

St Marys Collegiate Church
Youghal
Co. Cork
Bat Survey of roof area northern transept

Report by

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SUMMARY

Site:	Medieval Church
Structure and proposed work;	Ecclesiastical building with pitched, slated roof. Roof repair of northern transept. Completion of work initiated in 2023
Grid reference:	GR IX 10207 78103
Bat species present:	Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>) C 30, Leislars Bat (<i>Nyctalus leisleri</i>) C 2
Roost location:	Cavity in wall for Leislars, Under slates for Pipistrelles.
Bat access:	Under eaves
Possible Alternative works?:	In the absence to this proposed work the roof will deteriorate and the building and habitat will cease to exist.
Impact on bats:	None anticipated. with mitigation measures.
Protected species present:	2 bat species
Habitats present:	4: Buildings and Artificial Surfaces (BL3), Amenity Grassland (improved) (GA2) Tree lines (WL2) Flower Beds and Borders (BC4)
Derogation licence reason:	Species Protection under Habitats Directive System of strict protections (Articles 12-16 of the Habitats Directive) Article 16 identifies the conditions under which a Member State can derogate from the strict protection provisions. 1. Provided that there is no satisfactory alternative and the derogation is not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status in their natural range, Member States may derogate from the provisions of Articles 12, 13, 14 and 15 (a) and (b): (c) in the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment;
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Introduction

A proposal to undertake the partial repair of the roof of the Collegiate Church of Saint Mary in Youghal, Co. Cork has resulted in a request for a bat/bird survey to ensure that any bats/birds currently using the site are safe guarded during proposed works. Gerard Tobin BSc. M.A. was asked by The David Kelly Partnership, Chartered Engineers, to undertake this survey to ascertain possible bat presence on-site.

Previous repair work carried out in 2023 now needs to be completed.

History

The current church is built on the site of at least one and possibly two previous churches. The Collegiate Church is a building of great historical importance for Ireland. It is now a National Monument of Ireland. The Collegiate Church is under the care of the government, by way of a lease between the Church of Ireland Representative Church Body, and the Youghal Urban District Council.

Early history

According to local tradition, an early monastic church was founded by Declán of Ardmore in the mid 5th-century. It was supposedly rebuilt in Irish Romanesque style around 750.

The current form of the church dates to roughly the year 1220, and contains traces of an earlier, eleventh-century church that was damaged in 1192. The roof timbers have been carbon dated by Queen's University Belfast to the year 1170. There was an early 13th century re-building and this was under the direction and hand of the Masters of four local guilds of operative masons, whose marks are still to be found on the pillars of the gothic arches.

On St John's Day (27 December) 1464 St. Mary's was made a Collegiate Church, with the foundation of Our Lady's College of Youghal by Thomas FitzGerald, 7th Earl of Desmond (proprietor of Youghal and Lord Deputy of Ireland), for the purpose of training seminarians.

Following the Reformation, the church and its assets came into the control of the Established church. The majority Roman Catholic population was obliged to quit the church and to conduct their services elsewhere on private premises.

In 1649, during the Commonwealth, Oliver Cromwell conducted his campaign from Youghal and delivered a funeral oration from the top of a chest which is still preserved in the church.

In 1833, £200 was given to the parish for slating the church roof and the present roof was accordingly put in. A restoration of a remedial nature was carried out between 1970 and 1973. In the late 1980s a chapel in the north transept, using the furnishing of the closed church of Templemichael, was created. This is not a 'Lady Chapel' as the church itself is dedicated to Our Lady, Saint Mary the Virgin.

Alongside Cloyne Cathedral and Saint Multose Church, Kinsale, the Collegiate Church of St Mary is one of the three largest surviving 13th century Gothic churches in Cork.

The west window of the nave of St Mary's is an example of Early English Gothic architecture. The church is cruciform in shape.

Site location and access

The site is located in Youghal, Co. Cork and is accessed from the road via a tree lined avenue.

Bat Survey

This report presents the results of a site visit by Gerard Tobin on 27th and 28rd June 2024 during which the site and structures were inspected. The bat/bird fauna occurring on the site are described and the likely impacts of the proposed works on the fauna are discussed with recommendations for mitigation measures if necessary.

Survey methodology

A bat emergence/re-entry count and an inspection of the current built infrastructure, particularly in the roofing areas proposed to be altered was carried out at dusk and dawn 27th and 28th June 2024.

Survey of bat/bird fauna was carried out by means of a thorough search within the site. The roof and walls were inspected for bat use. Principally their signs, such as staining, lack of spider webs, feeding signs or droppings - indicate presence of bats though direct observations are also occasionally made. The nature and type of habitats present are also indicative of the species likely to be present.

The presence or absence of cavities in the building, suitable for bats, was used as an indicator of likely bat presence. Where suitable cavities were found a further visual examination of the area was undertaken using infra-red imaging equipment (Bresser Digital Nightvision NightSpyDIGI Pro HD) and a Ciel Electronique CDB 301 HD/FD Bat detector and an Echo Meter Touch 2 (for Android) Bat detector with software app on Samsung Galaxy GT along with both a "V-Scope" flexible fibre borescope and a fibre optic video camera capable of looking into small cavities.

A Magellan Explorist handheld GPS unit was used to mark the location of items of interest on-site. Heavy tree cover may compromise the accuracy of GPS locations.

Digital cameras (Canon 1000D and Canon IXUS 185) were used to document items of interest.

Survey constraints

The survey was carried out by means of a thorough examination of the site. There were no climatic constraints or seasonal constraints in regard to bat survey as it was undertaken within the active bat season. Daytime temperatures reached 14° Celsius and fell to 11° Celsius at dusk and dawn. There had been rain throughout the previous days. There was scattered rain during the survey field work.

