Final Evaluation Report

Your Details	
Full Name	Taggert Grayson Butterfield
Project Title	Working with the local community to establish a baseline for conservation of the freshwater and terrestrial turtle species near Sabinito sur, Mexico
Application ID	28237-2
Grant Amount	£4,883
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Date of this Report	29 August 2020

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
Train local leader on collecting data on the six species of turtle in the Sierra de Alamos protected area.			■	The local leader, Felix Garcia, was trained upon acceptance of this grant in May 2019. He was very quick to learn on to set traps, conduct visual encounter surveys, and record the data involved in these surveys. Any pitfalls that we have had in trapping turtles, in particular the Rio fuerte slider (*Trachemys nebulosa*) is due to inadequate traps and not Felix or the team.
Provide a baseline of natural history information on the six species of turtle in the Sierra de Alamos.		■		Although we have found many turtles, there are certain species, such as the painted wood turtle (*Rhinoclemmys pulcherrima*) and Alamos mud turtle (*Kinosternon alamosae*), in which we have only begun consistently encountering individuals. Moreover, we have been unable to trap any individuals of the Rio fuerte slider (*Trachemys nebulosa*) because the basking traps that we built do not capture this species. Despite these pitfalls, we have been conducting visual surveys and observing the Rio fuerte slider in the Cuchujaqui river and hope to trap this species when we have additional funding for appropriate traps. We have had a lot of success in collecting data on the Sinaloa thornscrub tortoise (*Gopherus evgoodei*), Sierra box turtle (*Terrapene nelsoni*), and the Mexican mud turtle (*Kinosternon integrum*). With data gathered of these species, we now know more about their macro and microhabitat preferences, aspects about their diet, patterns of activity, and population structure.

				Our first publication from this project outlining the natural history of the Sierra box turtle was recently accepted for publication in a peer-reviewed journal.
Select scholarship students to be a part of the project and train them how to collect data.				Since the town of Sabinito Sur is so small, there were only four students who applied to be a part of the programme. Many parents were hesitant about letting their kids participate due to the unknown of what monitoring turtles in the forest might entail. In light of only four students being interested, we decided to reduce the proposed scholarship amount so that we could support all four of these students. Moreover, all of these students were boys because parents in the village were hesitant about letting girls be a part of this programme. However, since the parents in the village have had the opportunity to observe the work of the first generation of scholarships students, it is likely that next year there will be more applicants, including girls and boys.
Scholarship students keep daily journals, organize presentations for their local school, and participate in a local outreach event in Alamos, Sonora.				Scholarship students are required to keep a daily journal of what they do in the field and record one interesting natural history observation per week. Students have been very consistent in providing these journals at the end of the month to the local leader to receive their scholarship. We have not had the chance to do any outreach events with these students yet. September 2019, when we proposed to do the first presentation was a little soon to do the first presentation because students had only been participating for 1 month. Then, when we had planned on doing our other events, the Coronavirus had begun spreading throughout the world. For this reason, all of the planned outreach events will not be conducted until 2021.

Publish our results open source on our website, publish in a peer-reviewed, and present at the annual Turtle Survival Alliance (TSA) conference.				We have begun to publish the data we collect in the field on our website so that anyone interested can utilise the data that students collect for their studies or curiosity. We have also had our first peer-reviewed paper accepted in July 2020 in Chelonian Conservation & Biology. We were unable to attend TSA because of the coronavirus.

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

One unforeseen difficulty that arose at the start of this project was the basking traps that we had proposed to sample the Rio Fuerte slider (*Trachemys nebulosa*). These traps were not sufficient to trap this species, even though they have been used by other researchers to trap other *Trachemys* spp. To tackle this problem, we started doing point-count surveys along the Rio Cuchujaqui, similar to how ornithologists sample birds. Since beginning these surveys, we have established a basic understanding of where these turtles occur in the river and when we have funds for appropriate nets it is very likely that we will be able to capture this species with success.

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

1. Providing an alternative form of living to the local leader Felix Garcia and providing an academic opportunity for the four students involved.
2. Locating or trapping 32 Sinaloan thornscrub tortoises, 22 painted wood turtles, 54 Sierra box turtles, 34 Alamos mud turtles, and 135 Mexican mud turtles. Aside from the Mexican mud turtles these samples represent the first of their kind, and these data are publicly available at www.studentsconservingnature.org.
3. Getting the first information on the natural history on the Sierra box turtle (*Terrapene nelsoni*) accepted for publication in a peer-reviewed journal.

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

The primary involvement of the local communities to this point as been through the local leader and the four scholarship students that live in Sabinito Sur, which is located within the Sierra de Alamos protected area. Felix Garcia, the local leader, has benefited because he typically relies on sporadic field jobs that negatively impact the landscape (e.g. cutting trees for grape vineyards). Whereas the students and their families have benefited because this is the only academic opportunity of its kind that has ever been offered in this village. The scholarships have made a significant contribution to their household income and have been able to save their money to buy things they need, such as backpacks, clothes, and shoes. We hope that the local communities will benefit more from this work when we can return and

help the students lead the outreach activities that we proposed in the original project (the coronavirus has prevented us from travelling to the field site in 2020).

