

Rec. zool. Surv. India : 105 (Part 3–4) : 169-188, 2005

OBSERVATION ON VERTEBRATE FAUNA OF D'ERING MEMORIAL WILDLIFE SANCTUARY, ARUNACHAL PRADESH

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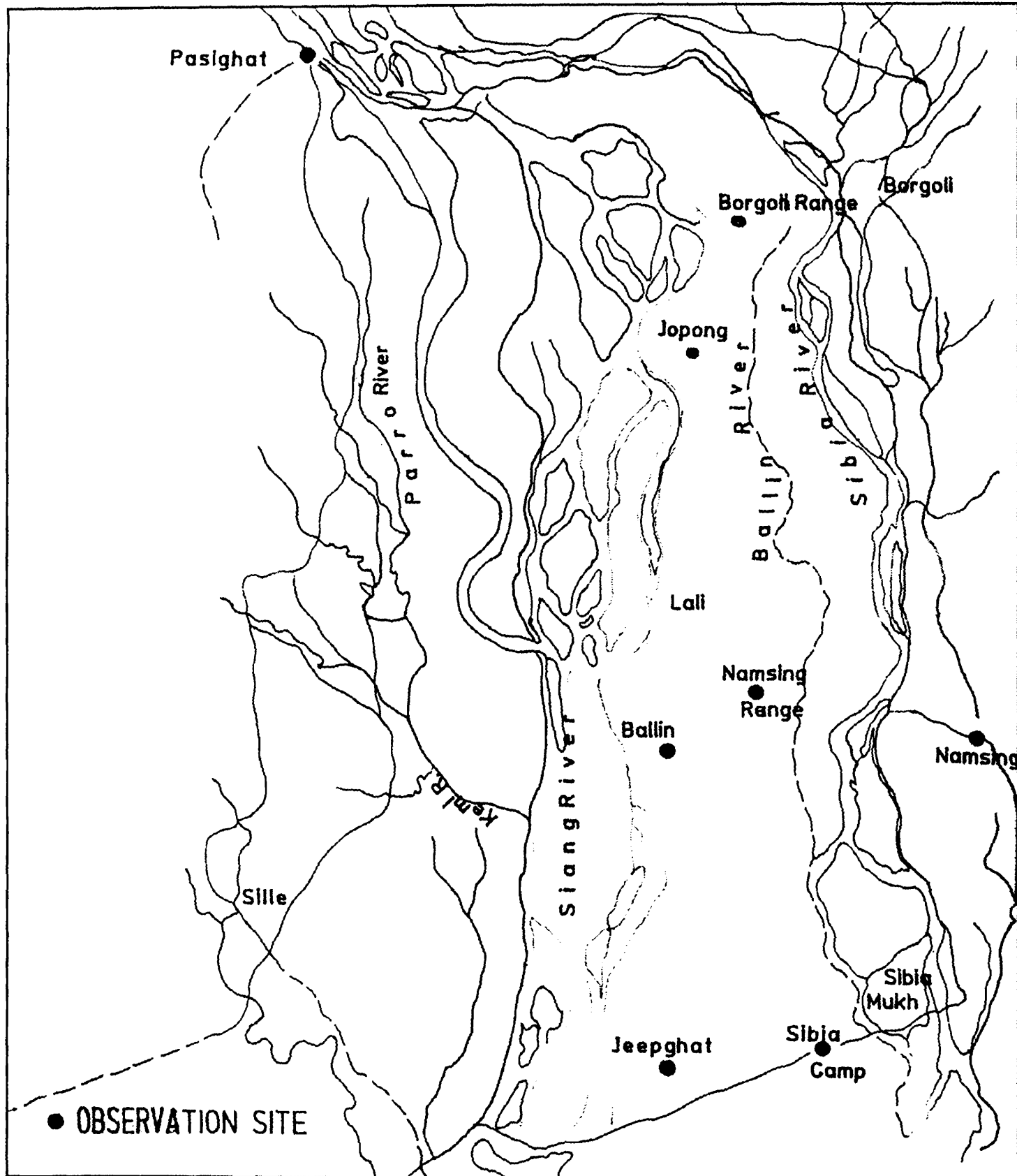
INTRODUCTION

The D'Ering Wildlife Sanctuary formerly known as Lali Sanctuary is located at Pasighat Forest Division, East Siang district, Arunachal Pradesh. It is one of the least faunistically explored area in India. So, special efforts were made to survey wildlife of the sanctuary during 2000-2001 and 2001-2002. The paper mainly deals with the vertebrate fauna *i.e.*, mammals, birds, reptiles, amphibians and fishes. Nevertheless special emphasis has been given on mammals and birds only. Very little information is available on some higher vertebrates of Arunachal Pradesh from the works of Jayaram and Majumder (1964), Ripley (1980), Saha (1982), Moll and Vijay (1986), and on faunal elements of Namdhapa Biosphere Reserve (Datta and Barman 1985, Sanyal and Gayen 1985, Saha 1985). In the present paper an attempt has been made to give an account of the vertebrate fauna with special reference to mammals and birds occurring in the D'Ering Wildlife Sanctuary area under report.

