

# Primates in Northeast India: An Overview of their Distribution and Conservation Status

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## Introduction

Northeast India comprising the states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura (21°58'–29°27' N, 89°42'–97°24' E) has the highest primate diversity in India. Nine species have so far been recorded while another 3 reported need confirmation. Although, the distribution range of these species has remained almost the same, expansion of human habitation, destruction of habitat for agriculture including *jhum* cultivation, and poaching have resulted in a sharp decline in the populations, besides severely fragmenting their habitat. Developing a long-term strategy for primate conservation is of utmost importance, given the rapid loss of habitat and poaching. Due to fragmentation, a number of small and isolated populations are formed and only parts of this population are protected under the Protected Area network. The northeast has a tropical monsoon climate with a hot and wet summer and a cool and usually dry winter. The average temperature ranges from less than 4° (average minimum, December to early February) to 30°C (average maximum, June to August) (range: 0° to above 38°C). The annual rainfall ranges from less than 1,000 mm in parts of central Assam to more than 10,000 mm in parts of the southern face of the Meghalaya

## Abstract

Northeast India has the highest diversity of primates in India, with 9 confirmed species records and 3 other species whose sightings need confirmation. Although, the general range of primates has remained almost the same, expansion of human habitation, destruction of habitat, and poaching has resulted in the sharp decline of their populations, besides severely fragmenting their habitat. For conservation of these species, many of which are globally endangered, developing long-term strategy is of utmost importance. Although, a majority of the population is protected in the various Parks and Sanctuaries, the coverage is still inadequate.

plateau and the foot of the Mishmi Hills. 75% of the rainfall is from the monsoon (May to September), while winter rains are not uncommon. The higher areas of the Eastern Himalayas, Mishmi Hills and the Saramati Peak experience snowfall in winter.

Historical information on primate distribution are found in Branford (1888–91), Ellerman & Morrison-Scott (1951), Finn (1929), McCann (1933a, b, c, 1942), Pocock (1928, 1931, 1939) and Wroughton (1916). Valuable information is also found in other studies (Choudhury, 1986, 1990b, 1993, 1998a;

Corbet & Hill, 1992; Gee, 1964; Napier & Napier, 1967; Prater, 1948; Roonwal & Mohnot, 1977; Tikader, 1983). Noteworthy works on the Golden langur included Gee (1956, 1961), Khajuria (1956, 1962b), Mukherjee (1978), Oboussier & Maydell (1959, 1960) and Choudhury (1992a). On the Capped langur, there are Khajuria (1962a), and Choudhury (1989b). Phayre's langur had been studied in Tripura (Mukherjee, 1982; Gupta & Kumar, 1994; Gupta, 1998) and in southern Assam (Choudhury, 1988c, 1990b). Hoolock gibbons had been studied in Assam (Tilson, 1979; Choudhury, 1991; Kakati, 1998), Arunachal Pradesh (Mukherjee *et al.*, 1988) and Meghalaya (Alfred, 1992; Alfred & Sati, 1990). The Slow loris has been virtually untouched save for a regional review (Choudhury, 1992b).

State-wise works covering primates in general were carried out in Arunachal Pradesh (Choudhury, 2001), Assam (Choudhury 1989c, 1997a), Manipur (Choudhury, 1989a) Meghalaya (Choudhury, 1998b), Mizoram (Mishra *et al.*, 1994) and Tripura (Gupta, 1994). Recently the distribution of primates in Assam and Arunachal Pradesh has been mapped (Choudhury, 2001). In this article, species accounts of the primates recorded from the northeast forest of India are reported.

### **Slow Loris (*Nycticebus coucang*)**

Distributed in all the northeast states, on both banks of the Brahmaputra river, it is scarce in the northern bank, and occurs from the floodplains (Dibru-Saikhowa National Park, Assam) to the mountains (Mehao Sanctuary, Arunachal Pradesh). Recorded up to 2,400 m in eastern Arunachal Pradesh, this species prefers dense evergreen forests. The distribution of this species in the region has been

mapped by Choudhury (1992b). Recorded in at least 43 Protected Areas of the region, its presence has been doubted in 2 others (Table 1).

### **Pig-tailed Macaque (*Macaca nemestrina*)**

Its distribution was imperfectly known and vaguely referred to as 'eastern India (probably some districts east of the Ganges)' (Pocock, 1939), and 'Assam' (Roonwal & Mohnot, 1977). Presently it is restricted to the south bank of the Brahmaputra river, and occurs in all the northeast states (Choudhury, 1989c). Overall scarce, but locally common in Garampani, and Bherjan–Borajan–Podumoni Sanctuaries, the species occurs from the floodplains (Dibru-Saikhowa National Park) to more than 2,000 m in Mishmi Hills, preferring dense evergreen and semi-evergreen forests. Recorded in at least 24 Protected Areas of the region, it possibly occurs in 9 more (Table 1).

