

A checklist of birds of Machiya Safari Biological Park of Jodhpur, Rajasthan, India

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Machiya Safari Biological Park (MSBP) is located in Jodhpur, Rajasthan (altitude about 241m, 26.1°N & 73.08°E) at the eastern edge of the Great Indian Desert. An area of 650 ha outside Jodhpur once used for hunting expeditions, is being developed as a safari park by the government of Rajasthan since 2009 for the exhibition of wildlife. The Machiya fortress and a recent memorial built to commemorate freedom fighters are other attractions, besides a vegetation cover that spans the entire area (Fig. 1).

The 35-acre forest reserve in Machiya area, will be developed as a biological park. The park will host around two dozen species of wild animals and will be set up according to the norms of the Central Zoo Authority of India.

The area is hilly, sand stone plateau and has water bodies. During summer the average temperature is more than 32°C and may rise up to 48°C (maximum). The minimum temperature recorded during the study period was 3°C. The average rainfall is 390mm. This area provides various microhabitats due to the wide range of climatic conditions along with altitudinal variations. Therefore, this area has different vegetation types such as deciduous, dry deciduous, dry grasslands and euphorbia scrub.

The area is dominated by 'thor' (*Euphorbia caducifolia*) on the hillocks, 'Angraji banwalia' (*Prosopis juliflora*) 'bordi' (*Ziziphus mauritiana*) on the slopes of the rocky habitats and Khair (*Acacia catechu*) and 'Khejree' (*Prosopis cineraria*) on the sandy plains. Various other xerophytes such as *Acacia senegal*, *Calotropis procera*, *Capparis decidua*, and some climbers and grasses are also found. The study area is inhabited by a fairly large number of animals ranging from insects to mammals. These macrotaxa and microtaxa were found in two principal habitats viz. terrestrial and aquatic. The majority of vertebrates occupy the terrestrial habitat, while most of the amphibians, some fishes, and several invertebrate groups are found in the aquatic habitat.

The main fauna of this area include Hyena (*Hyaena hyaena*), Indian Wolf (*Canis lupus*), Jackal (*Canis aureus*), Jungle Cat (*Felis chaus*), Fox (*Vulpes bengalensis*), Blue Bull (*Boselaphus tragocamelus*), mongoose (*Herpestes edwardsii*) Wild Pig (*Sus scrofa*) and Hanuman Langur (*Semnopithecus entellus*). Cataloguing of avifauna diversity of the study area was done during the eco-behavioural study of langurs. The main aim of this study was to ascertain the nature of birds in various microhabitats of MSBP and the surrounding area of Kailana Lake.

Methods

The series of transects that were laid in the study area was used for cataloguing bird diversity. To identify the known individuals a powerful pair of binoculars was used, and photo documented. Besides this, birds were recorded by the point count method in major vegetation types as well as at water bodies and at machiya fort. All identification was based on Ali & Ripley (1983, 1995), Grewal (1995), Grimmett et al. (1999), Kazmierczak (2000), and Woodcock (1980). In this paper only those species are listed, whose identification was confirmed.

Results and Discussion

Over 350 bird species of Thar Desert (Rana et al. 1996) the 146 species from 43 different families of birds (Table 1) were observed in this study until November 2009, which is a quantum leap in bird inventory for the Machiya safari park. The study area consists of eight or nine small water bodies, and a hilly area having trees and herbs. During normal rainfall, all water bodies get filled to their capacity and there is no scarcity of food supplements, which are enough for both resident and migratory avifauna. Due to the lake and MSBP (Protected region), the area has enough natural resources for both the aquatic and terrestrial birds. Therefore this small area would seem to support a fairly large number of bird species. The presence of large trees, rocks, cliffs and small water bodies provide enough safe roosting sites and are the main reasons for attracting resident as well as migratory birds.

