



SETTING CONSERVATION PRIORITIES FOR PHAYRE'S LANGURS IN ATORA HILL RESERVE FOREST, NORTHEAST BANGLADESH

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PROJECT REPORT

I. Background:

Until 2020, Phayre's langur *Trachypithecus phayrei* was believed to be distributed in Bangladesh, China, India, Lao PDR, Myanmar, Thailand and Viet Nam (Roos et al. 2014). Our recent taxonomic revision and the description of the Popa langur *T. popa* revealed its limited distribution in only eastern Bangladesh, northeast India (Assam, Tripura, Mizoram) and a small portion of Myanmar (Roos et al. 2020). Our assessment in the IUCN Red List of Threatened Species indicates that the species' population is

small on a global scale and declining fast over all its distribution, where it is facing severe habitat loss, fragmentation, hunting, inbreeding and illegal trading for local zoos (Chetry and Ahmed 2021).

In Bangladesh, in the 1980s, the population ranged from 1050 to 1300 individuals (Gettins and Akonda 1982) but the population has declined by more than 80% in the last 20 years (IUCN Bangladesh 2015). Our survey between 2017 to 2019 revealed that the species' population is about 400 in five north-eastern forests in Bangladesh (Ahmed et al. 2020). Based on information from local people, on our initial visit we recorded a skin of a Phayre's langur that had been hunted by an ethnic community in the Sagarnal area of Aora Hill Reserve Forest (hereafter AHRF) where the species had not been reported before (Ahmed et al. 2020).

The conservation efforts for the primates in Bangladesh are not effective due to the lack of baseline information. To initiate species-specific conservation efforts for the globally Endangered Phayre's langurs in Bangladesh, it is necessary to have insights into their current population status, habitat and the threats affecting their survival, particularly in the AHRF. I used the Conservation Grant 2022 from the Primate Society of Great Britain (PSGB) to assess the number of Phayre's langur and the threats affecting them in the AHRF.

II. Project progress

No.	Objectives	Progress made
a	To estimate the population of Phayre's langur in Aora Hill Reserve Forest	Population estimated (based on the direct count method)
b	To assess threats affecting the langur population in the site	Main threats were identified
c	To determine the effective species conservation strategies for the species	Main steps were identified

III. Highlights of the findings:

a) Phayre's langur population in AHRF:

My team surveyed the Phayre's langur population in AHRF from July and December 2022. We walked a total of 88.57 km on 13 pre-established forest trails, spending 168 hours in 24 days. We sighted five species of primates – western hoolock gibbon,

northern pig-tailed macaque, rhesus macaque, capped langur and Phayre's langur. There were only nine sightings of Phayre's langurs, which were in northeastern sites in the forests, surrounded by tea gardens and agricultural lands. The names of the places where Phayre's langurs were sighted are Muraichara, Lokkhichara, Amjhura, Gughali and Sagarnal. The first-sighted locations of the groups are depicted in Figure 1. Local people also told us about the occurrence of the langur in the area. As the total number of sightings was extremely low, we didn't attempt to analyse the population data using the distance-sampling methodologies.

By cross-checking the age-sex compositions of the groups, we have concluded that there were only 74 Phayre's langurs belonging to five groups. The group size ranged from 11 to 18 individuals. Over half (52%, $n = 39$ individuals) of the population were adult individuals. The adult and non-adult ratio of the population was 1:0.9 while the adult male and adult female ratio was 1:12.

