

Final Evaluation Report

Your Details	
Full Name	Sanjoy Deb
Project Title	Field Implementation and Design Up-gradation of Automated Roadkill Prevention System
Application ID	23230-2
Grant Amount	4,500 pounds
Email Address	deb_sanjoy@yahoo.com
Date of this Report	11-11-2019

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
'Roadkill Prevention System' prototype modification/up-gradation				The laboratory variant of 'Roadkill Prevention System' (RPS) developed under first round of funding has been transformed into a fully functioning field implementable variant. Note-1
'Roadkill Prevention System' field implementation				Two system units are implemented at Valamundi Reserve Forest area of Sathyamangalam Tiger Reserve, Tamil Nadu, India. Note-2

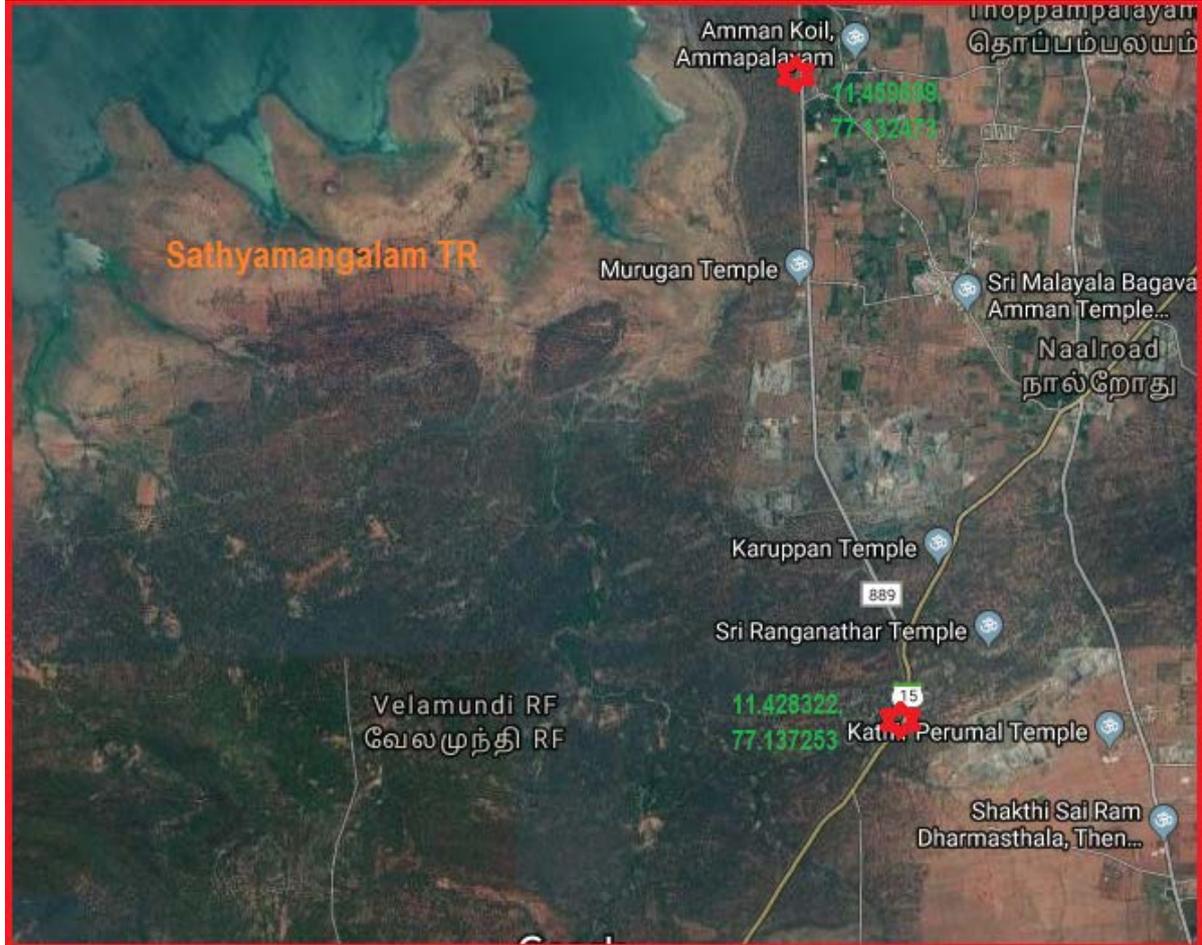
Note-1:



Fig. 1: Demonstrated Prototype of Roadkill Prevention System at Rufford India Conference, 23rd to 26th April 2017, Ranthambore National Park in Rajasthan which has been developed under first round of Rufford funding. Fig. 2: Field implemented Roadkill Prevention System unit at Valamundi Reserve Forest area of Sathyamangalam Tiger Reserve, Tamil Nadu, India.

Transforming a laboratory system variant into a fully functioning field implementable variant was highly laborious and technically challenging work. But through contentious hard work and dedication, with our team, we have successfully accomplished the task.

Note-2:



Location of two field implemented RPS units at Velamundi Reserve Forest of Sathyamangalam Tiger Reserve, Tamil Nadu, India.

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

It was a huge project in terms of volume of work. It had laboratory-based design and testing, metal structure design through workshop, transportation of heavy structures to field, site selection, ground preparation & cleaning process, masonry work and installation and finally system monitoring and maintenance. Every work component has produced its own challenges and demanded innovative solutions for those. Our college management, forest officials, student volunteers and local villagers have helped a lot for the successful execution of the project.

In one occasion, one system unit is totally damaged by elephant. The unit is restored but the process has caused a significant dispute on our project financial plan.



Fig. 3: Pole totally damaged by elephant. Fig. 4: Restored pole at farther distance after trench which is presently inaccessible by the elephants.

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

The height of achievement of the system is as follows;

1. The Roadkill Prevention System developed and implemented by us is the one and only functioning system of its kind in India and probably elsewhere.
2. The animal roadkill rate is significantly reduced at the two points where the system units are implemented. Earlier, yearly, on average five to six roadkill incidents were recorded at the system sites. As per forest department statistics, to date only two wild pig deaths were recorded at system sites due to accident after its implementation. Among the victims one was premature pig and due to short height not detected by the system and on other occasion the driver may have ignored or not noticed the warning lights.
3. Technologically innovative findings of RPS are incorporated in our Elephant Early Warning System (EEWS). During last 3-4 years, EEWS has been implemented at BRT Tiger Reserve (Karnataka), Hasanur and Sathyamangalam Divisions of Sathyamangalam Tiger Reserve (Tamil Nadu), Ajodhya Hill and Forest Reserve Area (Purulia, West Bengal), Parsa Wildlife Reserve (Nepal) and many other places under collaborative consultancy project from Government of India and different NGOs.

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

During system implementation and regular system maintenance our team has encountered more than 100 interested local villagers. They have come with plenty of queries regarding functioning and utility of our system which our team has explained with patience.

The resident elephants, dears and other herbivorous animals at Valamudi Reserve Forest (under buffer zone of Sathyamangalam Tiger Reserve) are regular invaders to the crop fields of south-eastern zone of Bhavani Sagar Dam area. Apart from providing warning to the approaching vehicles, system is also sending warning SMS to the forest department and few villagers nearby for early proactive measures to save

their crops. The area is having almost 15-20 villages along with cultivation land. The approximate population of those villages are 4-5 thousand so as on date, our system is effectively working 24/7 to reduce conflict between wild animals and thousands of villagers.

5. Are there any plans to continue this work?

The system has shown a significant impact on biodiversity conservation by minimizing threat of 'Roadkill' at its implementation site. The system is capable to provide safety to the animals for years, if monitored and maintained properly.

