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RESEARCH ARTICLE

Avifaunal Diversity and Conservation Status in Bastar District of Chhattisgarh, India: An Update

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Study Area: District Bastar, Chhattisgarh, India
Coordinates: 80.5°-82.1°E; 18.4°-19.9°N

Key words: Migratory, Resident, Rare, Uncommon, First
Report from Central India (FRCI).

Abstract

Currently, the Bastar Plateau is divided into 7 districts. The present avifaunal survey has been focused specifically on Bastar district. This paper describes the detail of sightings and adds 50 newly recorded species to the avifaunal diversity of Bastar district. From the total 50 bird species; 14 bird species were re-encountered as recorded earlier from Bastar plateau. Interestingly, out of 50 new records; 06 species are the first record to Central India. The current 50 new avifauna species adds to the previous record and updates the avifauna diversity of the Bastar district to 319 species.

Introduction:

India is one of the biodiversity-rich subcontinents and till-date 1,263 avian species have been recorded (Praveen *et al.*, 2016). In Indian culture, the importance of birds is entwined with faith, belief, practice mostly associated with mythology, folklore, and stories. In recent times, the birds' population and diversity are altering or dwindling at a faster rate for obvious reasons like – use of pesticides, fertilizers, development projects, deforestation, loss of wetlands, diseases and other anthropogenic effects. The swiftness of these change is serious concern for scientists and management authorities. Thus, faunal diversity research is an important tool for evaluating the wildlife population, ecosystems and habitats. Such study is imperative for newly delineated State, Districts, proposed Protected Areas (PAs) and developing management action plan. Generally, much impetus is given for these studies to update the data on faunal diversity and for an annual assessment of natural wildlife wealth in an area with restructured demographic, political and administrative boundary. Chhattisgarh state and Bastar district has been restructured and in this context; the present study is more vital as previous studies have limited information on precise sighting locality of bird species and an updated check-list of avifaunal diversity. Considering above facts, it was necessary to carry a fresh avifaunal diversity research within the administrative boundary of recently formed Bastar district.

Methodology:

Survey area: the Plateau of Dandkaranya or the Bastar Plateau is located on southernmost part of state Chhattisgarh, India spread over an area of about 39,060

Km². Tributaries of Indravati River and Sabri River drains through the region and meets the river Godavari. The Indravati River enters the district from the east; traversing through the middle trailing towards west. Biogeographically, the plateau is included in the Eastern Highlands (6C) province of the Deccan Peninsula of India (Rodgers *et al.*, 2002). Now, the whole plateau is divided into 7 districts; viz., Uttar Bastar - Kanker, Kondagaon, Narayanpur and Dakshin Bastar - Dantewada, Bijapur, Bastar and Sukma. The present field survey on avifaunal diversity was conducted specifically in the proper Bastar district of the Chhattisgarh.

The present survey area (Bastar District) covers an area of 4,029.98 Km²; just over 1/9th of Dandkaranya Plateau or Bastar Plateau. A portion of east and majority of the north of the district is a plain area with sporadic forests, dominated by agriculture fields and water bodies. Southeast of the district is a Protected Area designated as Kanger Valley National Park (KNVP), which is well known for its relevance to biodiversity, varied habitats, limestone caves, and waterfalls. Fringing to the east of the KVNP is the Machkot Forest Range (MFR), a Reserve Forest which is equally rich in biodiversity. The maximum part of the surveyed area lies in the Deccan-trap Plateau with altitude ranging from 200 m to 1200 m above the mean sea level (MSL).

Survey and Data Collection: a systematic long-term intensive survey in any targeted area results in good confirmatory sightings, recording of possibly more new species and re-encounters of species. Our surveys were carried out on the above principles. New areas of Bastar

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district were surveyed spanning through different seasons of the years. Identification was done following Ali & Ripley (1968-1974), Grimmett *et al.* (2011) and Kazmierczak (2012). All the standardized common names have been based on Praveen *et al.* (2016). Research work on avifaunal diversity was undertaken from 01/01/2015 to 29/10/2017; which is an update of the Bastar district as well as Chhattisgarh Avifaunal diversity.