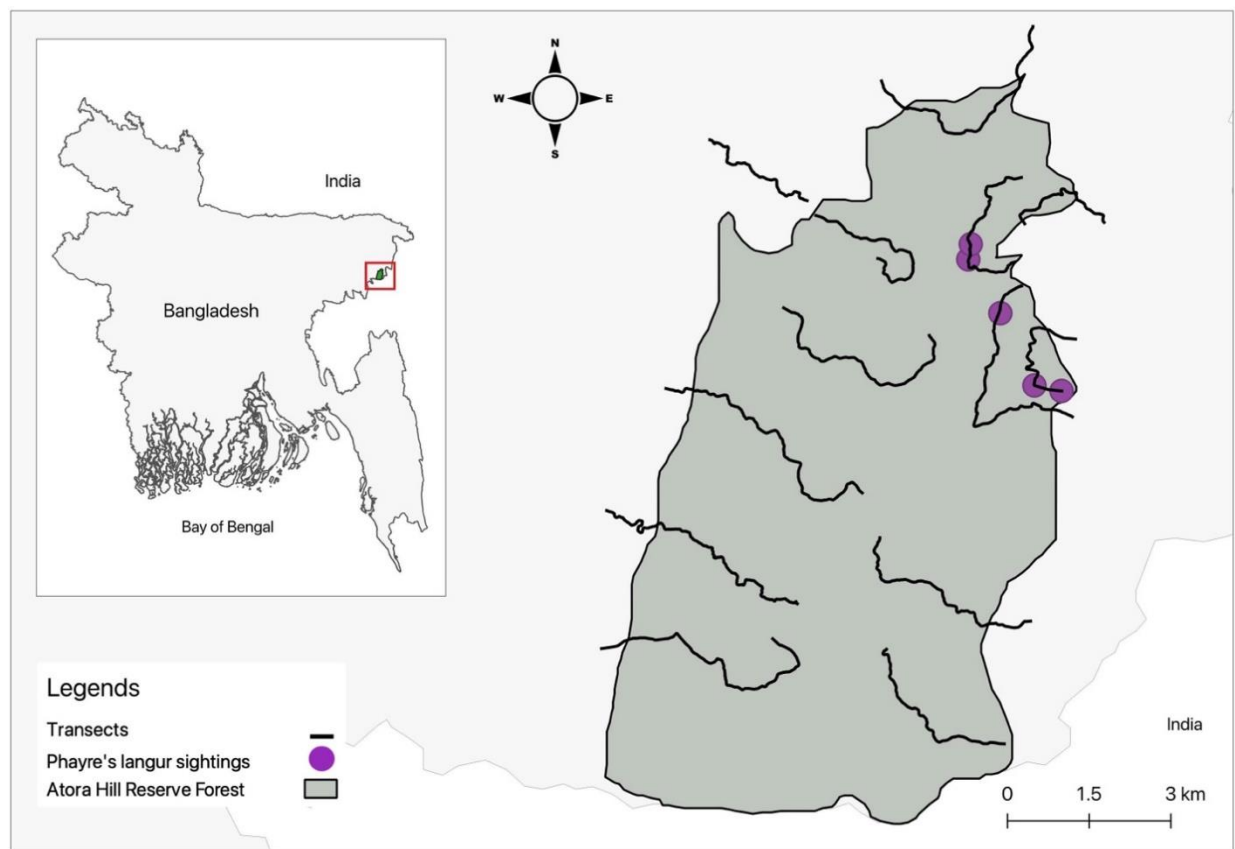


Figure 1: Transects of the Phayre's langur survey in the Aora Hills Reserve Forest.

b) Threats identified:

Based on our field observations and interviews of local people, it was evident that a wide array of anthropocentric pressures is threatening the Phayre's langur population in the AHRF in northeast Bangladesh. Although trading of the langur is

not yet evident from this particular forest, animal protection is limited, while illegal hunting by some local indigenous communities for bushmeat has been contributing directly to the langurs decline in numbers. Besides this, the forest area is under myriad pressures of illegal encroachment for agricultural land expansion, tea gardens and settlements. Furthermore, the conversion of the natural forests into monoculture and mixed plantations, lemon gardening, beetle-leaf cultivation, and the extreme amount of bamboo extraction and firewood collection (Figure 2) have all been threatening the primates, especially the largely-folivorous langurs in the forest. The forest and wildlife-related laws are not implemented well. However, we didn't find any confirmed record of deaths of the langur due to roadkill and electrocution.

Rotation felling of bamboo is officially regulated to a certain extent, but the encroachment of forest lands and illegal felling can't be monitored well by the few staff of the Bangladesh Forest Department. Community-based management of forests and effective use of natural resources are not practiced in a sustainable manner. Moreover, the local people are needy, and the majority work in the tea garden as day laborers. For many, there is no alternative income generation option other than collecting firewood or bamboos from the forest for their livelihood. Hence, the threats to the primates and pressures on their habitats are complex.



Figure 2: Felling of trees and branches to use as firewood and to sell in local markets.

c) Conservation priorities:

Phayre's langurs in AHRF are facing complex anthropogenic threats and we primarily recommend the following seven actions for sustaining their future:

1. Monitoring the distribution and population of Phayre's langurs in AHRF.
2. Update the protection status of Atora Hill Reserve Forest to a wildlife sanctuary.
3. A community-based conservation initiative of forest biodiversity with a special focus on alternative income generation for the local communities to reduce their dependency on the natural resources.
4. Consult local indigenous communities and develop a local intelligence network to inform the Bangladesh Forest Department and take necessary actions to mitigate illegal hunting, poaching and trading of all animals.
5. Public awareness, outreach and proper implementation of laws and regulations.
6. Build capacity of the forest staff and eco-tourists guides.
7. Research on the behavioral ecology, demography and food availability of Phayre's langurs.

IV. Plan for publishing the data

I plan to publish the data in three ways:

1. **Scientific publication:** A manuscript has already been submitted to an internationally recognized peer-reviewed journal, along with Phayre's langur population data from other forest areas in northeast Bangladesh. Another manuscript is under preparation.
2. **Media:** The summary of the data will be available on social media (<https://web.facebook.com/Phayreslangur/>) and featured on online portals.
3. **Conferences:** The data will be presented at conferences, combining this information with other population data.