### **Assamese Macaque (*M. assamensis*)**

Distributed in all the northeast states, on both banks of the Brahmaputra river, it is the most abundant primate in the mountains of Arunachal Pradesh. This species occurs from the floodplains (Dibru-Saikhowa National Park) to the high mountains (Dibang Sanctuary, Arunachal Pradesh), up to 2,800 m (rarely to 3,000 m, especially in summer) in Arunachal Pradesh, and prefers dense forests. Recorded in at least 41 Protected Areas of the region, its presence has been doubted in 4 others (Table 1).

### **Père David's or Tibetan Macaque (*M. thibetana*)**

This species was sighted in West Kameng district of Arunachal Pradesh (Choudhury, 1998c), recorded from 1,900 m to 2,700 m in



temperate broadleaf forests. Fieldwork is necessary to confirm the presence of this species, as the nearest known locality is at least 1,000 km away in South-Central China. It does not seem to belong to either of the known races of the Assamese macaque, however, it is also likely that this could be a new subspecies of *M. assamensis*.

#### **Rhesus Macaque (*M. mulatta*)**

Recorded in all the northeast states, on both banks of the Brahmaputra river, it is common in Assam. In Arunachal Pradesh, this species is mostly confined to the foothills and adjacent plains, it occurs from the floodplains to about 2,000 m. Found in dense forests, light woodlands as well as near human habitations, it has been recorded in at least 43 Protected Areas of the region while it is likely to occur in 10 more (Table 1).

#### **Stump-tailed Macaque (*M. arctoides*)**

Like *M. nemestrina*, its distribution is restricted to the south bank of the Brahmaputra river (Choudhury, 1988a). It is very scarce all over its range in northeastern India, occurs in the foothills, hills and mountains and there are records from plains too (Gibbon Sanctuary, Assam), up to above 2,000 m. This species prefers dense evergreen forests and has been reported in about 24 Protected Areas of the region while its presence has been doubted in 7 others. The Barail Range in Assam is a key area for the species and it is relatively common in the mountains of Nagaland, Manipur and eastern Mizoram (Table 1).

#### **Hanuman or Common Langur (*Semnopithecus entellus*)**

The easternmost limit in India is the Rydak river in north Bengal (Choudhury, 1997), and

all earlier reports of this species in the northeast (Chatterjee, 1989; Corbet & Hill, 1992; Kaul, 1999; Khati, 1995) appeared to be a misidentification of the Capped langur.

#### **Phayre's Langur (*Trachypithecus Phayrei*)**

Restricted to the southern areas in Tripura, Barak Valley districts of Assam and Mizoram, the species is scarce but locally common at many places. It occurs till an elevation of 1,000 m. It prefers evergreen and semi-evergreen forests but is well at home in bamboo brakes and light woodlands. It has been recorded in 5 Protected Areas of the region while it is likely to be present in 6 more (Table 1).

#### **Capped Langur (*T. Pileatus*)**

Distributed in all the northeast states, on both banks of the Brahmaputra river, it is absent west of the Manas river where *T. geei* occurs, and also between the Siang and the Dibang rivers. This is the most common langur in the region, occurring from the floodplains (Kaziranga National Park) to about 2,800 m in the Eastern Himalayas. Found in dense forests as well as in light woodlands, it has been recorded in at least 43 Protected Areas of the region while its presence has been doubted in 4 others (Table 1).

#### **Golden Langur (*T. geei*)**

This species is restricted to the western areas in three districts of Assam, while the rivers Brahmaputra, Manas and Sankosh form the southern, eastern and western limits of its distribution. It is overall scarce but locally common at places, and prefers dense as well as light forests. It has been recorded in 2 Protected Areas of western Assam (Table 1).



### Hoolock Gibbon (*Bunopithecus hoolock*)

Like *Macaca arctoides* and *M. nemestrina*, its distribution is restricted to the south bank of the Brahmaputra and east bank of the Dibang river. It has become rare all over its range although it is still widely distributed and locally common in some areas. It occurs from the floodplains to the mountains, and has been recorded up to 2,500 m in Manipur. This species prefers dense evergreen and semi-evergreen forests. Found in about 30 protected areas of the region, its presence has been doubted in 3 others (Table 1). In Tinsukia district of eastern Assam, this species has been recorded in some village woodlands.

