

Birds of Kuno Wildlife Sanctuary, Central India

Tharmalingam Ramesh*, Natarajan Sridharan and Riddhika Kalle

Birds are ideal bio-indicators and useful models for studying a variety of environmental problems and the importance of local landscapes for avian conservation can only be understood by knowing the structure of the bird community of that region (Kattan & Franco 2004). As far as bird diversity is concerned, India has more than 1200 species which is over 13 percent of the world's bird species out of which 488 species are reported from Central India, Madhya Pradesh (Chandra & Singh 2004). Apparently many of the Indian bird population have been dwindling due to direct or indirect impacts of the increasing human population. Several threats including habitat loss, fragmentation, and severe biotic pressure necessitated the documentation of the current composition and status of bird species for future monitoring and its conservation. Kuno Wildlife Sanctuary (KWLS) is a dry deciduous forest and forms part of the northern region of Vindhyan hill range, Central India. Scarcity of information is available on avifaunal status in the past. In order to fill up the lacunae, a short term survey was carried out to document the avifaunal status in the sanctuary.

Methodolog

(KWLS) is located in the North of Madhya Pradesh between the coordinates 25° 30'-25° 53' N and 77° 07'-77° 28' E encompasses an area of about 345 km². According to Champion and Seth (1968) Kuno has Northern Tropical Dry Deciduous forest, Northern Tropical Dry Mixed Deciduous forest, *Anogeissus pendula* forest and *Boswellia* forest. Apart from these, the recently relocated villages of KWLS are developing slowly into grasslands. Kuno is rich in its faunal diversity. It has a moderate climatic regime which is slightly arid in nature. The annual average precipitation is 760mm, most of which precipitates between the end of June till September. During December and January, the minimum recorded temperature is about 6.3°C and soars upto 45°C in summer (Sharma 2007).

We recorded opportunistic sightings of bird species in KWLS from December 2006 to April 2007, as part of an all India monitoring of tiger, co-predators and its prey base study. While conducting sign surveys, camera trapping and line transect walks, whenever bird species was sighted at a particular location, further identified with the help of the standard field guide Grimmett *et al.* (1999). In

