Vertebrate Faunal Diversity in Hosur Forest Division and its Contiguous Habitats in Dharmapuri Forest Division of Tamil Nadu, India

A Draft Summary Report to the Tamil Nadu Forest Department


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## Note:

This draft summary report is for the information of the Tamil Nadu Forest Department.

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## I. Introduction

Over the past two decades, a large number of studies have looked at distribution and biogeography of different vertebrate taxa, with special emphasis on lower taxonomical orders. However, such surveys in India have largely been biased towards Protected Area (PA) networks, which constitute a very low proportion of the total forest cover. The PA network may or may not support wide-ranging landscape species or have all the micro/major habitats of a landscape/region within it that is required to support the large assemblage of species diversity that may be found in the region. The much larger forest areas encompassed by Territorial Forest Divisions are subjected to a wide range of anthropogenic pressures including threats from large-scale developmental projects. Therefore, knowledge about the diversity of wild species and their distributional range, including population status, within territorial forest divisions is vital to planning the conservation of the region's biodiversity and for protecting its potential to support sustainable development of the region.

The Hosur Territorial Forest Division and its contiguous habitats in the Dharmapuri FD are no exceptions to conservation and development considerations discussed above. They are situated close to Bangalore, the electronic hub of India, where the developments flowing from growing population pressures and economic activities in the region (settlements, commercial constructions, roads, rail lines etc) could potentially impact forests and their biodiversity. Since conservation importance of any area is typically determined by assessing its biodiversity, it is essential to document the biodiversity of the remaining forest areas. Based on a clear understanding of the biodiversity values of the region, and the anthropogenic pressure they are subject to, it would be possible for the Forest Department and other related local authorities to potentially plan for sustainable conservation and development of the region.

In accordance with this perspective, the Asian Nature Conservation Foundation (ANCF) in partnership with the Kenneth Anderson Nature Society (KANS) carried out a study between June 2009 and April 2010 to assess the biodiversity values (with particular reference to the vertebrate fauna) of Hosur Forest Division and its adjoining contiguous habitats in Dharmapuri Forest Division in Tamil Nadu. A detailed report of the study is currently under preparation. This volume provides a brief description of the study scope and methodology as well as a pictorial summary of the biodiversity of this region. Recommendations on conserving biodiversity under the prevailing conditions are presented in the detailed report.

## II. Class: Mammalia

Aim: To document the diversity of mammalian fauna across Hosur and Dharmapuri Forest Divisions and estimate the population density of large mammal species for which a reasonable sample size could be obtained using line transect methods.

Methods: Assessment of the mammalian species inventory was carried out using (1) Rapid ground survey in different ranges of Hosur FD, (2) Line transect sampling in 31 transects across Hosur and its contiguous habitats in Dharmapuri FDs, and selected 11 transects in Hosur FD with more temporal replicates (3) Camera trap and (4) Ad-hoc sampling while on other field surveys for assessment of vegetation, avifauna and herpetofauna. In addition, the study has also incorporated a listing of the (5) mammalian species rescued or confiscated by Forest Department personnel.
Study period: Data for the species inventory of mammalian fauna was collected between July 2009 and April 2010. However, of the methods used, camera trapping was restricted to the last two months due to non-availability of cameras in the initial period. Hence, the area coverage by the camera traps was not as wide as compared to the other methods. Therefore, the list of mammalian species especially the lesser known small carnivores and non-volant small mammals compiled in this study could be considered as a minimum.

Results: The class Mammalia is represented by a minimum of 35 species belonging to 10 orders (Table 1) including two endangered species-the Wild dog and Asian elephantin the Hosur Forest Division and its adjoining contiguous habitats in the Dharmapuri Forest Division. The area supports five vulnerable (four-horned antelope, Indian gaur, Sambar, Smooth coated otter and Sloth bear) and near threatened (Leopard and Grizzled giant squirrel) species each. The species such as Asian elephant (Elephas maximus), wild boar (Sus scrofa), spotted deer (Axis axis), bonnet macaque (Macaca radiata) and blacknaped hare (Lepus nigricollis) were widely distributed in all the Forest Ranges of the study area. In contrast, species like the four-horned antelope (Tetracerus quadricornis), grizzled giant squirrel (Ratufa macroura), barking deer (Muntiacus muntjak), mouse deer (Moschiola meminna) and smooth-coated otter (Lutrogale perspicillata) were restricted in their distribution due to the habitat specific nature. Distribution of the remaining species of mammals has not been recorded in all the ranges, which could be due to their low-density coupled with insufficient effort because of the short duration of the study.

Although number of mammalian species recorded $(n=35)$ in the study area is quite significant, the abundance of each species was very low so that the study was unable to have sufficient sample size to estimate the population density of large mammals like elephants, gaur, chital and common langur using line transect direct sighting method. The reason for the low abundance could be poor habitat quality.

Grizzled giant squirrel sighting records: The documentation of the grizzled giant squirrel by the present study is the first scientific information on the existence of this population in the study area. Joshua (1992), who did a detailed ecological study on the species in another population further south in Tamil Nadu, mentioned that the collection of skins of $R$. macroura by Bombay Natural History Society during 1920-30 indicates
that in the past the species occurred in places such as Dharmapuri and Salem Attur in the Eastern Ghats. Nevertheless, no published data is yet available on the existence of the species in this Forest Division. Kumara and Singh (2006), who documented the species in habitats further south of the present study area in Karnataka, mentions the distribution of this species from Shivanasamudra Falls to Mekedatu on the Cauvery River of Karnataka side. Kumara and Singh (2006) also states, it is the only population of grizzled giant squirrel for Karnataka state and probably the northern most population of the species in its entire distribution range, which further indicates that the species existence on the Tamil Nadu side has not been known.

