

Project Title: Community-based Conservation Initiative of the Western Hoolock Gibbon (*Hoolock hoolock*, Harlan, 1834) in Bangladesh

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Project Duration: September 2017 to December 2018

Location: Southern, South-east and North-east Bangladesh

Total Requested Budget: (US\$) 7610

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1. Project Background

The Western hoolock gibbon (*Hoolock hoolock*) is considered as Critically Endangered in Bangladesh (IUCN Bangladesh 2015) and Endangered species in Globally (Brockelman et al. 2008). Earlier healthy population of hoolock gibbon with a widespread range in Bangladesh has been extirpated from most of the previous range within few decades (Ahsan 1994; Islam et al. 2006). They (2006) estimated the total population of gibbons to be 282 during 2002-2005, a study in Bangladesh, which may have further declined in recent years.

The hoolock gibbon is distributed in Southern, South-east and North-east forest of Bangladesh that are dominated by mixed-evergreen forest. It has also been sighted in human dominated habitats, monoculture plantation, and even highly degraded habitat in Bangladesh (M Farid Ahsan pers. comm.; and M Tarik Kabir pers. comm.). However, most of the gibbon habitats are severely fragmented due to habitat loss, illegal encroachment and monoculture of exotic species, *jhum* cultivation and expansion tree cultivation (Ahsan 1994; Molur et al. 2005, Muzaffar et al. 2007). Hunting of gibbon had also been recorded in different locations and thought to be a major threat to the remaining population (M Tarik Kabir. pers. comm.). Population viability Analysis (PVA) predicts that 95% population of hoolock gibbon in Bangladesh will be exterminated in the next two decades which is predicted that rapid decline of gibbon in the country (Molur et al. 2005). Already several populations have been locally vanished and some are on the verge of the local extinction in Bangladesh. Gibbon population from 8 locations of Bangladesh may extirpate within 3-5 years (Molur et al. 2005).

Bangladesh supports 10 species of primates (Ahsan 1984) and this is one of the poorly managed wildlife group facing different categories of threats (Country status: Critically Endangered – Western hoolock gibbon *Hoolock hoolock*, long-tailed macaque *Macaca fascicularis*, and Phayre's leaf monkey *Trachypithecus phayrei*; Endangered – Assamese macaque *M. assamensis*, pig-tailed

macaque *M. leonina*, common langur *Semnopithecus entellus*, capped langur *T. pileatus*, and slow loris *Nycticebus bengalensis*; Vulnerable- Rhesus macaque *M. mulatta*; and Data Deficient- stump-tailed macaque *M. arctoides*). No long-term conservation initiative has so far been taken for the conservation of hoolock gibbon in Bangladesh. The hoolock gibbon population of Bangladesh is thought to have reached a point, where its future survival may not be possible without conservation interventions. In the light of such dire situation, a small-scale conservation project has been initiated in southern part of Bangladesh-led by M. Farid Ahsan and M Tarik Kabir. This proposed project aims to extend our current hoolock gibbon conservation activities to other gibbon habitats in the country. This proposal brings community at the forefront of the conservation effort with its community oriented conservation approach design including behavior change through knowledge dissemination and awareness raising activities. The proposed activities also include census of gibbon population, community lead habitat restoration and protection. We also plan outreach activities and engage the relevant stakeholders through meaningful dialogues, and ultimately work towards creating enough drive and local engagement to reflect the conservation needs at policy making levels.

