

(II) Population survey of *Hoolock leuconedys* (Eastern Hoolock Gibbon) in Dello village of Arunachal Pradesh

Hoolock leuconedys is a Schedule 1 species of the Indian Wildlife (Protection) Act of 1972. It is listed as vulnerable in the Red List of Threatened Species of IUCN and included in Appendix 1 of CITES. The primate is well known distributed in Assam and Arunachal Pradesh of North Eastern part of India. Earlier, it was believed to be found only in the eastern region of Chindwin River to the Salween River in Myanmar and South-Western Yunnan Province in China (Groves, 1971). The status of Eastern hoolock gibbon in Arunachal Pradesh was reported by Das *et al.* in 2006, between the Lohit River in the north and the high mountains of Dafa bum in the south. The species is also found in Sadiya Division, the easternmost part of the state of Assam, on the south bank of the Dibang-Brahmaputra River system (Chetry *et al.*, 2010).

Located on the south of Mehao Wildlife Sanctuary, the village, Dello is covered with semi evergreen and mixed deciduous forests. The main habitant of Dello village is *Idu Mishimis* community. The villagers depend on agriculture for their livelihoods. They cultivate staple foods like rice, maize, and millet, apart from bush meat. They also eat wild vegetables, roots, tubers, and fruit. The village is considered as an important place for the survival of Eastern hoolock gibbon. The existence of gibbon in Dello village is mostly due to the *Idu mishimis* community who is a strict taboo on gibbon populations. Even the animal die, they do not go to that particular place for 5 days and do some religious/cultural ceremony. The community still believes the animal as their forefathers and come to serve them for their good living, not to harm others. Therefore, they do not hunt nor poach. Further, the primates do not harm the village agricultural crops and fruit trees, they rarely come down to land when the fruit is over or been disturbed by stray or domestic dogs. At present, the sign of extensive felling and clearing of large trees from the village led to the degradation and extensive fragmentation of the habitat, affecting the population status of Eastern hoolock gibbon inhabiting the area. The habitat offers practically no opportunity for the gibbons to forage optimally. The situation is typically a

case of wildlife in crisis and distress. The gibbons living in isolated clumps of trees may not be able to survive as a self-sustainable population for long. The only way to address the situation is to rescue and translocate the stranded individuals to suitable habitats nearby. A collaborative attempt has been undertaken to translocate the only apes to different areas in Mehao Wildlife Sanctuary, Arunachal Pradesh.

A field survey in Dello village was done from the early month of July, 2009 till the end of November, 2009. Using a questionnaire, the author interviewed the village head and other local people to assess the present population of Eastern hoolock gibbon inside Dello village. Preferably overcome the mortality and fatality rate of primates in the surrounding environment. Such personal interviews provide opportunity to evaluate the validity of the respondent's answers by observing nonverbal indicators. The primary data were collected through structured and open-ended questionnaires; secondary data were collected from published and unpublished reports, research papers and articles, as well as through interviews of forest department officials. Transect walk was done on the basis of secondary information gathered from forest staff on presence of Eastern hoolock gibbon in the study area. With the help of Global Positioning System (GPS) to record signs such as song bouts, presence of male and female, infants and their roosting and fruiting tree species, etc. that indicate use of sites by Eastern hoolock gibbon. Temperature and weather also affect the frequency and occurrence of Hoolock gibbon call bouts (Ahsan, 2001).

Activity format for data collection

The author identified 39 individuals from 14 families of Eastern hoolock gibbon in Dello village. Out of this, 4 families had no baby, only a single male and female were living together while one family had only male member, observed in the survey grid. The remaining 9 families had one or more babies approximately age range from 5/6 months, 1 years or less than 2 years as identified.

Time	Species	Activities/Behavior			Distance			Gps	Remarks
		Act	Cat	Type	Mate	Cage	Ground		
	Male								
	Female								
	Sub Adult								
	Young								
	Baby								
	Vocal								

Table 1 : Population survey of eastern hoolock gibbon in Dello village.

