MAMMALS OF COX'S BAZAR FOREST DIVISION (SOUTH) BANGLADESH, WITH NOTES ON THEIR STATUS AND DISTRIBUTION[1]

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(With two text-figures)

A study was made in the Cox's Bazar Forest Division (South) to gather information on the mammals of that area from May 1982 to December 1983. A total of 1848 man hours were spent in the field. From the study it was revealed that 53 mammalian species occur in this area. They were represented by Order Insectivora (2 species), Order Chiroptera (10 species), Order Primates (8 species), Order Pholidota (1 species), Order Carnivora (18 species), Order Proboscidea (1 species), Order Arctodactyla (3 species), Order Rodentia (9 species) and Order Cetacea (1 species).

INTRODUCTION

Cox's Bazar Forest Division (South) (CB), which ranges from Cox's Bazar to Teknaf (the southern–most part of the country) supports a large area of evergreen and semi–evergreen forests. These forests are the habitat of a large number of wild flora and fauna. No detailed study on the mammalian fauna of this area is available in the literature, so the present study was undertaken to explore the mammalian fauna of this area. Some work has been done on the primates and other wildlife Khan (1979, 1980, 1981, 1982a, b; 1984, 1985, 1986, 1987), Khan and Ahsan (1981), Khan and Wahab (1983) and on elephants (Khan 1980b).

The present paper is a result of a 20 month study of the area from May, 1982 to December, 1983 with 1848 hours of field observation.

STUDY AREA

Bangladesh lies between 20°34'to 26°38'N and 88°01' to 92°40'E approx., having an area of about 144,054 sq.km. The present study area lies between Cox's Bazar township and the Teknaf township, within the Cox's Bazar Forest (South) Division of the Government Forest Department. The study area covers an area of 43,197 hectares of which 35,715 hectares is likely to support reserved forests. The quantity of natural forests may not exceed 10,000 hectares (Khan *et al.* 1983). The remaining areas are under a mono-culture of teak (*Tectona grandis*, newly introduced mulberry (*Morus* sp.) and *Eucalyptus* sp. During the last half of the decade, over 5000 hectares of reserved forests have been handed over to the oil-palm (*Elaeis guinaensis*) project for plantations. The area under study comprised evergreen, semi-evergreen and plantations with undulating hillocks of varying heights ranging from 5 m to 200 m above mean sea level and tidal mudflats supporting mangrove forests along the banks of the international Naaf river and the islands. The temperature is more or less uniform throughout the year. The average maximum temperature is *c.* 60°C and the minimum is *c.* 49°C. Average humidity and annual rainfall is about 81.2% and 4060 mm respectively (Anon. 1969).

HABITAT

The habitat of the mammals of Teknaf Peninsula, CB, comprises (a) evergreen forests, (b) semi-evergreen forests, (c) plantations and (d) mangrove forests. (a), (b) and (a) are natural, while the plantations are human raised. The floristics of the tropical wet evergreen forests are the chapalish *Artocarpus chaplasha*, telsur *Hopea odorata* chundul *Tetrameles nudiflora*, pitraj *Amoora wallichi*, uriam *Mangifera longipes*, civit *Swintonia floribunda*, toon (*Toona ciliata*) and jam (*Syzygium* spp.), etc. These plants were prevalent in CB prior to 1947 or so, that is before the introduction of the clearfelling operations in this Forest Division. Now-a-days this type is found mostly in the deep valleys or in localities shaded by lofty trees where there is plentiful supply of water, as in the north sub-division of CB.

