

Vertebrate (Birds and Mammals) Faunal Composition of Hadgarh Wildlife Sanctuary, Orissa



Atindra Murmu , P. C. Mazumdar and S. Chaudhuri



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Orissa**

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and
S. Chaudhuri**

**Zoological Survey of India
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INTRODUCTION

Hadgarh Wildlife Sanctuary is located in Keonjhar and Mayurbhanj districts of Orissa and lies between 21°12' to 21°23' N latitude and 86°12'30" to 86°21'30" E longitude. It was declared as a Sanctuary in the year 1978 with a total area of 191.6 km² of which 116.514 km² belong to Boula Reserve Forest of Keonjhar district and rest 75.086 km² belong to part of Satkosia Reserve Forest of Mayurbhanj district. The Boula hill ranges are extensions of Simlipal hill of Mayurbhanj district. The landscape with miscellaneous vegetations and smaller hills contains variety of flora and the impenetrable dense cover provides very good shelter and breeding ground for wildlife. Other ecological zones have also given rise to a rich and diversified fauna. As no detailed information is available on the fauna composition of this sanctuary, Zoological Survey of India took up this project as a part of the exploration of fauna of conservation areas programme and conducted a number of faunastic surveys during the year 2007 to 2009 in this area. During this survey attempts were made to identify the existing faunal composition along with ecological data, population trend and factors affecting them. For this purpose in addition to systematic field observations, necessary discussions with the management people and local people were made. In the present paper, an account of the faunal composition with special reference to mammals and birds of Hadgarh Wildlife Sanctuary along with the ecological conditions have been given.

PHYSICAL FEATURES

Hadgarh Wildlife Sanctuary falls within the Bio geographic zone of Deccan Peninsula and within the Bio-geographic province of Chota Nagpur Plateau. The sanctuary falls within Mahanadian Bio-geographic region.

According to geological stratigraphic classification the sanctuary falls within the Boula-Nuasahi hilly region and exhibits extensive occurrence of quartzite and quartzschist on both sides of Salandi River. Boula and Nuasahi chromite deposits are found in association with peridotite and Serpentinites and are having 98% of the total chromite reserve of the country. The sanctuary forms a part of the Eastern Ghats group of rocks having iron ore of tertiary origin. This physical feature has resulted in a number of industries within the sanctuary area engaged in mining operations.

The forest of the sanctuary has continuity with Simlipal Reserve Forest in the north. In the north-eastern side it is linked with sparse vegetation to corridor of 'Kuldiha Sanctuary of Balasore district.

The sanctuary has cluster of hill ranges and valley. The valley is totally occupied by the reservoir resulting in fragmentation of forest cover as a vast area was submerged while constructing it. The clusters of hills are in the western and southern tracts, the highest peak being Boula Pahad (558 m). The hilly tract is inaccessible for dense undergrowth except some bridle paths used by local tribes as means of communication.

Major part of the other plain lands of the sanctuary available at Dalki and Pitanau were found to be occupied by human settlements with their traditional cultivation and huge number of domestic cattle.

Water supply in the sanctuary during rain and winter remains adequate. A reservoir known as Hadgarh reservoir has been constructed with a total area of 31.83 km² to store for irrigation purposes. This reservoir together with Salandi River forms the largest perennial source of water for wildlife throughout the year. In addition to this, there are numerous seasonal and perennial nalas inside the sanctuary which dries up during summer period.

CLIMATE

The area is having sub-tropical dry climate with occasional storms and limited downpours. There are three distinct seasons viz. summer (March to June), Rainy (July to October) and Winter (November to February).

The average rain fall ranges from 1717 to 2369 mm per year. Maximum temperature recorded to be 35°C during April-May and minimum to be 6°C during Nov-Jan. The area is quite humid with relative humidity ranging between 62% to 92%, cyclone and wind are not severe and the main cyclone periods are between September to December every year. Forest in the higher hill slopes are affected by drought during summer period.

FLORA

The general character of vegetation is tropophilous having some xerophytic character in many of its species. The sanctuary comprises of mixed deciduous forests with miscellaneous species.

According to Champion and Seth (1968), the forest of the sanctuary can be classified broadly into the following major types.

Group 5B-Northern Tropical Dry Deciduous Forest. Within this main group several variations was found to occur due to edaphic and biotic factors giving rise to following to sub-groups:

- a) **5B/C1-Dry Peninsular Sal Forests-** 29236 ha Boula Reserve Forests comes within sub-group. The forest is of poor quality having associates like Terminalia tomentosa, Pterocarpus marsupium, Adina cordifolia, Anogeissus latifolia, Diospyros melanoxylon, Terminalia chebula, Terminalia bellerica, Lannia coromandelica, Dalbergia latifolia etc. The common plant species found are Emblica officinalis, Cassia fistula, Symplocos racemosus, Cleistanthus collinus, Antidesma sp., Randia sp. and Morinda tinctoria. The undergrowth formed by Flemingia chappar, Wordfordia fruticosa, Indigofera pulchela, Desmodium sp. and Strobilanthes sp. The climbers found in this forest were Bauhinia vahlii and Smilax sp. while Combretum decandrum were found to occur in valleys and ravines. The forest was found to have all trees of about 20 mtrs. Height but the canopy was irregular. Some Sal trees were also found to occur.
- b) **5B/C2-Northern dry mixed deciduous forests.** 7498 ha of forests found within the Boula Reserve Forests found come within this sub-group and are found particularly on the steep hill slopes. These forests were found to have poor vegetation. The upper canopy were irregular and often broken have certain parts. The trees were found to have short bole, poor in form with spreading crown. The height of the trees were 15 to 20 mtrs. The main season for such type of vegetation was

topography, shallow nature of the soil coupled with hot weather and exposure to varied climate conditions. The regeneration condition was found to be fair but rate of growth being very slow. In the forest *Acacia* sp. were often seen in groups on the southern aspects of steep hills. Other plant species found were *Terminalia chebula*, *Terminalia bellerica*, *Terminalia tomentosa*, *Pterocarpus marsupium*, *Adina cordifolia*, *Lagerstroemia parviflora* and *Boswellia serrata*. The middle story consisted of *Cassia fistula*, *Gardenia stricta*, *Cleistanthus collinus* and *Emblia officinalis* were very poor quality. Sal found to be very less in this type of forests. *Nyctanthes arborescens* were found in abundance. The undergrowth is poor and was formed by shrubs like *Holoptelea* sp. with grass species *Andropogon setaceus* and *Cymbopogon martinii*, *Butea superba* were the only climbers found there in.

METHODOLOGY

The entire sanctuary was covered partly on vehicle and mainly on foot. Survey was conducted from early morning to noon and again the afternoon to night. Animals observed were identified with the help of 07-50 binocular. During night a high power head light was used to locate the nocturnal animals and to identify them. In addition to this foot prints and faecal matters of different animals found during survey work were also identified as per existing literature.

FAUNAL COMPOSITION

Differences in the elevation, soil composition along with a number of perennial rivers and Hadgarh reservoir have provided great range of variations in respect of micro and macro ecosystem within the sanctuary. This varied ecosystem in turn has resulted in a rich, both qualitative and quantitative fauna in the sanctuary. Mazumder & Dasgupta (1993) gave a complete account of the birds of the state. Das et. al. (1993) gave a complete account of the mammals of the state. Behura & Guru (1969) gave a complete account of the Wildlife of Orissa. But no information is available as regards of the faunal composition of the sanctuary. Based on sightings, earlier published, records and collected local information. An account of the fauna of the sanctuary is given below. For systematic account of mammals Alfred et. al., 2000 and for that of birds Ali & Repley, 1983 have been followed here.

For determination of status following abbreviations have been used

IWPA = Indian Wildlife (Protection) Act, 1972.

CAMP = Conservation Assessment and Management Plan of Biodiversity Conservation Prioritization Project Workshop 1998.

RDB = Indian Red Data Book.

VU = Vulnerable.

NE = Not Evaluated.

DD = Data Deficiency.

LRlc = Lower Risk Least concern.

LRnt = Lower Risk near threatened.

SYSTEMATIC ACCOUNT

Class MAMMALIA
Order INSECTIVORA
Family SORICIDAE

1. *Suncus etruscus* (Savi)

Common name: Savi's Pygmy Shrew (Eng).

Remarks: Moderately common. Only four specimens were seen in the forests of Pitanau and Dalki. Nests made up of dried leaves were found in the forest bushes.

Status: CAMP- LR1c (Nationally and Globally).

2. *Suncus Murinus* (Linnaeus)

Common Name: House Shrew (Eng); Chuchundra (Oriya).

Remarks: Most common especially in and around houses, stores and fringes areas of the forest. Nests were found by the side of the bushes, garbage and drain. Nests were made of leaves, paper, polythene, clothes etc. breeding females were found in pre and post monsoon period.

Status: CAMP- LR1c (Nationally and Globally).

Order SCANDENTIA
Family TUPAIIDAE

3. *Anathana ellioli* (Waterhouse)

Common name: Madras Tree Shrew (Eng).

Remarks: Common. A number of animals were found inside the forest. Food consists mainly insects but fruit are also taken. A pair or family party establishes a territory and drives away intruders of its own species. Moves on ground and take to trees as a means of escape or shelter. They resemble a squirrel in appearance.

Status: CAMP- LRnt.

Order CHIROPTERA
Family PTEROPODIDAE

4. *Cynopterus sphinx* (Vahl)

Common name: Short nosed fruit Bat (Eng); Baduri (Oriya).

Remarks: Most common throughout the reserve. Large number of them was found to visit all the orchards and fruit bearing trees of the forests causing much damage. Even then they play an important role in the natural pollination and dispersal of seed in the forest ecosystem.

Status: CAMP- LR1c (Nationally); DD (Globally).

5. *Rousettus leschenaultia* (Desmarest)

Common name: Indian Fulvous Fruit Bat (Eng); Baduri (Oriya).

Remarks: Common. Visits orchards of the villages as well as in the forests for wildfruits. Found to roost in small caves and crevices of low hills of the reserve.

Status: CAMP- LRIc (Nationally); DD (Globally).

Family MEGADERMATIDAE

6. **Megaderma lyra** (Geoffroy)

Common name: Indian False Vampire (Eng); Baduri (Oriya).

Remarks: Common. Roosts were found in deserted rooms, as well as regularly used semi dark garage, godowns and various palaces. At tower house of Pitanau, it was found to roost temporarily during late night in the toilet along with *Rhinolophus rouxi*.

Status: CAMP - LRIc (Nationally), DD (Globally).

Family RHINOLOPHIDAE

7. **Rhinolophus lepidus** (Blyth)

Common names: Blyth's Horseshoe Bat (Eng), Baduri (Oriya).

Remarks: Common. A troop of twelve animals were seen in a cave near Godachandi temple.

Status: CAMP - LRnt (Nationally), DD (Globally).

8. **Rhinolophus rouxi** (Temminck)

Common names: Peninsular Horseshoe Bat (Eng), Baduri (Oriya).

Remarks: Common. A number of animals were found to roost temporarily during late night in the toilet of Tower House erected by the Forest Dept. at Pitanau.

Status: CAMP - LRnt (Nationally), DD (Globally).

9. **Hipposideros speoris** (Schneider)

Common names: Schneider's leaf nosed Bat (Eng); Baduri (Oriya)

Remarks: Common. A troop of about fifteen animals were found roosting in rock crevices near Godachandi temple.

Status: CAMP - LRnt (Nationally), DD (Globally).

Family VESPERTILIONIDAE

10. **Pipistrellus coromandra** (Gray)

Common names: Indian Pipistrelle (Eng); Baduri (Oriya).

Remarks: Common. A number of animals could be seen at dusk while flying over Dam and other open places. Small roost of 6-8 individuals were found in the holes of trees, walls and many other places even within the busy human habitations.

Status: CAMP - LRnt (Nationally).

11. **Pipistrellus mimus** (Wroughton)

Common names: Indian Pygmy Pipistrelle (Eng); Baduri (Oriya).

Remarks: Common and easily found in and around residential areas human beings. Roost of four individuals was found in the hole of a tree at Dalki.

Status: CAMP- NE.

