	N8425361235	284253	261235	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Nyctalus leisleri
BATLAS 2020	N8590561333	285905	261333	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus





BATLAS 2020	N89311 62613	289 311	2626 13	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Nyctalus leisleri, Myotis daubentonii, Plecotus auritus
BATLAS 2020	N81163 62643	281 163	2626 43	#####	Pipistrellus pygmaeus
BATLAS 2020	N81188 62678	281 188	2626 78	#####	Pipistrellus pipistrellus (45kHz), Nyctalus leisleri
BATLAS 2020	N82683 65209	282 683	2652 09	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus
BATLAS 2020	N98183 66356	298 183	2663 56	8/9/2018	Nyctalus leisleri, Plecotus auritus, Pipistrellus spp. (45kHz/55kHz)
BATLAS 2020	N81869 67106	281 869	2671 06	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus
BATLAS 2020	N87432 67959	287 432	2679 59	8/3/2015	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Nyctalus leisleri, Myotis daubentonii, Plecotus auritus, Myotis nattereri
BATLAS 2020	N82813 68133	282 813	2681 33	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus
BATLAS 2020	N82825 68329	282 825	2683 29	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Nyctalus leisleri, Plecotus auritus, Myotis nattereri
BATLAS 2020	N88134 68440	288 134	2684 40	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Nyctalus leisleri, Myotis daubentonii
BATLAS 2020	N84455 69371	284 455	2693 71	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Nyctalus leisleri, Myotis daubentonii



BATLAS 2020	N91813 71317	291 813	2713 17	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Nyctalus leisleri, Myotis daubentonii, Pipistrellus spp. (45kHz/55kHz)
BATLAS 2020	N81874 72339	281 874	2723 39	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Nyctalus leisleri, Myotis daubentonii
BATLAS 2020	N97713 72826	297 713	2728 26	#####	
BATLAS 2020	N96376 73557	296 376	2735 57	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus spp. (45kHz/55kHz)
BATLAS 2020	N96150 73823	296 150	2738 23	#####	Pipistrellus pygmaeus, Myotis daubentonii
BATLAS 2020	N79296 74007	279 296	2740 07	5/1/2018	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Nyctalus leisleri, Myotis daubentonii
BATLAS 2020	N82378 75927	282 378	2759 27	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Nyctalus leisleri
BATLAS 2020	N97995 76806	297 995	2768 06	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus
BATLAS 2020	N82748 77115	282 748	2771 15	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus
Batline House Visits	N89665 9	289 600	2659 00	#####	Myotis daubentonii
Dublin Bat Group surveys	N96074 0	296 000	2740 00	#####	Myotis daubentonii
EIS surveys - Brian Keeley	N88434 65540	288 434	2655 40	#####	
EIS surveys -	N89339 66802	289 339	2668 02	#####	Pipistrellus pipistrellus (45kHz), Pipistrellus



Brian Keeley					pygmaeus, Nyctalus leisleri
EIS surveys - Brian Keeley	N89499 66980	289 499	2669 80	#####	
EIS surveys - Brian Keeley	N89499 66980	289 499	2669 80	#####	
EIS surveys - Brian Keeley	N94913 74391	294 913	2743 91	#####	Myotis daubentonii, Myotis nattereri, Plecotus auritus, Pipistrellus pygmaeus, Pipistrellus pipistrellus (45kHz)
EIS surveys - Brian Keeley	N91762 73120	291 762	2731 20	7/5/2023	Pipistrellus pipistrellus (45kHz), Pipistrellus pygmaeus, Plecotus auritus, Nyctalus leisleri
National Biodiversity Data Centre Bat Records	N82868 3	282 800	2683 00	#####	Plecotus auritus
National Biodiversity Data Centre Bat Records	N96573 3	296 500	2733 00	#####	Pipistrellus spp. (45kHz/55kHz)
Niamh Roche	N95374 2	295 300	2742 00	#####	Nyctalus leisleri
Pilot Woodland Monitoring Scheme 2016-2017	N97031 75866	297 031	2758 66	#####	Pipistrellus pygmaeus, Pipistrellus pipistrellus (45kHz), Nyctalus leisleri, Myotis mystacinus
Pilot Woodland Monitoring	N97031 75866	297 031	2758 66	#####	Myotis mystacinus, Nyctalus leisleri, Pipistrellus pipistrellus



g Scheme 2016- 2017				(45kHz),Pipistrellus pygmaeus
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## Appendix V