The grizzled giant is squirrel distributed in isolated populations with less than 500 mature individuals in India, unlike the large contiguous population in Sri Lanka. Its numbers are declining significantly due to habitat loss and hunting throughout much of its range (Joshua and Johnsingh 1992, Molur et al. 2005). The species is listed as near threatened in IUCN (2010), placed in Appendix II of CITES to regulate the international trade in this species, and under the schedule I (part I) of the Indian Wildlife Act (1972 \& 1991). In India the grizzled giant squirrel population is found in the Anamalai landscape (c. 150 individuals at Chinnar Wildlife Sanctuary, Kerala (Ramachandran 1993) and its adjoining habitats in Indira Gandhi Tiger Reserve, Tamil Nadu, (Kumar et al. 2007) (for which no population figure is available) numbering about 300 individuals (IUCN 2010). Further south, in the Periyar-Agasthyamalai landscape, a large population of around 200 individuals (in 1992 - Palraj et al. 1992 and Palraj and Kasinathan 1993) that increased from 115 individuals in 1988 (Joshua 1992), exists at Srivilliputhur Grizzled Giant Squirrel Sanctuary. In addition, a small population has been reported from Kankapura, Kollegal taluk in southern Karnataka (Kumara and Singh 2006), which is the northern most population. Their number in India has declined probably around 30\% in the last 25 years (Molur et al. 2005).

Conservation action: The locations where the grizzled giant squirrels are found along the Cauvery River bank in Hosur FD do not have canopy contiguity. Appropriate management steps should be taken to establish canopy contiguity, control human disturbance and promote riverine species diversity. The grizzled giant squirrel population exists on the northern side of Cauvery River bank, in the Hosur Division, Tamil Nadu, but there is no habitat contiguity with the southern riverbank. Establishing some kind of artificial bridging between the canopies from either side of riverbank would not only enhance the availability of optimal habitat but also establish the movements of individuals between the small populations found on either side of the riverbank.

Distribution of Madras Tree shrew sightings records: The species is also known as southern Indian tree shrew, an endemic species to India. It was earlier placed under Insectivora, but based on a recent molecular study (Schmitz et al. 2000) classified under a new order Scandentia. The species was sighted on three occasions during the last one year and records of this species represent the first report of the sighting of this species in Hosur Forest Division. The species earlier known to exist in Wynad, Kerala (George 1989), Garhwa Forest, Bihar (Gupta 1996), Wardha River Basin, Maharashtira (Pradhan 1997), Bori Wildlife Sanctuary, Madhya Pradesh (Shrivastava 1995), Yercaud Hills, Tamil Nadu $(1999,2001)$ and very recently at BRT Wildlife Sanctuary, Karnataka (Srinivasan et al. 2009).

Table 1: List of mammalian fauna recorded in Hosur and Dharmapuri Forest Divisions, Tamil Nadu between June 2009 and April 2010

| $\begin{gathered} \text { S. } \\ \text { No. } \end{gathered}$ | Common Name | Scientific Name | Order | IUCN status | Range/s found |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Four-horned antelope ${ }^{\bullet}$ | Tetracerus quadricornis | Artiodactyla | VU | A \& U |
| 2 | Indian gaur ${ }^{\bullet}$ | Bos gaurus | Artiodactyla | VU | A, D, J \& U |
| 3 | Sambar | Cervus unicolor | Artiodactyla | VU | D \& U |
| 4 | Spotted deer | Axis axis | Artiodactyla | LC | A, D, J, R \& U |
| 5 | Wild boar | Sus scrofa | Artiodactyla | LC | A, D, J \& U |
| 6 | Mouse deer ${ }^{\bullet}$ | Moschiola meminna | Artiodactyla | LC | D |
| 7 | Barking deer | Muntiacus muntjak | Artiodactyla | LC | D |
| 8 | Jackal | Canis aureus | Carnivora | LC | A, D, J \& U |
| 9 | Jungle cat | Felis chaus | Carnivora | LC | D |
| 10 | Leopard ${ }^{\bullet}$ | Panthera pardus | Carnivora | NT | A, D, R \& U |
| 11 | Ruddy mongoose | Herpestes smithii | Carnivora | LC | U |
| 12 | Small Indian mongoose | Herpestes javanicus | Carnivora | LC | A |
| 13 | Stripe necked mongoose | Herpestes vitticollis | Carnivora | LC | A |
| 14 | Smooth-coated otter | Lutrogale perspicillata | Carnivora | VU | D \& U |
| 15 | Sloth bear ${ }^{\circ}$ | Melursus ursinus | Carnivora | VU | A, D \& U |
| 16 | Common palm civet | Paradoxurus hermaphroditus | Carnivora | LC | D |
| 17 | Small Indian civet | Viverra civettina | Carnivora | LC | A, D \& U |
| 18 | Wild dog | Cuon alpinus | Carnivora | EN | D |
| 19 | Indian flying fox | Pteropus giganteus | Chiroptera | LC | D |
| 20 | Indian pipistrelles | Pipistrellus coromandra | Chiroptera | LC | U |
| 21 | Black-naped hare | Lepus nigricollis | Logomorpha | LC | A, D, J, R \& U |
| 22 | Indian pangolin ${ }^{\bullet}$ | Manis crassicaudata | Pholidota | LC | D |
| 23 | Bonnet macaque | Macaca radiata | Primates | LC | A, D, J, R \& U |
| 24 | Common langur | Semnopithecus entellus | Primates | LC | A \& U |
| 25 | Slender loris | Loris lyddekeriannus | Primates | LC | D \& U |
| 26 | Asian elephant ${ }^{\text {® }}$ | Elephas maximus | Proboscidea | EN | A, D, J, R \& U |
| 27 | Indian porcupine | Hystrix indica | Rodentia | LC | D \& U |
| 28 | House rat | Rattus rattus | Rodentia | LC | D |
| 29 | India gerbil | Tatera indica | Rodentia | LC | D |
| 30 | Lesser bandicoot | Bandicota bengalensis | Rodentia | LC | A, D, J \& U |
| 31 | Little Indian field mouse | Mus booduga | Rodentia | LC | D |
| 32 | House shrews | Suncus murinus | Insectivora | LC | A, D, J \& U |
| 33 | Madras tree shrew | Anathana elliotti | Scandentia | LC | D \& U |
| 34 | Grizzled giant squirrels* | Ratufa macroura | Rodentia | NT | D \& U |
| 35 | Three striped palm squirrel | Funambulus palmarum | Rodentia | LC | A, D, J \& U |

IUCN status: EN: Endangered, LC: Least Concerned, NT: Near Threatened, VU: Vulnerable. Forest Range/s found: A: Anchetty, D: Denkanikotta, J: Jawalagiri, R: Royakotta, U: Urigam. $\bullet$ Schedule I Part I species of Indian Wildlife Act (1972)

Plate 1. Mammals of Hosur Forest Division and its adjoining habitat of Dharmapuri Forest Division, Tamil Nadu

(1) Asian elephant, (2) Four-horned antelope, (3) Spotted deer, (4) Grizzled giant squirrel (5) House rat, and (6) Indian gerbil.