Results & discussion:

The state of Chhattisgarh was carved out of Madhya Pradesh on 1st of November 2000. Most of the avifaunal inventory of Central India, prior to the year 2000 were inclusive of both states or of some protected areas. Majumder (1984) published a list of 97 bird species from Bastar district (formed in 1948 by the union of two princely states of Bastar and Kanker); Saha (1995) reported 92 species of birds from Indravati Tiger Reserve; Chandra & Singh (2004) reviewed the avifauna of Madhya Pradesh and Chhattisgarh listing a total of 517 species/subspecies among which 197 species and subspecies were reported from Chhattisgarh. An avifaunal survey of the Protected Areas (PAs) of Chhattisgarh reported 131 species of birds in Kanger Valley National Park and 123 species in Guru Ghasidas National Park (Chakraborty, 2008). Further, Pande *et al.*, 2012 described 404 avian species for the entire state of Chhattisgarh in a pictorial guidebook. Chandra *et al.*, 2015 updated the checklist of avifaunal diversity of Bastar plateau to a total of 304 species belonging to 194 genera under 63 families with the new addition of 89 species of which 5 species, viz. *Gallixrex cinerea*, *Vanellus cinereus*, *Cypsiurus balasiensis*, *Anthreptes singalensis* and *Oriolus chinensis* were the first record from the Central India (undivided Madhya Pradesh and Chhattisgarh). From this 266 bird species were recorded specifically in recent Bastar district inclusive of above 5 first records to Central India. Dutta (2016a) reported a single species note on Spot-billed Pelican *Pelecanus philippensis* which had been mentioned in the given checklist. Earlier, three rare birds from the district viz., Rufous-bellied Eagle *Hieraaetus kienerii* Dutta (2015); trans-equatorial migrant Amur falcon, *Falco amurensis* Dutta (2016b) and Ruddy-breasted Crake *Porzana fusca* Dutta, 2017 had already been reported. Reports on these new sightings add up to the avifaunal diversity from Bastar district to 269 species. Table -1, details about 50 species of avifauna belongs to 23 families of 09 orders; highlighting the habitat type, local status and abundance as following - Migratory status: RS-Resident; WM-Winter Migrant; SM-Summer Migrant; PM-Passage Migrant. Abundance and frequency of sighting: R-Rare (1-3 encounter); UC-Uncommon (4-6 encounter); C-Common (7-10 encounter); A-Abundant (>10 encounter). The given table highlighting the detail of sightings and adds 50 newly recorded species to the avifaunal diversity of Bastar

Figure-1: (a) Yellow Bittern *Ixobrychus sinensis*; (b) Yellow-billed Babbler *Turdoides affinis*

district. From the total 50 bird species; 14 bird species were re-encounters which were earlier records of Bastar plateau. Interestingly, out of 50 new records, 06 species are the first record from Central India. The current 50 new avifauna species adds to our previous records Chandra *et al.* (2015) and the updates avifauna diversity of the Bastar district to a figure of 319 species. All the 50 species recorded from Bastar district indicates the habitat needs of these birds. Some 30 species were sighted in and around water bodies or adjacent areas while 20 species were found in the moist thickets of Reserve Forest or Protected Areas with springs, streams or nalas (drainage). Conservation priorities for birds in Bastar district need to conserve and protect these habitats or ecosystems. As per IUCN category, three species i.e., Black-tailed Godwit *Limosa limosa*, Eurasian Curlew *Numenius arquata* and Pallid Harrier *Circus macrourus* come under 'Near Threatened' category and only one i.e., Indian Spotted Eagle *Clanga hastata* comes under 'Vulnerable' category, while rest 46 species are under Least Concern since 2016. Generally, the IUCN status of the species considers global population but the result of the present abundance of the birds in Bastar district is not satisfactory as group size of most sightings ranged from 1 to 6 in number except the Yellow Bittern were more than 10 in numbers.

From the present record, at least two species need special attention; i) Yellow Bittern *Ixobrychus sinensis* (Fig.-1a) is the first record from Central India and sighted throughout the year around the Dalpat Sagar, a lake in the mid of Jagdalpur city. This species is in good numbers in the adjacent paddy fields. The juveniles of the species were sighted during the month of May and June in 2016 and 2017; ii) Yellow-billed Babbler *Turdoides affinis* (Fig.-1b) is also the first record from Central India. Three separate sightings were observed in Bakawand area. It is an uncommon species, not specified in range maps of Kazmierczak (1998) and Grimmett *et al.* (2011). Prior to this report, the species was reported from southern states of India and Sri Lanka. Earlier, this species was considered as a resident of Peninsular India and Sri Lanka (Grimmett *et al.*, 2011). The species possibly has made its area of extension into this region which might be the bird's farthest northern distribution in Central India reported till date.

