Traditional Farm Building Scheme:
St. Mura's, Fahan, Buncrana, Co. Donegal

Bat survey and assessment

Report prepared for

Mr Ian Lamberton and the Heritage Council

By

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SUMMARY

Site:	Lamberton Farm, St. Mura's, Fahan, Buncrana, Co. Donegal
Structure:	Byre
Project reference:	TF1662
Grid reference:	NV 52103 89007
Bat species present:	None
Roost location:	N/A
Bat access:	N/A
Proposed work:	Roof replacement
Impact on bats:	Bat roost disturbance
Bat survey by:	Aengus Kennedy

Recommendations

- Roof replacement should not take place before 15th of October due to the presence of the two bat species.
- A derogation licence will be required as a roost is presence. The application form can be found at: https://www.npws.ie/licensesandconsents/disturbance/application-for-derogation-licence
- Bat boxes are recommended for the south side of the building when construction is completed. These will provide some alternative to the many cracks in between the bricks that are currently present. The south gable presents an opportunity for large bat boxes that could be used by the current leisler bat roost.
- Two bat access bricks should be built into the wall on the south gable end. One should be close to the apex, the second 1 metre below on the south eastern edge of the building. Slits for access instead of bat bricks are possible if preferred.
- Two bat access slates should be fitted at the southern end of the building, one on each side.
- Any crevices should be carefully checked for bats, using a torch, before repointing. Repointing must be kept to a minimum.
- Access must be retained for bats and birds by the use of either half doors, louvers, half inch gaps at the apex, and/or the retention of existing openings.
- If timber treatment is used, it must be bat friendly.
- If bats are found at any stage of the building work, work must cease and the author and NPWS ranger must be contacted.
- Bird boxes, both large open fronted and regular small holed are recommended for the north side of the construction and on some of the surrounding trees when works are completed.
- As two species of bat were recorded in the area, a recommendation would be to keep the mature tree-lines intact on the farm where safety allows as they are currently providing shelter, travel lines and foraging opportunities for both bats and birds. The area and its management already supports many opportunities for native bat and bird fauna to thrive. Bat and bird boxes on the trees along would enhance the area for birds and bats. Both open and closed fronted bird boxes would allow a variety of species to avail of them. Jackdaws that regular nest in the building could avail of the large open fronted bird boxes.

Introduction

A grant application for improvements of a small barn structure at Fahan, Buncrana, Co. Donegal, was received by the Heritage Council, reference number TF1662 Aengus Kennedy, ecological consultant, was requested by the owner, Mr Ian Lamberton, to provide a bat survey of the building to ensure any animals using the structure were safeguarded during planned works.

The survey did not find the presence of birds currently using the structure. Two species of bat were recorded using the structure.

Site location and access

The byre is located in the Fahan area, address recorded above.

Desktop survey

A desktop survey was conducted before the on-site survey to garner any knowledge of previous bat sightings. A search of biodiversity Ireland's mapping service revealed 5 species using the area in previous surveys. These were; soprano, nathusius and common pipistrelle species, daubenton bats, and leisler bats

The most recent record from the area is of the nathusius pipistrelle from 2022, all other records are from 2016 or before.

Soprano pipistrelle sightings

Common pipistrelle sightings

Leisler sightings

Nathusias pipistrelle

Daubenton's bat sightings. All bat mapping images © Biodiversity Ireland

Bat and bird survey

This report presents the results of two site visits by Aengus Kennedy on the 2nd of July, 2024 in which the on site structures were inspected. The bat fauna encountered during the evening survey in the area is discussed. No bat or bird presence were recorded using the structure during the day. A variety of old nests were found inside the structure.

Survey methodology

Survey of bat fauna was carried out by means of a thorough search within the site. The roof space of the buildings were inspected for bat use. Presence of bats is indicated principally by their signs, such as staining, lack of spider webs, feeding signs or droppings - though direct observations are also occasionally made.

Survey constraints

There were no seasonal constraints in regard to the bat survey as it was undertaken within the active bat season.

Weather was overcast with light rain, turning heavy near the end of the survey period. This may have suppressed bat numbers.

Brief description of Lamberton's barn from the perspective of bat habitat

The structure is situated in an agricultural area of countryside with associated hedgerows and tree-lines adjacent to mature trees and very close to the shores of Lough Swilly. Multiple lines of mature sycamores and beech are close to the built structures with a network of hedgerows nearby. These habitats are favourable to several species of bats and a few species are known from the local area. The building is large and decaying with plenty of small cracks/cavities and an open roof space and therefore is suitable for bats.