STUDY AREA

The D'Ering Wildlife Sanctuary of East Siang District, Arunachal Pradesh (Map 1) lies in between 95°15' to 95°30' east longitude and 27°50' to 28°50' to north latitude. It is bounded by Sibia river in the east, Siang river in the west, Central Wildlife Division of Ying Kiong in the north and North Lakhimpur district of Assam in the south. A large number of jheels, nullahs and waterbodies are present in and around the sanctuary. The total area of the sanctuary is 1,638.4 hectares. The sanctuary was damaged heavily by flood in 2000 resulting in the decline of wildlife population.

The divisional boundary of Pasighat Wildlife Division is bounded by Dibang Valley district in the east, West Siang district in the north and west and North-Lakhimpur district of Assam in the



Map 1. : Map of D' Ering Memorial Wildlife Sanctuary, Divn. Pasighat, (Arunachal Pradesh)

Scale 1 50,000

south. The topography is characterised by the beautiful valley of Siang river with numerous streams, situated along the foot hills of eastern Himalaya. The climate of the terrain may be divided into four seasons (i) pre-monsoon from March to May, (ii) south-west monsoon confined to June to September, (iii) post monsoon, October and November, (iv) winter season mainly from December to February. The hottest months are July and August with the minimum temperature of 24°C and the maximum temperature of 33°C. The coldest months are December and January with the minimum temperature near about 12°C and maximum 22°C. The total annual rainfall of Pasighat Forest Division is 6508.5 mm. The maximum amount of rainfall is in the month of July *i.e.*, 1243 mm. and monsoon shower ends in September.

The soil of Pasighat Wildlife Division is of new alluvial type. The vegetation of this region are of mixed riverine and mixed moist deciduous type which include small and tall trees, shrub, bamboo-grasses, climbers, orchids *etc.* The thorny trees like Jujuba, *Zizyphus jujuba* Lamk are very common in the forest.

MATERIALS AND METHODS

During 2000-2001 and 2001-2002, two surveys were made on foot along the forest trail while along the river course country boat was used. The observations were carried out from early morning to sunset by using binocular, telescope for visual recording of higher vertebrates. The nocturnal observations were carried out by using headlight, spotlight and three-celled torch. Sometimes mist nets were used to capture small birds and release after identification. Hand-made drag net was used for collections of fish samples.

RESULTS AND DISCUSSION

The faunal resources belonging to higher vertebrates (mammals, birds, reptiles amphibians and fishes) are as follows :

Mammals (Figs. 1 and 2)

Twenty-three species of mammals belonging to 16 families have been recorded (Table 1) from this wildlife sanctuary. Out of 23 species of mammals 2 species namely Small clawed otter (*Amblonyx cinerea*) and Common otter (*Lutra lutra*) are rare and recorded along the Sibia river and its tributaries. The only aquatic mammal, the Gangetic Dolphin (*Platanista gangetica*) was recorded along the course of the Brahmaputra river. Only a few individual of this species was observed. According to Sinha *et al.*, (2003) a total of about 2000 dolphins have been estimated in the Ganga and the Brahmaputra river system. In the 19th century dolphins were plentiful in the entire distributional range. But their population is declined due to shrinkage of many smaller

tributaries in upper reaches of the Ganga where they were found earlier and nowadays killed both incidentally or directly. The IUCN recently change the status of the species from vulnerable to endangered (Baillie and Groombridge, 1996).

Table 1. : List of Mammals recorded in D'Ering Memorial Wildlife Sanctuary

Order	Family	Common name	Scientific name	Remarks
Scandentia	Tupaiaidae	Common Tree Shrew	<i>Tupaia belangeri</i>	Scarce
Chiroptera	Vespertilionidae	Indian Pipistrelle	<i>Pipistrellus babu</i>	Common
	"	Asiatic Greater Yellow Bat	<i>Scotophilus heathi</i>	Scarce
Primates	Cercopithecidae	Rhesus Macaque	<i>Macaca mulatta</i>	Scarce Sch-II
Carnivora	Canidae	Asiatic Jackal	<i>Canis aureus</i>	Scarce Sch-II
	Felidae	Tiger	<i>Panthera tigris</i>	Rare Sch-I
	Viverridae	Small Indian Civet	<i>Viverricula indica</i>	Rare Sch-II
		Masked Palm Civet	<i>Paguma larvata</i>	Rare Sch-II
	Herpestidae	Crab-eating Mongoose	<i>Herpestes urva</i>	Rare Sch-IV
	Mustelidae	Small Clawed Otter	<i>Amblonyx cinereus</i>	Rare
Common Otter		<i>Lutra lutra</i>	Rare Sch-I	
Cetacea	Platanistidae	Gangetic Dolphin	<i>Platanista gangetica</i>	Sch-I
Proboscidea	Elephantidae	Elephant	<i>Elephas maximus</i>	Non resident Sch-I
Artiodactyla	Suidae	Wild Boar	<i>Sus scrofa</i>	Rare Sch-I
	Cervidae	Barking Deer	<i>Muntiacus muntjak</i>	Scarce Sch-III
	"	Sambar	<i>Cervus unicolor</i>	Scarce Sch-III
	"	Spotted Deer	<i>Axis axis</i>	Scarce Sch-IV
	"	Hog Deer	<i>Axis porcinus</i>	Scarce Sch-III
	Bovidae	Wild Buffalo	<i>Bubalus bubalis</i>	Scarce Sch-I
Rodentia	Sciuridae	Orange-bellied Himalayan Squirrel	<i>Dremomys lokriah</i>	Scarce
	Muridae	Bush Rat	<i>Golunda ellioti</i>	Common Sch-IV
	Hystriidae	Indian Crested Porcupine	<i>Hystrix indica</i>	Scarce Sch-IV
Lagomorpha	Leporidae	Blacknaped Hare	<i>Lepus nigricollis</i>	Common Sch-IV

Sch = Scheduled of Indian Wildlife (Protection) Act.

