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## Cornered & Broken - Hollongapar Gibbon Sanctuary is a Litmus Test for India's Conservation Philosophy

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It is the early hours of a chilly November morning. The morning mist has given way to reveal the breathtaking beauty of Hollongapar Gibbon Sanctuary's forests. Towering trees, some reaching 150 feet in height, create a dense canopy in this semi-evergreen forest in eastern Assam's Jorhat district. The forest floor is a tapestry of fallen leaves, twigs, and branches, while the understorey flourishes with vibrant growth of herbs, shrubs, ferns and saplings.

The Hollongapar Gibbon Sanctuary derives its name from the Hollong *Dipterocarpus macrocarpus* tree, which is also Assam's state tree. It is the only Protected Area (PA) in the country named after a primate species, the western hoolock gibbon Hoolock hoolock. As we walk along the railway track, traverse through the sanctuary and divide it into two unequal habitat fragments, the loud and conspicuous songs of the w. h. gibbon- India's only ape species — resonate and reverberate through the air. The gibbon's crescendo of a song consisting of whoops, hoots, and whistles strung in harmonious ways for specific purposes — such as territoriality and maintaining group cohesion — is a fascinating case of acoustic sophistication and versatility in primate communication, piquing the curiosity of researchers studying human speech evolution. Around 125 w. h. gibbons inhabit the Hollongapar Gibbon Sanctuary, harbouring significant species- and subpopulation-level genetic diversity.

The w. h. gibbon is an exclusively arboreal primate, relying on tall, closed-canopy continuous stretches of forests for its survival. In India, a maximum of 10,000 w. h. gibbon exists in small, insular populations across the northeastern states, restricted to the south and east of the Brahmaputra and Dibang rivers, respectively. A

population of around 500 resides in Bangladesh, while estimates from its only other range country, Myanmar, are not known. The gibbons form monogamous family groups consisting of related individuals around the breeding pair. They primarily use the 'brachiation' mode of locomotion (swinging by arms/forelimbs only) to acrobatically swing through the forest's middle and upper canopies. Dwindling numbers, primarily due to habitat loss, habitat degradation and hunting, have led them to be classified as Endangered in the International Union for Conservation of Nature's (IUCN) Red List. Although the w. h. gibbon has been given the highest legislative protection in our country by way of its inclusion in Schedule I of the Wild Life (Protection) Act 1972. Neither countrywide reliable population estimates nor range-wide species recovery/ conservation action plans are available.

Initially set aside as the Hollongapar Reserved Forest (RF) by the then-British colonial government in 1881 under the Indian Forest Act of 1878, it covered only about 2.06 sq km but was part of the much larger and well-integrated forested landscape of the Patkai Range. The subsequent establishment of tea gardens and human settlements during 1880-1920 severed the forest's connection totally, further worsened by a railway line — as yet single track, un-electrified on which at least 12 pairs of passenger and cargo trains ply as of today — operationalised in 1887 that created a significant break in canopy and isolated gibbon groups on either side. Efforts to consolidate the remaining forested areas in and around Hollongapar RF led to its declaration as a PA — 'Gibbon Sanctuary' — in 1997 by the Assam State government under the Wild Life (Protection) Act, 1972, with a total area of 20.98 sq km. In the year 2004, the PA was renamed the 'Hollongapar Gibbon

Sanctuary'. However, since then, approximately three sq km have been leased to the Indian Army's Military Engineering Services (MES), reducing the relatively small PA's effective size to about 18 sq km.

Situated at an elevation of 100-120 m above mean sea level, the Hollongapar Gibbon Sanctuary falls under the globally recognised 'Indo-Burma Biodiversity Hotspot'. It is located in India's Northeast biogeographic zone (9) within the Northeast Brahmaputra Valley biogeographic province (9A). The sanctuary receives an average rainfall of about 2490 mm while the average temperature ranges between 5°C to 38°C. The forest type in the sanctuary is 'Tropical Semi-Evergreen' with the subtype 'Assam Plains Alluvial Semi-Evergreen' (2B/C1a) harbouring patches of wet evergreen forests. The major watercourse of the sanctuary is one of the tributaries of Brahmaputra called Bhogdoi River, flowing in the general southeast to northwest direction.

Including the flagship w. h. gibbon, the sanctuary also harbours a great diversity of primates, including the Bengal slow loris *Nycticebus bengalensis* — northeastern India's only nocturnal primate, stump-tailed macaque *Macaca arctoides*, northern pig-tailed macaque *M. leonine*, eastern Assamese macaque *M. assamensis* (considered locally extinct since 2005), rhesus macaque *M. mulatta* and capped langur *Trachypithecus pileatus*. Other arboreal mammals include the Malayan giant squirrel *Ratufa bicolor* and the particoloured flying squirrel *Hylopetes alboniger*. Apart from the Hollong tree, other important tree species in the sanctuary from the perspective of arboreal animals include Sam kothal *Artocarpus chama*, Pan sopa *Michelia montana*, Phul hingori *Castanopsis indica*, Ajhar *Lagerstroemia speciosa*, Kenglo *Trewia nudiflora*, Otenga *Dillenia indica* etc. The sanctuary hosts diverse vertebrate and invertebrate life, with over 200 butterfly species, 95 spider species, 41 mammalian species, such as Asian elephant *Elephas maximus*, tiger *Panthera tigris*, leopard *P. pardus*, leopard cat *Prionailurus bengalensis*, sambar *Rusa unicolor* (no recent records), barking deer *Muntiacus vaginalis*, wild pig *Sus scrofa*, Chinese porcupine *Hystrix brachyura*, Chinese pangolin *Manis pentadactyla*, and about 250 bird species, including Assam's State bird the Endangered White-winged Duck *Asarcornis scutulata*.

Despite its small size, the sanctuary houses a remarkable range of flora and fauna. It is not only an Indian PA but also globally recognised as an Important Bird and Biodiversity Area (IBA) and Key Biodiversity Area (KBA). Although threats like habitat degradation, encroachment, hunting, increasing human-elephant conflict, and the sanctuary's lack of connectivity with surrounding forest patches persist and are being gradually tackled by the under-staffed Forest Department with civil society and NGO involvement, the existential threat imposed by the railway infrastructure and its impending electrification and expansion plans might prove to be the proverbial death knell for the sanctuary, especially for its arboreal flagship fauna such as w. h. gibbon and Bengal slow loris.

While installing canopy bridges will help in the interim to facilitate gibbon movements — and efforts in that direction by the Assam Forest Department in association with WII are ongoing — moving the relatively short 1.65-km track itself from within the sanctuary to available non-forest areas outside would be a critical and bold step towards restoring its integrity. The fate of the w. h. gibbon within Hollongapar Gibbon Sanctuary is set to test India's conservation philosophy and the quest to make the economy compatible with ecology. The choices made will indicate the nation's conservation journey in the future.

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