

Assessment of Terrestrial and Wetland Avian Diversity in Raigarh Area of Chhattisgarh, India

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Abstract

Floral and faunal diversity are the golden ornament of the ecosystem. Biodiversity is attracting the attention of many workers exploring the flora and fauna of different habitat of the world. Increased pace of development is reversing the physical, chemical, biological and ecological quality of environment. Faunal richness is one of the best indicators of the health of the habitat and ecosystem. Stress on environment is increasing continuously resulting natural habitat and ecosystem never get adequate time to recover its normal community structure. Now it is great challenge to protect diversity in their natural habitat. Raigarh district is blessed with plentiful natural resources in the form of forest, rivers, reservoirs, ponds, tanks, lakes, coal, dolomite, minerals attracting the industrialist for establishment of industries. Rapid industrialization in forest area, on the vicinity of the river, reservoir and the consequent effluent, sewage, discharge adversely affecting the natural aquatic ecosystem. Emission of industrial smoke regularly adding the pollutants in air and surrounding, adversely affecting the forest ecosystem as well as floral and faunal diversity, inter and intra species relationship. Rapid deforestation, habitat destruction, illegal hunting and other anthropogenic activities has become a routine and putting stress on natural habitat and ecosystem. Birds are very sensitive to environmental stress. The bird diversity of Raigarh district is still poorly studied and no avifaunal record is available. Due to fast environmental change, assessment and documentation of the avian fauna is the need of the day. Assessment of bird diversity was conducted during January 2018 to December 2021. Forest, mountains, reservoir, wetlands and other significant spots were surveyed in Raigarh area. Species diversity of birds were observed and recorded regularly. During the course of present study total 73 species of birds were identified representing 15 orders, 32 families and 62 genera. Higher bird diversity is observed during September to February. During the assessment of avian diversity not a single bird is narcotized or killed. Avian diversity can be conserved by applying the safety measures by controlling illegal hunting, marketing, destruction and degeneration of habitat, controlling anthropogenic activities, deforestation, mining activities, large scale industrialization and environmental awareness programs.

Keywords – Avian biodiversity, Raigarh

Date of Submission: 28-01-2022

Date of Acceptance: 09-02-2022

I. Introduction

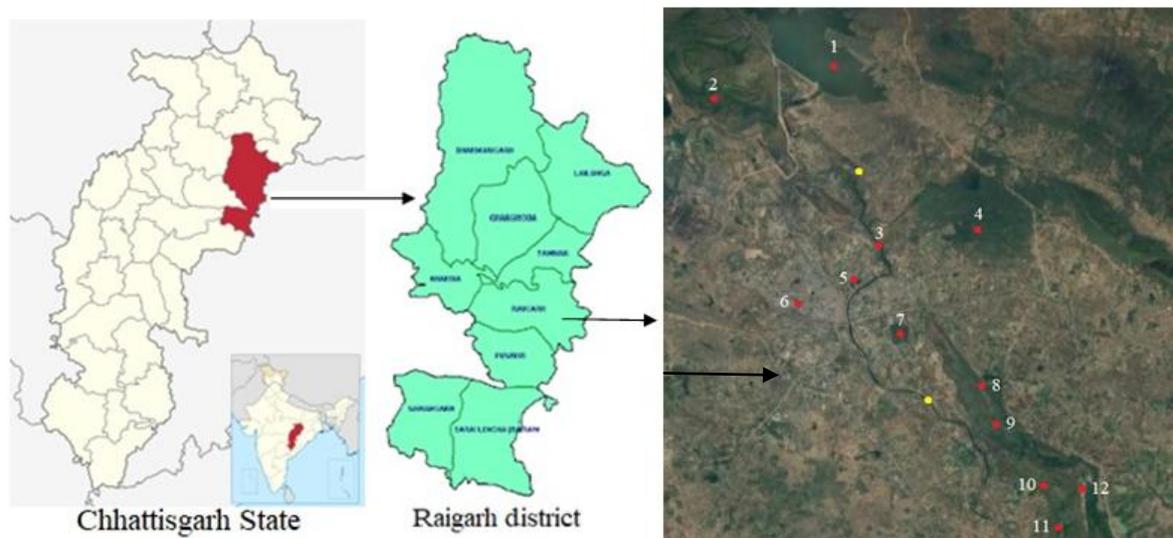
Raigarh is a city in eastern Chhattisgarh known as the Cultural Capital of Chhattisgarh state. Geographical location of Raigarh is $21^{\circ} 54'0''N/83^{\circ}24'0''E$. It is also famous for coal reserve and power generation for the state as well as the country. Dense forest, mountain, river, stream, reservoirs, tank, ponds, wetlands are the natural resources of the area. Establishment of sponge iron factories, power generation plants and network of high voltage power transmission system among all rapid industrialization are adversely affecting the natural habitat and ecosystem of the area. The aquatic, terrestrial, grassland ecosystems are under high stress. Healthy ecosystem attracts the birds by providing them a good shelter, feeding and breeding ground. Since the last decade the pace of industrialization is suddenly increased, a large number of factories are established in forest area, vicinity of river and near the protected areas, disturbing the whole ecosystem. Birds are very sensitive to any change in their natural habitat, feeding and breeding ground. During the course of present study it was observed that the number of birds and bird species are gradually decreasing in study area. The number of migratory birds is also gradually decreasing year after year indicating the status of their habitat. The survey was conducted from January 2018 to December 2021 and 73 bird species were recorded representing 62 genera, 31 families and 15 orders. An attempt has been made to explore, identify and proper documentation of the bird diversity of the Raigarh area for future reference.