Figure-2: Birds seen for the first time from Central India.
a) *Ichthyiaetus ichthyiaetus*; b) *Tephrodornis virgatus*;
c) *Acrocephalus orientalis*; d) *Pellorneum ruficeps*

Sites like Dalpat Sagar, Rajnagar tank, Bakavand area, Bajavand tank, Kanger Valley National Park and Machkot Forest have been identified as hotspot zones for the birds which require immediate protection and conservation plan. Many of these sites are abode to numerous migratory as well as rare birds. Proper studies on population dynamics of avians in the drainage of moist forest and wetlands are highly recommended.

Conclusion:

The study indicates the potential areas for bird conservation within the district of Bastar. It's rich and unique in its faunal composition sharing the characteristics of both northern and southern part of the country and possibly a break-journey stopover for many migratory birds on their regular flyway. The present avifaunal diversity accounts for 319 species and may be considered as the baseline information for further studies related to the avifaunal conservation. Birds are often considered as potential indicators of environment and sighting of these new birds in the region enriches our understanding of various habitats and thus indicates proper planning and conservation action are needed to preserve them and their arrival in future.

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Table-1: List of the birds species recorded from Bastar District of Chhattisgarh (an update of 2015-2017)

Sl. No.	Scientific Name	Common Name	Order/ Family	Place of Sighting & Date of record	Abundance & Frequency of Sighting	Migratory Status IUCN Status	Record
1.	<i>Aythya fuligula</i>	Tufted Duck	Anseriformes/ Anatidae	Bajawand tank, Nov. & Dec., 2016	1-6 (R, UC)	WM / LC	New
2.	<i>Surniculus lugubris</i>	Drongo Cuckoo	Cuculiformes/ Cuculidae	MFR near Donga Bodna, May 2015; KVNPN & MFR, Jun. 2016	1-3 (R)	SM LC	New
3.	<i>Hierococcyx sparveroides</i>	Large Hawk Cuckoo	Cuculiformes/ Cuculidae	Ganesh Bahar Nala MFR, Feb. 2016	1 (R)	SM LC	New
4.	<i>Cuculus canorus</i>	Eurasian Cuckoo	Cuculiformes/ Cuculidae	Rajnagar Tank, Oct. 2015	1 (R)	SM LC	New
5.	<i>Ixobrychus sinensis</i>	Yellow Bittern	Pelecaniformes/ Ardeidae	Dalpat Sagar, Jagdalpur, May-Jul. 2016 & 2017	>10 (A)	RS LC	FRCI
6.	<i>Charadrius alexandrinus</i>	Kentish Plover	Charadriiformes/ Charadriidae	Rajnagar tank, Bajawand tank and Dasapal tank, Nov.- Dec. 2015 & 2016	1-3 (R)	WM LC	New
7.	<i>Pluvialis squatarola</i>	Grey Plover	Charadriiformes/ Charadriidae	Bajawand tank, Nov. 2016	1-3 (R)	WM LC	New
8.	<i>Charadrius mongolus</i>	Lesser Sand Plover	Charadriiformes/ Charadriidae	Rajnagar Tank, Aug. 2017	1-3 (R)	WM LC	New
9.	<i>Limosa limosa</i>	Black-tailed Godwit	Charadriiformes/ Scolopacidae	Bajawand tank, Nov. 2015 & 2016	1-3 (R)	WM NT	New
10.	<i>Calidris pugnax</i>	Ruff	Charadriiformes/ Scolopacidae	Rajnagar Tank, Sep. 2016	1-3 (R)	WM LC	New
11.	<i>Calidris alpina</i>	Dunlin	Charadriiformes/ Scolopacidae	Bajawand tank, Nov.	1-3 (R)	WM LC	New