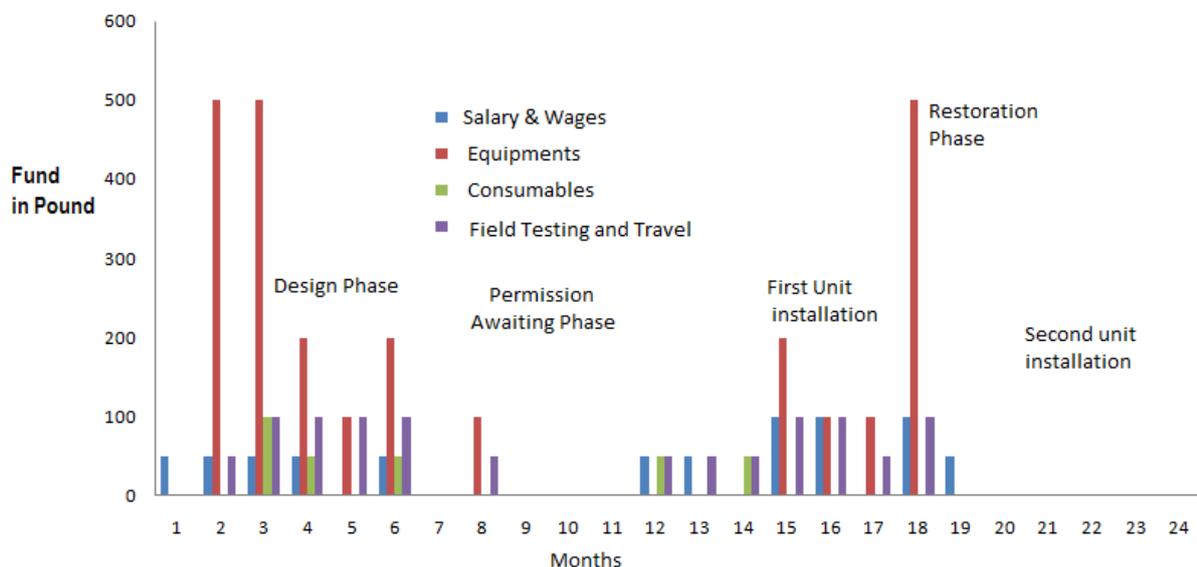
Now, the existing system units need to be running over the years and other animal road crossing sites needs to be covered with similar system units at earliest.

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

We are open to access by any individual or organization, who wants to implement such system elsewhere. We are ready to provide every possible technical and non-technical support to replicate our technology at other places for the welfare of the animal with free of cost.

Details are available at our website www.bitwildlife.org

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



Project expenditure over the project period is shown in the chart above.

- Within 8 months the electronics design parts of both system units were executed.
- Forest department permission for system installation was waiting for long.
- Finally, after getting permission, first system unit installation was over in 17th month.

- After a month or so the system was damaged by the elephant and was restored immediately.
- System maintenance and restoration (in case of any damage) cost were not effectively included in project budget. So, after 19th month project fund got over and project was on hold with pending second unit installation.
- Finally, we have managed around 1000 pound from our own resources and finished second unit installation during 22nd to 23rd month.

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
Field Testing and Travel	700	1000	300	Please see the Note-3 below
Consumables	300	600	300	Please see the Note-4 below
Equipment	2500	2900	2900	Please see the Note-5 below
Salary & Wages	1000	1000	--	Fund was sufficient

Note-3: System optical alignment needs to be checked in every 7 to 10 days and from PIs location to project site is 30km away. The regular system checking for such long distance has caused additional expenses of £300 apart from estimated usual travel component mentioned in the actual budget.

Note-4: Restoration of damaged unit and installation of second unit has cost additional expenses of £300 over proposed budget.

Note-5: During its long outdoor run, many system components were damaged which were replaced, since this maintenance cost was not included properly in the project budget, it is exceeded by £400.

We were not having any prior experience of such system field installation and maintenance which has caused under estimation of few budget components.

Project is managed by our Institute through principal project account with proper audit system and thus we are having well document proof of expense for single rupee.

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

Firstly, the two system units placed in the field need to run for long duration and for that it's regular monitoring and maintenance should to be ensured.

Secondly, other animal crossing hotspots needs to be covered with similar system for better biodiversity management.

Thirdly, system needs to be technically upgraded with invisible IR LASER which will enhance animal comfort level towards the system and will minimise the risk of system damage by elephant and other entities.

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?

We got news paper, TV media and many forms of reorganizations in constant manner. Time to time, all the relevant documents are shared with Rufford in our previous communications.

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

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12. Any other comments?

This project is not designed for scientific data generation, it a solution to a severe biodiversity threat and thus needs to be continued and replicated at maximum number of places.