Though the species, wild buffalo (*Bubalus bubalis*) has become very rare but it is common only a few protected areas of Assam *e.g.* Kaziranga, Manas and Dibru-Saikhowa and also recorded from Kachar district of southern Assam (Choudhury, 2002). Their population is under severe threat due to depletion of suitable swamp and grassland habitat, large scale poaching and communal hunting (Ranjit Singh *et al.*, 2002). Two herds of the species, one herd comprising of four adults and three juveniles and the other herd comprising of four adults have been recorded around the Sibia river bed. The tiger (*Panthera tigris*) population in this sanctuary is very low. The presence of tiger in this sanctuary could only be ascertained by a few recent spoor marks and few traces of recent hunting. In Arunachal Pradesh though there is excellent ever green vegetation and plenty of water, the tiger population is less due to limited number of prey animals (Sankhela, 1977). The invasion of elephant (*Elephas maximus*) is noted by the presence of their foot-prints and bolus. The personnel of Forest Department reported that in the month of May and June the herds of elephant about 15–20 in a group migrate to the sanctuary from adjacent Mohanbari and Sadia forest of Assam. They reside here for two to three months and again return to Mohanbari and Sadia forest of Assam in the month of September and October. This seasonal migration to Lali Sanctuary is due to scarcity of food in Mohanbari and Sadia forest for cultivation and abundance of food in Lali Sanctuary. The deer groups of the family Cervidae and the wild boar (*Sus scrofa*) of the family Suidae are less in population. The Wild Boar, Barking deer, Sambar *etc.* were once common in the sanctuary as stated by forest personnel. But at present their population became very low due to illegal killing of the animals for meat and skins. Chakraborty and Sen (1991) stated that in recent years wild animals came in close contact to the people who realised the commercial value of the forest products and this further encouraged them to the killing of animals.

Birds (Figs. 3–5)

While conducting the field survey during 2000-2001 and 2001-2002, 123 species of birds belonging to 39 families (Table 2) were recorded. The avifaunal components belong to both passerine as well as non passerine forms. In all 107 species are resident and 16 species are migratory. The wetland birds belonging to 13 families *i.e.*, Podicipedidae, Pelecanidae, Phalacrocoracidae, Ardeidae, Ciconiidae, Anatidae, Accipitridae, Rallidae, Glareolidae, Charadriidae, Laridae, Alcedinidae, Motacillidae, were recorded during the survey. The water birds were mostly observed along the Brahmaputra, Sibia and Siang rivers. Among the water birds two groups of Spot-billed Pelican (*Pelecanus philippensis*) were recorded, one group comprising of 41 in number in April 2001 and the other group comprising of 28 numbers in April 2002 along the course of Sibia river. The status and distribution of this species is globally threatened/vulnerable and over all population is declining (Alfred *et al.*, 2001). The Osprey (*Pandion haliaetus*) was also encountered during the survey. It is to be noted that this species belonging to schedule-I of the Indian Wildlife (Protection) Act. 1972 and its further amendments, is also listed as IBA species and enlisted in APPENDIX-I of the CITES.

**Table 2. : List of Avifauna recorded in D'Ering Memorial Wildlife Sanctuary
(R : Resident bird, M : Migratory bird, S.L.M. : Subject to local migration)**

Family & Species	Common Name	Remarks
PODICIPEDIDAE <i>Podiceps cristatus</i>	Great Crested Grebe	Common M
PELECANIDAE <i>Pelecanus philippensis</i>	Spottedbilled Pelican	Scarce M Sch-I
PHALACROCORACIDAE <i>Phalacrocorax carbo</i> <i>Phalacrocorax niger</i> <i>Phalacrocorax fuscicollis</i>	Large Cormorant Little Cormorant Shag	Common R Common R Rare R
ARDEIDAE <i>Egretta garzetta</i> <i>Egretta intermedia</i> <i>Ardeola striatus</i> <i>Ardeola grayii</i> <i>Ardea cinerea</i> <i>Ardea purpurea</i> <i>Ardea alba</i> <i>Nycticorax nycticorax</i> <i>Bubulcus ibis</i>	Little Egret Median Egret Little Green Heron Pond Heron Grey Heron Purple Heron Large egret Night Heron Cattle Egret	Common R Common R Rare R Common R Rare R Rare R Abundant R Rare R Common R
CICONIIDAE <i>Ciconia episcopus</i>	Whitenecked Stork	Scarce R S.L.M.
ANATIDAE <i>Tadorna ferruginea</i> <i>Anas poecilorhyncha</i> <i>Anas querquedula</i> <i>Anas acuta</i> <i>Anas strepera</i> <i>Anas penelope</i> <i>Cairina scutulata</i> <i>Dendrocygna javanica</i> <i>Aythya fuligula</i> <i>Aythya baeri</i>	Ruddy Shelduck Spotbill Duck Garganey Pintail Duck Gadwall Wigeon Whitewinged Wood Duck Lesser Whistling Teal Tufted Pochard Baer's Pochard	Common M Rare R Rare M Rare M Abundant M Abundant M Scarce R Sch-I Abundant R Abundant M Abundant M

Sch-I = Schedule 1 of Indian Wildlife (Protection) Act.

