

## Project Update: July 2021

Timeline	Planned Work	Update
May 2020	Field Work – Summer 2020 – across Valparai	One entire cycle of data collection was completed (as a result of Covid-19, certain sites could not be accessed, but access is planned for the next season).
June 2020	Data management/storage and curation	This month was spent curating the data collected and planning outreach activities for the near future.
July 2020	Outreach	I co-wrote a popular science article in Mongabay India on the use of bioacoustics for conservation, and highlighted the work being carried out in Valparai as a result of funding from The Rufford Foundation. Link: <a href="https://india.mongabay.com/2020/07/listen-closely-using-bioacoustics-in-wildlife-conservation/">https://india.mongabay.com/2020/07/listen-closely-using-bioacoustics-in-wildlife-conservation/</a>
August 2020	Outreach	As a result of Covid-19, a majority of the outreach was done virtually. In August 2020, I was invited by the Kalinga Centre for Rainforest Ecology (a local NGO that aims to connect a broad audience with nature) to give a lecture on bioacoustics to a general audience. WILD IQ is an initiative started by this centre to engage a broad audience with ecology and conservation. I proceeded to talk about the fieldwork I had carried out so far, along with talking to a broad audience about the use of bioacoustics for conservation. Link to the event: <a href="https://www.instagram.com/p/CDnw9zDg7Pd/">https://www.instagram.com/p/CDnw9zDg7Pd/</a>
September 2020 - October 2020	Exploratory data analysis	These 2 months were spent analysing the data that was collected during season 1 (summer 2020) of data collection. Over 30 hours of recordings were manually analysed, and individual bird species were identified by Akshay Anand, a mentee and project student. An open-source code repository was created on <a href="#">Github</a> , along with creating pipelines for analysis of data, once the winter season of data collection is completed.

November 2020	Outreach and preparation for field work	<p>I was invited by the Linnean Society of London to deliver a virtual lunchtime lecture. Here, I discussed the Rufford-funded project and preliminary analysis of data, along with talking about a collaborative initiative titled - 'Project Dhvani' - that aims to monitor biodiversity using sounds across human-modified landscapes of India.</p> <p>Event link: <a href="https://www.eventbrite.co.uk/e/sounds-of-the-wild-tickets-126839128247">https://www.eventbrite.co.uk/e/sounds-of-the-wild-tickets-126839128247</a></p> <p>Video: <a href="https://www.youtube.com/watch?v=ww_DSYh2O2o">https://www.youtube.com/watch?v=ww_DSYh2O2o</a></p>
December 2020 - February 2021	Field work (Season 2)	Acoustic recorders were deployed across 45 sites in the Valparai plateau. This included 15 actively restored forest fragments, 13 passively restored forest fragments and 17 benchmark sites (within protected areas). A recorder was deployed at each site for 7 consecutive days (4 min ON; 1 min OFF).
March 2021	Outreach	<p>As part of World Forests Day, I was invited to be a part of an online panel discussion (for a broad audience) titled 'Soundscapes: A language of nature' alongside Eric Leonardson, President of the World Listening Project and Claudia Isonde, a sensorial artist and musician. Here I presented a few preliminary results from the Rufford-funded project. The video can be viewed here: <a href="https://www.youtube.com/watch?v=NQW9ySyfdVE">https://www.youtube.com/watch?v=NQW9ySyfdVE</a></p>
April 2021	Outreach & Data curation	<p>Further outreach was carried out as part of an online lecture series organised by the International Centre for Theoretical Sciences. I was invited to talk about the Rufford-funded project as part of a virtual exhibition titled 'Cosmic Zoom'. My talk can be viewed here: <a href="https://www.youtube.com/watch?v=-lxXAIGQ6Ok">https://www.youtube.com/watch?v=-lxXAIGQ6Ok</a></p> <p>Data collected from the winter season was curated and kept ready for analysis</p>

May 2021	Analysis of data	Analysis of the winter season of data collection began and is currently ongoing. >30 hours of data are being manually analysed and individual bird species are being identified by Akshay Anand, a mentee and project student. This data will be supplied to the pipeline present on Github for further analysis.
June 2021	Outreach	I am collaborating with an illustrator to design an interactive panel showcasing soundscapes from restored, unrestored and benchmark (protected area) sites. The idea is to convey to a large audience the differences in overall biodiversity across these sites, using a novel technology - acoustics. These panels will be displayed on multiple social media portals and a news outlet.

