

The Rufford Foundation

Final Report

Congratulations on the completion of your project that was supported by The Rufford Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in **word format** and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to jane@rufford.org.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details

Your name	Diane Gendron
Project title	Pilot project for monitoring whale watching activities in the Loreto Bay National Park, Mexico.
RSG reference	21228-2
Reporting period	April 2017- March 2018
Amount of grant	£5,000
Your email address	dianegendroncicimar@gmail.com
Date of this report	

1. Please 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
Test and program the IP camera at CICIMAR				
Test the IP camera at two sites of the LBNP				
Design the system to fix to rocky ground.				
Test the programing of recording the IP camera				
Monitoring whales and WW interaction at sea (2017 season)				The monitoring of whale and WW at sea in 2017 and during 2018 are completed.
Monitoring with the IP camera during 2017				Because the grant support was received in mid-March, with the season well advanced, there was no time to buy and test the equipment for the 2017 whale season.
Monitoring with the IP camera during 2018				The monitoring of the 2018 whale season was tested at two sites and a partial monitoring of whale and WW was achieved at Tijeras Island site.
Analysis of recordings of season 2018				The recordings of whale and WW of 2018 has been partially analysed. The distance at which whales and WW can be monitored is much further than we expected.
End of season meeting with the director of the park and whale watching captains				We are considering with the park manager early May for possible dates for the meeting.
Assessing the method				This pilot method will definitely help the monitoring of the whale and WW in the future

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

The timing of sending the proposal and receiving the grant (March 2017) and purchasing the components of the system thereafter did not allow the testing of the IP camera during the 2017 blue whale season, although the monitoring at sea was conducted successfully. A total of 32 blue whales were photo-identified and about half of them were successfully monitored at sea using our focal animal survey method implemented in the past years. Biological samples were collected to assess general health.

Regarding the IP camera pilot project during 2017, all the items were integrated and tested during several months on the roof of CICIMAR. We failed to take into account the cost of the transmitting system from the video IP camera to the NVR recorder and all the necessary materials and tools required for the system infrastructure placement. The solar charge controller was damaged by an accidental electric discharge from the solar panel, requiring the purchase of a replacement. This created unforeseen additional expenses, but we achieved our objective using some of the extra intern research project funding to complement the Rufford Foundation funds.

3. Briefly describe the three most important outcomes of your project.

1. We found that, depending on the daylight, the IP camera performed well with good recording up to a visual distance range of 16 km from the Tijera Island site, which was further than we expected. At this distance we can monitor the whale watching activities using the useful diving parameters to monitor WW interactions that were used in past years (diving and surface time and number of blows). These parameters can be monitored during natural behaviour and compared with during WW interaction. We can also compute the number of boats interacting with a whale and the time that each boat remains with a specific whale. At closer distance, the behaviour activity of the whale and identification of the boat's name can also be monitored.
2. The Tijeras Island is the perfect site to monitor whales and WW in the southern area of the LBNP. The IP camera was installed at this site for 2 weeks in March 2018. Although we observed only 10 different individual whales during the whole 2018 season, they stayed for about 2 months and distributed within the IP camera visual field most of the days we were at sea.
3. We strongly believe that the IP Camera will provide information on navigation track and speed of sport fishing fleets and will likely be a useful tool to mitigate possible collision with whales. At the reception site (API) there is a VHF radio and the sport fishing fleet could be notified to slow down if whales are observed in the area of navigation. The IP Camera spotted an unusual number of sport fishing boats navigating back from Catalana Island along a track where one whale was observed on March 21th 2018. The next day, the system was scheduled to be taken off the Tijera Island site and, unfortunately,

later on that day we documented a collision of a sport fishing boat with a whale we were monitoring at sea. This event will be documented in the LBNP web shortly at the manager's discretion.

4. Briefly describe the involvement of local communities and how they have benefitted from the project (if relevant).

A meeting is scheduled for early May 2018. We expect to have feedback from the blue whale watching companies and captains. The recording will likely be useful to visualize the passive method during the future workshops and to observe if there are captains who do not follow the rules.

5. Are there any plans to continue this work?

To fully conclude on the usefulness of the system as an independent monitoring of the passive whale watching in the LBNP we need to monitor a full whale season, analyse the data and compare the diving and surface time parameters with our field monitoring focal survey. We also need to propose and consolidate a marine surveillance network involving the local community.

There is also a need to evaluate the feasibility of programming the motion detection and pattern of recording in specific areas of interest, so the time consumed in onsite recording analysis is decreased.

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

To our knowledge, this project is the first use of this new technology to monitor whales and WW activities. We believe it will likely become an important tool for marine park managers and coastal WW around the world. We plan to include a report of this new tool in the LBNP webpage as well as in our dedicated research group web page that is presently in construction.

7. Timescale: Over what period was The Rufford Foundation grant used? How does this compare to the anticipated or actual length of the project?

The period that The Rufford Foundation grant was used was from 28 March 2017 to 27 December 2017. Our activity report was extended until 27 March 2018 to ensure that our objectives were met and to apply for the next grant.

8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.

1 British pound = 25.53 MXN Mexican pesos. The amount received was fully used to purchase the equipment with its components, and part of the 2007 field work cost.

