

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	Juliana Lopez Marulanda
Project title	Humpback Whales off Tribugá's Gulf, Colombian Pacific: Integrating scientific research and community-based whale watching to maximize conservation efforts
RSG reference	15577-1
Reporting period	July – November 2014
Amount of grant	£5,000.00
Your email address	macuaticoscolombia@gmail.com
Date of this report	June 5 th , 2015

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
Integrate with local whale-watching in Tribugá's Gulf		X		Hotels do most of the whale watching activity, while local fishermen and tour guides do only a small fraction of tourism trips. The research team contacted a total of 11 establishments. Workshops and environmental education activities were conducted separately for each facility, since the availability of owners, boat drivers, and assistants for a joint event was very limited during the breeding season.
Adapt the whale-watching vessels as a platform for scientific research			X	The research team joined the whale watching vessels in a total of 28 trips (more than half of the trips made). The adaptation of whale-watching vessels proved to be extremely successful, facilitating scientific research and environmental education while optimising the execution of available funds.
Measure the efficacy of environmental education workshops to promote whale watching guidelines		X		Hotel owners, boat captains and crew members affiliated with seven facilities completed surveys designed to measure the efficacy of workshops. The surveys measured several components including: knowledge-based questions, attitude-based questions, beliefs/activities related to conservation. There is a general trend that those hotels that scored lower than 73% on surveys followed whales at a noticeably closer distance (< 150 m) and for longer durations (> 30 min). Hotels that scored lower than 70% followed even closer (~ 100 m). There were exceptions to this trend that will be explored with further analyses.
Describe the impact of whale watching tourism on the behaviour of humpback whales		X		During research boat trips, a total of 35 interactions with whale watching or commercial vessels were registered during the fieldwork season. About 31.4% of those interactions elicited an evasive response from the whales,

				mainly because the boats failed to adequately approach the whales or made inappropriate maneuvers to follow them. Photographic evidence of at least two whales injured by engine propellers were recorded.
Monitor the behaviour and social structure of humpback whales			X	The 2014 season marked a successful continuation for Macuáticos's efforts to establish a long-term study programme for the conservation of humpback whales in Tribugá's Gulf. A total of 216 whales, of all age classes, were sighted within 93 groups. Most of the sighted groups consisted of adult animals only (n=53). Competitive groups, groups of adults and juveniles, and mother-calf pairs were observed with similar frequency (n=9, n=9, n=11 respectively), while single juveniles and mother-calf and escort groups were sighted less frequently (n=4 and n=6 respectively). Observations were conducted for a total of 194 hours travelling 1905 km.
Examine the spatial distribution of humpback whales in Tribugá's Gulf *			X	Geographic locations were collected for all sightings. Results support the pattern described based on 2013 data. Overall, humpback whales kept a heterogeneous distribution according to age class. Mother and calf pairs seem to segregate themselves to shallow, coastal waters, while other age classes use deeper, more exposed waters.
Record acoustic behaviour of displaying males			X	A total of 8 hours 10 minutes of song were recorded. Song data collection required the engine to be turn off, which prevented us from recording on board of whale watching vessels. Similarities between the Colombian song and individual units and phrases in Gabon, Brazil, Tonga and Hawaii have been found. Songs were used in environmental education activities, including workshops with whale watching operators, generating a very positive response.
Complement the photo ID catalogue initiated by Macuáticos			X	Our current catalogue now includes 254 identified whales, 110 of which were identified during the breeding season of 2014. No re-sightings with photographs

Foundation in 2010				<p>taken between 2010 and 2013 were made. Comparisons with Panama have revealed only two re-sightings, while a regional comparison with catalogues from different locations in the southeastern Pacific found a total of 14 matches.</p>
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2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

Our initial plan was to host a meeting with all those involved in whale watching in Tribugá's Gulf. This proved to be incredibly difficult to arrange. Hotels owners, boat captains and tour guides get a considerable portion of their annual income during the breeding season of humpback whales. Therefore, most of their time is used taking care of tourists and arranging details of their itineraries. In this way it was not possible to find a time period when everyone was available. The research team adjusted by visiting each facility separately to offer a workshop on the biology of humpback whales as well as whale watching regulations.