Table 2. : (Cont'd.).

Family & Species	Common Name	Remarks
ACCIPITRIDAE		
<i>Gyps bengalensis</i>	Bengal Whitebacked Vulture	Rare R
<i>Gyps fulvus</i>	Indian Griffon Vulture	Rare R
<i>Hieraaetus pennatus</i>	Booted Hawk-Eagle	Rare R Sch-I
<i>Pandion haliaetus</i>	Osprey	Rare R Sch-I
<i>Elanus caeruleus</i>	Blackwinged Kite	Rare R
<i>Milvus migrans migrans</i>	Pariah Kite	Abundant R
<i>Ictinaetus malayensis</i>	Black Eagle	Rare R Sch-I
<i>Circus melanoleucos</i>	Pied Harrier	Rare M
<i>Pernis ptilorhyncus</i>	Honey Buzzard	Rare R Sch-I
<i>Buteo buteo</i>	Buzzard	Rare R
FALCONIDAE		
<i>Falco peregrinus</i>	Peregrine Falcon	Rare M Sch-I
PHASIANIDAE		
<i>Gallus gallus</i>	Red Junglefowl	Rare R
<i>Francolinus francolinus</i>	Black Partridge	Rare R
RALLIDAE		
<i>Amaurornis phoenicurus</i>	Whitebreasted Waterhen	Rare R
OTIDIDAE		
<i>Eupodotis bengalensis</i>	Bengal Florican	Rare R Sch-I
GLAREOLIDAE		
<i>Glareola lactea</i>	Small Indian Pratincole/ Swallow Plover	Scarec R
<i>Glareola pratincola</i>	Collard Pratincole	Abundant R
CHARADRIIDAE		
<i>Tringa hypoleucos</i>	Common Sandpiper	Rare R S.L.M.
<i>Tringa totanus</i>	Common Redshank	Rare R S.L.M.
<i>Tringa nebularia</i>	Green Shank	Rare R S.L.M.
<i>Calidris temminckii</i>	Temminek's Stint	Rare R S.L.M.
<i>Hoplopterus indicus</i>	Red Wattled Lapwing	Rare R S.L.M.
<i>Pluvialis dominica</i>	Eastern Golden Plover	Abundant M
<i>Gallinago minima</i>	Jack Snipe	Rare M
LARIDAE		
<i>Chlidonias hybrida</i>	Whiskered Tern	Rare R
<i>Sterna acuticauda</i>	Blackbellied Tern	Abundant R
<i>Sterna aurantia</i>	Indian River Tern	Abundant R
<i>Larus ichthyaetus</i>	Great Blackheaded Gull	Rare M

Table 2. : (Cont'd.).

Family & Species	Common Name	Remarks
COLUMBIDAE		
<i>Streptopelia tranquebarica</i>	Red Turtle Dove	Rare R
<i>Streptopelia decaocto</i>	Indian Ring Dove	Rare R
<i>Streptopelia senegalensis</i>	Little Brown Dove	Rare R
<i>Streptopelia chinensis</i>	Spotted Dove	Common R
<i>Treron bicincta</i>	Orangebreasted Green Pigeon	Rare R
<i>Treron sphenura</i>	Wedgetailed Green Pigeon	Rare R
PSITTACIDAE		
<i>Psittacula krameri</i>	Roseringed Parakeet	Rare R
<i>Psittacula alexandri</i>	Redbreasted Parakeet	Rare R
CUCULIDAE		
<i>Centropus toulou</i>	Lesser Coucal	Rare R
<i>Cuculus poliocephalus</i>	Small Cuckoo	Rare R
<i>Rhopodytes tristis</i>	Large Greenbilled Malkoha	Rare R
<i>Surniculus lugubris</i>	Drongo Cuckoo	Rare R S.L.M.
STRIGIDAE		
<i>Otus scops</i>	Scops Owl	Rare R
<i>Athene brama</i>	Spotted Owlet	Rare R
CAPRIMULGIDAE		
<i>Caprimulgus indicus</i>	Indian Jungle Nightjar	Rare R
<i>Caprimulgus asiaticus</i>	Common Indian Nightjar	Rare R
ALCEDINIDAE		
<i>Alcedo atthis</i>	Small Blue Kingfisher	Rare R
<i>Halcyon coromanda</i>	Ruddy Kingfisher	Rare R
<i>Ceryle rudis</i>	Lesser Pied Kingfisher	Scarce R
<i>Pelargopsis capensis</i>	Brownheaded Storkbilled Kingfisher	Scarce R
MEROPIIDAE		
<i>Merops orientalis</i>	Green Bee-Eater	Common R
<i>Merops leschenaulti</i>	Chestnut Headed Bee-Eater	Rare R
UPUPIDAE		
<i>Upupa epops</i>	Hoopoe	Rare R
CAPITONIDAE		
<i>Megalaima lineata</i>	Lineated Barbet	Rare R
<i>Megalaima virens</i>	Great Hill Barbet	Rare R
<i>Megalaima asiatica</i>	Bluethroated Barbet	Rare R

Table 2. : (Cont'd.).