Brief description of St. Mary's, Youghal from the perspective of bat/bird habitat

The building is situated in an urban area, surrounded by hedgerows, gardens and trees. There are many buildings nearby. These habitats tend to be favourable to some species of bat. Previous studies (Kelleher 2002 and Kelleher 2012 unpublished) have identified 4 species of bat present in the building at those times (Common Pipistrelles, Soprano Pipistrelles, Leislers Bat and Brown Long Eared bat.

Results of bat/bird survey

The buildings, potentially, offer opportunities for bat use, as there is available access to cavities within the wall space and in cavities within the roof voids. There is evidence of bat droppings in the building and Soprano Pipistrelle (*Pipistrellus pygmaeus*) C 30, Leislers Bat (*Nyctalus leisleri*) C 2 were seen exiting and re-entering at the gable end wall of the transept under the eaves.

Indication of significance of site for bats/birds

There is evidence that bats are currently present in the building. Bats were seen and heard exiting the roost at dusk. There are Soprano Pipistrelle (*Pipistrellus pygmaeus*) C 30, Leislers Bat (*Nyctalus leisleri*) C 2 in a roost under the slates and in the roof void of the church's northern transept. There are a small number of bats elsewhere but the bulk of the roost is in this transept.

Legal status and conservation issues – bats

All Irish bat species are protected under the Wildlife Act (1976) and Wildlife Amendment Act (2000). Also, the EC Directive on The Conservation of Natural habitats and of Wild Fauna and Flora (Habitats Directive 1992), seeks to protect rare species, including bats, and their habitats and requires that appropriate monitoring of populations be undertaken. Across Europe, they are further protected under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), which, in relation to bats, exists to conserve all species and their habitats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was instigated to protect migrant species across all European boundaries. The Irish government has ratified both these conventions.

All bats are listed in Annex IV of the Habitats Directive and the lesser horseshoe bat is further listed under Annex II.

Legal status and conservation issues – birds

Legislation The Wildlife Acts 1976-2018 is the main Irish legislation protecting biodiversity. Almost all flora and fauna species, and the habitats in which they live and reproduce, are protected under these Acts. The European Communities (Birds and Natural Habitats) Regulations (2011-2015) transpose the EU Habitats Directive (92/43/EEC) and the EU Birds Directives (79/409/EEC) into Irish law. The EU Habitats Directive provides protection to threatened habitats, flora and fauna. The EU Birds Directive provides protection to all wild birds, their nests and eggs. What does this mean for wildlife in buildings? Breeding and resting places of protected wildlife are afforded protection under the Wildlife Acts and EU law. Therefore, disturbance to protected wildlife or their breeding/resting places may be an offence. If protected wildlife is discovered during works, activities must stop. For example if a bird's nest is found during roof renovations, works should stop immediately to avoid committing an offence, and the advice of your local NPWS Conservation Ranger should be sought.

Potential impacts of proposed works on bat/bird fauna

The proposed works should not adversely affect bats/birds with the suggested mitigation measures..

Mitigation measures

As there are bats present in the building there is a requirement for mitigation measures and the timing of the works and some general mitigation measures are outlined to protect nesting birds and promote future roosting of bats.

Application for a derogation licence

NB: Works on a known bat roost is a notifiable action under current legislation and a derogation licence has to be obtained from the National Parks and Wildlife Service before works can commence.

A licence is required in this instance. Species Protection under Habitats Directive

System of strict protections (Articles 12-16 of the Habitats Directive)

Derogations

Article 16 identifies the conditions under which a Member State can derogate from the strict protection provisions.

1. Provided that there is no satisfactory alternative and the derogation is not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status in their natural range, Member States may derogate from the provisions of Articles 12, 13, 14 and 15 (a) and (b):

(c) in the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment;

The David Kelly Partnership should immediately contact NPWS to arrange this derogation licence.

There is no satisfactory alternative to the works proposed as the roof on the church is currently in disrepair and will need to be replaced/repared for the purpose of conservation of the medieval building and will result in an economic loss and subsequent health and safety issues for the Church Authorities and the National Monuments service. The roost will continue to be habitable by bats post works.

Measure 1: timing of works

No work shall be undertaken until after November 10th when bat numbers are known to be lower in buildings and bats will be hibernating elsewhere.

Measure 2: timber treatments

Where chemical treatment of new roof timbers in the building is necessary then only bat safe compounds may be used and a list of suitable chemicals is given in the appendix.

Measure 3: demolition

Any demolition of the roof shall be done carefully with the possibility that individual bats may be found. If discovered, the animals shall be retained in a box until dusk and released on site. A qualified ecologist shall be contacted and the NPWS wildlife ranger shall be notified.

Measure 4: water tanks

Any water tanks sited within the roof space of the building shall be permanently covered to prevent future accidental drowning of and contamination by bats.

Measure 5: enhancement of bat roosts in the new building

Access for bats shall be included in any construction of the new roof. Plans for access are attached.

Four bat boxes (plans in the attachments) shall be erected in the vicinity of the building.

Measure 6: roofing membranes

No membranes shall be used under slates. These can cause bats to become entangled and trapped. Bituminous felt may be used as it allows bats to grip. No netting shall be used on scaffolding.

Measure 7: swift nest boxes

Swift nest boxes will be erected under the eaves of the building.