2. Project Summary

Most of the gibbon populations in Bangladesh are isolated in small patch of habitats. Last population census of hoolock gibbon was carried out about a decade ago. Gibbon habitat quality has drastically changed since the previous survey. Many populations are thought to have declined and some may even have gone extinct in several locations without any conservation effort trying to avert the decline. An extensive gibbon population census is crucial to understand the present situation and current population status by the actively engaging local community people. Understanding the present population of the gibbon by the local communities can help to initiate an urgent conservation step to prevent local disappearance. A community involvement conservation approach will be conducted in four different types of habitats in Southern, South-east and North-east part of the county. This will be the first community participated conservation work to protect any primate species in Bangladesh. Community members will play a vital role to conduct population monitoring, and raising awareness among the forest dependent peoples of the local community. They will be actively engaged in the protection of the gibbon habitat and support as citizen scientists by providing important data on the gibbons. Gibbon Conservation Group will be formed in four important gibbon habitats at Lawachara National Park (north-east), Kaptai National Park (south-east), Inani Reserved Forest (southern), and Bangdheba (southern) in Bangladesh. Stakeholders dialogue, impact of habitat fragmentation and assess the food availability will be carried out for better protection and restoration of the gibbon habitat through the help Bangladesh Forest Department and community people. Our ultimate goal is to generate enough support from the ground level to make necessary policy level changes to conserve the last remaining gibbons in Bangladesh.

3. Objectives of the Project

To maintain sustainable and genetically viable population of gibbons in Bangladesh by minimizing the threats, restoration and protection of the Western hoolock gibbon habitats through active participation of local community and Bangladesh Forest Department.

4. Output of the Project

Expected output of the project are:

- A. Gibbon population estimate
- B. Positive behavioral change among the relevant stakeholders to initiate sustainable gibbon conservation efforts
- C. Restoration and protection of the gibbon habitats
- D. Habitat fragmentation assess and GIS mapping
- E. Food availability assess within the selected gibbon habitats

5. Methods of the Field Activities

A. Gibbon population estimate

Western hoolock gibbon is highly territorial and family living species. Forested areas of Bangladesh are not homogenous, and for that reason, population of gibbon has to be figured out by total group count. Once group is sighted visually or hearing calls, observer(s) will carefully observe the group and count the age, sex, and ratio according to Ahsan (1984). Local people will be involved as short-term field assistant during the field survey. Involvements of the local people in population census will help towards developing the capacity of the local community to carry out long-term monitoring of the gibbon population.

B. Positive behavioral change among the relevant stakeholders to initiate sustainable gibbon conservation efforts

Community participation for conserving a particular wildlife species is a recent approach in Bangladesh. Gibbon Conservation Group will be formed by selecting people from the different stakeholders such as indigenous people, local forest official, village headman, forest dependant person, community patrol group, local leader, student and local school teacher. At least one Gibbon Conservation group will be formed in each site. Capacity building is another important key for conserving the nature. Four training workshops will be organized for local Forest Department and local co-management committee to raise awareness towards the conservation of the gibbon and its habitat in each site. A significant number of school education programs will also be organized at the nearest schools of gibbon habitat to demonstrate the importance of the gibbon among the school children.

C. Restoration and protection of the gibbon habitats

Currently, all the gibbon habitats are managed and protected by Bangladesh Forest Department. Forest Department has institutional and legal authority to save the hoolock gibbon as well as other

wildlife. Along with Forest Department, Co-Management Committees (CMC) was formed by the Government of Bangladesh for raising awareness and participation of local people for forest conservation. Regular communication among Forest Department, CMC, Gibbon Conservation Group and Forest Dependant people needs to be ensured to minimize the threat of the gibbon habitat. Bangladesh Forest Department has planted native tree species in many forested areas of Bangladesh. GIS mapping and habitat fragmentation study will be undertaken for pursuing the Forest Department to take a definitive step towards habitat enrichment plantation in vacant areas within the gibbon habitats to make continuity of the canopies.

D. Habitat fragmentation assess and GIS Mapping

Fragment isolation and connectivity is a central concern of wildlife conservation science. Most of the gibbons inhabited areas are highly fragmented, which are also losing the connectivity between smaller populations. Habitat fragmentation is known to influence the foraging and activity pattern, social organization, physiological condition and disease and genetic diversity of wildlife. Fragmentation studies of gibbon will be carried out through distance-based isolation metrics such as the distance to the nearest fragment (Bender et al., 2003). Fragmentation metrics will be calculated using GIS-based software packages. We will categorize land-cover type of the habitat fragmentation areas based on Vasudev and Fletcher (2014): (a) open (no trees present within a 15 m radius, a distance sufficiently larger than records of gibbon movement including river, or fallow patches, (b) monoculture plantations (plantations), (c) closed canopy regions, and (d) scrub vegetation (vegetated area by shrubs and herbs).

