

## The Rufford Foundation

### Final Report

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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](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

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Grant Recipient Details	
Your name	Mario Espinoza
Project title	Looking for lost fish: status of the large tooth sawfish ( <i>Pristis pristis</i> ) in Costa Rica and the Central American region
RSG reference	19361-1
Reporting period	March 2017
Amount of grant	£5000
Your email address	<a href="mailto:mario.espinoza_m@ucr.ac.cr">mario.espinoza_m@ucr.ac.cr</a> ; <a href="mailto:marioespinozamen@gmail.com">marioespinozamen@gmail.com</a>
Date of this report	3/27/2017

**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
Evaluate the status of Sawfish populations in Costa Rica				<p>The project is generating crucial information needed to evaluate the current conservation status and sawfish populations in Costa Rica. With the support of Rufford Foundation we have conducted many interviews to fishers and local communities in coastal and riverine areas (over 250 interviews so far). This has resulted in a large dataset that includes historical and recent sawfish encounters throughout the country. Interviews have focused in the coastal regions from the central (Golfo Dulce) and south Pacific (Humedal Nacional Térraba-Sierpe). However, we have also conducted interviews at other remote riverine communities in the Northern and Caribbean regions. Throughout the interview process, we have received a lot of support from locals. Given that to some, sawfish represent a large mythical creature, this species generates a lot of curiosity among locals, which were very receptive to the project. In the elders, the interviews brought back great memories from the time they were lucky enough to see or capture such an odd-looking creature. Interviews also helped: (i) identifying the main threats affecting sawfish in Costa Rica, and (ii) mapped the current distribution of this species in the country.</p> <p>Local interviews were part of phase 1 of the project. We want to continue our efforts to cover other regions from the country like the north Pacific and other remote locations from the south Pacific that we only did a few interviews. With some of the remaining funds from Rufford Foundation we also started fishing independent surveys in some of the potential "hotspots" for the species. Our aim now will be to combine data from interviews and independent field surveys to determine</p>

			the status of sawfish in the entire country.
Identify potential threats affecting the survival and conservation of sawfish in Costa Rica			<p>The information gathered through local interviews done so far demonstrate that in Costa Rica the sawfish main threats continue to be fishing nets, habitat destruction, and climate change which has increased the amount of sediments, river discharges and increased water temperatures. Its historical distribution was much broader than what we expected, being a very common species in many riverine and coastal ecosystems in both shores and in the north part of the country, while its current distribution appears to be more restricted to only a few sites. Recent sawfish sightings (&lt;2 years) were concentrated at two main sites: (1) the north of Costa Rica, near the Nicaraguan border; and (2) the "Humedal Nacional Térraba Sierpe", one of the most important wetland of Central America, located in the South Pacific. Information on the distribution of this species is necessary to continue with the next phase of the project, which includes field expeditions. Interviews have also served to evaluate people's perception of this important species and to identify the main threats that affect the health of their populations. Interviews revealed that: (i) fishing (mainly captured as bycatch), (ii) habitat degradation (loss and fragmentation, as well as pollution), and (iii) climate change were the three most important threats.</p>
Educate and raise awareness to Costa Ricans about the importance of protecting Sawfish, mainly through talks, workshops, and the use of social media			<p>Our project has helped raise awareness about the status of sawfish in Costa Rica through talks, workshops, news articles, TV and radio interviews, and social media. Our aim with this awareness campaign was to educate the public about what sawfish are, why sawfish populations have declined and what the current threats affecting their survival are. However, educating and raising awareness is a non-stop process. Late last year we have started a series of talks and workshops at a few fishing communities, but we still have a long way to go. In May 2017, our plan is to focus on a few schools from the</p>

			<p>south Pacific region where sawfish sightings have been more common over the past few years. We will work with children (ages 8-12) on an environmental sawfish educational program that will be replicated on other areas late 2017 and during 2018.</p>
<p>Promote a National Sawfish Conservation Strategy that could eventually expand to other countries in Central America</p>			<p>At the moment, we are gaining a lot of positive results in this area. Our sawfish conservation campaign has been the focus of attention in several news articles, TV and radio interviews, and international conservation societies (Sawfish Conservation Society). We have even started working on a draft for a bill protecting sawfish in Costa Rica, with the help from national political leaders. Hopefully, this bill will increase awareness on sawfish, as well as improve their management and conservation.</p>

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

At the moment, we have not encountered any major issues affecting our work. With the funds from RFSG and some of the resources from the Centre of Marine Research at the University of Costa Rica (UCR) we have stretch a lot of the initial funds. We have even integrated some biology and environmental education master students that are working non-stop in the project. Our main challenge now is to continue this important conservation effort in the near future (2-5 years), as well as the long-term.