12. *Scotophilus kuhlii* (Leach)

Common names: Asiatic Lesser Yellow Bat (Eng); Baduri (Oriya).

Remarks: Common. Large number of them were found to roost in small groups in different places of less used man made structure and also in caves and crevices. A troop of six individuals were found roosting in the crevices of the wall of Irrigation Bungalow at Hagarh.

Status: CAMP - LRnt (Nationally), DD (Globally).

Order PRIMATES.

Family CERCOPITHECIDAE.

13. *Macaca mulatta* (Zimmermann)

Common names: Rhesus Macaque (Eng); Pati Makar (Oriya).

Remarks: Common in the forested areas. Occasionally raids the orchards and vegetable gardens. Altogether eight troops were observed. Troop size varied from 10 to 30 animals. Juveniles and youngs were found both in summer and winter.

Status: IWPA-Schedule II; CAMP - LRlc (Nationally), DD (Globally); CITES- Appendix II.

14. *Semnopithecus entellus* (Dufresne)

Common names: Langur, Entellus Monkey (Eng); Hanu Makar (Oriya).

Remarks: Common in the fringe areas of the forest, regularly invading the agricultural crops and orchards. Some of the troops move around a large area during the day for foraging. Troop size varied from 10-30 animals of different ages.

Status: IWPA- Schedule II; CAMP - LRlc (Nationally), DD (Globally); CITES - Appendix I.

Order CARNIVORA

Family CANIDAE

15. *Canis aureus* (Linnaeus)

Common names: Asiatic Jackal (Eng); Siala (Oriya).

Remarks : Common. The animal is not primarily a forest dweller, prefers to live near human habitations and beneficial in controlling rodent population in crop fields. Mostly it was seen singly, but occasionally found in pairs also. Juvenile individuals were observed more during summer.

Status: IWPA- Schedule II, Part-II; CAMP- LRlc (Nationally);

CITES- Appendix III.

16. *Vulpes bengalensis* (Shaw)

Common names: Indian Fox (Eng); Kokisiali (Oriya).

Remarks: Moderately common in the reeds and grass jungles along the bank of rivers and canals, in the cultivated fields, but not in the deep forest. It comes out of the dusk and moves almost throughout the night in and around villages in search of food. It helps in the biological control of several agricultural pest species. Only two animals could be seen near Dalki.

Status: IWPA, Schedule II, Part-II; CAMP, LRnt (Nationally), DD (Globally); CITES, Appendix III.

Family FELIDAE

17. *Felis Chaus* (Schreber)

Common name: Jungle Cat (Eng.)

Remarks: Moderately common in scrub jungle, reedy and grassy banks of canals and rivers. Also takes above in other suitable places like deserted houses, godown etc. within the villages. It plays an important role in the control of wild rodent population. Only three animals could be seen in the forested areas of Pitanau and Dalki.

Status: IWPA - Schedule II, Part-II; CAMP- LRnt (Nationally); DD (Globally); CITES- Appendix II.

18. *Prionailurus viverrinus* (Benett)

Common name: Fishing Cat (Eng.)

Remarks: Moderately common. A waterside animal, feed on fish and shell fish. It also kills birds and small mammals Due to habitat destruction the distribution of this animal in the sanctuary is restricted to Hadgarh reservoir and its down streams. Only two animals could be seen throughout the survey period.

Status: IWPA - Schedule I, Part-I; RDB, VU; CAMP-VU (Nationally), DD(Globally); CITES-Appendix II.

19. *Panthera pardus* (Linnaeus)

Common names: Leopard, Panthera (Eng); Chita Bagha (Oriya).

Remarks: Moderately common in deeper parts of the forests. Frequently visits open areas and villages in search of prey species. Lifting of domestic cattle was also reported by villagers. Pug marks and scats were found in a number of places. During the survey period only a single animal was seen inside forest at Pitanau.

Status: IWPA - Schedule I, Part-I; RDB, VU; CITES, Appendix I; CAMP- VU (Nationally), DD (Globally).

20. *Panthera tigris* (Linnaeus)

Common names: Tiger (Eng.); Bagha (Oriya).

Remarks: Various forests, interspersed with cane brakes, swamps and open grass lands provide an ideal habitat for this animal. According to census carried out by the local forest

department during 2005-06, occurrence of a single tiger was reported from Keonjhar Wildlife Division. During the entire survey period of the sanctuary no evidence could be collected to establish its occurrence.

Status: Cites- Appendix.

Family HERPESTIDAE

21. *Herpestes edwardsii* (E. Geoffroy Saint-Hilaire)

Common names: Indian Grey Mongoose (Eng.); Neuro (Oriya).

Remarks: Common. Animals was observed in different areas of the sanctuary. Lives in burrows inside bushes or under any suitable cover. Colonial habitat, 12-15 animals live together in a particular territory. Feed on animals whatever it can capture.

Status: IWPA- Schedule IV; CITES- Appendix III; CAMP- LRlc (Nationally), DD (Globally).

Family HYAENIDAE

22. *Hyaena hyaena* (Linnaeus)

Common names: Striped Hyena (Eng); Gadhia, Hetabagh, Hundala (Oriya).

Remarks: Moderately common. Lives in ravine grass jungle and rocky areas but solitary animals could be seen in cultivated field and in open areas of the forest. A single animal was seen in the forest in the outskirts on the way to Dalki from Pitanau.

Status: IWPA- Schedule III; CAMP- LRnt (Nationally), DD (Globally).

Family MUSTELIDAE

23. *Lutrogale perspicillata* (I. Geoffroy Saint-Hilaire)

Common names: Smooth-coated Otter (Eng); Odha; Odhua (Oriya).

Remarks: Moderately common and known to cause certain amount of damage to fish crop. A troop of four animals could only be observed in the down stream of Hadgarh reservoir during the entire survey period.

Status: IWPA- Schedule II, Part II; CITES- Appendix II; CAMP- NE.

Family URSIDAE

24. *Melursus ursinus* (Shaw)

Common names: Sloth Bear (Eng.); Bhalu, Bhalluka (Oriya).

Remarks: Moderately common. Solitary Individual was met within the forest particularly at Pitanau range. As reported by the villagers this animal possesses some threat for them and human moulding by this animal was also reported. Lives in natural caves among the rocks deep inside the forests as well as near human habitation. Reported to raid the mature crop field neighbouring the forest.

Status: IWPA- Schedule I, Part I; CITES- Appendix I; CAMP- VU (Nationally), DD (Globally).

Family VIVERRIDAE

25. **Paradoxurus hermaphroditus** (Pallas)

Common names: Common Palm Civet (Eng.); Katasha, Odha.

Remarks: Uncommon. Lives in tree holes, top of palm trees and in thatched roof of houses. Comes out of the hiding place in the evening and causes much damage to poultry and vegetable gardens. Throughout the survey period a single specimen was observed in the night moving around the village at Pitanau. Population of this animals in the sanctuary appears to be much low.

Status: IWPA- Schedule II, Part II; CAMP- LRlc (Natinally), DD (Globally).

26. **Viverricula indica** (Desmarest)

Common names: Small Indian Civet (Eng.); Saliapatini, Gandha marjara, Musa billi (Oriya).

Remarks: Fairly common. A good number of specimens were observed in different parts of the sanctuary. Found to live in various habitats, such as forests rock and even in cultivated fields. Often attacks poultry and other domestic stocks. A good climber could be seen moving considerable distance through branches.

Status: IWPA- Schedule II, Part II; CITES- Appendix III; CAMP- LRnt (Natinally), DD (Globally).

Order PROBOSCIDEA

Family ELEPHANTIDAE

27. **Elephas maximus** (Linnaeus)

Common names: Indian Elephant (Eng.); Hati (Oriya).

Remarks: Common throughout the sanctuary, and a number of animals were met with during the survey period. Owing to shortage of food inside the forest it was found to raid the cultivated fields and orchards.

Status: IWPA- Schedule I, Part I; RDB-VU; CITES- Appendix I; CAMP -VU(Natinally), DD (Globally).

Order ARTIODACTYLA

Family SUIDE

28. **Sus scrofa** (Linnaeus)

Common names: Wild Boar (Eng.); Bara (Oriya).

Remarks: Moderately common. Found in bush jungles and in the forest muddy and swampy arrears. Only one herd of 12 animals could be seen once near Dalki area of Hadgarh reservoir. There is certain amount of hunting pressure during harvesting period due to its crop raiding habit.

Status: IWPA- Schedule III, ; CAMP- LRlc (Natinally), DD (Globally).

Family TRAGULIDAE

29. **Moschiola meminna** (Erxleben)

Common names: Mouse Deer (Eng.); Gurandi (Oriya).

Remarks: Moderately common. Only three animals could be seen throughout the survey period in the forested tracts of Pitanau and Hadgarh. There is certain amount of hunting pressure for its flesh.

Status: CAMP- LRnt (Nationally), DD (Globally).

Family CERVIDAE

30. **Axis axis** (Erxleben)

Common names: Spotted Deer (Eng.); Harin (Oriya).

Remarks: Common, lives in herds. Herds of 5 to 10 animals were observed at different places. During harvesting period these animals often raid the cultivated fields. There is considerable amount of hunting pressure for Meat, skins and antlers.

Status: IWPA- Schedule IV ; CAMP- LRlc (Natinally), DD (Globally).

31. **Muntiacus muntjak** (Zimmermann)

Common names: Barking Deer (Eng.); Kuntra, Kutura (Oriya).

Remarks: Moderately common. Not a single could be seen but its peculiar bark was heard at several places of the sanctuary in forested parts there is certain amount of hunting pressure for skin and flesh of this animals.

Status: IWPA- Schedule III; CAMP- LRlc (Natinally), DD (Globally).

Order PHOLIDOTA

Family MANIDAE

32. **Manis crassicaudata** (Gray)

Common names: Indian Pangolin (Eng.) Bazrakota (Oriya).

Remarks: Moderately common. Not a single could be seen throughout the survey period but two burrows of these animals were found in the forest Pitanau. It was reported by the local people that this animals is becoming rare day by day.

Status: IWPA- Schedule I, Part I; RDB-VU; CITES - Appendix II; CAMP - LRnt (Nationally), DD (Globally).

Order RODENTIA

Family SCIURIDAE

33. **Funambulus pennantii** (Wroughton)

Common names: Northern Palm Squirrel (Eng.); Gunchi Musha (Oriya).

Remarks: Fairly common near villages and road side of the sanctuary but not in deep forests. Takes shelter houses, garden, grooves and hedges and on road side trees. Cause much damage to orchards but not to crop fields.

34. *Ratufa indica* (Erxleben)

Common names: Indian Giant Squirrel (Eng.); Gunchi Musha (Oriya).

Remarks: Moderately common. Confined to the forest tract only. Only four animals could be seen inside the forest of Pitanau. Probably population of this species dwindled to a great extent due to habitat destruction and fragmentation.

Status: IWPA- Schedule II, CITES II, Appendix II; CAMP- VU9 (Nationally), DD (Globally).

35. *Petaurista philippensis* (Elliot)

Common names: Indian Giant Flying Squirrel (Eng.); Uranto Billi, Urki Musa (Oriya).

Remarks: Uncommon. Only two specimens could be seen throughout the survey period, one at Hadgarh and the other at Pitanau. This squirrel prefers to remain confined to the patches of moist thick forest.

Status: Not known.

Family MURIDAE

36. *Tatera indica* (Hardwick)

Common names: Indian Gerbil, Antelope rat (Eng.), Musa (Oriya).

Remarks: Uncommon. Only a single dead specimen was found throughout the survey period at Pitanau. Lives in and around bushes of relatively dry agricultural fields nearer to forests.

Status: IWPA- Schedule V; CAMP- LRIc (Nationally), DD (Globally).

37. *Bandicota bengalensis* (Grey and Hardwick)

Common names: Lesser Bandicoot Rat, Indian Mole Rat (Eng.); Gatua musa (Oriya).

Remarks: Common in and around fields, godowns, shops and villages. Causes considerable damages to crops and stored articles.

Status: IWPA- Schedule V; CAMP- LRIc (Nationally), DD (Globally).