Measure 8 : lighting

Lighting has increased dramatically over the last number of years as a result of many new developments. This includes aesthetic lighting of bridges, monuments and buildings, flood lighting of sports grounds, street and road lighting and security lighting of urban and rural areas to name but a few. Lighting can impact on bats' roosting sites, commuting routes and foraging areas. Contrary to common belief, bats are not blind. While bats tend to rely on a type of sonar, known as echolocation, for orientation and hunting during the hours of darkness, vision is still an important sense for bats. When bats emerge from roosts early in the evening, they tend not to echolocate but rely on eyesight to fly from the roost to adjoining treelines or hedgerows. Various studies have shown that bats' eyesight works best in dim light conditions. Where there is too much luminance, bats' vision can be reduced resulting in disorientation. While light sensitivity varies between species, bats tend to have a higher tolerance for red visual light than white light. Short wave frequency (UV) light is most disturbing for bats. This is due to the fact that bats have a higher proportion of rods in their retina compared to cones. The rods allow greater absorption of light in dim conditions. Too much luminance at bat roosts may cause bats to desert a roost. Light falling on a roost exit point can delay bats from emerging and miss peak levels of insect activity at dusk. Any delays of emergence can reduce feeding periods. Lighting can also disturb bats' feeding behaviour. Many night flying insects are attracted to lights especially those lamps that emit UV light. A single source of light in a dark area can cause local insect populations to congregate in concentrations around the light source. While some Irish bat species such as Leisler's bats will opportunistically feed on such insect gatherings, the majority of Irish

bat species are too sensitive to such light sources and suffer from insect populations being reduced in traditional feeding areas. In addition, artificial lighting can increase the chances of bats being preyed on. Lighting can be particularly harmful to bat populations along river corridors, woodland edges, along hedgerows and treelines and at lake edges.

Measure 9: Types of light

Low Pressure Sodium (SOX) – this light (typically orange light) is emitted at a single wavelength with a very low amount of UV. Therefore very few insects are attracted to this light source and it has a minimal effect on bats. High Pressure Sodium (SON) – this light (typically pinkish-yellow light) is emitted over a slightly broader wavelength spectrum. It is a more intense light so attracts more insects and has a greater impact on bats. Metal Halide & Mercury vapour – these are white light sources that emit light at wavelengths across the colour spectrum and emit high levels of UV. These light types can attract high levels of insects and because it is a close match to daylight has a greater impact on bats. Metal halide typically comes in three types: Quartz arc tube; Ceramic arc tube and Cosmo ceramic. Luminary (Light) accessories Shields – these can be mounted at the front or back of luminaire. Masking – by painting a section of the luminaire protectors, light will be blocked from penetrating through. Louvres – these can be either internal or external rows of slates angled to block light in a certain direction.

Avoid lighting along rivers, lakes and canals. Avoid lighting along important commuting routes. Avoid the use of mercury or metal halide lamps Minimise light spills using shields, masking & louvres Keep light columns as low as possible Restrict lights to ensure that there are dark areas Restrict lights to ensure that there are dark hours.

Measure 10. Sensor lighting to reduce energy wastage

Measure 11. Use of planting to reduce impacts of lighting

Measure 12. Use of demountable columns

Measure 13. Screening to reduce impacts of lighting

Measure 14. Assessment of lighting regime after installation

Measure 15. Greater use of the solar clock to control timing of lighting

Potential impact of work on bird fauna

Timing of the works until after November 10th will prevent negative impact on birds.

Predicted and Residual impact of the proposal

No major bat roosts should be lost due to the proposed works if the recommended mitigation measures are implemented.

The impact on avian species can be minimised if the recommended mitigation measures are followed.

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Appendices

Bat ecology – general

The bat is the only mammal that is capable of true flight. There are over 1,100 species worldwide, representing almost a quarter of all mammal species. There are 47 species in Europe - in Ireland, ten species of bat are currently known to exist, which are classified into two families, the Rhinolophidae (Horseshoe bats) and the Vespertilionidae (Common bats).

Prey

All the European bat species feed exclusively on insects. A Pipistrelle, weighing only 4 to 8 grammes, will eat up to 3000 insects every night, ensuring a build up of fat in the bat's body to allow it to survive the winter deep in hibernation.

Breeding and longevity

Irish bats can produce one young per year but, more usually, only one young is born every two years (Boyd & Stebbings, 1989). This slow rate of reproduction inhibits repopulation in areas of rapid decline. Although bats have been known to live for twenty or more years, this is rare as most die in their first and the average lifespan, in the wild, is four years.

Threats

All bat species are in decline as they face many threats to their highly developed and specialised lifestyles. Many bats succumb to poisons used as woodworm treatments within their roosting sites (Racey & Swift, 1986). Agricultural intensification, with the loss of hedgerows, treelines, woodlands and species-rich grasslands have impacted bat species also. Habitual roosting or hibernation sites in caves, mines, trees and disused buildings are also often lost to development. Summer roosts are prone to disturbance from vandals. Agricultural pesticides accumulate in their prey, reaching lethal doses (Jefferies, 1972). Chemical treatments in cattle production sterilise dung thus ensuring that no insects can breed within it to be fed upon by bats. Likewise, river pollution, from agricultural runoff, reduces the abundance of aquatic insects. Road building, with the resultant loss of foraging and roosting sites is a significant cause in the reduction of bat populations across Europe.

Extinction

As recently as 1992, the greater mouse-eared bat *Myotis myotis* became the first mammal to become extinct in Britain since the wolf in the 18th century.

Description of bat species known or expected from the area

Common pipistrelle *Pipistrellus pipistrellus*

This species was only recently separated from its sibling, the soprano or brown pipistrelle *P. pygmaeus*, which is detailed below (Barratt *et al*, 1997). The common pipistrelle's echolocation calls peak at 45 kHz. The species forages along linear landscape features such as hedgerows and treelines as well as within woodland.

Soprano pipistrelle *Pipistrellus pygmaeus*

The soprano pipistrelle's echolocation calls peak at 55 kHz, which distinguishes it readily from the common pipistrelle on detector. The pipistrelles are the smallest and most often seen of our bats, flying at head height and taking small prey such as midges and small moths. Summer roost sites are usually in buildings but tree holes and heavy ivy are also used. Roost numbers can exceed 1,500 animals in mid-summer.

Nathusius' pipistrelle *Pipistrellus nathusii*

Nathusius' pipistrelle is a recent addition to the Irish fauna and has mainly been recorded from the north-east of the island in Counties Antrim and Down (Richardson, 2000) and also in Fermanagh, Longford and Cavan. It has also recently been recorded in Counties Cork and Kerry (Kelleher, 2005). However, the known resident population is enhanced in the autumn months by an influx of animals from Scandinavian countries. The status of the species has not yet been determined.

