

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	Steven Canty
Project title	Developing sustainable solutions for small-scale shrimp aquaculture, to promote biodiversity conservation in the Gulf of Fonseca.
RSG reference	15.02.09
Reporting period	2010 – 2011
Amount of grant	£5712
Your email address	steve_canty@utilaecology.org
Date of this report	22 nd July 2011

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
Develop small-scale business tools and a business plan			✓	Basic business tools, consisting of an inventory of infrastructure and the recording all money transactions and daily activities relating to shrimp production was initiated. Allowing producers to constantly assess the costs of shrimp production and provide the foundation on which to construct the business plan.
Increase water circulation within shrimp ponds			✓	Adaptations to shrimp pond wall dimensions and tunnelling of the floor were conducted to promote water circulation. In addition to increasing the suitable habitat in which shrimps could construct their burrows.
Stabilisation of shrimp pond walls through vegetation restoration			✓	A red mangrove restoration project was accompanied by planting of reeds, rushes, and other salt tolerant vegetation. Mangrove replanting was designated to specific areas to promote oxygenation in areas of lower water movement. The replanting scheme will promote the binding of sediment on shrimp tank walls and therefore reduce erosion of the tank walls, in addition to providing sources of food for both shrimp and humans.
Utilisation of appropriate technology			✓	The promotion of appropriate technology was focused on utilising naturally occurring resources, tidal flow to aid in water exchange within ponds, mangroves as food sources, and local vegetation to provide natural defences against erosion of pond walls.
Natural feed production and growth trials		✓		Growth trials are ongoing, the trials are focused on different feeding regimes to determine optimum growth rates. Natural feed production has not begun due to problems associated with flooding events.
Wastewater irrigation system	✓			This was to be used to irrigate crops in the production of natural feed, this part of the project was not pursued.
Aquaculture diversification	✓			Due to constraints brought by climatic conditions, aquaculture diversification was not prioritised, priority was given to shrimp production to ensure economic returns to the cooperative.

Capacity building through student training			✓	Students from Zamorano the Pan-American School for Agriculture visited the project site. They were introduced to the project the problems that face small-scale producers and the objectives of the project.
Economic and ecological monitoring			✓	Economic and ecological monitoring has been conducted continuously. The cooperative keep detailed notes in a 'shrimp diary', which includes records of daily activities, expenditure, revenue, water quality and indicators of mangrove forest health.
Best practices manual		✓		A small field guide relating to adaptive measures methodologies has been created, with three main chapters; (i) Planting, why replant, which vegetation to use, how to replant, and where to replant; (ii) Water circulation, why is it important, what technology to use, and how to implement; and (iii) Basic feeding practices, timings and quantities of feed stuffs. This last section will be updated based on the result of the field trials.

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

Unforeseen difficulties arose through natural climatic events which occurred during the initial phases of the project. Torrential rains associated with tropical storm Agatha, during late May into June 2011, caused flash flooding throughout the Gulf of Fonseca, destroying the walls of the shrimp ponds and removing large quantities of recently planted mangrove seedlings and other vegetation which were part of the replanting programme. A second tropical storm, Alex, occurred in late June 2011 devastating the area for a second time, causing more damage to the project site and resulting in the project falling behind schedule, great efforts have been made to ensure the project is completed as close to the project timeline as possible. Due to time constraints, the project was scaled down, with specific components, shrimp pond wall stabilisation, water circulation, and basic growth trials, prioritised over others, natural feed production, wastewater irrigation and aquaculture diversification. This was done to ensure shrimp production continued and revenues generated for the cooperative helping in this project.

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

- a) A change in the timing and quantity of commercial feed has reduced the costs to the producer and suggests environmental benefits through the reduction of nutrient loading and anaerobic respiration with pond water. Field trials are still being conducted and not all data has been collated from the shrimp diaries of the producers, preliminary data suggests growth rates have declined and therefore shrimp remain in the tanks for longer. The economic implications of lower costs but lower sale prices are currently being compared to higher costs and higher sale prices, to determine if economic gains are realised.
- b) The flooding events which took place in May and June 2011 as a result of tropical storms Agatha and Alex respectively, although devastating provided some useful lessons. Areas of

ponds which were partially vegetated or well vegetated remained after the flood waters dissipated. This was used as a tool to promote planting programmes, as the cooperative understood from firsthand experience the level of protection provided by vegetation. Shrimp ponds within the community have now been planted and mangrove seedlings which have natural settlers are not being removed.

