

# Status of Primates in Tripura

*A. K. Gupta*

## Introduction

Tripura is a small state, with a total area of 10,470 km<sup>2</sup>, located in Northeast India. This small geographical area, however, does not deprive this state of being one of the richest areas in biodiversity and biological resources. Tripura owes this rich biodiversity and copious wealth of biological resources to its unique Bio geographical (8B Assam Hills) and Zoogeographical (Indian sub-region of Oriental Zoogeographical Region) location and position. Although, by virtue of its location in Assam Hills, Tripura is part of the Indian sub-region of Oriental Zoogeographical Region, the flora and fauna in this state bear close resemblance to the floral and faunal components of Indo-Malayan and Indo-Chinese sub-regions of the Oriental Region. In addition to this, the flora and fauna in Tripura also has a close affinity with Ethiopian and Palaeartic Zoogeographical Regions.

Assam and the adjoining areas (Tripura included) hold a pivotal place in the historic process of progressive evolution of present day fauna of India as these served as effective gateways to floristic and faunal influx. This region served as a great faunal gateway through which not only the Indo-Chinese and Indo-Malayan elements of the Oriental fauna, but

also the fauna of Ethiopian and Palaeartic Regions could enter India and colonize the country. In more recent times, a geographical and climatic discontinuity has developed between Assam and the rest of India in the region of Garo–Rajmahal Gap visible as distinctive dispersal breaks. These breaks have since acted as filters and barriers in the effective dispersal of mammals either way. As a result of this, the region, which also includes Tripura, has remained the westernmost boundaries of the distribution range of many of the Indo-Chinese and Indo-Malayan mammals (certain squirrels), and the easternmost limit of the distribution of many peninsular species (e.g., Spotted Deer).

Tripura has an amazingly high density of primates all over the state, including some highly endangered species. Different survey teams from the Zoological Survey of India, Eastern Region, Calcutta have reported that of a total of 15 free-ranging primate species in India, 7 (46.7%) species are found in Tripura, which is the highest for any one Indian state. In 1989, based on the primate survey conducted by the author all over the state, a total of 287 groups of all the 7 primate species were located in Tripura (Gupta, 1996). In 1994, primate survey in Sepahijala Wildlife Sanctuary



revealed the presence of 5 species in very high density. In 1988, one more primate species was added to the list of the 7 free-ranging primates in the state, when 2 groups of the Golden langur (*Trachypithecus geei*) were re-released in the wild at Sepahijala and Trishna Wildlife Sanctuary (one group in each area). Of these 2 groups, the one in Sepahijala has survived well and with a suitable increase in its population size has further split into 2 sub-groups (Gupta & Mukherjee, 1994). Some primatologists (Mukherjee & Chakraborty 1992) and Chaudhury (this volume) have reported the presence of the Hanuman langur (*Semnopithecus entellus*) and Assamese macaque (*Macaca assamensis*) from Tripura, but the author did not find any of these 2 species in Tripura.

The present communication reports the present status and distribution of primates from the state and also gives a brief idea of their ecology and habitat requirements. Conservation issues faced by these primates are also discussed.

### Slow Loris (*Nycticebus coucang*)

Loris (2 species) are the only nocturnal (active during the night) species in this part of the world. Of these, the Slender loris (*Loris tardigradus*) is found in Sri Lanka and South India, while the Slow loris (*Nycticebus coucang*) prefers the densest parts of tropical rainforests in eastern India, that includes Tripura.

Locally known as '*lajjawati banar*', the Slow loris is a very docile and shy animal that sleeps through the day, rolled up as a ball. During hot weather and at nights it stretches out on a branch. In appearance, it is lanky, with a brown streak on its crown and dark markings on its pale brown face. Subtropical and tropical

evergreen, semi-evergreen rainforests (up to 1300 m) are its most preferred habitats, with its preference for tree holes and bamboo groves. Its diet includes shoots, fruit, insects, reptiles and birds, in fact, anything it can lay its 'hands on'. It sucks leaf sap from the leaf petioles, thus heaps of petiole-less leaves under a tree indicate its presence. True to its English name, the Slow loris is very slow in its movements. When hunting insects it never springs, but catches them with a sudden lunge, never letting go of the branch on which it maintains a tenacious grip. The Slow loris is found in small family groups. It breeds all year round, and the female give birth every 12–18 months. The gestation period is about 190 days. Infants become sexually mature in 18–20 months. Under captive conditions it is reported to live up to 20 years.