Out of 146 species of birds found in Machiya Safari Biological Park, six species are listed in Threatened Birds of The World (Birdlife International 2000). Out of these, three species *Gyps bengalensis*, *Gyps indicus* and *C. nigriceps* are categorized as critically Endangered and two species *Grus antigone*, *Sarcogyps calvus* and *Amandava formosa* as Vulnerable.

References

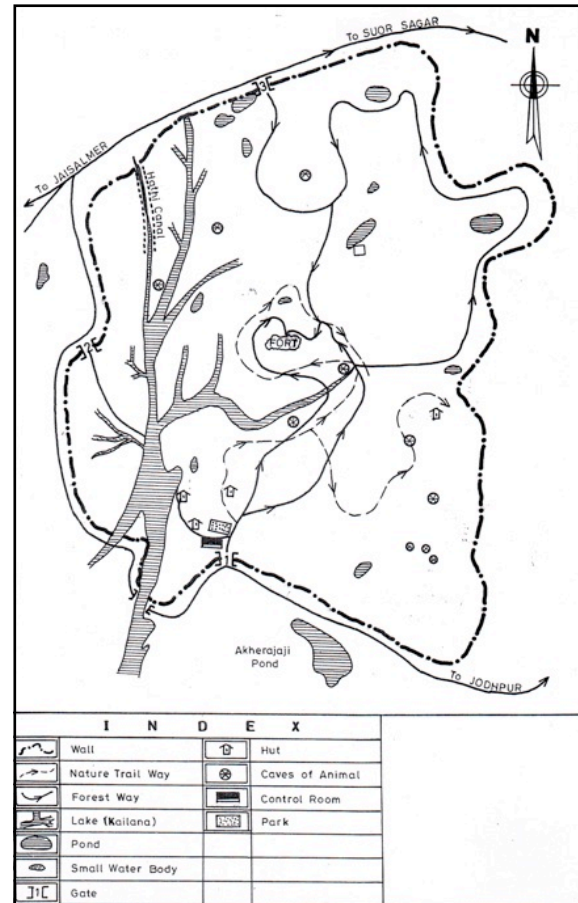
- Ali, S. & S.D. Ripley (1983). *Handbook of Birds of India and Pakistan*. Bombay Natural History Society, Oxford University Press, 236 pp
- Ali, S. & S.D. Ripley (1995). *A Pictorial Guide to the Birds of the Indian Subcontinent*. 2nd Edition (Updated). B.N.H.S. and Oxford University Press, Mumbai, 183pp.
- Altmann, J. (1974). Observational study of behaviour: sampling methods. *Behaviour* 49: 227-267.
- Birdlife International (2000). *Threatened Birds of the World*. Lynx Edition. Birdlife International, Barcelona and Cambridge, U.K., 860pp.
- Chhangani, A. (2002). Avifauna of Kumbalgarh Wildlife Sanctuary, in the Arawali Hills of Rajasthan. *Zoos' Print Journal* 17(4): 764-768.
- Devarishi, D. & Trigunayat (1989). Checklist of the birds of Mount Abu (Rajasthan). *Pavo* 27:59-63
- Grimmett, R., C. Inskipp & T. Inskipp (1999). *Pocket Guide to the Birds of Indian Subcontinent*. Oxford University Press, New Delhi, 384pp.
- Grewal, B. (1995). *Birds of the Indian Subcontinent*. Odessey, Hongong, 193pp.
- Kazmierczak, K. (2000). *A field Guide to the Birds of India, Sri Lanka, Pakistan, Nepal, Bhutan, Bangladesh and the Maldives*. Pica Press, U.K., 352 pp
- Manakadan, R. & A. Pittie (2001). Standardised common and scientific names of the birds of the Indian subcontinent. *Buceros Envis Newsletter* 6(1): 1-37.
- Rana, A.V., A.P. Jain & R.S. Tripathi (1996). Avian diversity in the Thar Desert. In: Ghosh, A.K., Q.H. Bakri & I. Prakash (eds.). *Faunal diversity in the Indian desert: Gaps in Research*. Scientific Publishers, Jodhpur, India, xi + 410 Pp
- Woodcock, M. (1980). *Collins Handguide to the Birds of the Indian Sub-continent*. St. James' Palace, London, 176pp.

