ALL-IRELAND NATHUSIUS'S PIPISTRELLE BAT PROJECT

PROPOSALS FOR RESEARCH IN 2025

PROJECT ICARUS IRELAND: TRACKING LONG-RANGE MOVEMENTS OF LEISLER'S BATS *NYCTALUS LEISLERI* IN IRELAND

7/7/25

1. Introduction

In 2024, bat box schemes at National University of Ireland (Maynooth) and Donedea Forest, Co Kildare and Navan Co. Meath were used for tagging bats.

Thirteen bats (12 females, one male) were fitted with tags. After release, the 13 bats carried the tags and produced data for on average 30 days while one lasted for over 50 days.

Overall, the findings have shown that most of the bats remained close to the area of their release and did not show evidence of long-distance movements that might suggest seasonal migration. Only two bats showed significant movements at an inter-County scale (i.e. between Counties). One bat released in Navan flew north to Cavan and then south to Offaly, whilst another bat released in Kildare flew to Co Laois.

None of the bats tagged in Ireland showed movements that suggested long distance migration in Ireland. However, it is noteworthy that data for two bats did show movements across several Counties over a period of several days. This may suggest roost shifting by bats for the purposes of mating or post-mating shifts to potential autumn and winter roost areas.

Leisler's bats are known to fly long distances and at high altitudes and are capable of crossing large open areas such as the Irish Sea. Data collected as part of the environmental assessment of offshore renewable energy projects has indicated offshore bat activity several kilometres off the North Dublin coast and off Wexford. However such surveys are not capable of tracking individual bat movements and hence not able to shed light on the extent of such movements.

The proposed research in 2025 will intend to establish if coastal bats are making marine foraging flights and if there are larger-scale movements to the United Kingdom or islands offshore. The results of such research will be of enormous benefit to advancing our understanding of Irish bat ecology as well as the impacts of offshore and coastal development on bat populations.

2. Proposed Methodology for 2025

Proposals for 2025 include to fix 'Sigfox' transmitters to Leisler's bats located in bat boxes on the east coast of the island of Ireland with the aim of recording potential long-distance and offshore movements during the suspected migratory season for this species. The research project tracking Leisler's bats in counties Meath and Kildare completed in 2024 used similar tags and this successfully recorded local-scale movements and occasional longer County-wide movements.

The proposed project intends to utilise the same survey methodology to bats located at coastal sites in Wexford, Wicklow and Louth. Data collected as part of the environmental assessment of offshore renewable energy projects in the last 3 years has suggested use of the marine environment for foraging by Leisler's bats as well as the potential for long-distance movements across the Irish Sea and St George's Channel.

A network of bat boxes has been installed, by Bat Conservation Ireland, in these counties at prominent coastal locations and will be used to capture bats safely for the proposed project. Additional boxes will be checked in County Down, Northern Ireland.

The project is expected to commence in mid-August and last to the end of October 2025. Funding has been secured to purchase the electronic tags.

The protocol for capture, tagging and tracking of bats is based on experience of researchers in Belgium, Germany, Netherlands and Spain who have been undertaking similar work for the last three years. It is proposed to collect up to 20 female Leisler's bats from the four bat box schemes. Subject to meeting weight and health requirements, these bats will be fitted with 1g Sigfox tags using an approved adhesive. Upon activation, the tags will be expected to last up to 23 days and will transmit signals to a receiver on the Sigfox network. This allows the bats to be tracked online.

Whilst it is assumed that the tags will fall off the bats after a few weeks, bat boxes will be checked in winter 2025 to ensure that any tags are not still attached. Biosecurity measures will be employed whilst handling including use of gloves, masks and suitable procedures for working at height.

Bat boxes generally consist of Schwegler Type 1FF, 2F and 1FD and will be accessed at height using ladders. Bats will be caught by hand from bat boxes by licenced bat workers – Anna Collins, Tina Aughney, Caroline Shiel and Paul Scott. Only bats that were above a specific weight will be allowed to carry tags.