The tropical semi– or mixed–evergreen forest is the general forest type of the Teknaf Peninsula. It is a dense, many storyed forest of tall trees ranging from 20 m to 45 m, in which the evergreen species predominate in the second or lower canopy. The

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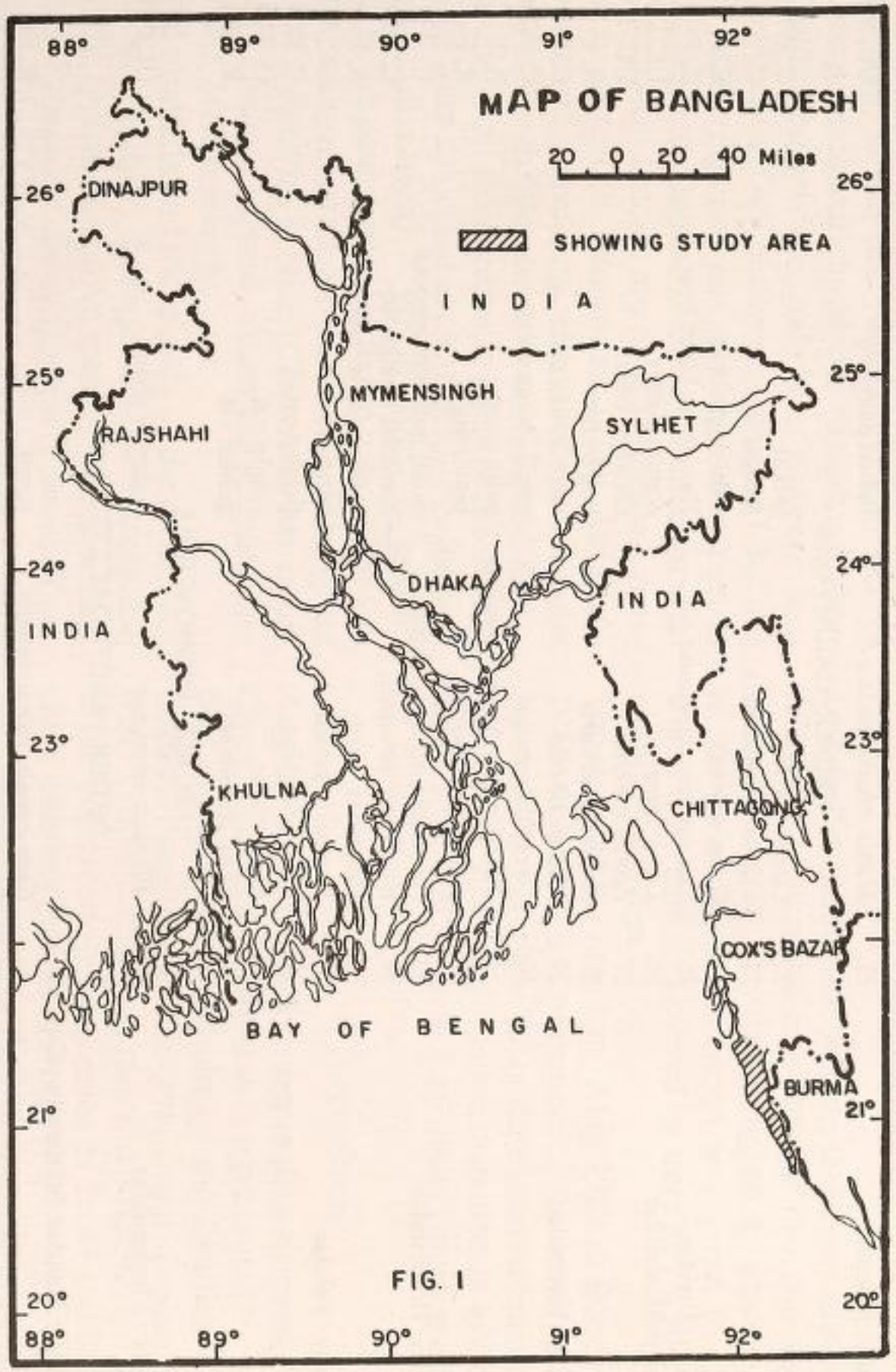
MAP OF BANGLADESH
20 0 20 40 Miles
SHOWING STUDY AREA
INDIA
DINAJPUR
MYMENSINGH
SYLHET
RAJSHAHI
DHAKA
INDIA
INDIA
KHULNA
CHITTAGONG
COX'S BAZAR
BAY OF BENGAL
BURMA
88°
89°
90°
91°
92°
26°
25°
24°
23°
21°
20°

