

Diversity and Abundance of Wetland Avian Fauna of Rajnandgaon District, Chhattisgarh, India

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Abstract: The Rajnandgaon district in Chhattisgarh, India, is home to a diverse array of wetland ecosystems, providing crucial habitats for a wide variety of avian species. This study focuses on the diversity and abundance of wetland avian fauna in the district, with an emphasis on understanding species composition, population dynamics, and habitat preferences. Surveys were conducted across multiple wetland sites, including natural lakes, man-made reservoirs, and seasonal ponds, during different seasons to capture variations in avian populations. A total of 94 bird species were recorded, representing 30 families and 10 Order, with both resident and migratory species being well-represented. The study reveals a significant diversity of species, including several that are categorized as near-threatened or vulnerable on the IUCN Red List. The findings underscore the critical role these wetlands play in supporting avian biodiversity, serving as breeding grounds, feeding areas, and stopover sites for migratory birds. However, the study also identifies potential threats to these habitats, such as pollution, encroachment, and climate change, which could have adverse effects on the avian populations. Conservation efforts are recommended to protect and manage these vital ecosystems, ensuring the continued presence and diversity of wetland avian fauna in Rajnandgaon district.

Keywords: Avian, Biodiversity, Diversity, Ecosystems, Populations, Pollution, Rajnandgaon, Wetland.

Introduction: Wetlands in Rajnandgaon District are vital for numerous ecological functions. They serve as critical habitats for a variety of bird species, providing essential resources such as

food, water, and nesting sites [1]. These areas act as key stopovers for migratory birds along their routes, facilitating the movement of species across regions [2]. Additionally, wetlands contribute to the regulation of local hydrology by controlling floodwaters, maintaining water quality through natural filtration processes, and supporting rich plant and animal communities. The avian fauna of Rajnandgaon wetlands exhibits notable diversity [3]. Resident species, adapted to the local environment, coexist with migratory birds that visit during seasonal movements [4]. The wetlands host a range of bird species, including waterfowl, waders, raptors, and passerines, notable species include the Painted Stork (*Mycteria leucocephala*), the Common Kingfisher (*Alcedo atthis*), and the Eurasian Coot (*Fulica atra*), among others [5]. This diversity is indicative of the varied wetland types present in the district and underscores the ecological value of these habitats [6]. Observations indicate that the abundance and distribution of avian species in Rajnandgaon's wetlands are influenced by several factors, including seasonal variations, habitat quality, and availability of resources [7]. Some species show high abundance during specific periods, such as migratory seasons, while others maintain stable populations throughout the year [8]. The distribution patterns of these species can provide insights into the health of wetland ecosystems and the impacts of environmental changes [9]. Understanding the diversity and abundance of wetland avian fauna is essential for effective conservation and management strategies [10]. It allows for the identification of key species and habitats that require protection, highlights changes in ecological conditions, and informs the development of policies to preserve wetland ecosystems. Research in this area contributes to broader efforts to conserve avian biodiversity and ensure the sustainability of wetland environments [11]. This study aims to assess the diversity and abundance of avian fauna in the wetlands of Rajnandgaon District, Chhattisgarh. By documenting the species present and their population dynamics, the research seeks to provide a comprehensive understanding of the wetland avian community and contribute to conservation efforts in the region [12]. The findings will help identify key conservation priorities and support the sustainable management of wetland habitats [13]. Rajnandgaon District, situated in the central Indian state of Chhattisgarh, is characterized by a diverse range of wetland ecosystems, including lakes, marshes, floodplains, and seasonal ponds [14]. These wetlands are integral components of the region's ecological landscape, offering vital services such as water purification, flood regulation, and habitat provision [15]. The wetlands of Rajnandgaon play a crucial role in maintaining biodiversity, supporting various life forms, and contributing to the ecological health of the area [16]. Wetlands are defined by their unique

