

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	Karan Gopalbhai Rana
Project title	Conservation of endemic and threatened angiosperms and their habitat in Gujarat, through research, awareness and livelihood
RSG reference	19988-1
Reporting period	29/07/2016 to 29/07/2017
Amount of grant	£4998
Your email address	karanendemics@gmail.com
Date of this report	29/08/2017

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
Documenting the baseline information on endemic and threatened plants of Gujarat				Present work is first of its kind that encompasses all Indian endemic angiosperms found in Gujarat state that is based on extensive review of literature, using PhD thesis, available floristic works, books, floras, reports, etc. A computerised database was generated incorporating details on their distribution, life-form type, habitat, phenology and local names.
Awareness through scientific journals, conferences, regional newspapers, etc.				The research findings had been presented at the '26 th Annual Conference of Indian Association for Angiosperm Taxonomy' held at Shivaji University, Maharashtra, India from 7 th – 9 th November 2016. Published a research article on 'Diversity and distribution of endemic angiosperms in Gujarat' in the International Journal of Advanced Research, vol. 5, issue 6, pgs. 730-758. News articles published in Sunday special edition, Times of India, Ahmedabad, December 11, 2016, and in Divya Bhaskar, Sunday Edition (in the 'Bhaskar Vishesh' column), Surat on February 19, 2017.
To carry out IUCN Red List assessment				Red List Assessments has been carried out for endemic plants, of which <i>Tephrosia jamnagarensis</i> has been accepted and reviewed, and will be published in the coming issue of IUCN Red List, 2017.
To identify the refugia and assign them conservation priority				Refugia have been identified at different places in Gujarat, and the Forest department has been made aware of these pockets for <i>in-situ</i> conservation. For instance, the hilly track from Gadad to Don, Dangs, harbours a

Objective	Not achieved	Partially achieved	Fully achieved	Comments
				good concentration of endemics and other species of rare occurrence like <i>Adelocaryum coelestinum</i> , <i>Arisaema murrayi</i> , <i>Crotalaria filipes</i> var. <i>trichophora</i> , <i>Dendrobium barbatulum</i> , <i>Falconeria insignis</i> .
To educate the local communities about the value of endemic and threatened plants				Good response was achieved from the local tribal people regarding the significance of endemic and threatened species. For interactions and documenting their knowledge about such plants, we organised several public gatherings and a few local workshops in different zones of Gujarat, wherein we'd also distributed leaflets, flyers, etc. with colour photographs of targeted species, which has benefitted us a lot. The local people shared with us a few more distributional localities of the species where the plant not recorded earlier.
To conserve the habitat by declaring and publicizing as sacred groves				Local people had conserved several forest pockets as sacred groves, where we found there was a good concentration of endemic species. But they were unconvinced to publicise these undisturbed forest pockets as sacred groves, as they were concerned of habitat degradation and other human disturbances by promoting tourism activities.
Nature trails for undergraduate and postgraduate students				Frequent field excursions were undertaken to create an understanding of plant endemism.
Creating rehabilitation centres for propagation of endemic and threatened plants				Two rehabilitation centres have been created and plant species of conservation significance have been propagated here.
Plantation of endemic and threatened plant species				Plantation of endemic and threatened species at agricultural hedges was done, and also with help

Objective	Not achieved	Partially achieved	Fully achieved	Comments
				of student volunteers and support of the Forest Department, we could grow a few species of conservation significance such as: <i>Hardwickia binnata</i> , <i>Dolichandrone falcata</i> , <i>Heterophragma quadriloculare</i> , <i>Erinocarpus nimmonii</i> , <i>Bauhinia foveolata</i> , etc. at the Waghai Botanical Garden, and at the arboretum, The M. S. University of Baroda.

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

Due to the selection of a large study area, there were some difficulties in catching the right time to photograph some rare plants in flowering-fruiting.