Leisler's bat *Nyctalus leisleri*

This species is Ireland's largest bat, with a wingspan of up to 320mm; it is also the third most common bat, preferring to roost in buildings, although it is sometimes found in trees and bat boxes. It is the earliest bat to emerge in the evening, flying fast and high with occasional steep dives to ground level, feeding on moths, caddis-flies and beetles. The echolocation calls are sometimes audible to the human ear being around 15 kHz at their lowest. The audible chatter from their roost on hot summer days is sometimes an aid to location. This species is uncommon in Europe and as Ireland holds the largest national population the species is considered as Near Threatened here.

Brown long-eared bat *Plecotus auritus*

This species of bat is a 'gleaner', hunting amongst the foliage of trees and shrubs, and hovering briefly to pick a moth or spider off a leaf, which it then takes to a sheltered perch to consume. They often land on the ground to capture their prey. Using its nose to emit its echolocation, the long-eared bat 'whispers' its calls so that the insects, upon which it preys, cannot hear its approach (and hence, it needs oversize ears to hear the returning echoes). As this is a whispering species, it is extremely difficult to monitor in the field as it is seldom heard on a bat detector. Furthermore, keeping within the foliage, as it does, it is easily overlooked. It prefers to roost in old buildings.

Natterer's bat *Myotis nattereri*

This species has a slow to medium flight, usually over trees but sometimes over water. It usually follows hedges and treelines to its feeding sites, consuming flies, moths, caddis-flies and spiders. Known roosts are usually in old stone buildings but

they have been found in trees and bat boxes. The Natterer's bat is one of our least studied species and further work is required to establish its status in Ireland.

Whiskered bat *Myotis mystacinus*

This species, although widely distributed, has been rarely recorded in Ireland. It is often found in woodland, frequently near water. Flying high, near the canopy, it maintains a steady beat and sometimes glides as it hunts. It also gleans spiders from the foliage of trees. Whiskered bats prefer to roost in buildings, under slates, lead flashing or exposed beneath the ridge beam within attics. However, they also use cracks and holes in trees and sometimes bat boxes. The whiskered bat is one of our least studied species and further work is required to establish its status in Ireland.

Brandt's bat *Myotis brandtii*

This species is known from five specimens found in Counties Wicklow (Mullen, 2007), Cavan, and Clare in 2003, a specimen in Kerry in 2005 (Kelleher, 2006b) and another in Tipperary in 2006 (Kelleher, 2006a). No maternity roosts have yet been found. It is very similar to the whiskered bat and cannot be separated by the use of detectors. Its habits are similar to its sibling.

List of Irish bat species and adjudged status on site

Bats		Status on site
<i>Chiroptera</i> ¹		
Common Pipistrelle ²	<i>Pipistrellus pipistrellus</i>	Potential
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	Present
Nathusius' Pipistrelle	<i>Pipistrellus nathusii</i>	Potential
Brown Long-eared	<i>Plecotus auritus</i>	Potential
Leisler's	<i>Nyctalus leisleri</i>	Present
Lesser Horseshoe	<i>Rhinolophus hipposideros</i>	Absent
Whiskered	<i>Myotis mystacinus</i>	Unlikely
Natterer's	<i>Myotis nattereri</i>	Potential
Daubenton's	<i>Myotis daubentonii</i>	Potential
Brandt's	<i>Myotis brandtii</i>	Unlikely

¹ Bat distribution records from O'Sullivan (1994) and Richardson (2000).

² Two common species of pipistrelle bat are present in Ireland, recent taxonomic revision. The species are identified by the frequency they use for echolocation (46Hz [Common] and 55Hz [Soprano]), and both occur in similar habitats. Roosts occur in buildings and trees.

Timber treatment list

Products suitable for use in a bat roost can be described in terms of the active ingredients (biocides) that they contain.

Any products containing active ingredients listed in the following Table 1 are suitable for use in a bat roost. Products intended for remedial timber treatment may also carry a British HSE number indicating that they have received approval under the UK Control of Pesticides Regulations (COPR) 1986, but decorative finishes usually contain such low levels of biocides that they are exempt from this requirement (in the UK).

Table 1: Insecticides and fungicides suitable for use in bat roosts

Insecticides	Permethrin Cypermethrin Boron compounds
Fungicides and decorative finishes	Tri(bexylene glycol) bborate Disodium octoborate Borester 7 Dodecylbenzyltrimethyl ammonium chloride Alkyl(benzyl)dimethylammonium chloride (= Benzalkonium chloride) Copper naphthenate Acypetacs copper Zinc naphthenate Acypetacs zinc Zinc octoate Sodium 2-phenylphenoxide Diclofluanid 3-iodo-2propynyl-N-butyl carbamate (Polyphase/IPBC) Propiconazole

Adapted from English Nature's Species Conservation Handbook

Photographic Record

Plate 1 Building view from gate showing northern transept to right



Plate 2 Northern transept with roost in roof



Plate 3 – Bat droppings on altar/table northern transept



Plate 4 Roof void northern transept. View towards body of church.(Nave)



Plate 5 Exposed slates and boarded covering of majority of slates



Plate 6 Exposed slates



Plate 7 Satellite map showing bat activity around church. Roost in northern transept top of frame.

