

SHORT TERM SCIENTIFIC MISSION (STSM) SCIENTIFIC REPORT

This report is submitted for approval by the STSM applicant to the STSM coordinator

Action number: CA16224 (ERBFacility)

STSM title: Developing Proof of Concept

STSM start and end date: 01/01/2020 to 30/03/2020

Grantee name: Ana López Antia

PURPOSE OF THE STSM:

The aim of this STSM was to work together with the Proof of Concept (PoC) coordinators, and the other members of the steering group, to start and develop this pilot study. Previous meetings established four priority species (common kestrel, common buzzard, tawny owl and barn owl) and decided on a sample size that would be achievable/representative for whole Europe. As next steps, the following actions were planned for this STSM:

- i) Review existing data that has been generated so far in the framework of the ERBFacility. Establish contact and coordinate with other STSM.
- ii) Identify and contact with potential collaborators that can provide samples of the selected species and characterize the kind of samples each of them could provide.
- iii) Identify and contact with the labs that can potentially analyze the selected contaminants (Hg, Pb and SGARs) to know their willingness to participate and to gather information on the kind of analysis they can provide.
- iv) Test pathways of movement for the samples.
- v) Explore financial sources to cover the shipment and analytical expenses.
- vi) Generate data that illustrate the current state of the network and help to identify, assess and correct (if possible) potential issues.

DESCRIPTION OF WORK CARRIED OUT DURING THE STSMS

During the STSM the following actions were developed.

- i) Elaboration of a collaborators database (country basis). During the first part of my STSM I contacted other STSM holders and coordinators of the different WGs to elaborate a general database of potential collaborators for the PoC. This database is, ultimately, a compendium of the researchers and institutions that have been collaborating, manifested their interest, answered to surveys or attended to the meetings over the years the COST ERBF action has lasted. It also included scientists that published research papers on the topic (ecotoxicology in raptors). When a lack of contacts was identified for a certain country (as it happens for some

western countries), I completed this database with contacts of researchers that work on ecology or physiology of the target species.

In addition to collecting this information, contacts were classified depending on the role they could play in the PoC (i.e. sample providers, lab with analytical capacity and National Coordinators (NC)).

- ii) Decide the way forward. During the Porto meeting (February 2020) the state of the PoC were presented (I presented the state of the spatial coverage in relation to the number of contacts that we had at that time). Several issues regarding the way forward for the PoC were discussed: the role of NC and candidates for this role in each country, collaboration with the Life APEX project in sample request, detailed schedule for PoC future actions.
- iii) Elaboration of material to be sent to NC and sample providers. After Porto meeting, we worked in the elaboration of the material (letters, background information, spreadsheets) that will be sent to National Coordinators and sample providers. This was done in collaboration with the whole steering group. The material for sample providers still has to be agreed with the life APEX steering group.
- iv) Contact with National Coordinators candidates. I contacted with all National Coordinators (NC) candidates to ask them their willingness to take this role. I also prepared a contact database for each of the countries that was sent to NC candidates to be completed. The general database was updated with the information provided by each NC.
- v) Future actions. Due to complications arising from the COVID-19 pandemia, and to the necessary adjustments that must be made to coordinate the collaboration with Life APEX, further steps of the PoC has been delayed.

DESCRIPTION OF THE MAIN RESULTS OBTAINED

- i) Elaboration of a collaborators database.

The database contains now 392 contacts from 39 countries (total number of countries included in the PoC are 43 but there are 4 countries without any contact). Each contact is classified as sample provider and/or lab with analytical capacity.

The contacts are unevenly distributed in Europe, with poor representation of the south-west countries, as can be seen in figures 1 and 2.

