

# Report on the outcomes of a Short-Term Scientific Mission<sup>1</sup>

Action number: CA18221

Grantee name: Gestimani-Myrto Roumelioti

## **Details of the STSM**

Title: Task 2.4. Estimating indirect effects of pesticides on amphibian and communities

Start and end date: 18/04/2023 to 16/06/202

## **Description of the work carried out during the STSM**

Description of the activities carried out during the STSM. Any deviations from the initial working plan shall also be described in this section.

(max. 500 words)

Grantee enters max 500 word summary here.

A total of 32 mesocosms were constructed for this study, arranged in four rows and eight columns. Each mesocosm contained eight bricks in certain orientation that provide diverse microhabitats for thermoregulation, shade, and refuge. An automatic irrigation system provided twice a day moisture in the place, and additional water is provided in a water dish. The mesocosms give access to natural prey such as invertebrates that colonize the mesocosms and vegetation that is in line with the wild vegetation present in the surrounding area.

The mesocosm construction was finalized with the addition of vines. Prior to this, the propagation of 80 vines from rootstock cultivars had been executed and each mesocosm was allocated a single plant. *Podarcis bocagei* individuals were collected with fishing rods from the agricultural area that surrounds the Campus Agrário de Vairão (N Portugal). This land, belonging to University of Porto, has no documented history of pesticide treatment. Therefore, it is assumed that the animals from this area have not been exposed to pesticides.

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<sup>1</sup> This report is submitted by the grantee to the Action MC for approval and for claiming payment of the awarded grant. The Grant Awarding Coordinator coordinates the evaluation of this report on behalf of the Action MC and instructs the GH for payment of the Grant.

Each mesocosm is occupied by a couple of adult lizards *Podarcis bocagei*, comprising one male and one female. Since the animals were sampled during the breeding period, there were several females that were gravid at the time of capture. In these cases, when they laid the eggs, we weighed the eggs, assessed their condition and we left them in the place they were found.

The experiment started with the first spraying of pesticides in the exposed mesocosms.

During the period of my mission the tasks that I had to conduct were

- a) Maintaining the mesocosm construction to the best condition (pruning the vines, checking the water system)
- b) Monitoring the body condition of the animals (coloration, parasitemia, SVL/body mass)
- c) Monitoring the reproductive success while many animals when captured were gravid and also possible pregnancy is possible under these circumstances
- d) Small/medium size crickets were provided twice per week as additional food. For this scope the breeding of crickets in the lab was one the tasks.
- e) Spraying the vines according to the schedule that was planned according to the frequency and doses recommended for wine production in the area.

### **Description of the STSM main achievements and planned follow-up activities**

Description and assessment of whether the STSM achieved its planned goals and expected outcomes, including specific contribution to Action objective and deliverables, or publications resulting from the STSM. Agreed plans for future follow-up collaborations shall also be described in this section.

*(max. 500 words)*

Grantee enters max 500 word summary here.

The primary accomplishments of this study include the timely completion of the mesocosm constructions, which were a complex and advanced task and start the experiment during the breeding season as was planned. Additionally, we adjusted the number of individuals used in the experiment based on the population conditions. Consequently, we limited the number of females to one per mesocosm instead of two, as capturing the required number of females was challenging. During this period, I was responsible for the maintenance of the mesocosms and the animal conditions. Throughout this period, my responsibilities included the maintenance of the mesocosms and ensuring optimal animal conditions. Unfortunately, we encountered some instances of animal mortality and conducted investigations to determine the causes. In most of these cases, upon capture, some of the animals were in poor body condition and underweight. However, we did not observe any other symptoms that could have contributed to their deaths. We managed to replace the animals by capturing new ones from the same area and continue the experiment and are currently performing well with not further problems.

Future plans:

From June to July (Breeding season): the body condition will be monitored every two weeks and the following sprayings will be applied.

From July to September (Post breeding season): Monitoring of the biomarkers (SVL, mass, digital pictures, blood smears) in adult male and female *Podacis bocagei* will continue with a periodicity of two weeks. Scanning of the animals will be taken once per month to detect possible coloration change and at the end of the experiment. thermal gradients and respirometry measurements will be taken. Also. In the end. fecal pellets will be collected and blood as well to determine the diet and parasite load respectively.