

## Project Update: April 2016

**Goal I.** To monitor the breeding activity of an amphibian assemblage in Sierra del Rosario National Park using Automatic Recording Units and Environmental Data Loggers.

Activities related to goal I:

1. We continued successfully obtaining the legal permits to access and perform scientific activities within Sierra del Rosario Protected Area, in coordination with the staff of Sierra del Rosario Biosphere Reserve.
2. Since the previous update (October 2015), five additional field trips to Sierra del Rosario Biosphere Reserve were carried out. On each field trip, the information from Automatic Recording Units and environmental data loggers (measuring temperature, humidity and light intensity) were downloaded. Automatic Recording Units were programmed to record continuously with the following schedule: 1 minute of recording-9 minutes of silence (**Fig 1**). Thus, we have been effectively recording the breeding activity of amphibians for 12 months, the equivalent of more than 800 hours.
3. During each fieldwork, additional high quality photos of local amphibian fauna were taken, and additional direct recordings of species were made (which are key for the automatic identification of species). These photos were used for the educational activities conducted during the period (*explained further*).
4. We are analysing of the data collected: a) analysis of the dial patterns of the breeding activity for each species; and b) analysis of the influence of environmental factor on the breeding activity for each species.
5. Six students of the Faculty of Biology of Havana University presented preliminary results in the Faculty of Biology as part of the course “Biological Fieldwork” (**Fig 2a and 2b**).
6. One local specialist at the protected area has been participating in the project, helping in the fieldwork. This has been an opportunity to train him in the identification of local amphibian species, as well as in the techniques to conduct amphibian monitoring surveys.
7. We have recorded a total 51 individuals of 10 species of amphibians. These recordings are a key factor for the automatic analysis of the recordings obtained with the Recording Units.

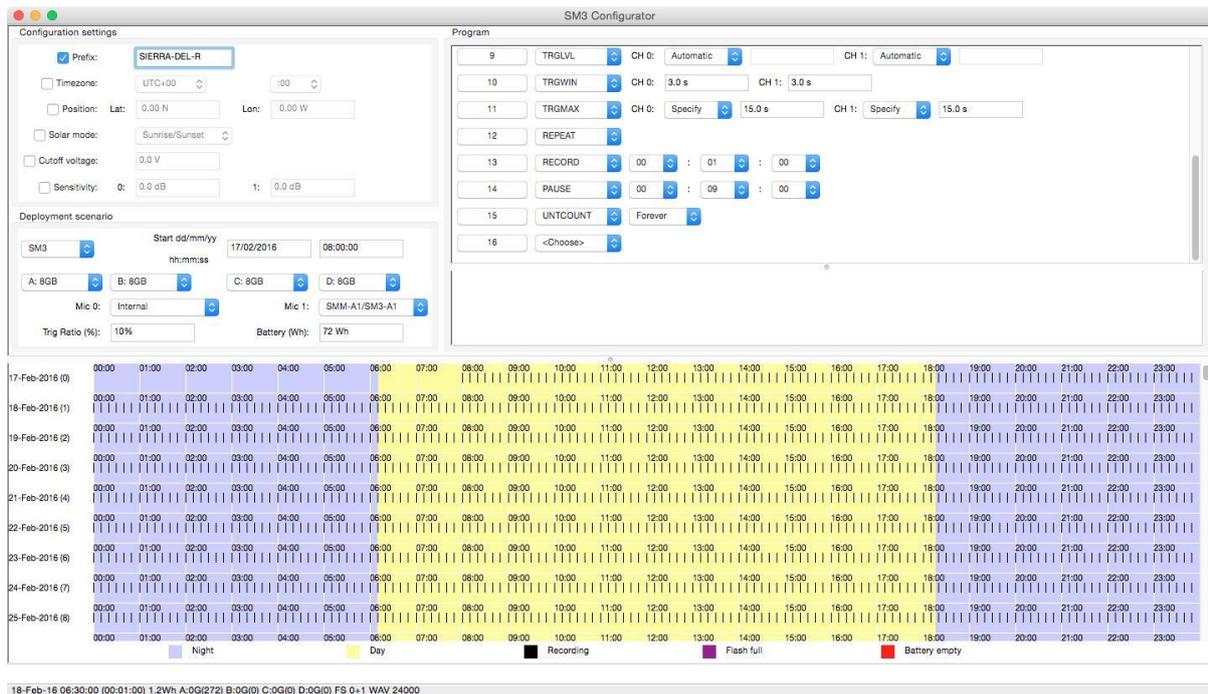
**Goal II.** To develop educational activities, and to make educational materials in order to rise awareness about the value of amphibians.