Plate 1. (Continued) Mammals of Hosur Forest Division and its adjoining habitat of Dharmapuri Forest Division, Tamil Nadu

(7) Leopard, (8) Jungle cat, (9) Small Indian civet, (10) Jackal, (11) Smooth-coated otter, and (12) Wild boar.

Plate 1. (Continued) Mammals of Hosur Forest Division and its adjoining habitat of Dharmapuri Forest Division, Tamil Nadu

(7) Leopard indirect evidences (Pugmark and scat), (13) Sloth bear indirect evidences (footprint and scat), (11) Smooth-coated otter spraints and (14) Wild dog scat

## III. Class: Aves

Aim: The study was aimed at preparing a checklist of avifauna found in Hosur and Dharmapuri Forest Divisions to understand the avian diversity that the forest areas support.

Methods: Species inventory documentation of the avifauna was carried out using five different methods. (1) Rapid ground survey in different Forest Ranges of Hosur, (2) Systematic road and trail surveys in different forest types, (3) water body surveys of Hosur and Dharmapuri FDs, (4) Systematic Line transect sampling in 11 transects across Hosur FD, and (5) Ad-hoc sampling while on other field surveys for assessment of vegetation, mammal, herpetofauna and human-elephant conflict.

Period of study: The data for this part of the study was collected from July 2009 to April 2010, with a higher effort between November 2009 and February 2010.

Results: Overall, the vertebrate diversity is dominated by avifauna representing a total 182 species, including an endangered species (Egyptian vulture) and two near threatened species (Painted stork and Grey headed fishing eagle) belonging to 14 orders. These were recorded in and around the two forest divisions between July 2009 and April 2010 (Table $2 \& 3$ ). Of the 182 species, forest birds were the highest ( $n=145 \mathrm{spp}$. or $81 \%$ of the total number of species) (Table 2), followed by wetland birds ( $n=27 \mathrm{spp}$. or $15 \%$ of the total number of species) and five species each representing habitats of riverine and human settlement/cultivations (Table 3). Among the 14 orders of bird species recorded, Passeriformes accounted for nearly half the number of species (47\%).

More importantly, from the viewpoint of avian conservation, the Hosur Forest Division has been a breeding site for a pair of Egyptian vultures (Neophron percnopterus), an endangered species whose global population (of $30,000-40,000$ mature individuals) is declining (IUCN 2010) due to loss of wild ungulates, overgrazing by livestock (Mundy et al. 1992) and poisoning (Donazar et al. 2002). The species in India was driven to rapid decline by Diclofenac (Cuthbert et al. 2006), a veterinary drug now banned but still being illegally used as an anti-inflammatory agent in cattle, whose carcasses the species feed upon. Protecting the nesting sites such as low cliffs and rocky outcrops has been insisted upon as one of the necessary conservation actions by scientific and conservation agencies (IUCN 2010).

Table 2. Checklist of forest birds recorded in Hosur and Dharmapuri Forest Divisions

| $\begin{gathered} \text { S. } \\ \text { No. } \end{gathered}$ | Common Name | Scientific Name | Order | IUCN status | Range/s found |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Crested Tree Swift | Hemiprocne longipennis | Apodiformes | LC | A, J \& U |
| 2 | House Swift | Apus affinis | Apodiformes | LC | D \& J |
| 3 | Palm Swift | Cypsiurus parvus | Apodiformes | LC | A, D, H, J \& U |
| 4 | Common Grey Hornbill | Tockus birostris | Bucerotiforms | NR | A \& U |
| 5 | Emerald Dove | Chalcophaps indica | Columbiformes | LC | A, D \& U |
| 6 | Green Imperial Pigeon | Ducula aenea | Columbiformes | LC | D \& U |
| 7 | Grey fronted Green Pigeon | Treron pompaddora | Columbiformes | NR | D |
| 8 | Little Brown Dove | Streptopelia senegalensis | Columbiformes | LC | H |
| 9 | Ring Dove | Streptopelia decaocto | Columbiformes | LC | J |
| 10 | Rufous Turtle Dove | Streptopelia orientalis | Columbiformes | LC | A, D \& J |
| 11 | Spotted Dove | Streptopelia chinensis | Columbiformes | LC | A, D, H, J \& U |
| 12 | Blue Breasted Bee-Eater | Nyctyornis athertoni | Coraciformes | LC | D |
| 13 | Blue Jay | Coracias benghalensis | Coraciformes | LC | A, D, H, J \& U |
| 14 | Chestnut headed Bee Eater | Merops leschenaulti | Coraciformes | LC | A, D \& U |
| 15 | European Bee Eater | Merops apister | Coraciformes | NR | U |
| 16 | Small Green Bee Eater | Merops orientalis | Coraciformes | LC | A, D, H \& J |
| 17 | Common Hawk Cuckoo | Cuculus varius | Cuculiformes | LC | A, D \& U |
| 18 | Crow Pheasant | Centropus sinensis | Cuculiformes | LC | A, D, H, J \& U |
| 19 | Cuckoo | Cuculus canorus | Cuculiformes | LC | A \& D |
| 20 | Indian Drongo Cuckoo | Surniculus lugubris | Cuculiformes | LC | A, D \& J |
| 21 | Koel | Eudynamys scolopacea | Cuculiformes | LC | D, H, J \& U |
| 22 | Lesser Coucal | Centropus toulou | Cuculiformes | LC | D \& J |
| 23 | Pied Crested Cuckoo | Clamator jacobinus | Cuculiformes | LC | D \& J |
| 24 | Red winged Crested Cuckoo | Clamator coromandus | Cuculiformes | LC | A \& D |
| 25 | Sirkeer Cuckoo | Taccocua leschenaultii | Cuculiformes | NR | A, D, H \& U |
| 26 | Small Green-billed Malkoha | Rhopodytes tristis | Cuculiformes | NR | D \& J |
| 27 | Basra Sparrow Hawk | Accipiter virgatus | Falconiformes | LC | D, J \& U |
| 28 | Black Eagle | Ictinaetus malayensis | Falconiformes | LC | D \& U |
| 29 | Black Kite | Milvus migrans | Falconiformes | LC | A, D, H, J \& U |
| 30 | Black Winged Kite | Elanus caeruleus | Falconiformes | LC | A, D, J \& U |
| 31 | Brahminy Kite | Haliastur indicus | Falconiformes | LC | A, D, H, J \& U |
| 32 | Crested Hawk Eagle | Spizaetus cirrhatus | Falconiformes | NR | A, D \& J |
| 33 | Crested Serpent Eagle | Spilornis cheela | Falconiformes | NR | A, D \& U |
| 34 | Feather Toed Hawk Eagle | Spizaetus nipalensis | Falconiformes | LC | A, D \& J |
| 35 | Kestrel | Falco tinnunculus | Falconiformes | LC | D \& J |