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Table 1. Checklist of Birds of Machiya Safari Park with status

Common Name	Scientific name	Status
Accipitridae		
Long-billed Vulture	<i>Gyps indicus</i>	UC*
Tawny Eagle	<i>Aquila rapax</i>	C
Egyptian Vulture	<i>Neophron percnopterus</i>	C
Black Kite	<i>Milvus migrans</i>	C
Black-shouldered Kite	<i>Elanus caeruleus</i>	UC
Long-legged Buzzard	<i>Buteo rufinus</i>	C
Red-headed Vulture	<i>Sarcogyps calvus</i>	R*
White-backed Vulture	<i>Gyps bengalensis</i>	UC*
Pallid Harrier	<i>Circus macrourus</i>	R
Montagu's Harrier	<i>Circus pygargus</i>	R
Western Marsh Harrier	<i>Circus aeruginosus</i>	C
Short-toed Snake Eagle	<i>Circus gallicus</i>	C
Shikra	<i>Accipiter badius</i>	C
Cinereous Vulture	<i>Aegypius monachus</i>	UC
Desert Buzzard Buteo	<i>Buteo buteo vulpinus</i>	C
Steppe Eagle	<i>Aquila rapax nipalensis</i>	UC
Lesser Spotted Eagle	<i>Aquila pomarina</i>	UC
White-eyed Buzzard Eagle	<i>Butastur teesa</i>	UC
Alaudidae		
Black-crowned Sparrow-lark	<i>Eremopterix nigriceps</i>	UC
Hoopoe Lark	<i>Alaemon alaudipes</i>	C
Greater Short-toed Lark	<i>Calandrella brachydactyla</i>	R
Bimaculated Lark	<i>Melanocorypha bimaculata</i>	R
Red-winged Bush-lark	<i>Mirafra erythroptera</i>	C
Rufos-tailer Finch-lark	<i>Ammomanes phoenicurus</i>	C
Common Crested-lark	<i>Galerida cristata</i>	R
Ashy-crowned Sparrow-lark	<i>Eremopterix grisea</i>	UC
Alcedinidae		
White-breasted Kingfisher	<i>Halcyon smymensis</i>	VC
Small Blue Kingfisher	<i>Alcedo althis</i>	C
Lesser pied Kingfisher	<i>Ceryle rudis</i>	UC
Apodidae		
House Swift	<i>Apus affinis</i>	C
Anatidae		
Tufed Pochard	<i>Aythya fuligula</i>	C
White-eyed Pochard	<i>Arythya nyroca</i>	R
Ardeidae		
Cattle Egret	<i>Bubulcus ibis</i>	C
Large Egret	<i>Casmerodius albus</i>	C
Little Egret	<i>Egretta garzetta</i>	C
Grey Heron	<i>Ardea cinerea</i>	UC
Purple Heron	<i>Ardea purpurea</i>	C
Indian Pond-heron	<i>Ardeola grayii</i>	C
Burhinidae		
Eurasian Stone-curlew	<i>Burhinus oediconemus</i>	R
Charadriidae		
Kentish Plover	<i>Charadrius alexandrinus</i>	R
Lesser Sand Plover	<i>Charadrius mongolus</i>	R
Indian Sandgrouse	<i>Pterocelus exustus</i>	C
Red-wattled Lapwing	<i>Vanellus indicus</i>	VC
Little Ringed-plover	<i>Charadrius dubius</i>	R
Capitonidae		
Coppersmith Barbet	<i>Megalaima haemacephala</i>	UC
Cisticolidae		
Plan Wren-warbler	<i>Prinia subflava</i>	C
Streaked Wren-warbler	<i>Prinia gracilis</i>	C
Streaked Fantail Warbler	<i>Cisticola juncidis</i>	C