### **Next steps:**

#### 1. Analysis

I am currently analysing the data collected across both summer and winter of 2020. This analysis will be completed by mid-September 2021. This work is being carried out as per the plan/timeline outlined in the grant proposal provided to The Rufford Foundation. While I will outline the detailed results in a separate report, the preliminary data analysis suggests that active restoration does indeed foster bird recovery across what were formerly degraded forest fragments. (Below image for reproduction only on <https://www.rufford.org/>)

#### 2. Outreach

Further outreach will be carried out by illustrating birds across protected areas, restored forests and unrestored forest sites. This interactive illustration will soon be made available across multiple social media platforms as well as a popular media outlet.

#### 3. Peer-reviewed publication

The analysis of the data will be written up in a separate report for multiple stakeholders, including The Rufford Foundation and the state forest department. In addition, these results will be published in a peer-reviewed journal for access to a wide scientific audience.

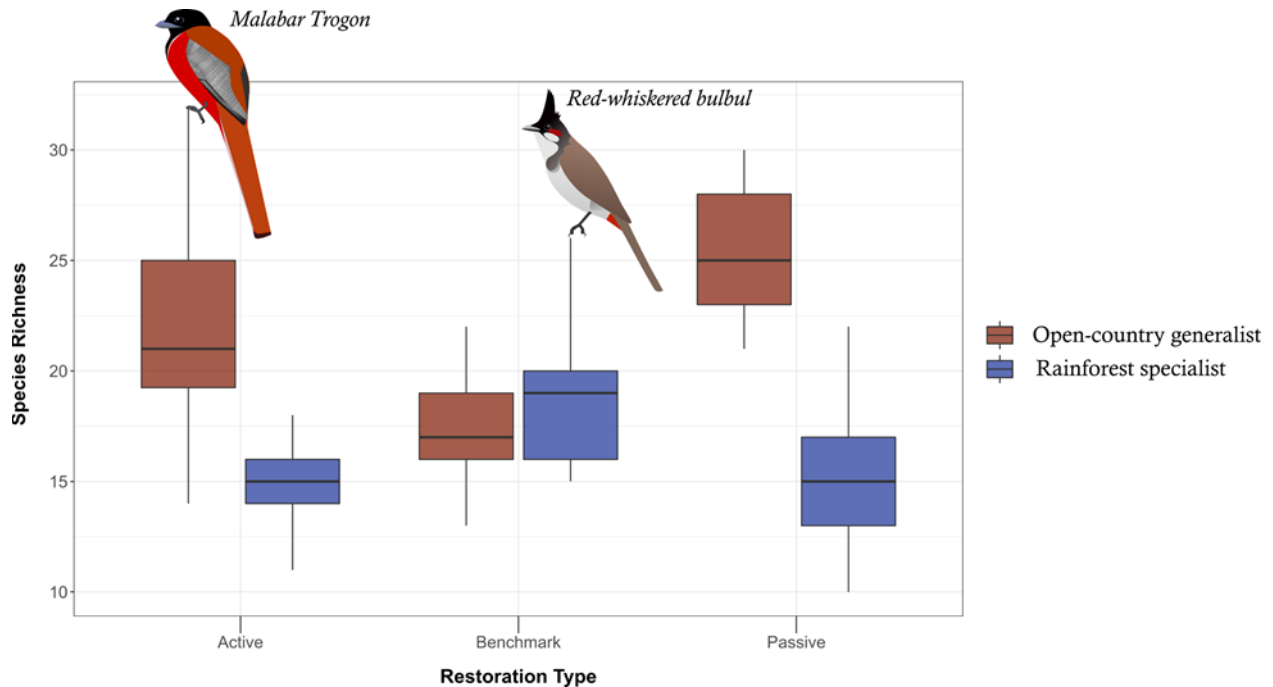


Fig. 1. Species richness across actively restored (active), passively restored (passive) and protected area (benchmark) forests. Preliminary analysis suggests that species richness of rainforest birds was highest in protected area sites, followed by actively restored forests and passively restored (unrestored) forests. Images of Malabar trogon (a rainforest specialist) and the Red-whiskered bulbul (an open-country generalist) were obtained from Wikimedia commons (credit: L Shyamal).



A view of a recorder setup in a protected area forest site.





A view of the mountains that surround the Valparai plateau.



Rainforest fragments of Valparai enveloped in mist.