

Derogation under Regulation 54

Lesser Horseshoe Bat Luring Investigation

April 2026



O'DONNELL 
ENVIRONMENTAL

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1 Introduction

O'Donnell Environmental is involved in several conservation projects where new roosts aimed at Lesser Horseshoe Bat have been provided in proximity to existing roosts which are derelict or otherwise suboptimal for bats.

A challenge can arise in encouraging Lesser Horseshoe Bat colonies to relocate to newly provided roosts, even when they are evidently more suitable than the current roosting location. Anecdotally, various methods have been tried without success, including 'seeding' with droppings or relocating materials from the existing roost.

O'Donnell Environmental have carried out a pilot study to test if Lesser Horseshoe Bats may be attracted to a new roost by the replaying of pre-recorded Lesser Horseshoe Bat social calls. The current proposal builds upon a previous study carried out by O'Donnell Environmental.

1.1 PREVIOUS LURING TRIAL - DROMEEN, CO. CLARE

O'Donnell Environmental carried out a pilot luring study in 2025 under Regulation 54 Derogation (DER-BAT-2025-269). The study took place in cooperation with a similar study by Dr. Fiona Mathews and PhD student Charlotte Green (University of Sussex) and Daniel Hargreaves (VWT). University of Sussex and VWT are carrying out a similar study in the UK. This 2025 luring trial was conducted in Dromeen, Co. Clare. The existing disused cottage hosts a maternity colony of Lesser Horseshoe Bat.

A bespoke roost was constructed in 2025 as part of the NPWS Farm Plan Scheme. Although budget influenced the scale of the structure the structure was built using best available techniques and materials. Temperature and humidity monitoring confirmed that conditions are within the range suitable for Lesser Horseshoe Bat maternity roosting following Schofield (2025)¹.

The luring methodology was designed with cognisance to Dennis and Pryde (2022). Social vocalisations were recorded from the colony (including juveniles) at the current roosting location using a Pettersson D500x, as well as some vocalisations previously recorded by O'Donnell Environmental, and these calls were replayed in the new roosting location nearby using an Apodenmus . Recording took place in June and July, and playback took place in August and September 2025, when young were volant and typically less sensitive to disturbances (Reason and Wray, 2023). Raw calls were 'scrubbed' following a methodology developed by University of Sussex, and replayed using an Apodemus 'BatLure' ultrasonic speaker. Speakers were located located within the roost or at the access/egress point.

The response of bats to the lure was assessed through visual observation by surveyors, thermal footage during dusk surveys, low-glo infra-red CCTV and passive bat echolocation recording.

There was no noticeable evidence of Lesser Horseshoe Bat responding to the lure. Observed individuals appeared to show no alterations in behaviour in response to luring calls and continued on the same flightpath on nights when the lure was operational and not operational.

¹ Schofield, H. (2025) The Lesser Horseshoe Bat conservation handbook. The Vincent Wildlife Trust, Ledbury, UK.

No obvious response from any other bat species was noted. A Brown Long-eared Bat regularly utilised the roost for day roosting, and did not appear to respond to the luring.

In the absence of a response in the initial trial, a further trial is proposed separately to test the response to the same methodology earlier in the maternity season when bats potentially could be more receptive to calls from juveniles. This is subject to a separate derogation application.

The aim of the current trial is to test for any positive or negative association in one of a series of regularly used night-roosts.

2 The Current Proposal

A Lesser Horseshoe Bat maternity roost in Burrenfada Co. Clare was first recorded by O'Donnell Environmental in 2022 as part of initial bat surveys carried out for a proposed wind farm project (**Plate 1**). Further monitoring of the roost was carried out in 2023 and 2024.

The maternity roosting location is in the attic of the cottage, and nearby are two associated outbuildings (**Plate 2 & Plate 3**), which are used for early-night flight and night roosting by the maternity colony. Luring is proposed for one of these outbuildings (**Plate 2**) only.



Plate 1 North and eastern aspects of existing Lesser Horseshoe Bat roost.



Plate 2 Night roost where social call playback is proposed (north of maternity roost)



Plate 3 Additional existing night roosting location proposed as a control location (west of maternity roost).