Family & Species	Common Name	Remarks
PICIDAE <i>Dinopium javanense</i>	Indian Threetoed Goldenbacked Woodpecker	Rare R
<i>Dinopium benghalense</i>	Lesser Goldenbacked Woodpecker	Rare R
ALAUDIDAE <i>Mirafra assamica</i>	Bengal Bush Lark	Rare R
HIRUNDINIDAE <i>Hirundo rustica</i>	Common Swallow	Common R
<i>Hirundo daurica</i>	Redrumped Swallow	Rare R
<i>Delichon nipalensis</i>	Nepal House Martin	Common R S.L.M.
LANIIDAE <i>Lanius schach</i>	Rufousbacked Shrike	Rare R S.L.M.
ORIOOLIDAE <i>Oriolus chinensis</i>	Blacknaped Oriole	Rare R S.L.M.
<i>Oriolus traillii</i>	Maroon Oriole	Scarce R
DICRURIDAE <i>Dicrurus hottentottus</i>	Haircrested Drongo	Rare R
<i>Dicrurus adsimilis</i>	Black Drongo	Rare R
<i>Dicrurus aeneus</i>	Bronzed Drongo	Abundant R
STURNIDAE <i>Acridotheres fuscus</i>	Jungle Myna	Common R
<i>Acridotheres tristis</i>	Common Myna	Common R
<i>Sturnus malabaricus</i>	Greyheaded Myna	Rare R
CORVIDAE <i>Dendrocitta vagabunda</i>	Indian Treepie	Rare R
<i>Corvus macrorhynchos</i>	Jungle Crow	Common R
CAMPEPHAGIDAE <i>Coracina melaschistos</i>	Smaller Grey Cuckoo-Shrike	Common R S.L.M.
<i>Pericrocotus flammeus</i>	Scarlet Minivet	Rare R
<i>Pericrocotus brevirostris</i>	Shortbilled Minivet	Rare R
IRENIDAE <i>Aegithina tiphia</i>	Common Iora	Common R

Table 2. : (Cont'd.).

Family & Species	Common Name	Remarks
PYCNONOTIDAE		
<i>Pycnonotus cafer</i>	Redvented Bulbul	Common R
<i>Hypsipetes madagascariensis</i>	Black Bulbul	Rare R
MUSCICAPIDAE		
<i>Copsychus saularis</i>	Magpie-Robin	Rare R
<i>Culicicapa ceylonensis</i>	Greyheaded Flycatcher	Rare R
<i>Phylloscopus trochiloides</i>	Dull Green Leaf Warbler	Rare M
<i>Megalurus palustris</i>	Striated Marsh Warbler	Rare M
<i>Graminicola bengalensis</i>	Large Grass Warbler	Rare R
<i>Cisticola juncidis</i>	Streaked Fantail Warbler	Rare R
<i>Prinia socialis</i>	Ashy Wren Warbler	Rare R
<i>Phoenicurus ochruros</i>	Black Redstart	Rare R
<i>Saxicola torquata</i>	Collared Bushchat	Rare R S.L.M.
<i>Saxicola jerdoni</i>	Jerdon's Bushchat	Common R
<i>Orthotomus sutorius</i>	Tailor Bird	Rare R
<i>Garrulax leucolophus</i>	Whitecrested Laughing Thrush	Rare R
<i>Garrulax moniligerus</i>	Necklached Laughing Thrush	Rare R
<i>Macronous gularis</i>	Yellowbreasted Babbler	Rare R
MOTACILLIDAE		
<i>Motacilla alba</i>	White Wagtail	Common R
<i>Motacilla cinerea</i>	Grey Wagtail	Rare R
<i>Anthus novaeseelandiae</i>	Paddyfield Pipit	Rare R
NECTARINIIDAE		
<i>Nectarinia asiatica</i>	Purple Sunbird	Rare R
<i>Nectarinia zeylonica</i>	Purplerumped Sunbird	Rare R
ZOSTEROPIDAE		
<i>Zosterops palpebrosa</i>	White-Eye	Rare R
FRINGILLIDAE		
<i>Pyrrhoplectes epauletta</i>	Goldheaded Black Finch	Rare R

Among the aquatic birds the ducks and geese (Anatidae) as stated by Alfred *et al.*, (2001) are the winter migrants to the Indian sub-continent. There are some species of water birds whose southernmost palaeartic breeding range extends into Indian boundaries in Ladakh, Kashmir (Ruddy Shelduck, Pintail and Barheaded goose) and sometimes in central and eastern Himalayas. Nevertheless they behave like a true winter migrant in spreading over northern peninsular India.

It has been noted that a good number of Collared Pratincole (*Glareola pratincola*) observed during the survey. It was also noted that they are crepuscular and forms unispecies foraging group while frisking on the surface of water and above. The families Ardeidae, Ciconiidae, Charadriidae, Rallidae, Motacillidae are the major components of the marsh birds, while marsh birds belonging to family Charadriidae are rare except the Eastern Golden Plover (*Pluvialis dominica*). The Large Egrets (*Ardea alba*) are abundant and thrive on benthic fauna. The Median Egret (*Egretta intermedia*), Pond Heron (*Ardeola grayii*), Cattle Egret (*Bubulcus ibis*), Temminck's Stint (*Caladris temminckii*) and Whitenecked Stork (*Ciconia episcopus*) were observed and recorded. As regards Whitenecked Stork only two individuals were observed in Sibia river during the survey. They are resident and locally migratory, and occur well-watered plains country, partial to water-logged ground and feeds on fishes, frogs, reptiles, crabs, molluscs and large insects *etc.* (Ali, 1996).