38. *Mus booduga* (Gray)

Common names: Common Indian Field Mouse (Eng.); Musa (Oriya).

Remarks: Common. Found in the cultivated fields, granaries and grassy banks of rivers. Large number of burrows were found in the cultivated fields of Pitanau and Dalki. Certain amount of stored grains was found in some of the burrows.

Status: IWPA- Schedule V; CAMP- LRIc (Nationally), DD (Globally).

39. *Mus musculus castaneus* (Waterhouse)

Common names: Common names: House Mouse (Eng.); Musa (Oriya).

Remarks: Common. Found in the houses, shops and godowns but not in the forest. Considered as a serious pest of house hold goods and articles of merchandise.

Status: IWPA- Schedule V; CAMP- LRIc (Nationally), DD (Globally).

40. *Rattus rattus arboreus* (Horsfield)

Common names: White Bellied House Rat (Eng.), Musa (Oriya).

Remarks: Common in the residential areas particularly in the houses and also moderately represented in the forests. Considered as a most serious pest of stored grains and poultry.

Status: IWPA- Schedule V; CAMP- LR1c (Nationally), DD (Globally).

41. *Hystrix indica* (Kerr.)

Common names: Indian Crested Porcupine (Eng.); Jhinko (Oriya).

Remarks: Moderately common. During the entire sunny period not a single specimen could be observed due to their nocturnal burrowing habit. However their presence in the sanctuary was confirmed by their peculiar elongated faecal matter as well quills. It causes serious damage to forests and agricultural crops.

Status: IWPA- Schedule IV; CAMP- LR1c (Nationally), DD (Globally).

Order LAGOMORPHA

Family LEPORIDAE

42. *Lepus nigricollis* (Cuvier)

Common names: Indian Hare (Eng.); Sasapa, Sasa, Thekua (Oriya).

Remarks: Common. A number of animals were observed during the survey period. Large tract of bush and jungle alternating with cultivated fields provide ideal living condition to these animals.

Status: IWPA- Schedule IV; CAMP- LR1c (Nationally), DD (Globally).

Class AVES

Order PODICIPEDIFORMES

Family PODICIPEDIDAE

1. *Podiceps cristatus* (Linnaeus)

Common names: Great Crested Grebe (Eng.); Pani Hansa (Oriya).

Size: 50 cm.

Habits: Winter visitor. Lives in separated pairs or scattered parties. Affects jheels and littoral waters. Feeds on fish tadpoles, frogs and aquatic insects; also takes some vegetable matters.

Remarks: Moderately common. Only four birds could be seen in Hadgarh reservoir. Within our limits breeds in Ladakh during June to August.

2. *Podiceps ruficollis* (Pallas)

Common names: Little Grebe, Dabchick (Eng.); Pani Hansa (Oriya).

Size: 23 cm.

Habits: Resident. Shifting locally during drought and flood. Keeps in pairs or small scattered parties. Feeds on fish, tadpoles, frogs, mollusks, crustaceans and aquatic insects.

Remarks: Common. A number of birds were seen in different aquatic habitats. Breeds between April and October depending on rainfall and availability of suitable breeding waters.

Order PELECANIFORMES
Family PHALACROCORACIDAE

3. **Phalacrocorax niger** (Viellot)

Common names: Little Cormorant (Eng.)

Size: 51 cm.

Habits: Resident, moving locally with water conditions. Keeps singly or in pairs in village tanks to great flocks in large inland waters. Feeds mainly on fish, tadpoles, small frogs and crustaceans.

Remarks: Common. A number of birds were seen in Hadgarh reservoir and other marshy areas of the sanctuary. Breeds between November and February.

Order CICONIFORMES
Family ARDEIDAE

4. **Ardeola grayii** (Sykes)

Common names: Indian Pond Heron, Paddy Bird (Eng.); Chota Kantia Baga (Oriya).

Size: 46 cm.

Habits: Resident. Shifting locally during drought and flood. Keeps singly or in small parties. Feeds on fish, frogs, crustaceans, water beetles and other insects near water bodies.

Remarks: Common. A number of birds were seen in different habitats. Breeds between November and February.

5. **Bubulcus ibis** (Linnaeus)

Common names: Cattle Egret (Eng.); Nandibaga (Oriya).

Size: 51 cm.

Habits: Widespread resident. Keeps in small to large flocks. Usually found in association with grazing village live stocks and also in inundated ploughed fields. Feeds chiefly on insects; also takes frogs, tadpoles and small lizards.

Remarks: Common. A number of birds were seen in different habitats. Breeds between November and February.

6. **Egretta intermedia** (Wagler)

Common names: Smaller or Median Egret (Eng.); Nandibaga (Oriya).

Size: 65-72 cm.

Habits: Resident, shifting locally with water conditions. Found in small flocks. Feeds chiefly on fish, tadpoles, crustaceans and aquatic insects near jheels and marshes.

Remarks: Moderately common. Only a flock of four birds could be seen once throughout the survey period in Hadgarh reservoir. Breeds between November and February.

Family CICONIIDAE

7. **Anastomus oscitans** (Boddaert)

Common names: Openbill Stork (Eng.); Gendalia, Kansha (Oriya).

Size: 81 cm.

Habits: Resident, shifting locally with water conditions. Found singly or in small flocks. Affects inland waters, jheels and marshes. Feeds chiefly on mollusks, also takes crabs, frogs and other small animals.

Remarks: Moderately common. Only a flock of four birds could be seen once throughout the survey period in Hadgarh reservoir. Breeds between July and September depending on monsoon and water conditions.

Family THRESKIORNITHIDAE

8. **Pseudibis papillosa** (Temmick)

Common names: Indian Black Ibis (Eng.)

Size: 68 cm.

Habits: Resident. Keeps in small parties or flocks. Less dependent on water, prefers drier margin of jheels, river banks and stubble fields. Feeds on frogs, small fish, earth worms, lizards, small snakes, crustaceans and insects.

Remarks: Common. Thirty birds in three flocks were seen throughout the survey period. Breeds between March and October.

Order ANSERIFORMES

Family ANATIDAE

9. **Anas acuta** (Linnaeus)

Common names: Pintail (Eng.); Panda Hansa (Oriya).

Size: 56-74 cm.

Habits: Winter visitor. Keeps in large flocks near lakes, marshes, jheels, wet paddy fields and rivers. A crepuscular and nocturnal feeder, roosts during day. Feeds on grass, corns, shoots and seeds of aquatic plants and other vegetable matter. Also takes molluscs, worms, aquatic insects and their larvae.

10. **Netta rufina** (Pallas)

Common name: Redcrested Pochard (Eng.).

Size: 54 cm.

Habits: Winter visitor. Keeps in small parties to fairly deep open water of large lakes and rivers. Feeds on shoots, buds, rhizomes and seeds of aquatic weeds and grasses. Also takes aquatic insects, mollusks and tadpoles.

Remarks: Uncommon. Only six birds could be seen once throughout the survey period in Hadgarh reservoir. Breeds in Asia and South America.

11. *Aythya ferina* (Linnaeus)

Common name: Common Pochard (Eng.)

Size: 48 cm.

Habits: Winter visitor. Keeps in small to large flocks. Affects open parts of jheels, lakes and reservoirs with deep waters and submerged aquatic vegetation. Feeds on aquatic plants, algae and seeds. Also takes mollusks, insect larvae, fish and tadpoles.

Remarks: Moderately common. Only a flock of ten birds could be seen once throughout the survey period in Hadgarh reservoir. Breeds from West Europe to East Siberia.

11. *Aythya fuligula* (Linnaeus)

Common name: Tufted Duck (Eng.).

Size: 43 cm.

Habits: Winter visitor. Keeps in small to large flocks. Affects open and deep tanks, irrigation reservoir, lakes and marshes. Feeds on aquatic animals and plants seeds.

Remarks: Moderately common. Only eight birds could be seen once throughout the survey period in Hadgarh reservoir. Breeds in Europe and Asia.

12. *Aythya marila* (Linnaeus)

Common name: Scaup Duck (Eng.).

Size: 46 cm.

Habits: Winter visitor. Keeps in pairs or small flocks. Affects large fresh water lakes, reservoirs and rivers. Feeds on molluscs, invertebrates and plant seeds.

Remarks: Uncommon. Only four birds could be seen once throughout the survey period in Hadgarh reservoir. Breeds in Asia and N. Europe.

13. *Nettapus coromandelianus* (Gmelin)

Common names: Cotton Teal, Quacky-Duck (Eng.); Jalachataka (Oriya).

Size: 33 cm.

Habits: Keeps in pairs or small to large flocks. Affects village tanks, ponds, vegetation covered pools, channels and reservoirs. Feeds on aquatic plants, arable crops, arustaceans and insect larvae.

Remarks: Common. A good number of birds were seen in different water bodies. Breeds between July and August.

Order FALCONIFORMES

Family ACCIPITRIDAE

14. *Pernis ptilorhynchus* (Temminck)

Common name: Honey Buzzard (Eng.).

Size: 68 cm.

Habits: Resident, moving locally depending on supply food. Keeps singly or in pairs. Affects well wooded urban and sub-urban areas. Feeds on honey and larvae of bees. Also takes large insects, reptiles, mice and young birds.

Remarks: Moderately common. Only four birds could be seen throughout the survey period in the forest of Pitanau and Dalki. Breeds between April and June.

15. *Milvus migrans* (Boddaert)

Common name: Pariah Kite (Eng.).

Size: 61 cm.

Habits: Resident with local migration to drier areas during rains. Keeps single or in pairs. Largely omnivorous and an efficient scavenger hunting the precincts of fish markets, refuse dumps and markets.

Remarks: Common. A number of birds were seen near human habitations at Hadgarh and Dalki. Breeds between September and April.

16. *Heliaster Indus* (Boddaert)

Common name: Brahminy Kite (Eng.).

Size: 48 cm.

Habits: Resident. Moving locally with water conditions. Keeps single or in pairs. Affects well water areas. Feeds on fish, frogs, crabs, lizards, small snakes, insects and small birds.

Remarks: Uncommon. Only two birds can be seen throughout the survey periods at Dalki. Breeds between December and March.

17. *Accipiter badius* (Gmelin)

Common names: Indian Shikara (Eng.); Baza (Oriya).

Size: (30-36) cm.

Habits: Resident. Keeps singly or in pairs. Affects open wooded biotope and the environs of villages and cultivations. Feeds on small mammals and birds, lizards, frogs, locusts and insects.

Remarks: Moderately common. Only four birds could be seen throughout the survey periods inside forests at Pitanau and Dalki. Breeds between April and May.

18. *Accipiter nisus* (Linnaeus)

Common name: Sparrow-Hawk (Eng.).

Size: (31-36) cm.

Habits: Winter visitor. Keeps singly. Affects well wooded, broken and foot hills country, light forests and grooves. Feeds mainly on birds and other animals of its own size and weight.

Remarks: Uncommon. Only two birds were seen throughout the survey period at Hadgarh. Breeds in Kashmir Himalayas.

19. Circus melanoleucos (Pennant)

Common names: Pied Harrier (Eng.).

Size: (46-49) cm.

Habits: Winter visitor. Keeps single or in pairs. Affects open expanses of forests and grassy margins of jheels and reservoir. Feeds on frogs, lizards, mice, small birds and grasshoppers.

Remarks: Uncommon. Only a single of birds could be seen throughout the survey period sitting on the branch of a tree at Hadgarh. Breeds between April and July in the upland of Assam and Myanmar.

20. Spilornis cheela (Latham)

Common names: Crested Serpent Eagle (Eng.).

Size: 74 cm.

Habits: Resident, subject to local migration. Keeps singly or in pairs. Affects wooded streams, edge of forests, cultivation and jungle-clad ravines. Feeds crab and fishes.

Remarks: Moderately common. Only four birds could be seen throughout the survey periods in different forested area of the sanctuary. Breeds between December and March.

Order GALLIFORMES

Family PHASIANIDAE

21. Gallus gallus (Linnaeus)

Common names: Red Jungle Fowl (Eng.); Ganga Bankukuda (Oriya).

Size: Male 66 cm., Female 43 cm.