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Forest Range/s found: A: Anchetty, D: Denkanikotta, J: Jawalagiri, R: Royakotta, U: Urigam.
Table 2 continued ...

Table 2. (Continued) Checklist of forest birds recorded in Hosur and Dharmapuri Forest Divisions

| S. <br> No. | Common Name | Scientific Name | Order | IUCN <br> status | Range/s found |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 36 | Marsh harrier | Circus aeruginosus | Falconiformes | LC | A, D \& U |
| 37 | Shikra | Accipiter bandius | Falconiformes | LC | A, D, H, J \& U |
| 38 | Short toed eagle | Circaetus gallicus | Falconiformes | LC | A, D \& J |
| 39 | Tawny eagle | Aquila vindhiana | Falconiformes | LC | D |
| 40 | Egyptian vulture | Neophron percnopterus | Falconiformes | EN | J |
| 41 | Common peafowl | Pavo cristatus | Galliformes | LC | D \& U |
| 42 | Grey jungle fowl | Gallus sonneratii | Galliformes | LC | A, D, J \& U |
| 43 | Grey partridge | Francolinus pondicerianus | Galliformes | LC | A, D, J \& U |
| 44 | Jungle bush quail | Perdicula asiatica | Galliformes | LC | D \& J |
| 45 | Painted bush quail | Perdicula erythrorhyncha | Galliformes | LC | D \& J |
| 46 | Painted sand grouse | Pterocles indicus | Galliformes | LC | D \& J |
| 47 | Red spur fowl | Gallopperdix spadicea | Galliformes | NR | D \& J |
| 48 | Ashy prinia | Prinia socialis | Passeriformes | LC | A, D, H, J \& U |
| 49 | Ashy swallow shrike | Artamus fuscus | Passeriformes | LC | A, D \& U |
| 50 | Asian brown flycatcher | Muscicapa dauurica | Passeriformes | LC | A, D \& U |
| 51 | Bay backed shrike | Lanius vittatus | Passeriformes | LC | A \& U |
| 52 | Baya weaver bird | Ploceus philippinus | Passeriformes | LC | A \& U |
| 53 | Black drongo | Dicrurus adsimilis | Passeriformes | NR | A, D, H, J \& U |
| 54 | Black headed cuckoo shrike | Coracina melanoptera | Passeriformes | LC | A \& J |
| 55 | Black headed oriole | Oriolus xanthornus | Passeriformes | LC | A, D, J \& U |
| 56 | Black napped oriole | Oriolus chinensis | Passeriformes | LC | A \& U |
| 57 | Booted warbler | Hippolais caligata | Passeriformes | LC | D \& H |
| 58 | Brahminy myna | Sturnus pagodarum | Passeriformes | LC | D \& U |
| 59 | Bronze drongo | Dicrurus aeneus | Passeriformes | LC | D |
| 60 | Brown flycatcher | Muscicapa latirostris | Passeriformes | LC | D |
| 61 | Brown rock chat | Cercomela fusca | Passeriformes | LC | D |
| 62 | Brown shrike | Lanius cristatus | Passeriformes | LC | A \& J |
| 63 | Chestnut bellied nuthatch | Sitta castanea | Passeriformes | LC | D |
| 64 | Common babbler | Turdoides caudatus | Passeriformes | LC | A, D, H, J \& U |
| 65 | Common Iora | Aegithina tiphia | Passeriformes | LC | A, D, H, J \& U |
| 66 | Common myna | Acridotheres tristis | Passeriformes | LC | A, D, H, J \& U |
| 67 | Dulgreen leaf warbler | Phylloscopus trodhiloides | Passeriformes | NR | A, D, J \& U |
| 68 | Fairy bluebird | Irena puella | Passeriformes | LC | D |
| 69 | Forest wagtail | Motacilla indica | Passeriformes | LC | A, D, J \& U |
| 70 | Golden fronted chloropsis | Chloropsis aurifrons | Passeriformes | NR | A, D, J \& U |

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Forest Range/s found: A: Anchetty, D: Denkanikotta, J: Jawalagiri, R: Royakotta, U: Urigam.

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Table 2. (Continued) Checklist of forest birds recorded in Hosur and Dharmapuri Forest Divisions

