

AVIFAUNA OF KARLAPAT WILDLIFE SANCTUARY, SOUTHERN ORISSA, INDIA

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Introduction

The avifauna of Orissa have mainly studied by Ball (1876, 1877, 1878), Mukherjee (1952), Ripley (1979), Abudalali (1984), Biswas (1954), Beeheler *et al.* (1985), Majumdar (1988), Singh and Rout (1992), Singh (1993), Kar and Sahu (1993, 1999), Acharya and Kar (1996), Acharya *et al.* (1997, 1999), Pandav (1997), Kar *et al.* (1999), Sahu and Kar (1999, 2000), Singh *et al.* (2001), Nayak (2003a, 2003b, 2005), Gopi *et al.* (2005, 2006), Gopi and Pandav (2007a, 2007b), Sahu and Rout (2005). Almost all previous information on the birds of Orissa is based on the studies and surveys from its costal region and most of the studies were focused on waterbirds. Though Biswas (1954), Abudalali (1984), Beeheler *et al.* (1985), Majumdar (1988) made some valuable contributions; the birds of southern Orissa are poorly studied. Hence ecological information like status, distribution, species composition and abundance and conservation issues of the birds of southern Orissa is inadequate. There has been no avifaunal documentation of Karlapat Wildlife Sanctuary (KWS) except the references of some common birds in the Sanctuary Management plan. The lack of scientific studies in KWS leads to the present study. This study has attempted to answer few questions with the following aims and objectives regarding bird diversity of the sanctuary.

- 1) To assess the present status and prepare a checklist of birds in the sanctuary.
- 2) To assess the threats to the avifauna of the sanctuary.
- 3) To suggest conservation strategies for better management.

Study Area

Karlapat Wildlife Sanctuary (82°56'18" - 83°19'35" and 19°36'50" - 19°50'51" N) is located in Kalahandi district of Orissa. It covers an area of 175 km². The temperature varies from 6°C during winter to 28°C during summer. The average rainfall in the sanctuary and the nearby areas varies from 1000 mm to 1800 mm. Due to good rainfall, there is luxuriant moist peninsular high

level sal and moist mixed deciduous forests along with extensive Bamboo forests. The forest is dominated by Char (*Buchanania lanzar*), tendu (*Diospyros melanoxylon*), mango (*Mangifera indica*), wood apple (*Aegle marmelos*), saf flower (*Carthamus tinctorius*), jamun (*Eugenia cumini*), sal (*Shorea robusta*) and bamboo (*Bambusa arundinacea*). The Sanctuary is intercepted by several rivers and perennial streams.

The main fauna of KWS includes Elephant (*Elephas maximus*), leopard (*Panthera pardus*), hyena (*Hyaena hyaena*), Indian wolf (*Canis lupus*), wild dog (*Cuon alpinus*), hanuman langur (*Semnopithecus entellus*), rhesus macaque (*Macaca mulatta*), porcupine (*Hystrix indica*), sambar (*Cervus unicolor*), gaur (*Bos gauros*), jungle cat (*Felis chaus*), Indian fox (*Vulpes bengalensis*), mouse deer (*Moschiola meminna*), wild pig (*Sus scrofa*) and barking deer (*Muntiacus muntjac*).

There are 19 villages inside the sanctuary of which 10 are revenue villages and 9 are encroached villages. Besides above there are 44 villages adjacent to the boundary of the sanctuary. Population of these villages is about 8000. They also very often enter into the sanctuary to collect fuel wood, bamboo, different forest produce, and these cattle to graze.

Material and Methods

The avifauna of KWS was surveyed during January 2009 to June 2009 as a part of biodiversity survey of this Sanctuary. The birds were observed during most active period of the day i.e. 5:30 to 8:30 and 15:30 to 18:30 with the help of 8 X 40 Bushnell binoculars. Surveys were conducted on foot in different type of habitats, where sighting chances are more and carried out every day during the study period to encounter the maximum numbers of birds. All identifications were based on Grimmett *et al.* (2001) and only those species with confirmed identification are listed in this paper. Based on the frequency of sightings in the field visits, the following four categories were made on their occurrence.

Common (C): Observed throughout the study in fairly good numbers and abundant in a particular locality.