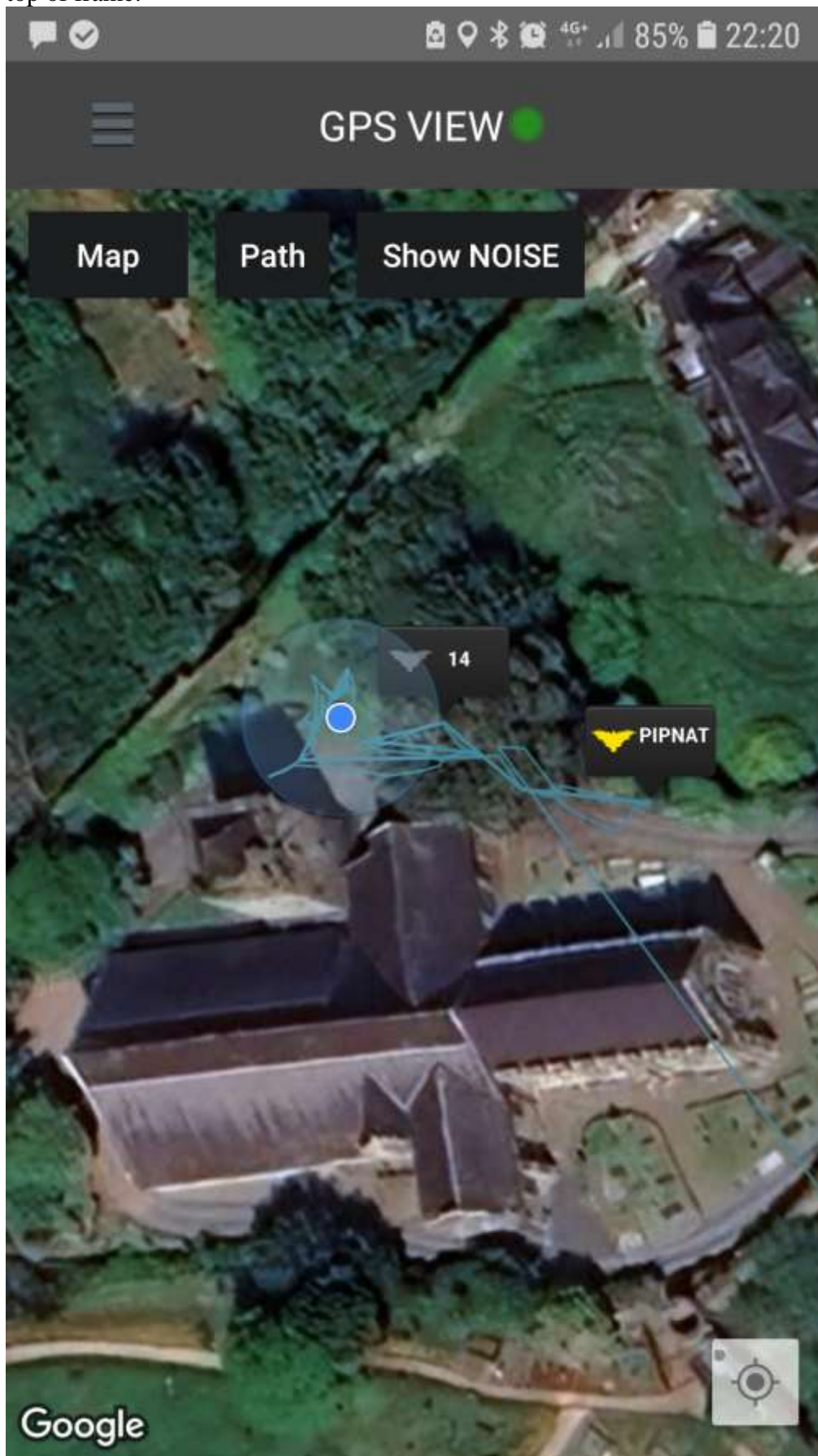


Plate 8 Sonogram Leislars bat