| $\begin{gathered} \text { S. } \\ \text { No. } \end{gathered}$ | Common Name | Scientific Name | Order | IUCN status | Range/s found |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 71 | Golden mantled chloropsis | Chloropsis cochinchinensis | Passeriformes | NR | A, D, J \& U |
| 72 | Golden oriole | Oriolus oriolus | Passeriformes | LC | A, D, J \& U |
| 73 | Grey heated myna | Sturnus malabaricus | Passeriformes | LC | D |
| 74 | Grey tit | Parus major | Passeriformes | LC | D |
| 75 | Grey wagtail | Motacilla cinerea | Passeriformes | LC | D |
| 76 | Hair crested drongo | Dicrurus hottentottus | Passeriformes | LC | D |
| 77 | Indian pitta | Pitta brachyura | Passeriformes | LC | D, J\& U |
| 78 | Indian robin | Saxicoloides fulicata | Passeriformes | LC | A, D, H, J \& U |
| 79 | Jungle babbler | Turdoides striatus | Passeriformes | LC | A, D, H, J \& U |
| 80 | Jungle myna | Acridotheres fuscus | Passeriformes | LC | D \& J |
| 81 | Jungle prinia | Prinia sylvatica | Passeriformes | LC | D \& J |
| 82 | Large cuckoo shrike | Coracina novaehollandiae | Passeriformes | LC | D \& J |
| 83 | Large grey babbler | Turdoides malcolmi | Passeriformes | LC | H |
| 84 | Large pied wagtail | Motacilla maderaspatensis | Passeriformes | LC | D, H, J \& U |
| 85 | Lesser whitethroat | Sylvia curruca | Passeriformes | LC | D |
| 86 | Long tailed minivet | Pericrocotus ethologus | Passeriformes | LC | D |
| 87 | Lotens sunbird | Nectarinia lotenia | Passeriformes | LC | D \& J |
| 88 | Magpie robin | Copsychus saularis | Passeriformes | LC | A, D, H, J \& U |
| 89 | Marshall's iora | Aegithina nigrolutea | Passeriformes | LC | D |
| 90 | Orange headed ground thrush | Zoothera citrina | Passeriformes | LC | D |
| 91 | Orphan warbler | Sylvia hortensis | Passeriformes | LC | D |
| 92 | Paddy field pipit | Anthus novaeseelandiae | Passeriformes | LC | D \& J |
| 93 | Paddy field warbler | Acrocephalus agricola | Passeriformes | NR | D \& J |
| 94 | Paradise flycatcher | Terpsiphone paradisi | Passeriformes | LC | A, D, H, J \& U |
| 95 | Pied bush chat | Saxicola caprata | Passeriformes | LC | A, D, H, J \& U |
| 96 | Plain prinia | Prinia inornata | Passeriformes | LC | D, H, J \& U |
| 97 | Plain wren warbler | Prinia subflava | Passeriformes | LC | D, H, J \& U |
| 98 | Purple rumped sunbird | Nectarinia zeylonica | Passeriformes | LC | A, D, H, J \& U |
| 99 | Purple sunbird | Nectarinia asiatica | Passeriformes | LC | A, D, H, J \& U |
| 100 | Racket tailed drongo | Dicrurus paradiseus | Passeriformes | LC | D \& J |
| 101 | Red rumped swallow | Hirundo daurica | Passeriformes | NR | A, D, J \& U |
| 102 | Red vented bulbul | Pycnonotus cafer | Passeriformes | LC | A, D, H, J \& U |
| 103 | Red whiskered bulbul | Pycnonotus jocosus | Passeriformes | LC | A, D, H, J \& U |
| 104 | Rosefich | Carpodacus erythrinus | Passeriformes | LC | J |
| 105 | Rosy pastor | Sturnus roseus | Passeriformes | LC | D \& H |
| 106 | Rufous breasted bush robin | Tarsiger hyperythrus | Passeriformes | LC | D |
| 107 | Rufous tailed rock thrush | Monticola saxatilis | Passeriformes | LC | D |

IUCN status: EN: Endangered, LC: Least Concerned, NT: Near Threatened, VU: Vulnerable, NR: Not Recognized.
Forest Range/s found: A: Anchetty, D: Denkanikotta, J: Jawalagiri, R: Royakotta, U: Urigam.

Table 2 continued ...

Table 2. (Continued) Checklist of forest birds recorded in Hosur and Dharmapuri Forest Divisions

| $\begin{gathered} \text { S. } \\ \text { No. } \end{gathered}$ | Common Name | Scientific Name | Order | $\begin{aligned} & \hline \text { IUCN } \\ & \text { status } \end{aligned}$ | Range/s found |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 108 | Rufous-backed shrike | Lanius schach | Passeriformes | LC | A, D \& U |
| 109 | Rufous-bellied babbler | Dumetia hyperythra | Passeriformes | LC | D, J \& H |
| 110 | Rufous-fronted wren warbler | Prinia buchanani | Passeriformes | LC | D, J \& H |
| 111 | Scarlet minivet | Pericrocotus flammeus | Passeriformes | LC | D |
| 112 | Small minivet | Pericrocotus cinnamomeus | Passeriformes | LC | A, D \& J |
| 113 | Small sunbird | Nectarinia minima | Passeriformes | LC | A, D, H, J \& U |
| 114 | Spotted babbler | Pellorneum ruficeps | Passeriformes | LC | H \& J |
| 115 | Spotted munia | Lonchura punctulata | Passeriformes | LC | J |
| 116 | Streaked wren warbler | Prinia gracilis | Passeriformes | LC | D \& J |
| 117 | Tailor bird | Orthotomus sutorius | Passeriformes | LC | A, D, H, J \& U |
| 118 | Thick billed flowerpecker | Dicaeum agile | Passeriformes | LC | J |
| 119 | Tickell's flowerpecker | Dicaeum erythrorhynchos | Passeriformes | LC | J |
| 120 | Tree pie | Dendrocitta vagabunda | Passeriformes | LC | A, D, H, J \& U |
| 121 | Velvet fronted nuthatch | Sitta frontalis | Passeriformes | LC | D |
| 122 | Verditer flycatcher | Muscicapa thalassina | Passeriformes | LC | J |
| 123 | White bellied drongo | Dicrurus caerulescenns | Passeriformes | NR | A, D, H, J \& U |
| 124 | White eye | Zosterops palpebrosa | Passeriformes | VU | J |
| 125 | White browed bulbul | Pycnonotus luteolus | Passeriformes | LC | A, D, H, J \& U |
| 126 | White winged black tit | Parus nuchalis | Passeriformes | VU | D |
| 127 | Yellow wagtail | Motacilla flava | Passeriformes | LC | D |
| 128 | Black backed woodpecker | Chrysocolaptes festivus | Piciformes | LC | D |
| 129 | Crimson breasted barbet | Megalaima haemacephala | Piciformes | LC | A, D, H, J \& U |
| 130 | Golden backed woodpecker | Dinopiumbeng benghalense | Piciformes | NR | A, D, J \& U |
| 131 | Great black woodpecker | Dryocopus javensis | Piciformes | LC | D |
| 132 | Large green barbet | Megalaima zeylanica | Piciformes | LC | D \& U |
| 133 | Pigmy woodpecker | Picoides nanus | Piciformes | LC | D \& U |
| 134 | Small green barbet | Megalaima viridis | Piciformes | LC | A, D, H, J \& U |
| 135 | Blossom headed parakeet | Psittcula cyanocephala | Psittaciformes | NR | D \& J |
| 136 | Blue winged parakeet | Psittacula columboides | Psittaciformes | LC | A, D \& J |
| 137 | Lorikeet | Loriculus vernalis | Psittaciformes | LC | D |
| 138 | Rose ringed parakeet | Psittacula krameri | Psittaciformes | LC | A, D, H, J \& U |
| 139 | Shama | Copsychus malabaricus | Psittaciformes | NR | D |
| 140 | Brown fish owl | Bubo zeylonensis | Strigiformes | LC | A, D \& U |
| 141 | Indian great horned owl | Bubo bubo | Strigiformes | LC | D |
| 142 | Jungle nightjar | Caprimulgus indicus | Strigiformes | LC | A, D, H, J \& U |
| 143 | Mottled wood owl | Strix leptogrammica | Strigiformes | LC | D |
| 144 | Spotted owlet | Athene brama | Strigiformes | LC | A, D, H, J \& U |
| 145 | Hoopoe | Upupa epops | Upupiformes | NR | A, D, H, J \& U |