FIG. 1

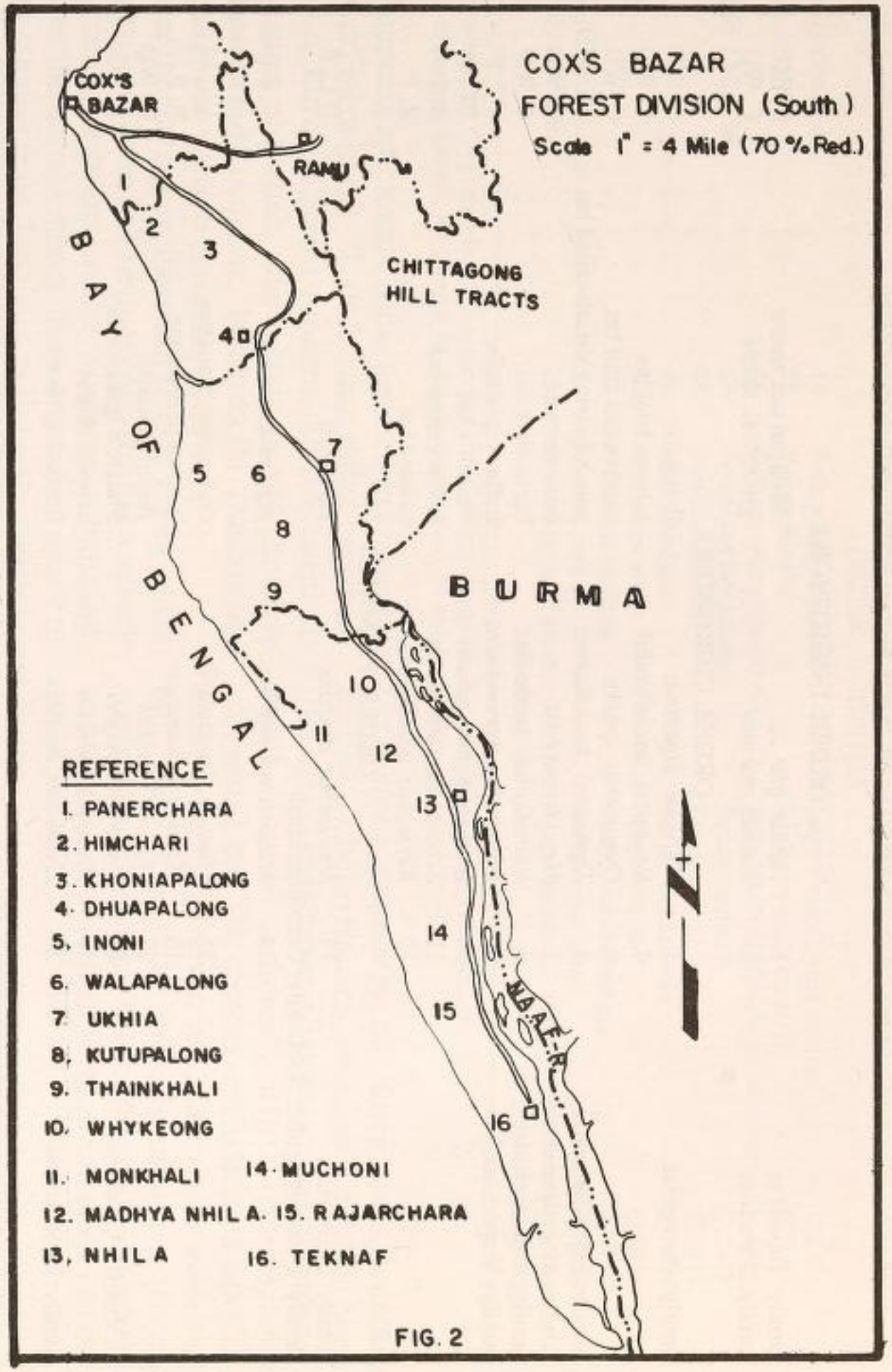
COX'S BAZAR
FOREST DIVISION (South)
Scale 1" = 4 Mile (70 % Red.)
COX'S BAZAR
RAMU
CHITTAGONG HILL TRACTS
BAY OF BENGAL
BURMA
N.F.R.
REFERENCE
1. PANERCHARA
2. HIMCHARI
3. KHONIAPALONG
4. DHUAPALONG
5. INONI
6. WALAPALONG
7. UKHIA
8. KUTUPALONG
9. THAINKHALI
10. WHYKEONG
11. MONKHALI
12. MADHYA NHILA
13. NHILA
14. MUCHONI
15. RAJARCHARA
16. TEKNAF