Habitat destruction (even moderate felling/logging) is the main cause of concern for the conservation of this species. In Tripura and many places in the northeast, *jhum* cultivation is highly detrimental to its survival. It is included in the Schedule I(I) of the Wildlife (Protection) Amendment Act, 1991. Due to the lack of scientific studies on the ecology and conservation of this species, the IUCN Red Data Book has categorized this species as 'Data Deficient,' and the CITES has placed it in Appendix II.

### Stump-tailed macaque (*Macaca arctoides*)

It was known as *Macaca speciosa* until 1976, when the present scientific name was given. There are 2 subspecies, namely, *M. a. arctoides* and *M. a. melanota*. The former is found in Tripura. Similar to other primates, this is also known by different local names in its distribution range. In Bengali, it is known as '*sinduri banar*'. If one is lucky, it can be sighted easily in Gumti Wildlife Sanctuary,



otherwise one may have to spend time searching for it.

The Stump-tailed macaque is terrestrial but spends a lot of time on trees as well. Just before day break, troops of up to 30 individuals head for their feeding grounds, and if there are any fig trees with ripe fruit, they will almost certainly be found there. They rest and groom during the afternoon, before descending for their last feeding bout in the evening till the roosting time. As group living macaques, they are very noisy at times, but are known to raid crops in absolute silence. They normally do not fear man. In fact, *Naga* tribes are said to be afraid of them, for they can be very ferocious and aggressive when made to run from their feeding grounds. Being mainly frugivorous (mainly fruit eating), they are likely to be affected adversely by habitat destruction and fragmentation that result in less plant species diversity. They would have less food species to choose from. They are also hunted both for food and as pests for '*Pan Jhum*', mostly in the Khasi Hills.

This species has been placed in Schedule II(1) of Wildlife (Protection) Act, 1972/1991, and Appendix to the CITES. The IUCN has ranked it as 'Vulnerable (VU A1(c)(d))'.

#### **Pig-tailed macaque (*M. nemestrina*)**

Four subspecies are reported, of which *M. nemestrina nemestrina* is found in Tripura, and is fairly common compared to the Stump-tailed macaque. These are found in almost all the major forested areas in the state and are easily seen in Sepahijala Wildlife Sanctuary. Locally it is also known as '*Sukar letch banar*' owing to its tail, which is short, dark reddish on top and carried half-erect like a pig's tail. It is one of the largest of the genus, with long

legs and an elongated muzzle. The Pig-tailed macaque inhabits the same forests as its Stump-tailed relative, but is more arboreal and keeps strictly to dense evergreen forests. Fruit and seeds constitute its main diet, while the animal prey (including nestling birds, insects, termite eggs, larvae) makes up for the second most important dietary component. Pig-tailed macaques tend to cover long distances in a day (average 1–3 km) for food. They are found in multi-male, multi-female groups, comprising about 20–45 individuals in a group. Lone adult males are also common (Sepahijala Wildlife Sanctuary). Breeding is reported every 2 years, and the gestation period is about 170 days.

The Pig-tailed macaque is one of the few monkey species found in the sub-continent, which faces a threat from human poachers. Certain *Naga* tribes seek its meat and it is in great demand in Southeast Asia for 'coconut picking'. This species is also in demand for HIV (AIDS Virus) research. Being frugivorous and a dietary specialist, it is much more susceptible to habitat destruction and fragmentation leading to the reduction in the availability of fruit crops round the year. This species is listed in the Schedule I of the Wildlife (Protection) Amendment Act, 1991, Appendix II of the CITES, and the Red Data Book of the IUCN has listed this species as 'Vulnerable (VU A1(c)(d))'.

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

It is commonly known as '*lal-mukh banar*', and is one of the commonest commensal primate species, which can be seen with great ease both in the forested and human habitation areas. Four subspecies are reported, of which *M. mulatta mulatta* is found in Tripura, while the others are *M. m. mcMahoni*, *M. m. vestita*,



*M. m. villosa*. The species is found all over the state, but without any definite population estimate.

The Rhesus macaque is diurnal, mostly terrestrial, and lives in large multi-male groups. A group may comprise > 35 individuals, though in a commensal habitat the group size may even cross 150 individuals. A group normally comprises adult males, females, juveniles, and infants. The relationship between adult males ranges from peaceful and even co-operative to highly antagonistic, while females are quite tolerant of each other. Grooming forms a major part of their daily activities, but it is the relationship of juveniles, which is the most fascinating. Little play groups of 3–4 young individuals display a natural exuberance rarely seen in other animals.