2.1 PROPOSED METHODOLOGY

O'Donnell Environmental proposes to conduct a further luring investigation in 2026, at the Lesser Horseshoe Bat roost in the townland of Burrenfada, Co. Clare using similar methodology to that previously used (see **Section 1**). This study would be carried out in the summer and utilise one of the outbuildings used for night roosting (**Plate 2**). The aim of the current proposal is to test, in a location we know will be utilised by Lesser Horseshoe Bat, if there is any observable difference in behaviour or utilisation of the night roost when the lure is in use versus when it's not. The proposed location was chosen as it is:

- Accessible for survey
- Reliably used by Lesser Horseshoe Bat for early-night flight in the summer months
- Not used by Lesser Horseshoe Bat (or any other species) for daytime roosting

- Alternative, similar, night roosting structures are available nearby which are also used by the colony for early-night flight (**Plate 3**).

The overall aim of the study remains the same, i.e. to explore a methodology which may encourage Lesser Horseshoe Bats to explore a newly provided roost.

The proposed study will take place in June/July 2026. One 'Apodemus' ultrasonic speaker will be located within the night roosting location shown in **Plate 2** will replay social calls previously recorded on a schedule of one night on/one night off for up to two weeks. Recording will be carried out in the roost for 7 nights prior to commencement of luring to establish a baseline. The response of Lesser Horseshoe Bat will be measured i) by means of visual observation through 'low-glo' CCTV (where possible) or using suitable trail cameras and ii) passive bat echolocation recording. Luring using previously recorded Lesser Horseshoe Bat social vocalisations will be played.

The range of the lures was tested during the 2025 trial using handheld ultrasonic bat detectors and found to be up to approximately 15m where a direct line of sight exists. It is unlikely that bats could detect the playback beyond that distance. While the current roosting location is within that 15m distance, the sound will be contained by the presence of intermediate obstacles (walls, roofs etc.) and is not expected to be audible within the current roosting location. This eliminates the possibility of disturbance on the maternity colonies roosting location.

Given the small 'zone of influence' of the lure, and based observations made during the 2025 study there will be no change in the population of the existing maternity roosting location, positive or negative.

In the event of a negative response to playback and avoidance behaviour within the identified shed, there are alternative structures nearby which are also regularly used by the colony where playback will not be occurring or detectable. Any bats displaced during the luring could easily relocate there.

For the avoidance of doubt the current study is not related to the proposed wind farm application submitted by Greensource adjacent to the location of this roost. Greensource have been contacted in advance of carrying out this research and they support this project in the interest of bat conservation.

3 Personnel

All of the proposed licensees are bat-licensed ecologist with experience bat survey and ecology.

3.1 TOM O'DONNELL

Tom O'Donnell is a Chartered Environmentalist and a full member of the Chartered Institute of Ecology and Environmental Management. He was awarded a BSc in Environmental and Earth System Science [Applied Ecology] in 2007 and an MSc in Ecological Assessment in 2009, both from UCC. Tom has 19 years professional experience in the environmental industry, including working on projects such as windfarms, overhead power lines, roads, cycleways and residential developments. Tom is licensed by NPWS for roost disturbance and to capture bats. Over the past 19 years Tom has used these survey methodologies, under license when required, to identify activity, behaviour and resting places for all Irish bat species in a wide variety of habitat contexts.

3.2 OISÍN O SULLIVAN

Oisín O Sullivan is a Senior Ecologist and Associate member of the Chartered Institute of Ecology and Environmental Management (advancement to full membership of CIEEM is currently under review). Oisín was awarded a BSc in Ecology and Environmental Biology at University College Cork in 2020. Oisín has experience in bat surveys for a large variety of projects including wind farms both onshore and offshore, residential, and linear infrastructure. Oisín has previously been licensed by NPWS to disturb bats (2021 – 2026), photograph mammals (2021 – 2025), and handle bat species (2023 - 2026).

3.3 COLM BRESLIN

Colm Breslin is an Ecologist and a Qualifying member of the Chartered Institute of Ecology and Environmental Management (advancement to full membership of CIEEM is currently under review). Colm was awarded a BSc in Ecology and Environmental Biology at University College Cork in 2023. Colm has experience in bat surveys for a large variety of projects including wind farms, residential, and linear infrastructure. Colm has previously been licensed by NPWS to disturb bats (2023 – 2026), photograph mammals (2023 – 2026), and handle bat species (2023-2026).

3.4 CLAIRE MCCARTHY

Claire McCarthy BSc (Hons) MSc is an Associate member of the Chartered Institute of Ecology and Environmental Management. She was awarded a BSc in Biological, Earth and Environmental Sciences [Zoology] in 2018 and an MSc in Marine Biology in 2022, both from UCC. Claire has contributed to the preparation of EIAR and EcIA reports for renewable energy developments and has experience in preliminary roost assessments and bat activity surveys. Claire has previously been licensed by NPWS for bat roost disturbance (Ref: DER-BAT-2025-42) and photography of all bat species (033/2025).