IUCN status: EN: Endangered, LC: Least Concerned, NT: Near Threatened, VU: Vulnerable, NR: Not Recognized.
Forest Range/s found: A: Anchetty, D: Denkanikotta, J: Jawalagiri, R: Royakotta, U: Urigam.

Table 3. Checklist of avifauna found in wetlands, riverine environment and in human-settlements in and around Hosur and Dharmapuri Forest Divisions

| S. No. | Common Name | Scientific Name | Order | IUCN <br> status | Range/s found |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Wetland birds |  |  |  |  |  |
| 1 | Lesser whistling teal | Dendrocygna javanica | Anseriformes | LC | D \& J |
| 2 | Pintail duck | Anas acuta | Anseriformes | LC | D \& J |
| 3 | Spotbill duck | Anas crecca | Anseriformes | LC | D \& H |
| 4 | Marsh sandpiper | Tringa stagnatilis | Charadriiformes | LC | D \& J |
| 5 | Red wattled lapwing | Vanellus indicus | Charadriiformes | LC | A, D, J \& U |
| 6 | Black winged stilt | Himantopus himantopus | Charadriiformes | LC | H \& J |
| 7 | Little ringed plover | Charadrius dubius | Charadriiformes | LC | A \& U |
| 8 | Black ibis | Pseudibis papillosa | Ciconiformes | LC | D \& H |
| 9 | Black stock | Ciconia nigra | Ciconiformes | LC | A \& U |
| 10 | Cattle egret | Bubulcus ibis | Ciconiformes | LC | A, D, H, J \& U |
| 11 | Darter | Anhinga rufa | Ciconiformes | LC | A \& U |
| 12 | Grey heron | Ardea cinerea | Ciconiformes | LC | D, H \& U |
| 13 | Large cormorant | Phalacrocorax carbo | Ciconiformes | LC | A \& U |
| 14 | Little cormorant | Phalacrocorax niger | Ciconiformes | LC | A, D, J \& U |
| 15 | Little egret | Egretta garzetta | Ciconiformes | LC | A, D, J \& U |
| 16 | Median egret | Egretta intermedia | Ciconiformes | LC | A, D, H, J \& U |
| 17 | Painted stork | Mycteria leucocephala | Ciconiformes | NT | H |
| 18 | Pond heron | Ardeola bacchus | Ciconiformes | LC | D, H, J \& U |
| 19 | Purple heron | Ardea purpurea | Ciconiformes | LC | D \& J |
| 20 | White necked stock | Ciconia episcopus | Ciconiformes | LC | A \& U |
| 21 | Pied kingfisher | Ceryle rudis | Coraciformes | LC | A, D, J \& U |
| 22 | Small blue kingfisher | Alcedo atthis | Coraciformes | LC | D, H, J \& U |
| 23 | White breasted kingfisher | Halcyon coromanda | Coraciformes | LC | A, D, H, J \& U |
| 24 | White breasted waterhen | Amaurornis phoenicurus | Galliformes | LC | A, D, H, J \& U |
| 25 | Common coot | Anas crecca | Gruiformes | LC | D, H \& J |
| 26 | Purple moorhen | Porphyrio porphyrio | Gruiformes | LC | D \& J |
| 27 | White wagtail | Motacilla alba | Passeriformes | NR | A \& U |
| Riverine birds |  |  |  |  |  |
| 28 | River tern | Sterna aurantia | Charadriiformes | LC | A \& U |
| 29 | Brown headed stork-billed kingfisher | Pelargopsis capensis | Coraciformes | LC | A \& U |
| 30 | Grey headed fish eagle | Ichthyophaga ichthyaetus | Falconiformes | NT | A \& U |
| 31 | Indian blue robin | luscinia brunnea | Passeriformes | LC | A \& U |
| 32 | White browed fantail flycatcher | Rhipidura aureola | Passeriformes | LC | A \& D |
| Birds of human-settlements |  |  |  |  |  |
| 33 | Blue rock pigeon | Columba livia | Columbiformes | LC | D \& H |
| 34 | House crow | Corvus splendens | Passeriformes | LC | A, D, H, J \& U |
| 35 | House sparrow | Passer domesticus | Passeriformes | LC | A, D, H, J \& U |
| 36 | Jungle crow | Corvus macrorhynchos | Passeriformes | LC | A, D, H, J \& U |
| 37 | Scops owl | Otus scops | Strigiformes | NR | D |

IUCN status: EN: Endangered, LC: Least Concerned, NT: Near Threatened, VU: Vulnerable, NR: Not Recognized.
Forest Range/s found: A: Anchetty, D: Denkanikotta, J: Jawalagiri, R: Royakotta, U: Urigam.

Plate 2. Birds of Hosur Forest Division and its adjoining habitat of Dharmapuri Forest Division, Tamil Nadu

(1) Egyptian vulture, (2), Grey-headed fishing eagle, (3) Tawny eagle, (4) Crested serpent eagle, (5) Mottled wood owl, and (6) Indian great-horned owl.

