Final Evaluation Report

Your Details	
Full Name	Abigail Urbina Cordoba
Project Title	Monitoring and conservation programme for the neotropical otter (*Lontra longicaudis*) in Bacalar lagoon, Quintana Roo, Mexico the Neotropical otter as a flagship
Application ID	37453-1
Date of this Report	05/09/23

1. Indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
Monitoring of otter population in the Bacalar Lagoon			■	Several kayak and motorboat trips (total 48km) were made to locate the areas where the species was found. Additionally, eight camera traps (17,856 trap-days) were placed to record activity patterns of the species in the lagoon.
Creation and training of an otter monitoring committee		■		The participatory monitoring committees could not be established with the desired success because the inhabitants focus on tourism and non-productive activities (fishing) in the lagoon. But the participation of service providers was achieved to obtain otter records during their tourist tours.
Evaluate the threats to the conservation of otter in the Bacalar Lagoon			■	Thanks to field monitoring, interviews with local people, environmental education workshops and the collaboration of the local government of Bacalar, it was possible to identify three most important threats to the conservation of the species in the area.
Environmental education workshops			■	22 environmental education workshops (610 people) were offered to the inhabitants of the surroundings of Bacalar.

2. Describe the three most important outcomes of your project.

a). Monitoring was established with the help of the project work team and with people from the community as part of the participatory committee. This made it possible to cover several transects that in total reached almost 60 km, where the presence of the Neotropical otter in the area was recorded. Through excreta, footprints, possible burrows and photographic records, it was possible to calculate the abundance of the species (0.03 otters/km). Which is a very low abundance value, this is important since there was no study that evaluated the current status of otters in the area.

b). It was possible to identify two important threats that could put the otter at risk in the Bacalar lagoon: the change in land use (deforestation of riverbanks) to build

tourist sites and the increase in tourist intensity in the area have caused changes structures on the periphery of the lagoon, in addition to an increase in water activities by tourists (transit of boats, sailboats, kayaks and noise). Our interviews and comments from local residents indicated that in recent years, with population growth and tourist activities, the presence (sightings) of the otter has decreased. For example, they reported that the otter could be seen on the side of the town, currently we do not find traces of its presence in that area, but in the areas furthest away from tourist activities. Another threat is water contamination due to the lack of sewage treatment plants from the main towns and the discharges go directly to the lagoon without prior treatment, causing the biochemical conditions of the water to change.

c). Awareness raising and the proposal to use the otter as a flagship species in the Bacalar Lagoon was achieved through talks and environmental education workshops that were held in the different communities and schools surrounding the lagoon. The perception of the species in the area before the project was low and the presence of the species in the lagoon was unknown. After the talks, an acceptance and positive thoughts were observed towards the conservation of the species and its importance as a flagship species and regulator of the ecological balance of its habitat. In total, 22 environmental education workshops (610 people) were offered to the inhabitants of the surroundings of Bacalar.

d). Two types of brochure formats were made, which were distributed among the inhabitants of the Bacalar lagoon, as well as in the schools visited to carry out environmental education workshops on the ecological importance of the conservation of the otter in the area, its threats and its role as an umbrella species.

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

One of the main difficulties to carry out the project was the great activity of the local inhabitants for activities associated with tourism, this meant that it was not possible to consolidate a participatory monitoring group, since the inhabitants have a large part of their time dedicated to provision of tourist services and almost do not make direct use in the lagoon (fishing or other type of use). However, we found great interest in learning more about otter ecology from the young population of the community.

Another difficulty encountered when preparing the project was the natural characteristics of the lagoon. For example, the shores have a lot of mangrove vegetation and the absence of rocky areas on the shore makes it difficult to find footprints, latrines and excreta. Even so, some indirect records of the presence of the species were found.

4. Describe the involvement of local communities and how they have benefitted from the project.

The local community became involved in the project through their participation in the collection of otter records during their tours in the lagoon during their working

days. The community benefited from having knowledge given by talks and brochures on the importance of conserving the species. The awareness of the population for the use and care of the natural resources with which they live daily is essential for the development of local capacities for biological conservation, which is why our efforts to develop awareness and information workshops on the presence of the otter in the lagoon is a contribution that promotes the conservation of the species and its habitat.

5. Are there any plans to continue this work?

At the moment we have no plans to continue with the project in the area, however we continue to collaborate with researchers from the Colegio de la Frontera Sur (ECOSUR) to follow up on otter monitoring and awareness workshops.

6. How do you plan to share the results of your work with others?

The results were made known to the municipality of Bacalar through a report. Additionally, a poster was presented at the biology seminar fair at the Faculty of Higher Studies Iztacala-UNAM. The results will also be presented at the national congress of mammalogy that will take place in October 2024.

7. Looking ahead, what do you feel are the important next steps?

It is important to continue monitoring efforts by registering visitors and tourism service providers in the area. To have new records that allow a better understanding of the population dynamics of the species. One strategy to follow is to develop a plan to monitor the otter's citizen science records throughout the country in order to have a more current state of knowledge about the species and to continue updating it with the help of the public.

8. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?

Yes, all the brochures, slides and posters have the respective Rufford logo, as well as acknowledgments for the financing granted for the development of the project.

9. Provide a full list of all the members of your team and their role in the project.

Dr. Pablo César Hernández Romero will participate as collaborator and expert advisor to the project.

10. Any other comments?

Rufford's support was essential for the development of the project, which obtained important results for the knowledge and conservation of the Neotropical otter in southeaster Mexico. Place where very little was known about its ecology and conservation. Currently there are communities sensitised towards the care of the species, materials provided, presentations, as well as data on the population status

of the species in the area. In addition, the project also allowed the development of capacities in undergraduate students in paths towards biological conservation.

ANNEXES

Figure1. Talks to schools and delivery of material (brochures) for greater dissemination of information. A) talk to a group of 5th graders; B) talk given to 4th grade primary school children; C) delivery of brochures to 6th grade primary school children; D) talk to Bacalar high school students.

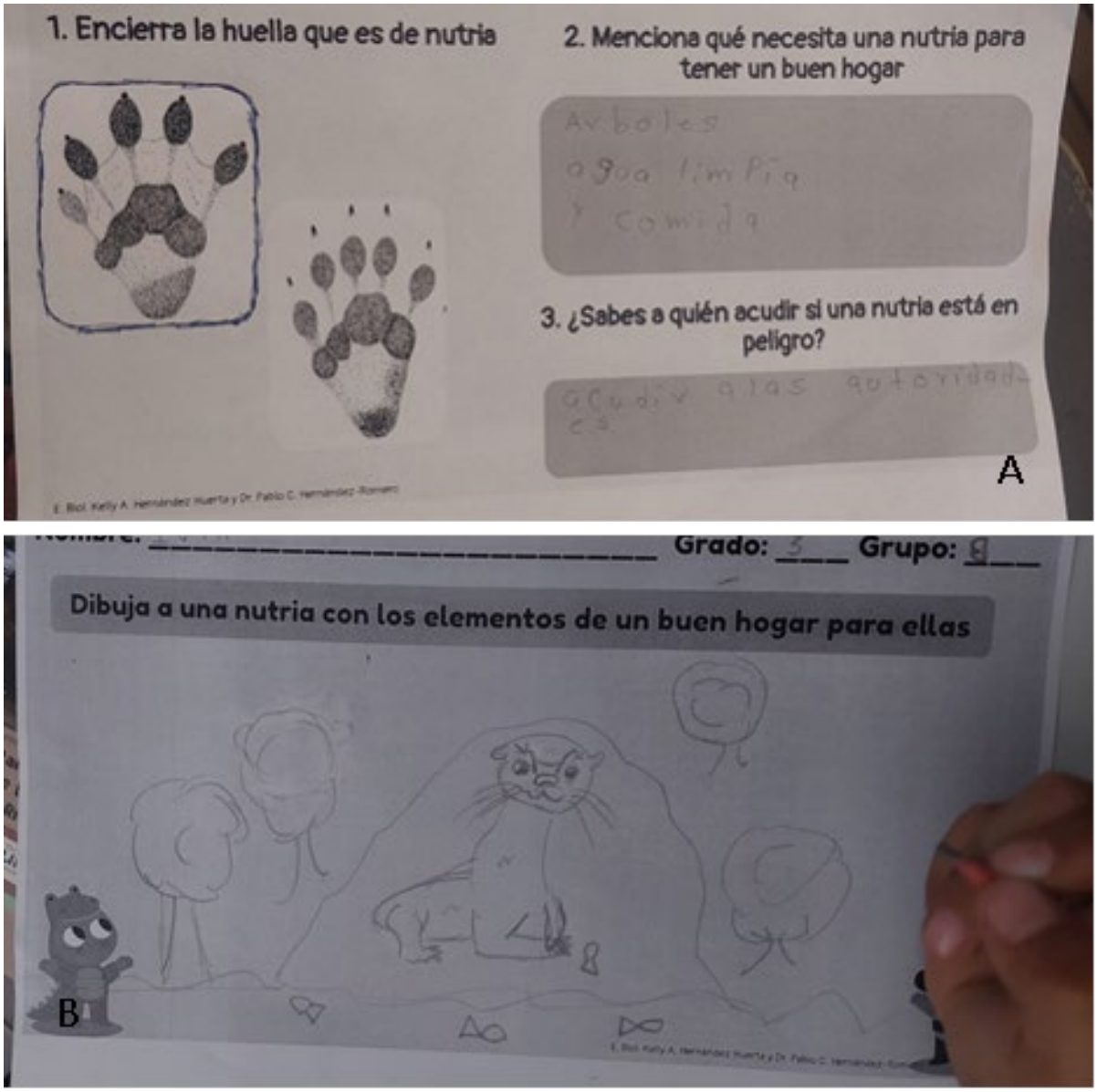

Figure 2. Complementary activities done during environmental education workshops for primary school children. A) Activity from 4th grade to 6th grade; B) Activity from 1st grade to 3rd grade.

