

The Rufford Foundation Final Report

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.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your name	Jonathan Kolby
Project title	Amphibian Rescue and Conservation in Honduras
RSG reference	13167-B
Reporting period	Final Report
Amount of grant	£11,970
Your email address	J_kolby@hotmail.com
Date of this report	23 Oct 2015

1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Acronyms & terminology we've used throughout this report:

CNP: Cusuco National Park, Honduras

HARCC: Honduras Amphibian Rescue and Conservation Center

Lancetilla: Lancetilla Botanical Garden & Research Institute (located in Tela, Honduras)

HDZ: Omaha's Henry Doorly Zoo & Aquarium

Frog Pod: Ocean cargo shipping container that contains a mobile amphibian rescue laboratory inside. HARCC will begin with two Frog Pods.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
Amphibian disease field surveillance in Cusuco National Park			X	Results again displayed alarmingly high infection prevalence, especially in larvae and recently metamorphosed animals.
HARCC amphibian rescue facility official project partner meetings and development of project Memorandum of Agreement (MOA)			X	We now possess a Memorandum of Agreement (MOA) approved and signed by all partner institutions that will contribute resources towards the successful future of HARCC
HARCC site evaluation at Lancetilla			X	We made two visits to Lancetilla to inspect and evaluate the location for HARCC to be established
Construction of HARCC rescue facility		X		This has been in development throughout the past year and is now entering completion. Construction of the frog rescue laboratories was recently completed at HDZ, and in a few weeks, these Frog Pods will be transported to Honduras for final onsite installation at Lancetilla.

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

As described in our previous interim progress report, we did experience a major setback during the second phase of this project—construction of the HARCC amphibian rescue facility—which required a great deal of additional work and fundraising to solve and is why this project took longer to complete than originally projected. Our original plan was to construct the rescue facility (consisting of two isolated amphibian rooms) inside a building already provided onsite by Lancetilla. Unfortunately, just as we were about to begin construction, we learned that the structural integrity of this building was lacking and that it could not meet our biosecurity standards without financially significant structural repairs. After consulting with a contractor, we came to the consensus that a different approach was needed in order to provide a safe but affordable long-term environment to protect our future frog colonies. The decision was made to adopt our “Plan B” and follow a model successfully employed at several other zoological institutions. Rather than fabricating isolated amphibian rooms inside a pre-existing building as performed at HDZ, ocean cargo shipping containers are instead transformed into mobile “Frog Pods.” This approach provides a secure “building” (the steel container) and houses the amphibian rescue facility within.

This change in plan required us to develop an entirely new blueprint for HARCC and called for significant additional finances for the acquisition of two 20-foot insulated ocean shipping containers and their transport from the USA to Honduras. For several months, we investigated container options, researched other Frog Pods already in operation, and submitted funding requests. Upon eventual success, we had these containers transported from their position in California to HDZ in Omaha, Nebraska. Here, zoo staff and local businesses volunteered their time and services over the next several months to retro-fit these containers and create the frog laboratories. Just last week, these Frog Pods were completed, and are now ready for shipment to Honduras.

Meanwhile, we have been concurrently orchestrating efforts in Honduras to prepare Lancetilla for the arrival of the Frog Pods. In order to maintain biosecurity and prevent flooding or sinking during periods of severe tropical storms, it became imperative to construct an elevated concrete foundation to support the Frog Pods. After several weeks of blueprint development working together with a local engineer in Honduras, we have now finalised the construction design. A construction crew is expected to begin this project next week. After the work is finished, the concrete will require approximately 1 month to set before we can rest the Frog Pods on top. The Frog Pods are currently in the USA, packed and ready to be transported onto an ocean cargo ship for their 2-week journey to Honduras, as soon as these concrete foundations are nearly ready. We expect this to occur in December 2015, when a small team of us will also travel to Honduras to be at Lancetilla and assist with their arrival. We will then spend 3-4 weeks onsite at Lancetilla to install the Frog Pods.

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

- Construction of the first amphibian conservation facility in Honduras.
- Development of a multinational cooperative partnership (HARCC) between zoological, research, and government institutions, with combined efforts from members in the USA, UK, and Honduras.
- Public outreach and education, both in local communities in Honduras and internationally.

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

Members of the local community were involved in the first part of this project—amphibian disease surveillance in CNP—whom provided assistance as our forest guides. While working together in the field, we engaged them in our sampling activities and communicated the significance of the diversity of wildlife quite literally found in their backyard. Local communities living near CNP are often highly knowledgeable about what types of wildlife inhabit the area, but do not always know that many are critically endangered and globally significant species. This type of interaction with local communities results in a mutually rewarding experience as we witness a growing appreciation for protection of the rainforest and its wildlife.