E. Food availability assessed within the selected gibbon habitats

Tree canopy, vegetation type, and disturbance level are considered as important variables for arboreal primates that principally feed from leaves or fruits (Arroyo-Rodríguez and Mandujano, 2006). Tree size is an indicator of food availability and that will be measured using the diameter at breast height (DBH) of trees, their basal areas and assessing the number of large trees (Chapman et al., 1992). We will consider trees >10 cm DBH for counting. Abundance of fruiting trees will be checked against the previous study (Ahsan, 1994) which was conducted in same type of landscape. Vegetation structure will be analyzed by quadrat sampling method. Possibility of habitat connectivity of gibbon will be analyzed by the remote sensing and forest coverage with proper GIS mapping.

6. Location of the Project

Population census will be conducted in all the available gibbon habitats in Bangladesh (Figure 1). Community conservation initiatives will be taken in four different locations (Inani Reserved Forest, Bangdheba, Kaptai National Park, and Lawachhara National Park). These activities will be expanded to whole gibbon habitat in future.

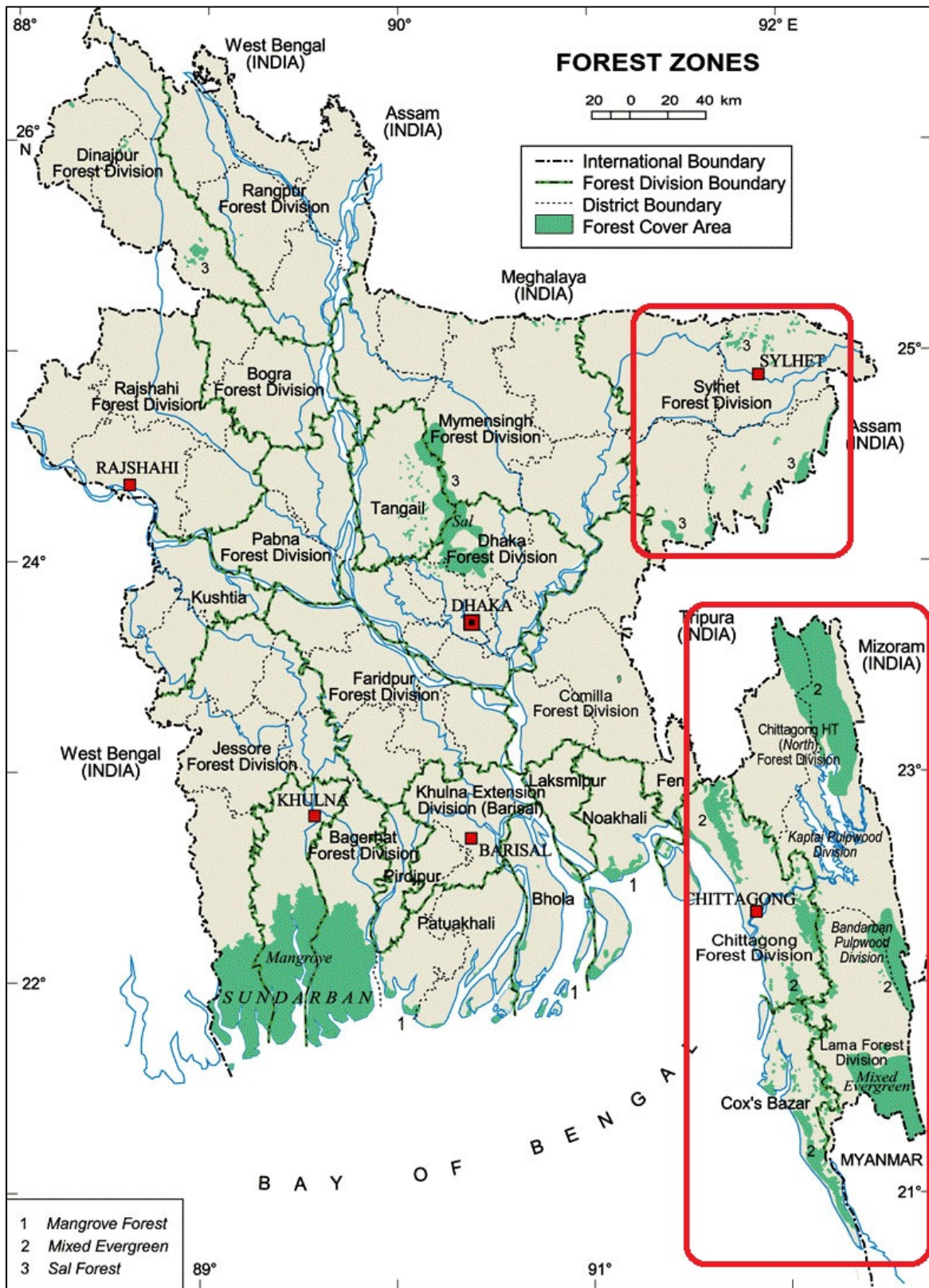


Figure 1. Map of the forested areas of Bangladesh (Red rectangles indicate the project gibbon habitats of Bangladesh)

7. Sustainability of the Project

Principal investigator has received a small grant (AUD 3000) from “Save the Gibbon Conservation Grant 2016” for the initiative of conservation approach in Southern part of Bangladesh. The proposed project is a further extension of the model that is under current implementation. Project personnel will have to look for further funding opportunities for ensuring the sustainability of the project. The project will also explore further possibilities to engage Government and Private sectors to ensure sustainable primate conservation in Bangladesh.

8. Budget of the Proposed Proposal

Total amount requested budget for this project is (US\$) 7610.

Activities	No.	Unit	Unit cost (US\$)	Total (US\$)	From GCA (US\$)	From SSA (US\$)	Justification
