

## Final Evaluation Report

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Your Details	
Full Name	Nikhil Whitaker
Project Title	Using VHF technology to monitor movements of an apex predator, the Marsh crocodile ( <i>Crocodylus palustris</i> )
Application ID	23843-1
Grant Amount	£3,570
Email Address	<a href="mailto:nikhil@madrascrocodilebank.org">nikhil@madrascrocodilebank.org</a>
Date of this Report	12 <sup>th</sup> November 2019

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
Outreach and education programs				The outreach programmes to schools were enjoyed, but whilst schools close to the conflict sites were involved, there was little knowledge of crocodile biology.
Training rescuers from Fire and Forest Departments on best practice for capture				This was proposed verbally to the Fire Department in Chidambaram, however there was little interest. This will be ongoing as we now have contacts with a snake rescuer who may facilitate this
Identify key basking, nesting, and burrow sites of mugger, protection of these sites from damage by vehicles, livestock				Given the high population of fishermen at the primary study site (Anakarai Dam), crocodiles are often chased away, tunnels filled with rocks and blocked, and eggs collected and consumed (both at Vakaramarri Irrigation tank in Chidambaram and the 'Dam').
VHF technology to monitor mugger crocodile movement in and around human habitation				Successful to a large degree, in particular as an intern who lived close by was able to visit the release site (Anakarai Dam) at regular intervals; batteries on transmitters last around 3 years, so this will be an ongoing component.

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

A large part of study area appears to unsustainably fished and there are no long term solutions that fisherfolk agree to (i.e. aqua-culture); this puts them at risk of attack by crocodiles, and modifies crocodile behaviour, in particular associating people with food as has been documented in other parts of the world. The local population is strong willed, and there does not seem to be a possibility of change, without major intervention by the government, which has so far not met with tangible differences.

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

- a) The training of two interns in the recording of human-crocodile conflict, use of radio telemetry equipment, and providing people skills for working in a sometimes-hostile environment.
- b) A positive association with the Tamil Nadu Forest Department, which I hope can be taken forward in a more intense manner. This would involve protection of crocodile nest sites, burrows, and suggest best practice for translocation of crocodiles.
- c) Generating interest in particular from the youth of Anakarai village, and Vakaramarri tank, on what crocodiles are to a (partially) riverine ecosystem.

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

Schoolchildren we visited now know the dos and don'ts around crocodile habitat and were encouraged to pass on the message to family members. Informers at Anakarai dam kept us up to date on water levels, and the sight of the receiver and associated antennae attracted attention, although many a times this was a hinderance to tracking as a large population of the male adult community is drunk in the evenings, making night-time tracking/observations impossible in some places.

**5. Are there any plans to continue this work?**

Yes.

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

In the way of publications both in local media, and in the form of scientific publications.

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

December 2017 – January 2020. Fell short of 2 months of (only till November 2019).

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
Charge for hire of vehicle and fuel	1950	870	-1080	
Field materials	120	161	+41	
Boarding and Lodging	500	516	+16	
Printing of education materials	150	150		
Teletronics VHF Receivers and Transmitters	850	1351	+501	
<b>Total</b>	<b>3570</b>	<b>3047</b>	<b>-523</b>	
Field Staff wages		478	478	

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

Plans are to continue this project up until the time the batteries in the transmitters attached to crocodiles die or animals are lost. The estimated battery life (3 years) would be up until the middle of 2021. In particular, the monitoring of the three females tracked would be interesting, with regards to nesting ecology, burrow use, home range, and parental care. At the least three more interns will be hired / volunteers will be brought on board as part of their university dissertations for the education component of the programme.

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?**

Yes, in particular at education programs at schools, both the Rufford Foundation logo, and with the authorities (Tamil Nadu Forest Department) granting permission for the study, as mentioned in the November 2018 update.

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

**K. Munuswamy, T. Senthil, A. Kartik, P. Prabha, Jason Gerard** and Animal Husbandry officers of the Tamil Nadu Forest Department, for the initial capture and affixing of transmitters on the 2 males and 3 females at Anakarai.

Interns **Jason Gerard**, and **S. Surya**, for their efforts in tracking of crocodiles, photo documentation, public education, and attempts to protect basking sites, tunnels from illegal water abstraction.

**Jeff Lang, Jailabdeen A**, for their efforts in providing transmitters/receivers, and training me in the use of telemetry.

**12. Any other comments?**

As mentioned, this project will be ongoing up until the point batteries expire in the transmitters; a separate amount of £500 has been donated by a well-wisher, towards stipend/accommodation/fuel for intern S. Surya. Intern Jason Gerard has an affinity with reptiles and is now doing his masters dissertation on montane lizards in the Nilgiri hills.