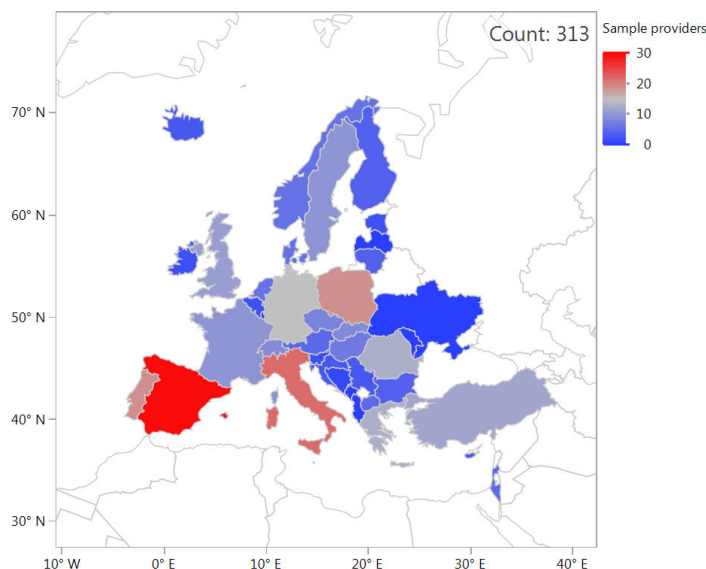


Figure 1. Countries coloured by number of potential sample providers.

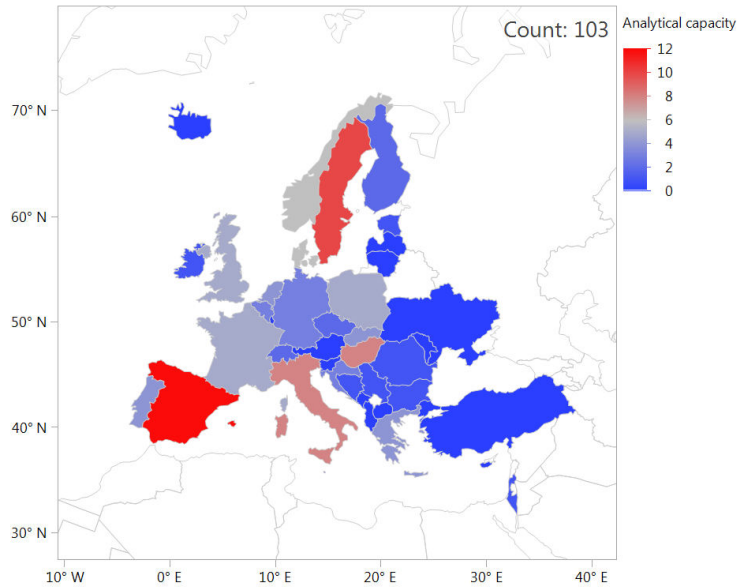


Figure 2. Countries coloured by number of potential analytical labs.

ii) National Coordinators network.

I contacted with the 38 NC candidates assigned during the Porto meeting. Personalized emails were sent to each candidate asking them if they accepted the role. The following attachments were sent in those emails:

- Tasks for National Coordinators (including also explanation about the benefits)
- Proof of Concept – Outline
- Contacts spreadsheet (*for completion*)
- Raptor Census Carcasses & Livers spreadsheet (*for information only*)
- 100x100 km grid of their country.

A period of 10 days was given to reply to these emails. This deadline was extended due to the declaration of the COVID-19 pandemic. The current deadline is April 14 (date subsequent to the writing of this report). At the time of writing this report, 29 NC (76%) accepted the role and 16 (42%) complete the contacts spreadsheet. The new contacts provided by the NC were included in the general database (the results shown in Figures 1 and 2 include these contacts).