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Table 1
Checklist of birds of Karlapat Wildlife Sanctuary.

| Common Name | Scientific Name | Frequency | Status |
|--|---------------------------------|-----------|--------|
| 1 | 2 | 3 | 4 |
| Order:Galliformes Family: Phasianidae | | | |
| Jungle Bush Quail | <i>Perdica asiatica</i> | C | Re |
| Red Jungle Fowl | <i>Gallus gallus</i> | C | Re |
| Indian Peafowl | <i>Pavo cristatus</i> | C | Re |
| Order:Turniciformes Family: Turnidae | | | |
| Small Buttonquail | <i>Turnix sylvatica</i> | C | Re |
| Order:Piciformes Family: Indicatoridae | | | |
| Rufous Woodpecker | <i>Celeus brachyurus</i> | C | Re |
| Yellow Crowned Woodpecker | <i>Dedrocopos maharattensis</i> | C | Re |
| Black-rumped Flameback | <i>Dinopium javanense</i> | C | Re |
| White-naped Woodpecker | <i>Chrysocolaptes festives</i> | R | Re |
| Heart-spotted Woodpecker | <i>Hemicircus canente</i> | UC | Re |
| Family: Megalaimidae Brown-headed Barbet | <i>Megalaima zeylanica</i> | C | Re |
| Coppersmith Barbet | <i>Megalaima haemacephala</i> | C | Re |
| Order:Bucerotiformes Family: Bucerotidae | | | |
| Indian Grey Hornbill | <i>Ocyrceros birostris</i> | R | Re |
| Order:Upupiformes Family: Upopidae | | | |
| Common Hoopoe | <i>Upupa epops</i> | UC | Re |
| Order:Trogoniforme Family: Troginidae | | | |
| Malabar Trogon | <i>Harpactes fasciatus</i> | C | Re |
| Order:Coraciiformes Family: Coraciidae | | | |
| Indian Roller | <i>Coracias bengalensis</i> | C | Re |
| Family: Alcedinidae | | | |
| Common Kingfisher | <i>Alcedo atthis</i> | C | Re |
| Family: Halcyonidae | | | |
| White-throated Kingfisher | <i>Halycon smyrnesis</i> | C | Re |
| Family: Moropidae | | | |
| Green Bee-eater | <i>Merops orientalis</i> | C | Re |
| Blue Tailed Bee-eater | <i>Merops philippinus</i> | UC | M (W) |
| Chestnut Headed Bee-eater | <i>Merops leschenaulti</i> | UC | Re |
| Order:Cuculiformes Family: Cuculidae | | | |
| Pied Cuckoo | <i>Clamator jacobinus</i> | UC | M (S) |
| Common Hawk Cuckoo | <i>Hierococcyx varius</i> | UC | Re |
| Eurasian Cuckoo | <i>Cuculus micropterus</i> | C | Re |
| Asian Koel | <i>Eudynamys scolopacea</i> | C | Re |
| Family: Centropodidae | | | |
| Greater Coucal | <i>Centropus sinensis</i> | C | Re |
| Order:Psittaciformes Family: Psittacidae | | | |
| Alexandrine Parakeet | <i>Psittacula eupartia</i> | C | Re |
| Rose-ringed Parakeet | <i>Psittacula krameri</i> | C | Re |
| Plum Headed Parakeet | <i>Psittacula cyanocephala</i> | C | Re |
| Order:Apodiformes Family: Apodidae | | | |
| House Swift | <i>Apus affinis</i> | C | Re |
| Family: Hemiprocnidae | | | |
| Crested Tree Swift | <i>Hemiprocne coronata</i> | UC | Re |
| Order:Strigiformes Family: Tytonidae | | | |
| Barn owl | <i>Tyto alba</i> | UC | Re |
| Family: Strigidae | | | Re |
| Collared Scops Owl | <i>Otus bakkamoena</i> | UC | Re |
| Eurasian Eagle Owl | <i>Bubo bubo</i> | R | Re |

Contd.....

