



Bat migration routes in Europe

Objectives

This project started in April 2021. Our goal is to identify spatial and temporal patterns of the presence of three common migrating bats (*Pipistrellus nathusii*, *Nyctalus noctula* and *Nyctalus leisleri*) using acoustic datasets.

Hotspots in acoustic activity are expected to **predict priority areas for the conservation of those migrating species**. One of the aims of the project is to provide operational maps to guide wind energy planning.

Methods

- ⇒ Build a large **collaborative project** at an european scale
- ⇒ Work with full-night recordings in full spectrum
- ⇒ Predict spatial distribution by modelling acoustic activity (e.g. using random forest)
- ⇒ Start in France and then expand the dataset thanks to partners in other European countries.
- ⇒ Invite partners to give their feedback regarding the methods and how to use the results



Expected results

- ⇒ Identification of the temporal and environmental variables associated with high bat activity.
- ⇒ **Map of activity hotspots at the scale of Europe** (if enough data is available) **for different periods of the year**.
- ⇒ Identification of the current conflict areas for wind energy production in France (and other countries if data is available) by highlighting zones with high energy production and high bat activity.



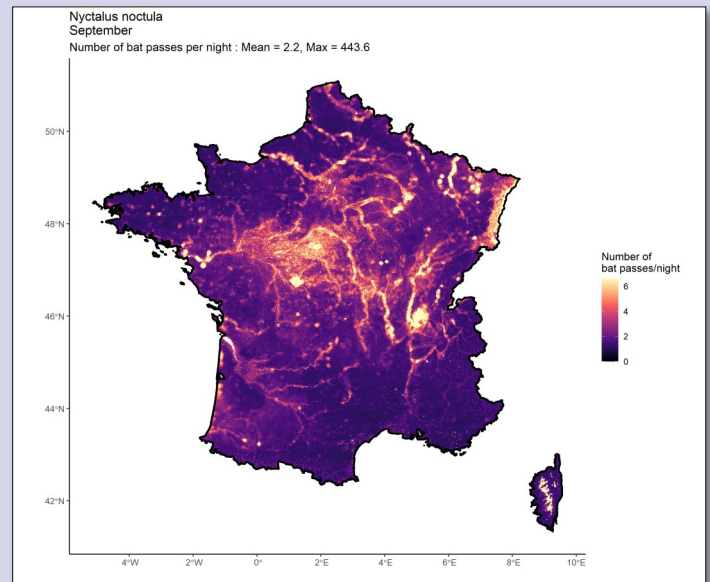
Preliminary results

Example with *Nyctalus noctula* in France:

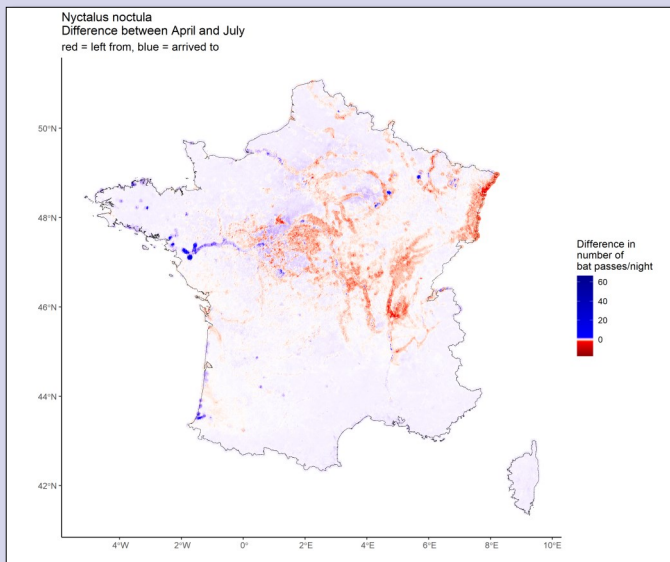
The species is predicted to use large river valleys and wetlands of Northern France. This matches the literature except in Corsica, where the species is not extant. This is likely due to false positives in the acoustic dataset and we will investigate this issue in the future.

Few summer populations are predicted in France and/or the species is predicted to disperse to North-Eastern Europe, which also matches the literature.

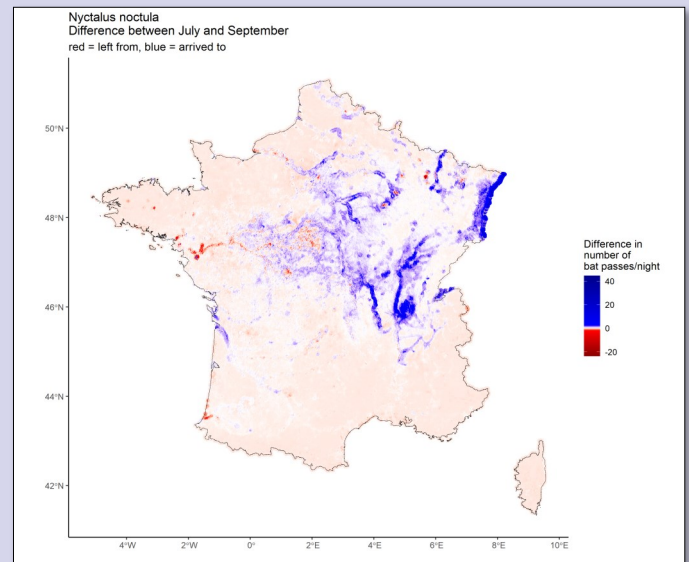
This work is still ongoing and these maps should not be considered as final results.



Predicted distribution of *N. noctula* in September in France (light colors show high activity, dark show low activity)



Predicted distribution changes for *N. noctula* in Spring (red shows a negative change in activity and blue a positive change between April and July)



Predicted distribution changes for *N. noctula* in Autumn (red shows a negative change in activity and blue a positive change between July and September)

Take part in the project

More information about the project will be shared during our webinar on the 29th of July 2021. If you are interested in collaborating with data and more, please contact us !

Contact

Charlotte Roemer

charlotte.roemer1@mnhn.fr

0033 (0)6 98 87 60 04

Centre d'Écologie et des Sciences de la Conservation,

Muséum national d'Histoire naturelle - 43 rue Buffon, 75005 Paris, France