II. Material And Methods

The recent study on bird diversity was carried out in forest area, mountain, rivers, reservoirs, ponds, tanks and wetland of Raigarh from January 2018 to December 2021. Bird watching sites were selected for observation and photography. Birds were carefully observed during morning, afternoon and evening twice in a week by using binocular and photographed with NIKON DSLR 3200 camera with tele-zoom lens. The morphological features were studied and birds were identified with the help of standard keys of Salim Ali (2012), Richard Grimmett, Carol Inskipp and Tim Inskipp (2016). During the course of present study not a single bird was killed or narcotized.

III. Study Area And Sampling Sites

For preliminary survey of bird diversity in Raigarh area Kelo reservoir, Kelo dam forest area, Panchdhari, Indira Vihar, Kabra pahad area, Pahad mandir area, Eco park, Medical college forest area, Bagh Talab, Karbala Talab, Rose garden area, Krishna Vatika area were selected. The birds were observed, photographed, identified and documented from each the study area. (Table-1)



Google map showing study area in Raigarh – 1. Kelo reservoir 2. Kelo dam forest area 3. Panchdhari 4. Indira Vihar area 5. Bagh talab 6. Karbala talab 7. Rose garden 8. Pahad mandir 9. Medical college forest area 10. Binjkot forest 11. Eco park 12. Kabra pahad area

Table -1: Birds observed during January 2018 to December 2021

S.N.	Order	Family	Common name	Scientific name	
1.	Podicipediformes	Podicipedidae	Great Crested Grebe	Podiceps cristatus	
2.			Little Grebe	Tachybaptus ruficollis	
3.	Suliformes	Phalacrocoracidae	Little Cormorant	Phalacrocorax niger	
4.			Indian Cormorant	Phalacrocorax fascicollis	
5.	Ciconiiformes	Ardeidae	Indian Pond - Heron	Ardeola grayii	
6.			Large Egret	Casmerodis albus	
7.			Median egret	Mesophoyx intermedia	
8.			Little Egret	Egretta garzetta	
9.			Cattle Egret	Bubulcus ibis	
10.			Ciconiidae	Asian Openbill Stork	Anastomus oscitans
11.			Anseriformes	Anatidae	Lesser Whistling Duck
12.	Brahmny Selduck	Tadorna ferruginea			
13.	Cotton Teal	Nettapus coromandelianus			
14.	Common Pochard	Aythya ferina			
15.	Red - Crested Pochard	Rhodonessa rufina			
16.	Accipitriformes	Accipitridae	Black Kite	Milvus migrans	
17.			Black Shoulder Kite	Elanus caeruleus	
18.			Shikara	Accipiter badius	
19.			Lesser Spotted Eagle	Aquila pomarina	
20.			Cooper's hawk (red eyed hawk)	Accipiter cooperii	
21.	Gruiformes	Rallidae	White - Breasted waterhen	Amaurornis phoenicurus	
22.			Common moorhen	Gallinula chloropus	
23.			Purple Swampphen	Porphyrio porphyrio	
24.	Ciconiiformes	Jacaniidae	Pheasant-tailed Jacana	Hydrophasianus chirurgus	