The Gulls and Terns belonging to the family Laridae prey mainly on fishes and allied aquatic forms. A good number of Blackbellied Tern (*Sterna acuticauda*) and Indian River Tern (*Sterna aurantia*) were abundant. The avian families associated with wetland were recorded such as Motacillidae and Alcedinidae. Among them the White Wagtail, (*Motacila alba*) were commonly found.

The passerine and non-passerine birds represent a good number. But the Bengal Whitebacked Vulture (*Gyps benghalensis*) and Indian Griffon Vulture (*Gyps fulvus*) are drastically declining in population at this sanctuary as well as throughout India due to outbreak of disease, chemical contamination and poisoning (Vulture population decline in India—A Pilot survey by Robert B. Groubh, Director Institute for Restoration of Natural Environment, Nagercoil, Tamil Nadu, India and V. S. Vijayan, Director, Salim Ali Centre for Ornithology and Natural History, Coimbatore, Tamil Nadu, India). The vulture was found to devour mainly on decaying bodies of the domestic animals inside the sanctuary. During the survey several such decaying bodies were noticed. The local herdsman informed that the enormous loss of livestock was caused by the consumption of Wild jujuba (*Zizyphus jujuba*). The Hoopoe (*Upupa epops*) under family Upupidae and the Bengal Florican, (*Eupodotis bengalensis*) under family Otidae are very rare in this sanctuary. During survey four Hoopoes and two Bengal Floricans were observed. The Bengal Florican which is an endemic species has undergone an alarming decline throughout its former range, as its grassland habitat has been lost due to cultivation or degraded by over grazing (Rahmani *et al.*, 1991). Its past distribution ranges from southern Uttaranchal to upper Assam, through the Nepal Terai, Bengal Duars and Brahmaputra river valley (Ali and Ripley, 1969; Rahmani *et al.*, 1991). The known population of less than 300–400 individuals is at serious risk from further habitat loss, warranting its inclusion in the IUCN list of endangered species (Baral *et al.*, 2002). As regards Black Bulbul (*Hypsipetes madagascariensis*), though this species is the resident bird in Arunachal Pradesh (Ripley, 1982), only three birds of this species were recorded during survey.

At dusk on March 21, 2002, during survey work it was observed that about 185 Pariah Kites (*Milvus migrans*) gathered on the top of 3–4 large trees behind Namsing camp. In the next morning there was no kite on those trees. Such incident was not observed throughout the rest period of the survey. This incident of gathering huge number of Pariah Kite at dusk and flying away the next morning is totally unknown. It may be related to local/seasonal migratory behaviour of the species.

Reptiles

Nine species of reptiles were recorded during the survey. Both poisonous Common Cobra (*Naja naja*), Himalayan Pitviper (*Aucestradon himalayana*) and non-poisonous snakes such as Rat Snake (*Ptyas mucosus*), Smooth Water Snake (*Enhydris enhydris*), Common Wolf Snake (*Lycodon aulicus*), etc. were recorded. The Garden Lizards (*Calotes versicolor*) were very common in the sanctuary. Only one common Indian Monitor (*Varanus benghalensis*) was observed. This species becomes rare due to killing for skin. Sharma (2002) stated that the common Indian Monitor at present is an endangered species as they are killed in large number for their skin and flesh. He also stated that its flesh is considered as a delicacy and consumed by many people and the eggs are also eaten in large number at various places. The population of Soft-shelled Turtle (*Trionyx leythi*) and Indian Roofed Turtle (*Kachuga tecta*) is very rich in the sanctuary. A large number of such turtle in 'Jheels' in Sibia river bed adjacent to Assam were observed. Their distribution has been reported from Assam and Khasia, Garo and Naga hills area of Bangladesh (Molle and Vijay, 1986).

Amphibia

Two species of frogs namely *Rana cyanophlyctis* and *Rana limnocharis* have been recorded. They are wetland dependent and occur abundantly along with their larvae. A huge congregation of tadpoles of these species in the rivulets, pools etc. was observed.

Fishes (Fig. 6)

A total of 19 species of freshwater fishes were recorded as common from 'Jheels' and 'Nullahs' of the Sibia and Siang river bed. The 'Nullahs' and 'Jheels' are found in the dry seasons and flooded by the river in rainy seasons. The species are — Grey featherback (*Notopterus notopterus*), Chapkhowari (*Chela laubuca*), Chela (*Salmostoma bacaila*), 4 species of genus *Puntius*, Zebra fish (*Danio aequipinnatus*), Rasbora (*Rasbora daniconius*), Tengra (*Mystus bleekeri*), Pabda (*Ompok pabda*), Magur (*Clarias batrachus*), Shingi (*Heteropneustes fossilis*), one species of genus *Xenentodon*, Lata (*Channa punctatus*), Cheng (*Channa orientalis*), Climbing fish (*Anabus testudineus*), Katkoi (*Badis badis*) etc.

In overall, diversity of wildlife species particularly higher vertebrates in D' Ering Memorial Wildlife Sanctuary (23 species of mammals and 123 species of birds) is less when compared to well known protected area like Manas Tiger Reserve, Assam (76 species of mammals and 300 species of birds *vide* Fauna of Conservation Area No. 8 : Fauna of Manas Tiger Reserve, 1995) and Namdapha Biosphere Reserve, Arunachal Pradesh (96 species of mammals and 233 species of birds *vide* Qualitative Analysis of Faunal Resources of proposed Namdapha Biosphere Reserve, Arunachal Pradesh, Ghose, 1987).

