

NORTH-EAST INDIA—A PARADISE FOR WILD MAMMALS¹

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During my appointment for about a year (1976-77) as the Deputy Director, in-charge Eastern Regional Station, Zoological Survey of India, Shillong, which covers whole of North-East India, I was fascinated by the area in many ways. The unique variety, the abundance and the affinities of wild mammals and other fauna and flora, anthropological peculiarities, climate, political set-up (dividing a small area into seven states), strategic importance surrounded as it was by four countries, etc. It was no wonder, therefore, that the area, was selected for the first regional office of the Zoological Survey of India.

While attached to a German expedition as a liaison officer in 1956-57, I have also made a good collection of mammals and other fauna in parts of this area and U.P. The mammal collection was worked out by Kurup (1965) and comprised 32 forms. Besides I had earlier visited this area in connection with the census of the Great Indian Rhinoceros and the collection of new species of Langur, *Presbytis geei* Khajuria (now the well known golden langur) and for other zoological collections.

The present article embodies briefly the result of my studies on the interesting peculiarities of the wild mammals of the area in which I am specially interested.

New taxa. Over a dozen new mammals have been described from this small area, some of them are fairly large and can be considered as extremely rare discoveries. They are : Mishmi tree shrew, *Tupaia glis versurae* Thomas ; Sikkim large-clawed shrew, *Soriculus nigrescens radulus* Thomas ; Thomas's Harlequin bat, *Scotomanes ornatus imbreensis* Thomas ;

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golden langur, *Presbytis geei* Khajuria ; masked palm civet, *Paguma larvata neglecta* Pocock, small toothed palm civet, *Arctogalida trivirgata millsii* Wroughton ; Kekrima rat, *Rattus manipulus kekrimus* Roonwal ; Manipur white-bellied rat, *R. r. bullocki* Roonwal ; Manipur jungle mouse, *Mus cervicolor imphalensis* Roonwal ; Guha's mouse, *Mus guhai* Nath. In addition some more rodents and bats are reported to be recently discovered by the staff of Zoological Survey of India.

Very rare large mammals : The following are large mammals which needs immediate protection to save them from extinction.—Manipur deer, *Cervus eldi eldi* McClelland (confined to the area) ; pygmy hog, *Sus salvanius* Hodgson ; Assam rabbit, *Caprolagus hispidus* Pearson ; golden langur, *Presbytis geei* Khajuria ; the great Indian Rhinoceros, *Rhinoceros unicornis* Linn.

Primates : N. E. India may be considered as home of Indian primates, as out of seventeen species found within Indian Union twelve occur in this small area and the species found in other parts of Indian Union appears to be descendants of the ones found in N. E. India (Khajuria, 1980). As these primates are very important from the point of view of the biomedical research, tribal food, exhibition, fur etc., the value of this area gains much importance. The primates found in N. E. India are as follows :

Slow Loris, *Nycticebus coucang bengalensis* Fischer, rhesus macaque, *M. m. mulatta* Zimmermann ; Assamese macaque, *Macaca nemestrina blythii* Pocock ; stump-tailed macaque, *M. n. arctoides* I. Geoffroy ; hanuman langur, *Presbytis entellus* Dufrenne, sub sp., golden langur, *P. geei* Khajuria ; capped langur, *p.p. pileatus* Blyth ; *P. p. brahama* Wroughton, *p. p. durga* Hinton, *p. p. tenebricus* ; Phayre's leaf monkey, *Presbytis phayrei atrior* Pocock (status uncertain) ; Barbe's leaf monkey ; *Presbytis barbei* Blyth, snub-nosed Langur, *Rhinopithecus* sp., hoolock gibbon, *Hylobates hoolock* Harlan.

Mammals confined to N. E. India within Indian limits :

Slow loris, pigtailed macaque, golden langur, capped langur, (4 sub-species) Phayre's leaf monkey, Barbe's leaf monkey, snub-nosed langur and hoolock gibbon. Other mammals which appear to be confined to N. E. India within Indian Union are : Common tree shrew, *Tupaia*

glis assamensis Wroughton ; Anderson's tree shrew, *Tupaia glis chinensis* Anderson ; Mishmi tree shrew, *Tupaia glis versurae* Thomas ; Szechwan burrowing shrew, *Anurosorex squamipes* Milne-edwards., Malayan sun bear, *Helarotos malayanus* Raffles ; binturong, *Arctictis binturong albifrons* F. Cuvier ; small toothed palm civet, *Arctogalida trivirgata millsii* Wroughton ; thamin, *Cervus eldi* M' Clelland, takin, *Budorcas taxicolor* Hodgson ; Lesser one-horned Rhinoceros, *Rhinoceros sondaicus* Desmarest (extremely rare or extinct), Asiatic two horned Rhinoceros, *Didermocerus sumatrensis lasiotus* Buckland (extremely rare or extinct) ; Asiatic brush-tailed porcupine, *Atherurus macrourus assamensis* Thomas, hoary bamboo rat, *Rhizomys pruinosus* Blyth, pencil-tailed tree mouse, *Chiropodomys* sp., harvest mouse, *Micromys minutus pratensis* Ocksknyay, Hume's rat, *Hadromys humei* Thomas ; Millard's rat, *Dacnomys millardi wrightoni* Thomas ; Pere David's vole, *Eothenomys melanogaster libonotus* Hinton. It is possible that some more rodents may come under this category.