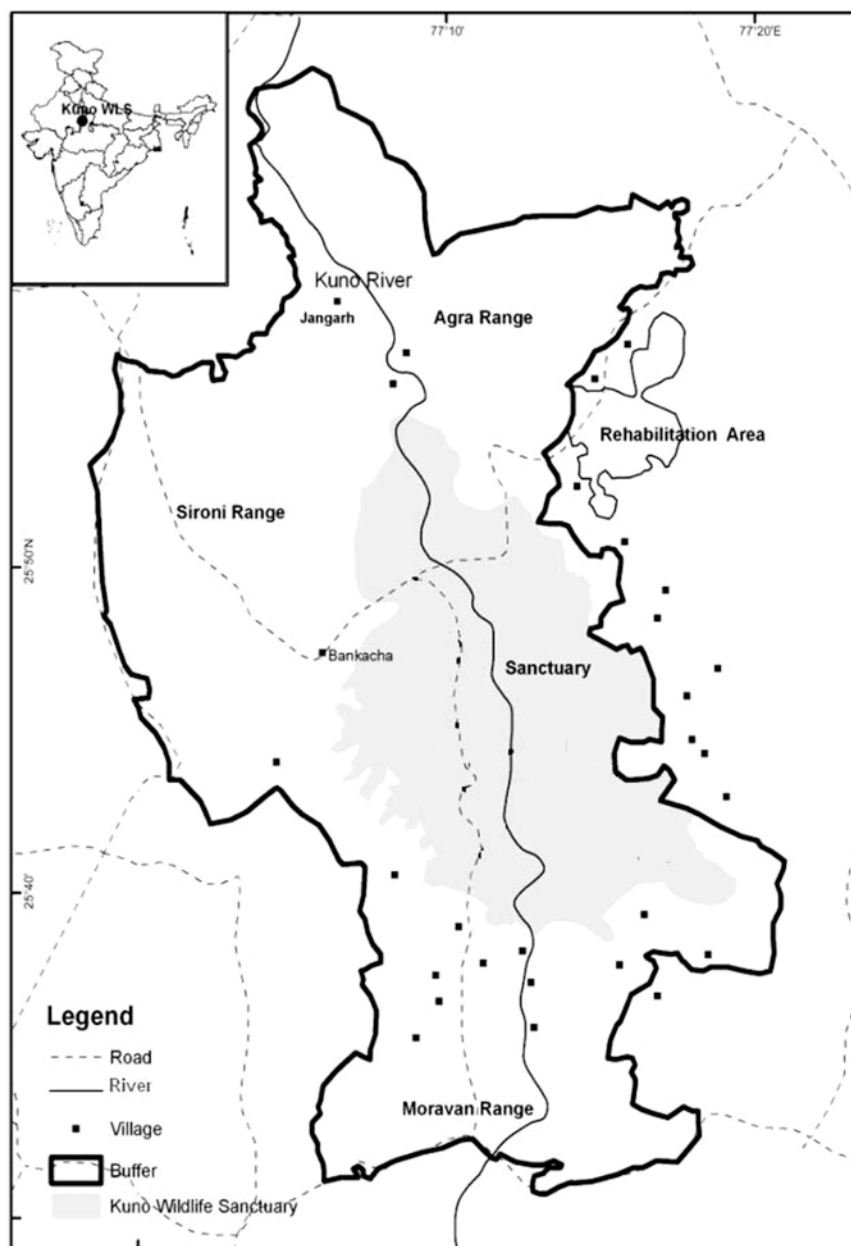


Fig. 1 Location of intensive study area in Kuno Wildlife Sanctuary, Central India (modified after Johnsingh *et al.*, 2007).

addition, opportunistic efforts were also made to record bird species. All observations were made from morning 06:00hrs to 10:00hrs and evening from 16:00 to 19:00hrs with the help of bushnell 8X42 binoculars. Status of the observed bird species were assessed on the basis of standard methods outlined by Khan (1980). The status categories are: Common – bird species which were recorded on 80-100% of the field visits; Occasional – species that were observed on 50-79% of the field visits; Rare –

species that were sighted on less than 50% of the visits. Resident, winter visitor, summer visitor and local migrant were recognized by consulting old records and through our observations.

Results and Discussion

A total of 129 species, belonging to 56 families were recorded during the study period (Table 1.). The Accipitridae family showed the highest number of species observed during the survey (14 species), followed by

Wildlife Institute of India, Chandrabani, P.O. Box 18, Dehra Dun 248 001, Uttarakhand, *Corresponding author: ramesh81ngl@gmail.com

Phasianidae (9), Motacillidae, Columbidae, Sturnidae (6 species each), Cuculidae, Muscicapidae (5 species each), Cisticolidae (4), Apodidae, Ardeidae, Caprimulgidae, Corvidae, Laniidae, Psittacidae, Strigidae and Timaliidae (three species each) and so on. Of these species 72.87% (n=94) were resident, 19.38% (n=25) winter visitor, 3.10% (n=4) summer visitor and 4.65% (n=6) local migrant. In terms of frequency of observation, majority of species were found to be common (n=85, 66%) followed by occasional (n=35, 27%) and rare (n=9, 7%). During the study period three Critically Endangered Indian white-backed vultures (*Gyps bengalensis*), long-billed Vulture (*Gyps indicus*), red-headed vulture (*Sarcogyps calvus*) and one Endangered species (EN) Egyptian vulture (*Neophron percnopterus*) were recorded. Many live white-backed vultures and red-headed vulture nests were located along the riverside on rocky gorges.