FIG. 2

TABLE 1
LIST OF THE MAMMALS OF COX'S BAZAR FOREST DIVISION (SOUTH)

		ORDER: INSECTIVORA		
Family: Tupaiidae	1.	*Tupaia glis*	Malayan tree shrew	R, EG.
Family: Sorocidae	2.	*Suncus murinus*	grey musk shrew	C, WD
		ORDER: CHIROPTERA		
Family: Pteropidae	3.	*Pteropus giganteus*	flying fox	C, WD
	4.	*Rousettus leschenaultii*	fulvous fruit bat	C, WD
	5.	*Cynopterus sphinx*	short-nosed fruit bat	C, WD
Family: Emballonuridae	6.	*Taphozous saccolaimus*	pouch-bearing sheath-tailed bat	UC. WD
Family: Megadermetidae	7.	*Megaderma lyra*	false vampire	C, WD
Family: Rhinolophidae	8.	*Rhinolophus subbadins*	horse-shoe bat	*C, WD*
Family: Vespertilionidae	9	*Pipistrellus coromandra*	Indian pipistrelle	VC, F
	10	*Hesperoptenus tickelli*	Tickell's bat	VC, F
	11	*Scotophilus temmincki*	lesser yellow bat	R, F
	12	*Kerivoula papillosa*	painted bat	R, F
		ORDER: PRIMATES		
Family: Lorisidae	13	*Nycticebus coucang*	slow loris	U C, F
Family: Cercopithecidae, Subfamily: Cercopithecinae				
	14	*Macaca nemestrina*	pig-tailed macaque	C, F (not south of Harikhola
	15	*Macaca fascicularis*	crab-eating macaque	UC, M
	16	*Macaca assamensis*	Assamese macaque	R, F
	17	*Macaca mulatta*	rhesus macaque	C, WD
Subfamily: Colobinae	18	*Presbytis phayrei*	Phayre's leaf monkey	R, EG
	19	*Presbytis pileatus*	capped langur	C, F
Family: Hylobatidae	20	*Hylobates hoolock*	hoolock gibbon	R, F
		ORDER:PHOLIDOTA		
Family: Manidae	21	*Manis crassicaudata*	Indian pangolin	UC, WD
		ORDER: CARNIVORA		
	22	*Canis aureus*	jackal	C, WD
	23	*Vulpes bengalensis*	Bengal fox	C, WD
	24.	*Cuon alpinus*	wild dog, dhole	R, F
Family: Ursidae	25	*Selenarctos thibetanus*	Himalayan black bear	R, F
Family: Mustelidae	26.	*Lutra lutra*	common otter	UC,T
	27	*Aonyx cinerea*	clawless otter	UC, T
	28	*Arctonyx collaris*	hog badger	R, F
Family: Viverridae	29	*Vivera zibetha*	large Indian civet	C, WD
	30	*Viverricula indica*	small Indian civet	C, WD
	31	*Paradoxurus hermaphroditus*	palm civet	R, F
	32	*Arctictis binturong*	binturong	R, F
Family: Herpestidae	33.	*Herpestes auropunctatus*	small Indian mongoose	C, WD
	34.	*Herpestes edwardsi*	common mongoose	C, WD
	35.	*Herpestes urva*	crab-eating mongoose	R, F
Family : Felidae	36.	*Panthera pardus*	leopard	UC, WD
	37.	*Felis viverrina*	fishing cat	C, WD
	38.	*Felis chaus*	jungle cat	C, WD
	39.	*Felis temmincki*	golden cat	R, WD
		ORDER : PROBOSCIDEA		
Family : Elephantidae	40.	*Elephas maximus*	Asian elephant	UC, WD
		ORDER : ARCTODACTYLA		
Family : Bovidae, Subfamily : Caprinae				
	41.	*Capricornis sumatraensis*	serow	R, F
Family : Cervidae	42.	*Muntiacus muntjac*	barking deer	UC, WD

