

## Project Update: September 2015

### *Expedition period*

Our field trip was from August 7<sup>th</sup> to 12<sup>th</sup>. Our main goal in this trip was to collect acoustic records around cave La Barca.

### *Developed Activities*

Previous reports regarding our target species (*Natalus primus*) suggested that this may forage very close to the cave, due that they may suffer from severe dehydration in their wing membranes (Tejedor et al., 2004). No information regarding the distance of the foraging zones from this species, relative to its roost have ever been explored. We decided then to collect acoustic records from places around cave La Barca to look for the presence of *N. primus*. Acoustic recordings were made using the same equipment as well as the recording schedule (see previous reports). We set these in different places relative to cave La Barca (Fig. 1) taking distances from 500 m and 1 km, using roads and tracks. GPS coordinates were taken on each place where recordings were made. Automatic recording units (ARU) were located either in an open space (near the roads) or a clearing within the forest (Fig. 2), according to these distances relative to the cave. To select places using strictly a map without knowing the actual tracks here would be difficult to follow, due to the features of vegetation and uneven ground. The type of vegetation was not considered to select these places, due that within Guanahacabibes this is very homogeneous.

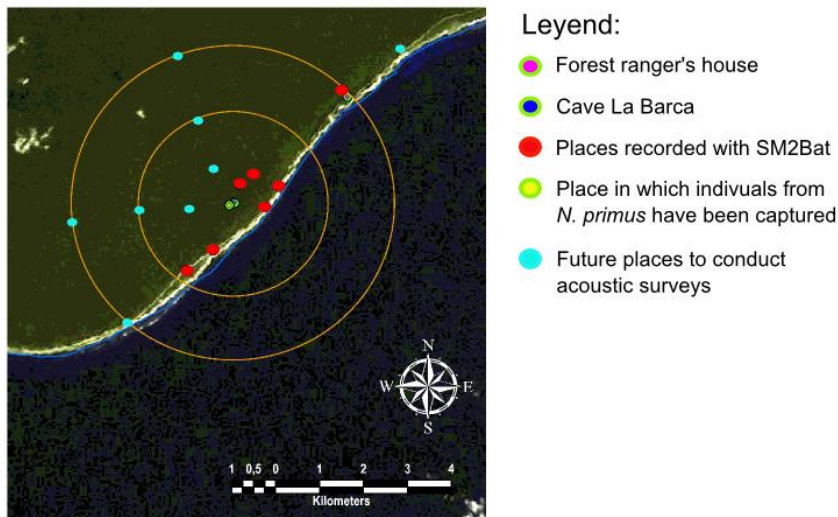


Figure 1. Places around cave La Barca (Guanahacabibes, Sandino, Pinar del Rio, Cuba) in which acoustic surveys were made in order to find the foraging zones from *Natalus primus*. Places recorded were located through GPS cords took at each site. Orange circles represent ratios from 2 and 4 km relative to cave La Barca, located in the centre.

### *Amount of data collected*

We collected 3 843 sound files from ARU in places around cave La Barca in this period.

### Obtained results

Bat activity has been widely described using acoustic monitoring (Broders, 2003, Lang et al., 2006, Miller, 2004), although, in Cuba these kind of studies have been made in a couple of natural reserves and non-protected areas (Mancina et al., 2012, Macías et al., 2006). For Guanahacabibes National Park, no studies regarding bat activity have ever been conducted. No information is available about acoustic records previously done in this area or mist-netting captures of bats.

According to this, several questions may arise:

- How is the distribution of bats species through Guanahacabibes Peninsula?
- Which are the most important caves regarding bat biodiversity?
- Which are the most important feeding areas from these species?
- Do they feed on a special habitat (near or far from the sea shore)?
- Each species will have a particular feeding area, this may be different for each species?

From a quick analysis on the recordings made in this field trip, we found echolocation calls in all sampled areas, bats were feeding (indicated through the presence of feeding buzzes) and commuting (displacement from the roost to the feeding areas) as well in these areas. This is a very interesting result due that bats are feeding in areas not included within the edge of the National Park (Fig. 3). If we find the feeding areas from *Natalus primus* through this acoustic surveys, we could propose an extension of the National Park, that could takes in all these feeding areas.