Bird distribution and abundance vary habitat to habitat (Jayapal *et al.* 2007) and depends on climatic condition, food resources and evolutionary history of the area (Jayson 1994). The bird families Accipitridae, Phasianidae, Motacillidae, Columbidae, Sturnidae and Cuculidae are sufficiently abundant considered to be characteristic of resource availability in the region. Live nesting of vultures indicated breeding and occurrence of more winter visitors stressing conservation importance for

this study site. Habitat loss from anthropogenic pressure is the greatest threat to most of the Indian birds (Rahmani 2008). Reduction of anthropogenic pressure is an important concern to this region (Johnsingh *et al.* 2007). We recommend further extensive studies required in restoring bird species diversity in this landscape.

Acknowledgements

We thank the Director, Wildlife Institute of India and Principal Investigators, All India tiger monitoring program for giving the permission to work in Kuno Wildlife Sanctuary. We are indebted to our field assistants and forest department staff for their help in the field.

References

- Champion, H.G. & S.K. Seth (1968).** *A Revised Survey of the Forest Types of India*. Government of India Publication: New Delhi.
- Chandra, K. & R.K. Singh (2004).** Avifauna of Madhya Pradesh and Chhattisgarh. *Zoos' print Journal* 19 (7): 1534-1539.
- Grimmett R., C. Inskipp & T. Inskipp (1999).** *Pocket Guide to the Birds of the Indian Subcontinent*. Oxford University Press, 384 pp.
- Jayson, E.A. (1994).** *Synecology and behavioural studies on the forest birds of Kerala*. Ph.D Thesis, University of Calicut, 314 pp.
- Johnsingh, A.J.T., S.P. Goyal & Q. Qureshi (2007).** Preparations for the reintroduction of Asiatic lion *Panthera leo persica* into Kuno Wildlife

Sanctuary, Madhya Pradesh, India.

Oryx 41(1): 93-96.

Kattan, G.H. & P. Franco (2004).

Bird diversity along elevational gradients in the Andes of Colombia: area and mass effects. *Global Ecology and Biogeography* 13: 451-458.

Khan, M.A.R. (1980). A Comparative account of the avifauna of the shoals and the neighbouring plantation in the Nilgiri. *Journal of Bombay Natural History Society* 75(3): 1028-1035.

Sharma, K. (2007). Brief profile of Kuno Wildlife Sanctuary, Shoopur (MP)- An outstanding forest. *Zoos' Print* 22 (7): 20-21.

Jayapal, R., Q. Qureshi & R.

Chellam (2007). *Developing a spatial conservation protocol for Central Indian Highlands through a biogeographical analysis of birds and existing Protected Area network: A Geographical Information Systems approach*. Research Report, Wildlife Institute of India, Dehradun, 200 pp.

Rahmani A.R. (2008). *Flight to extinction. Spectrum, The Tribune*. Retrieved June 8, 2008, from <http://www.tribuneindia.com/2008/20080608/spectrum/>.

Table 1: List of observed birds in Kuno Wildlife Sanctuary, Central India

S.No.	Family/Species common name	Scientific name	Season	Frequency of observation
	Phalacrocoracidae			
1	Little Cormorant	<i>Phalacrocorax niger</i>	R	C
2	Great Cormorant	<i>Phalacrocorax carbo</i>	LM	O
	Ardeidae			
3	Grey Heron	<i>Ardea cinerea</i>	LM	C
4	Cattle Egret	<i>Bubulcus ibis</i>	R	C
5	Little Green Heron	<i>Butorides striatus</i>	R	O
	Ciconiidae			
6	White-necked Stork	<i>Ciconia episcopus</i>	R	O
	Accipitridae			
7	Egyptian Vulture	<i>Neophron percnopterus</i>	R	X
8	Indian White-backed Vulture	<i>Gyps bengalensis</i>	R	O
9	Long-billed Vulture	<i>Gyps indicus</i>	R	C
10	Red-headed Vulture	<i>Sarcogyps calvus</i>	R	C
11	Short-toed Snake-Eagle	<i>Circaetus gallicus</i>	R	O
12	Crested Serpent-Eagle	<i>Spilornis cheela</i>	R	C
13	Western Marsh-Harrier	<i>Circus aeruginosus</i>	W	O
14	Pied Harrier	<i>Circus melanoleucos</i>	W	X
15	Shikra	<i>Accipiter badius</i>	R	C
16	Montagous Harrier	<i>Circus pygargus</i>	W	O
17	White-eyed Buzzard	<i>Butastur teesa</i>	R	O
18	Bonelli's Eagle	<i>Hieraaetus fasciatus</i>	R	O
19	Changeable Hawk-Eagle	<i>Spizaetus cirrhatus</i>	R	C