| 1 | 2 | 3 | 4 |
|---|-----------------------------------|----|-------|
| Brown Fish Owl | <i>Ketupa zeylonsis</i> | C | Re |
| Jungle Owlet | <i>Glacidium radiatus</i> | UC | Re |
| Spotted Owlet | <i>Athene brama</i> | UC | Re |
| Family: Caprimulgidae | | | |
| Indian Nightjar | <i>Caprimulgus asiaticus</i> | UC | Re |
| Order: Columbiformes Family: Columbidae | | | |
| Rock Pigeon | <i>Columba livia</i> | C | Re |
| Yellow Footed Green Pigeon | <i>Treron phoenicoptera</i> | R | Re |
| Emerald Dove | <i>Chalcophaps indica</i> | UC | Re |
| Spotted Dove | <i>Streptopelia chinensis</i> | C | Re |
| Eurasian Collard Dove | <i>Streptopelia decaocto</i> | UC | Re |
| Order: Gruiformes Family: Rallidae | | | |
| Brown Crake | <i>Amaurornis akool</i> | UC | Re |
| White-breasted Waterhen | <i>Amurornis phoenicurus</i> | C | Re |
| Common Moorhen | <i>Gallinula chloropus</i> | C | Re |
| Order: Ciconiiformes Family: Triaginae | | | |
| Common Sandpiper | <i>Actitis hypoleucos</i> | C | M (W) |
| Family: Charadriidae | | | |
| Red-wattled Lapwing | <i>Vanellus cinereus</i> | C | Re |
| Yellow-wattled Lapwing | <i>Vanellus malabaricus</i> | UC | Re |
| Family: Accipitrinae | | | |
| Black Shouldered Kite | <i>Elanus caeruleus</i> | UC | Re |
| Black Kite | <i>Milvus migrans</i> | C | Re |
| Crested Serpent Eagle | <i>Spilornis cheela</i> | C | Re |
| Steppe Eagle | <i>Aquila nepalensis</i> | UC | Re |
| Oriental Honey Buzzard | <i>Pernis ptilorhynchus</i> | UC | Re |
| Sikra | <i>Accipiter badius</i> | C | Re |
| Family: Phalacrocoracidae | | | |
| Little Cormorant | <i>Phalacrocorax niger</i> | C | Re |
| Indian Shag | <i>Phalacrocorax fuscicollis</i> | UC | Re |
| Family: Ardeidae | | | |
| Little Egret | <i>Egretta garzetta</i> | C | Re |
| Cattle Egret | <i>Bubulcus ibis</i> | C | Re |
| Indian Pond-Heron | <i>Ardeola grayii</i> | C | Re |
| Little Green Heron | <i>Butorides striatus</i> | C | Re |
| Black-crowned Night-Heron | <i>Nycticorax nycticorax</i> | UC | Re |
| Family: Ciconiidae | | | |
| Asian Openbill | <i>Anastomus oscitans</i> | UC | Re |
| Order: Passeriformes Family: Pittidae | | | |
| Indian Pitta | <i>Pitta sordida</i> | C | M (S) |
| Family: Irenidae | | | |
| Blue-winged Leafbird | <i>Chloropsis cochinchinensis</i> | UC | Re |
| Golden Fronted Leafbird | <i>Chloropsis aurifrons</i> | C | Re |
| Family: Corvini | | | |
| Rufous Treepie | <i>Dendrocitta vagabunda</i> | C | Re |
| House Crow | <i>Corvus splendens</i> | C | Re |
| Large-billed Crow | <i>Corvus macrorhynchos</i> | UC | Re |
| Family: Orioloni | | | |
| Black-hooded Oriole | <i>Oriolus xanthornus</i> | C | Re |
| Eurasian Golden Oriole | <i>Oriolus oriolus</i> | UC | Re |
| Large Cuckooshrike | <i>Coracina macei</i> | UC | Re |
| Scarlet Minivet | <i>Pericrocotus flammeus</i> | C | Re |
| Family: Rhipidurini | | | |

Contd.....