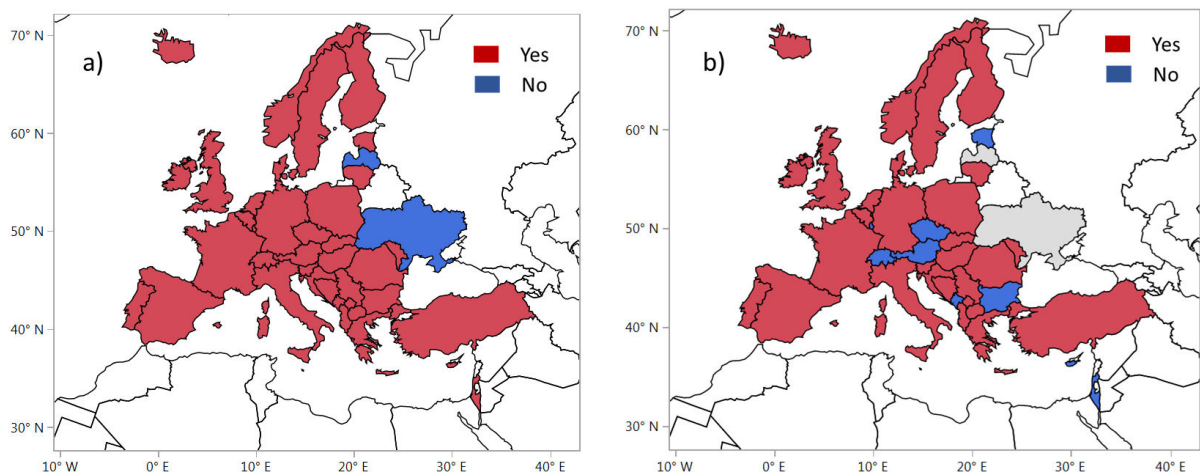


Figure 3. a) Countries with and without a candidate for the role of National Coordinator. b) Countries with and without a confirmed National Coordinator at the time of writing this report.

iii) Elaboration of the material to be sent to sample providers.

The material necessary to contact sample providers was prepared and agreed by the ERBF Cost steering group. This material stills have to receive the green light from the Life Apex steering group. This is the material that is planned to be sent:

- Letter to collections
- ERB Facility one-pager
- Life Apex one-pager
- Proof of Concept – Outline
- Raptor Census Carcasses & Livers spreadsheet
- 100x100 km grid of their country.

iv) Example of livers available at the IREC:

In order to show how we expected the output of the livers census to be, we filled the spreadsheet with the data of available samples in the IREC. We also represented sample availability in the 100x100 km grid of Spain (Figure 4).



Figure 4. Liver samples available at the IREC for the four selected species (i.e. *Buteo buteo* common buzzard; *Falco tinnunculus* common kestrel, *Strix aluco* tawny owl; *Tyto alba* barn owl) placed on the 100x100 Km grid of Spain.

The final output of my STSM (to be continued after the end of the granted period) will be similar maps representing sample availability in all the countries that are part of the COST ERBF action.

FUTURE COLLABORATIONS (if applicable)

At the Porto meeting, obtention of the information of sample availability in all participating countries and the elaboration of the maps (such as those shown in figure 4) was set as the final objective of my STSM. Due to the collaboration agreement with the Life Apex project for the request of samples and also to reasons unrelated to the project (the COVID-19 pandemic), the achievement of this objective has not been possible within the established period.

Contacts have been established with NC (who will help me and the PoC coordinators in the communication with the sample providers), the documents to be sent to sample providers are ready and the contacts database is almost complete (waiting for some countries to complete the spreadsheet). This means that much of the work is done, and that is why I decided (with the agreement of the PoC coordinators) to continue participating in the PoC until, at least, we achieve the objective of this STSM. We also plan to write a paper showing the collected information and highlighting the problems found throughout the process

This is the way forward charted at the Porto meeting for the PoC (once the objective of my STSM is solved):

- Try to fill in the gaps in sample availability.
- Establish the networking of labs and study the best pathways of sample movement.
- Shipment of the samples and analysis.

My collaboration with these coming phases of the PoC will be discussed with the PoC coordinators and with the ERBF Cost steering group in the future.