4 Responses to Derogation Tests

Explanation as to why the derogation licence sought is the only available option for works and no suitable alternative exists as per Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations.



Anecdotally, various methods have been tried to encourage Lesser Horseshoe Bat to relocate to a more suitable roost. These methods have proven unsuccessful.

The need arises to influence Lesser Horseshoe Bat roosting location especially where the existing roost is compromised, and an alternative is provided or otherwise available nearby.

There is ongoing discussion and knowledge sharing on this project with relevant parties including Dr. Fiona Mathew (University of Sussex) and Daniel Hargreaves (VWT) and the makers of Apodemus speakers (who are unaware of any similar studies on Lesser Horseshoe Bat specifically but are aware of similar studies concerning other species currently elsewhere in Europe).

If it were determined the use of playback of social vocalisations may positively influence the behaviour of Lesser Horseshoe Bat, it would represent a significant benefit to the species. The alternative would be to not carry out such a study, and persist with the current situation.

Alternative solutions are considered below and detailed as to their suitability:

Option A: Do not carry out study

The alternative solution of not carrying out this study was considered. In this scenario, the opportunity to effectively and efficiently conserve Lesser Horseshoe Bat roosts in suboptimal conditions through novel luring techniques would be lost. As Lesser Horseshoe Bat are loyal to their roosting locations, they often do not move between roosts until the current roost is lost in this entirety. This study aims to address this issue.

This option was not considered suitable, and alternative options are required.

Option B: Luring with standard/commercially available calls

The use of mist/harp netting typically involves the use of commercially available calls. The reasoning behind bat responses to these lures is unknown (possibly antagonistic) and are not recommended within proximity to maternity colonies (Dennis and Pryde, 2022).

This option was not considered suitable, and alternative options are required.

Option C: Luring with use of above-described methodology

This option is described in more detail in the above **Section 2**. The use of juvenile Lesser Horseshoe Bat social calls will be used to determine if overall usage of the night roost is influenced by the playback. Based on previous application of this methodology there is no anticipated direct disturbance on the known maternity colony. The overall aim of the study remains the same, i.e. to explore a methodology which may encourage Lesser Horseshoe Bats to show increased usage of additional roosting space. However, in this study location there is already demonstrable use of the night roost and alternative night

<p>roost identified. The aim of the study is to further understanding of the response of Lesser Horseshoe Bat to ultrasonic luring using recorded social calls.</p> <p>The proposal includes ongoing observation of response such that any adverse effects would be quickly identified. In addition, no significant Lesser Horseshoe Bat roosting currently occurs in the proposed structure for luring.</p> <p>Option 'C' was considered the most suitable option in this instance.</p>	
<p><i>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.</i></p> <p>As detailed in Section 1.1.2 there were no observed alterations in behaviour as a result of the lure (positive or negative). The aim of the study is to further understanding of the response (if any) of Lesser Horseshoe Bat to ultrasonic luring using recorded social calls.</p> <p>A positive effect is possible, i.e. an increase in night roosting or exploratory activity relative to the baseline. A minor displacement effect on individual night roosting Lesser Horseshoe Bats is possible, but if the playback has a repelling or negative effect there are alternative commuting routes and night roosting locations available to the colony.</p> <p>Based on the results from the previous study, no negative effects are likely to occur on the existing maternity colony.</p> <p>No effect which is detrimental to the maintenance of the populations of the Lesser Horseshoe Bat at a favourable conservation status in their natural range would occur.</p>	☒
<p><i>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.</i></p> <p>The outbuilding selected for social call playback is located north of the existing maternity colony. There are intermediate features (walls, roofs, etc.) between this entrance and roost location and testing carried out in 2025 shows the vocalisations will not be audible within the roost.</p> <p>The proposal includes ongoing observation of response such that any adverse effects would be quickly identified. This will be monitored on site by Ecologists on the first night of luring. In the unlikely even the lure elicits an obvious negative response luring will be discontinued.</p>	☒
<p><i>As much information as possible to allow a decision to be made on this application.</i></p> <p>Full information is outlined in this supporting document, and this information is considered valid and represents the best available data.</p>	☒

4.1 MONITORING IMPACTS OF DEROGATION

The monitoring and reporting of the results of this investigation will be carried out as it was in 2025 (DER/BAT 2025-269.).

Any change in bat species behaviour as a result of the lure (or lack thereof) will be recorded, summarised and provided with the licence return form to aid future research.

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