It is also evident that D' Ering Memorial Wildlife Sanctuary is inhabited by comparatively less number of Schedule-1 species of both mammals (6 species) and birds (8 species) under Wildlife (Protection) Act. 1972. The Schedule-1 species of mammals and birds of Manas Tiger Reserve, Assam; Balphakram National Park, Meghalaya (Alfred & Chattopadhyay, 1995) and Namdapha Biosphere Reserve, Arunachal Pradesh, however, represent 20 species of mammals, 38 species of birds, 10 species of mammals, 9 species of birds and 30 species of mammals, 18 species of birds respectively (Table 3).

Table 3. : Comparative representation of Schedule-1 species of mammals and birds occurring in D' Ering Memorial Wildlife Sanctuary, Manas Tiger Reserve, Balphakram National Park and Namdapha Biosphere Reserve. ('+' = Present, '-' = Absent).

List of Schedule-1 Species	D' Ering Wildlife Sanctuary	Manas Tiger Reserve	Balphakram National Park	Namdapha Biosphere Reserve
MAMMALS				
Binturong <i>Arctictis binturong</i>	-	+	-	+
Bharal <i>Pseudois nayaur</i>	-	-	-	+
Capped Langur <i>Presbytis pileatus</i>	-	+	-	+
Clouded Leopard <i>Neofelis nebulosa</i>	-	+	-	+
Chinese Pangolin <i>Manis pentadactyla</i>	-	+	+	+
Fishing Cat <i>Felis viverrinus</i>	-	+	-	+
Flying Squirrel <i>Hylopetes fimbriatus</i>	-	-	-	+
Common Otter <i>Lutra lutra</i>	+	-	-	-

Table 3. : (Cont'd.).

List of Schedule-1 Species	D' Ering Wildlife Sanctuary	Manas Tiger Reserve	Balphakram National Park	Namdapha Biosphere Reserve
Golden Langur <i>Presbytis geei khajuria</i>	-	+	-	-
Gour <i>Bos gaurus</i>	-	+	+	-
Goral <i>Nemorhaedus goral</i>	-	-	+	-
Golden Cat <i>Felis temmincki</i>	-	+	-	+
Gangetic Dolphin <i>Platanista gangetica</i>	+	+	-	-
Himalayan Thar <i>Hemitragus jemlahicus</i>	-	-	-	+
Hog-Badger <i>Arctonyx collaris</i>	-	-	+	+
Hispid Hare <i>Caprolagus hispidus</i>	-	+	-	-
Hoolock Gibbon <i>Hylobates hoolock</i>	-	-	+	+
Wild Boar <i>Sus scrofa</i>	+	+	-	+
Indian Elephant <i>Elephas maximus</i>	+	+	-	+
Indian Wolf <i>Canis lupus</i>	-	-	-	+
Indian Wild Dog <i>Cuon alpinus</i>	-	-	+	-
Leopard <i>Panthera pardus</i>	-	+	+	+
Leopard Cat <i>Felis bengalensis</i>	-	+	-	+
Lesser or Red Panda <i>Ailurus fulgens</i>	-	-	+	+
Indian Pangolin <i>Manis crassicaudata</i>	-	-	-	+

Table 3. : (Cont'd.).

List of Schedule-1 Species	D' Ering Wildlife Sanctuary	Manas Tiger Reserve	Balphakram National Park	Namdapha Biosphere Reserve
Malayan Sun Bear <i>Helarctos malayanus</i>	-	-	-	+
Mouse Deer <i>Tragulus meminna</i>	-	-	-	+
Musk Deer <i>Moschus moschifeus</i>	-	-	-	+
Marbeled Cat <i>Felis marmorata</i>	-	-	-	+
One-horned Rhinoceros <i>Rhinoceros unicornis</i>	-	+	-	-
Pig-tailed Macaque <i>Macaca nemestrina leonina</i>	-	-	+	-
Pigmy Hog <i>Sus salvinus</i>	-	+	-	-
Serow <i>Capricornis sumatraensis</i>	-	-	-	+
Swamp Deer <i>Cervus duvaucelii</i>	-	+	-	-
Sloth Bear <i>Melarsus ursinus</i>	-	-	-	+
Slow Loris <i>Nycticebus coucang</i>	-	+	-	+
Snow Leopard <i>Panthera uncia</i>	-	-	-	+
Spotted Lingsang <i>Prionodon pardicolor</i>	-	-	-	+
Takin <i>Budorcus taxicolor</i>	-	-	-	+
Tiger <i>Panthera tigris</i>	+	+	+	+
Wild Buffalo <i>Bubalus bubalis</i>	+	+	-	+

Table 3. : (Cont'd.).