### Sound files from Song meter mini with Kaleidoscope sound analysis placed in the annex to the barn

2032	SMU03485_20230906_212106.wav	SMU03485_20230906_212106_000.wav	PIPPIP	30	30	1.000000
2033	SMU03485_20230907_043526.wav	SMU03485_20230907_043526_000.wav	PIPPIP	30	29	0.967000
2034	MINIB_20231218_184233.wav	MINIB_20231218_184233_000.wav	PIPPIP	28	28	1.000000
2035	SMU03485_20230906_215346.wav	SMU03485_20230906_215346_000.wav	PIPPIP	27	27	1.000000
2036	SMU03485_20230906_234655.wav	SMU03485_20230906_234655_000.wav	PIPPIP	27	27	1.000000
2037	SMU03485_20230907_023602.wav	SMU03485_20230907_023602_000.wav	PIPPIP	27	27	1.000000
2038	SMU03485_20230907_054651.wav	SMU03485_20230907_054651_000.wav	PIPPIP	46	27	0.587000
2039	MINIB_20231215_202626.wav	MINIB_20231215_202626_000.wav	PIPPIP	27	26	0.963000
2040	SMU03485_20230906_225712.wav	SMU03485_20230906_225712_000.wav	PIPPIP	27	26	0.963000
2041	SMU03485_20230907_033831.wav	SMU03485_20230907_033831_000.wav	PIPPIP	27	26	0.963000
2042	SMU03485_20230906_204218.wav	SMU03485_20230906_204218_000.wav	PIPPIP	25	25	1.000000
2043	SMU03485_20230906_223941.wav	SMU03485_20230906_223941_000.wav	PIPPIP	25	25	1.000000
2044	MINIB_20231218_183502.wav	MINIB_20231218_183502_000.wav	PIPPIP	26	25	0.962000
2045	SMU03485_20230906_203125.wav	SMU03485_20230906_203125_000.wav	PIPPIP	38	25	0.658000
2046	MINIB_20231218_041235.wav	MINIB_20231218_041235_000.wav	PIPPIP	24	24	1.000000
2047	MINIB_20231218_050535.wav	MINIB_20231218_050535_000.wav	PIPPIP	25	24	0.960000
2048	MINIB_20231218_050431.wav	MINIB_20231218_050431_000.wav	PIPPIP	20	20	1.000000
2049	SMU03485_20230906_204213.wav	SMU03485_20230906_204213_000.wav	PIPPIP	19	19	1.000000
2050	SMU03485_20230907_030410.wav	SMU03485_20230907_030410_000.wav	PIPPIP	19	19	1.000000
2051	SMU03485_20230907_060155.wav	SMU03485_20230907_060155_000.wav	PIPPIP	20	19	0.950000
2052	MINIB_20231218_220746.wav	MINIB_20231218_220746_000.wav	PIPPIP	19	18	0.947000
2053	MINIB_20231217_192028.wav	MINIB_20231217_192028_000.wav	PIPPIP	23	18	0.782000
2054	SMU03485_20230906_211526.wav	SMU03485_20230906_211526_000.wav	PIPPIP	17	17	1.000000
2055	SMU03485_20230906_212411.wav	SMU03485_20230906_212411_000.wav	PIPPIP	18	17	0.944000
2056	SMU03485_20230907_010727.wav	SMU03485_20230907_010727_000.wav	PIPPIP	21	17	0.810000
2057	SMU03485_20230907_022702.wav	SMU03485_20230907_022702_000.wav	PIPPIP	17	16	0.941000
2058	SMU03485_20230906_203110.wav	SMU03485_20230906_203110_000.wav	PIPPIP	18	16	0.889000
2059	MINIB_20231218_195421.wav	MINIB_20231218_195421_000.wav	PIPPIP	14	14	1.000000
2060	MINIB_20231218_195358.wav	MINIB_20231218_195358_000.wav	PIPPIP	14	14	1.000000
2061	MINIB_20231217_191950.wav	MINIB_20231217_191950_000.wav	PIPPIP	17	14	0.824000
2062	SMU03485_20230906_212352.wav	SMU03485_20230906_212352_000.wav	PIPPIP	13	13	1.000000
2063	SMU03485_20230907_010735.wav	SMU03485_20230907_010735_000.wav	PIPPIP	13	13	1.000000
2064	SMU03485_20230907_014212.wav	SMU03485_20230907_014212_000.wav	PIPPIP	13	13	1.000000
2065	SMU03485_20230906_232133.wav	SMU03485_20230906_232133_000.wav	PIPPIP	24	13	0.542000
2066	MINIB_20231215_202618.wav	MINIB_20231215_202618_000.wav	PIPPIP	12	12	1.000000
2067	SMU03485_20230906_222609.wav	SMU03485_20230906_222609_000.wav	PIPPIP	12	12	1.000000
2068	SMU03485_20230906_232332.wav	SMU03485_20230906_232332_000.wav	PIPPIP	12	12	1.000000
2069	MINIB_20231218_183517.wav	MINIB_20231218_183517_000.wav	PIPPIP	18	11	0.611000
2070	MINIB_20231224_221024.wav	MINIB_20231224_221024_000.wav	PIPPIP	10	10	1.000000