### Conservation Problems

#### Habitat destruction

Habitat destruction by logging, encroachment, *jhum* (slash-and-burn shifting cultivation practised by the hill tribes), and monoculture forest plantation is a major threat to the survival of the primates, which they share in general with all other forest-dwelling, especially arboreal animals. The forest cover in Northeast India is disappearing at an alarming rate, with more than 1,000 km<sup>2</sup> of forest destroyed annually in 1970s and 1980s (data from the National Remote Sensing Agency, Hyderabad). This is further exhibited in states like Meghalaya where the forest cover has declined from 33.1% in 1980–82 (National Remote Sensing Agency, Hyderabad) to 18% in 1993 (FSI, 1997) and in Arunachal Pradesh, where between 1989–90 and 1991–92, 334 km<sup>2</sup> of dense forest has been lost (FSI, 1993, 1995). Since most of the primates are forest-dwellers, their survival depends upon the continued existence of the forest cover.

Encroachment is also a problem in the reserved forests. In the Balipara RF of Sonitpur

district, Assam, a good area for the Capped langur, more than 100 out of 188 km<sup>2</sup> is under encroachment and forest villages, while about a third of Golden langur habitat was lost due to felling and encroachment in 1990's. Almost the entire population of primates (Slow loris, Pig-tailed macaque, Assamese macaque, Rhesus macaque, Stump-tailed macaque, Capped langur and Hoolock gibbon have vanished from the 900 km<sup>2</sup> rainforest tract comprising Nambor (south block), Diphu, and Rengma RFs in Golaghat district (Assam) because of border problem with Nagaland and subsequent felling, poaching and encroachment, between 1970s and 1980s.

In the hilly areas throughout the northeast, *jhum* cultivation is an important factor of forest destruction. As seen in Manipur with a total area of 22,327 km<sup>2</sup>, *jhum* currently covers more than 1,800 km<sup>2</sup> (8.2%) of the total area. Even in the hilly areas of Assam, the area under current *jhum* is more than 2,600 km<sup>2</sup>. The destruction of forest is not only reducing the habitat and number of primates but also results in fragmentation, and species such as the Slow loris and Hoolock gibbon suffer most due to this.

#### Poaching

Killing primates for their meat is a serious threat in parts of Assam (mainly North Cachar Hills, parts of Cachar, Assam–Nagaland border, and Assam–Mizoram border areas), central and eastern Arunachal Pradesh, parts of Meghalaya and Tripura, hill districts of Manipur, and entire Nagaland and Mizoram. Tribes such as the *Nagas*, *Kukis* (including *Hmar*, *Paite*, *Biate*), *Mizos*, *Chakmas*, *Tipperas*, *Adis*, and *Nishis* (formerly *Dafflas*), relish primate meat and regularly hunt them. *Tangsas*, *Garos*, *Khasis*, *Lais (Pawis)*, *Maras (Lakhers)* and *Reangs* also kill primates for food.



### Other problems

Unscientific harvesting of bamboo for large paper mills (at Jagiroad, Panchgram, and Joghopa in Assam, and Tuli in Nagaland), and oil mining and exploration (eastern Assam and adjacent areas of Arunachal Pradesh), open-cast coal mining (eastern Assam and parts of Meghalaya) are some of the other conservation problems which are not only destroying the habitat but are also causing pollution and disturbance. Depredation in the crop fields, vegetable gardens and orchards by the Rhesus macaque is a serious problem in parts of Assam. Villagers often invite hunters, especially Nagas to shoot the monkeys (Choudhury, 1988b). The Assamese macaques also raid crops, especially in *jhum* areas. There are occasional reports of other species such as the Pig-tailed macaque (near Borajan RF, Assam) and Stump-tailed macaque (near Dampa Rengpui in Mizoram, also in the Garo and Khasi Hills) coming to the fields. There is at least one record of the Capped langur visiting crop fields and orchards in a disturbed habitat (near Gharmura in Innerline RF, Hailakandi district).

### Conservation Measures Taken

#### Legal protection

Many species are protected under Schedule I (*Nycticebus coucang*, *Trachypithecus phayrei*, *T. pileatus*, *T. geei*, *Bunopithecus hoolock*) and Part I of Schedule II (*Macaca nemestrina*, *M. assamensis*, *M. mulatta*, *M. arctoides*, *Semnopithecus entellus*) of the Wildlife (Protection) Act 1971, which prohibits their killing or capture dead or alive. However, enforcement in the field is virtually nonexistent except in the Protected Areas. Most locals are also unaware of such legal status.

### Habitat protection

Forty-nine notified Protected Areas in the region have primate populations, the diversity ranging from a single species (Orang National Park, Assam) to 8 species (Dampa Sanctuary, Mizoram). However, the cover of the PA network is very insignificant, accounting for only 5.8% of the total geographical area of the region.