Rhesus macaques are generalists in their dietary requirements and mostly feed on the ground and can survive any habitat type due to their versatility. More than 100 plant species have been reported as food species for this species, though the staple diet may vary with the type of habitat. They may travel up to 4–5 km to meet their feeding needs. About 45% of the total activity time in a given day is spent on the feeding activity. Under captive conditions the life span is reported to be about 30 years. The females give birth to offspring every one to two years depending upon the habitat conditions.

There is no immediate threat to their conservation status. They pose a pest problem to the human population. Habitat destruction, however, remains the prime cause for concern compared to the other primate species in the region.

The Rhesus macaque is listed in Schedule II of the Wildlife (Conservation) Act, 1972, and

Appendix II of the CITES. The IUCN has ranked it as 'Lower Risk LR 2(nr)' species.

### Phayre's langur (*Trachypithecus phayrei*)

Phayre's langur, *Trachypithecus phayrei* (= *Presbytis phayrei*), belongs to the family Colobidae. Its previous synonyms are *Presbytis obscurus*. Three subspecies are identified, namely, *T. phayrei phayrei* (Bangladesh and India), *T. p. shanicus* (North Shan States and the area to the east of the river Irrawaddy in the dry zone of upper Myanmar), and *T. p. crepusculus* (central and southwest Thailand). *T. p. phayrei* is found in Tripura.

It is the 'State Animal' of Tripura. The most striking feature of this small, slender langur is a pale patch surrounding the mouth and eyes. White rings completely encircle the eyes, giving it an appearance of being bespectacled, hence it is commonly called *spectacled langur*, *chashma banar* or *dudhmukhi banar* in the local language. The shape and size of the white patches around the eyes differ in adult males and females. This ocular marking forms an easy tool in the identification of sexes, as in an adult male the white patches are almost circular or elliptical, whereas in an adult female these are almost triangular or cone-shaped. This difference in ocular marking is absent in neonates and infants. In neonates the face is uniformly pinkish brown without any differentiation around the eyes and lips. In infants of 6–7 months, the face colour starts changing into the adult colour (black), and at the same time the area surrounding the eyes and lips also starts turning white. Another distinguishing morphological feature is the presence of a tuft of hair as a longitudinal crest on the head.

In India, Phayre's langurs are confined to 3 northeastern states, the largest population



being in Tripura (Gupta, 1994). This species has also been reported recently from Assam (Choudhury, 1986) and Mizoram (Mishra *et al.*, unpublished report). In Assam and Mizoram, this species has been reported only from those areas (Cachar district in Assam and Dampa Wildlife Sanctuary in Mizoram) which are close to Tripura, and which were connected by dense evergreen forests in the recent past. Thus it seems highly probable that Phayre's langur groups might have migrated from Tripura to Assam and Mizoram in the recent past. Later, after the loss of those forestland connections, this migration stopped. In Assam, where primate surveys have been carried out all over the state (Choudhury, *pers.comm.*), no other population of Phayre's langur has been reported elsewhere, although the habitat is very similar. This, and the total absence of this species from other northeastern states, which had no land connections with Tripura, further confirm that the populations of Phayre's langur reported from Assam and Mizoram could have migrated from Tripura. It is surprising, though, that Manipur, Nagaland, Meghalaya and Arunachal Pradesh, falling in between the distribution range of this species that stretches from Bangladesh in the west to Thailand in the east, have no trace of this species.

In Tripura, Phayre's langurs are reported from all over the state, but more in the southern districts than in the western and northern districts (Mukherjee, 1982, Gupta 1994). Even within these districts their population is not distributed uniformly, but is concentrated in a few areas. In Tripura, they are sympatric with Capped langurs, Rhesus, Stump-tailed and Pig-tailed macaques, Slow loris and Hoolock gibbon (Gupta & Kumar, 1994). It inhabits a wide range of habitats, for example, dense natural patches of evergreen forests, semi-

evergreen forests, deciduous secondary forests of biotic origin (shifting cultivation, logging, clear felling, fire), and mixed forestry plantations of both timber and non-timber species, e.g., sal, garjan acacia, bahera, koroi, harish, radhachura, and so forth. The state has a vast area under rubber (*Hevea brasiliensis*) plantations, which these langurs share with Capped langurs. Of the 56 groups identified during the survey in 1989, most (46.4%) were recorded from secondary forests, followed by plantations (32.2%) and primary forests (21.4%) (Gupta, 1994).