Habits: Resident. Keeps in a small parties. Affects moist-deciduous forest and scrub jungle. Feeds on grains, tubers, fruits, insects, maggots and grubs. Also takes lizards and small snakes.

Remarks: Common. A number of birds were seen throughout the survey period in different habitats. Breeds between March and May.

22. Pavo cristatus (Linnaeus)

Common names: Indian Pea Fowl (Eng.); Manja, Mania (Oriya).

Size: Male (92-122) cm., Female 86cm.

Habits: Resident. Keeps in small flocks. Affects moist and dry deciduous forest. Feeds on seeds, grains, ground nuts, tender shoots, flower buds, drupes, berries, wild figs, centipedes, scorpions, lizards, small snakes and insects.

Remarks: Moderately common. Only four birds could be seen throughout the survey periods inside forests at pitanau. Breeds between June and September

Order GRUIFORMES

Family TURNICIDAE

23. **Turnix tanki** (Blyth)

Common names: Yellow-legged Button Quail (Eng.); Punduki Chadhei (Oriya).

Size: (15-16) cm.

Habits: Resident. Keeps singly or in pairs. Affects grassland and scrub and crops. Feeds on vegetative matters and insects.

Remarks: Moderately common. Only four birds could be seen throughout the survey periods inside forests bushes at pitanau and Dalki. Breeds between July and September.

Family RALLIDAE

24. **Amaurornis phoenicurus** (Pennant)

Common name: White-breasted Water Hen (Eng.).

Size: 32 cm.

Habits: Resident. Keeps singly or in pairs, less shy and secretive. Affects reedy marshland, rain-filled ponds, roadside ditches, village tanks, edges of inundated rice fields and their neighbourhood. Feeds on insects and their larvae, mollusks, worms, seeds and shoots of marsh plants.

Remarks: Common. A number of birds were seen in the wetland bushes and also found running to cross the other side of the forest.. Breeds between July and October.

Order CHARADRIFORMES

Family JACANIDAE

25. **Hydrophasianus chirurgus** (Scopoli)

Common names: Pheasant-tailed Jacana. (Eng); Dalapinpin (Oriya).

Size: 31 cm.

Habits: Resident, moving locally with water conditions. Keeps in small flocks. Affects fresh water wetlands, village tanks and jheels. Feeds aquatic insects and their larvae; also takes molluscs.

Remarks: Moderately common. Only four birds could be seen throughout the survey periods in different water bodies. Breeds between July and September.

26. **Metopidius indicus** (Latham)

Common names: Bronze-winged Jacana (Eng.); Pani Dahuka (Oriya).

Size: (28-31) cm.

Habits: Resident. Keeps in small flocks. Affects freshwater wetlands jheels and village and forest tanks. Feeds on vegetative matter, mollusks and insects.

Remarks: Moderately common. Only five birds could be seen throughout the survey period in different water bodies. Breeds between June and September.

Family CHARDRIDAE

27. **Vanellus indicus** (Boddaert)

Common names: Red wattled Lapwing (Eng.); Tentei (Oriya).

Size: 33 cm.

Habits: Resident. Keeps in pairs or small loose flocks. Affects neighbourhood of water in open country and cultivation. Feeds on tiny molluscs, caterpillars, insects and vegetable matter.

Remarks: Common. A number of birds were seen throughout the survey period in different habitats of the forest.. Breeds between March and September, the peak period varying locally.

28. **Vanellus malabaricus** (Boddaert)

Common names: Yellow-wattled Lapwing (Eng.); Tentei (Oriya).

Size: 27 cm.

Habits: Resident and nomadic. Keeps in pairs or small parties. Affects barren waste land, stubble and fallow fields in drier biotope. Less dependent on proximity of water. Feeds on insects.

Remarks: Moderately common. Only four birds could be seen throughout the survey Period in the cultivated field at Pitanau. Breeds between March and July.

29. **Pluvialis dominica fulva** (Gmelin)

Common name: Eastern Golden Plover (Eng.).

Size: 24 cm.

Habits: Winter visitor. Keeps in flocks. Affects mudflats, edges of lakes and reservoirs, grassland and ploughed wet fields. Feeds on tiny molluscs, crustaceans, worms and insects.

Remarks: Common. A number of birds were seen throughout the survey period in different marshy arrears. Breeds in N Siberia and W Alaska.

30. **Charadrius dubius** (Scopoli)

Common name: Little Ringed Plover (Eng.).

Size: 17 cm.

Habits: Resident, move locally with water conditions. Keeps in pairs or small flocks. Affects mudflats reservoirs, river banks and paddy fields. Feeds on insects, worms tiny crabs and molluscs.

Remarks: Common. A flock of twenty birds were seen in the Hadgarh reservoir near Dalki. Breeds between March May.

31. **Tringa hypoleucos** (Linnaeus)

Common names: Common Sandpiper (Eng.); Chachadehi (Oriya).

Size: 21 cm.

Habits: Winter visitor. Keeps singly or in loose flocks. Affects inland water tanks, reservoirs, streams, ditches and paddy fields. Feeds on insects, crustaceans and tiny molluscs.

Remarks: Moderately common. Only five birds could be seen throughout the survey Period at Hadgarh reservoir. Breeds in Kashmir, Ladakh and Garhwal within Indian limits: all over Europe and Asia south of Tundra.

Family LARIDAE

32. **Larus brunnicephalus** (Jerdon)

Common names: Brown-headed Gull (Eng.); Machhakhia (Oriya).

Size: 46 cm.

Habits: Winter visitor. Keeps in small loose parties. Gregarious, scavengers. Affects fishing villages, water reservoirs, sea shores tidal creeks and estuaries. Feeds on fish, prawns, worms, slugs and insects and also shoots of various crops.

Remarks: Moderately common. Only three birds could be seen throughout the survey Period at Hadgarh reservoir. Breeds in Ladakh and in high plateaus of Central Asia up to Mongolia During June and July.

Order COLUMBIFORMES

Family COLUMBIDAE

33. **Treron bicincta** (Jerdon)

Common names: Orange-breasted Green Pigeon (Eng.); Haradakhai (Oriya).

Size: 29 cm.

Habits: Resident, with seasonal local movements. Keeps in small loose flocks. Affects forest and well wooded country. Feeds on drupes and berries.

Remarks: Moderately common. Only four birds can be throughout the survey Period perching on a tree branch at Pitanau. Breeds between April and June.

34. **Treron phoenicoptera** (Latham)

Common names: Bengal Green Pigeon (Eng.); Haradakhai (Oriya).

Size: 33 cm.

Habits: Resident. Keeps in small to large flocks. Affects dry and moist deciduous forests. Feeds on drupes, berries and wild figs of numerous kinds.

Remarks: Common. A number of birds were seen throughout the survey period in different habitats. Breeds between March and June.

35. **Streptopelia decaocto** (Frisch)

Common names: Indian Ring Dove (Eng.); Kapota (Oriya).

Size: 32 cm.

Habits: Resident. Keeps in pairs or in small large parties. Affects open cultivated, essentially dry deciduous country with groves. Feeds on grains and seeds.

Remarks: Common. A number of birds were seen throughout the survey period in different habitats. Breeds between May and June.

36. *Streptopelia tranquebarica* (Hermann)

Common names: Red Turtle Dove (Eng.); Kapota (Oriya).

Size: 23 cm.

Habits: Resident, with marked local migration. Keeps in pairs or small loose parties. Affects open scrub jungle and cultivation in deciduous biotope. Feeds on grains, cereals and grass and seeds.

Remarks: Moderately common. Only five birds could be seen throughout the survey period in different habitats. Breeds between April and September.

37. *Streptopelia chineusis* (Scopoli)

Common names: Spotted Dove (Eng.); Kapota (Oriya).

Size: 30 cm.

Habits: Resident. Keeps in pairs or in small parties. Affects gardens, groves, cultivation and moist deciduous forests. Feeds on grains, lentils, pulses, grass and weed seeds.

Remarks: Common. A number of birds were seen throughout the survey periods in different habitats. Breeds between April and July.

38. *Chalcophaps indica* (Linnaeus)

Common names: Emerald Dove (Eng.); Kapota (Oriya).

Size: 27 cm.

Habits: Resident. Keeps singly or in pairs. Affects thick secondary and outskirts of forest clearings. Feeds on grains, seed and berries; also takes termites.

Remarks: Moderately common. Only four birds could be seen throughout the survey period in forest roads of Pitanau and Dalki. Breeds between March May.

Order PSITTACIFORMES

Family PSITTACIDAE

39. *Psittacula eupatria* (Linnaeus)

Common name: Large Indian Parakeet, Alexandrine Parakeet (Eng); Madana (Oriya);

Size: 53 cm.

Habits: Resident, migrating locally depending on food supply. Keeps in small parties or flocks. Affects dry and moist deciduous biotope-forest and well wooded country. feeds on fruits, vegetables, cereals and seeds of all kinds.

Remarks: Common. A number of birds were seen throughout the sanctuary in different habitats. Breeds between December and April.

Status: CITES-Appendix II.

40. *Psittacula krameri* (Scopoli)

Common names: Roseringed Parakeet (Eng); Chandana(Oriya);

Size: 42 cm.

Habits: Resident. Keep in a small parties or large noisy rabbles. Affects dry and moist deciduous biotope, lighty wooded country and cultivation near human habitations. Feeds on fruits, cereals, grains and seeds of all kinds.

Remarks: Common. A number of birds were seen in different habitat of the country. Breeds between January and April.

41. *Psittacula cyanocephala* (Linnaeus)

Common names: Blossomheaded Parakeet (Eng); Chandani (Oriya),

Size: 36 cm.

Habits: Resident, moving locally depending on food supply. Keeps in small parties. Affects moist deciduous biotope-light forest well-wooded compounds and cultivation Feeds on grains and foods of all kinds, buds and fleshy petals.

Remarks: Common. A number of birds were seen inside forests of Petanau and Dalki only. Breeds between December and April.

Status: CITES-Appendix II.

Order CUCULIFORMES

Family CUCULIDAE

42. *Cuculu varius* Vahl

Common name: Common Hawk-Cuckoo (Eng).

Size: 34 cm.

Habits: Resident, migrating locally during rainy seasons. Keeps singly or in pairs. Affects well-woded deciduous and semi-evergreen forests, partial to gardens, orchards and grooves of trees near human habitation and cultivation. Feeds on caterpillars, cutworms, grasshoppers, beetles, winged termites and spiders.

Remarks: Moderately common. Only three birds could be seen throughout the survey period at Hadgarh. Breeds between March and June but also in later months depending on the laying season of local host.

43. *Cocomantis passerinus* (Vahl)

Common names: Indian Plaintive Cuckoo (Eng);

Size: 23 cm.

Habits: Partly resident and winter visitor. Keeps singly. Affects light open forest, gardens and groves of trees in villages. Feeds on Caterpillars and various soft bodied insects.

Remarks: Moderately common. Only two birds could be seen throughout the survey period at Hadgarh. However, its call was also heard twice at Petanau forests. Breeds between June and September.

44. *Eudynamys scolopacea* (Linnaeus)

Common name: Indian Koel (Eng), Koili (Oriya);

Size: 43 cm.

Habits : Resident,migrating locality during varied seasons. Keeps singly or in parise. Affects light wooded country , gardns and orchards in and around towns and villages. Feeds on frouts, berries, caterpillars and various insects.

Remarks : Common. A number of birds were seen in different habitats of the Sanctuary.Breeds between March and August.

45. *Contropus sinensis* (Stephens)

Common names: Crow-Pheassnt (Eng.); Kumbhati (Oriya).

Size: 48 cm.

Habits: Resident. Keps singly or in parise. Affects deciduous scrub jungle, tall Grassland and shrubbery in and around cultivation and habitations. Feeds on nice, Lizards, small snakes, fish, frogs, crustanceans, molluses, insects and spiders.

Remarks: Common. A number of birds were seen in different habtat of the sanctuary. Breeds between June and September.

Order STRIGIFORMES

Family SRIGIDAE

46. *Otus bankkamoena* Pennant

Common names : Collared Scops Owl (Eng); Raja pecha(Oriya).

Size: 23-25 cm.