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

- The surveys completed by hotel owners, boat captains, fishermen and tour guides are one of the most valuable results of our 2014 field efforts. The local communities were very receptive towards all the environmental activities completed by the research team. Nonetheless, we still have evidence of malpractices and limited following of proposed guidelines. This is a key finding that calls for further follow-up and adaptation of our environmental education activities according to the perception of the local communities.
- The adaptation of whale-watching vessels as a platform for scientific research was extremely successful. More than half of our trips were made in association with whale-watching vessels, which had no precedent for our organisation. By the end of the season, when the tourism was not as massive, available funds were used to conduct more research boat trips, allowing for an extended monitoring of the whales' behaviour and distribution pattern by the end of the breeding season. This period of time is precisely where research efforts by our organization had to be terminated in 2013 due to lack of funds.
- After the 2014 Fieldwork season, Macuáticos Colombia Foundation has a greater amount of data to describe the surface and acoustic behavior, social structure, and habitat use of Humpback whales wintering around Tribugá's Gulf. For example, statistical analyses for behavioural data from 2013 were considerably restricted due to small sample size in most of the categories. Being able to combine both years allowed us to perform a more complete analysis plan. If, Macuáticos continues to be successful at monitoring the behaviour and distribution of humpback whales, it will be more feasible to promote conservation strategies for humpback whales and other marine species in the Colombian Pacific.

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

The 2014 season witnessed significant advances with the local communities, specifically with the local council, the maximum civil authority in the Gulf. A meeting with the Board of the Council took place in Coquí on September 6th, 2014. During this encounter, we presented the scientific research and environmental education achievements made during the 2013 season in terms of scientific research and environmental education. Thanks to the General Council we had the opportunity to arrange visits to some localities that we had not visited previously and to others where our presence has been limited. We also had the opportunity be part of the process of consultation that took place in Coqui as part of the designation of Tribugá's Gulf as a new Marine Protected Area (official since March of 2015).

5. Are there any plans to continue this work?

Yes. The success of our alliance with some members of the tourism community in Tribugá's Gulf is a key component in the process of implementing a long-term study platform for humpback whales and other marine species. We believe that through the sustained and detailed monitoring of the behaviour and habitat use of humpback whale we can promote effective conservations strategies. Specifically in terms of research, future plans for Macuáticos Colombia Foundation in Tribugá's Gulf include the monitoring of mother-calf pairs. Based on cumulative field observations we think it is important to study these pairs more closely since they are commonly targeted by whale-watching tourism. This selectivity comes to no surprise for us, as mother-calf pairs are often found extremely close to the coast and usually stay in the same area, as the calf's respiratory capacity is limited. Furthermore, vessel traffic is increasing in the region, which could create conservation conflicts in the future.

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

We plan to share the results of our findings at national and international conferences. Specifically, we submitted two abstracts to the 21st Biennial Conference on the Biology of Marine Mammals, which will take place in San Francisco (USA) in December 2015. Additionally, we will submit an abstract to present at the next Meeting of Specialist on Aquatic Mammals in South America that will be hosted in Valparaiso (Chile) in 2016. Two abstracts, one detailing patterns of behaviour and habitat use of humpback whales in Tribugá's Gulf, and the other focusing on the Humpback whale song, were accepted for oral presentation at the Humpback Whale World Congress to be held in Madagascar in June of 2015.