Item	Budgeted Amount	Actual Amount	Difference	Comments
IP Network camera 20x zoom	1917	1289	+628	We found a better deal
Switch PoE RJ45 for IP camera 4 Port 2x	41	45	-4	
NVR 8 channels, mini digital recorder	131	149	-18	
Hard drive 1Tb	65	66	-1	
Solar power system	300	600	-300	The re-calculation of the power required by the camera and the antennas that had not been contemplated. A larger solar panel and one more battery was purchase.
Independent post IP camera	409	469	-60	
Fuel for 2017 field trip (35 days at 750MXPper day)	1267	1350	-83	Fuel has gone up the cost was more than 850 per day
buoy rent at Puerto Escondido Marina 2017 (5,560MXPX month x3)	653	653	0	
Field materials (liquid nitrogen, batteries, vials, etc.)	217	379	-162	Liquid nitrogen is not available in la paz and the cost went up
TOTAL	5000	5000		
Extra solar charger controller	196			Electrical failure
2 Outdoor wireless base station (up to 50km) + dish antennas	63			Best option to transmit the video from the IP camera to NVR recorder base at API station.
Technical assistance for the Installation on site	400			This cost was not anticipated.
Extra Costs	659			

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

Before the inclusion of the IP camera system as an independent method to monitor WW activities in the LBNP we need to fully compare the IP camera monitoring with our field method. The ultimate goal is to achieve an independent monitoring system that could be viewed from different sites using a satellite internet system and involving the Loreto community. The programming of the recording must be achieved so that the system can become autonomous.

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

Yes the Rufford Foundation acknowledgment and logo were included in the conference " *Alianza para la Conservacion de la ballena azul en Loreto*" given by Diane Gendron during the Blue Whale Festival in Loreto on March 9th 2018 and in a Conference given by the research team on March 19th 2018 at the Hotel Tripui where we rent the apartment.

There are no publications under review at the present that were partly founded by the Rufford Foundation. However, we are planning to file a complete description of the collision and injury caused to the whale mentioned above, which includes reference to the use of the IP camera as a potential mitigating action for the future.

11. Please provide a full list of all the members of your team and briefly what was their role in the project.

Dr Rocio Marcin Medina, Director of AIMACH, organization of the meeting

Dr Diane Gendron, Director of the Rufford project

MS. Ricardo Mirsha Mata Cruz, Assistant researcher in charge of the IP camera system monitoring.

Carlos Andrés Domínguez Sánchez, Doctoral student

Carlos Alberto Pineda Fajardo, Undergraduate student

Camilla Muñoz Moreda, Undergraduate student

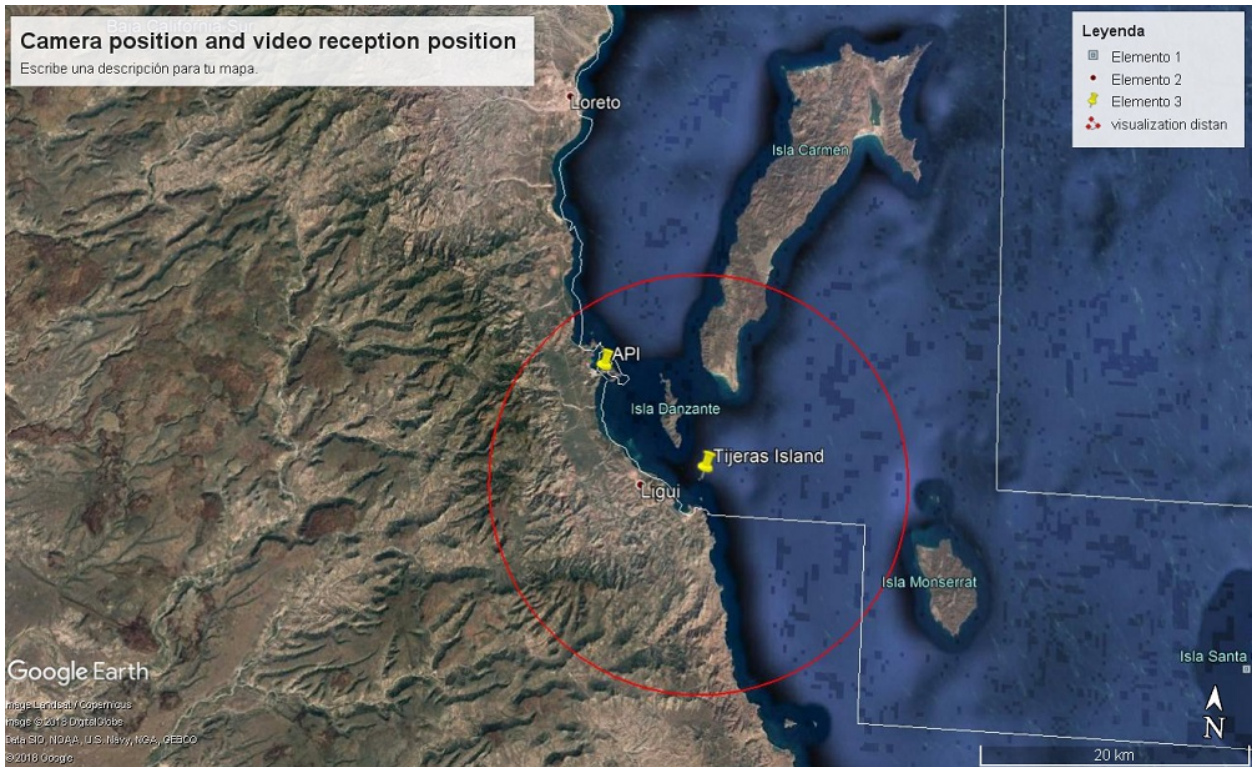
MS. Ernesto Israel Popoca Arellano, Director of the BLNP

12. Any other comments?

Many thanks for your help in developing and promoting the passive WW method in the LBNP.



Left: IP Camera with all components positions at the Tijera Island site. Right: Ricardo Mirsha Mata Cruz giving a talk on the pilot project.



Map of Tijera Island site and visualization range of the IP Camera in the Loreto Bay National Park.