S.No.	Family/Species common name	Scientific name	Season	Frequency of observation
20	Steppe Eagle	<i>Aquila nipalensis</i>	W	X
	Pandionidae			
21	Osprey	<i>Pandion haliaetus</i>	W	O
	Falconidae			
22	Common Kestrel	<i>Falco tinnunculus</i>	W	C
	Phasianidae			
23	Painted Francolin	<i>Francolinus pictus</i>	R	C
24	Grey Francolin	<i>Francolinus pondicerianus</i>	R	C
25	Jungle Bush-Quail	<i>Perdica asiatica</i>	R	C
26	Red Spurfowl	<i>Galloperdix spadicea</i>	R	C
27	Painted Spurfowl	<i>Galloperdix lunulata</i>	R	C
28	Indian Peafowl	<i>Pavo cristatus</i>	R	C
29	Rain Quail	<i>Coturnix coromandelica</i>	R	C
30	Common Quail	<i>Coturnix coturnix</i>	W	C
31	Blue Breasted Quail	<i>Coturnix chinensis</i>	R	O
	Turnicidae			
32	Small Button Quail	<i>Turnix sylvatica</i>	R	C
33	Barred Button quail	<i>Turnix suscitator</i>	R	C
	Rallidae			
34	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	R	C
35	Common Coot	<i>Fulica atra</i>	LM	C
	Charadriidae			
36	Yellow-wattled Lapwing	<i>Vanellus malabaricus</i>	R	C
37	River Lapwing	<i>Vanellus duvaucelii</i>	R	C
	Scolopacidae			
38	Common Sandpiper	<i>Actitis hypoleucos</i>	W	C
	Sternidae			
39	River Tern	<i>Sterna aurantia</i>	R	O
	Pteroclididae			
40	Painted Sandgrouse	<i>Pterocles indicus</i>	R	C
	Columbidae			
41	Blue Rock Pigeon	<i>Columba livia</i>	R	C
42	Oriental Turtle-Dove	<i>Streptopelia orientalis</i>	R	O
43	Little Brown Dove	<i>Streptopelia senegalensis</i>	R	C
44	Spotted Dove	<i>Streptopelia chinensis</i>	R	C
45	Eurasian Collared Dove	<i>Streptopelia decaocto</i>	R	C
46	Yellow-legged Green-Pigeon	<i>Treron phoenicoptera</i>	R	C
	Psittacidae			
47	Alexandrine Parakeet	<i>Psittacula eupatria</i>	R	C
48	Rose-ringed Parakeet	<i>Psittacula krameri</i>	R	C
49	Plum-headed Parakeet	<i>Psittacula cyanocephala</i>	R	C
50	Pied Crested Cuckoo	<i>Clamator jacobinus</i>	S	C
	Cuculidae			
51	Brain fever Bird	<i>Hierococcyx varius</i>	R	C
52	Asian Koel	<i>Eudynamis scolopacea</i>	R	C
53	Sirkeer Malkoha	<i>Phaenicophaeus leschenaultii</i>	R	O
54	Greater Coucal	<i>Centropus sinensis</i>	R	C
	Strigidae			
55	Brown Fish-Owl	<i>Ketupa zeylonensis</i>	R	O
56	Spotted Owlet	<i>Athene brama</i>	R	C
57	Short-eared Owl	<i>Asio flammeus</i>	W	X
	Caprimulgidae			
58	Indian Jungle Nightjar	<i>Caprimulgus indicus</i>	R	C
59	Common Indian Nightjar	<i>Caprimulgus asiaticus</i>	R	C
60	Eurasian Nightjar	<i>Caprimulgus europaeus</i>	S	O
61	White-rumped Needle tail-Swift	<i>Zoonavena sylvatica</i>	R	O
62	Asian Palm-Swift	<i>Cypsiurus balasiensis</i>	R	O
63	House Swift	<i>Apus affinis</i>	R	C
	Hemiprocnidae			
64	Crested Tree-Swift	<i>Hemiprocne coronata</i>	R	C
	Alcedinidae			
65	Small Blue Kingfisher	<i>Alcedo atthis</i>	R	C
	Halcyonidae			
66	Stork-billed Kingfisher	<i>Halcyon capensis</i>	R	O