Additionally, Macuáticos Colombia Foundation completed a total of three oral presentations during the past Meeting of Specialist on Aquatic Mammals in South America in Cartagena (Colombia). The talks focused on: 1) The behaviour and habitat use of humpback whales in Tribugá's Gulf, 2) The behaviour and distribution of small cetaceans based on opportunistic sightings in Tribugá's Gulf and, 3) The properties of humpback whale song recorded in Tribugá's Gulf. Lastly, in March of 2015, a presentation on the structure of Humpback whale song recorded in Tribugá's Gulf was given at the Watkins Memorial Marine Mammal Bioacoustics Symposium. All of these studies have originated from fieldwork that was funded with grants from Rufford Small Grants for Nature Conservancy between 2010 and 2013. PDF copies of these presentations are included as an attachment with this final report.

Furthermore, one agreement to share and analyse data has been signed with Dr. Jorge Acevedo (CEQUA) to share photo identification data collected between 2010 and 2013. Currently, our photos are being compared with other catalogues in the Pacific area such as Panama, Ecuador and Chile.

Finally, we are currently working on a report for the local counsels, environmental authorities and hotel owners working in the area to provide them with detailed information on the advances made during the 2014 season. This information will help us to strengthen the alliances made so far, facilitating the continuation of research efforts as well as the reduction of negative impacts for whales in relation to human activity.

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 current project planned to execute both fieldwork and environmental education activities during the entire breeding season of humpback whales off Tribugá's Gulf in the Colombian Pacific; that is, from June through October (2014). Funds became available in late June 2014, so the start of activities in the study area was delayed until the middle of July. Between July and September 2014, the research team worked in association with hotel owners, boat captains and tour guides to promote responsible tourism. At the end of September 2014, when the affluence of tourists had declined, we were able to continue with the fieldwork based solely on the funds from the Small Rufford 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.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Boat trip equipment	305.00	305.00	0.00	Macuáticos Colombia Foundation owned all the equipment. Values represented a 10% of original value.
Fuel	2,250.00	1,750.00	500.00	Amount was originally calculated for five months but we stayed for only four. Additionally, the association with whale-watching tourism greatly reduced the operative cost of our boat-based research. While we spent less on fuel for research, we had to invest more in fuel for transportation to the hotels.
Housing	1,250.00	1150.00	100.00	Amount was originally calculated for five months but we stayed for only four. In Coqui, housing is arranged in advanced. However, when visiting other communities, the research team occasionally had to make last minute arrangement for short-term housing.

Groceries and food preparation	2,100.00	1,780.00	320.00	Amount was originally calculated for five months but we stayed for only four.
Plane Tickets	600.00	650.00	50.00	The budget included estimations for plane tickets. The actual price depends on the influx of tourists to the area, which tends to be high during the breeding season.
On-site transportation	1,000.00	1,400.00	400.00	As explained above, while we were free to join whale-watching tours we had to invest more than originally planned to get from our main location in Coqui to the hotels offering whale-watching tours.
Boat renting and maintenance	1,500.00	1,200.00	300.00	Amount was originally calculated for five months but we stayed for only four.
Boat driver and assistant	1,500.00	1,400.00	100.00	Amount was originally calculated for five months but we stayed for only four. A small compensation was given to our boat captain for the short trips from Coqui to the hotels almost daily.
Total	10,505.00	9,635.00	870.00	

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

We certainly feel that in order to achieve a long-term platform for scientific research and environmental education in Tribugá's Gulf, it is extremely important to consolidate and nurture, the association with whale-watching tourism. Despite the fact that whale watching boats cover a much smaller area, we believe that the benefits of this association outweigh the limitations. Alternatively, we acknowledge the importance of conducting boat trips devoted solely to research in order to increase the scope of the collected data and to record humpback whale song, which is not possible when large groups of tourists accompany the research team. Research priorities for Macuáticos Colombia Foundation in this area include the behaviour and habitat use of mother-calf pairs and multi-years monitoring and comparison of whale song with other breeding areas among others.

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. All the power point presentations used in the workshops and meetings with fishermen, guides and members of the local communities acknowledged the role of the Rufford Foundation. Furthermore, the support of the Rufford Small Grants for Nature Conservancy Foundation was highlighted in oral presentations given at academic conferences.

11. Any other comments?

*A map of the spatial distribution of humpback whales found in 2014 according to topography