hydrological conditions, which create specialized habitats for numerous plant and animal species [17]. The wetlands serve as crucial breeding, feeding, and resting sites for both resident and migratory birds, highlighting their ecological significance, the diversity and abundance of avian fauna in wetland ecosystems offer valuable insights into the health and functionality of these habitats [18]. Birds are considered excellent indicators of environmental quality due to their sensitivity to changes in habitat conditions. Monitoring avian diversity and population dynamics provides critical information on the status of wetland ecosystems and helps in identifying potential environmental pressures [19]. The rich variety of bird species observed in wetland habitats reflects the complexity and health of these ecosystems, the presence of a diverse array of avian species, including both migratory and resident birds, highlights the wetlands' role in supporting varied ecological niches and food webs [20]. Understanding the abundance of different species further sheds light on the distribution of resources within these habitats and the impact of seasonal and environmental changes [21].

Study Area: Physiographical, the district in general exhibits pediment/pediplain landform with structural and denudational hills and valleys with few structural plains, denudation plateaux and flood plain (including in-filled river beds) in the northern part [22]. The district forms mostly a part of Shivnath Sub-basin with the areas in western and southern part forming part of Wainganga sub-basin [23]. Shivnath and Amner rivers and its tributaries constitute the surface drainage system of the area, the general gradient of most of the area is towards east direction with the southern part bearing Wainganga sub-basin showing gradient towards south direction [24]. The maximum elevation in the area is 770m above mean sea level as recorded in the northwestern part while the minimum elevation of 296 m above mean sea level is noted around 11 km southwest of Rajnandgaon [25]. Shivnath River constitutes main drainage basin of the district. Main tributaries are Amner, Surhi, Fonk and Half rivers. River Shivnath forms the point of eastern boundary of the district Therefore most of the rivers forming its tributaries flow from west to east [26]. Only in north western part of the district. Some small nalas flow from east to west forming tributaries of Wainganga river [27]. Kotri and Khohka rivers flow in the southern part of the district. Chhattisgarh has 502 bird species, of which 49 are identified as globally threatened by the IUCN Red List. To safeguard species, habitats, and ecosystems, Chhattisgarh needs landscape-level conservation. Nature education and awareness initiatives can also help local populations protect biodiversity [28]

Materials and Methods: This important research work based on field work. The birds were observed using binocular and photographs were taken wherever possible. The bird species were recorded by applying “Transect line method”. An observer moves along a transect line in a line – transect survey method and notes the location of all detected birds on the location of all detected birds on the line.

Point Count Method (PCM): The basic method that has been chosen is based on setting up a single line at each site called a transect. Birds can be identified either visually, or by their calls. This method involves identifying all the birds you see or hear while standing at a series of points along a transect (a straight line through the site).

Opportunistic Bird Sightings (OBS)

Many species will be detected while travelling to and from survey sites, or outside standard survey times or survey sites. Birds may be identified

opportunistically either by their call or by their appearance. Record all of these sightings and their locations, dates and times for the whole survey on the opportunistic bird sightings data sheet provided.

Data Collection

Identification and Recording: Species identification was performed using field guides and expert knowledge. For accurate recording, observers used standardized data sheets to note species, number of individuals, behavior, and habitat characteristics. Data collection was done by trained ornithologists and field assistants to ensure consistency and accuracy (Gaff, P., 2002) [29].

Seasonality: Surveys were conducted across different seasons to account for migratory patterns and seasonal variations. The study was divided into four seasons - **Pre-Monsoon, Monsoon, Post-Monsoon, winter** [30].

Table No. 01: List of Wetland Birds of Study Area.

