

A.P.E. Project **(Assess. Protect. Evaluate.)**

**Restoring Connectivity with a Natural Canopy Bridge at the
Hoollongapar Gibbon Wildlife Sanctuary, Assam, India**

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Introduction

The Western Hoolock gibbon (*Hoolock hoolock*) is India's only ape listed as Endangered by the IUCN's Red List of Endangered Species in 2017.¹ Gibbons are almost exclusively arboreal thanks to specific adaptations which make them skilled brachiators.² This lifestyle means that connectivity of their canopy environment is essential to survival. Unfortunately, fragmentation from linear infrastructure such as roads or railways can fragment canopy cover and act as barriers to movement.

The state of Assam contains the densest population of gibbons in India and is also home to Hoollongapar Gibbon Sanctuary. A railway line dating back to the British colonial era traverses through the sanctuary, restricting the movement of arboreal species and increasing the risk of wildlife-train collisions. The tracks divide the sanctuary into two pieces measuring approximately 150 hectares and 1,950 hectares. A 2006 census found that three family groups resided in the small section while 23 families occupied the larger, isolating groups and reducing the opportunity for gene flow.

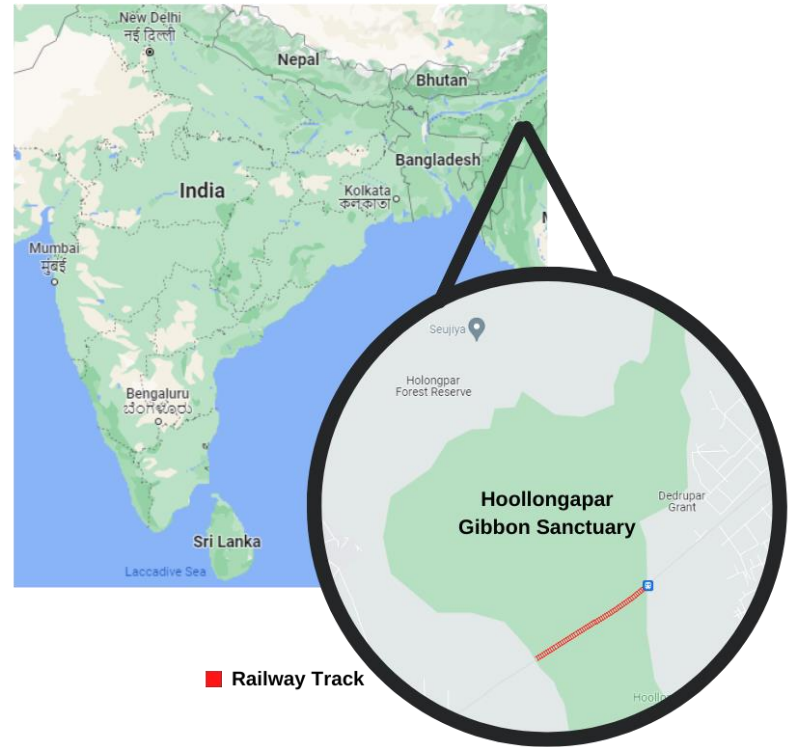


Figure 1. Location of Hoollongapar Gibbon Sanctuary

Reconnecting the Canopy

To facilitate gibbon movement across the tracks, local non-governmental organization Aaranyak worked in collaboration with the Forest Department, U.S. Fish and Wildlife Service's Great Ape Conservation Fund, and the local community to restore a natural canopy bridge by planting trees along the line. From 2006 onward, Aaranyak coordinated the planting of 3,000 tree saplings of 71 species to establish a natural canopy bridge, a proven solution to mitigate the impacts of linear infrastructure for arboreal species.^{3,4}

As an interim solution, an iron structure was built over the tracks in 2015 utilizing funds from the Assam Forest Department and Railway Department. While the intention was to help facilitate the movement of wildlife over the tracks, unfortunately, the structure's design required arboreal species to descend to the forest floor to gain access to the bridge, climb up and over the bridge, then descend back to the forest floor before returning to the forest canopy. No gibbons or other arboreal species have been recorded using the bridge since construction, highlighting the importance of considering species-specific requirements when installing artificial canopy structures.

After years of patience, the trees on either side of the tracks grew closer, forming a natural canopy bridge. In 2019, the first gibbon crossing was recorded and crossings continue to increase annually. Other species also utilize this restored connection, such as the capped langur (*Trachypithecus pileatus*), rhesus macaque (*Macaca mulatta*), and squirrels.⁵ Monitoring of the natural canopy bridge has been opportunistic and Aaranyak hopes to install camera traps to better monitor the use of the bridge by wildlife.



Figure 2. Railroad track through Hoologapar Gibbon Sanctuary. Courtesy of Aaranyak.

Additional canopy restoration is underway along other portions of the railway to provide more canopy connection points. The railway remains active, and on occasion, maintenance requires the removal of trees uprooted after storms, continually altering the canopy. However, coordination between the Railway Department and conservation practitioners remains strong, with everyone in agreement that the effort to reconnect the gibbon families is well worth it.⁵

Conclusion

This case study serves to highlight reforestation and restoration of linear infrastructure projects to reconnect tree canopies and better facilitate the movement of arboreal species. It also serves to highlight the need for collaboration between development entities and conservation practitioners. The decades-long timeline of the forest restoration should emphasize that during the development of new infrastructure, maintaining existing canopy connections should be prioritized where possible, or a plan should be made for species-specific artificial arboreal crossings to be installed until restoration efforts can relink the canopy.

References

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