

## Final Project Evaluation Report

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Your Details	
<b>Full Name</b>	Ashish Thomas
<b>Project Title</b>	Addressing Conservation Issues Of The Endangered Purple Frog Through Ecological Studies And Community Education.
<b>Application ID</b>	20213-2
<b>Grant Amount</b>	£5000
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<b>Date of this Report</b>	November 20, 2018

**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
Determination of microhabitat preferences				Within this objective, the focus was on expanding our knowledge on four important aspects of the purple frog; feeding ecology, breeding ecology, tadpole development and sub-terrestrial behaviour. Data has been collected for the first three aspects; feeding (mechanism of prey capture and data on prey preferences), breeding (pre-amplexic behaviour, oviposition site preferences) and tadpole ecology (influence of environmental factors on distribution and abundance in streams). However, we couldn't collect much information about the underground behaviour of the species.
Ecological Niche modelling				We surveyed eight different localities to collect data on various habitat factors that include altitude, temperature, rainfall, vegetation, soil characteristics, stream characteristics and intensity of anthropogenic disturbance. GPS coordinates were recorded for each of this location. The localities were visited from June to August 2017. Seven more localities need to be visited for collecting data, which will be done during 2019. Once the data for 15 localities is collected, modelling studies will be conducted.
Identifying high priority conservation areas				This objective was a continuation of the previous Rufford project (first grant). Data on some localities, which could not be covered during 2015, was to be collected. These remaining localities were surveyed between June and August 2016, following which the data was analysed, threat index prepared and localities that required urgent

				conservation efforts were identified. A comprehensive report of this has been submitted to the RF and is also submitted for publication.
Community education				Community education was an important deliverable that was planned for this project. During 2017 and 2018, community education activities included revisiting all the eight tribal localities where door to door campaigns were conducted in 2015-16. Through informal discussions, efforts were made to understand their thoughts and behavioural changes following the awareness programme. A major emphasis was on devising some awareness programmes to tackle the threat of road kills. At three localities where the threat of road kills was prominent (Nelliyampathy, Vazhachal and Nadukani), special drives were conducted for making the local people aware about purple frog roadkill incidents. Our team also conducted stream-cleaning drives within the purple frog habitat wherein three streams were selected that were frequently visited by locals as a leisure spot and littered with plastic junk. Such efforts helped not only in increasing awareness and concern about the species but also initiated some much needed conservation action at the community level.

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

There were a few unforeseen difficulties that arose during the project.

1. **Forest Study permission renewal:** My study permit expired in Dec 2016. Although I had applied for permission renewal in March 2017, there was an unexpected delay from the Kerala Forest Department due to which I could get the renewed permission only by June 2018. Hence, I was able to survey only a few localities (which were outside protected areas) to collect data for objective 2. Meanwhile our team focussed on collecting data for objective 1 by seeking special permission from Wildlife Wardens and Divisional Forest Officers of our respective study sites, although we were unable to enter into

core protected areas. The surveys for collecting data for objective 2 will hence be conducted during 2019.

2. **Unsuitability of gut flushing technique:** For understanding the food preferences, it was initially planned to carry out gut flushing technique on the male individuals. But when we tried it on one individual, it was found that the mouth opening was very narrow for the flushing tube to be inserted. Since we didn't want to apply much force to insert the tube that could cause any harm to the animal, the methodology had to be aborted. Instead we tried to focus on understanding the prey capture mechanism and thus make some indirect inferences about the feeding preference of *N. sahyadrensis*. Although very tough, we were able to gather some very interesting and scientifically useful data.
3. **Equipment malfunction:** While measuring velocity of water flow in extremely fast flowing streams for gathering data on tadpole ecology, the velocity meter stopped functioning due to excess moisture inside it. Fortunately, we could manage to obtain the same equipment from a researcher friend and completed taking the measurements. The velocity meter has been repaired and is in use now.

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

The most important outcome of the project are as follows:

1. Collection of ecological and behavioural data that has helped in augmenting our understanding of tadpole distribution and abundance, breeding behaviour and feeding mechanism.
2. Identification of high priority areas for conserving purple frog populations and devising locality based conservation efforts.
3. Conducting awareness drives and conservation actions for addressing the issue of road kills and stream plastic litter in selected localities

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

As mentioned earlier, involvement of local communities for conservation of the endangered purple frog has been a major objective of this project. While in the previous project, we identified areas that required urgent conservation efforts based on a threat index, during this project we identified three major threats, i.e. tadpole consumption, road kills and stream pollution that called for urgent conservation efforts. For each of these threats we tried to reach out to the respective communities/ group of people. The efforts have led to reinforcing the awareness and responsibility towards tadpole harvesting practices among tribal communities, generate awareness and concern towards road kills among vehicle owners and tourist operators and lastly involving locals to keep the streams near their areas clean in order to provide a better habitat for the stream dwelling animals including purple frog. Thus, with increasing awareness levels, communities will be able to nurture a very pro-conservation attitude towards amphibians, which by regular

interaction and monitoring can lead to effective implementation of conservation actions.

