



# ECOBAT Next Steps 2023

## Overview

**ECOBAT**, developed and managed by the Mammal Society, is part of the **Ecostat** tool collection, which is designed to help to interpret ecological data for a range of taxa and species (mainly Chiroptera). The app compares surveys submitted by the user (in the form of a **proforma** .csv file) with a national reference dataset, and objectively quantifies bat activity levels. It offers a web-based interface for depositing data rapidly and securely, automatically generating a numerical indicator of the relative importance of a night's worth of activity, by contrasting it with a comparable reference range. The output can be used by ecologists to accurately quantify what bat activity means for use during ecological impact assessments.

ECOBAT is currently written as an app in RShiny, linked with RMarkdown which delivers a pdf output. Data submitted by users are appended to the stored database, improving future reports.

NatureScot and the NIEA, Natural Environment Division both mandate the use of ECOBAT by ecologists researching bat activity in proposed wind turbine sites. This has resulted in the tool attracting more traffic than anticipated when it was originally built.

Due to errors in the code, ECOBAT has been offline since August 2022. Errors are at least in part due to the volume of data processed, and problems caused by errors in data entry to the proforma by users.

The Mammal Society is preparing to tender for a freelancer to fix or rebuild the ECOBAT toolkit to the original specification, and is seeking support from companies who will use the service when it is back online. As well as supporting the cost of the rebuild, support is invited from companies with in-house expertise to assist with enquiries and troubleshooting.

## Current functionality - summary

### Prebat

Takes the bat data and uploads it to a database, stored on Dropbox. A unique identifier is allocated to each upload. This stage currently has no issues so could be left as is.

### Postbat

Takes the unique identifier value from the Prebat step, pulls the data out from the database, and compares it to a selection of other data depending on time and location filters selected. From this, runs R code to analyse and interpret bat data.

### No Saving ECOBAT

A combination of the two above but without saving the uploaded data to the database. This option will *not* be part of the relaunched ECOBAT suite.

*Full details of the functionality and current issues affecting reports is provided separately.*



## Invitation to Tender – ECOBAT Rebuild

**Value:** £5,500

**Timescale:** December 2023 - January 2024

The Mammal Society is pleased to invite proposals for the redevelopment and enhancement of ECOBAT. The work is to be completed by the end of November 2023, and proposal timelines that allow it to be completed earlier will be favourably received.

- The newly developed ECOBAT will have the same functionality as the original, but with the no-save option removed.
- Any widely-used programming package may be used to provide the ECOBAT functionality, but proposals that allow for easy and inexpensive updating and bug fixing by coders will be looked at favourably.
- Proposals may involve one or a team of developers, provided the total quote is within the tender value threshold.
- The ECOBAT working group, chaired by the Mammal Society, will provide guidance and information as required to allow the development of an app that meets the required specifications.

## Person Specification

### Technical Skills:

- **Web Development:** Proficiency in front-end and back-end web development, including languages like HTML, CSS, JavaScript, and frameworks like React or Angular for the front end, and languages like Python, PHP, or Node.js for the back end.
- **Database Management:** Strong understanding of database design, SQL, and experience working with relational databases (e.g., MySQL, PostgreSQL) for efficient data storage and retrieval.
- **API Integration:** Ability to connect the web app with external APIs or databases for data comparison.
- **Data Processing:** Familiarity with data processing libraries and tools for efficient handling and manipulation of user-uploaded data and database records.
- **Report Generation:** Experience in generating dynamic reports using libraries or tools (e.g., PDF generation libraries, data visualization tools).

### Experience:

- **Full Stack Development:** Proven experience in building end-to-end web applications, preferably including projects with similar features (data upload, comparison, report generation).
- **Database Interaction:** Demonstrated ability to work with databases, write efficient queries, and manage data interactions securely.
- **Version Control:** Proficiency with version control systems like Git for collaborative development.
- **Bat / ecology knowledge** not essential but would be very beneficial when it comes to understanding user experience and designing usable formats for ECOBAT.
- **Analysis of biological data:** Familiarity with the types of statistical tests commonly used when analysing biological data.