| 1 | 2 | 3 | 4 |
|------------------------------|-----------------------------------|----|-------|
| White-throated Fantail | <i>Rhipidura albicollis</i> | C | Re |
| Family: Dicrurini | | | |
| Black Drongo | <i>Dicrurus macrocereus</i> | C | Re |
| White-bellied Drongo | <i>Dicrurus caerulescens</i> | UC | Re |
| Ashy Drongo | <i>Dicrurus lucophacus</i> | C | M (W) |
| Greater Racket-tailed Drongo | <i>Dicrurus paradiseus</i> | C | Re |
| Family: Monarchini | | | |
| Black-naped Monarch | <i>Hypothymis azurea</i> | UC | Re |
| Asian Paradise Flycatcher | <i>Terpsiphone paradisi</i> | UC | M (S) |
| Family: Aegithininae | | | |
| Common Iora | <i>Aegithina tiphia</i> | UC | Re |
| Family: Malaconotinae | | | |
| Common Woodshrike | <i>Tephrodornis pondicerianus</i> | UC | Re |
| Family: Saxicolini | | | |
| White-rumped Shama | <i>Copsychus malabaricus</i> | UC | Re |
| Oriental Magpie Robin | <i>Copsychus saularis</i> | C | Re |
| Indian Robin | <i>Saxicolodes falcata</i> | UC | Re |
| Family: Sturnidae | | C | |
| Brahminy Starling | <i>Sturnus pogodarum</i> | C | Re |
| Asian Pied Starling | <i>Sturnus contra</i> | C | Re |
| Common Myna | <i>Acridotheres tristis</i> | C | Re |
| Jungle Myna | <i>Acridotheres fuscus</i> | UC | Re |
| Hill Myna | <i>Gracula religiosa</i> | R | Re |
| Family: Paridae | | | |
| Great Tit | <i>Parus major</i> | UC | Re |
| Family: Cisticolidae | | | |
| Grey-breasted Prinia | <i>Prinia hodgsonii</i> | R | Re |
| Jungle Prinia | <i>Prinia sylvatica</i> | R | Re |
| Plain Prinia | <i>Prinia inornata</i> | R | Re |
| Family: Zosteropidae | | | |
| Oriental White-eye | <i>Zosterops palpebrosus</i> | C | Re |
| Family: Pycnonotidae | | | |
| Red Whiskered Bulbul | <i>Pycnonotus jocosus</i> | UC | Re |
| Red Vented Bulbul | <i>Pycnonotus cafer</i> | C | Re |
| Family: Sylviidae | | | |
| Common Tailor-bird | <i>Orthotomus sutorius</i> | C | Re |
| Family: Sylviinae | | | |
| Common Babbler | <i>Turdoides caudatus</i> | C | Re |
| Jungle Babbler | <i>Turdoides stritus</i> | C | Re |
| Family: Alandidae | | | |
| Ashy-crowned Sparrow Lark | <i>Eremopterix grisea</i> | UC | Re |
| Rufous-tailed Lark | <i>Ammomanes phoenicurus</i> | UC | Re |
| Family: Nectariniidae | | | |
| Purple-rumped Sunbird | <i>Nectarinia zylonia</i> | C | Re |
| Purple Sunbird | <i>Nectarinia asiatica</i> | C | Re |
| Crimson Sunbird | <i>Aethopyga siparaga</i> | UC | Re |
| Family: Passeridae | | | |
| House Sparrow | <i>Passer domesticus</i> | C | Re |
| Family: Motacillinae | | | |
| Forest Wagtail | <i>Dendronanthus indicus</i> | C | M (W) |
| Yellow Wagtail | <i>Motacilla flava</i> | C | M (W) |
| White Wagtail | <i>Motacilla alba</i> | C | M (W) |
| White Browed Wagtail | <i>Motacilla maderaspatensis</i> | UC | Re |

Contd.....

| 1 | 2 | 3 | 4 |
|----------------------|----------------------------|----|----|
| Grey Wagtail | <i>Motacilla cinerea</i> | C | Re |
| Paddy Field Pipit | <i>Anthus rufulus</i> | C | Re |
| Tree Pipit | <i>Anthus trivialis</i> | UC | Re |
| Family: Ploceinae | | | |
| Baya Weaver | <i>Ploceus philippinus</i> | UC | Re |
| Family: Estrildinae | | | |
| Green avadavat | <i>Amandava formosa</i> | UC | Re |
| Indian Silverbill | <i>Lonchura malabarica</i> | UC | Re |
| Black-headed Munia | <i>Lonchura malacca</i> | C | Re |
| White rumped Munia | <i>Lonchura striata</i> | UC | Re |
| Scaly Breasted Munia | <i>Lonchura punctulata</i> | UC | Re |

Abbreviations: C- Common, UC- Uncommon, R- Rare, Re- Residence, M- Migratory, W - Winter visitor and S- Summer visitor

In general, if the percentage of recording is more than 50 times they are grouped in the category.

