

The Rufford Small Grants Foundation

Final Report

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

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. 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. 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	John Paul Tiernan
Project title	Investigations into conservation threats to the intertidal ecosystems of the Galápagos Islands, Ecuador.
RSG reference	63.02.09
Reporting period	July 2009 – July 2010
Amount of grant	£6,000
Your email address	johnpaultiernan@gmail.com
Date of this report	5/08/2010

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
Replicate intertidal quantitative surveys which have been realised in the islands in the past to achieve a temporal comparative capacity			This activity was fully achieved	We were able to visit a larger number of sites than anticipated and extend our monitoring efforts into the shallow subtidal zone in each of these locations
Data analysis employing appropriate statistical and ecological modelling software will be performed on all historical and recent quantitative survey data.		This activity is ongoing		As data analysis was realised in July 2010, this activity is continuing in collaboration with partners in Ecuador and the USA
Use data in conjunction with the IUCN red list criteria to make assessments on the status of threatened species and to identify modifications or aggregations to be made to threatened species lists.		This activity is ongoing		As data analysis was realised in July 2010, this activity is continuing in collaboration with partners in Ecuador and the USA

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

The issuing of permits from The Galápagos National Park Service, which are requisite for realising any form of scientific activity in the archipelago, was delayed significantly. Despite having issued requests the required 6 months previously, permits had still not arrived by June 2010, the projected field activity time. The changing of the director of the Galápagos National Park was a factor which affected this process. This problem was addressed by the applicant staying in the archipelago for an additional 3 weeks in order to realise the field activity, which incurred a flight change cost of £450. Preliminary and trial field work, which did not require a permit was carried out in June 2010 at sites in San Cristóbal Island. The permits were issued in July and the field activity was completed.

Boat difficulties meant the last site of our research trip (Caleta Iguana, Isabela), could not be visited. This data point is similar to other sites of high productivity and the loss of this site will not mean an incomplete productivity gradient.

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

1. A large amount of data, of the biodiversity of algal assemblages including associated invertebrate and fish species were collected, both in the intertidal and shallow subtidal zones, in a variety of sites around the Galápagos Archipelago which incorporate high and low points across the productivity gradient.
2. Our capacity for the identification of algal species, including threatened species, was considerably improved as a result of our extensive field activity, establishing our research team amongst the few specialists of Galápagos algae which exist.
3. Directed searches for threatened algal species were performed in areas which are of high conservation value, KBAs (Key Biodiversity Areas), and for which historic survey data exist.

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

Two local students, Leandro Vaca, a Galápagos permanent resident, who is completing an internship at The Galápagos National Park Service and studying Environmental Studies at the local university, and an Ecuadorian student, Pablo Andrade, an undergraduate scholarship holder at the University San Francisco de Quito, were recruited to assist in field work activities. In return, they gained valuable field experience and algal and invertebrate identification skills. Galápagos National Park personnel are drawn, by law, from the local permanent resident population and their involvement and advancement in scientific activity is of great value to future conservation efforts in the archipelago.

It is projected that these two students at least, will continue to work in this project as volunteers, with associate authorship on any resulting papers or technical reports granted to them.

5. Are there any plans to continue this work?

Yes, it is hoped to continue and develop this project over the next 5 years. Permits have been secured from The Galápagos National Park Service specifically for this project for the next 3 years. Valuable data points have been secured this year and the continuation of data collection over the next 5 years, incorporating at least one ENSO (El Niño Southern Oscillation), will greatly improve our capacity to make statements and predictions about how Galápagos algal ecosystems behave over spatial and temporal scales.

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

It is hoped to ultimately publish papers, detailing the methodology and results of scientific enquiry into conservation threats of Galápagos marine algae, in relevant international journals, maintaining Galapagos's presence in international conservation science concern. Technical reports to the Charles Darwin Research Station and The Galápagos National Park Service will also be presented, with the latter a strict requisite of the permit granted to this project, helping to inform decision making with regard to management of the Galápagos Marine Reserve.

This project also aims, eventually, to publish a field guide of Galápagos marine algae, which will be of use to scientists and recreational users of the Galápagos Marine Reserve. Such field guides already exist for Galápagos echinoderms, molluscs, fish and corals, with local and scientific identification capacity generally high for these groups. The identification of Galápagos algae, of which some 30% are endemic to the archipelago, is still poorly represented and has received sparse scientific attention.

Such field guides greatly aid the identification of conservation threats as they ensure continuous knowledgeable monitoring and feedback of species by a wide variety of water users, including recreational divers and Galápagos National Park personnel. An aim of this project thus is to produce a short field guide, with distribution and associated ecosystem information, based on the information we gather over the course of this project.

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

The Rufford Small Grant was used within 1 year of obtaining the grant, with field activity completed in the final 2 months. These dates were agreed upon with all collaborators in the project as the most suitable time to be in Galápagos. For this reason, no interim reports were submitted during the year as the majority of the funds were spent and activities completed in the latter quarter of the year.

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 between islands	4,550	1876	1574	1876 2 days out of a 7-day voyage was funded by the University of North Carolina allowing change of flight costs and unanticipated accommodation costs to be allowed.
San Cristóbal daily sustenance	270	1000	+530	Rent of 80 x 7 weeks
Wetsuit	250	250	0	
Camera with waterproof housing	300	590	+290	This was the cheapest model of camera + housing that could be sourced
Software (PRIMER ecological modeling)	420	0	- 420	This software was
Rucksacks	70	100	+30	
Transects	60	50	-10	
Quadrats	80	25	-55	
Change of Flight costs	0	550	+550	
TOTAL		5841		

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

Sustained activity, especially over at least the course of one ENSO will be necessary to determine how patterns of species diversity change over natural cycles and to increase the validity of statistical analysis. The ability of algae to recover after El Niño events is only partially understood in some parts of the archipelago and it will be desirable to understand how this functions across regions of differing productivity throughout the archipelago.

Understand better how the composition of algal species changes, this has not been studied, and identification of red algal turf is a specialised and neglected area this has a direct conservation value and could highlight threats to species.

Considering the recent UNESCO decision (29/7/2010) to remove Galápagos from its list of protected areas:

http://www.unesco.org/en/brasilia/single-view/news/list_of_world_heritage_in_danger_world_heritage_committee_removes_galapagos_islands_ecuador_and_inscribes_sites_in_uganda_and_georgia/back/9669/cHash/59772848df/, a decision described as 'premature' by the IUCN (International Union for the Conservation of Nature), it is now more important than ever that relevant and up-to-date information relating to the conservation status of Galápagos species reaches decision makers. The UNESCO decision, which was taken as a vote at a recent conference and is based on reports from the Ecuadorian Government, highlights the necessity for greater and renewed efforts in the collection and production of information relating to species' populations, abundance, distribution and conservation status.

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

Yes, the RSGF logo was displayed on a poster presented to the Galápagos International Science Symposium at The Charles Darwin Research Station in July 2010 and also in various presentations given in Galápagos (at the Charles Darwin Research Station, Santa Cruz and at the San Francisco University, San Cristóbal) and Ireland (at the Dept. of Botany, National University of Ireland, Galway).

11. Any other comments?

The first stage of this project was ultimately more successful than originally projected. This was thanks to a successful collaboration by the applicant with researchers at La Universidad San Francisco de Quito, Galápagos, Ecuador and researchers from the University of North Carolina, USA and staff at the Charles Darwin Research Station, Galápagos who provided funding, expert identification, data analysis and logistical assistance. A research trip which incorporated more sites in difficult-to-access parts of the archipelago was made possible as was the extension of our monitoring activities from the intertidal zone to the shallow subtidal zone in each site.