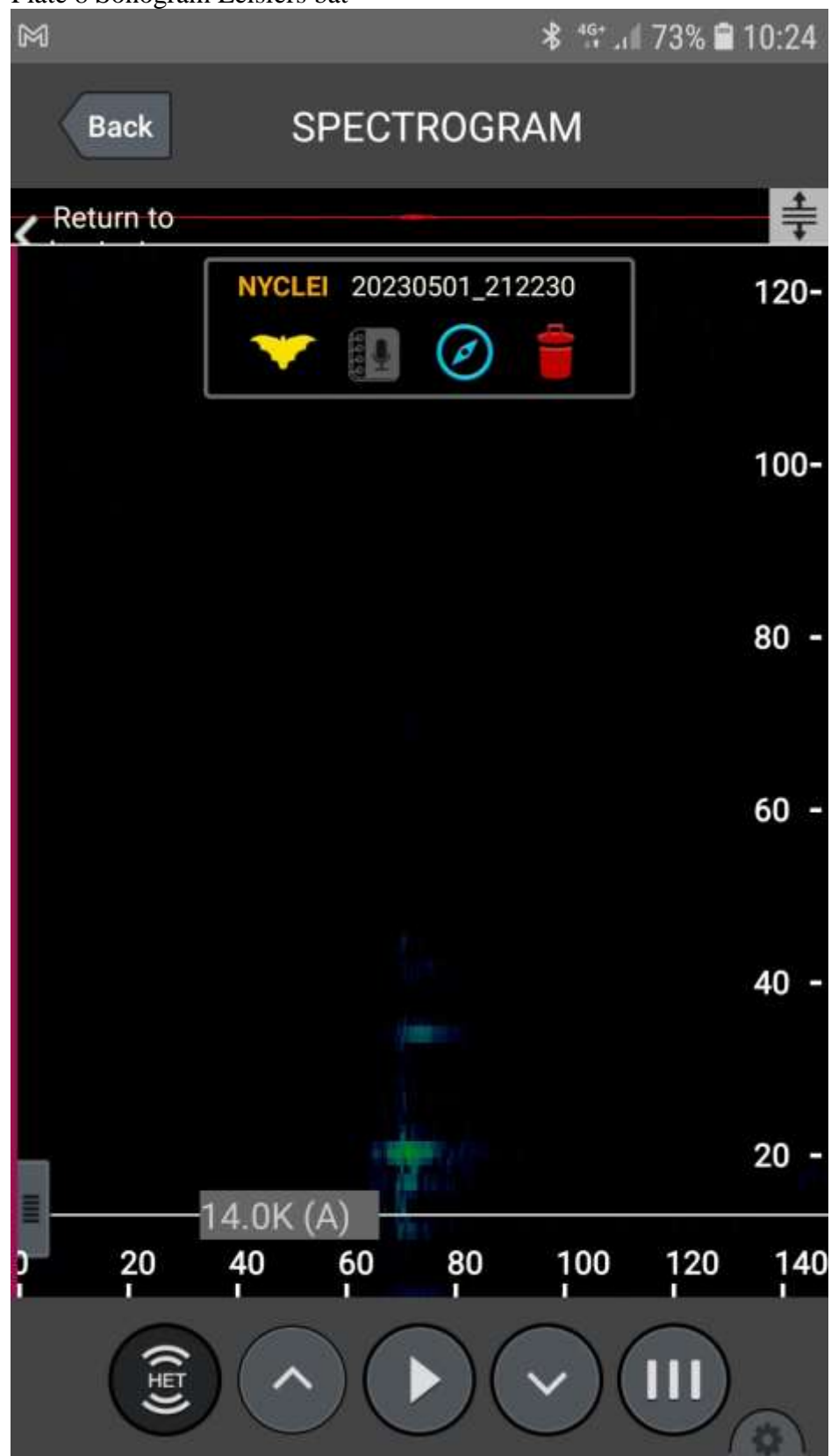