YEAR	FOLDER	IN FILE	OUT FILE FS	OUT FILE ZC	AUTO ID	PULSES	MATCHING	MATCH RATIO	MANU.
2890		MINIB_20231217_176023.wav	MINIB_20231217_176023_000.wav	PIPPYG	12	12	1.000000		
2891		MINIB_20231217_174916.wav	MINIB_20231217_174916_000.wav	PIPPYG	12	12	1.000000		
2892		MINIB_20231218_082809.wav	MINIB_20231218_082809_000.wav	PIPPYG	12	12	1.000000		
2893		MINIB_20231218_090643.wav	MINIB_20231218_090643_000.wav	PIPPYG	12	12	1.000000		
2894		MINIB_20231218_090708.wav	MINIB_20231218_090708_000.wav	PIPPYG	12	12	1.000000		
2895		MINIB_20231218_173646.wav	MINIB_20231218_173646_000.wav	PIPPYG	12	12	1.000000		
2896		MINIB_20231218_173808.wav	MINIB_20231218_173808_000.wav	PIPPYG	12	12	1.000000		
2897		MINIB_20231218_173826.wav	MINIB_20231218_173826_000.wav	PIPPYG	12	12	1.000000		
2898		MINIB_20231218_192556.wav	MINIB_20231218_192556_000.wav	PIPPYG	12	12	1.000000		
2899		MINIB_20231218_192246.wav	MINIB_20231218_192246_000.wav	PIPPYG	12	12	1.000000		
2900		MINIB_20231218_192632.wav	MINIB_20231218_192632_000.wav	PIPPYG	12	12	1.000000		
2901		MINIB_20231216_175428.wav	MINIB_20231216_175428_000.wav	PIPPYG	11	11	1.000000		
2902		MINIB_20231216_181150.wav	MINIB_20231216_181150_000.wav	PIPPYG	11	11	1.000000		
2903		MINIB_20231217_173556.wav	MINIB_20231217_173556_000.wav	PIPPYG	11	11	1.000000		
2904		MINIB_20231217_175158.wav	MINIB_20231217_175158_000.wav	PIPPYG	11	11	1.000000		
2905		MINIB_20231218_023637.wav	MINIB_20231218_023637_000.wav	PIPPYG	11	11	1.000000		
2906		MINIB_20231218_083629.wav	MINIB_20231218_083629_000.wav	PIPPYG	11	11	1.000000		
2907		MINIB_20231218_091653.wav	MINIB_20231218_091653_000.wav	PIPPYG	11	11	1.000000		
2908		MINIB_20231218_173505.wav	MINIB_20231218_173505_000.wav	PIPPYG	11	11	1.000000		
2909		MINIB_20231218_173929.wav	MINIB_20231218_173929_000.wav	PIPPYG	11	11	1.000000		
2910		MINIB_20231218_190231.wav	MINIB_20231218_190231_000.wav	PIPPYG	11	11	1.000000		
2911		MINIB_20231218_192448.wav	MINIB_20231218_192448_000.wav	PIPPYG	11	11	1.000000		
2912		MINIB_20231218_193446.wav	MINIB_20231218_193446_000.wav	PIPPYG	11	11	1.000000		
2913		MINIB_20231218_193744.wav	MINIB_20231218_193744_000.wav	PIPPYG	11	11	1.000000		
2914		MINIB_20231218_204446.wav	MINIB_20231218_204446_000.wav	PIPPYG	11	11	1.000000		
2915		MINIB_20231223_173421.wav	MINIB_20231223_173421_000.wav	PIPPYG	11	11	1.000000		
2916		MINIB_20231223_180429.wav	MINIB_20231223_180429_000.wav	PIPPYG	11	11	1.000000		
2917		MINIB_20231216_200051.wav	MINIB_20231216_200051_000.wav	PIPPYG	12	11	0.917000		
2918		MINIB_20231218_201115.wav	MINIB_20231218_201115_000.wav	PIPPYG	12	11	0.917000		
2919		MINIB_20231218_201525.wav	MINIB_20231218_201525_000.wav	PIPPYG	12	11	0.917000		
2920		SMU03485_20230906_222647.wav	SMU03485_20230906_222647_000.wav	PIPPYG	12	11	0.917000		
2921		MINIB_20231216_174429.wav	MINIB_20231216_174429_000.wav	PIPPYG	10	10	1.000000		
2922		MINIB_20231216_174701.wav	MINIB_20231216_174701_000.wav	PIPPYG	10	10	1.000000		
2923		MINIB_20231216_181600.wav	MINIB_20231216_181600_000.wav	PIPPYG	10	10	1.000000		
2924		MINIB_20231217_174037.wav	MINIB_20231217_174037_000.wav	PIPPYG	10	10	1.000000		
2925		MINIB_20231217_174420.wav	MINIB_20231217_174420_000.wav	PIPPYG	10	10	1.000000		
2926		MINIB_20231217_174342.wav	MINIB_20231217_174342_000.wav	PIPPYG	10	10	1.000000		
2927		MINIB_20231218_082827.wav	MINIB_20231218_082827_000.wav	PIPPYG	10	10	1.000000		
2928		MINIB_20231218_173126.wav	MINIB_20231218_173126_000.wav	PIPPYG	10	10	1.000000		
2929		MINIB_20231218_173405.wav	MINIB_20231218_173405_000.wav	PIPPYG	10	10	1.000000		
2930		MINIB_20231218_195750.wav	MINIB_20231218_195750_000.wav	PIPPYG	10	10	1.000000		