No.	Order	Family	Scientific Name	Common Name	Diversity	Status L/M/L M	IUCN Status	Distribution Block Wise			
								RJN	DGN	DGG	CHU
1	Accipitriformes	Accipitridae	<i>Milvus migrans</i>	Black Kite	A	LM	LC	+	+	+	+
2	Accipitriformes	Accipitridae	<i>Accipiter badius</i>	Shikra	M	R	LC	+	+	+	+
3	Accipitriformes	Accipitridae	<i>Circus aeruginosus</i>	Western Marsh-Harrier	R	M	LC	+	+	+	+
4	Alcediniformes	Alcedinidae	<i>Ceryle rudis</i>	Pied Kingfisher	M	R	LC	+	+	+	+
5	Alcediniformes	Alcedinidae	<i>Alcedo atthis</i>	Common Kingfisher	A	R	LC	+	+	+	+
6	Alcediniformes	Alcedinidae	<i>Halcyon smyrnensis</i>	White-Throated Kingfisher	A	R	LC	+	+	+	+
7	Anseriformes	Anatidae	<i>Anser indicus</i>	Bar-headed Goose	R	M	LC	+	+	+	+
8	Anseriformes	Anatidae	<i>Aythya ferina</i>	Common Pochard	R	M	VU	+	+	+	+
9	Anseriformes	Anatidae	<i>Netta rufina</i>	Red-crested Pochard	R	M	LC	+	+	+	+
10	Anseriformes	Anatidae	<i>Anas crecca</i>	Green Winged Teal	R	M	LC	+	+	+	+
11	Anseriformes	Anatidae	<i>Nettapus coromandelianus</i>	Cotton Pygmy Goose	M	LM	LC	+	+	+	+
12	Anseriformes	Anatidae	<i>Mareca strepera</i>	Gadwall	R	M	LC	+	+	+	+
13	Anseriformes	Anatidae	<i>Spatula querquedula</i>	Garganey	R	M	LC	+	+	+	+
14	Anseriformes	Anatidae	<i>Anas poecilorhyncha</i>	Indian Spot-billed Duck	M	LM	LM	+	+	+	+
15	Anseriformes	Anatidae	<i>Dendrocygna javanica</i>	Lesser Whistling Duck	A	R	LC	+	+	+	+
16	Anseriformes	Anatidae	<i>Spatula clypeata</i>	Northern Shoveler	R	M	LC	+	+	+	+
17	Charadriiformes	Rostratulidae	<i>Rostratula benghalensis</i>	Greater painted snipe	R	LM	LC	+	+	+	+
18	Charadriiformes	Recurvirostridae	<i>Himantopus himantopus</i>	Black-winged Stilt	M	M	LC	+	+	+	+
19	Charadriiformes	Scolopacidae	<i>Gallinago gallinago</i>	Common Snipe	M	M	LC	+	+	+	+
20	Charadriiformes	Scolopacidae	<i>Tringa nebularia</i>	Common Green shank	M	M	LC	+	+	+	+
21	Charadriiformes	Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper	M	R	LC	+	+	+	+
22	Charadriiformes	Scolopacidae	<i>Tringa ochropus</i>	Green Sandpiper	M	M	LC	+	+	+	+
23	Charadriiformes	Scolopacidae	<i>Tringa glareola</i>	Wood Sandpiper	M	M	LC	+	+	+	+
24	Charadriiformes	Scolopacidae	<i>Calidris ferruginea</i>	Curlew Sandpiper	M	M	NT	+	+	+	+
25	Charadriiformes	Scolopacidae	<i>Numenius arquata</i>	Eurasian Curlew	M	M	NT	+	+	+	+
26	Charadriiformes	Scolopacidae	<i>Calidris minuta</i>	Little Stint	M	M	LC	+	+	+	+
27	Charadriiformes	Scolopacidae	<i>Calidris temminckii</i>	Temminck's Stint	M	M	LC	+	+	+	+
28	Charadriiformes	Scolopacidae	<i>Numenius phaeopus</i>	Whimbrel	M	M	LC	+	+	+	+