12.	<i>Numenius arquata</i>	Eurasian Curlew	Scolopacidae	Dec. 2016	1-3 (R)	WM	NT	New
13.	<i>Calidris minuta</i>	Little Stint	Charadriiformes/ Scolopacidae	Dalpat Sagar, Nov. 2016	1-3 (R)	WM	LC	New
14.	<i>Glareola maldivarum</i>	Oriental Pratincole	Charadriiformes/ Glareolidae	Rajnagar tank, Nov. 2015	1-3 (R)	WM	LC	New
15.	<i>Glareola lactea</i>	Little Pratincole	Charadriiformes/ Glareolidae	Rajnagar tank, Dec. 2015	1-3 (R)	WM	LC	Re-sighting (Chandra & Singh 2004) FRCI*
16.	<i>Ichthyaetus ichthyaetus</i>	Pallas's Gull	Charadriiformes/ Laridae	Dalpat Sagar, Sep. 2013 (Confirmed in 2015)	1-3 (R)	WM	LC	New
17.	<i>Chroicocephalus brunnicephalus</i>	Brown-headed Gull	Charadriiformes/ Laridae	Rajnagar tank, Nov. 2015	1-3 (R)	WM	LC	New
18.	<i>Chlidonias hybrida</i>	Whiskered Tern	Charadriiformes/ Laridae	Rajnagar tank, Oct. 2016	1-3 (R)	WM	LC	New
19.	<i>Accipiter trivirgatus</i>	Crested Goshawk	Accipitriformes/ Accipitridae	KVNP & MFR, Apr. & May in 2015 & 2016	4 6 (UC)	RS	LC	Re-sighting (Saha 1995, Chakraborty 2008)
20.	<i>Circus macrourus</i>	Pallid Harrier	Accipitriformes/ Accipitridae	Rajnagar tank, Nov. 2015 & 2016	1-3 (R)	WM	NT	New
21.	<i>Clanga hastata</i>	Indian Spotted Eagle	Accipitriformes/ Accipitridae	Dasapal tank, Dec. 2016	1-3 (R)	WM	VU	New
22.	<i>Falco peregrinus</i>	Peregrine Falcon	Falconiformes/ Falconidae	Dasapal tank, Dec. 2016	1-3 (R)	WM	LC	New
23.	<i>Picus chlorolophus</i>	Small Yellow-napped Woodpecker	Piciformes/ Picidae	KVNP at Nagalsar Tiraha, May 2015 & near Dandak Cave, May 2017	1-3 (R)	RS	LC	Re-sighting (Chakraborty 2008)
24.	<i>Anthus richardi</i>	Richard's Pipit	Passeriformes/ Motacillidae	Rajnagar Tank, Dec. 2015	1-3 (R)	WM	LC	New
25.	<i>Anthus campestris</i>	Tawny Pipit	Passeriformes/ Motacillidae	Rajnagar Tank, Dec. 2015	1-3 (R)	WM	LC	New
26.	<i>Anthus godlewskii</i>	Blyth's Pipit	Passeriformes/ Motacillidae	Kumrawand Aniket, Jan. 2015	1-3 (R)	WM	LC	New
27.	<i>Anthus similis</i>	Long-billed Pipit	Passeriformes/ Motacillidae	Dalpat Sagar, Jan. 2016	1-3 (R)	WM	LC	New
28.	<i>Hemipus picatus</i>	Bar-winged or Pied Flycatcher Shrike	Passeriformes/ Vangidae	MFR, May 2015 & Sep. 2016	1-3 (R)	RS	LC	Re-sighting (Chakraborty 2008) FRCI*
29.	<i>Tephrodornis virgatus</i>	Large Woodshrike	Passeriformes/ Vangidae	MFR Donga Bodna, Apr. 2017 & KVNP, Sep. 2017	1-3 (R)	RS	LC	New
30.	<i>Erythrura erythrura</i>	Common Rosefinch	Passeriformes/ Fringillidae	KVNP on 09 Mar. 2016 & Gopapadar in Feb. 2017	1-3 (R)	WM	LC	Re-sighting (Majumder 1984)
31.	<i>Prinia hodgsonii</i>	Grey-breasted Prinia	Passeriformes/ Cisticolidae	KVNP near rest house, Mar. 2017	1 (R)	RS	LC	New
32.	<i>Iduna caligata</i>	Booted Warbler	Passeriformes/ Acrocephalidae	Dasapal tank, Nov. 2015; Dalpat Sagar, Nov. 2017	1-3 (R)	WM	LC	New
33.	<i>Iduna rama</i>	Sykes Warbler	Passeriformes/ Acrocephalidae	Rajnagar tank, Dec. 2015	1-3 (R)	WM	LC	New
34.	<i>Acrocephalus dumetorum</i>	Blyth's Reed Warbler	Passeriformes/ Acrocephalidae	Dalpat Sagar, Nov.-Dec. 2015 & 16	1-3 (R)	WM	LC	Re-sighting (Majumder 1984)
35.	<i>Acrocephalus agricola</i>	Paddyfield Warbler	Passeriformes/ Acrocephalidae	Dalpat Sagar, Nov.-Dec. 2015 & 2016	1-3 (R)	WM	LC	New
36.	<i>Acrocephalus</i>	Oriental (Great)	Passeriformes/	Dalpat Sagar, Nov.-Dec.	1-3 (R)	WM	LC	FRCI*