A. Honorarium							
1. Honorarium for local research assistant	2	Person	450	900	900	-	Two fulltime local assistants for Southern and Northeast part
1. Honorarium for local assistants	50	Day	8	400	400	-	Per diem for the researchers
2. Honorarium GIS Mapping	1	Person	300	300	300	-	Hiring consultant for GIS mapping
3. Honorarium for field investigator	100	Days	10	1000	1000	-	Honorarium for field investigator in daily basis
B. Field Survey							
Travel cost							
1. Travels	LS			1000	800	200	Support during the
2. Accommodation	100	Night	10	1000	800	200	Hotel fare and staying
3. Meals	100	Day	10	1000	800	200	Meals including local
C. Community works							
1. Meeting with community people & Capacity	10	Number	70	700	560	140	Community involvement activities
2. Meeting with Forest Department	4	Number	50	200	200	-	Community involvement activities
3. Gibbon Conservation Group formation meeting	12	Number	60	720	600	120	Community involvement activities
4. School education program	10	Number	50	500	400	100	Community involvement activities
5. Awareness material development	LS	-	-	300	300	-	Community involvement activities
6. Supporting cost	LS	-	-	100	100	-	For stationeries,
D. Logistics Support							
1. Printer	1	Number	150	150	150	-	Supporting cost
2. Stationery and Misc. cost	LS	-	-	300	300	-	Supporting cost
Total				8570	7610	960	

9. Finance Management

All financial activities were calculated at a minimum cost. Most of the gibbon habitats of Bangladesh are situated in remote areas. At that reason, cost will be higher than the normal. Financial transparency should be made by maintaining the original voucher for each field trip and submitted to the concern authorities during the report submission. All the equipments such as Binocular, GPS and Laptop will be collected from the personal loan without paying any cost which is also minimize the cost. Honorariums of the field investigator are considered at a minimum rate which is supported for the additional cost during field visit. Most of the cases project personnels will be acted as voluntary service.

