SHORT TERM SCIENTIFIC MISSION (STSM)
SCIENTIFIC REPORT

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

Action number: CA18221
STSM title: Building a database linking life history traits and the response to agrochemicals in European amphibians
STSM start and end date: 07/05/2021 to 28/05/2021
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PURPOSE OF THE STSM:

The purpose of the STSM was to contribute within the Action PERIAMAR (PEsticide RIsk AssessMent for Amphibians and Reptiles), to the work done by the previous WG members. My aim focused on updating the information on life-history traits of the selected focal amphibian species, living within the European continent, by building a database comprising the traits which might reveal abnormal modification during long-term pesticide exposure.

DESCRIPTION OF WORK CARRIED OUT DURING THE STSMS

Within the Action PERIAMAR (PEsticide RIsk AssessMent for Amphibians and Reptiles), I contributed in updating the information on traits in selected focal amphibian species by conducting a thorough literature review. As focal species I selected the amphibians (including both anura and urodela) with a high proportion of habitat represented by agricultural fields. This selection was done in accordance with the data set previously prepared in Task 2.1, from where I extracted the first 10 species with habitat represented by each of the following types of agricultural fields: agroforestry, dry fields, irrigated fields, woody fields and pastures. Since there were species highly distributed within all four categories of agricultural fields, a total of 18 focal species of amphibians were further analysed.
For each amphibian species I compiled the information extracted from multiple sources:
(i) one published database (Trochet et al., 2014), comprising growth related parameters, clutch related parameters, metabolic rate, dispersal and migraton distances for 86 European species;
(ii) one unpublished database (Stanescu et al., in preparation), for which I am coauthor; this database includes besides growth traits, also age related parameters, as estimated through skeletochronology, clutch information and reproductive parameters for the most studied species;
(iii) information extracted from research papers found in international literature (accessed through Scopus, Web of Science and Google Scholar).
Based on the data extracted from the above stated sources I constructed a data base (availale here) where I considered separately the larval and postmetamorphic life stages, when the information was available. I focused mainly on biological measurements (snout to vent length, body mass), lifespan and stage duration, reproductive capacity, clutch related parameters, metabolic rate, dispersal and migraton distances. For each trait I recorded the minimim, maximul, mean and median values.

DESCRIPTION OF THE MAIN RESULTS OBTAINED

The species with the highest distribution within the agricultural fields are anurans. Of the eighteen most abundant amphibians, only five were represented by salamanders and newts (family Salamandridae), the rest (thirteen species) being frogs and toads, as following: five Ranidae species, two Bufonidae species, two Hylidae species and one frog species of each of the next families Pelobatidae, Bombinatoridae, Pelodytidae, Alytidae.
Body mass and size related parameters, as well as the clutch size were available for all focal species, while other parameters, were not successfully found in the literature for the less studied species.
So far lifespan was succesfully determined for 78% of the species, the information lacking from the Iberian ribbed newt (*Pleurodeles waltl*), crested newt (*Triturus cristatus),* Perez's frog (*Pelophylax perezi*) and Mediterranean tree frog *(Hyla meridionalis),* while the metabolic rate was only available for half of amphibian species.

FUTURE COLLABORATIONS (if applicable)

In the future I aim to focus on the impact of agrochemicals on amphibians (anura and urodela) and identify, whenever available, how life-history traits get modified during long-term exposure to particular chemicals contained by pesticides, making the animals more vulnerable in front of climatic conditions, inter/intra-specific interactions or reducing the reproductive capacity, thus leading to a descrescent populational trend at European level.