

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. 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	Rodet Rodriguez Silva
Project title	Molecular diversity of Gambusia fishes in Cuba. Relevance for conservation and its use in vector control plans
RSG reference	10118-1
Reporting period	July 2011 to July 2012
Amount of grant	£6000
Your email address	rodet@fbio.uh.cu
Date of this report	27 th July 2012

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
Clarify and improve the systematic knowledge of Gambusia fishes in 25 localities along the Cuban archipelago			X	This was an essential point because allowed right definition of evolutionary lineages and your geographical distribution along the Cuban archipelago. The precise definition of evolutionary units/species represents the first step to carry out any conservation efforts both to preserve species and their habitats.
Generate an updated distribution map of relevant species and populations useful to health and conservation authorities for successful management strategies of this fishes			X	Were identified populations of Gambusia fishes which could be sensitive to conservation in the immediate future, meanwhile other populations could be used by man in the control of mosquito's transmitters of human diseases.

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

The major difficulty to carry out the project was related with the transportation. In the original idea of the project we planned to travel along the Cuban archipelago using our own car to collect fishes in relatively near localities, but the price of diesel went up to 1.20 CUC (Cuban Convertibles Units) per litre (Actual exchange rate in Cuba when the grant was received: 1 £ was equivalent to 1.54 CUC). For this reason, we prefer to use money destined to buy diesel to pay ticket travel costs. Using this alternative way, we achieved our proposed aims in the project.

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

- a.) We collected Gambusia fishes in 27 localities which comprise western, central and eastern part along the Cuban archipelago. We found three different evolutionary lineages inside this fish's group which are very well structured in association with your geographical distribution. This result provides essential information for management and future studies of these fishes.
- b.) The distribution map of species and populations of Gambusia fishes identified in our work was creating. This map is an important tool both conservation authorities in the National System of Protected Areas of Cuba and health authorities who will must consider from now on our finding to carry out successful management strategies with this fish's group (e.g. conservation, restoration of populations and transplations of fish for use as biological controls).
- c.) We identified obvious threats to Gambusia fishes either by habitat contamination or by the impact of alien species established in each locality. Local authorities of wildlife conservation

were informed about preliminary results in each sampled point for successful management of this fishes in the immediate future.

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

A lot of rural human communities have found near to a great part of sampled localities in this work, in these cases we try to motivate to preserve Gambusia fishes inhabit in these areas. We showed, mainly to children, the importance of conservation of this fish and their habitats. Besides the details generated in each area in relation with the project were informed to local authorities with propose both conservation of Gambusia populations and the use of them in the control of beating insects' larvae (like mosquitoes) transmitters of human diseases.

5. Are there any plans to continue this work?

This work carried out thanks to financial support of RSG represents the start point for subsequent investigations. We plan to do in the future a deeper level population analysis including ecological studies to knowledge life history aspects of Gambusia fishes in Cuba which are helpful for management and conservation of this fishes.

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

The results of our work will be showed to a wide public using varied ways:

- a.) A scientific article has been submitted to revision for publication in a scientific journal and other is under development.
- b.) Some results and experiences derived of this work have been used by me in presentations to my students to demonstrate them the importance of these kind studies.
- c.) A concise manuscript about the main results of our project will be to hand in authorities for conservation management in the National System of Protected Areas of Cuba.
- d.) The presentation and official document of my doctoral thesis, which contains results of this project, will be able for the public once finished.

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

The chief actions in relation to the project (training actions, field trips, catch of fishes, DNA extraction and amplification) were carried out in a period of 12 months. The project was awarded in June 2011 and we started the project in July 2011 (mainly training actions for the field work) although the grant was received in September 2011. In addition, the preparation of a new article to submit to scientific journal will take 3 or 4 months.

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
Sleeping Bags (2)	£ 20	£ 14	£ 6	
Backpacks (2)	£ 75	£ 105	£ -30	Were necessary two more large backpacks take in account the field equipment volume.
Tents (2)	£ 120 (2)	£ 90 (1)	£ 30	We bought a single wide tent because in cases where students don't accompany to us, one tent was adequate to sleep two persons.
Men's Hiking Boots (2 pairs)	£ 140	£ 145	£ -5	
Diving Boots (2 pairs)	£ 55	£ 55		
2 Head Torches	£ 115	£ 92	£ 23	We save money with buying of these two items because we had the opportunity to buy it using the institutional way (cheaper) instead of personally.
GPS (Garmin eTrex Vista HCx)	£ 210	£ 130	£ 80	
Eclipse Optical Hand-held Refractometer	£ 225	£ 232	£ -7	
Containers PP 300 ml (3 packs of 400)	£ 108 (3)	£ 180 (5)	£ -72	In this case were necessary more containers (other 2 packs) because in some localities we need to take samples of water to analyze in the laboratory.
Replacing Nets (3)	£ 17 (3)	£ 57 (10)	£ -40	We need to buy more both kinds nets since some students work with us collecting samples of fishes.
Baitwell Nets (4)	£ 72 (4)	£ 180 (10)	£ -108	
Nylon Minnow Seine (2)	£ 200 (2)	£ 100 (1)	£ 100	In this item we save money because we received a minnow seine as a donation from National System of Protected Areas of Cuba.
Vari-Case Dissecting Kits (4)	£ 36	£ 36		
Aquarium Supplies	£ 450	£ 420	£30	
Food	£ 600	£ 455	£ 145	Save money in this item was devoted to pay meals at lodgings.
Laptop Computer	£ 900	£ 980	£ -80	We bought a modern laptop computer Toshiba Satellite core i5, which is necessary to use modern software that allows process GPS information, molecular data, etc.

Travel	£ 600	£ 1630	£ - 1030	We had to use money destined for diesel to pay ticket travel costs since this was a cheaper way that gave us to carry out proposed aims in the project.
Diesel	£ 1800	£ 381	£ 1419	
Lodging		£ 700	£ 700	We had not expected on this item but in some localities was necessary to put us up because for safety reasons. Most money destined to contingencies in the project was used for lodging.
Total	£ 5943	£ 5982	£- 39	Exchange rate in Cuba when the grant was received: 1 £ was equivalent to 1.54 CUC

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

During the project we identified some key points that will be considered in future works:

- a.) Local authorities and rural communities should be qualified to ensure both conservation and an efficient use of Gambusia fishes in the future.
- b.) Implement actions to minimize the impact of water contamination and alien species in natural environments on populations of Gambusia fishes.

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?

We used the RSGF logo in the presentations to students to show them the foundation that provided financial support for obtain the results of the project. In addition, we thanks to RSGF for financial support in the scientific publication submitted to the journal.

11. Any other comments?

We wish to thank especially to Rufford Small Grants Foundation for support this project. Besides I want to give our most sincere thanks to the people involved in the project, mainly our students. I am very pleased to work with RSGF and I am eager to work again with RSGF in other project in the future. Please do not hesitate to contact with me if you need photographs, further information or any other materials in relation with the project.