### Discussion

The northeast region has the richest primate diversity in India, largely due to its location in the transitional zone between the Indian and Indo-Chinese sub-regions. The pattern of distribution of different species and the role of rivers, both large (Brahmaputra and Dibang) and small (Sankosh, Manas and Barak) as zoogeographic barriers in dispersal is intriguing. Except for the Golden langur and Phayre's langur, all other species have a large extent of occurrence in the region. The Rhesus macaque, Capped langur and the Assamese macaque are the most abundant species. Among the doubtful species, the occurrence of the Hanuman langur could be ruled out but that of the Silvered leaf monkey and Père David's macaque (*M. thibetana*) need further investigation. Most primate populations are declining due to rapid loss of habitat (resulting in net loss and fragmentation) and poaching. The ban on logging imposed by the Supreme Court of India has greatly checked deforestation but once it is allowed, maybe on the basis of working plans, it will be disastrous as implementation of the prescriptions of the plan in the remote areas is virtually impossible.

Although most tribal communities hunt primates for food, there are some local taboos, which have helped in the conservation of some



species in many areas. The *Mishmis* do not hunt the Hoolock gibbon, and consequently it is common in Lohit and Dibang Valley districts. Most of the tribes do not like to take the meat of the Slow loris and hence, it is not pursued.

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**Table 1. Protected areas in northeast India with primate species (confirmed presence\*; presence doubtful –)**

Name of PA	Slow loris	Pig-tailed macaque	Assamese macaque	Rhesus macaque	Stump-tailed macaque	Phayre's langur	Capped langur	Golden langur	Hoolock gibbon
ASSAM									
Barnadi WS	*		*	*			*		
Bherjan-Borajan-Podumoni WS	*	*	*	*	Extinct		*		*
Burhachapori WS				*			–		
Chakrashila WS		–	*			*			
Dibru-Saikhowa NP	*	*	*	*			*		*
East Karbi Anglong WS	*	*	*	*	*		*		*
Garampani WS	*	*	*	*	*		*		*
Gibbon WS		*	*	*	*	*	*	*	
Kaziranga NP	*	–	*	*		*		*	
Karbi Anglong WS	*	*	*	*	*		*		*
Laokhowa WS				*			*		
Manas NP	*		*	*			*	*	
Nambor WS	*	*	*	*	*		*		*
Nameri NP	*		*	*			*		
Orang NP				*					
Pabitora WS				*					
Pani-Dihing BS				*					
Sonai-Rupai WS	*		*	*			*		
ARUNACHAL PRADESH									
D'Ering Memorial WS				*					
Dibang WS	–	–	*	–	–		*		–
Eaglenest WS	*		*	*			*		
Itanagar WS	*		*	*			*		
Kamlang WS	*	*	*	–	*		*		*
Kane WS		*		*	*			*	
Mehao WS	*	*	*	*	–		*		*
Mounting NP	*		*	–			*		
Namdapha NP	*	*	*	–	*		*		–
Pakhui WS	*		*	*			*		



Name of PA	Slow loris	Pig-tailed macaque	Assamese macaque	Rhesus macaque	Stump-tailed macaque	Phayre's langur	Capped langur	Golden langur	Hoolock gibbon
Sessa Orchid WS	*		*	*			*		
Taley Valley WS	*		*	–			*		
MANIPUR									
Bunning WS	*	–	*	*	*		*		–
Jiri-makru WS	*	*	*	*	*		*		*
Keilam Hill WS	*	*	*	*	*	–	*		*
Yangoupokpi-Lockchao WS	*	*	*	*	*		*		*
Zeiad WS	*	–	*	–	*		*		*
MEGHALAYA									
Balpakram NP	*	*	*	*	*		*		*
Nokrek NP	*	*	*	*	*		*		*
Nongkhyllem WS	*	*	*	*	*		*		*
Siju WS	*	*	*	*	*		*		*
MIZORAM									
Dama WS	*	*	*	*	*	*	*		*
Khawnglung WS	*	–	*	*	–	–	*		*
Lengtend WS	*	–	*	–	*	–	*		*
Murlen NP	*	–	*	–	*	–	*		*
Ngengpui WS	*	*	*	*	*	*	*		*
Phawngpi NP	*	*	*	*	*	–	*		*
NAGALAND									
Fakim WS	*	–	*	–	–		–		–
Intanki WS	*	*	*	*	*		*		*
Pulie-Badge WS	*	–	*	–	–		–		–
Rangaahar WS	–	Extinct	Extinct	*	Extinct		Extinct		Extinct
TRIPURA									
Gumti WS	*	*	–	*	*	*	*		*
Rowa WS	Extinct	Extinct	Extinct	*	Extinct	–	–		Extinct
Sepahijala WS	*	*	–	*	–	*	*		*
Trishna WS	*	*	–	*		*	*		*