## Appendix VI





## Anabat walkabout recordings July 2024 handheld by Donna Mullen

File	FOLDER	IN FILE	OUT FILE FS	OUT FILE ZC	AUTO ID	PULSES	MATCHING	MATCH RATIO	MANUAL
1		2024-07-09 23-42-03.wav	2024-07-09 23-42-03_00000_000.wav		NYCLEI	31	26	0.839000	
2		2024-07-09 23-56-10.wav	2024-07-09 23-56-10_00000_000.wav		NYCLEI	9	8	0.889000	
3		2024-07-10 00-05-38.wav	2024-07-10 00-05-38_00000_000.wav		NoID	2	0	0.000000	Noise
4		2024-07-10 00-03-44.wav	2024-07-10 00-03-44_00000_000.wav		NoID	4	0	0.000000	Noise
5		2024-07-10 00-04-14.wav	2024-07-10 00-04-14_00000_000.wav		NoID	4	0	0.000000	Noise
6		2024-07-10 00-05-32.wav	2024-07-10 00-05-32_00000_000.wav		NoID	2	0	0.000000	Noise
7		2024-07-10 00-08-44.wav	2024-07-10 00-08-44_00000_000.wav		NoID	4	0	0.000000	Noise
8		2024-07-09 23-41-28.wav	2024-07-09 23-41-28_00000_000.wav		Noise				Noise
9		2024-07-09 23-40-37.wav	2024-07-09 23-40-37_00000_000.wav		Noise				Noise
300		2024-07-10 05-37-17.wav	2024-07-10 05-37-17_00000_000.wav		Noise				
301		2024-07-10 05-37-46.wav	2024-07-10 05-37-46_00000_000.wav		Noise				
302		2024-07-10 05-46-45.wav	2024-07-10 05-46-45_00000_000.wav		Noise				
303		2024-07-10 05-48-02.wav	2024-07-10 05-48-02_00000_000.wav		Noise				
304		2024-07-10 05-49-32.wav	2024-07-10 05-49-32_00000_000.wav		Noise				
305		2024-07-09 23-55-40.wav	2024-07-09 23-55-40_00000_000.wav		PIPPIP	11	8	0.727000	PIPPIP
306		2024-07-09 23-55-51.wav	2024-07-09 23-55-51_00000_000.wav		PIPPIP	4	4	1.000000	PIPPIP
307		2024-07-10 00-04-29.wav	2024-07-10 00-04-29_00000_000.wav		PIPPYG	30	23	0.767000	PIPPYG
308		2024-07-10 00-02-07.wav	2024-07-10 00-02-07_00000_000.wav		PIPPYG	20	20	1.000000	PIPPYG
309		2024-07-10 00-07-28.wav	2024-07-10 00-07-28_00000_000.wav		PIPPYG	20	15	0.750000	PIPPYG
310		2024-07-10 00-03-59.wav	2024-07-10 00-03-59_00000_000.wav		PIPPYG	15	14	0.933000	PIPPYG
311		2024-07-10 00-07-03.wav	2024-07-10 00-07-03_00000_000.wav		PIPPYG	11	11	1.000000	PIPPYG
312		2024-07-10 00-03-22.wav	2024-07-10 00-03-22_00000_000.wav		PIPPYG	10	10	1.000000	PIPPYG
313		2024-07-10 00-08-18.wav	2024-07-10 00-08-18_00000_000.wav		PIPPYG	8	8	1.000000	PIPPYG
314		2024-07-10 00-06-28.wav	2024-07-10 00-06-28_00000_000.wav		PIPPYG	7	7	1.000000	PIPPYG
315		2024-07-09 23-42-47.wav	2024-07-09 23-42-47_00000_000.wav		PIPPYG	4	4	1.000000	PIPPYG
316		2024-07-10 00-05-54.wav	2024-07-10 00-05-54_00000_000.wav		PIPPYG	5	4	0.800000	Noise
317		2024-07-09 23-57-44.wav	2024-07-09 23-57-44_00000_000.wav		PIPPYG	3	3	1.000000	Noise
318		2024-07-10 00-03-34.wav	2024-07-10 00-03-34_00000_000.wav		PIPPYG	2	2	1.000000	Noise