Habits: Resident.Keeps singly. Affects forests, Nocturnal well wooded areas and Groves of deusely foliaged trees in gardens of villages. Feeds on lizards, small birds and mice; also takes beetles, grasshoppers and various insects.

Remarks : Common. A number of birds were seen and their calls heaed in different Areas of the sanctuary. Breeds betweeb January and April.

47. *Bubo zeylonensis* (Gmelin)

Common names: Brown Fish Owl (Eng); Hunha (Oriya).

Size: 56 cm.

Habits: Resident and nocturnal. Keeps in pairs. Affects well-wooded and well watered areas, roadside and canal avenues, and desely foliaged trees along forest streams and tanks. Feeds on fish, crabs, rodents,birds and reptiles.

Remarks: Moderately common. Only two birds could be seen throughout the survey period in the forest Pitanau at Hadgarh. Breeds between November and March.

48. *Glaucidium Radiatum* (Tickell)

Common names: Barred Jungle Owlet (Eng); Hulhulia pecha (Oriya).

Size: 20 cm.

Habits: Resident. Crepuscular. Keeps singly or in pairs. Affects mixed moist-deciduous forests and secondary jungles. Feeds on lizards, small birds, mice, mollusca and various other insects.

Remarks: Common. A number of birds were seen throughout the survey period in different habitats. Breeds between March and May.

49. *Athene brama* (Temminck)

Common names: Spotted Owlet (Eng); Pecha (Oriya).

Size: 21 cm.

Habits: Resident. Crepuscular and Nocturnal. Keeps in pairs or family parties. Affects the neighbourhood of villages and cultivation, avoids heavy forests. Feeds on lizards, small birds, mice, earthworms and various insects.

Remarks: Common. A number of birds were seen in different habitats of the sanctuary. Breeds between February and April.

Order CAPRIMULGIFORMES

Family CAPRIMULGIDAE

50. *Caprimulgus indicus* Latham

Common names: Indian Jungle Nightjar (Eng).

Size: 29 cm.

Habits: Resident and partial local migrant. Crepuscular and nocturnal. Keeps singly or in pairs. Affects open scrub and dry-moist deciduous jungle. Feeds on moths, bugs, beetles and other winged insects.

Remarks: Moderately common. Only four birds could be seen throughout the survey period. Breeds between February and May.

51. *Caprimulgus asiaticus* Latham

Common names: Indian Little Nightjar (Eng); Bhuinchhapuli (Oriya).

Size: 24 cm.

Habits: Resident. Crepuscular and nocturnal. Keeps in pairs or loose family parties. Affects thin scrub jungle in open forest and in cultivated fields. Feeds on moths, beetles, bugs and other flying insects.

Remarks: Common. A number of birds were seen in different habitats of the sanctuary. Breeds between February and September, the peak periods varying locally.

Order APODIFORMES

Family APODIDAE

52. **Apus affinis** (J. E. Gray)

Common names: Indian House Swift (Eng); Chataka (Oriya).

Size: 15 cm.

Habits: Resident. Keeps in small parties and loose rabbles. Affects the neighbourhood of habitations, cliffs and ruins. Feeds on tiny flying bugs, beetles, winged ants and other tiny flying insects.

Remarks: Common. A number of birds were seen throughout the survey period flying in the air. Breeds throughout the year except in coldest months.

53. **Cypsiurus parvus** (Lichtenstein)

Common names: Palm Swift (Eng); Chataka (Oriya).

Size: 13 cm

Habits: Resident. Gregarious anf aerial but scattered , rarely in close packed rabbles. Affects open country and cultivation with palms. Feeds winged ants tiny bugs and Other flying insects taken in the air.

Order TROGONIFORMES

Family TROGONIDAE

54. **Harpactes fasciatus** (Pennant)

Common names: Central Indian Trogon (Eng.).

Size: 31 cm.

Habits: Resident. Keeps singly or in widely separated pairs. Affects moist-deciduous and semi –evergreen forests. Feeds on caterpillars, grasshoppers, bootles and other insects; also takes berries and leaves.

Remarks: Moderately common. Only three birds could be seen throughout the urvey period inside the forest Pitanau. Breeds between February and May.

Order CORACIIFORMES

Family ALCEDINIDAE

55. **Alcedo atthis** (Linnaeus)

Common names: Small Blue Kingfisher (Eng); Machhranga (Oriya).

Size: 18 cm.

Habits: Resident. Keeps singly or in pairs. Affects streams, canals, village ponds and flooded roadside ditches in open country. Feeds on small fish, tadpoles and aquatic insects.

Remarks: Moderately common. Only three birds could be seen throughout the survey period inside the forest Pitanau near astream. Breeds between March and June.

56. *Halcyon smyrnensis* (Linnaeus)

Common names: White-breasted Kingfisher (Eng); Machharanga).

Size: 28 cm.

Habits: Resident. Keeps singly or in separated pairs. Affects wet paddy fields, roadside ditches, village tanks, canals and streams. Feeds largely on various insects and fish only a secondary item.

Remarks: Common. A number of birds were seen throughout the survey period in different habitats. Breeds between April and July.

Family MEROPIDAE

57. *Merops orientalis* Latham

Common names: Indian Small Green Bee-eater (Eng); Blishua (Oriya).

Size: 21 cm.

Habits: Resident, moving locally during monsoon. Keeps loose parties or flocks. Affects open country interspersed with forest and cultivation. Feeds ants, bees, wasps, moths, butterflies, small beetles, termites, dragon flies and other winged insects.

Remarks: Common. A good number of birds were seen in different habitats of the sanctuary. Breeds between February and June.

Family CORACIIDAE

58. *Coracius bengalensis* (Linnaeus)

Common names: Northern Roller or Blue Jay(Eng); Chasha Pkshi (Oriya).

Size: 31 cm.

Habits: Resident with seasonal local movements. Keeps singly or in pairs. Affects open cultivation, gardens, orchards and other trees near villages, also light deciduous forest. Feeds largely on various insects; also takes frogs, lizards and field mice.

Remarks: Common. A number of birds were seen throughout the sanctuary in different habitats. Breeds between March and April.

Family UPUPIDAE

59. *Upupa epops* Linnaeus

Common names: Hoopoe (Eng); Kathahana (Oriya).

Size: 31 cm.

Habits: Resident. Keeps singly or in pairs. Affects open country, cultivation and villages; also light forests in deciduous biotope. Feeds on various insects; also takes underground grubs and pupae of beetles and crickets.

Remarks: Moderately common. Only three birds could be seen throughout the survey period . Breeds between April and May.

Family BUCEROTIDAE

60. *Tockus birostris* (Scopoli)

Common names: Grey Hornbill (Eng.); Bahadakhai (Oriya).

Size: 61 cm.

Habits: Resident. Keeps in pairs or small parties. Affects open well-wooded country, roadside avenues, groves and gardens near cultivation and habitations. Feeds on fruits, flower petals, insects and other small animals.

Remarks: Uncommon. Only a pair could be seen throughout the survey period while flying over the forest at pitanau. Breeds between March and June.

61. *Anthracoceros malabaricus* (Gmelin)

Common names: Indian Pied Hornbill (Eng.); Bahadakhai (Oriya).

Size: 89 cm.

Habits: Resident. Keeps in noisy parties. Affects open forest in moist deciduous and evergreen biotope; also groves and orchards near habitations. Feeds on wild figs, drupes and berries; also takes lizards, small snakes and other small animals.

Remarks: Moderately common. Only four birds could be seen throughout the survey period in different habitats at Hadgarh and Dalki. Breeds between April and July.

Order PICIFORMES

Family CAPITONIDAE

62. *Megalaima zeylanica* (Gmelin)

Common name: Green barbet (Eng.).

Size: 27 cm.

Habits: Resident. Keeps singly or in loose feeding parties. Affects well wooded moist and dry deciduous forest, roadside avenues and gardens. Feeds on drupes, berries, flower petals and nectar; also takes insects.

Remarks: Common. A number of birds were seen throughout the survey period in different habitats of the sanctuary. Breeds between March and April.

63. *Megalaima haemacephala* (P.L.S. Miller)

Common names: Crimsonbreasted Barbet or Copper Smith (Eng.); Sinduramundi (Oriya).

Size: 17 cm.

Habits: Resident. Keeps singly or in pairs. Affects lightly-wooded country-side, roadside avenues and trees near villages. Feeds on wild figs, drupes and berries; also takes moths and flying termites.

Remarks: Common. A number of birds were seen Moderately common. Only a loose party of five birds were seen once in different habitats of the sanctuary Breeds between February and April.

Family PICIDAE

64. *Dinopium bengalences* (Linnaeus)

Common names: Goldenbacked Woodpecker (Eng.); Katha khumpa (Oriya).

Size: 29 cm.

Habits Resident. Keeps in pairs or family parties. Affects light forest, plantations, groves and trees in open country. Feeds on insects and larvae; also takes fruits and berries.

Remarks: Common. A number of birds were seen throughout the sanctuary in different habitats. Breeds between March and April.

Order PASSERIFORMES

Family ALAUDIDAE

65. *Mirafra assamica* Horsfield

Common name: Bush Lark (Eng.).

Size: 15 cm.

Habits: Resident. Keeps singly or in pairs or small loose parties. Affects open grassland and cultivation. Feeds on grass and weed seeds, tiny beetles and other small insects.

Remarks: Common. A number of birds were seen throughout the survey period in different habitats of the sanctuary. Breeds between May and June.

66. *Erimopterix grisea* (Scopoli)

Common name: Ashycrowned Finch-Lark (Eng.).

Size: 13 cm.

Habits: Resident., moving locally during heavy rains. Keeps in pairs or small parties. Affects open dry scrub and dry cultivated lands Feeds on grass and weed seeds, ants and other tiny insects.

Remarks: Common. A number of birds were seen throughout the survey period in different habitats. Breeds throughout the year, principal months varying locally.

67. *Ammomanes phoenicurus* (Franklin)

Common name: Rufoustailed Finch-Lark (Eng.).

Size: 16 cm.

Habits: Resident, moving locally during heavy rains. Keeps in pairs or small loose parties. Affects open scrub and bush plains, ploughed fields, fallow lands and cultivation. Feeds on grass and weed seeds, grains of paddy and other cereals; also takes tiny insects.

Remarks: Moderately common. Only a loose party of five birds were seen once in a cultivated field at Pitanau. Breeds between March and April.

68. *Alauda gulgula* Franklin

Common name: Small Skylark (Eng.).

Size: 16 cm.

Habits: Resident with seasonal local movements. Keeps in pairs or small scattered parties. Affects damp open grassland, mudflats and cultivation. Feed on weed seeds, tiny root bulbs and insects.

Remarks: Moderately common. Only four birds were seen throughout the survey period on the banks of Hadgarh reservoir near Dalki. Breeds between April and June.

Family HIRUDINIDAE

69. *Hirundo rustica* Linnaeus

Common names: Western Swallow (Eng.); Chhataka (Oriya).

Size: 18 cm.

Habits: Water visitor. Keeps in flocks. Affects cultivation, habitation, lakes and rivers. Feeds on small insects.

Remarks: Moderately common. A flock of about ten birds were seen once occupying a wire near Hadgarh reservoir. Breeds in Pakistan hills, Himalayas and N E India during April May.

70. *Hirundo daurica* Linnaeus

Common names: Redrumped Swallow (Eng.); Chhataka (Oriya).

Size: 17 cm.

Habits: Resident, with seasonal local movements. Keeps in pairs or small flocks. Affects open cultivated country near water reservoirs, streams and canals. Feeds on insects.

Remarks: Common. A number of birds were seen in different habitats. Breeds between April and August.

Family Laniidae

71. *Lanius vittatus* Valenciennes

Common name: Baybacked Shrike (Eng.).

Size: 18 cm.

Habits: Resident. Keeps singly or in separated pairs. Affects dry open scrub and bushes in cultivation. Feeds on caterpillars, beetles, ants, grasshoppers and crickets; also takes lizards and mice.

Remarks: Moderately common. Only three birds could be seen throughout the survey period in different habitats at Hadgarh. Breeds between May and July.

72. *Lanius schach* Linnaeus

Common name: Blackheaded shrike (Eng.).

Size: 25 cm.