There are about 200 species/subspecies of mammals recorded from the area. According to Kurup (1974), 63% of Indian mammalian genera are represented in the small area of N. E. India, and the number of genera of the family Viverridae (civet cats) in this area are more than in the rest of India ; also see Agrawal and Bhattacharya (1977). The above brief discussion will justify N. E. India as a paradise of Indian wild mammals. As started above, there are many other spheres where N. E. India excels in interest other parts of the country. The impression of a German journalist, Mr. Fend, attached to the Deutsch Indian expedition, with which I worked for considerable period, was still more interesting. When the expedition was to leave the area, an old man approached us saying that he was interested to know what was worth seeing in the area. Mr. Fend volunteered himself to answer the old man and said "there are only three things to be seen in the area : No. 1, the Khasi lady ; No. 2, the Khasi lady ; and No. 3, the Khasi lady". The old man blushed and disappeared.

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SOME GRIM DRAMAS OF THE INDIAN JUNGLE IN PICTURES*

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I. Introduction

Relationships among the larger wild mammals of India furnish some most exciting educative scenes in their natural habitat. Unfortunately, because of vanishing wildlife and its habitat, it is now an extremely rare luck to witness these scenes. The author has been fortunate to see some of these grim dramas during his lengthy field work in Indian forests. Some of these are described and illustrated below.

II. Some rarest Indian wildlife dramas : personal experiences.

The fearsome larger cats of India are responsible for a number of such scenes. Some of their interesting relationships with their prey and other carnivores are described and illustrated below :

1. The tiger and the wild dog (Fig. 1)

This is one of the rarest and fiercest scenes ever witnessed by the author along with other members of the party and was enacted in the famous Kanha National Park hardly a kilometre from the Kanha forest rest house in February, 1963. It has already been briefly reported upon in the press. Although, the tiger is generally considered as the king of the forest, it appears to be terribly afraid of small tenacious wild dogs which hunt in packs. In this particular case a cheetal hind was killed by the tiger ; but a pack of wild dogs usurped it from the fiery cat by chasing it away. The tiger tried to escape from the ferocity of the dogs by climbing a nearby 'sal' tree but failed to reach the first branch, about seven metres high where it could rest. It slipped down the tree and was severely wounded by the attacking dogs before it

* This note was prepared for the volume commemorating the International year of the Child, but the volume could not be published for unavoidable reasons.

could run for its life into the deep forest leaving a trail of blood. Such scenes have also rarely been witnessed by other wildlifers.

2. The tiger and the porcupine (Fig. 2)

Another enemy of the so-called king of the forest is the humble porcupine which may kill it in self-defence. A hungry tiger may attack it but before its long and sharp fangs can reach the flesh of the porcupine, the latter throws out its long quills littering the tiger's beautiful coat with arrow like quills resulting in lingering death of the proud cat. This drama was not personally witnessed by the author but by some of his friends.

3. Larger predators, prey and the monkey tribe (Fig. 3)

A very interesting and 'intelligent' method followed by predators including hunters is to locate the prey by spotting a troupe of langurs or macaques which can easily be seen on trees from a distance. In the forest, the herbivores, particularly the deer and the bovines, follow these monkeys for shoots and fruit dropped by them from trees and also for their alarm calls as soon as a predator or a hunter tries to approach them. The advantage to the arboreal monkeys is the warning cry by herbivores as soon as their alert senses locate a hidden enemy on the ground. This symbiotic association of animals is, thus, of mutual advantage to all. However, the predator and the hunter can counter this symbiotic defence by concealing themselves in thick under growth and other foliage in 'hides' near trees usually in flower or fruit, often visited by monkeys and kill the prey as they come under the trees, though very cautiously. In the photograph taken in Shivpuri National Park of Madhya Pradesh, the predator or the hunter cannot be seen but probably lurk, somewhere, near or far away.

4. The tiger and the domesticated animal (Fig. 4)

Because of the rarity of its natural food in the forest, particularly because of large scale poaching, the larger carnivores often turn to cattle for their food in 'revenge', so to say against man. Here (Pl. II, fig. 2) a tigress who has killed a domesticated buffalo has greatly been annoyed and bares its fangs threatening attack as the author with the party appears on the scene on an elephant.



Fig. 1. A tiger trying to climb a tree to avoid wild dogs attack.