<i>orientalis</i>	Reed Warbler	Acrocephalidae	2015 & 2016				
37. <i>Acrocephalus stentoreus</i>	Clamorous Reed Warbler (Indian Great Reed Warbler)	Passeriformes/ Acrocephalidae	Dalpat Sagar, dec.-Jan. 2015 & 2016	1-3 (R)	WM	LC	New
38. <i>Seicercus occipitalis</i>	Western Crowned Warbler	Passeriformes/ Phylloscopidae	MFR, Mar.-Apr. 2016	1-3 (R)	WM	LC	New
39. <i>Mixornis gularis</i>	Pin-striped Tit Babbler or Yellow-breasted Babbler	Passeriformes/ Timaliidae	KVNP and MFR, Apr.-May, 2016 & 2017	4-6 (UC)	RS	LC	Re-sighting (Majumder 1984, Chakraborty 2008)
40. <i>Pellorneum ruficeps</i>	Puff-throated Babbler	Passeriformes/ Pellorneidae	MFR, Feb., Apr. & May 2016	4-6 (UC)	RS	LC	FRCI*
41. <i>Alcippe poioicephala</i>	Brown Cheeked Fulvetta or Quaker	Passeriformes/ Leiothrichidae	MFR, Feb. & Apr. 2016 & 2017	4-6 (UC)	RS	LC	Re-sighting (Majumder 1984)
42. <i>Turdoides affinis</i>	Yellow-billed Babbler	Passeriformes/ Leiothrichidae	Bakawand area, Dec. & Apr. 2016 & 2017	1-3 (R)	RS	LC	FRCI*
43. <i>Monticola cinclorhyncha</i>	Blue-capped Rock-thrush	Passeriformes/ Muscicapidae	KVNP, Mar. & Apr. 2015 & 2016	1-3 (R)	WM	LC	Re-sighting (Majumder 1984, Chakraborty 2008)
44. <i>Oenanthe deserti</i>	Desert Wheatear	Passeriformes/ Muscicapidae	Rajnagar tank, Dec. 2016	1-3 (R)	WM	LC	New
45. <i>Saxicola maurus</i>	Common (Siberian) stonechat	Passeriformes/ Muscicapidae	Rajnagar tank, Dec. & Jan. 2015 & 2016	1-3 (R)	WM	LC	New
46. <i>Turdus unicolor</i>	Tickell's Thrush	Passeriformes/ Turdidae	MFR, Feb. 2016	1-3 (R)	WM	LC	Re-sighting (Chakraborty 2008)
47. <i>Lonchura malacca</i>	Black-headed Munia	Passeriformes/ Estrildidae	Most water bodies, Nov. - Apr. 2015 - 2017	4-6 (UC)	RS	LC	Re-sighting (Majumder 1984)
48. <i>Ninox scutulata</i>	Brown Hawk Owl	Strigiformes/ Strigidae	MFR, May 2015 & KVNP, Apr. 2017	1-3 (R)	RS	LC	Re-sighting (Saha 1995)
49. <i>Strix leptogrammica</i>	Brown Wood Owl	Strigiformes Strigidae	KVNP, Mar. 2015	1-3 (R)	RS	LC	Re-sighting (Majumder 1984)
50. <i>Otus bakkamoena</i>	Collared Scops Owl	Strigiformes/ Strigidae	MFR near Navin Naka Kurandi, Apr. 2016.	1-3 (R)	RS	LC	Re-sighting (Majumder 1984, Saha 1995)

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