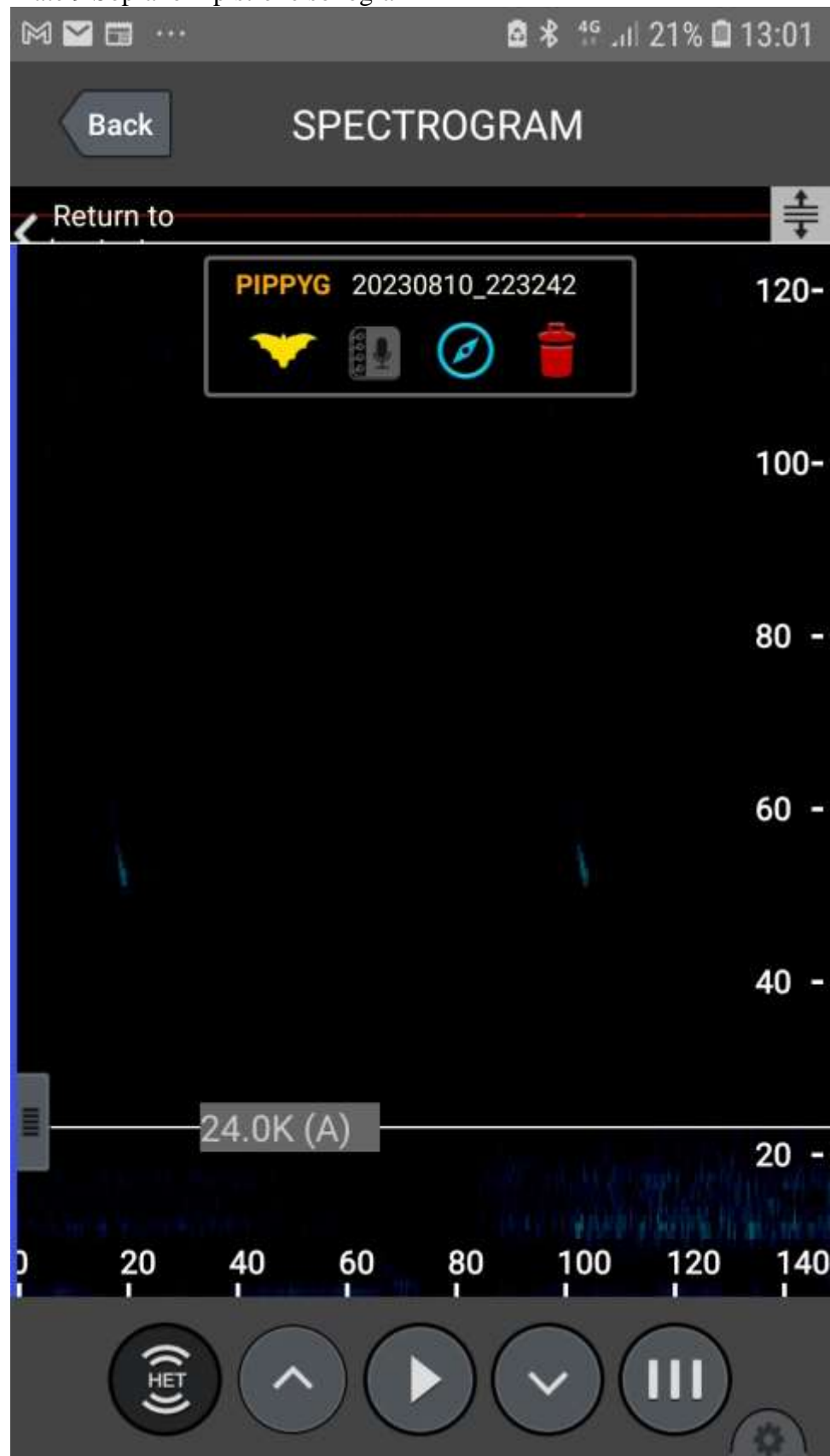
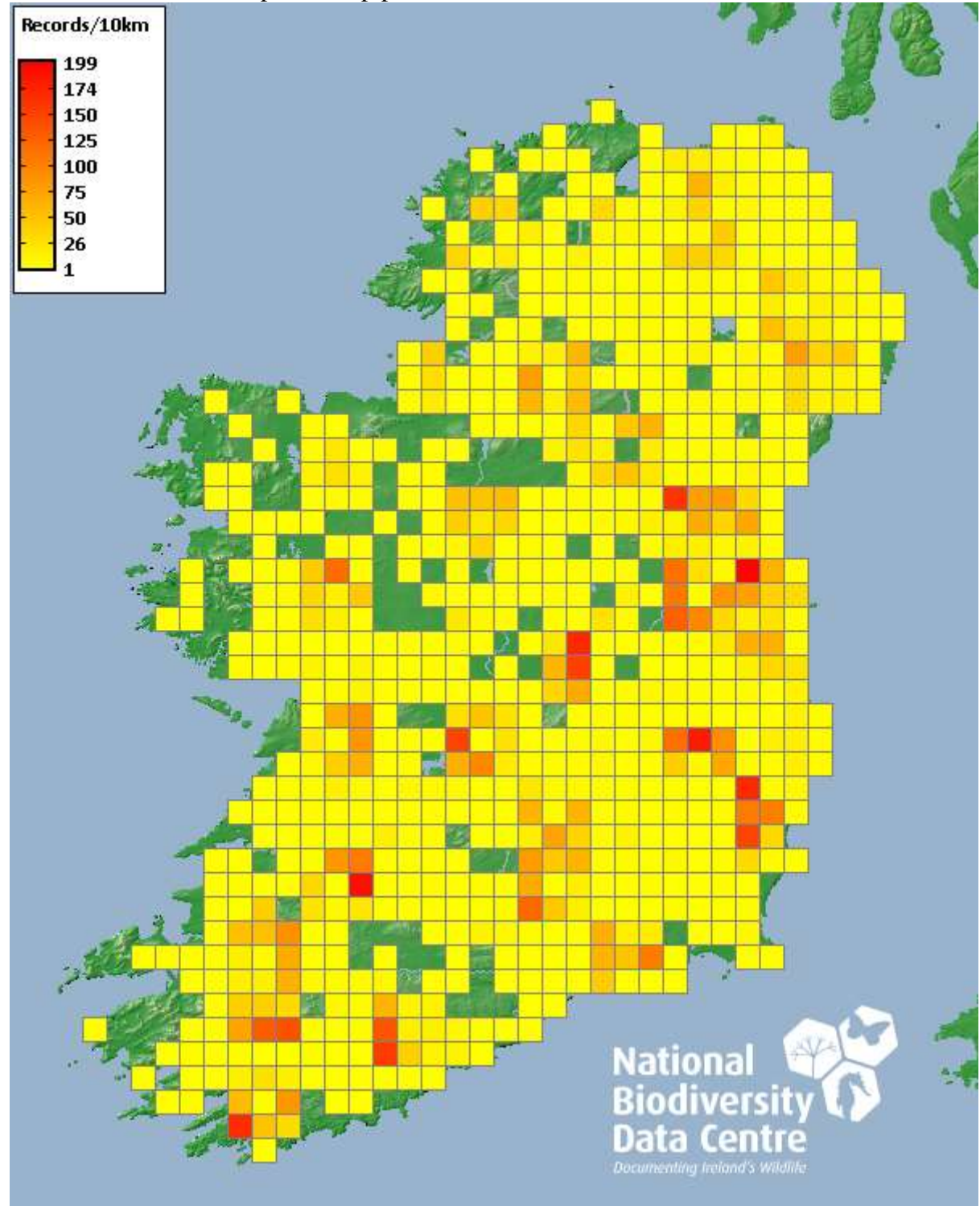