Family : Suidae	43.	*Sus scrofa*	wild boar	VC, WD
		ORDER : RODENTIA		
Family : Scuiridae	44.	*Petaurista petaurista*	large brown flying squirrel	UC, EG
	45.	*Ratufa bicolor*	Malayan giant squirrel	C, WD
	46.	*Calloscuirus pygerythrus*	hoary-bellied Himalayan squirrel	C, WD
Family : Muridae	47.	*Bandicota bengalensis*	Indian mole rat	C, WD
	48.	*Bandicota indica*	bandicoot rat	C, WD
	49.	*Mus booduga*	Indian field mouse	C, WD
	50.	*Mus musculus*	house mouse	C, WD
	51.	*Millardia meltada*	metad, soft-furred rat	R, F
Family : Hystricidae	52.	*Hystrix indica*	Indian porcupine	C, WD
Family : Cetacea	53.	*Peponocephala electra*	melon-headed dolphin	C, mouth of river Naaf.

Abbreviations: C– common, UC– uncommon, VC– very common, R– rare, WD– widely distributed.
EG– evergreen forests, F– forests, M– mangrove forests, T– tidal mudflats

commonest species are baitta garjan *Dipterocarpus scaber*, telya garjan *D. turbinatus*, dulya garjan *D. alatus*, koroi *Albizzia procera*, chuka koroi *A. chinensis*, chapalish, uriam, civit, shimul (*Bombax ceiba* and *B. insignae*, bandarholla *Duabangha grandiflora*, narikeli *Sterculia alata*, etc.

Under the top storey, there is a second storey which ranges from 20 m to 30 m in height, and has a variety of trees, evergreens on the whole predominating. Under the second storey there is another series of trees ranging from 7 m to 18 m in height which include saplings of the first two storeys and adaliya *Meliosma pinnata*, naricha *Moosa ramentacea*, bormala *Callicarpa arborea*, goda *Vitex glabrata*, kestoma and kechua (*Glochidion* spp.), sheora (*Streblus asper*), jalpai (*Elacocarpus* spp.) bela *Semicarpus anacardium*, etc. Bamboo occurs as undergrowth. The commonest species are muli *Melocanna bambusoides*, mitenga (*Bambusa tulda*, kaliserri *Oxytenanthera auriculata*, daloo (*Teinostachyum dullooa*) and orah (*Dendrocalamus longispathus*).

As practically all the accessible areas of the Teknaf Peninsula were subjected to clear–felling or jhoom–(shifting cultivation) – virgin forest is seldom noticed in the peninsula. Due to the removal of virgin forest many areas are now covered with sungrass (*Impereta cylindrica*), bhat (*Clerodendrum infortunatum*), *Lantana camara*, assam lata *(Eupatorium odoratum*), *Melostoma* spp., etc.