List of Schedule-1 Species	D' Ering Wildlife Sanctuary	Manas Tiger Reserve	Balphakram National Park	Namdapha Biosphere Reserve
BIRDS				
Crested goshawk <i>Accipiter trivirgatus</i>	-	+	-	+
Gos hawk <i>Accpiter gentilis</i>	-	-	+	+
Sparrow hawk <i>Accipiter nisus</i>	-	+	+	+
Besra sparrow-hawk <i>Accpiter virgatus</i>	-	+	+	+
Long legged buzzard <i>Buteo rufinus</i>	-	+	-	-
White-eyed Buzzard Eagle <i>Butaster teesa</i>	-	+	+	-
Hodgson's Hawk-Eagle <i>Spizaetus nipalensis</i>	-	+	-	-
Changeable Hawk-Eagle <i>Spizaetus limnaeetus</i>	-	+	-	-
Rufousbellied Hawk-Eagle <i>Hieraaetus kienerii</i>	-	+	-	-
Twany Eagle <i>Aquila rapax</i>	-	+	-	-
Steppe Egale <i>Aquila koelzi</i>	-	+	-	-
Greater Spotted Eagle <i>Aquila clanga</i>	-	+	-	-
Lesser Spotted Eagle <i>Aquila pomarina</i>	-	+	-	-
Black Eagle <i>Ictinaetus malayansis</i>	+	+	-	-
Pallas's Fishing Eagle <i>Haliaeetus leucoryphus</i>	-	+	-	-
Greyheaded Fishing Eagle <i>Ichthyophaga ichthyaetus</i>	-	+	-	-

Table 3. : (Cont'd.).

List of Schedule-1 Species	D' Ering Wildlife Sanctuary	Manas Tiger Reserve	Balphakram National Park	Namdapha Biosphere Reserve
Himalayan Fishing Eagle <i>Ichthyophaga nana</i>	-	+	-	-
Black-crested Buza <i>Aviceda leuphotes</i>	-	+	-	+
Lanner Falcon <i>Falco biarmicus</i>	-	+	-	+
Perigrine Falcon <i>Falco peregrinus</i>	+	+	+	-
Assam Bamboo Partridge <i>Bambusicola fytchii</i>	-	-	-	+
Great Pied Hornbill <i>Buceros bicornis</i>	-	+	-	+
Malabar Pied Hornbill <i>Anthracoceros malabaricus</i>	-	+	-	+
Whitethroated Brown Hornbill <i>Ptilolaemus tickelli</i>	-	-	-	+
Rufousnecked Hornbill <i>Aceros nipalensis</i>	-	+	-	+
Wreathed Hornbill <i>Rhyticeros undulatus</i>	-	+	-	+
Bengal Florican <i>Eupodotis bengalensis</i>	+	+	-	-
Indian Peafowl <i>Pavo cristatus</i>	-	+	-	-
Large Whistling Teal <i>Dendrocygna bicolor</i>	-	+	-	-
Spoonbill <i>Platalea leucorodia</i>	-	+	-	-
Blyth's Baza <i>Aviceda jerdoni</i>	-	+	-	-
Honey Buzzard <i>Pernis ptilorhyncus</i>	+	+	-	-
Shikra <i>Accipiter badius</i>	-	+	+	-

Table 3. : (Cont'd.).

List of Schedule-1 Species	D' Ering Wildlife Sanctuary	Manas Tiger Reserve	Balphakram National Park	Namdapha Biosphere Reserve
Booted Hawk-Eagle <i>Hieraaetus pennatus</i>	+	-	-	-
Crested Serpent Eagle <i>Spilornis cheela</i>	-	+	-	-
Short-toed Eagle <i>Circaetus gallicus</i>	-	+	-	-
Kestrel <i>Falco tinnunculus</i>	-	-	+	-
Osprey <i>Pandion hallaetus</i>	+	+	-	-
Hen-Harrier <i>Circus cyaneus</i>	-	+	-	-
Pale Harrier <i>Circus macrourus</i>	-	+	-	-
Montagu's Harrier <i>Circus pygargus</i>	-	+	-	-
Pied Harrier <i>Circus melanoleucos</i>	-	+	-	-
Marsh Harrier <i>Circus aeruginosus</i>	-	+	-	-
Monal Pheasant <i>Lophophorus impejanus</i>	-	-	-	+
Peacock-Pheasant <i>Polyplectron bicalcaratum</i>	-	-	+	+
Crimson Tragopan <i>Tragopan satyra</i>	-	-	-	+
Blyth's Tragopan <i>Tragopan blythii</i>	-	-	+	+
Temminck's Tragopan <i>Tragopan temminckii</i>	-	-	-	+
Spot billed Pelican <i>Pelecanus philippensis</i>	+	-	-	-
Whitewinged Wood Duck <i>Cairina scutulata</i>	+	-	-	+

SUMMARY

The D' Ering Wildlife Sanctuary and its surrounding wetlands along Sibia and Brahmaputra rivers (associated part of the sanctuary) revealed a total of 23 species of mammals, 123 species of birds, 9 species of reptiles and 2 species of amphibians, while 19 species of freshwater fishes were recorded in various aquatic system in the area under report. As per Indian Wildlife (Protection) Act. 1972, 6 species of mammals and 8 species of birds belong to the Schedule-1 category.

ACKNOWLEDGEMENTS

The authors are grateful to Dr. J.R.B. Alfred, Director, Zoological Survey of India, Kolkata, for facilities and for permission to work on the project. We are thankful to Dr. N.C. Nandi, Jt. Director, for his active guidance and suggestions. We are also thankful to our colleagues in Herpetology Division and Freshwater Fish Section for identification of some species. Thanks are also due to D.F.O. Wild Life of East Siang district, Arunachal Pradesh for full co-operation in the survey work and for providing logistic support.

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