Bats within any of the boxes will be immediately transferred to cloth bags for processing a short distance away. Female bats above 14.5g will be prioritized for tagging, male bats or those below the permissible weight will be released or replaced in the same box. All bats will be checked for any signs of disease, parasites or other features that may make them unsuitable for carrying a tag.

The tagging procedure will then comprise the following steps:

- Trim fur at waist;
- Application of adhesive (Torbot or equivalent skin-friendly adhesive) to trimmed area and leave to cure for several minutes until 'tacky';
- Removal of tag 'contacts' using ceramic scissors, seal with superglue and allow to dry;

- Fixing of tag to bat;
- Bat allowed to rest in large bag/holding cage for several minutes before being replaced back into the bat box from which it was taken.

The tags will send signals to the Sigfox network 2 h per night (6 times in 24 hours) and the results will be accessed online by the researchers.

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3. Evidence to support the Derogation Tests

Test 1 Reason for the activity

The proposed activities are being undertaken for the purpose of research and education. The outputs of the activity will hopefully be an increased knowledge and awareness of Leisler's bat foraging and migratory behaviour on the east coast of Ireland.

Such data will be used to inform decisions that will active positively on the conservation status of the species such as being used in impact assessment for proposed applications for offshore and coastal developments. Such developments may interact with bat movements in the coastal zone and the data produced by this study will help to provide an objective basis to such assessments.

Test 2: Explanation as to why the licence sought is the only available option for works and no suitable alternative exists

Alternative ways of tracking Leislers' bat include the following, and were considered when developing the proposed methodology

1. Do-nothing- In the absence of any tracking then no data would be collected and the objective of the research could not be attained. There is a risk that the absence of data could mean that impacts of coastal developments would not be accurately predicted.
2. Tracking using radar (tagging not needed): Whilst some large bats can be tracked using radar, this technique is not effective at tracking individual bats and not accurate at large distances.
3. Tracking using VHF telemetry: Whilst smaller tags could be used to track bats over short time periods. This would not remove the need for the derogation and would not generate data of as long a time period.
4. Tracking using MOTUS telemetry: Whilst smaller tags could be used to track bats over short time periods. This would not remove the need for the derogation and would not generate data of as long a time period. Also Ireland does not yet have a network of MOTUS receivers so this method is not yet feasible.

5. Tracking using ringing/marking: Capture and ringing of individual bats would still require a derogation and would have a very low success rate, dependent on recapture of bat. It also does not allow the path of individual bats to be recorded along their flight route and therefore does not meet the objective of the research.

6. Tracking using acoustic monitoring: Acoustic surveys have been undertaken as alternative survey methods to record distribution but this only reveals presence of the species, as opposed to what the species may be doing in that area or the behaviour of individual bats.

7. Tracking using the Sigfox network: the proposed activity for which the derogation relates to is the preferred alternative option and the only option that meets the requirements of the research proposal. It provided long-distance, long-term tracking of individual bats. There are no other ways of undertaking this research without requiring the use of a derogation.

Test 3: Evidence that actions permitted by a 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.

Both Nathusius pipistrelle and Leisler's bats are at favourable conservation status (although data is lacking on Nathusius's pipistrelle) and are populations are deemed to be stable or improving.

Research carried out by the Dechmann Lab on tagging of Leisler's bats has not suggested any adverse effects of tagging on the welfare of bats. Monitoring of tagged bats in flight cages indicated little impact on their ability to fly and make sharp turns when carrying the additional weight.

Good practice techniques for bat handling and ringing will minimise any adverse effects on individual bats and therefore avoid impacts at the community level.

In early 2025, several Leisler's bats were found in bat boxes that showed evidence of having reacted adversely to the adhesive. Two bats were found with the tags still attached and were rehabilitated until fit to fly again. Whilst good practice approaches were used, it has been decided to use an alternative adhesive (turbot) in 2025. In addition, bat boxes will be checked in winter 2025 to ensure that any tags are not still attached.

4. Monitoring the impacts of the derogations

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