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

Yes, I do plan to work in the next monsoon season also to accomplish the partially finished objectives of this project. Data for ecological niche modelling (objective 2) will be collected from the remaining localities from June- September 2019.

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

The results of this work will be shared in the following ways to the various stakeholders:

1. Publication in peer reviewed journals: Since a major part of the project deals with scientific studies, scientific publications are an important medium to share the results of our work. Two manuscripts have been accepted for publication in peer reviewed journals while two more are in the preparatory stage.
2. Detailed report of the outcome of the project, which would include various suggestive measures for conservation of the purple frog, will be submitted to the Forest Department.
3. A comprehensive assessment of the conservation status of *Nasikabatrachus sahyadrensis* will be submitted to IUCN.

I would like to mention here that RF would be duly acknowledged in any document that is generated as part of this project.

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

The duration of the project was from September 1st 2016 to August 31st 2017. However, in order to utilise two monsoon seasons as well as due to the delay in renewal of study permit by Kerala Forest Department, the grant was utilised over a period between April 2017 and August 2018. However, there is still some work left in the project, for which data would be collected from June – September, 2019 and analysis and manuscript preparation to be completed by December 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
Salary	380	405	+25	Daily wages given to local field assistants over two field seasons
Food allowance	945	900	-45	
Accommodation	630	600	-25	
Air fare	630	650	+20	Four return trips to Kerala. Three for field work and one for presentation at the Kerala Forest Department
Local transport	420	500	+80	The increased expenditure is due to significant increase in petrol rates and local vehicle hiring charges.
Equipment	1050	980	-70	<i>The following items were purchased</i> a. Nikkor Micro lens (105mm,f/2.8G, AFS) b. Kestrel 3500 weather meter c. Black Diamond Icon headlight d. Tripod (Hako) e. Vernier callipers (analog) f. Weighing balance g. Inclinator
Lab and field consumables	525	400	-125	Some amount has been saved for purchasing consumables during the next field trip.
Printing charges	420	265	-155	The balance amount left will be utilized for printing of the final reports to be submitted to Forest department
<b>Total</b>	<b>5000</b>	<b>4700</b>	-300 <sup>#</sup>	<i># The balance amount will be utilized for printing the final report and for conducting surveys to the remaining locations during June-July, 2019</i>

**\*Local exchange rate: 1 £ sterling = INR 88.0**

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

The period from 2015-2018 as a Rufford fellow has been immensely helpful in many ways. Firstly it has helped in gathering very valuable information about the life history, behavioural aspects and ecological requirements of the species. Secondly it has helped in interacting and forging collaborations with other amphibian researchers, especially with the few people working on this endangered and enigmatic species. Thirdly, it has given a very relevant impetus for the involvement of multiple stakeholders for the conservation of the purple frog. Hence, looking ahead, the important step is channelling the momentum gained from these two projects towards further scientific research and expanding outreach and advocacy for the

species' conservation.

Future research should focus on investigating the genetic structure of *Nasikabatrachus sahyadrensis* populations in order to assess the impacts of habitat loss and fragmentation on the species demography and genetic connectivity. Moreover, given the various kinds and intensity of threats on threatened amphibian species, it is important to assess the presence of any fungal disease in purple frog populations. There is also a need to design studies and models that can help to analyse the impact of climate change on this species. This is something our team would be focusing on during the next two years.

With regards to conservation management plans for this endangered species, we need to follow a top-down planning and bottom-up action approach. Outreach activities need to target all relevant stakeholders. It's also important that interactions are carried out at regular intervals with same community or group of people so that the sense of concern and attitude for amphibian conservation is reinforced in them. Hence, apart from reaching out to new people and stakeholders, we would be focussing on repeating the activities and events that were carried out by our team during the next two years as well.

**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?**

I used the RF logo in all the printed materials (informational flyers, posters, pamphlets). RF would be duly acknowledged in any report or document that is generated as part of this project. The contribution of RF was also highlighted during all major meetings with forest department staff, local gatherings and meetings.

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

Name	Role
Ashish Thomas	<b>Principal Investigator:</b> AT was responsible for overall administration and execution of the project, design of scientific experiments, data collection and compilation, preparation of manuscripts and other important documents.
Sandeep Das	<b>Researcher:</b> SD assisted with field logistics, conducting surveys, planning and assisting in outreach activities, photography and designing.
Kumar Manish	<b>Researcher:</b> KM assisted with data analysis and use of statistical tools.
Anoop	<b>Field Assistant:</b> Field support and interaction with tribal communities
Sathish	<b>Field Assistant:</b> Field support and interaction with tribal communities



## 12. Any other comments?

I am extremely thankful to the RF in supporting me with two Rufford Small Grant projects. Although the project objectives were small in scope, it have yielded significant results and led to initiating important conservation actions and have hence provided a major impetus for conservation management of the endangered *Nasikabatrachus sahyadrensis*.



Interacting with children and distributing pamphlets with information about the Purple frog in Vazhachal tribal settlement area.





Forest officials addressing at an awareness drive for the tourist car drivers regarding road kills of purple frog.



Interacting with a road transport bus driver and shopkeeper at Nelliampathy during an awareness drive



Putting up stickers on tourist vehicles and road transport bus during an awareness drive.