Plate 2. (Continued) Birds of Hosur Forest Division and its adjoining habitat of Dharmapuri Forest Division, Tamil Nadu

(7) White eye, (8) Brown shrike, (9) Ashy prinia, (10) Asian brown fly-catcher, (11) Tailor bird, and (12) Tickell's flowerpecker

Plate 2. (Continued) Birds of Hosur Forest Division and its adjoining habitat of Dharmapuri Forest Division, Tamil Nadu

(13) Painted stork, (14) Grey heron, (15) Marsh sandpiper, (16) Spotbill duck, (17) Black winged stilt, and (18) Red wattled lapwing.

## IV. Class: Reptiles, Amphibians and Fishes

Aim: Survey and document the herpetofauna found in the Hosur and Dharmapuri Forest Divisions.

Methods: To document the reptiles of the study area we used two methods viz. (1) Visual encounter method through systematic rapid surveys at selected sites representing different habitats and (2) Ad-hoc encounter method during the course of other vertebrate faunal field surveys across the study area (Hosur and Dharmapuri FDs).

## Results:

Reptiles: Overall, 34 species of reptilian fauna belonging to two taxonomic orders (Crocodylia (with one representative Crocodylus palustris) and Sqamata) and 14 families were identified from the area surveyed (Table 4). Family Gekkonidae represented the largest number of species $(n=8)$ belonging to four genera followed by Agamidae ( 5 spp .) with two genera. It is worth mentioning that two species belonging to family Uropeltidae of primitive burrowing snakes (Green keel back and Elliott's shied-tail) have also been identified from the area. Some cryptic and complex species remain taxonomically unresolved, but are also listed here with their most conforming nomina. Except marsh crocodile (listed as vulnerable), data on the remaining species of reptiles are very scanty and hence not recognized by IUCN (2010). The study has not come across any representatives from the taxonomic order testudines (the terrapins and tortoises), which may be due to poor attention.

Amphibians: The class amphibia was the least represented taxonomic forms in the study area with eight species of frogs belonging to three families-Mycrohylidae (3 genera and 4 spp. ), Rhacophoridae ( 1 sp. ) and Dicroglossidea ( 3 genera and species each)-and two species of toads belonging to family Bufonidae (Table 5). All the species are listed as Least Concerned in IUCN (2010). The study may have overlooked some of the common species of frogs and hence the species listed here could be an underestimation.

Fishes: In total, the class fishes representing 18 species belonging to six families were identified from the perennial river Cauvery and Panjapalli Reservoir. Of these, Deccan Mahseer (Tor khudree) is an endangered species and common carp (Cyprinus carpio) a vulnerable species as per the IUCN Red List (2010).

Table 4. List of reptilian fauna recorded from Hosur and in Hosur and Dharmapuri Forest Divisions between July 2009 and April 2010

| $\begin{gathered} \text { S. } \\ \text { No. } \end{gathered}$ | Common Name | Scientific Name | Family | $\begin{aligned} & \hline \text { IUCN } \\ & \text { status } \end{aligned}$ | Range/s found |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Marsh crocodile | Crocodylus palustris | Crocodylidae | VU | A \& U |
| 2 | House gecko | Hemidactylus frenatus complex | Gekkonidae | NR | A, D \& J |
| 3 | Mysore day gecko | Cnemaspis cf. mysorensis | Gekkonidae | NR | D \& J |
| 4 | Brook's gecko | Hemidactylus brookii complex | Gekkonidae | NR | A |
| 5 | Termite hill gecko | Hemidactylus triedrus | Gekkonidae | NR | D |
| 6 | Spotted rock gecko | Hemidactylus maculatus | Gekkonidae | NR | D \& J |
| 7 | Western Ghats worm gecko | Hemiphyllodactylus aurantiacus | Gekkonidae | NR | D |
| 8 | Kollegal ground gecko | Geckoella collegalensis | Gekkonidae | NR | D |
| 9 | Unidentified day gecko | Cnemaspsi sp | Gekkonidae | NR | A \& D |
| 10 | Peninsular rock agama | Psammophilus dorsalis | Agamidae | NR | A, D \& J |
| 11 | Indian rock agama | Psammophilus blanfordanus | Agamidae | NR | D \& J |
| 12 | Unidentified rock agama | Psammophilus sp | Agamidae | NR | D |
| 13 | Garden lizard | Calotes versicular | Agamidae | NR | A, D, J\& U |
| 14 | Leschenault's lacertid lizard | Ophisops leschenaultii | Lacertidae | NR | A \& J |
| 15 | Monitor lizard | Varanus varanus | Varanidae | NR | A \& U |
| 16 | Roux's forest lizard | Calotes rouxii | Agamidae | NR | D |
| 17 | Chameleon | Chamealeon chamealeon | Chamaeleonidae | NR | D, J \& U |
| 18 | Bronze grass skink | Eutropis macularia | Scincidae | NR | D |
| 19 | Bibron's skink | Eutropis bibroni | Scincidae | NR | A |
| 20 | Spotted snake skink | Lygosoma punctata | Scincidae | NR | A \& D |
| 21 | Undetermined skink | Lygosoma sp | Scincidae | NR | J |
| 22 | Spectacled cobra | Naja naja | Elepidae | DD | A, D, J \& U |
| 23 | Indian python | Python molurus | Pythonidae | NT | D \& H |
| 24 | Common krait | Bungarus caeruleus | Elepidae | NR | D \& H |
| 25 | Russell's viper | Dabaia russelli | Viperidae | NR | D \& J |
| 26 | Yellow rat snake | Obsoleta quadrivittata | Colubridae | NR | A \& U |
| 27 | Wolf snake | Lycodon capucinus | Colubridae | NR | D \& H |
| 28 | Common keel back | Xenochrophis flavipunctata | Colubridae | NR | A \& U |
| 29 | Green keel back | Macropisthodon plumbicolor | Uropeltidae | NR | D \& J |
| 30 | Common blind snake | Ramphotyphlops braminus | Typhlopidae | NR | D \& J |
| 31 | Common sand boa | Gongylophis conicus | Boidae | NR | J |
| 32 | Elliott's shied-tail snake | Uropeltis ellioti | Uropeltidae | NR | D |

IUCN status: EN: Endangered, LC: Least Concerned, NT: Near Threatened, VU: Vulnerable, NR: Not Recognized.
Forest Range/s found: A: Anchetty, D: Denkanikotta, J: Jawalagiri, R: Royakotta, U: Urigam.