The tidal mudflats and the islands of the river Naaf are inundated daily by the high tide. These areas also support the typical mangrove species. The dominant are keora (*Sonneratia apetala*), goria (*Candelia candal*), dhundal (*Xylocarpus obovata*), kankra (*Bruguiera gymnorhyza*), hargoza (*Acanthus ilicifolius*), bola (*Hibiscus tiliaceus.*), gol pata *Nypa fruticans*), kewakanta (*Pandanus odoratissimus*), batul (*Sapium indicum*), hijol (*Barringtonia racemosa*), etc. The climbers included gila lata (*Entada pursaetha*), *Derris.* spp., *Sacrolobus globosus*, etc., and among the grasses uri gash (*Oryza coaretata*), *Pragmites kakra*, *Imperata cylindrica* and *Typha elephantina* were prominent (Anon. 1969).

Observations

During the field work definite transect paths were followed, sometimes in a straight line and sometimes in a zig zag way depending on the topography of the area. Special attention was given to areas which were densely covered by trees and where the visibility was less.

The study of the area from May 1982 to December 1983 revealed the presence of 53 mammalian species. The complete list of the observed mammals along with their status and distribution is given in Table 1. A total of 1848 man –hours were spent in the field for observation.

Status and Distribution

As seen from the list, the mammalian species of the Cox's Bazar Forest Division is represented by 9 orders and 25 families including 3 sub-families.

Order: Insectivora: In this order *Tupaia glis* (Fam.: Tupaiidae) is very rare and is distributed only in the evergreen forested areas of Inoni and Rajarchara whereas *Suncus murinus* (Fam.: Soricidae) is very common and is widely distributed throughout

the area. *Tupaia glis* used to visit Nhila rest house frequently in the late 1970s (Khan 1982).

Order: Chiroptera: Among the species of the family Pteropidae, *Pteropus giganteus* is very common, whereas the other two species of the same family are fairly common. All the species are widely distributed. *Taphozous saccolaimus* (Fam.: Emballonuridae), *Megaderma lyra*. (Fam.: Megadermatidae) and *Rhinolopus subbadius* (Fam: Rhinolopidae) are more or less common and are widely distributed. Among the members of the family Vespertilionidae, *Pipistrellus coromandra* and *Hesperoptenus tickelli* are very common and widely distributed among the forested areas, whereas *Scotophilus temmincki* and *Kerivoula papillosa* are rarely met with, the later species restricted only to the forested areas.

Order: Primates: Of the 10 non-human primates recorded so far from Bangladesh, excluding the controversial dsky leaf monkey, *Presbytis obscurus*, eight are found in the forested areas of the Teknaf Peninsula. *Nyctibecus coucang* (Fam. Lorisidae) has been found in the semi-evergreen and evergreen forests of Rajachara, Shilkhali, Roikeong, Inoni and Himchari with one being caught in the Teknaf bazaar. It is uncommon. The family Cercopithecidae is represented by two sub-families. *Macaca fascicularis*. is distributed only in the tidal mudflats and islands of the river Naaf, which supports the mangrove vegetation. *M. nemestrina* and *M. mulatta* are not so uncommon but *M. nemestrina* has not been observed south of Harikhola, Whykeong. *M. assamensis* occurs in small numbers with restricted distribution. *Presbytis pileatus* is common and can be seen occasionally feeding in the semi-evergreen forests. *P. phayrei* is very rare and was seen only twice at Noya Para, Madhya Nhila and at Patwatek, Inoni. They are restricted to dense evergreen forested areas. *Hylobates hoolock* (Fam: Hylobatidae) was observed in the evergreen forests of Inoni and on one occassion the local people informed us that they have seen it at Monkhali.

Order: Pholidota: *Manis crassicaudata* is widely distributed but its population is steadily declining due to poaching. The tribals hunt it for the meat and others seek it for its scaly skin as there is a belief that it has aphrodisiac values.