Fig 1. Vegetation cover of the study area



Common Name	Scientific name	Status
Columbidae		
Eurasian Collard Dove ¹	<i>Streptopelia decaocto</i>	VC
Blue Rock Pigeon	<i>Coulamba livia</i>	VC
Red-collared Dove	<i>Streptopelia tranquebarica</i>	C
Little Brown Dove	<i>Streptopelia senegalensis</i>	C
Cuculidae		
Pied-crested Cuckoo	<i>Clamator jacobinus</i>	C
Brainfever Bird	<i>Hierococyx varius</i>	C
Greater Coucal	<i>Centropus sinesis</i>	VC
Asian Koel	<i>Eudynamis scolopacea</i>	R
Coraciidae		
European Roller	<i>Coracias garrulus</i>	UC
Indian Roller	<i>Coracias benghalensis</i>	C
Corvidae		
Raven	<i>Corvus corax</i>	C
House Crow	<i>Corvus splendens</i>	VC
Jungle Crow	<i>Corvus macrorhynchos</i>	C
Dicruridae		
King Crow	<i>Dicrurus macrocercus</i>	VC
 Estrildidae		
Green Munia	<i>Amandava formosa</i>	R*
White-throated Muniya	<i>Lonchura malabarica</i>	R
Falconidae		
Red-headed Falcon	<i>Falco chicquera</i>	UC
Common Kestrel	<i>Falco tinnunculus</i>	C
Laggar Falcon	<i>Falco biramicus jugger</i>	UC
Glareolidae		
Cream coloured Courser	<i>Cursorius cursor</i>	R

Common Name	Scientific name	Status
Indian Courser	<i>Cursorius coromandelicus</i>	R
Collared Pratincole	<i>Glareola pratincola</i>	R
Gruidae		
Demoiselle Crane	<i>Anthropoides virgo</i>	UC
Common Crane	<i>Grus grus</i>	C
Sarus Crane	<i>Grus antigone</i>	UC*
Hirundinidae		
Common Swallow	<i>Hirundo rustica</i>	VC
Dusky Crag-Martin	<i>Hirundo concolor</i>	C
Wire-tailed Swallow	<i>Hirundo smithii</i>	VC
Red-rumped Swallow	<i>Hirundo daurica</i>	C
Laniidae		
Great Gray Shirke	<i>Lanius exubitor</i>	VC
Bay-backed Shirke	<i>Lanius vittatus</i>	C
Southern Grey Shirke	<i>Lanius meridionalis</i>	C
Red-backed Shirke	<i>Lanius collurio phoenicuroides</i>	C
Rufous-backed Shirke	<i>Lanius schach</i>	C
Meropidae		
Blue -cheeked Bee-eater	<i>Merops persicus</i>	C
Small Bee-eater	<i>Merops orientalis</i>	C
Motacillidae		
Tawny Pipit	<i>Antus campestris</i>	UC
Yellow Wagtail	<i>Motacilla flava</i>	C
White Wagtail	<i>Motacilla alba</i>	UC
Muscicapidae		
Stoliczka's BushChat	<i>Saxicola macrorhynchus</i>	UC
Red-tailed Wheater	<i>Oenanthe chrysopygia</i>	UC
Common Babbler	<i>Turdoides caudatus</i>	R
Larger Grey Babbler	<i>Turdoides malcolmi</i>	UC
Rufous-fronted Prinia	<i>Prinia buchanani</i>	R
Common Tailor Bird	<i>Orthotomus sutorius</i>	C
Common Lesser Whitethroat	<i>Sylvia curruca</i>	R
Rufous-tailed Scrub-Robin	<i>Cercotrichas galactotes</i>	R
Blak Redstart	<i>Phoenicurus ochruros</i>	R
Indian Chat	<i>Cercomela fusca</i>	C
Pied Bushchat	<i>Saxicola caprata</i>	R
Variable Wheater (1712a)	<i>Oenanthe picata picata</i>	R
Variable Wheater (1712b)	<i>Oenanthe picata capistrata</i>	R
Variable Wheater (1712c)	<i>Oenanthe picata</i>	R
Desert Wheater	<i>Oenanthe deserti</i>	C
Indian Robin	<i>Saxicoloides fulicata</i>	R
Nectariniidae		
Purple Sunbird	<i>Nectarinia asiatica</i>	VC
Otididae		
Great Indian Bustard	<i>Choriotis nigriceps</i>	R*
Houbara Bustard	<i>Chlamydotis</i>	R
Podicipedidae		
Little Grebe	<i>Tachybaptus ruficollis</i>	C
Pelecanidae		
Great White pelican	<i>Pelecanus onocrotalus</i>	R
Pteroclididae		
Spotted Sandgrouse	<i>Pterocles senegallus</i>	UC
Imperial Sandgrouse	<i>Pterocles orientalis</i>	UC
Phasianidae		
Common Quail	<i>Coturnix coturnix</i>	UC
Rain Quail	<i>Coturnix coromandelica</i>	UC
Jungle Bush-Quail	<i>Perdica asiatica</i>	VC
Grey Francolin	<i>Francolinus pondicerianus</i>	VC