## Appendix VII

### Song meter mini recordings 2024 – July

File	FOLDER	IN FILE	OUT FILE FS	OUT FILE ZC	AUTO ID	PULSES	MATCHING	MATCH RATIO	MANUAL
1	Data	NEWMINI01_20240709_223136.wav	NEWMINI01_20240709_223136_000.wav		NYCLEI	14	14	1.000000	
2	Data	NEWMINI01_20240709_225517.wav	NEWMINI01_20240709_225517_000.wav		NYCLEI	13	13	1.000000	
3	Data	NEWMINI01_20240709_222057.wav	NEWMINI01_20240709_222057_000.wav		NYCLEI	13	12	0.923000	
4	Data	NEWMINI01_20240709_230338.wav	NEWMINI01_20240709_230338_000.wav		NYCLEI	10	10	1.000000	
5	Data	NEWMINI01_20240709_222441.wav	NEWMINI01_20240709_222441_000.wav		NYCLEI	8	8	1.000000	
6	Data	NEWMINI01_20240710_041002.wav	NEWMINI01_20240710_041002_000.wav		NYCLEI	6	6	1.000000	
7	Data	NEWMINI01_20240709_230846.wav	NEWMINI01_20240709_230846_000.wav		NYCLEI	5	5	1.000000	
8	Data	NEWMINI01_20240709_224118.wav	NEWMINI01_20240709_224118_000.wav		NYCLEI	8	5	0.625000	
9	Data	NEWMINI01_20240710_004059.wav	NEWMINI01_20240710_004059_000.wav		NYCLEI	4	4	1.000000	
10	Data	NEWMINI01_20240710_032330.wav	NEWMINI01_20240710_032330_000.wav		NYCLEI	4	4	1.000000	
11	Data	NEWMINI01_20240709_222431.wav	NEWMINI01_20240709_222431_000.wav		NYCLEI	2	2	1.000000	
12	Data	NEWMINI01_20240710_033029.wav	NEWMINI01_20240710_033029_000.wav		NYCLEI	2	2	1.000000	
13	Data	NEWMINI01_20240710_042345.wav	NEWMINI01_20240710_042345_000.wav		NYCLEI	2	2	1.000000	
14	Data	NEWMINI01_20240709_223632.wav	NEWMINI01_20240709_223632_000.wav		NYCLEI	3	2	0.667000	NYCLEIS
15	Data	NEWMINI01_20240709_220728.wav	NEWMINI01_20240709_220728_000.wav		NoID	2	0	0.000000	Noise
16	Data	NEWMINI01_20240709_220226.wav	NEWMINI01_20240709_220226_000.wav		NoID	3	0	0.000000	Noise
17	Data	NEWMINI01_20240709_221922.wav	NEWMINI01_20240709_221922_000.wav		NoID	2	0	0.000000	Noise
18	Data	NEWMINI01_20240709_223517.wav	NEWMINI01_20240709_223517_000.wav		NoID	4	0	0.000000	Noise
19	Data	NEWMINI01_20240709_223626.wav	NEWMINI01_20240709_223626_000.wav		NoID	3	0	0.000000	Noise
20	Data	NEWMINI01_20240709_223529.wav	NEWMINI01_20240709_223529_000.wav		NoID	15	0	0.000000	PIP
21	Data	NEWMINI01_20240709_230904.wav	NEWMINI01_20240709_230904_000.wav		NoID	3	0	0.000000	Noise
22	Data	NEWMINI01_20240710_044608.wav	NEWMINI01_20240710_044608_000.wav		NoID	2	0	0.000000	Noise
23	Data	NEWMINI01_20240710_035416.wav	NEWMINI01_20240710_035416_000.wav		NoID	5	0	0.000000	Noise
24	Data	NEWMINI01_20240709_220307.wav	NEWMINI01_20240709_220307_000.wav		Noise				Noise
25	Data	NEWMINI01_20240709_220342.wav	NEWMINI01_20240709_220342_000.wav		Noise				Noise