Plate 9 Soprano Pipistrelle sonogram

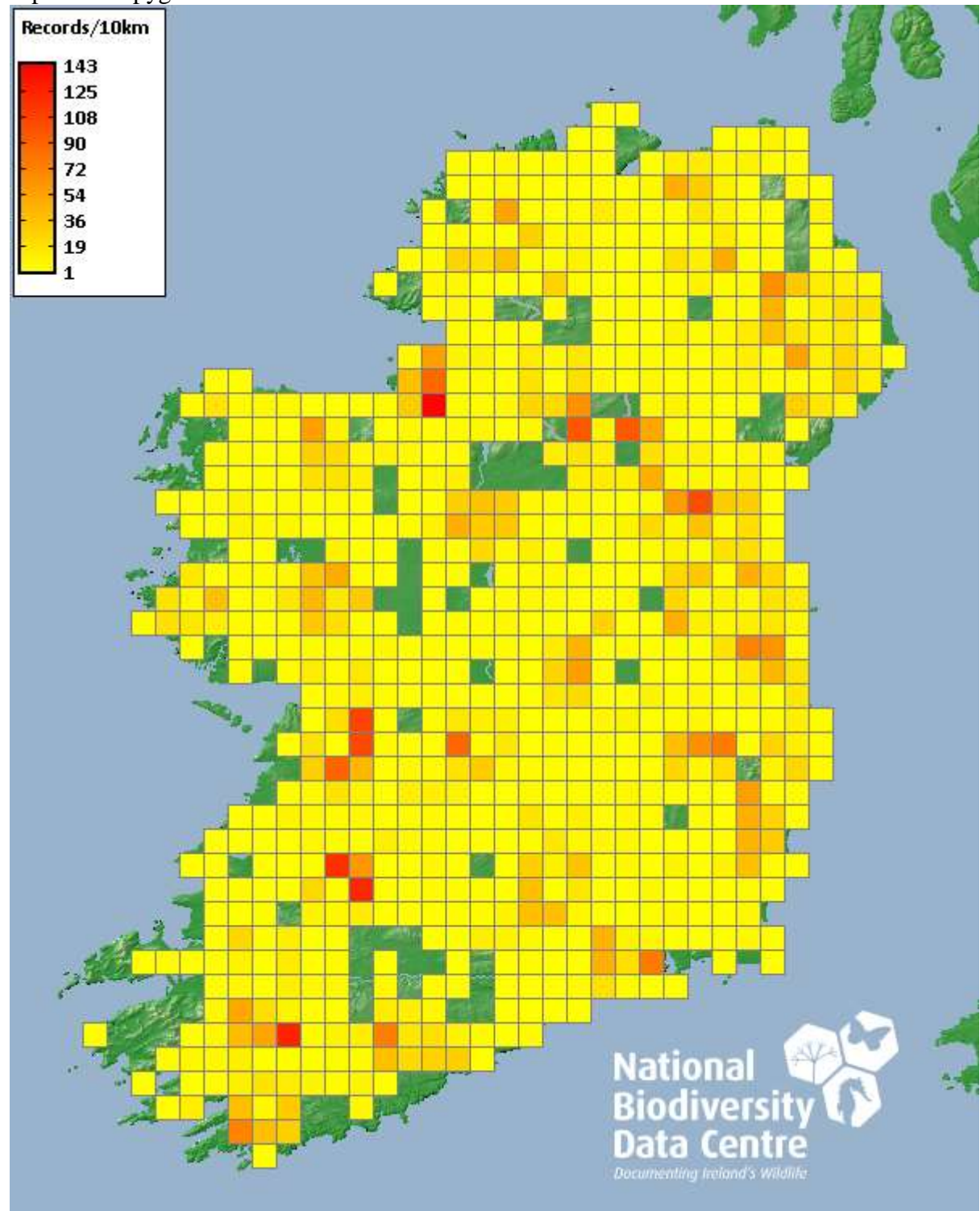


Distribution Records: *Pipistrellus pipistrellus*



Citation: National Biodiversity Data Centre, Ireland, Pipistrelle (*Pipistrellus pipistrellus sensu lato*), image, accessed 24 July 2023, <<https://maps.biodiversityireland.ie/Species/TerrestrialDistributionMapPrintSize/119763>>

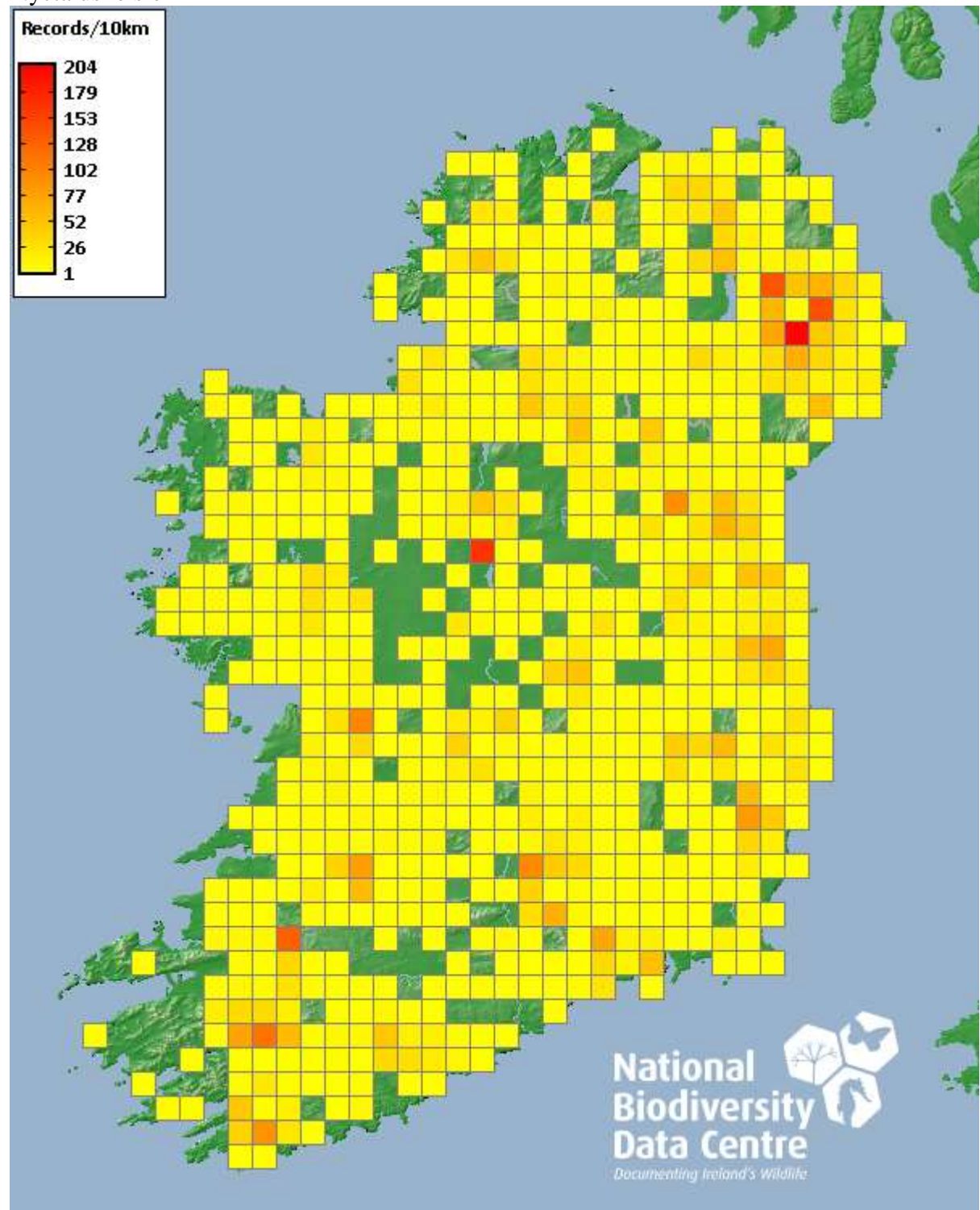
Pipistrellus pygmaeus



Citation: National Biodiversity Data Centre, Ireland, Soprano Pipistrelle (*Pipistrellus pygmaeus*), image, accessed 24 July 2023, <<https://maps.biodiversityireland.ie/Species/TerrestrialDistributionMapPrintSize/119441>>

Citation: National Biodiversity Data Centre, Ireland, Brown Long-eared Bat (*Plecotus auritus*), image, accessed 24 July 2023,
 <<https://maps.biodiversityireland.ie/Species/TerrestrialDistributionMapPrintSize/119278>>

Nyctalus leisleri



Citation: National Biodiversity Data Centre, Ireland, Lesser Noctule (*Nyctalus leisleri*), image, accessed 24 July 2023,

<<https://maps.biodiversityireland.ie/Species/TerrestrialDistributionMapPrintSize/119464>>