The only authentic population status of the Phayre's langur, in its entire distribution range, is available from Tripura, India (Mukherjee, 1982; Gupta, 1994). In Bangladesh, Gittins & Akonda (1982) estimated the total population of *T. phayrei* at ca. 1,300. This species is considered seriously threatened in Myanmar, China, Vietnam, Thailand and Laos. No account of any systematic surveys and detailed studies on the ecology and conservation of this species is available. In Myanmar, the species is considered highly threatened due to extensive hunting around salt springs, to obtain its lime-induced gallstones (*bezor stones*) for medicinal purposes. Mukherjee (1982) counted 409 individuals in 36 groups from 3 partly surveyed districts in Tripura, with a very low population density (0.1 individuals/km<sup>2</sup>). Gupta (1994) conducted an extensive survey of primates in Tripura in 1989 and counted a total of 899 individuals from 56 groups (1.2 individuals/km<sup>2</sup>) in different parts of 3 districts. If the population figures from Sepahijala and Gumti Wildlife Sanctuaries are also added to the 1989 estimates, the total population is ca. 1000 individuals in the state (Gupta, 1996).

Phayre' langurs are arboreal and mainly folivores (leaf eating). They hardly descend to



the ground as all their needs are fulfilled on the treetops, but have been noted descending to the ground to feed, travel, and, negotiate the gaps in the tree canopy. They are extremely shy and take flight when approached. According to one study, they spend more than half their time feeding on leaves, and very little on fruit and other plant parts. In total, about 81 different plant species were used by a group in Sepahijala Wildlife Sanctuary, West Tripura for meeting their feeding needs *Albizia procera*, *A. stipulata*, *Acacia auriculiformis*, *Artocarpus chaplasha*, *A. lakoocha*, *Ficus racemosa*, *F. indica*, *F. bengalensis*, bamboo shoots, *Delonix regia* were identified as the main food trees (Gupta, 1996, 1998). They live in groups of 8–22 individuals comprising usually one adult male, 3–6 adult females, sub-adults, juveniles, and infants. Infants are born between November and March. The infants are golden brown in colour and mothers devote considerable time in rearing the infants. Adult males do not take any part in this act. Adult males let off 'kha kha kha' calls when alarmed, and as such there are 4 other different types of calls expressing different meanings in their social life. Each group normally has a definite home range, which is defended from other groups of the same species. The groups of other sympatric species, however, can use the same home range at the same time without any threat of conflict.

Eudey (1987) regarded this species as 'vulnerable' with a total conservation priority rating at '5'. This rating is based on various criteria, for example, degree of threat, taxonomic uniqueness, and association with other threatened primates. The degree of threat is proposed as 'vulnerable' for Phayre's langur. Since the total population of this species is far below 10,000 individuals, and is still on the decline

following habitat destruction, it may be appropriate to regard this species as 'endangered' or 'highly endangered'. In India, the conservation risk to this species has been recognized by placing it in the Schedule I of the Wildlife (Protection) Act, 1972/1991. The species shares this legal protection with the Hoolock gibbon, Capped langur, Golden langur, and Slow loris. It is placed in the Appendix II and IUCN has ranked it as 'Not Evaluated (NE)'.

In Tripura the state government has given this species further recognition by declaring it as the 'State Animal', and in establishing a wildlife protected area (Gumti Wildlife Sanctuary), specifically in recognition of the conservation risk to this species in the state.

#### Capped langur (*T. pileatus*)

This is locally known as 'Tupi (cap) banar (langur)' as the crown hairs form a distinct black cap-like structure.

The Capped langur (*T. pileatus*, formerly known as *Presbytis pileata*) belongs to the family Colobidae. Based on the differences in the general body colour, size, and skull structure, 5 different subspecies are identified. Of these *T. pileatus durga* is found in Tripura, while the 4 subspecies are *T. p. pileatus*, *T. p. tenebricus*, *T. p. brahma*, and *T. p. shortridgei*.

However, in India these species are present in all 7 northeastern states unlike Phayre's langur. In Tripura, similar to the distribution of Phayre's langurs, Capped langurs are reported from all 3 districts (south, north, and west), but more in the south district (Mukherjee & Chakraborty, 1992 Gupta, 1994). In Tripura, Capped langurs are sympatric (sharing the same habitat) with 7 other primate species (including the introduced Golden langur group



in Sepahijala Wildlife Sanctuary, and occupy almost the same habitat as described for Phayre's langurs in the preceding section. Unlike Phayre's langurs, who were found more in secondary forests, the Capped langurs are reported more in primary forests (50%), than in secondary (30%), and plantation forests (20%) (Gupta, 1994).