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	FOLDER	IN FILE	OUT FILE FS	OUT FILE ZC	AUTO ID	PULSES	MATCHING	MATCH RATIO	MANUAL ID
92	Data	NEWMINI01_20240710_053212.wav	NEWMINI01_20240710_053212_000.wav		Noise				
93	Data	NEWMINI01_20240710_053227.wav	NEWMINI01_20240710_053227_000.wav		Noise				
94	Data	NEWMINI01_20240710_053815.wav	NEWMINI01_20240710_053815_000.wav		Noise				
95	Data	NEWMINI01_20240710_053903.wav	NEWMINI01_20240710_053903_000.wav		Noise				
96	Data	NEWMINI01_20240709_220942.wav	NEWMINI01_20240709_220942_000.wav		PIPPIP	134	125	0.933000	
97	Data	NEWMINI01_20240709_221216.wav	NEWMINI01_20240709_221216_000.wav		PIPPIP	120	115	0.958000	
98	Data	NEWMINI01_20240709_221039.wav	NEWMINI01_20240709_221039_000.wav		PIPPIP	122	113	0.926000	
99	Data	NEWMINI01_20240709_222912.wav	NEWMINI01_20240709_222912_000.wav		PIPPIP	107	105	0.981000	
100	Data	NEWMINI01_20240709_221057.wav	NEWMINI01_20240709_221057_000.wav		PIPPIP	102	96	0.941000	
101	Data	NEWMINI01_20240709_221024.wav	NEWMINI01_20240709_221024_000.wav		PIPPIP	96	93	0.969000	
102	Data	NEWMINI01_20240709_222332.wav	NEWMINI01_20240709_222332_000.wav		PIPPIP	76	69	0.908000	
103	Data	NEWMINI01_20240709_222939.wav	NEWMINI01_20240709_222939_000.wav		PIPPIP	64	62	0.969000	
104	Data	NEWMINI01_20240709_220957.wav	NEWMINI01_20240709_220957_000.wav		PIPPIP	67	61	0.910000	
105	Data	NEWMINI01_20240709_223024.wav	NEWMINI01_20240709_223024_000.wav		PIPPIP	41	39	0.951000	
106	Data	NEWMINI01_20240709_221603.wav	NEWMINI01_20240709_221603_000.wav		PIPPIP	36	36	1.000000	
107	Data	NEWMINI01_20240709_221431.wav	NEWMINI01_20240709_221431_000.wav		PIPPIP	30	28	0.933000	
108	Data	NEWMINI01_20240709_222252.wav	NEWMINI01_20240709_222252_000.wav		PIPPIP	13	13	1.000000	
109	Data	NEWMINI01_20240709_222300.wav	NEWMINI01_20240709_222300_000.wav		PIPPIP	5	5	1.000000	
110	Data	NEWMINI01_20240709_223444.wav	NEWMINI01_20240709_223444_000.wav		PIPPIP	5	5	1.000000	
111	Data	NEWMINI01_20240709_222355.wav	NEWMINI01_20240709_222355_000.wav		PIPPIP	9	5	0.556000	