10. Timeline of this Project.

Name of activities	2017				2018							
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug
Population census												
Habitat fragmentation & GIS mapping												
Formation Gibbon Conservation Group												
Meeting with Forest Department												
Meeting with local community												
Awareness Program												
Awareness material development												
Report writing												
Searching fund												

11. Assessing the Progress

Sl no.	Name of the activity	Criteria
1	Estimate the gibbon population	No. of location surveyed
2	Awareness development and capacity building of Forest Department, local community	No. of awareness campaign, meeting held, perception to local community
3	Restore and protection of the gibbon habitat	Minimize the forest dependency among local community, commitment of the Forest Department, CMC and local community

4	Assess the habitat fragmentation of the gibbon and GIS Mapping	No of location surveyed and GIS mapping
5	Food availability of the selected gibbon habitat	Report

11. References

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12. Qualification of the Project Personnels

Summary of the CV of M Tarik Kabir

M Tarik Kabir has obtained MPhil on primate ecology. He has vast experience in the field of Wildlife Research, Conservation and Management. He worked in Bangladesh Forest Department as ‘Wildlife and Biodiversity Conservation Officer’ during April 2012 to July 2015. Currently he is serving in IUCN Bangladesh as a ‘Wildlife Biologist’ in community oriented conservation activities. He has published more than 10 scientific articles in different National and International

Journals. Moreover, he attended the 3-Month Wildlife Management Certificate Course from the Wildlife Institute of India, Dehra Dun, Uttarakhand, India. He has also conducted a small grant Western hoolock gibbon project.

Summary of the CV of M Farid Ahsan

Professor Md. Farid Ahsan did his MPhil degree on “Primates of Bangladesh” from the University of Dhaka in 1986. He obtained PhD degree on the “Hoolock gibbon in Bangladesh” under the Commonwealth Academic Award Programme from the University of Cambridge, UK in 1994. He is servicing as a teacher in the Department of Zoology, University of Chittagong, Chittagong, Bangladesh since 1982. Prof. Ahsan a zoologist and specialised in wildlife ecology and has broad experience and knowledge at field levels in Bangladesh on wildlife research and captive breeding aspects of reptiles especially on snakes, turtles and monitor lizards. He has published 101 scientific articles in national and international journals. He has supervised research works of two PhD, six MPhil, 45 MS/MSc, and 28 BSc Honours students. He has attended many conferences, seminars and workshops with paper presentation at home and abroad. He is a member of many learned societies of home and abroad including IUCN (SSC) Primate Specialist Group, Asia (since 1988), IUCN (SSC) South Asian Reptile & Amphibian Specialist Group and CBSG (Conservation Breeding Specialist Group) South Asia. He is also a member of the Bangladesh Wildlife Advisory Board, Ministry of Environment and Forests, Government of the People’s Republic of Bangladesh.

Summary of the CV of M Abdullah Abu Diyan

M Abdullah Abu Diyan has been working for conservation and GIS for last 10 years at different organizations and countries. Diyan currently offers services as an independent Conservation GIS and remote sensing analyst to conservation related organizations and individual researchers in Bangladesh; and a part-time lecturer at North South University. Diyan is also a certified *Juniper GIS* trainer authorized to provide GIS trainings based on materials developed by *Juniper GIS* (www.junipergis.com) that are recognized internationally; and a board member of the Society for Conservation GIS (www.scgis.org). USAID, WCS, Birds Australia, SCGIS, UN WFP, IUCN are some of the previous notable organizations that Diyan was worked with as consultant.

Summary of the CV of M Mizanur Rahman

M Mizanur Rahman has been working in the field of wildlife in last seven years. After completing the Master of Science from Zoology with specialization in Wildlife and Conservation Biology from the University of Chittagong, Chittagong, Bangladesh he has been involved in the field wildlife conservation and management. He was a part of many wildlife survey programs in Bangladesh. Currently he is working in wildlife & their habitat monitoring in Bangladesh.

Summary of the CV of Ayesha Khatoon

Ayesha Khatoon obtained MPhil on Biostatistics in 2011. She has experienced on data analysis, data collection and data sorting. She also took part in wildlife and biodiversity surveys in wildlife habitat in Bangladesh.