Uncommon (UC): Found in small numbers and less frequency. Sightings were less than 50 percent and more than 10 percent. (Mostly seasonal migratory birds come to this category.)

Rare (R): Seen in very small numbers and there frequency of sightings were less than 10 percent.

The birds have also been categorised as different status as resident (Re) and migrant (M). Informal interviews with the members of the local community were used to gather information on conservation issues.

Results and Discussion

A total of 123 species of birds belonging to 15 orders and 49 families have been reported from KWS (Table 1). The taxonomy and nomenclature are used as per Inskipp *et al.* (1996), while common name is based on Grimmett *et al.* (2001). According to frequency of sighting of birds 70 species were common, 45 species were uncommon and 8 species were rare.

Eleven water bird species were recorded from KWS during the study period. Besides these, water dependant birds such as Black Kite, Crested serpent eagle, Brown fish owl, Kingfisher (Common and white breasted), Wagtails (Forest, yellow, white, grey, white browed) were also seen regularly around the water bodies of the sanctuary. Nine bird species were migratory, of which six were winter visitor and three were summer visitor.

In KWS, future studies should concentrate on to determine the status and distribution and biology of Hill myna, biology of sympatric woodpecker, comparative biology of Drongos, biology and behavior of Crested serpent eagle and biology of Babblers to enrich the ornithological knowledge of this area.

Conservation issues

People of the surrounding areas depend heavily

on KWS for various resources. Fishery potential is exploited by the local people. During this survey, various disturbances, including bird hunting and poaching were observed. Some of these birds like Peafowl, red jungle fowl and spotted dove are trapped by locals for consumption; also Hill mynas are trapped for cage birds. Other threats to the sanctuary are unsustainable methods of harvesting fish and other natural resources. Use of poison for fishing was noticed in many areas. Poisoning may influence water birds either indirectly or directly. Indirect effects include damage of food supply of water birds, thus lowering the carrying capacity of an affected area. Direct effect impact the birds itself, resulting either rapid death or in a lowered fitness, reducing the ability to reproduce successfully or to survive in inclement conditions. Encroachment of revenue land near the eastern portion of the sanctuary is the serious problem to the forest and bird community. People set fire for collection of Mahul flower (*Mudhuca indica*) and shifting cultivation. There is a proposal to lease part of land near sanctuary (Khandual mali) to aluminum industry (Vedanta alumina) for bauxite mining, which will result in loss of habitat and trees that are vital for roosting and nesting birds. This is also decrease the water level and affects the aquatic habitat of sanctuary because major streams generate from Khandual mali. So, it is advisable not to divert any land of or near sanctuary for other purposes. On the basis of our study and observations, a few suggestions are made for better management of the sanctuary and its species.

- The favored grassland and riverine habitats of the birds must be conserved or protected by forest department with cooperation of local people.
- The provision of Wildlife (Protection) Act should be strictly imposed against illegal hunting and trapping of these birds.
- Forest fire should be checked and controlled by adopting strict fire protection measures.

- Adequate forest cover for providing shelter to birds should be maintained in the area by planting wherever necessary. Wild fruit trees such as Zizyphus, Guava, Jamun, Fig, etc. should be planted as they attract various birds and other animal species that feed on fruits.
- The promotion of birds and habitat conservation through training and exhibitions should be established for all level people, and especially among school students; and also as an interpretation centre to create awareness about wildlife importance to the public.

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SUMMARY

Birds of Karlapat Wildlife Sanctuary were studied from January 2009 to June 2009, based on observational method. A total of 123 birds were recorded representing 49 families of 15 orders. Nine species are migrant, of which six are winter visitor and three are summer visitor. They also recorded 11 species of water birds here. The major factors, which are detrimental to the Karlapat Wildlife Sanctuary, are identified which includes proposal to lease a part of a land to an industry, use poison for fishing, forest fire, encroachment and hunting. Recommendations for better management of habitat of the Karlapat Wildlife Sanctuary have been provided.