S.No.	Family/Species common name	Scientific name	Season	Frequency of observation
67	White-breasted Kingfisher	<i>Halcyon smyrnensis</i>	R	C
	Cerylidae			
68	Lesser Pied Kingfisher	<i>Ceryle rudis</i>	R	C
	Meropidae			
69	Small Bee-eater	<i>Merops orientalis</i>	R	C
	Coraciidae			
70	Indian Roller	<i>Coracias benghalensis</i>	R	C
	Upupidae			
71	Common Hoopoe	<i>Upupa epops</i>	R	C
	Picidae			
72	Brown-capped Pygmy Woodpecker	<i>Dendrocopos nanus</i>	R	C
73	Lesser Golden-backed Woodpecker	<i>Dinopium benghalense</i>	R	C
	Pittidae			
74	Indian Pitta	<i>Pitta brachyura</i>	S	C
	Hirundinidae			
75	Dusky Crag Martin	<i>Hirundo concolor</i>	R	C
76	Red-rumped Swallow	<i>Hirundo daurica</i>	W	C
	Motacillidae			
77	White Wagtail	<i>Motacilla alba</i>	W	C
78	Large Pied Wagtail	<i>Motacilla maderaspatensis</i>	R	C
79	Yellow Wagtail	<i>Motacilla flava</i>	W	O
80	Grey Wagtail	<i>Motacilla cinerea</i>	W	C
81	Paddy field Pipit	<i>Anthus rufulus</i>	R	C
82	Eurasian Tree Pipit	<i>Anthus trivialis</i>	W	O
	Campephagidae			
83	Small Minivet	<i>Pericrocotus cinnamomeus</i>	R	C
	Pycnonotidae			
84	Red-vented Bulbul	<i>Pycnonotus cafer</i>	R	C
	Aegithinidae			
85	Common Iora	<i>Aegithina tiphia</i>	R	C
	Laniidae			
86	Bay-backed Shrike	<i>Lanius vittatus</i>	R	O
87	Rufous-backed Shrike	<i>Lanius schach</i>	R	C
88	Southern Grey Shrike	<i>Lanius meridionalis</i>	LM	O
	Muscicapidae			
89	Oriental Magpie-Robin	<i>Copsychus saularis</i>	R	C
90	Indian Robin	<i>Saxicoloides fulcata</i>	R	C
91	Black Redstart	<i>Phoenicurus ochruros</i>	W	C
92	Rufous tailed Wheatear	<i>Oenanthe xanthopyrma</i>	W	O
93	Pied Bushchat	<i>Saxicola caprata</i>	LM	O
	Sylviidae			
94	Yellow-eyed Babbler	<i>Chrysomma sinense</i>	R	C
95	Common Lesser Whitethroat	<i>Sylvia curruca</i>	W	C
	Timaliidae			
96	Common Babbler	<i>Turdoides caudatus</i>	R	C
97	Large Grey Babbler	<i>Turdoides malcolmi</i>	R	O
98	Jungle Babbler	<i>Turdoides striatus</i>	R	C
	Cisticolidae			
99	Rufous-fronted Prinia	<i>Prinia buchanani</i>	R	X
100	Jungle Prinia	<i>Prinia sylvatica</i>	R	C
101	Ashy Prinia	<i>Prinia socialis</i>	R	C
	Acrocephalidae			
102	Blyth's Reed Warbler	<i>Acrocephalus dumetorum</i>	W	C
	Phylloscopidae			
103	Tickell's leaf warbler	<i>Phylloscopus affinis</i>	W	C
104	Greenish Leaf-Warbler	<i>Phylloscopus trochiloides</i>	W	C
	Cisticolidae			
105	Common Tailorbird	<i>Orthotomus sutorius</i>	R	C
	Stenostiridae			
106	Grey-headed Flycatcher	<i>Culicicapa ceylonensis</i>	W	O
	Monarchidae			
107	Asian Paradise-Flycatcher	<i>Terpsiphone paradisi</i>	S	C
	Rhipiduridae			
108	White-browed Fantail	<i>Rhipidura aureola</i>	R	C