Table 1. Neotropical otter records in the Bacalar Lagoon, Quintana Roo, Mexico.

Trail type	Coordinates
Burrow	18°33'12"N 88°27'41"W
Track	18°33'23"N 88°27'32"W
Track	18°33'16"N 88°27'08"W
Track	18°33'43"N 88°27'11"W
Track	18°35'10"N 88°25'55"W
Feeder site	18°35'18"N 88°26'12"W
Feeder site	18°39'53"N 88°23'07"W
Footprint	18°40'09"N 88°22'54"W
Footprint	18°40'31"N 88°22'47"W
Footprint	18°40'50"N 88°22'36"W
Feeder site	18°40'28"N 88°22'12"W
Burrow	18°52'02"N 88°14'50"W
Track	18°52'12"N 88°14'41"W
Burrow	18°52'18"N 88°14'39"W
Burrow	18°52'22"N 88°14'35"W

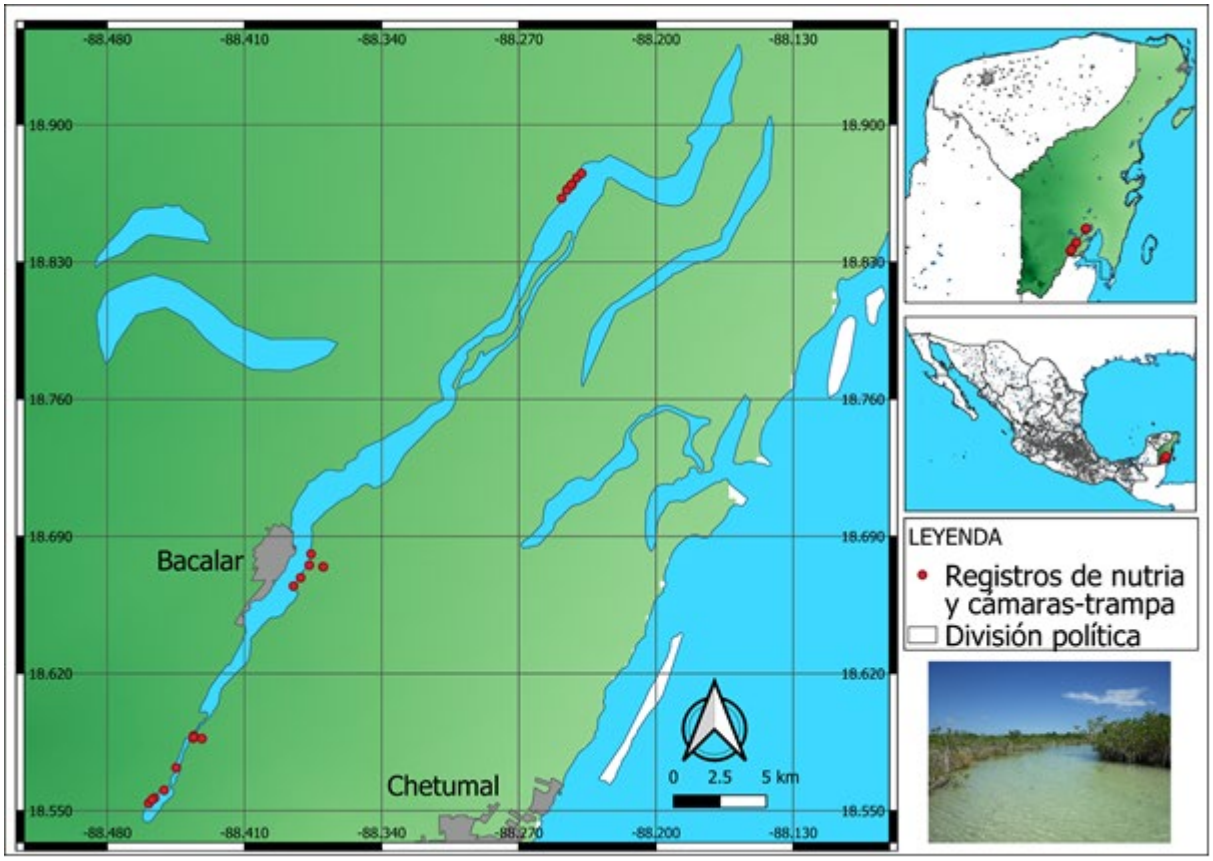

Figure 3. Distribution map of otter records and placement of camera traps in the Bacalar lagoon. It is important to mention that a large part of the shore of the lagoon was explored by kayak but there are only records with indications of the presence of otters in red dots.

Figure 4. Brochure for children and young people (front and back) with information on the ecological and conservation importance of the Neotropical otter in the region.

Figure 5. Brochure for adults' people (front and back) with information on the ecological and conservation importance of the Neotropical otter in the region.

Figure 6. Photographic record of the Neotropical otter and placement of camera traps in the Bacalar lagoon.

Figure 7. Monitoring and searching for traces of the Neotropical otter by kayaking along Bacalar lagoon. Presentation of poster of results at the Faculty of Higher Studies Iztacala-UNAM.