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

- 1) The baseline information generated on endemic and threatened plants of Gujarat is first of its kind that encompasses all Indian endemics found in Gujarat state that is based on extensive literature review and field surveys. The present findings revealed documentation of 192 Indian endemics, of which seven species are exclusively endemic to Gujarat.
- 2) An article has been published in the recent issue of International Journal of Advanced Research. And popular articles have been published in the regional newspapers to create awareness. Also, the project findings have been presented at national conferences.
- 3) Creation of two rehabilitation centres for propagating plant species of conservation significance. Local inhabitants have been trained for the collection of germplasm, growing plant saplings, and maintenance of the centres.

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

Positive changes were observed in the attitude of the local communities towards endemic and threatened species. Earlier they were much ignorant, had no proper knowledge and value of endemic and threatened plants, but now they very well realise the value of such plants to a great extent. They were involved throughout the project, and we still receive calls and other updates through WhatsApp from them whenever they notice something interesting. The Forest Department has already

taken steps to protect some areas with good concentration of endemic plant species.

5. Are there any plans to continue this work?

I would certainly like to continue the work; such types of projects will definitely provide benefit to both the endemic/threatened plant species as well as the local communities.

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

During the project tenure, I have been able to publish awareness articles in some regional newspapers in English as well as regional language. A research article has been published in the International Journal of Advanced Research. The results have also been shared with the forest departments, local communities, and non-governmental organisations. Apart from this, the work has been presented at national conferences, seminars and local workshops. Further, I am planning to publish the detailed report.

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

The Rufford Foundation Grant was used over a period of 12 months, the proposed duration of the project.

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. 1 £ = 85.94 ₹

Item	Budgeted Amount	Actual Amount	Difference	Comments
Travel (lump sum)	1458	1487	29	Since the sites are far apart and needed to be re-visited, the transport costs went higher than anticipated.
Equipment - Nikon Coolpix P530 digital camera	157	157	0	
Production and dissemination of awareness materials - Production of campaign materials (booklets, flyers, posters, banners) - Design cost	200 49	200 49	0 0	

In vitro micro propagation	350	350	0	
Awareness - Nature trails, public meetings, local workshops, media, etc.	350	350	0	
Creation of two rehabilitation centres (lump sum)	768	768	0	
Remuneration - Per Diem for project coordinator	467	467	0	
- Per Diem for field assistant	467	467	0	
- Local experts remuneration				
- Training two local inhabitants for rehabilitation centres	300	300	0	
	222	222	0	
Contingency (lump sum)	200	200	0	
Bank charges (Exchange fees)	10	10	0	
Total	4998	5027	29	

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

The next important step should be planting these species and awareness at a wider scale. We also plan to develop a website and an android application.

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?

Tree plantation certificates with The Rufford Foundation logo were distributed to more than 200 volunteers participating from 22 different institutions of Gujarat state for conservation of endemic and threatened species at the Waghai Botanical Garden, Dangs.

The logo was also used while presenting the work at the '26th Annual Conference of Indian Association for Angiosperm Taxonomy' held at Shivaji University, Maharashtra, India from 7th – 9th November, 2016.

It was used on the awareness materials specially the banners, flyers, posters, etc. which were disseminated in the public gatherings, local workshops, etc.

11. Any other comments?

Long-term support towards community involvement for conservation of endemic and threatened species should be always given a priority, so that would boost such conservation projects periodically and ensure that maximum people get involved.



Tephrosia collina V.S.Sharma



Tephrosia jamnagarensis Santapau



Erinocarpus nimmonii J.Graham



Entada rheedii Spreng.



Cansjera rheedei J.F.Gmel.



Bombax insigne Wall.



A refuge for endemics (protected from agricultural encroachment at the Dangas)



Distribution of certificates to active partakers in conservation activities



Nature trails and field excursions



Sacred groves harbouring rich number of endemic species



Rehabilitation centre



In-situ conservation of Commiphora at Saurashtra region of Gujarat



Plantation of *Harwickia binnata* (an endemic and threatened species) by local people



Plantation of endemic and threatened species by volunteers from different institutions



Propagation of plants through seeds



Propagation of endemic and threatened species