1. We designed a poster containing the species of amphibians from Sierra del Rosario Biosphere Reserve (*attached separated to this report*). It contains high quality photos of all local species (all but one were taken by me, thanks to this project). It also indicates their conservation status regarding IUCN. This poster was distributed within the reserve (main offices and one local school), as well as at the Faculty of Biology of Havana University.
2. We designed another poster (*attached separated to this report*) targeting a broader spectrum of public. It includes the following educational questions:
  - a) What is an amphibian?
  - b) Why should we protect them?
  - c) Why are they in danger?
  - d) How many species are in Cuba?
  - e) What can we do to protect them?

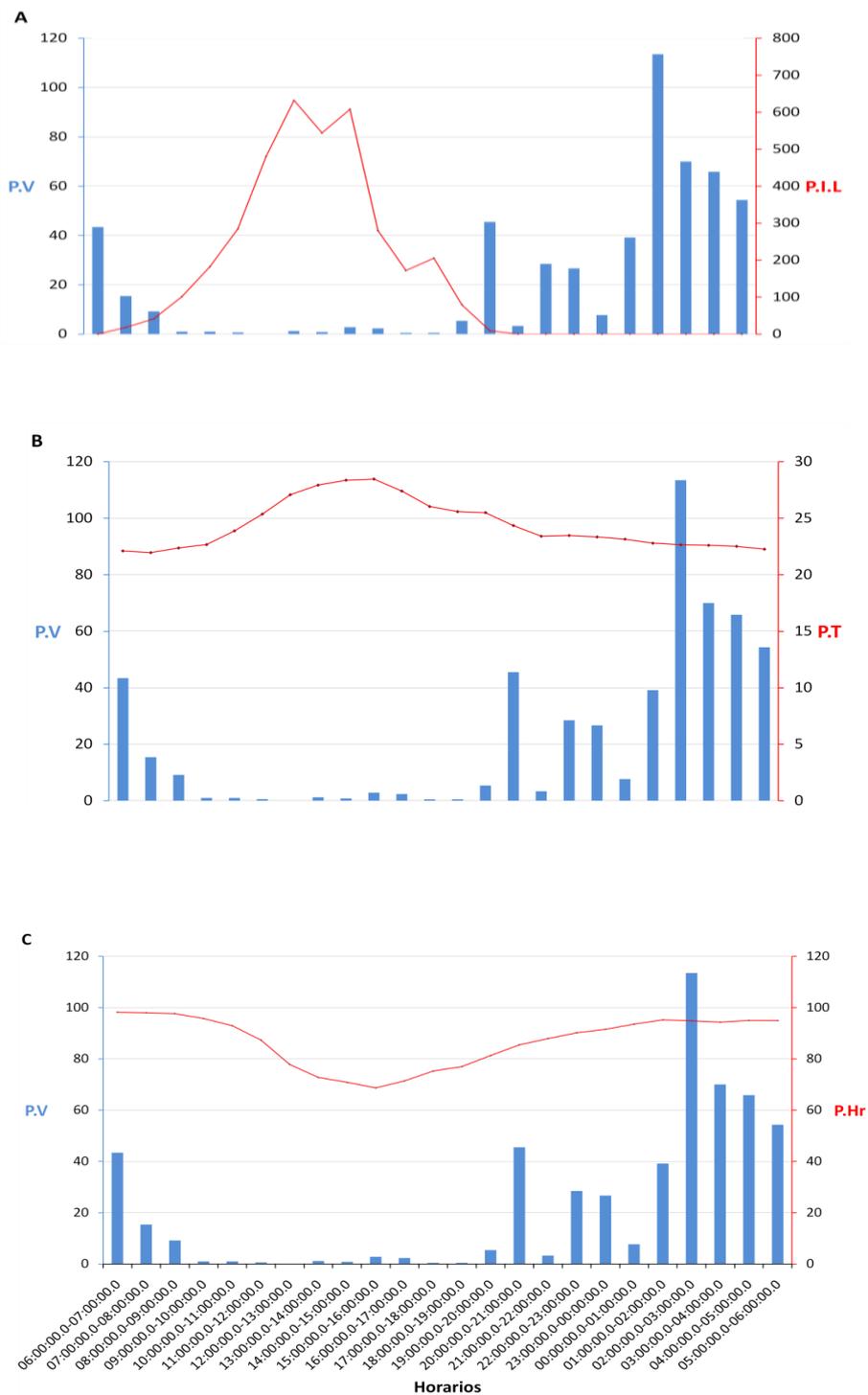
This poster is accompanied with attractive photos that were taken by me thanks to this project. It was also distributed within the reserve (main offices and one local school), as well as at the Faculty of Biology of Havana University.

3. We gave a talk to the local staff of the protected area about the local species diversity and the general importance of amphibians. We explained also our advances in this project and our long-term vision.
4. We performed educational activities with local children. We designed one power point presentation that was given to the staff of the reserve who is in charge of the environmental education. We conducted a field activity with children, during which they were able to search for and handle frogs and toads (Fig 3).