Keywords: Karlapat Wildlife Sanctuary, Green avadavat, Birds, Conservation issues.

कालीपट वन्यप्राणी अभ्यारण्य, दक्षिण उड़ीसा, भारत के पक्षीजात

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सारांश

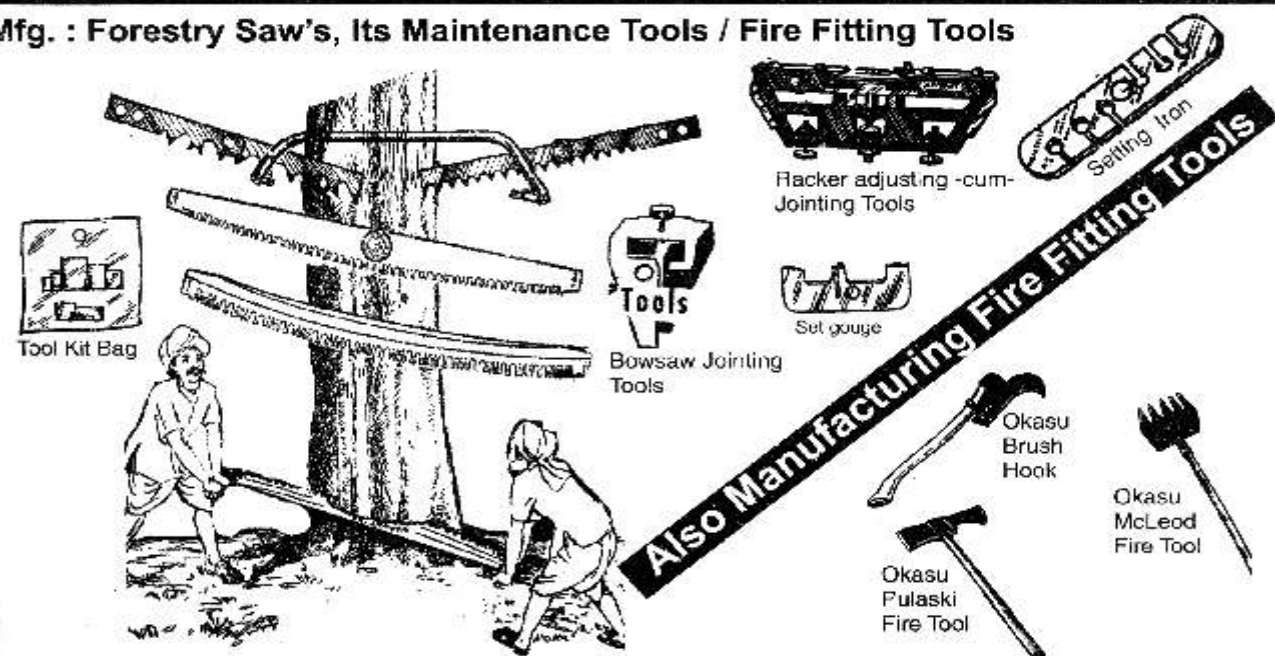
कालीपट वन्यप्राणी अभ्यारण्य के पक्षियों का जनवरी 2009 से जून 2009 तक पर्यवेक्षण विधि को आधार बनाकर अध्ययन किया गया। इसमें कुल 123 पक्षी आलेखित किए गए जो इस गण के 49 वंशों के अन्तर्गत आते हैं। नौ जातियां प्रवासी हैं जिनमें से छह सर्दियों में तथा तीन जातियां यहां गर्मियों में आती हैं। जल पक्षियों की भी 11 जातियां आलेखित की गईं जो प्रधान कारक कालीपट वन्यप्राणी अभ्यारण्य को हानि पहुंचाते हैं उन्हें बताया गया है उनमें उद्योग की स्थापना के लिए जमीन का कुछ भाग पट्टे पर देना, मछली पकड़ने के लिए विष का प्रयोग, जंगल में लगती आग, अतिक्रमण और आखेट आते हैं। कालीपट वन्यप्राणी अभ्यारण्य प्रकृतावास का श्रेष्ठतर प्रबन्ध करने के लिए अभिस्ताव भी दिए गए हैं।

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