112	Data	NEWMINI01_20240709_221510.wav	NEWMINI01_20240709_221510_000.wav		PIPPIP	4	4	1.000000	
113	Data	NEWMINI01_20240709_221424.wav	NEWMINI01_20240709_221424_000.wav		PIPPIP	4	4	1.000000	
114	Data	NEWMINI01_20240709_222351.wav	NEWMINI01_20240709_222351_000.wav		PIPPIP	4	4	1.000000	
115	Data	NEWMINI01_20240709_222405.wav	NEWMINI01_20240709_222405_000.wav		PIPPIP	4	4	1.000000	
116	Data	NEWMINI01_20240709_233143.wav	NEWMINI01_20240709_233143_000.wav		PIPPIP	4	4	1.000000	
117	Data	NEWMINI01_20240709_222315.wav	NEWMINI01_20240709_222315_000.wav		PIPPIP	3	3	1.000000	
118	Data	NEWMINI01_20240709_223455.wav	NEWMINI01_20240709_223455_000.wav		PIPPIP	2	2	1.000000	
119	Data	NEWMINI01_20240709_223723.wav	NEWMINI01_20240709_223723_000.wav		PIPPIP	2	2	1.000000	
120	Data	NEWMINI01_20240709_223714.wav	NEWMINI01_20240709_223714_000.wav		PIPPIP	4	2	0.500000	
121	Data	NEWMINI01_20240709_224201.wav	NEWMINI01_20240709_224201_000.wav		PIPPIP	6	1	0.167000	
122	Data	NEWMINI01_20240710_001523.wav	NEWMINI01_20240710_001523_000.wav		PIPPYG	56	55	0.982000	
123	Data	NEWMINI01_20240710_002937.wav	NEWMINI01_20240710_002937_000.wav		PIPPYG	57	52	0.912000	
124	Data	NEWMINI01_20240710_031658.wav	NEWMINI01_20240710_031658_000.wav		PIPPYG	48	41	0.854000	
125	Data	NEWMINI01_20240710_021117.wav	NEWMINI01_20240710_021117_000.wav		PIPPYG	34	31	0.912000	
126	Data	NEWMINI01_20240709_223011.wav	NEWMINI01_20240709_223011_000.wav		PIPPYG	28	28	1.000000	
127	Data	NEWMINI01_20240710_002829.wav	NEWMINI01_20240710_002829_000.wav		PIPPYG	27	22	0.815000	
128	Data	NEWMINI01_20240710_002919.wav	NEWMINI01_20240710_002919_000.wav		PIPPYG	37	22	0.595000	
129	Data	NEWMINI01_20240709_223000.wav	NEWMINI01_20240709_223000_000.wav		PIPPYG	21	17	0.810000	
130	Data	NEWMINI01_20240710_002839.wav	NEWMINI01_20240710_002839_000.wav		PIPPYG	33	8	0.242000	
131	Data	NEWMINI01_20240710_002928.wav	NEWMINI01_20240710_002928_000.wav		PIPPYG	17	1	0.059000	

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