25.			Bronze-winged Jacana	Metopidius indicus
26.	Charadriiformes	Charadriidae	Yellow-wattled Lapwing	Vanellus malabarensis
27.			Red-wattled Lapwing	Vanellus indicus
28.			Little ringed plover	Charadrius dubius
29.		Laridae	Black-headed gull	Larus ridibundus
30.	Columbiformes	Columbidae	Rock Pigeon	Columba livia
31.			Yellow-footed green Pigeon	Treron phoenicoptera
32.			Laughing Dove	Streptopelia senegalensis
33.			Spotted Dove	Streptopelia chinensis
34.	Psittaciformes	Psittacidae	Rose-ringed Parakeet	Pisttacula krameri
35.			Plum-headed Parakeet	Pisttacula cyanocephala
36.	Cuculiformes	Cuculidae	Common hawk Cuckoo	Hierococcyx varius
37.			Asian Koel	Eudynamys scolopacea
38.			Greater Coucal	Centropus sinensis
39.	Apodiformes	Apodidae	House swift	Apus affinis
40.	Coraciiformes	Alcedinidae	Pied Kingfisher	Ceryle rudis
41.			Common kingfisher	Alcedo atthis
42.			White breasted kingfisher	Halcyon smyrnensis
43.		Meropidae	Green Bee-eater	Merops orientalis
44.		Coraciidae	Indian Roller	Coracias benghalensis
45.		Upupidae	Common Hooper	Upupa epops
46.		Piciformes	Capitonidae	Coppersmith Barbet
47.	Passeriformes	Alaudidae	Sykes – Crested Lark	Galerida deva
48.			Ashy – Crown Sparrow Lark	Eremopterix grisea
49.			Rufous – Tailed Lark	Ammomanes phoenicurus
50.			Hirundinidae	Wire-Tailed Swallow
51.			Common Swallow	Hirundo rustica
52.		Oriolidae	Eurasian Golden Oriole	Oriolus oriolus
53.		Dicruridae	Black Drongo	Dicrurus macrocercus
54.		Sturnidae	Asian Pied Starling	Strunus contra
55.			Brahminy Starling	Sturnus pagodorum
56.			Common Myna	Acridotheres tristis
57.			Bank Myna	Acridotheres ginginianus
58.		Corvidae	House Crow	Corvus splendens
59.			Jungle Crow	Corvus macrorhynchos
60.		Pyconotidae	Red-vented Bulbul	Pycnonotus cafer
61.		Muscicapidae Subfamily- Timalinae	Jungle babbler	Turdoides striatus
62.		Cisticolidae	Aishy Prinia	Prinia socialis
63.			Common Tailorbird	Orthotomus sutorius
64.		Muscicapidae Subfamily- Turdinae	Oriental Magpie Robin	Copsychus saularis
65.			Indian Robin	Saxicoloides fulvicata
66.		Motacillidae	Paddy field Pipit	Anthus rufulus
67.			Grey wagtail	Motacilla cinerea
68.			White wagtail	Motacilla alba
69.		Nectariniidae	Purple Sunbird	Nectariria asiatica
70.	Passeridae Subfamily- Passerinae	House sparrow	Passer domesticus	
71.		Baya weaver	Ploceus philippinus	
72.	Subfamily- Ploceinae	Scaly-breasted Munia	Lonchura punctulata	
73.	Subfamily- Estrildidae	White-rumped Munia	Lonchura striata	

IV. Result And Discussion

During the above survey period a total of 73 bird species were recorded (Table 1) belonging to 15 orders, 32 families and 62 genera. Family Ardeidae, Anatidae, Accipitridae represented maximum (5) number of bird species followed by Columbidae, Sturnidae and Passeridae (4), Rallidae, Charadriidae, Cuculidae, Alcedinidae, Alaudidae, Motacillidae (3), Podicipedidae, Phalacrocoracidae, Jacanidae, Psittacidae, Hirundinidae, Corvidae, Cisticolidae, Muscicapida (2). The minimum number of bird species (1) from the family Ciconidae, Apodidae, Laridae, Meropidae, Upupidae, Capitonidae, Oriolidae, Dicruridae, Pyconotidae, Muscicapidae and Nectariniidae was observed in and around Raigarh city (Table-1).

IV. Conclusion

Raigarh area is full of natural dense forest, mountain, water bodies providing the shelter, food and breeding grounds to local and migratory birds. Industrial revolution, net work of high voltage electrical

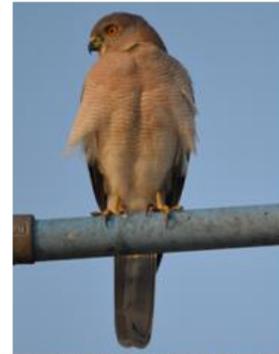
transmission lines in and around Raigarh area continuously disturbing the bird habitat. Illegal hunting and marketing of birds is a routine in this area reducing the avian population. Excessive use of pesticides in agronomical practices, highly polluted aquatic ecosystem and smoky air quality also putting a stress on bird population. Habitat protection, habitat development, proper planning and awareness programs are required to conserve the natural habitat and the bird diversity of the area. Annual survey program and documentation of bird diversity is advised to the forest department.



Bronze-winged Jacana and Juvenile



White - Breasted waterhen



Cooper's hawk (red eyed hawk)



Spotted Dove



Jungle babbler



Baya weaver



Asian Openbill Stork



Coppersmith Barbet



White breasted kingfisher



Pied Kingfisher



Pheasant-tailed Jacana



Lesser Whistling Duck



Yellow-wattled Lapwing



Red-wattled Lapwing



Red-Crested Pochard



Black-headed gull



Grey wagtail



Black Shoulder hawk

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Dr. Ramesh Kumar Tamboli. "Assessment of Terrestrial and Wetland Avian Diversity in Raigarh Area of Chhattisgarh, India." *IOSR Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT)*, 16(02), (2022): pp 01-05.