Habits: Winter visitor. Keep singly. Affects open forests, bushes in cultivation and gardens. Feed caterpillars, Grasshoppers beetles and other insects; also takes earthworms, lizards, frogs and mice.

Remarks: Uncommon. Only a single bird was seen throughout the survey period at Pitanau forest. Breeds in the Himalayas during May and June.

73. *Lanius cristatus* Linnaeus

Common name: Brown Shrike (Eng.).

Size: 19 cm.

Habits: Winter visitor. Keeps singly or widely separated pairs. Affects forest edges and scrub jungle. Feeds on grasshoppers, crickets and other insects; also takes lizards, mice and sickly birds.

Remarks: Moderately common. Only two birds could be seen throughout the survey period at Hadgarh. Within Indian limits breeds in N Cachar and Khasi Hills.

Family ORIOLIDAE

74. *Oriolus oriolus* (Linnaeus)

Common names: Golden Oriole (Eng.); Haladibasanta (Oriya).

Size: 25 cm.

Habits: Resident, migrating locally during winter. Keeps singly or in pairs. Affects open woodland and trees in cultivation, orchards and gardens around human habitation. Feeds on berries, wild figs, flower nectar, caterpillars and insects.

Remarks: Moderately common. Only four birds could be seen throughout the survey period in different habitats at Dalki village. Breeds between May and June.07

75. *Oriolus xanthornus* (Linnaeus)

Common names: Black-headed Oriole (Eng.); Haldibasanta (Oriya).

Size: 25 cm.

Habits: Resident. Keeps singly or in pairs. Affects open forest, gardens, orchards, village groves and compounds near habitations. Feeds on fruits, berries and flower nectar; also takes insects.

Remarks: Common. A number of birds were seen throughout the survey period in different habitats at Hadgarh. Breeds between March and July.

Family DICRURIDAE

76. *Dicrurus adsimilis* (Bechstein)

Common names: Indian Black Drongo or King Crow (Eng.); Kajalapati (Oriya).

Size: 31 cm.

Habits: Resident with some seasonal local migration. Keeps singly. Feeds mainly on insects; on occasions takes lizards, small birds and small bats.

Remarks: Common. A number of birds were seen near cultivation and forested areas of the sanctuary. Breeds between March and June.

77. *Dicrurus caerulescens* (Linnaeus)

Common names: Indian Whitebellied Drongo (Eng.); Kajjualapati (Oriya).

Size: 24 cm.

Habits: Resident with some seasonal local movements. Keeps in pairs or small parties. Affects open forest and well wooded areas. Feeds on grasshoppers, crickets, winged termites, moths and other insects

Remarks: Common. A number of birds were seen in different habitats at Hadgarh Breeds between March and April.

Family ARTAMIDAE

78. *Sternus malabaricus* Gmelin

Common name: Greyheaded Myna (Eng.).

Size: 21 cm.

Habits: Resident, migrating locally during heavy rains and winter. Keeps in small flocks. Affects thinly wooded areas near human habitations, open secondary forest and forest plantations. Feeds on fruits, berries and insects.

Remarks: Common. A number of birds were seen throughout the survey period in different habitats at Hadgarh. Breeds between April and July.

79. *Sternus contra* Linnaeus

Common names: Pied Myna (Eng.); Gukkkhai Maina (Oriya).

Size: 23 cm.

Habits: Resident, with seasonal local movements. Keeps in small parties or large noisy flocks. Affects cultivation, damp grassland and vicinity of human habitations. Feeds on insects, cereals and grains and fruits.

Remarks: Moderately common. Only five birds could be seen throughout the survey period in the cultivated land at Pitanau village. Breeds between March and September.

80. *Acridotheres tristis* (Linnaeus)

Common names: Indian Myna (Eng.); Rajabani, Rajamaina (Oriya).

Size: 23 cm.

Habits: Resident. Keeps in small family parties, sometimes in large flocks. Affects neighbourhood of human habitations, cultivated lands, villages and towns. Feeds on fruits, grains, insects and grubs.

Remarks: Common near human habitation areas of the sanctuary. Breeds between April and July.

81. *Acridotheres fuscus* (Wagler)

Common names: Jungle Myna (Eng.); Guhabani, Ghukalika (Oriya).

Size: 23 cm.

Habits: Resident, with seasonal local movements. Keeps in family parties and flocks. Affects well-wooded country near cultivation and forest villages. Feeds on fruits, berries, grains and insects.

Remarks: Moderately common. Only four birds could be seen throughout the survey period at Pitanau village. Breeds between April and July.

Family CORVIDAE

82. *Dendrocitta vagabunda* (Latham)

Common names: Tree Pie (Eng.); Karkara Chadehi (Oriya).

Size: 30 cm.

Habits: Resident. Keeps in noisy family parties. Affects open wooded country and gardens with trees and bushes. Omnivorous in food habits.

Remarks: Common. A number of birds were observed throughout the sanctuary in suitable habitats. Breeds between March and May.

83. *Corvus splendens* Vieillot

Common names: House crow (Eng.); Kuwa (Oriya).

Size: 43 cm.

Habits: Resident. Keep in flock around human habitations and cultivation. Feeds practically on everything than can be eaten.

Remarks: Common around human habitations. Breeds between March and August, but peak period varying locally.

84. *Corvus macrorhynchos* Wagler

Common names: Jungle crow (Eng.); Damara Kuwa (Oriya).

Size: 48 cm.

Habits: Resident. Keeps singly or in pairs or small scattered parties. Affects well-wooded country, outskirts of forest villages, towns and cities. Feeds on animal and vegetable matters.

Remarks: Common. Maximum number of birds were seen at Hadgarh than to other places of the sanctuary. Breeds between February and June, varying locally.

Family Campephagidae

85. *Hemipus picatus* (Sykes)

Common name: Blackbacked Pied Flycatcher-Shrike (Eng.).

Size: 14 cm.

Habits: Resident. Keeps in pairs or small parties. Affects thin jungle, mixed deciduous forest and gardens nearby. Feed chiefly on insects.

Remarks: Moderately common. Only four birds could be seen throughout the survey period in the forest at Pitanau village. Breeds between March and May.

86. *Tephrodornis pondicerianus* (Gmelin)

Common name: Wooded Shrike (Eng.).

Size: 16 cm.

Habits: c pairs or small parties. Affects open broadleaved forest, secondary growth and well wooded areas. Feeds on moths, caterpillars, beetles, spiders and other insects.

Remarks: Moderately common. Only a single pairs of birds could be seen throughout the survey period inside forest at Pitanau village. Breeds between March and April.

87. *Coraina melanoptera* (Ruppell)

Common names: Blackheaded Cuckoo-shrike (Eng.).

Size: 20 cm.

Habits: Resident and local migrant. Keeps singly or in pairs or small parties. Affects broad leaved forests and secondary growth. Feeds on insects and berries.

Remarks: Moderately common. Only three birds could be seen throughout the survey period inside forest at Pitanau village. Breeds between March and April.

88. *Pericrocotus flammeus* (Forster)

Common names: Scarlet Minivet (Eng.); Sundari (Oriya).

Size: 22 cm.

Habits: Resident. Keep in flocks. Affects moist deciduous and evergreen forests. Feeds on caterpillars, crickets, cicads and other insects.

Remarks: Moderately common. Only a flocks of ten birds were seen once throughout the survey period inside forest at Pitanau village.

89. *Pericrocotus cinnamomeus* (Linnaeus)

Common names: Small Minivet (Eng.); Sundari (Oriya).

Size: 15 cm.

Habits: Resident. Keeps in small flocks. Affects open wooded areas. Feeds on moths, caterpillars, and other insects.

Remarks: Common. A number of birds were observed throughout the sanctuary in different habitats. Breeds between March and September.

Family IRENIDAE

92. *Aegithina tipia* (Linnaeus)

Common name: Common Iora (Eng.).

Size: 14 cm.

Habits: Resident. Keeps in pairs. Affects open forest, roadside avenue and scrub. Feeds on spiders, insects and their larvae.

Remarks: Common. A number of birds were seen throughout the sanctuary in different habitats. Breeds between July and August.

93. *Chloropsis aurifrons* (Temminck)

Common names: Goldfronted Chloropsis (Eng.); Haraba chadhi (Orisha)

Size: 19 cm.

Habits: Resident. Keeps in pairs or small parties. Affects deciduous and evergreen forest and lightly wooded open country and secondary scrub. Feeds on berries, insects, spiders and flower nectar.

Remarks: Moderately common. Only four birds could be seen throughout the survey period at petanau and Dalki. Breeds between May and August.

94. *Chloropsis cochinchinensis* (Gmelin)

Common names: Goldmantled chloropsis (Eng.); Kanakachampa (Oriya).

Size: 18 cm.

Habits: Resident. Keeps singly or in pairs. Affects open forest and well wooded areas. Feeds on insects, caterpillars, mantises, berries and wild figs.

Remarks: Common. A number of birds were seen throughout the sanctuary in different habitats. Breeds between November and May.

Family PYCNOTIDAE

95. *Pycnonotus jocosus* (Linnaeus)

Common names: Redwhiskered Bulbul (Eng.); Bulbul (Oriya).

Size: 20 cm.

Habits: Resident. Keeps in pairs or loose flocks. Affects scrub jungle, forest edges and semi-cultivation. Feeds on fruits, berries, figs, flower-buds, insects and spiders.

Remarks: Common. A number of birds were seen in different habitats. Breeds between April and June.

96. *Pycnonotus leuteolus* (Lesson)

Common names: Whitebrowed Bulbul (Eng.).

Size: 20 cm.

Habits: Resident. Keeps in pairs. Affects dry scrub, forest edges and thickets near villages. Feeds on fruits, berries and flower-nectar; also takes spiders and small insects.

Remarks: Moderately common. Only five birds could be seen throughout the survey period at petanau and Dalki. Breeds between April and August.

97. *Pycnonotus cafer* (Linnaeus)

Common names: Redvented Bulbul (Eng.); Champa (Oriya).

Size: 20 cm.

Habits: Resident. Keep in pairs small parties. Affects cultivation, scrub, gardens and villages. Feeds on fruits, berries and insects.

Remarks: Common. A numbers of birds were seen in different habitats. Breeds between April and July.

Family MUSCICAPIDAE

98. *Pellorneum ruficeps* Swainson

Common name: Spotted Babbler (Eng.).

Size: 15 cm.

Habits: Resident. Keep in pairs small parties. Affects scrubs, groves and thickets in ravines and along water courses. Feeds on various insects.

Remarks: Common. A number of birds were observed throughout the sanctuary in different habitats. Breeds between April and June.

99. *Pamatorhinus schisticeps* Hodgson

Common name: Scimitar Babbler (Eng.).

Size: 22 cm.

Habits: Resident. Keep in pairs small parties. Affects scrubs, dense bush jungle and secondary growth in forests. Feeds on insects, grubs and spiders; also takes berries and flower nectar.

Remarks: Moderately common. Only four birds could be seen throughout the survey period at petanau.

100. *Dumetia hyperthra* (Franklin)

Common name: Rufus bellied Babbler (Eng.).

Size: 13 cm.

Habits: Resident. Keeps in loose flocks. Affects grassland, deciduous scrub jungle and forests. Feeds mainly on insects; also takes flower-nectar.

Remarks: Moderately common. Only five birds could be seen throughout the survey period inside forest at Petanau. Breeds between March and September.

101. *Chrysomma sinense* (Gmelin)

Common name: Yellow-eyed Babbler (Eng.).

Size: 18 cm.

Habits: Resident. Keeps in small parties. Affects tall grass, bushes, fields and scrubs. Feeds on insects, caterpillars, spiders, berries and nectar.

Remarks: Common. A number of birds were seen throughout the sanctuary in different habitats. Breeds between July and August.

102. *Turdoides striatus* (Dumont)

Common names: Jungle Babbler (Eng.).

Size: 25 cm.

Habits: Resident. Keeps in small to large parties. Affects deciduous forest and cultivation. Feeds mainly on various insects; also takes grains, seeds and berries.

Remarks: Common. A number of birds were seen throughout the sanctuary in different habitats. Breeds between June and August.