- c) Small-scale production of shrimp is not a viable option in the majority of the Gulf of Fonseca. Climatic events caused widespread damage to the region, at the project site large sections of the pond walls were severely damaged and, in some areas, completely washed away. Large investment was needed to repair the pond walls and restart shrimp production. Loans are made available within the region, however the interest on loan repayments is either too great for the cooperative to pay back, therefore they do not take the loan. Alternatively, the loan repayments of the loan absorb all remaining profit from the subsequent production. Therefore, small-scale shrimp production is simply not viable in many areas where it is being promoted. Climate models predict tropical storms and hurricanes of greater intensity to be more numerous over the next decade(s) such events are associated with extreme rainfall and flooding. This implies that small-scale shrimp producers in the Gulf of Fonseca will face numerous flooding events that will jeopardise their livelihoods and should not be promoted as an alternative livelihood.

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

The local community became increasingly involved throughout the evolution of the project. A series of workshops were conducted to explain the aims and rationale of the project, and methodologies for different project components, e.g. mangrove planting. Relatives of the cooperative who also farm shrimp and small-scale producers from neighbouring ponds also attended. This provided a forum to discuss problems faced small-scale producers, and to work through solutions and mitigation techniques with local producers. As a result of these discussions other producers began making changes to their shrimp ponds based on the work that we were conducting in the pilot area, such as runnelling of the pond floor and planting vegetation on pond walls, with good reports received from those making the changes.

During the cycle of the project 43 students from the Zamorano Pan-American School for Agriculture (the students are from all over Latin America) visited the project area. This was an important exercise as many did not know realise the quantity of shrimp produced by farming, nor the destructive processes associated within the shrimp farming industry. The students were lead on a tour of the project site by the community leader and learned about the problems facing small-scale shrimp producers and how the project aimed to mitigate these issues. This interaction was very constructive in highlighting issues in resource management and the importance of community involvement in projects, additionally providing an insight into conflicts that arise between the socioeconomic needs of coastal communities and environmental conservation.

5. Are there any plans to continue this work?

The project is continuing the current feeding trials, assessing shrimp growth rates and producer profitability to determine optimal feeding regimes. The project has aimed at improving the economic viability to small-scale producers and mitigating environmental impacts and has had some success. However, current practices employed by the majority of small-scale producers combined

with their vulnerability to climatic events, suggests small-scale shrimp farming is not a viable option in this region. With that in mind the researcher does not want the results of this project used to promote small-scale shrimp production, which ultimately exploits the producer, as a viable alternative livelihood option for coastal communities.

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

The results of this project will be disseminated to DIGIPESCA (Honduran fisheries department) and the Regional Institute of Biodiversity. Currently plans are being made with the Mangrove Action Plan (MAP) and CODDEFAGOLF (Honduran Non-governmental organisation which is very active within the Gulf of Fonseca and has strong community links within the area) to run mangrove replanting workshops in the Gulf of Fonseca. The results of this project will be used to target shrimp ponds of small-scale producers as primary areas for mangrove replanting to assist small-scale producers in protecting their ponds from erosion, and secondarily to rejuvenate areas of abandoned shrimp ponds. The most important and effective method of dissemination of the project results will be through word-of-mouth from those involved within the project and others that participated in workshops and have realised benefits from making simple low-cost changes.

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

The RSG funding was used for a 1-year period; May 2010 to May 2011. The project was anticipated to conclude in May 2011, however due to extenuating circumstances the project will now continue until the last feeding experimental trials have been concluded in September.

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
Personnel	3,500.00	2,500.00	-1000.00	The student assistant was removed from the project due to logistical issues of movement in the region, their responsibilities were assumed by the community project coordinator.
Fieldwork and training	720.00	600.00	-120.00	Boat based data collection was not conducted.
Redesigning of ponds	637.50	1,912.50	+1,275.00	Flooding destroyed key structures twice, each time major repairs were required. This is responsible for major changes in other parts of the budget.
Shrimp growth trials	144.00	144.00	0	
Water quality and ecological monitoring	710.00	710.00	0	
Total	5,711.50	5,886.50		The project ran £175 over budget due to flood damage to structures that had to be repaired as they were crucial to the project success.

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

The next steps are to continue working at the community level to disseminate information and combine this work with other initiatives within the area, such as the mangrove replanting workshops discussed previously.

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?

A small field guide on how to plant mangrove, alter pond hydrodynamics and suggested feeding regime changes was circulated to the cooperative and to other interested small-scale producers, all of these materials contained the Rufford Small Grant Foundation logo. During the cycle of the project, the Utila Centre for Marine Ecology website had a statement referring to the RSGF funding contribution to the project alongside the logo.

11. Any other comments?

I would like to take this opportunity to convey my appreciation to the RSGF for the funding provided and to Jane Raymond for all of her assistance.