Results of bat survey

The day survey of the structure was conducted on the 2nd of July from 1700 - 1900 (external and internal). The existing walls offer many opportunities for bat use through various crevices and gaps as there is available access to brick work and within the roof spaces. Cracks in the brick work near the roof and in-between rafters and walls are suitable for bats. The downstairs spaces offer many opportunities for nesting birds. Five swallow nests were observed in the downstairs rooms, two with a wrens nest built on top. One of those wren nests was from this year but was unoccupied. Two old jackdaw nests were observed high in the roof space on the rafters in the upstairs space.

A small number of bat droppings were found scattered through the barn. A concentration of large bat droppings were found in one small area under a gap between rafter and wall that was clear of cobwebs. A small number of insect wings were observed near these droppings at the north end of the building. The rafters were clear of cobwebs. All of these sings indicated possible bat presence.

Results of bat survey (contd.)

The evening survey was conducted on the same day, the 04 - July - 2024, commencing at 21.30 and completed at 23.45. Sunset was at 22.13. The temperature at the start of the survey was 12C and 11C upon completion. Two species of bat were recorded through the survey using the building, Brown long-eared bat *Plecotus aritus*, and Leisler bat *Nyctalus leisleri.* One brown long-eared bat was observed flying inside the barn at 22.10 before retreating into a crack in the southern gable end. Eight leisler bats were observed leaving from in between the slates and building on the gable end near the apex on the southern end at 22.30. A single brown long-eared bat was record foraging on prolonged regular flights inside the building between 22.52 and 23.40.

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.

Potential impacts of proposed works on bat fauna

Replacing the roof would impact on the roost of bat species if conducted during the summer roosting season.

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.

Recommendations

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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. Such a licence is required for the barn on Lamberton's Farm and no works should be undertaken on the structure before the licence is granted by the NPWS. Mr Lamberton should contact NPWS immediately to apply for a derogation licence - the application should be submitted in their name.

Measure 1: timing of restoration works

Any work on the building's roof shall preferably be undertaken within the winter months - Mid October to March - as bat numbers are then known to be fewer in buildings. This should lessen the impact on these animals. This work shall only proceed under licence.

Measure 2: demolition

Any demolition of the roof shall be done carefully with the expectation that individual bats may be found. If discovered, the animals shall be retained in a box until dusk and released on site.

Measure 3: retention/enhancement of bat roosts in the restored building

Access for bats shall be retained or included in any repairs to the roof. Gaps of 12 to 20mm shall be left to ensure continued and future use by bats. These can be provided while retaining the water seal of the building.

Measure 4: timber treatment

Any necessary timber treatment operations e.g. within the roof space, shall be carried out during the winter months - November to March. Bat safe poisons shall be used throughout and any bats discovered during spraying operations shall not be sprayed directly. Should bats be discovered during spraying operations, then the work shall cease immediately. An experienced bat specialist shall then be consulted. The owner and building contractor shall ensure that only bat safe, pre-treated timbers are used where necessary during renovations to the roof space. A list of bat safe poisons is given in the Appendices.

Plan of works to comply with Derogation licence section 11.1,2,3+4

For the maintenance work to be undertaken to save the building from loosing its roof, this plan of work is laid out to help with the accompanying derogation licence. The alternatives would be to conduct the work during breeding season which could have a detrimental effect on any roosting bats or to not complete the work at all, which would eventually lead to the loss of the roost as the building structure would be compromised in time.

Work Plan

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Measure 5: bat protection

Should bats be discovered during operations, then the work shall cease immediately. An experienced bat specialist shall then be consulted.

This work plan allows for the avoidance of disturbing bats, the maximum amount of protection for bats while protecting their roost and ensuring their roost availability into the future. These measures follow the guidance laid out in section 7.3: Main components of mitigation - NPWS Bat mitigation guidelines for Ireland V2. For further measures to mitigate any loss of bat habitat, please see recommendations on page 8.

References and bibliography

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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

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.

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.

Description of bat species within the area

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.

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.

*Bat distribution records from O'Sullivan (1994), Richardson (2000) and Roche and Tourney (2021).

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 below 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).

Insecticides and fungicides suitable for use in bat roosts

Insecticides
Permethrin - Cypermethrin - Boron compounds

Fungicides and decorative finishes
Tri(bexylene glycol) biborate
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

Inside upstairs of Lamberton's barn looking towards southern gable end and leisler roost. Note the lack of cobwebs.

Bat droppings under potential single brown long-eared bat roost

Insect wings as potential evidence of bat use in the upstairs floor of the building

Fresh (2024) wrens nest built on old swallows nest