

**Habitat requirements and the effects of forest fragmentation on the western hoolock gibbon (*Hylobates hoolock hoolock*) in Lawachara National Park, Bangladesh. Petra**

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The past 10-20 years have seen a dramatic decline in the number of western hoolock gibbons (*Hylobates hoolock hoolock*). Eight populations in Bangladesh have disappeared due to deforestation in the last 15 years and the current population size lies between 200-300 individuals spread out in 22 isolated sites. *H. h. hoolock* is classified by IUCN as Endangered, nationally in Bangladesh as Critically Endangered, and the species is a new addition to IUCN/SSC list of the world's 25 most endangered primates 2006-2008. This study aimed to assess the effects of forest fragmentation on the gibbon population in Lawachara National Park.

Lawachara, part of the West-Bhanugach forest, is a semi-evergreen forest with both natural vegetation and planted tree species. Part of the national park does not have suitable food trees for arboreal primates and the park is additionally fragmented by human settlements within the park, a traversing road and a railway. Outside the protected national park, West-Bhanugach forest is subject to high human impact and is largely deforested.

Comparative behavioural observations were conducted on two gibbon groups and the vegetation in their territories was sampled. *Artocarpus chaplasha* was one of the dominating trees in both territories whereas *Tectona grandis* (teak) dominated only one territory. Tree density varied between 254 trees/ha and 192 trees/ha, the latter territory laying on the forest boundary and being traversed by a large trail. Both gibbon groups adapted their feeding strategies to seasonal abundances within their range; one group spent considerable amounts of time foraging for insects in the teak plantation. Both groups spent corresponding amounts of time at the same vegetation heights and under similar amounts of canopy cover, although the group in the more disturbed habitat had a slightly higher selection for denser canopy cover, possibly because they had a small infant.

A population census was carried out in the whole of West-Bhanugach and the results revealed a higher gibbon population than previously estimated. Fifty nine gibbons in 16 families were found in a continuous population that stretched beyond the boundaries of the national park. Only one group was found isolated from the rest, living in a small forest island surrounded by paddy-fields. The average group size was 3.65 individuals and the adult-young ratio was 6.5

4.5. The gibbon group density in Lawachara was 1.12 groups/km<sup>2</sup>, but this can not be used to compare population densities and habitat availability between sites since part of Lawachara is unsuitable gibbon habitat.

It appears that the gibbons in Lawachara are doing better than assumed, but outside the park the gibbons are facing severe habitat loss. Further research in the area could look into how potential food shortages in other seasons affect the gibbons, how other primate populations in the park are developing and how much feeding competition occurs between different primate species. An important conservation measure would be to increase the carrying capacity of Lawachara through the planting of food trees.



Western hoolock gibbon (*H.hoolock hoolock*) female and young infant in Lawachara N.P., Bangladesh



Adult male *H.hoolock hoolock* in Lawachara National Park, Bangladesh

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