29	Charadriiformes	Glareolidae	<i>Glareola lactea</i>	Little Pratincole	R	R	LC	+	+	+	+
30	Charadriiformes	Glareolidae	<i>Glareola lactea</i>	Small Pratincole	R	M	LC	+	+	+	+
31	Charadriiformes	Charadriidae	<i>Charadrius alexandrinus</i>	Kentish Plover	R	M	LC	+	+	+	+
32	Charadriiformes	Charadriidae	<i>Charadrius dubius</i>	Little Ringed Plover	A	M	LC	+	+	+	+
33	Charadriiformes	Charadriidae	<i>Charadrius hiaticula</i>	Common Ringed Plover	M	R	LC	+	+	+	+
34	Charadriiformes	Charadriidae	<i>Vanellus indicus</i>	Red-wattled Lapwing	A	R	LC	+	+	+	+
35	Charadriiformes	Charadriidae	<i>Vanellus malabaricus</i>	Yellow-wattled Lapwing	M	R	LC	+	+	+	+
36	Charadriiformes	Sternidae	<i>Sternula albifrons</i>	Little Tern	M	M	LC	+	+	+	+
37	Charadriiformes	Sternidae	<i>Sterna aurantia</i>	River Tern	R	LM	NT	+	+	+	+
38	Ciconiiformes	Ciconiidae	<i>Anastomus oscitans</i>	Asian Openbill Stork	A	M	LC	+	+	+	+
39	Ciconiiformes	Ciconiidae	<i>Mycteria leucocephala</i>	Painted Stork	R	M	NT	+	+	+	+
40	Ciconiiformes	Ciconiidae	<i>Ciconia episcopus</i>	Woolly-necked Stork	R	LM	NT	+	+	+	+
41	Coraciiformes	Meropidae	<i>Merops orientalis</i>	Green Bee-eater	A	R	LC	+	+	+	+
42	Coraciiformes	Meropidae	<i>Merops philippinus</i>	Blue Tailed Bee-eater	A	M	LC	+	+	+	+
43	Gruiformes	Jacaniidae	<i>Metopidius indicus</i>	Bronze-winged Jacana	A	R	LC	+	+	+	+
44	Gruiformes	Jacaniidae	<i>Hydrophasianus chirurgus</i>	Pheasant-tailed Jacana	M	LM	LC	+	+	+	+
45	Gruiformes	Rallidae	<i>Amauornis akool</i>	Brown Crake	M	R	LC	+	+	+	+
46	Gruiformes	Rallidae	<i>Fulica atra</i>	Common Coot	M	R	LC	+	+	+	+
47	Gruiformes	Rallidae	<i>Gallinula chloropus</i>	Common Moorhen	M	R	LC	+	+	+	+
48	Gruiformes	Rallidae	<i>Amauornis phoenicurus</i>	White-breasted Waterhen	A	R	LC	+	+	+	+
49	Gruiformes	Rallidae	<i>Porphyrio poliocephalus</i>	Grey-headed Swamphen	A	R	LC	+	+	+	+
50	Gruiformes	Rallidae	<i>Gallinula cinerea</i>	Watercock	M	LM	LC	+	+	+	+
51	Gruiformes	Turnicidae	<i>Turnix suscitator</i>	Barred Buttonquail	M	R	LC	+	+	+	+
52	Passeriformes	Turdidae	<i>Luscinia svecica</i>	Blue Throat	R	M	LC	+	+	+	+
53	Passeriformes	Turdidae	<i>Saxicola caprata</i>	Pied Bushchat	A	LM	LC	+	+	+	+
54	Passeriformes	Hirundinidae	<i>Cecropis daurica</i>	Red-rumped Swallow	A	R	LC	+	+	+	+
55	Passeriformes	Hirundinidae	<i>Hirundo smithii</i>	Wire-tailed Swallow	A	R	LC	+	+	+	+
56	Passeriformes	Hirundinidae	<i>Hirundo rustica</i>	Barn Swallow	A	M	LC	+	+	+	+
57	Passeriformes	Motacillidae	<i>Motacilla cinerea</i>	Gray Wagtail	R	R	LC	+	+	+	+
58	Passeriformes	Motacillidae	<i>Motacilla citreola</i>	Citrine Wagtail	R	R	LC	+	+	+	+
59	Passeriformes	Motacillidae	<i>Motacilla</i>	White-browed	R	R	LC	+	+	+	+