103. *Muscicappa parva* Bechstein

Common names: Redbreasted Flycatcher (Eng.).

Size: 13 cm.

Habits: Winter visitor. Keeps singly. Affects bushes, scrub jungle, groves and orchards. Feeds on insects.

Remarks: Moderately common. Only five birds could be seen throughout the survey period in forest bushes at Petanau and Dalki. Breeds from Urals to Kamchatka between May and June.

104. *Muscicappa tickelliae* (Blyth)

Common names: Tickell's Redbreasted Blue Flycatcher (Eng.).

Size: 14 cm.

Habits: Resident, moving locally. Keeps singly, or ten in mixed hunting parties. Affects thick bushes in around forest and streams, deciduous scrub, village groves, gardens and orchards. Feeds chiefly on various insects

Remarks: Common. A number of birds were seen throughout the sanctuary in different habitats. Breeds between April and August.

105. *Muscicappa thalassina* Swainson

Common names: Verditer Flycatcher (Eng.).

Size: 15 cm.

Habits: Winter visitor. Keeps singly or in pairs. Affects forests edges, bushes along streams, groves and gardens. Feeds on various insects.

Remarks: Moderately common. Only five birds could be seen throughout the survey period in forest bushes at Petanau. Breeds in Himalayas and NE India between April and August.

106. *Rhipidura aureola* Lesson

Common name: Whitebrowed Fantail Flycatcher (Eng.).

Size: 17 cm.

Habits: Resident, subject to local movements. Keeps singly or in pairs. Affects forests, grooves and orchards and light scrub jungle. Feeds on insects.

Remarks: Moderately common. Only five birds could be seen throughout the survey period in different habitat at Petanau and Dalki. Breeds between April and May.

107. *Monarcha azurea* (Boddart)

Common name: Whitebrowed Fantail Flycatcher (Eng.).

Size: 17 cm.

Habits: Resident. Keeps singly or in pairs. Affects forests, secondary jungle, cultivation and heavy foliage along streams. Feeds on winged insects.

Remarks: Moderately common. Only three birds could be seen throughout the survey period in forest habitats at Petanau. Breeds between March and August.

108. *Cisticata juncidis* (Rafinesque)

Common name: Streaked Fantail Warbler (Eng.).

Size: 10 cm.

Habits: Resident, subject to local movements. Keeps singly or in loose parties. Affects grass or reed beds along margin of tanks and wet paddy fields. Feeds on various insects.

Remarks: Moderately common. Only four birds could be seen throughout the survey period at the edge of Hadgarh reservoir near Dalki inside sanctuary. Breeds between May and October.

109. *Prinia hodgsonii* Blyth

Common name: Ashy-grey Wren-Warbler (Eng.).

Size: 11 cm.

Habits: Resident. Keeps singly or in pairs. Affects scrubs, bushes at forest edges, cultivation and swamps. Feeds on insects and caterpillars.

Remarks: Moderately common. Only six birds could be seen throughout the survey period in different forest bushes. Breeds between July and August.

110. *Orthotomus sutorius* (Pennant)

Common names: Tailor Bird (Eng.); Tiki Chadehi (Oriya).

Size: 13 cm.

Habits: Resident. Keeps singly or in pairs. Affects bush in gardens, edges of forests and cultivation. Feeds on small insects and their larvae; also feeds on flower-nectar.

Remarks: Common. A number of birds were seen throughout the sanctuary in different habitats. Breeds between June and August during monsoon period.

111. *Phragmaticola aedon* (Pallas)

Common name: Thickbilled Warbler (Eng.).

Size: 20 cm.

Habits: Resident. Keeps singly. Affects tall grass and scrub, reeds and bushes of marshy places. Feeds on insects.

Remarks: Uncommon. Only two birds could be seen throughout the survey period at Petanau. Breeds in central Asia.

112. *Acrocephalus stenoreus* (Hemprich & Ehrenberg)

Common name: Thickbilled Warbler (Eng.).

Size: 20 cm.

Habits: Winter Visitor, passage migrant and breeder. Keeps singly or in pairs. Affects tall bushes around lakes, ponds, jheels and canals. Feeds mainly on grasshopper; also takes other insects.

Remarks: Moderately common. Only six birds could be seen throughout the survey period in different bushes. Breeds between May and August.

113. *Acrocephalus dumetorum* Blyth

Common name: Bluth's Reed Warbler (Eng.).

Size: 14 cm.

Habits: Winter visitor. Keeps singly. Affects bushes and trees at edges of forest, cultivation and wooded areas. Feeds on insects.

Remarks: Moderately common. Only four birds could be seen throughout the survey period in forest bushes at Pitanau. Breeds in central Eurasia between June and July.

114. *Phylloscopus trochiloides* (Sundevall)

Common name: Greenish Leaf Warbler (Eng.).

Size: 10 cm.

Habits: Winter visitor. Keeps singly sometimes among mixed foraging parties of small insectivorous birds. Affects various types of mixed forests and open cultivation country. Feeds on insects and caterpillars.

Remarks: Moderately common. Only five birds could be seen throughout the survey period inside the forest at Pitanau and Dalki. Breeds in Eastern Siberia, Western China and Iran between May and August.

115. *Erithacus calliope* (Pallas)

Common name: Ruby Throat (Eng.).

Size: 15 cm.

Habits: Winter visitor. Keeps singly. Affects dense scrub, thick bushes and thick undergrowth along sides of road. Feeds on insects and their larvae.

Remarks: Moderately common. Only three birds could be seen throughout the survey period inside forest bushes at Pitanau. Breeds in Siberia, Kamchatka and Hokkaido.

116. *Copsychus saularis* (Linnaeus)

Common names: Magpie Robin (Eng.); Dayal (Oriya).

Size: 20 cm.

Habits: Resident. Keeps singly or in pairs. Affects plantation, orchards, gardens, scrub jungle and forests near human habitation. Feeds on insects, caterpillars and dragonflies; also takes small lizards.

Remarks: Common. Found throughout the sanctuary in different habitats. Breeds between March and May.

117. **Copsychus malabaricus** (Scopoli)

Common names: Indian Shyama (Eng.); Shama (Oriya).

Size: 25 cm.

Habits : Resident. Unevenly distributed. Keeps singly or in pairs. Affects undergrowth in broad leafed forest on low hills and broken ground. Feeds on insects and their larvae.

Remarks: Moderately common. Only three birds could be seen throughout the survey period in forest patches. Breeds between May and June.

118. **Phoenicurus ochruros** (Gmelin)

Common name: Black Redstart (Eng.).

Size: 15 cm.

Habits: Summer (breeding) visitor. Keeps singly or in pairs. Affects cultivation and plantation. Feeds on insects, largely small beetles.

Remarks: Moderately common. Only four birds could be seen throughout the survey period Pitanaу. Breeds between May and August.

119. **Saxicola torquata** (Linnaeus)

Common name: Collared Bush Chat (Eng.).

Size: 13 cm.

Habits: Summer (breeding) visitor. Keeps singly or in pairs. Affects bushes in open country. Feeds on insects and their larvae.

Remarks: Moderately common. Only four birds could be seen throughout the survey period in roadside bushes of Pitanaу and Dalki.

120. **Saxicola caprata** (Linnaeus)

Common name: Pied Bush Chat (Eng.).

Size: 13 cm.

Habits: Resident Keeps singly or in separated pairs. Affects cultivated fields and open country with scattered bushes and grasses. Feeds on insects and their larvae; also takes spiders and some vegetable matters.

Remarks: Moderately common. Moderately common. Only four birds could be seen throughout the survey period in different habitats. Breeds between March and August.

121. Saxicola fulicata (Linnaeus)

Common names: Black Robin (Eng.); Shuee (Oriya).

Size: 16 cm.

Habits: Resident. Keeps singly or in pairs. Affects garden, grooves, cultivation open scrub jungle in deciduous forest. Feeds on insects and their larvae.

Remarks: Common. A number of birds were seen throughout the survey period in different habitats of the sanctuary. Breeds between April and June.

122. Zoothra citrine (Latham)

Common name: Orange headed Ground Thrush (Eng.).

Size: 21 cm.

Habits: Resident, with partial migration. Keeps singly or in pairs. Affects damp, shady places in the forest and well wooded areas. Feeds on insects, fruits and berries.

Remarks: Common. A number of birds were seen in Pitanau and Dalki. Breeds between May to August.

Family PARIDAE

123. Parus major (Linnaeus)

Common name: Grey Tit (Eng.).

Size: 13 cm.

Habits: Resident. Keeps in pairs or in small scattered parties. Affects light deciduous forest, village groves and orchards. Feeds on insects, caterpillars, seeds, flower buds and berries.

Remarks: Common. A number of birds were seen throughout the sanctuary in different habitats. Breeds between February and August.

124. Parus xanthogeny (Vigors)

Common name: Yellow Cheeked Tit (Eng.).

Habits: Resident. Keeps in pairs or small scattered parties. Affects open forest, forest edges and plantation. Feeds on insects, grubs, ants, spiders, fruits and berries.

Remarks: Moderately common. Only four birds could be seen throughout the survey period in forest edges at Pitanau. Breeds between April and August.

Family MOTACILIDAE

125. Anthus hodgsoni (Richmond)

Common name: Indian Tree Pipit (Eng.).

Size: 15 cm.

Habits: Resident and winter visitor. Keeps singly or in pairs. Affects open forest and shrubberies. Feeds on insects and their larvae; also takes grass and weed seeds.

Remarks: Moderately common. Only five birds could be seen throughout Pitanau and Dalki. Breeds between May to August.

126. *Anthus novaseelandiae* (Gmelin)

Common name: Paddy Field Pipit (Eng.).

Size: 15 cm.

Habits: Resident, subject to local movements. Keeps in pairs or small loose flocks. Affects open grassland, fallow fields and edges of cultivation. Feeds on insects and their larvae; also takes spiders, grass and seeds.

Remarks: Common. A number of birds were seen in different habitats. Breeds between March and July.

127. *Motacilla flava* (Linnaeus)

Common name: Yellow Wagtail (Eng.).

Size: 17 cm.

Habits: Winter visitor. Keeps singly or in scattered pairs. Affects marshes, grassy ground along riversides, wheels and tanks. Feeds on insects and their larvae; also takes tiny molluscs.

Remarks: Moderately common. Only five birds could be seen throughout the survey period in different habitats. Breeds in Siberia.

128. *Motacilla capsica* (Gmelin)

Common names: Grey Wagtail (Eng.); Khanjana (Oriya).

Size: 17 cm.

Habits: Winter visitor. Keeps singly or in separated pairs. Affects streams in lowland and foothills. Feeds on insects and tiny mollusks.

Remarks: Moderately common. Only five birds could be seen throughout the survey period along streams at Pitanau and Hadgarh.

129. *Motacilla alba* (Linnaeus)

Common name: White Wagtail (Eng.).

Size: 18 cm.

Habits: Winter visitor. Keeps singly or in pairs. Affects vicinity of river, tanks, streams, cultivated lands and compounds. Feeds on insects and their larvae.

Remarks: Common. A number of birds were seen throughout the survey period in different habitats. Breeds in Western Siberia.

130. *Motacilla maderaspatensis* (Gmelin)

Common names: Large Pied Wagtail (Eng.); Chanchi (Oriya).

Size: 21 cm.

Habits: Resident. Keeps usually in pairs. Affects water sources, smooth running streams, pools and cultivated lands and lawns. Feeds on insects and small seeds.

Remarks: Common. A numbers of birds were seen throughout the survey period in different habitats. Breeds between March And June.

Family DICAUIDAE

131. **Dicaeum agile** (Tickell)

Common name: Thick Billied Flowerpecker (Eng.).

Size: 9 cm.

Habits: Resident. Keeps singly or in pairs. Affects forests, well wooded country, orchards, village grooves and gardens. Feeds chiefly on figs; also takes spiders and various insects.

Remarks: Moderately common. Only six birds were seen throughout the survey period in different habitats. Breeds between January and June when the trees are bare.

132. **Dicaeum erythrorhynchos** (Latham)

Common name: Tickell's Flowerpecker (Eng.).

Size: 8 cm.