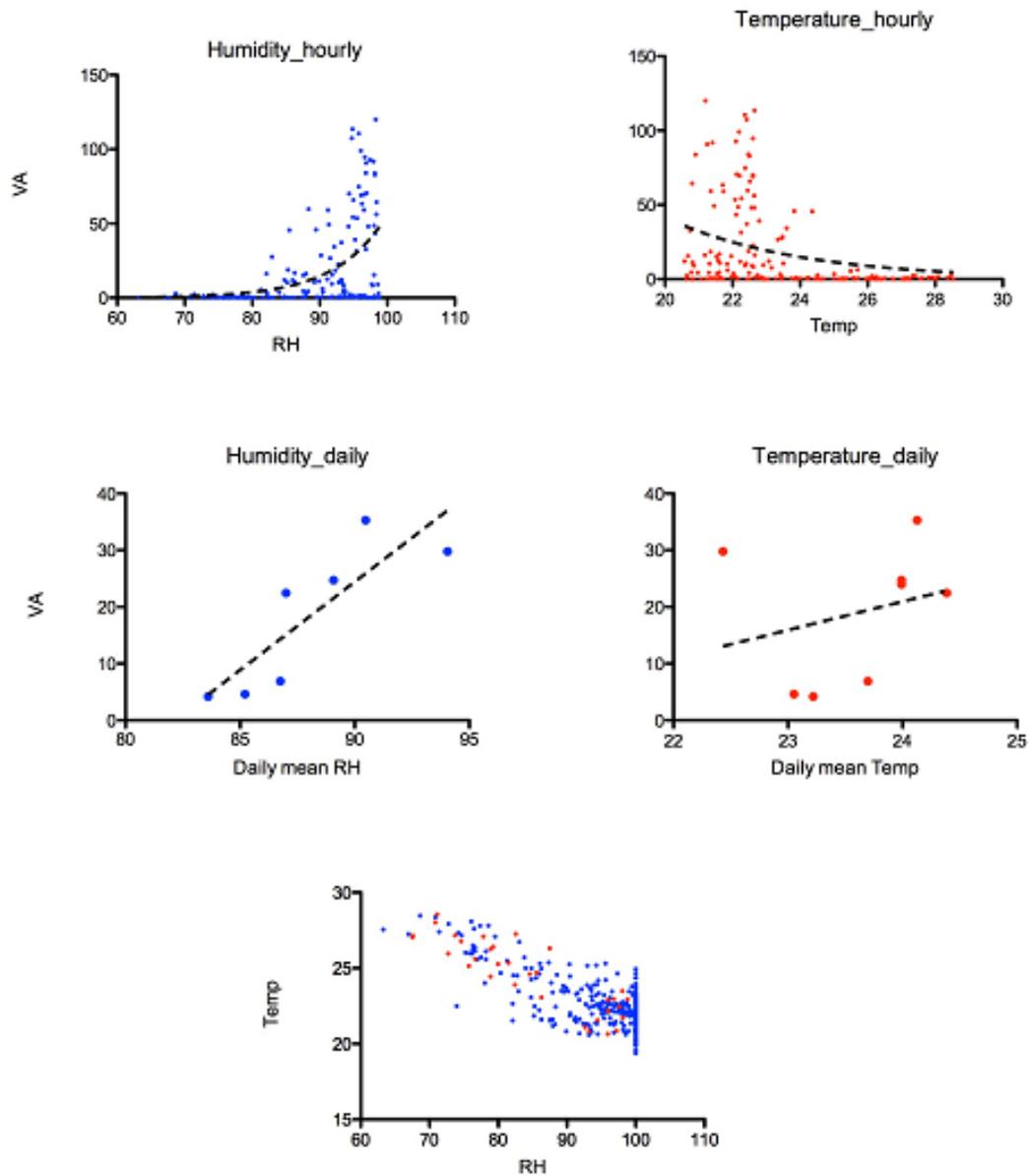
### Figures:



**Figure 1.** Recording schedule of Automatic Recording Units (SM3-Wildlife Acoustics, Inc.) used from May 2015 to May 2016 in Sierra del Rosario Biosphere Reserve, Pinar del Río, Cuba.



**Figure 2a.** Diel variation of vocal activity (P.V, expressed as hourly mean) with environmental parameters (also expressed as hourly mean) in *Eleutherodactylus eileenae* from Sierra del Rosario. A) Light intensity (P.I.L); B) Temperature (P.T); and y C) Relative humidity (P.Hr).



**Figure 2b.** Relationship between calling activity and climatic variables (temperature and relative humidity) at two different time scales: hourly and daily, in *Eleutherodactylus eileenae*. RH: Relative humidity; VA: Vocal activity; Temp: Temperature. The bottom graph shows the combination of Temp-RH data where vocal activity was detected (in blue) and where it was not detected (red).



**Figure 3.** Educational activity with local people at Sierra del Rosario Biosphere Reserve. Here, students are handling adult individuals of *Eleutherodactylus limbatus*, an endemic frog of Cuba, and one of the smallest amphibians in the world.