Plate 3. Reptiles of Hosur Forest Division and its adjoining habitat of Dharmapuri Forest Division, Tamil Nadu

(1) Marsh Crocodile, (2) Monitor lizard, (3) Chameleon, (4) Garden lizard, (5) Indian rock agama, (6) Peninsular rock agama, (7) Unidentified rock agama, and (8) Roux's forest lizard.

Plate 3. (Continued) Reptiles of Hosur Forest Division and its adjoining habitat of Dharmapuri Forest Division, Tamil Nadu

(9) Bibron's skink, (10) Spotted snake skink, (11) Unidentified skink, and (12) Leschenault's lacertid lizard.

Plate 3. (Continued) Reptiles of Hosur Forest Division and its adjoining habitat of Dharmapuri Forest Division, Tamil Nadu

(13) Mysore day gecko, (14) House gecko, (15) Termite hill gecko, (16) Spotted rock gecko, (17) Western Ghats worm gecko, and (18) Kollegal ground gecko

Plate 3. (Continued) Reptiles of Hosur Forest Division and its adjoining habitat of Dharmapuri Forest Division, Tamil Nadu

(19) Green keel back, (20) Common keel back, (21) Russell's viper, (22) Common sand boa, (23) Indian python, (24) Spectacled cobra, (25) Elliott's shield-tail snake and (26) Common blind snake

Table 5. List of amphibians recorded from Hosur and in Hosur and Dharmapuri Forest Divisions between July 2009 and April 2010 (note: all the species belong to the order anura)

| S. No. | Common Name | Scientific Name | Family | IUCN <br> status | Range/s <br> found |
| :---: | :--- | :--- | :--- | :--- | :--- |
| 1 | Common toad | Duttaphrynus melanostictus | Bufonidae | LC | A \& J |
| 2 | Günther's toad | Duttaphrynus hololius | Bufonidae | LC | J |
| 3 | Painted frog | Kaloula taprobanica | Microhylidae | LC | J |
| 4 | Red small-mouthed frog | Microhyla rubra | Microhylidae | LC | J |
| 5 | Ornate small-mouthed frog | Microhyla ornata | Microhylidae | LC | J |
| 6 | Marbled small-mouthed frog | Ramanella variegata | Microhylidae | LC | J |
| 7 | Common tree frog | Polypedates maculatus | Rhacophoridae | LC | J |
| 8 | Cricket frog | Fejervarya limnocharis complex | Dicroglossidae | LC | J |
| 9 | Skittering frog | Euphlyctis cyanophlyctis | Dicroglossidae | LC | A \& J |
| 10 | Indian bull frog | Hoplobatrachus tigerinus | Dicroglossidae | LC | A |

IUCN status: EN: Endangered, LC: Least Concerned, NT: Near Threatened, VU: Vulnerable, NR: Not Recognized.
Forest Range/s found: A: Anchetty, D: Denkanikotta, J: Jawalagiri, R: Royakotta, U: Urigam.

Table 6. List of fishes recorded from Hosur and in Hosur and Dharmapuri Forest Divisions between July 2009 and April 2010

| S. No. | Common Name | Scientific Name | Order | IUCN <br> status | Range/s <br> found |
| :---: | :--- | :--- | :--- | :---: | :---: |
| 1 | Marsh eel | Anguilla bengalensis | Anguilliforme | NR | A \& U |
| 2 | Mirgal | Cirrihirus mrigala | Cypriniformes | NR | A \& U |
| 3 | Orange-fin labeo | Labeo callbasu | Cypriniformes | NR | A \& U |
| 4 | Common carp | Cyprinus carpio | Cypriniformes | VU | A \& U |
| 5 | Clown goby | Sicyopterus griseus | Cypriniformes | NR | A \& U |
| 6 | Deccan mahseer | Tor khudree | Cypriniformes | EN | A \& U |
| 7 | Olive barb | Puntius sarana | Cypriniformes | NR | A \& U |
| 8 | Rosy barb | Puntius conchonius | Cypriniformes | NR | A \& U |
| 9 | Gross carp | Ctenopharyngodon idella | Cypriniformes | NR | A \& U |
| 10 | Catla | Cyprinus catla | Cypriniformes | NR | A \& U |
| 11 | Rohu | Labeo rohita | Cypriniformes | NR | A \& U |
| 12 | Wild goldfish | Carassius auratus | Cypriniformes | NR | A \& U |
| 13 | Common knife fish | Notopterus notopterus | Ostteoglossiformes | NR | A \& U |
| 14 | Snakehead fish | Chinna argus | Persiformes | NR | A \& U |
| 15 | Thilipya | Oreochromis niloticus | Persiformes | NR | A \& U |
| 17 | Orange chromide | Etroplus maculatus | Persiformes | NR | A \& U |
| 18 | Catfish | mystus nigriceps | Siluriformes | NR | A \& U |

IUCN status: EN: Endangered, LC: Least Concerned, NT: Near Threatened, VU: Vulnerable, NR: Not Recognized.
Forest Range/s found: A: Anchetty, D: Denkanikotta, J: Jawalagiri, R: Royakotta, U: Urigam.

Plate 4. Amphibians of Hosur Forest Division and its adjoining habitat of Dharmapuri Forest Division, Tamil Nadu

(1) Skittering frog, (2) Gunther's toad, (3) Painted frog, (4) Red small mouthed frog, (5) Ornate small-mouthed frog, (6) Marbled small-mouthed frog, (7) Common tree frog and (8) Cricket frog.

Plate 5. Fishes of Hosur forest Division and its adjoining habitat of Dharmapuri Forest Division, Tamil Nadu

(1) Orange-fin labeo, (2) Clown goby, (3) Deccan mahseer, (4) Common knife fish, (5) Wild goldfish, and (6) Common carp

Plate 5. (Continued) Fishes of Hosur forest Division and its adjoining habitat of Dharmapuri Forest Division, Tamil Nadu

(7) Rosy barb, (8) Orange chromide, (9) Mirgal, (10) Olive barb, (11) Rohu and (12) Snakehead fish

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