

ARCADE - General Progress Summary

Please provide a public summary of the progress of the project (the summary will be used in dissemination activities by TETTRIs on the 3PP):

Summary Requirement	Description
Context and overall objectives	<p>The Iberian Peninsula is a biodiversity hotspot and one of the most species-rich areas in the Mediterranean Basin due to its warm, dry climate, abundance of open seasonal habitats, role as a historical refugium during past climatic shifts, and diverse flowering plants. Additionally, the Azorean and Madeiran archipelagos, situated in the Macaronesia biogeographic region, feature high levels of endemism due to their unique location, geological origins, and climate. However, despite this biodiversity richness and the presence of essential (often threatened) pollinators, high-quality reference collections and accurate data on species data remain scarce. This lack of accurate and accessible knowledge, data and monitoring tools creates challenges for research and conservation efforts, putting these vital functional species at risk.</p> <p>The main goal of ARCADE is to improve high-quality reference collections of the main Portuguese pollinator groups, bees, hoverflies and butterflies, by:</p> <ol style="list-style-type: none"> 1. Creating an easy-to-use and up-to-date database integrating at least seven existing (sub)collections of the key pollinator groups in Portugal. 2. Enhancing three public reference collections, improving taxonomic accuracy, spatial-temporal coverage, and species diversity. 3. Establishing new standards and best practices for organizing and preserving current and future collections.
Work performed and main achievements	<p>During the first half of the project, ARCADE focused on gathering all available information from the main pollinator collections in Portugal. This involved indexing and reviewing at least seven subcollections of bees, hoverflies, and butterflies. So far, the team has identified collections and sub-collections in the partner institutions, indexing them down to the specimen level, and starting the taxonomic revision and updates.</p> <p>To date, the ARCADE project has already yielded some exciting preliminary results. First and foremost, the taxonomic revision of bee collections, particularly at the Science Museum of the University of Coimbra, has led to the discovery of several species that had not been previously recorded in Portugal. The team has submitted a publication to share these findings with the scientific community and the public.</p> <p>Additionally, the indexing of specimens has shown that the main collections at the Natural History Museums of Porto, Coimbra, and Lisbon provide a solid representation of bee and butterfly species in Portugal, but it also enabled the identification of important gaps, especially in hoverflies. Notably, while these collections include a variety of species of the three pollinator groups, the representation of male and female specimens is uneven, and many species still have not been documented at all. This highlights the need for further sampling efforts to capture a more complete picture of the country's diversity. These activities are planned for the second half of the project.</p>
Outlook for the remaining activities in the project	<p>In the coming months, the ARCADE team will finish indexing species and identify collection gaps. We will address these gaps by collecting new samples in key habitats and biogeographical regions or exchanging</p>

specimens with other institutions. With this regard, the team is discussing a protocol for collaboration beyond the lifetime of ARCADE.

The team will also create a simple workflow allowing other institutions and private collections to index their collections, making information about Portugal's pollinators more accessible and ready-to-use.

Altogether, the project will increase public knowledge of pollinators' taxonomy and distribution at the national level and provide access to standardized, good-quality reference collections across the country. Ultimately, this will lay a solid foundation for implementing upcoming initiatives on taxonomy, conservation, and monitoring of pollinators in Portugal, assisting in implementing national and European goals on nature conservation and restoration.

Images attached to support the summary for publication

Images have been previously provided to the TETTRIs Communication Team and additional images can be downloaded in the following link:

<https://filesender.fccn.pt/?s=download&token=ff442a21-1d7a-410a-9af8-6936dd647a2c>

! This general progress summary should not contain any confidential information as it will be shared publicly!