Common Name	Scientific name	Status
Indian Peafowl	<i>Pavo cristatus</i>	VC
Rock Bush Quail	<i>Perdica argoondah</i>	UC
Phoenicopteridae		
Flamingo	<i>Phoenicopteridae roseus</i>	UC
Phylloscopidae		
Chiffchaff	<i>Phylloscopus collybita</i>	UC
Picidae		
Eurasian Wryneck	<i>Jynx torquilla</i>	C
Yellow-fronted Pied	<i>Dendrocopos mahrattensis</i>	C
Lesser Golden-Backed Woodpecker	<i>Dinopium benghalense</i>	VC
Ploceinae		
Yellow-throated Sparrow	<i>Petronia xanthocollis</i>	VC
House Sparrow	<i>Passer domesticus</i>	C
Ploceinae		
Baya Weaver	<i>Ploceus philippinus</i>	C
Black-breasted Weaver	<i>Ploceus benghalensis</i>	R
Psittacidae		
Rose-ringed Parakeet	<i>Psittacula krameri</i>	C
Pycnonotidae		
White-eared bulbul	<i>Pycnonotus leucotis</i>	C
Red-vented bulbul	<i>Pycnonotus cafer</i>	VC
Scolopacidae		
Temminck's Stint	<i>Calidris temminckii</i>	UC
Wood Sandpiper	<i>Actitis hypoleucos</i>	C
Strigidae		
Short-eared Owl	<i>Asio flammeus</i>	C
Spotted Owllet	<i>Athene brama</i>	UC
Eurasian Eagle Owl	<i>Bubo bubo</i>	VC
Sturnidae		
Rosy Starling	<i>Sturnus roseus</i>	C
Common Starling	<i>Sturnus vulgaris</i>	UC
Bank Myna	<i>Acridotheres ginginianus</i>	C
Brahminy Starling	<i>Sturnus pagodarum</i>	VC
Common Myna	<i>Acridotheres tristis</i>	VC
Sylviinae		
Common Tailor-bird	<i>Orthotomus sutorius</i>	C
Timaliinae		
Common Babbler	<i>Turdoides caudatus</i>	C
Large Grey Babbler	<i>Turdoides malcolmi</i>	C
Bluethroat	<i>Erithacus svecica</i>	UC
Black Redstart	<i>Phoenicurus ochruros</i>	C
Collard Bush-chat	<i>Sexicola torquata</i>	C
Pied Stone-chat	<i>Sexicola caprata</i>	C
Hoopoe	<i>Upupa epops</i>	C

Common name after Manakadan & Pittie (2001). Numbers mentioned in parenthesis are serial number given by Ali & Ripley (1995). Scientific name after Grimmett et. al. (1999) R - Rare; C - Common; VC - Very Common; UC - Uncommon; VR - Very Rare; * - Listed in Threatened Birds of the World (BirdLife International 2000)