Conservation campaigns are always difficult in that they have to become viable over time. We have identified key people from the south Pacific that could eventually lead this effort at their local scales. We are slowly training these people so that they can feel part of the project, and hopefully, they could become leaders to others. With the support from UCR, we now have a lot of attention from the public and conservation groups in Costa Rica. For example, over the past year, UCR has giving us the opportunities to spread our work through different outlets (newspapers, TV and radio programs, etc.). We even started working on a children's book named "Looking for sawfish in Costa Rica, a true story", that we hope will be published soon. Funds from UCR have also cover some of the costs of organising talks and workshops to kids, fishers, coastal communities. However, getting funds for conducting fieldtrip expenses to remote areas in these types of projects is extremely difficult. That's why we are extremely grateful to RFSG for their support.

Since phase 2 of this project is a crucial one (using fishing independent surveys to assessing the status and population size of sawfish in Costa Rica at sites previously identified as "hotspots" from local interviews), we are now trying to secure additional funds that could cover the cost of field expenses (fishing gear, boat rental, etc.) and

more community-based outreach activities at remote locations, particularly those that require boat transportation fees.

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

(1) The project has generated crucial information needed to evaluate the current conservation status of sawfish in the country. With the support of RFSG we have conducted many interviews to fishers and local coastal/riverine communities, which has resulted in a large dataset that includes historical and recent sawfish encounters throughout the country. Interviews have focused in the coastal regions of Gulf of Nicoya, Central and South Pacific, as well as some of the most remote riverine communities in the Northern border with Nicaragua, such as Boca San Carlos and Boca Tapada. Throughout the process of interviews, we have received great support from the people. Given that to some, sawfish represent a large mythical creature, this species generates a lot of curiosity. In the elders, the interviews bring back great memories from the time they were lucky enough to see or capture such an odd-looking creature. Interviews have also helped identify the main threats affecting Sawfish in Costa Rica, and mapped the current distribution of this species in the country (Fig. 1).

(2) The information gathered through the interviews done so far demonstrate that in Costa Rica the Sawfish main threats continue to be fishing nets, habitat loss/fragmentation, and climate change which has affected the amount of sediments in the rivers, discharge rates and water temperatures. The historical distribution of sawfish was much broader than what we expected, being a very common species in many riverine and coastal ecosystems in both the Pacific and Caribbean coasts, as well as the northernmost rivers of the country (near the San Juan River). Its current distribution appears to be more restricted to only a few sites, and in considerably lower numbers (Fig. 1). However, more analyses are still required to estimate better population trends. Recent sightings (<2 years) were concentrated at two main sites: (i) the north of Costa Rica, near the Nicaraguan border; and (ii) the "Humedal Nacional Térraba-Sierpe", one of the most important wetland of Central America, located in the South Pacific. Information on the distribution of this species is necessary to continue with the next phase of the project that will focus on validating interview data with abundance estimates conducted during field expeditions. Interviews have also help evaluating people's perception of this important species and identifying the main threats that affect the health of sawfish populations, which is crucial for designing more effective conservation approaches.

(3) Our project has helped raise awareness about the status of sawfish in Costa Rica through talks, workshops, news articles, TV/ radio interviews, and social media. We wanted to educate the public about what sawfish were, why sawfish are an important species in marine/estuarine/riverine ecosystems, why sawfish populations are declining, and current threats affecting their survival. In this area, I can safely say that we have succeed. Consequently, this project has help promoting our National Sawfish Conservation Strategy, which is currently being considered for legal protection.

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

One of the main goals of the project was to educate the public and raise awareness about the current status of sawfish in Costa Rica. For that, we have been conducting interviews to fishers and local communities throughout the country. Interviews have helped us assess people's perception of sawfish conservation and the threats that affect the health of their populations. We also started to conduct a series of talks and town meetings in coastal and riverine regions where sawfish have been recently sighted. During this year, we are planning more activities with schools (children ages 8-12) aiming to create more awareness around sawfish in young people.

