

DASA

Digital Animal Sound Archive project

DURATION
01/02/2023 – 01/05/2025

BUDGET
191 459 €

PROJECT DESCRIPTION

A wide variety of animals produce acoustic signals or calls, that are in many cases species-specific. The use of these animal sounds in biological and ecological studies is widespread as they can be used to study species distribution, phenology, ecology and behaviour of organisms that are often visually elusive (e.g. marine mammals, bats). This results in extensive data sets (petabytes!) that are scattered in many different locations (e.g. scientific institutes, universities, voluntary researchers). A critical aspect of being able to learn from such large and varied acoustic data sets is providing consistent and transparent access that can enable the integration of various analysis efforts.

The overall objective of the Digital Animal Sound Archive project (DASA) is therefore to set-up a robust database structure and design, and a user interface enabling us to collect and archive biological acoustic data and accompanying metadata. The DASA database will allow querying sound data based on time, location, or other desired attributes (to be identified during the end-user engagement process), to serve multiple goals like (1) a digital archive, (2) add to the collections hosted by RBINS, (3) to serve as a reference collection of species-specific sounds, (4) to offer a validated dataset for the development of automated identification software tools (e.g. for bats), and (5) a dataset for new ecological studies on the distribution and migration of species, and habitat preference. Combining individual datasets in an overarching database will lend more power to the ability to interpret patterns in the data.

The need for such a bio-acoustic archive and interface has been expressed by many Belgian researchers, both professionals and volunteers from different fields of research. In most cases, their data is stored on a personal computer and might get lost through calamities or when these researchers halt their activities. We will reach out to these researchers by offering a set-up that guarantees a long-term safeguard for their data. As such, this will enhance collaboration, primarily at a national level but also with links to similar international initiatives. The general database development should be fit for purpose for all bio-acoustic data, but within this project it will be set-up for sound recordings of bats, as a proof of concept. Later, this database structure can then be used for sound recordings of other taxa (e.g. marine mammals).



Figure 1. Bat detector installed in a wind farm at sea.



Figure 2. Serotine bat *Eptesicus serotinus*.

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The project partnership consists of three partners: the Royal Belgian Institute of Natural Sciences (RBINS), a Federal Scientific Institute and Natuurpunt and Natagora, two NGOs involved in nature conservation. Aside from the project partners, a dedicated stakeholder engagement is required to assure a maximum incorporation of external views on the DASA project flow and data products. Therefore, a very close collaboration between the project consortium and the follow-up committee is foreseen throughout the project, which will provide input for every step of the development. This will hence guarantee a mutual understanding of project expectations and outcomes (i.c. database platform and user interface) that are usable and meaningful to a broad range of end users. The follow-up committee is composed of representatives of public authorities, universities, environmental NGOs, as well as consultancies.

The main valorisation of the project is the development of (1) a database platform to store bio-acoustic data for the longer term and (2) a user interface to share / query / upload / download data. The target groups of these products are professional researchers as well as citizen-scientists/naturalists and consultancy agencies. By involving many different organisations in the follow-up committee, we will get a good overview of the needs and questions researchers have on storing and sharing acoustic data, from a several differing perspectives. As such, the resulting valorisation products will meet the needs of the end-users.

The DASA project will result in a user-friendly tool to interactively upload, share, explore and use bio-acoustic data and survey metadata. The data will be searchable by metadata and visualised in a map viewer. This will strongly enhance many varying purposes for the data, ranging from scientific research, conservation studies, policy support and environmental impact studies.

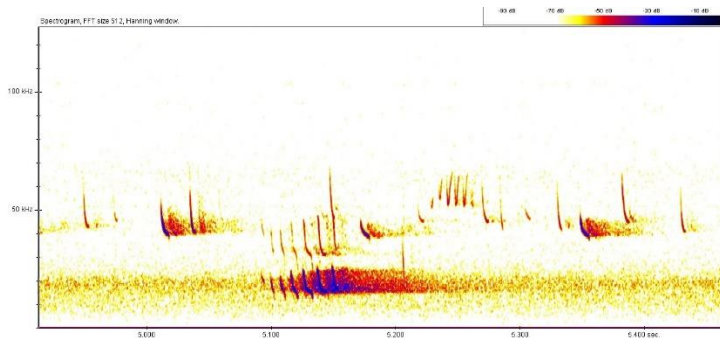


Figure 3. Sonogram, a visual representation of the echolocation calls of bats, indicating frequency, intensity and time.

CONTACT INFORMATION

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