5. Are there any plans to continue this work?

Absolutely—after several years in development, my work now establishes the beginning of a long-term amphibian rescue effort meant to continue for perpetuity. Even in the future, if our target priority species begin to demonstrate the beneficial impact of our work and eventually no longer require our support, there are already numerous additional amphibian species in Honduras in urgent need of similar conservation action. This rescue effort will remain highly adaptable to meet the changing conservation needs of Honduran amphibians as best we can.

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

We have been working on the following outreach efforts to share our work and educate the public about our conservation mission:

- Website: <http://www.amphibians.org/seedgrants/2015kolby/>.
- Facebook page: [HARCC-Honduras Amphibian Rescue and Conservation Center](#).
- Twitter page: @HondurasARCC.
- Periodic articles in FrogLog, the newsletter of the IUCN Amphibian Specialist Group.
- Public presentations about HARCC at herpetological society meetings.
- In the future, we intend to publish scientific papers reporting the observed impact of our reintroduction efforts as per field monitoring efforts.

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

This grant was used over the course of 2 years, rather than one, as originally projected. This was due to the unexpected challenges encountered during the HARCC construction process, as described above, which has now been resolved.

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
(Field Research) Amphibian Chytrid Infection Survey Supplies (600 sample tubes, 600 skin swabs, nitrile gloves, ethanol, weatherproof journals, etc.)	800	800	0	
(Field Research) Alpha-Numeric Visual Implant Elastomers (to continue the long-term field population survey, 200 frogs)	350	350	0	
(Field Research) I-button temperature/ humidity data loggers (to collect additional field and husbandry data)	380	380	0	
(Field Research) Amphibian Chytrid Infection DNA Analysis	3600	3600	0	
(Field Research) Airline baggage fees for scientific equipment	420	420	0	
(Rescue Facility Construction) Construction materials for Biosecure Amphibian Rooms (fiberglass panels, aluminium tubing frames, storm doors, etc.)	1660	1660		These funds were put towards construction of HARCC concrete foundation due to the change in plan from interior amphibian rooms to outdoor shipping containers.
(Rescue Facility Construction) Light fixtures and bulbs,	3960	3960		

aquarium rack system, and aquariums, plumbing and electrical materials)				
(Rescue Facility Construction) Int'l shipping for specialized equipment purchased in USA	800	800		These funds were put towards construction of HARCC concrete foundation.
Total	11970	11970		

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

Specifically, the next phase of this project is to secure long-term funding to provide salaries for the permanent HARCC staff that will work onsite at Lancetilla. This is the staff that will manage daily husbandry for the frog colonies and perform periodic field research and reintroduction efforts in CNP. Once we secure these funds, HARCC will perform the first collection of amphibians from CNP to raise within our facility, officially marking the beginning of the rescue effort.

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

I acknowledged the RSGF in my recent landmark scientific publication in the journal *Aerobiologia*. This paper describes some of the work I performed to better understand patterns of enigmatic chytrid dispersal that might be affecting HARCC's priority species in the wild. This paper, "Presence of Amphibian Chytrid Fungus (*Batrachochytrium dendrobatidis*) in Rainwater Suggests Aerial Dispersal is Possible" is attached with this report. We have not yet had the opportunity to use the Rufford Foundation logo, but we intend to add it on the outside of the HARCC Frog Pods, in a display showing the logos of all HARCC sponsors.

11. Any other comments?

Following is a series of images we took during the recent HARCC Frog Pod construction process at HDZ. I've also included a few new images of our three focal amphibian rescue species in Honduras. Please feel free to use these images however you like, and if you need original high resolution files for anything, just let me know and I will send them individually.



The shipping containers arrive at the Henry Doorly Zoo & Aquarium! Time to get to work! Photo by: Brandon Greaves



The containers are inspected by an electrician in preparation for hook-up to a power supply. Photo by: Brandon Greaves



Glass aquarium tanks are modified for assembly onto the amphibian husbandry rack system. ©Nathan O'Brate



The aquarium tank rack system is assembled. Photo by: Brandon Greaves



Brandon Greaves gives the containers a fresh coat of paint before their trip to Honduras. Photo by: Andrea Hennings



The completed HARCC Frog Pods get a lift onto a truck.
Photo by: Brandon Greaves



The HARCC Frog Pods begin their journey to Honduras! Photo by: Brandon Greaves



Adult mossy red-eye tree frog (*Duellmanohyla soralia*) Photo by: Jonathan E. Kolby



Adult mossy red-eye tree frog (*Duellmanohyla soralia*). Photo by: Jonathan E. Kolby



Adult exquisite spike-thumb frog (*Plectrohyla exquisita*). Photo by: Jonathan E. Kolby



Adult exquisite spike-thumb frog (*Plectrohyla exquisita*). Photo by: Jonathan E. Kolby



Juvenile Cusuco spike-thumb frog (*Plectrohyla dasypus*). Photo by: Jonathan E. Kolby



Adult Cusuco spike-thumb frog (*Plectrohyla dasypus*)
Photo by: Jonathan E. Kolby