V. References

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- IUCN Bangladesh. 2015. Red List of Bangladesh Volume 2: Mammals. IUCN, International Union for Conservation of Nature, Bangladesh Country Office, Dhaka, Bangladesh.

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- Roos C, Helgen KM, Miguez RP, Thant NML, Lwin N, Lin AK, et al. 2020. Mitogenomic phylogeny of the Asian colobine genus *Trachypithecus* with special focus on *Trachypithecus phayrei* (Blyth, 1847) and description of a new species. *Zool Res* 41: 656–669.

APPENDIX

1) Different vegetation types in the Atora Hill Reserve Forest, Northeast Bangladesh:



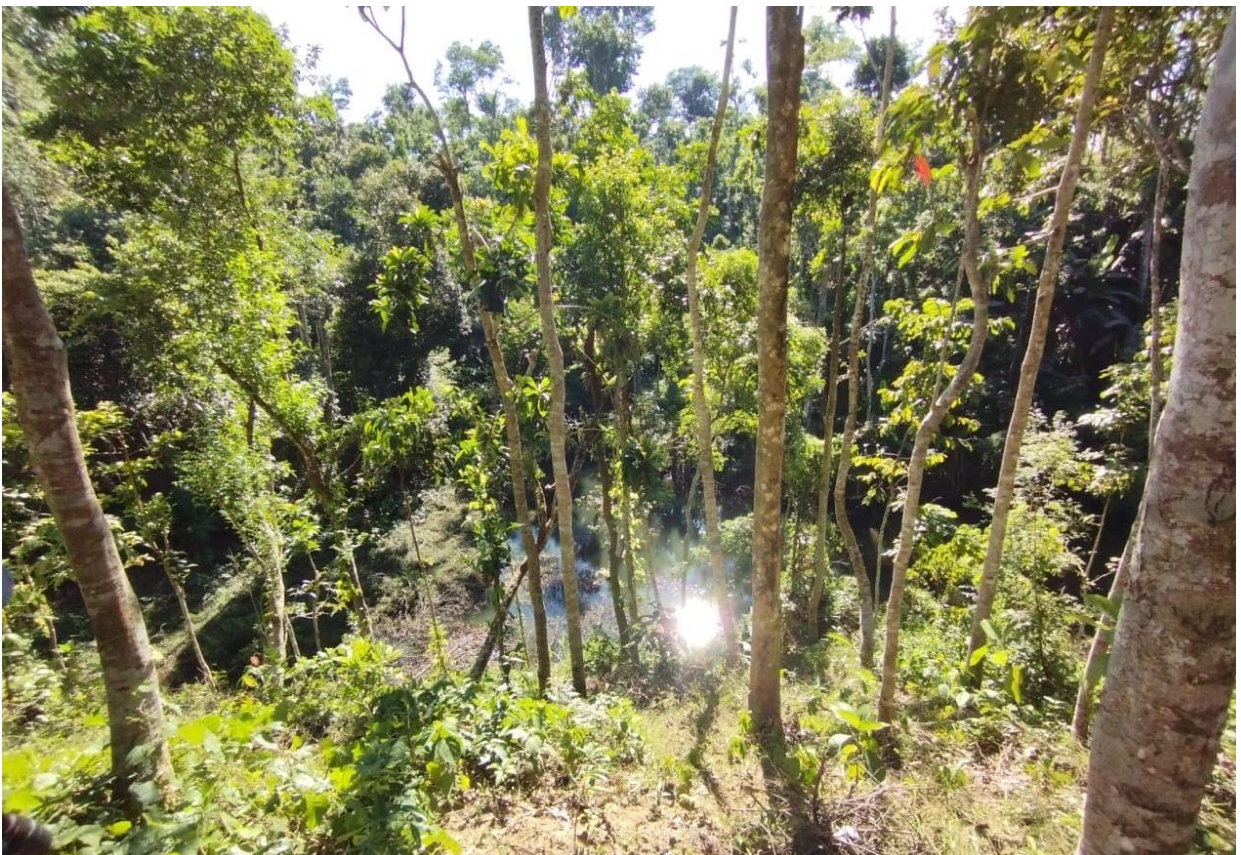
Mixed evergreen forests (secondary)



Tea gardens comprises a significant part of the forest



Natural bamboo gardens comprise half of Aora Hill Reserve Forest



Mixed species and monoculture plantations

2) Primate population survey at the pre-established forest trails/hill streams:



Collecting baseline information of Phayre's langur in the Atora Hill Reserve Forest.



Phayre's langur survey at the Aora Hill Reserve Forest in Northeast Bangladesh



Phayre's langur survey following the natural stream into the forest



Phayre's langur survey in the bamboo forests in the Aora Hill Reserve Forest