During the project, we have also identified key people that could eventually help us lead this important conservation effort at local scales. For example, Esteban Jimenez and Allen Obando are two fishers from the Humedal Nacional Térraba-Sierpe that have joined us during our first few fishing expeditions in search for sawfish. Their knowledge has been extremely helpful to identify potential locations where sawfish may still hold viable populations. But perhaps, what is more impressive is their degree of commitment to our cause. Both of them have shown signs that they could take the lead on the Humedal Nacional Térraba-Sierpe, and possibly with some guidance and further help from others could also benefit from education and tourism-related activities promoting sawfish conservation.

**5. Are there any plans to continue this work?**

Yes, I believed we just had a small taste of it. In 1 year, with limited funding we have achieved so much, but there is also so much more to do. We are at a stage where the foundation of this long-term conservation project has been built. We have "planted the seed", now we just need a small push to achieve even greater things. Sawfish are now in the radar of many Costa Ricans, even our national environmental agencies, which were not aware that sawfish even existed in our waters or their global conservation status. As we mentioned before, phase 1 of the project has been very productive but sadly is almost over. Now, we are putting more effort in the field expedition component as well as the educational and regional awareness phase. This means that our effort will not be restricted to Costa Rica, but also other countries like Nicaragua and Panama. The long-term viability of this project will depend on the support from organizations like Rufford Foundation, which was instrumental to us.

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

Our results will become available via several outlets:

- 1) Scientific publications (Endangered Species Journal).
- 2) Scientific and town-hall meetings.
- 3) Meetings with the Costa Rican Natural Environmental Agency (MINAE-SINAC).



- 4) Meetings with the Costa Rican National Fishing Institute (INCOPECA).
- 5) Meetings with local NGOs.
- 6) Radio and TV interviews.
- 7) Newspaper articles.
- 8) Social media (Facebook and Twitter).

**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 RSG was used over 1 year (a very productive and busy year), which was the actual length of the project.

**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
Travel expenses to conduct local interviews and promote sawfish awareness	£5000	£5000	0	All of the funds from Rufford were used to conduct local interviews and promote sawfish awareness. Although most of the funds were used to cover travel expenses (meals and accommodations), we also use funds for printing material (stickers, posters, brochures, interview forms, information sheets, etc.).
<b>TOTAL</b>	£5000	£5000	0	

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

Our focus now is to continue with the field expedition and education programme phase. Although we have already started some work in these two areas, we only had limited funds. The social media outreach has proven to be a valuable tool, but we also should invest resources to reach more remote and isolated communities.

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

Yes, we used the RSGF logo in our interview forms, brochures, posters and PowerPoint presentations that we used at some meetings, and TV interviews (see all the materials produced by the project).

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

**12. Any other comments?**

These are some of the main outcomes of the project:

Interviews: We have done over 250 interviews to fishers and local communities in coastal and riverine sites of Costa Rica (Table 1).

Table 1. Interviews by province and location.

<b>Alajuela</b>	<b>Guanacaste</b>	<b>Heredia</b>	<b>Limón</b>	<b>Puntarenas</b>
Boca San Carlos	Cuajiniquil	Puerto Viejo de Sarapiquí	Barra del Colorado	Ajuntaderas
Boca Tapada	Sámara		Laguna Madre de Dios	Boca Coronado
Caño Negro	San Pablo de Nandayure			Costa de Pájaros
Palenque Margarita				Isla Chira (Montero y Palito)
San Rafael de Guatuso				Ojochal
				Playa Palo Seco
				Puerto Cortés
				Puerto Jiménez
				Puerto Nispero
				Puerto Pochote
				Puntarenas Centro
				Sierpe
				Tárcoles

Meetings: We have done meetings at schools and high schools from local communities.

Outreach material: We have put together brochures, stickers, book page holders, posters, and other related outreach material for the project. The idea was to create awareness and educate the public about sawfish.

Here are links to the project:



TV Interview:

<https://vimeo.com/209496428>

Radio Interview:

[https://soundcloud.com/mario-espinoza-mendiola/entrevista-pezu-sierra-en-costarica?utm\\_source=soundcloud&utm\\_campaign=share&utm\\_medium=facebook](https://soundcloud.com/mario-espinoza-mendiola/entrevista-pezu-sierra-en-costarica?utm_source=soundcloud&utm_campaign=share&utm_medium=facebook)

Other news:

<http://www.teletica.com/Noticias/150294-Cientificos-de-la-UCR-buscan-al-pezu-sierra-en-Costa-Rica.note.aspx>

<https://spark.adobe.com/page/lefEXjPSD6kha/>

<http://sawfishconservationsociety.blogspot.ie/2017/01/looking-for-sawfish-in-costa-rica.html>

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