5. Are there any plans to continue this work?

Yes. In fact, we recently established a Mexican non-profit (asociación civil) called Students Conserving Nature. This non-profit was established because I am finishing my PhD and would like to continue this project independently from my university. I have also partnered with Alejandra Monsiváis-Molina who is a trained ornithologist. Together, we aim to grow this project to include the monitoring of turtles and birds.

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

Aside from our recently accepted publication, we plan on publishing natural history information on each species in peer-reviewed journals when we have a substantial amount of data for a particular species. We are also planning on create educative materials to share with the local communities and schools. After the coronavirus pandemic allows us to visit the field site more, outreach with the local community will become a regular part of this project. We will also start sharing our work on social media by year end 2020.

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

The grant was used over the course of 1 year as proposed. However, we did not start to use these funds until August 2020 because it took about 2 months for my university to processes the award.

8. Budget: 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. It is important that you retain the management accounts and all paid invoices relating to the project for at least 2 years as these may be required for inspection at our discretion.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Gasoline to travel to Santa Barbara once per month	549	171	_378	There was a lot of money left over from this part of the budget. We only went to Santa Barbara three times at the start of the project in 2019, totalling three weeks at this field site. We had to stop going due to the lack of a reliable vehicle.
Felix Garcia salary	535	801	+266	The reason that I spent more on

during dry season				Felix Garcia's salary during the dry season is because I wanted the students to go to the field twice per week during the dry season, and the salary I had budgeted for Felix during the dry season did not cover two field outings per week with the students.
Felix Garcia salary during the wet season	1145	1870	+725	We originally budgeted Felix Garcia's salary to be 6000 pesos (229 pounds sterling) per month, but adjusted this to 7000 pesos (267 pounds sterling) because I did not feel like the amount of work he was doing was worth 6000 pesos a month, which equates to 11.4 pounds sterling per day. For this reason, I made the decision from the start of the project to increase this to 13.35 pounds sterling per day.
Yearlong food/transportation Scholarship for 2 students	1832	1984	+152	Over the course of the year we ended up paying more because instead of selecting two students we selected four.
Yearly high school tuition for two students	458		-458	Only one of the students that were selected in this program is attending high school. The other students are still in middle school. This money was used to supplement Felix Garcia's salary.
Pesola scale (1000g)	32	59	+27	
Spring scale (5kg)	95	121	+26	
Tree calliper (40cm)	109	143	+34	
Hoop nets & Vernier callipers (15cm)	128	157	+29	
TOTAL	**4883**	**5306**	**+423**	

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

The most important next step is to secure more funding so that we can keep offering this academic opportunity to students in the community of Sabinito Sur, where they don't have any opportunity of its kind.

10. 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?

The Rufford Foundation was included in the acknowledgments of the paper that was accepted in Chelonian Conservation & Biology. The Rufford Foundation is also featured under the sponsors tab on our website www.studentsconservingnature.org. The tortoise magazine that is produced by the Turtle Conservancy will feature this project, and although they do not mention The Rufford Foundation they do include our website. Therefore, people who go to our website through this publicity will see that The Rufford Foundation has been our sole sponsor.

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

Taggert Butterfield – I have been the leader of this project and I have been in charge of carrying out the field work, training Felix, and overseeing the work done by Felix and the scholarship students. I have also been in charge of curating the data collected from this project.

Rodrigo Macip-Ríos – Rodrigo has been my PhD advisor and has played a major role in overseeing the data collection and helping write the paper that was accepted in Chelonian Conservation & Biology.

Félix Garcia – Is the local leader of the project and has been in charge of carrying out the field work and monitoring the progress of the scholarship students. He has been responsible for keeping in contact with me and sharing the progress of the scholarship students.

Esteban, Darey, Ivan, Alfredo – Are the scholarship students, and each one has been in charge of carrying out field work and keeping daily journals. Alfredo is the oldest and has been in charge of uploading the data collected in the field to Google Sheets so that it can be shared on our website. After activities resume following coronavirus these students will be in charge of giving presentations to their classmates and local community.

Lydia Lozano – Is the director of Nature and Culture International in Alamos, which manages the Monte Mojino Reserve which is located within the Sierra de Alamos protected area. She has played a major role in coordinating our visits to the reserve and communicating with the local governmental agency (CONANP) that is in charge of managing the Sierra de Alamos protected area.

Alejandra Monsiváis-Molina – Is a trained Ornithologist, has a master's in biology, and is a lecturer at the National Autonomous University of Mexico. She has played a major role in growing this project and helping with the field work. She created the scholarship applications for the students, she went with me to talk to the parents of each students, she helped train the students on data collection and note taking, and built the www.studentsconservingnature.org website.

12. Any other comments?

I have been extremely grateful for The Rufford Foundation and their willingness to fund this 2nd small grant even though it was in a different region than my first grant and a different project. It is our hope that with the support of The Rufford Foundation we can grow this project to become self-sustainable.