



THE UNIVERSITY *of* EDINBURGH

Job Description

Internship Title: NERC Research Experience Placement - Employ.ed on Campus - How good are small scale organic farms for biodiversity? Using bats to monitor insect biodiversity

Department / School	School of GeoSciences, University of Edinburgh
Reports To	Dr. Alfred Gathorne-Hardy, School of Geoscience, University of Edinburgh, a.gathorne-hardy@ed.ac.uk

Job Purpose

This project is part of wider work developing practical remote sensing of wildlife in agricultural habitats. It will help test the novel hypothesis that bats could help us provide an effective proxy for insect biodiversity in small-scale polycultural systems. The results will feed into real world projects and contribute to our better understanding of how to manage land for biodiversity.

Main responsibilities

The student will be responsible for:

1. Interacting with farmers to: explain the process; packaging and distributing the 'magic box' to pre-arranged farmer contacts (made by the supervisory team).
2. Downloading data, data arrangement and analysis. The aim is to understand (a) which bats are there and (b) how much they are feeding, at each site.
3. Working with the supervisory team to interpret the results
4. Write a project report and, depending on the quality of the results, potentially co-prepare a paper for publication.

Knowledge Skills and Experience

Person specification

Essential qualities

1. Numerate. The student should be familiar with basic statistics, and ideally with R software
2. Attentive. The student will need to be comfortable with some element of repetitive tasks that requires attention to detail.
3. Flexible. While every support will be given, this project is testing a new methodology, and as such the student may need to be flexible with the study methods.
4. Approachable. The student may have to talk to busy growers, and will need to be a confident but understanding communicator.

Desirable qualities

Excited about sustainability. While we are not expecting any specific ecological knowledge by the student, an inherent interest in sustainability will facilitate their understanding of why the project is important

Key contacts

- Dr. Alfred Gathorne-Hardy (Edinburgh Geoscience, PI)
- Dr Barbara Maria Smith (CAWR) and
- Dr Stuart Newson (BTO)

Dimensions

This is a 6-week placement with preferred start date 14th of June 2021.

Closing date: 19 May 2021

Interview date: to be determined by the supervisor

Start date: preferred start date 14 June 2021

Hours per week and preferred pattern/restrictions (if applicable): 35 hours per week (part-time option available)

Length of internship: 6 weeks

Additional Information

Host and Project outline

Biodiversity – the diversity of life – is not always easy to measure. One example of a habitat that is difficult to assess are the small, diverse, organic farms where normal agricultural biodiversity sampling measures are less effective: the structured-irregularity and diversity that we hypothesise will make these farms biologically diverse also makes them difficult to sample. This core knowledge gap associated with sustainable food systems has not been effectively answered; this cutting edge project will aim to plug this gap.

We hypothesise that bats, obligate insectivores, could help us provide an effective proxy for insect biodiversity in small-scale polycultural systems. This project will help test this novel hypothesis.

Key to the use of bats as biodiversity indicator species is effective and efficient monitoring of their activity. We will use the British Trust for Ornithology's (BTO) acoustic pipeline software <https://www.bto.org/our-science/projects/bto-acoustic-pipeline>, coupled with pairs of bat detectors on 'treatment' (polyculture) and 'control' (adjacent agricultural land use) sites. In conjunction with auto-recording bat detectors, this software allows us to passively monitor which bat species are present, and how often they make feeding calls. This will allow us to determine whether we can detect differences between the two environments.

This project is part of wider work developing practical remote sensing of wildlife in agricultural habitats. The results will feed into real world projects and contribute to our better understanding of how to manage land for biodiversity. It is doubly exciting as it is being developed in collaboration with Dr Stuart Newson from the BTO who designed and runs the acoustic pipeline, and Dr Barbara Smith from CAWR, who has >20 years experience in monitoring biodiversity in agricultural habitats

Practicalities

Farmers will carry out bat monitoring on their farms and the student will be responsible for processing the data, in-line with current Covid-19 protocols: students will not be travelling to the farms.

Instead, 'shoeboxes' will be sent to farmers including: bat detectors, memory card, complete instructions and return postage. We aim for the box to be at a farm for no more than one week, in which 2 nights of recording can be made. Once back in Edinburgh, the student will download data and forward the shoebox (checked), to the next farm.

[Training](#)

Training will be provided for all the core tasks, including how to operate a bat detector, acoustic interpretation of the downloaded data and data analysis, support with the complexities of working on a citizen science project.

[Budget](#)

£450 Research Costs (included) and the PI will be using his annual research (£500) to buy additional equipment and postage/packaging.

[Location](#)

The student will be ideally based in Edinburgh. They can work from home, the library or other work places, but through being based at Edinburgh they can regularly meet with Alfred Gathorne-Hardy to discuss ideas, methods, problems and potential future developments of the project. Meetings with other supervisors will mostly be through zoom/similar.

[Covid-19 contingency plan](#)

Designed to be Covid-19 compliant. Instead of the student travelling to farms, the experimental kit will be sent to farms allowing a wider geography of farms to be assessed and ensuring that the project can go ahead with or without Covid-19 restrictions.

[Programme Information](#)

Research Experience Placement is a summer placement scheme funded by NERC, aimed at undergraduate students to address demographic and diversity-related challenges in the environmental sciences as well as thematic skills gaps (e.g. quantitative skills).

Please see the application instructions and selection process on the REP webpage:
[Research Experience Placements \(REPs\) | The University of Edinburgh](#)

[Employ.ed on Campus](#) is run by the Careers Service in collaboration with University departments and Schools. It offers exclusive summer internships at the University over the summer for 2nd year to penultimate year undergraduate students studying in an UK Higher Education institution.

As well as great work experience, the Careers Service provides supporting resources, this is combined with a framework to support the development of participants' employability and self-reflection with an [Edinburgh Award](#) as part of the internship.

[Application Support](#)

For guidance on writing an effective application see our website: [CV, Applications and Interview Advice](#)

You can also make an appointment with a Careers Consultant using [MyCareerHub](#).

[Eligibility](#)

Students are subject to eligibility criteria to be able to apply for NERC REPs and must:

- Be undertaking their first undergraduate degree studies (or integrated Masters)
- Be applying for a placement in a different department to their undergraduate degree
- Be eligible for subsequent NERC PhD funding, i.e. be either:

- an UK citizen OR
- an EU citizen with pre- or settled status under the EU Settlement Scheme OR
- a non-EU citizen who have obtained the right to remain in the UK - known as 'indefinite leave to remain' (ILR) O
- an International/EU student already studying in the UK and currently under a Tier 4 or Student Route Visa with validity until at least September 2021

REPs do not meet the requirements for a visa request therefore non-UK students who are not currently living in the UK or who are without a suitable UK visa are not eligible to apply.

Internships are ONLY open to 2nd year to penultimate year undergraduate students studying in an UK Higher Education institution and based in the UK. You cannot take part if you are a visiting student, or you have already taken part in the programme before.

Privacy Statement

In addition to the University's HR data privacy statement, please read the [Student and Graduate Privacy Statement: Internships and work experience programmes](#) to understand how and why we will use the information you submit for the Employ.ed Programmes

Health & Safety Requirements for the role

N/A

Key Job hazard information specific to the role

Long time spent at the desk.

If you require this document in an alternative format please contact Internships and Work Experience Team by email at employ.ed@ed.ac.uk