Order: Carnivora: Among the members of the family Canidae, *Canis aureus, Vulpes bengalensis* are quite common and widely distributed whereas he *Cuon alpinus* is rare and was only met twice, once at Madhya Nhila and again at Inoni. *Selenarctos thibetanus*. (Fam.: Ursidae) is also very rare and was met only once at Thainkhali–Monkhali border. Among the members of the family Mustelidae *Lutra lutra* and *Aonyx cinerea* were uncommon and distributed along the tidal mudflats of the river Naaf, *Arctonis collaris* is quite rare and only two specimens were collected during the study period. One specimen was collected in December 1982 from Whykeong, from near human habitations and the other from the semi-evergreen forests of Kutupalong in November 1983. These are the first two specimens collected from Bangladesh. Khan (1985) has already reported it. Skins of both the specimens are deposited in the department of Zoology, University of Dhaka.

The family Viverridae is represented by four species, of which *Viverra zibetha* and *Viverricula indica* are common and distributed widely. On the other hand, *Paradoxurus hermaphroditus* and *Arctictis binturong* are rare and are distributed in forested areas of Rajarchara and Inoni. The members of the family Herpestidae, *Herpestes auropunctatus* and *H. edwardsi* are common and widely distributed but *H. urva* is rare and was twice sighted at Thainkhali. It is restricted to forested areas. The family Felidae is represented by four species. *Panthera pardus* is uncommon but widely distributed. It was sighted twice but pugmarks were seen throughout the forested areas and a number of reports of cattle-lifting by this species were recorded. *Felis temmincki* is very rare and was sighted at Dhumdhumia under Teknaf Beat. The other two species *F. viverrina* and *F. chaus* are common and widely distributed.

Order: Proboscidea: *Elephas maximus* is uncommon but widely distributed. This animal is threatened with extinction from this area. A recent study has shown that there are about 110 individuals in this area. Apart from these there are also about 30 migratory elephants which come from the neighbouring hills of Burma during the winter months (Khan *et. al* 1983).

Order: Arctodactyla: The hoofed mammals are the most threatened animals of this area, since they are under constant hunting pressure. *Capricornis*

sumatraensis is very rare and was sighted only once in the deciduous forested areas of Madhya Nhila. This species is also on the verge of extinction from this area as well as from Bangladesh. *Muntiacus muntjac* (Fam.: Cervidae) is uncommon but widely distributed. Occassionally hunted by local people from various areas of the forests, this species is also decreasing at a steady rate and if poaching is not stopped the days are not far away when this species will be eliminated from the area. *Sus scrofa* is very common in this area and sometimes it creates havoc by destroying their crops. These are also hunted by the tribals and non-Muslims for meat.

Order: Rodentia: Some variations were noted in the distribution of the family Sciuridae. *Petaurista petaurista* is uncommon and is found only in the dense forested areas. It was sighted at Rajarchara and Inoni. *Ratufa bicolor* is a common species of the area and is mostly seen in the semi-evergreen and deciduous forested areas. *Calloscuirus pygerythrus.* is also very common and is distributed, in the peripheral areas of the forests and is rarely seen in the evergreen forested areas. All the species of the family Muridae found in the area are quite common and widely distributed excepting *Millardia meltada* which is rare and restricted to the forests only. *Hystrix indica* (Fam: Histricidae) is also common and widely distributed in the area but due to large scale killings by the local people in recent days, it is now seldom met. Moreover, it is considered as a menace in the oil-palm gardens where porcupines love to eat the soft root and stem of the plants.

Order: Cetacea: *Peponocephala electra* (Fam.:Delphinidae) is common at the mouth of the river Naaf and sometimes they come upstream even up to Whykeong.

Conclusions

The occurrence of almost 50% percent of the total mammalian fauna of Bangladesh gives a good picture of the forests and some easily demarcated forest ecological habitat. If proper management programmes are taken with practical implementation of the conservation laws, this area will attract a lot of local and foreign tourists. Through wildlife tourism, the Government can the earn considerable foreign currency provided infrastructure for giving some facilities to the tourists is improved.

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