S.No.	Family/Species common name	Scientific name	Season	Frequency of observation
	Paridae			
109	Great Tit	<i>Parus major</i>	R	C
	Dicaeidae			
110	Tickell's Flowerpecker	<i>Dicaeum erythrorhynchos</i>	R	O
	Nectariniidae			
111	Purple Sunbird	<i>Nectarinia asiatica</i>	R	C
	Zosteropidae			
112	Oriental White-eye	<i>Zosterops palpebrosus</i>	R	C
	Emberizidae			
113	Crested Bunting	<i>Melophus lathami</i>	W	X
	Estrildidae			
114	Red Munia	<i>Amandava amandava</i>	R	O
	Passeridae			
115	House Sparrow	<i>Passer domesticus</i>	R	C
	Ploceidae			
116	Baya Weaver	<i>Ploceus philippinus</i>	LM	O
	Sturnidae			
117	Grey-headed Starling	<i>Sturnus malabaricus</i>	R	O
118	Brahminy Starling	<i>Sturnus pagodarum</i>	R	C
119	Common Starling	<i>Sturnus vulgaris</i>	W	O
120	Asian Pied Starling	<i>Sturnus contra</i>	R	O
121	Common Myna	<i>Acridotheres tristis</i>	R	C
122	Bank Myna	<i>Acridotheres ginginianus</i>	R	O
	Oriolidae			
123	Eurasian Golden Oriole	<i>Oriolus oriolus</i>	R	O
	Dicruridae			
124	Black Drongo	<i>Dicrurus macrocercus</i>	R	C
	Corvidae			
125	Indian Treepie	<i>Dendrocitta vagabunda</i>	R	C
126	House Crow	<i>Corvus splendens</i>	R	X
127	Jungle Crow	<i>Corvus macrorhynchos</i>	R	C
	Gruidae			
128	Demoiselle crane	<i>Grus virgo</i>	W	X
129	Common crane	<i>Grus grus</i>	W	X

C-Common; O-Occasional; X-Rare; R-Resident; W-Winter visitor; S-Summer visitor; LM-Local migrant.

Announcement

International Conference on Entomology

February 17-19, 2012

Venue: Department of Zoology and Environmental Sciences
Punjabi University, Patiala 147 002 Punjab, India

On behalf of the organizing committee we are pleased to welcome you to the International Conference on Entomology scheduled to be held in the Department of Zoology and Environmental Sciences, Punjabi University, Patiala from February 17-19, 2012. This three day event has been specially designed for scientists, agricultural experts, public health workers, professional, policy makers and community leaders involved in insect diversity, pest control management, various vectors, and vector borne diseases and other areas of agricultural and medical entomology. This conference will feature plenary lectures, invited lectures, and contributed papers presentations (both Oral and Posters). The aim of the conference will be to promote discussion and exchange of information on the said issues.

For all correspondence contact:
Prof. (Dr.) Jagbir Singh
Organising secretary, International Conference on Entomology
Department of Zoology and Environmental Sciences
Punjabi University, Patiala 147 002 Punjab, India
Ph: +91 175 3046334, 3046335
Email: jagbirsinghkirti@rediffmail.com