In India, population estimates are available from Gharmura in Cachar district of Assam, where Choudhury (1989) encountered 10 groups with a total population of about 110 individuals. In Tripura, Mukherjee and Chakraborty (1992) documented 16 groups in 3 districts, with a total population of 108 individuals. Gupta (1994) counted 165 individuals from 30 groups (population density = 0.2 individuals/km<sup>2</sup>) of Capped langurs in 3 districts (Gupta 1994). In Gumti Wildlife Sanctuary, in an area of 0.66 km<sup>2</sup>, the population density of 2 groups of Capped langur was 19.7 individuals/km<sup>2</sup>, and in Sepahijala Wildlife Sanctuary, 18 groups were counted with a population density of 5.3 individuals/km<sup>2</sup> (Gupta, 1994). No authentic reports on the population status of this species are available from Arunachal Pradesh, Meghalaya, Manipur, Nagaland, and Mizoram.

Capped langurs prefer dry tropical forests and dense evergreen jungles. Only during the dry season do they leave the tree shade to drink. They are extremely shy, either taking flight through the trees or sitting absolutely still when approached. They are highly arboreal and live in groups of about 5 to more than 20 individuals, including one adult male, 3–4 adult females, juveniles, and infants. They are mainly folivorous (feeding on leaves), although unripe fruit and seeds also constitute their main diet. They are generalist feeders and can switch over to alternative diets in the absence

of regular diets. It is this feeding habit of Capped langurs, which has helped them survive drastic alterations in their habitat.

Eudey (1987) has placed this species with Phayre's langur in the Conservation Priority Ratings for Asian Primate Species, as a wide-ranging vulnerable species. Based on its limited distribution range, and present population status, this species, similar to Phayre's langurs, deserves to be also ranked as endangered or highly endangered. In India, habitat destruction has been identified as one main conservation risk to the Capped langurs. This species has been provided the highest legal protection, as it is included in Schedule I (1) of the Wildlife (Protection) Amendment Act, 1991, along with Phayre's langur. It is also placed in the Appendix I (rare and endangered) of the CITES. In the IUCN Red Data Book, it has been ranked as 'Vulnerable (VU A2(c))'.

#### **Hoolock gibbon (*Bunopithecus hoolock*)**

If one happens to visit Trishna or Gumti Wildlife Sanctuaries in Tripura early in the morning, one cannot miss the sweet 'olohho olohoo olohho' songs (whooping calls), which are sung by the only ape (tail-less monkey) species in India—the Hoolock gibbon. These songs have a definite meaning in the social life of this species, as the male gibbons advertise their territory by a solo performance, and the females sing duets with the males.

Gibbons inhabit dense evergreen forests, the less seasonal parts of semi-evergreen forests, and very rarely semi-deciduous forests. They are diurnal (active during the day and sleep by night), and arboreal (spending most of their activity time on treetops, rarely descending to the ground). Continuity in the tree canopies is a must for their special mode of



travel—brachiation (swinging from branch to branch using relatively long arms), therefore, gaps in the canopy are detrimental to their survival. They have small legs on which they run, sometimes along the boughs of trees. They live in a small family comprising one adult male, adult female, and 1–2 juveniles.

They mostly feed on ripe, sugar rich fruit and figs. Their animal diets include insects, bird eggs, and spiders (most preferred), which make up for about 4% of the total diet. The typical plant diet consists of fruit (> 60%), leaves (12%), and other plant parts making up for the remaining portion of the total time spent on feeding. Fig (bat) fruit is the most preferred plant diet. *Ficus* spp., *Artocarpus chaplasha*, *A. lakoocha*, *Mesua ferra*, *Castanopsis indica*, *Terminalia belerica*, *T. chebula*, *Emblica officinalis* are the major food plants.

The gibbon, like many of its order, is also facing a stiff challenge for survival, as pressure for land and timber mounts. Hunting for meat and other uses are the major threat to this species throughout its range. Legal protection has been provided to this species by placing it in Schedule I (1) of the Wildlife (Protection) Act, 1972, Appendix I of the CITES, and 'Endangered' category of the IUCN Red Data Book.

### Conservation Issues

#### Pressures

##### Habitat Destruction

- Selective logging
- Clear felling
- Monoculture plantation of commercial species
- Conversion of forest into agriculture fields

- Permanent cultivation
- Shifting cultivation
- Diversion of forest habitat for urbanization, hydro-electric projects

#### Hunting/Poaching

#### Live-trapping

#### Agriculture-pests

#### Suggested Remedial Measures

- Habitat restoration—an ecosystem approach
- Basic data collection in population status, habitat use and demography
- Detailed long-term ecological studies
- Captive breeding
- Re-introduction
- Education & Awareness

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