Habits: Resident. Keeps singly or in pairs. Affects open broad-leaved forests and well wooded areas. Feeds on fruits, berries, nectar, spiders and small insects.

Remarks: Moderately common. Only four birds were seen throughout the survey period in the forest at Pitanau. Breeds between February and June.

Family NECTARINIDAE

133. **Nectarinia zeylonica** (Linnaeus)

Common names: Purple-rumped Sunbird (Eng.); Phulchi (Oriya).

Size: 10 cm.

Habits: Resident. Keeps in pairs. Affects scrubs, light secondary jungles and deciduous biotope. Feeds on nectar of flower; also takes small spiders and insects.

Remarks: Common. A numbers of birds were seen throughout the survey period in different habitats. Breeds between March and May.

134. **Nectarinia asiatica** (Latham)

Common names: Purple Sunbird (Eng.); Phulchuhi (Oriya).

Size: 10 cm.

Habits: Resident. Keeps singly or in pairs. Affects light deciduous forests, cultivations, gardens and compounds. Feeds on nectar and flowers; also takes small spiders and insects.

Remarks: Common. A numbers of birds were seen throughout the survey period in different habitats. Breeds between February and June.

Family Zosteropidae

135. **Zosterops palpebrosa** (Temminck)

Common name: White-eye.

Size: 10 cm.

Habits: Resident with seasonal movements. Keeps in pairs or in small parties. Affects forests, groves, orchards and gardens. Feeds on insects, caterpillars, berries, seeds and buds.

Remarks: Common. A number of birds were seen inside the forests of Pitanau and Dalki. Breeds between June and July.

Family PLOCEIDAE

136. *Passer domesticus* (Linnaeus)

Common names: House Sparrow (Eng.); Gharachatia (Oriya)

Size: 15 cm.

Habits: Resident. Keeps in pairs or small parties. Affects cities, suburbs, Villages and human habitations. Feeds on insects and vegetative matters.

Remarks: Common in and around human habitations. Breeds throughout the year.

137. *Petronia xanthocollis* (Button)

Common names: Yellow-throated Sparrow (Eng.); Chatia (Oriya).

Size: 14 cm.

Habits: Residents with marked local movements. Keeps in flocks. Affects open dry deciduous forest, grooves, hedges and trees near villages and cultivations. Feeds on grains, grass and weed seeds, ants, caterpillars and other insects.

Remarks: Moderately common. Only a flock of about twenty birds were seen once throughout the survey period in different habitat of the forest at Pitanau. Breeds between February and May.

138. *Estrilda amandava* (Linnaeus)

Common names: Red Munia or Avadavat (Eng.).

Size: 10 cm.

Habits: Resident. Keeps in pairs or small flocks. Affects tall wet grass land reed beds. Feeds on grass seeds.

Remarks: Moderately common. Only six birds could be seen throughout the survey period in different habitats. Breeds between July and October.

139. *Lonchura malabarica* (Linnaeus)

Common name: White-throated Munia (Eng.).

Size: 10 cm.

Habits: Resident. Keeps in flocks. Affects dry cultivation, grassland, scrubland and light secondary jungle. Feeds on grss seeds and small insects.

Remarks: Common. A number of flocks were seen throughout the survey period in different habitats of the sanctuary. Breeds between January and March.

140. *Lonchura striata* (Linnaeus)

Common name: White-backed Munia (Eng.); Patruni (Oriya).

Size: 10 cm.

Habits: Resident having local movements. Keeps in small flocks. Affects deciduous jungle, scrub and light wooded country around cultivation. Feeds on grass seeds and insects.

Remarks: Moderately common. Only a flock of about 10 birds were seen once throughout the survey period in different habitats in the cultivated field of Pitanau village. Breeds mainly after the monsoon.

141. *Lonchura punctulata* (Linnaeus)

Common names: Spotted Munia (Eng.); Baramashi (Oriya).

Size: 10 cm.

Habits: Resident. Keeps in flocks. Affects open country, secondary jungle, grassland, gardens and cultivation. Feeds on grass seeds, rice and lantana berries.

Remarks: Common. A number of flocks were seen throughout the survey period in different habitats of the sanctuary. Breeds between May and September.

142. *Melophus lathami* (J. E. Gray)

Common name: Crested Bunting (Eng.).

Size: 15 cm.

Habits: Resident. Keeps singly or in small flocks. Affects dry- deciduous jungle and grass patches. Feeds on grass seeds.

Remarks: Uncommon. Only a singly bird was seen throughout the survey period in different habitats inside the sanctuary. Breeds between April and August.

DISCUSSION

Hadgarh Sanctuary being extended over the Decan Peninsula and Chota Nagpur Plateau represents a varied physiographic. It contains a good number of ever flowing rivers, streams and big reservoir. These diverse ecological factors have resulted varied microhabitats which in turn gave rise to a wonderful faunal diversity including elephant, the apex of the pyramid. Subsequently to conserve this national heritage the area was declared as a sanctuary in 1978. Due to construction of Hadgarh reservoir the sanctuary has become fragmented and this highly fragile ecosystem is being endangered by the following factors.

- (i) There are a number of villages with extensive cultivated fields in the sanctuary, who along with their huge domestic cattle are entirely dependent on the natural resources of the sanctuary. Cattle were found grazing even in the deepest part of the forests. Huge grazing not only degrades the habitat but also will lead to serious out break of contagious disease among the wild herbivores.

- (ii) Collection of firewood by the local inhabitants in an uncontrolled manner is likely to cause habitat destruction near the future.
- (iii) Collection of Sal leaves, felling of trees for logs and remove of litters is also of great concern and need the controlled.
- (iv) Catching of fish from the reservoir area is a regular practice. This is causing disturbance to migratory water birds while feeding and resting.
- (v) The part of sanctuary at Hadgarh was found to be under control of three State Govt. agencies viz. State Irrigation Department, State Fishery Department collecting revenue for the fishes being caught from the reservoir and forest department.
- (vi) Continuous movement of heavy vehicles and blasting in stone quarries and chromite mines causing disturbance to wildlife and habitat destruction.

As a result of the above factors quality of the habitat is being degraded at a fast rate and flora and fauna are the worst victims.

From the above discussion it is obvious that though the forest has been declared as a sanctuary, but in reality the faunal diversity is now most vulnerable may reach in near future to a point of no return.

RECOMMENDATION

To conserve the sanctuary, socio-economic condition of the people living in and around must be taken into consideration. Practical aspects as regard to the needs and requirements of the local people cannot be ignored by simple notification and framing rules. Following recommendations may be considered for the conservation of the sanctuary.

1. The forest must be demarked into the core and buffer zones. The sanctuary must be brought under the total administrative control of the state forest department.
2. To meet up the need of forest produce by the local people, the buffer zone may be declared as protected forest, from there they may collect fire wood and other requirements under the total control of the management authorities. However attempts should be taken to minimize their requirements gradually.
3. Cultivation of fodder in the wasteland may be initiated to minimize the grazing pressure. Free inoculation of domestic cattle must be arranged to prevent spreading of contagious diseases.
4. More forest guards need be employed to arrange regular petrolling in the sanctuary so that illicit activities can be prevented.
5. No conservation programme can achieve any success unless the local people are taken into confidence. To make the local people understand that the sanctuary is not against them, rather it is for them, awareness programme must be organized

regularly. Assurance must be given that they will not be deprived from their rights. In this course fullest co-operation from them may be received for the conservation of the sanctuary which will serve as substantial resource for future generations.

6. Well-equipped research wing need be arranged to carry out research on the eco-development of the area, status of different species, populations fluctuations, animal behaviour, disease and others. Carrying capacity of the forest in respect of different species occurring within the sanctuary need also be studied from time to time.

SUMMARY

Based on survey works a detailed account of faunal composition of the Hadgarh Sanctuary has been prepared. Total 41 species of mammals and 142 species of birds have been made for habitat improvement and management of the sanctuary.

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Eco-Tourist Tower House Hadgarh WLS at Zero point.



Wild Elephant Sighting inside Pitanau Forest, Hadgarh WLS.



Hadgarh Dam at Zero point



Villagers carrying forest wood at Pitanau, Hadgarh WLS.



Temple inside the Hadgarh WLS.



Cattle grazing inside the Forest at Dalki, Hadgarh WLS.



Common Myna



Spotted Owlet



Red Vented Bulbul



Indian Black Drongo (Pix. Santunu Ghosh)



Bengal Green Pigeon (Pix. Santunu Ghosh)



Red-Whiskered Bulbul (Pix. Santunu Ghosh)



White Breasted King Fisher



House sparrow (Pix. Santunu Ghosh)



Purple Sunbird (Pix.Sumit)



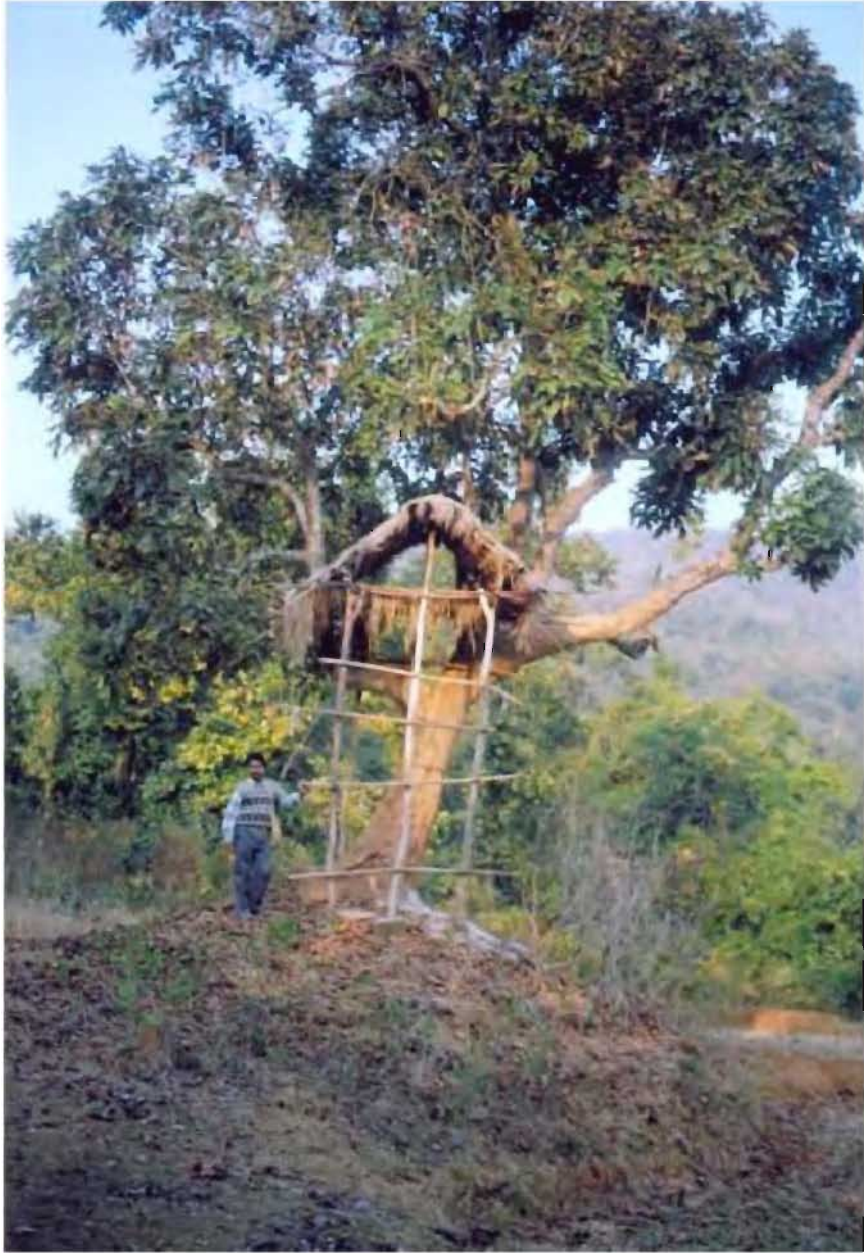
Purple Rumped Sunbird



Crested Serpent Eagle



Asian Pied Starling



Observing Cottage of Forest Dwelling People.