Figure 2. Location of the automatic recording units (SongMeter) to make acoustic surveys within Guanahacabibes National Park, in open spaces (A) and on clearings within the forest (B). Red rectangles show the position from the microphone on each picture.

*Educational/Scientific materials made in this period*

Due to summer holidays we were not able to find any children in the community. We prepared anyway two puzzles (see attached) and two talks to deliver at the school to be used by teachers in their classes. We coordinated already to have this meeting in September when they start their classes.

We met with the director of the forest rangers to coordinate a meeting with them in our next field trip (Fig. 4). He agreed and they are very happy to have an interchange with us to know about the work that we have been conducting for the last seven months.

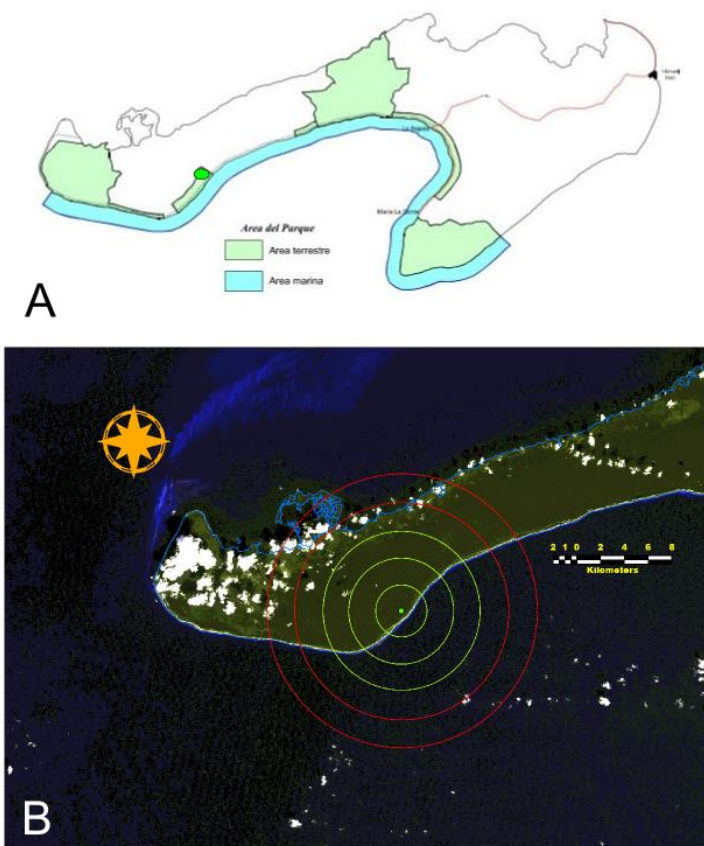


Figure 3. Area from Guanahacabibes National Park signalled in blue within Guanahacabibes Peninsula (A). Areas to develop acoustic surveys around cave La Barca. Circles represent a 2 km ratio increase from cave La Barca, green ones were the closest and red ones were more far from the cave. Green circle represents cave La Barca in both figures.



Figure 4. Collaboration with forest rangers in Guanahacabibes. They were supporting us during our acoustics surveys (A) and learning about our bats (B).

#### Next Steps

- To develop the meeting with the forest rangers.
- To develop the workshop with the children at the school in the community within Guanahacabibes National Park.
- To deliver materials regarding the results obtained so far in the project to authorities managing the National Park and the forest rangers that have helped a lot to undertake this project.
- To collect acoustic records in the missing areas around cave la Barca.

#### References:

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TEJEDOR, A., SILVA, G. & RODRÍGUEZ-HERNÁNDEZ, D. 2004. Discovery of extant *Natalus major* (Chiroptera: Natalidae) in Cuba. *Mammalian Biology*, 69, 153-162.


1. Puzzles made for the children in the community in cave La Barca:



2. 2016 Calendar:

**Cuban greater funnel-eared bat, exclusive species from our bat fauna**  
**Help us to preserve it!**

**Calendar 2016**



Photography: Emanuel C. Mora

January	February	March	April
S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
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September	October	November	December
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