Sl.No.	GPS location	Male	Female	Adult	Baby	Specific tree
1.	28 03 11.0 95 54 07.4	1	NIL	NIL	NIL	<i>Ficus carica</i>
2.	28 02 49.7 95 54 12.6	1	1	NIL	1	<i>Terminalia arjuna</i>
3	28 02 14.2 95 56 04.9	1	1	1 (male)	1	<i>Ficus carica</i>
4	28 03 30.3 95 54 14.3	1	1	NIL	NIL	<i>Anthocephalus cadamba</i>
5	28 02 52.6 95 54 05.1	1	1	NIL	NIL	<i>Hevea brasiliensis</i>
6	28 02 57.2 95 54 20.7	1	1	NIL	NIL	<i>Ficus benghalensis</i>
7	28 02 28.5 95 52 51.9	1	1	NIL	1	<i>Ficus carica</i>
8	28 02 28.5 95 52 51.9	1	1	NIL	1	<i>Ficus religiosa</i>
9	28 02 01.4 95 53 44.3	1	1	NIL	NIL	<i>Ficus carica</i>
10	28 02 15.0 95 54 08.5	1	1	1 (male)	NIL	<i>Terminalia arjuna</i>
11	28 02 01.7 95 54 23.1	1	1	1 (male)	1	<i>Ficus benghalensis</i>
12	28 02 01.7 95 54 23.1	1	1	1(male)	1	<i>Ficus carica</i>
13	28 02 08.4 95 54 12.1	1	1	NIL	1	<i>Albizia odoratissima</i>
14	28 02 45.2 95 54 57.6	1	1	NIL	1	<i>Bambusa bamboos</i>

Majority of the gibbons' member chose *Ficus carica* tree apart from buds, young shoots, leaves and insects. The primate was seen moving through, or sleeping in bamboo plantations and trees growing inside the village like of *Terminalia myriocarpa*, *Dillenia indica*, *Lagerstroemia flosreginae* *Anthocephalus cadamba*, *Terminalia sp.* *Albizia lebbek* or even *hevea brasiliensis*. The species also depended on vegetable crops (*Zea mays*, *Brassica campestris*) and other fruit tree (*Musa paradisiaca*, *Carica papaya*, *Pyrus Spp*, *Psidium guajava*) for extra supplement. Studies revealed that gibbon preferred to take diet like ripe fruits with some flowers, leaves and shoot, sometimes depends on small insect for stomach tonic. The population survey of Eastern hoolock gibbon in Dello village is baseline information to formulate specific action plan for translocation and reintroduction programme. In very rare instances, translocation of a species or subspecies into an area outside a taxon's indigenous range may be conducted to restore ecological function to the site that has been lost through the global or regional extinction of another species; defined as a Conservation Introduction with Ecological Replacement (IUCN SSC, 2013). The population survey of Eastern hoolock gibbon at Dello village is to translocate and reintroduce the stranded individuals to a suitable habitat. A collaborative attempt has been undertaken to translocate these groups of vulnerable primates to different areas in Mehao Wildlife Sanctuary of Arunachal

Pradesh. Many authors suggest that translocation programme of gibbon is relatively a new science with projects testing and conducting innovative work in many countries in Southeast Asia countries. Less work is done on gibbon translocation programme, only a few paper published is available at present. So, the results of rescue and translocation efforts must be published and made available in order to improve general practice and understanding of the science. Depending on the status of a chosen release site, the involvement of local authorities may vary, but each translocation programme will invariably require permission from relevant government agencies. Government policy on translocation may vary and it is important to consider provincial, national and international legislation and regulations to ensure there is a legal basis for translocation and that appropriate permissions are granted prior to proceeding (Beck *et al.*, 2007).

The presence of Eastern hoolock gibbon in Dello village is due to the conservation instinct of *Idu mishmi* population. They regard the gibbon as their forefathers and never dare to harm in any way. Even on the primate's death, they do not watch nor go near the dead area for 5 consecutive days, mourn with custom ceremony. Besides, Eastern hoolock gibbon is scientifically known as seed dispersers because of the frugitarian style of habit in nature. Therefore, the need of time is the conservation

effort of this primate for maintenance of biodiversity and environmental stability. As Chetry and Chetry, 2011 reported, the Government of India is not serious enough about the conservation issues affecting the country only ape species.

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