			<i>maderaspatensis</i>	Wagtail							
60	Passeriformes	Motacillidae	<i>Motacilla alba</i>	White Wagtail	R	M	LC	+	+	+	+
61	Passeriformes	Motacillidae	<i>Motacilla flava</i>	Western Yellow Wagtail	R	M	LC	+	+	+	+
62	Passeriformes	Motacillidae	<i>Anthus rufulus</i>	Paddyfield Pipit	A	LM	LC	+	+	+	+
63	Passeriformes	Sylviidae	<i>Apus affinis</i>	Little Swift	A	LM	LC	+	+	+	+
64	Passeriformes	Muscicapidae	<i>Eumyias thalassinus</i>	Verditer Flycatcher	M	R	LC	+	+	+	+
65	Passeriformes	Muscicapidae	<i>Ficedula albicilla</i>	Taiga Flycatcher	M	R	LC	+	+	+	+
66	Passeriformes	Saxicolinae	<i>Saxicola caprata</i>	Pied Bushchat	M	R	LC	+	+	+	+
67	Passeriformes	Terpsichoridae	<i>Terpsiphone paradisi</i>	Paradise Flycatcher	M	R	LC	+	+	+	+
68	Passeriformes	Pellorneidae	<i>Chrysomma sinense</i>	Yellow-eyed Babbler	M	R	LC	+	+	+	+
69	Passeriformes	Cisticolidae	<i>Cisticola juncidis</i>	Zitting Cisticola	M	R	LC	+	+	+	+
70	Passeriformes	Ploceidae	<i>Ploceus philippinus</i>	Baya Weaver	A	R	LC	+	+	+	+
71	Passeriformes	Estrildidae	<i>Lonchura punctulata</i>	Scaly-breasted Munia	A	R	LC	+	+	+	+
72	Passeriformes	Estrildidae	<i>Lonchura malacca</i>	Tricolored Munia	A	R	LC	+	+	+	+
73	Passeriformes	Estrildidae	<i>Lonchura striata</i>	White-rumped Munia	A	LM	LC	+	+	+	+
74	Passeriformes	Estrildidae	<i>Amandava amandava</i>	Red Avadavat	A	LM	LC	+	+	+	+
75	Pelecaniformes	Threskiornithidae	<i>Threskiornis melanocephalus</i>	Black-headed Ibis	A	LM	NT	+	+	+	+
76	Pelecaniformes	Ardeidae	<i>Plegadis falcinellus</i>	Glossy Ibis	M	LM	LC	+	+	+	+
77	Pelecaniformes	Ardeidae	<i>Nycticorax nycticorax</i>	Black-crowned Night Heron	M	R	LC	+	+	+	+
78	Pelecaniformes	Ardeidae	<i>Bubulcus ibis</i>	Cattle Egret	A	R	LC	+	+	+	+
79	Pelecaniformes	Ardeidae	<i>Egretta garzetta</i>	Little Egret	A	R	LC	+	+	+	+
80	Pelecaniformes	Ardeidae	<i>Ardea interme</i>	Intermediate Egret	A	R	LC	+	+	+	+
81	Pelecaniformes	Ardeidae	<i>Ardea alba</i>	Great Egret	A	R	LC	+	+	+	+
82	Pelecaniformes	Ardeidae	<i>Ardeola bacchus</i>	Chinese Pond Heron	R	R	LC	+	+	+	+
83	Pelecaniformes	Ardeidae	<i>Ardea cinerea</i>	Grey Heron	A	R	LC	+	+	+	+
84	Pelecaniformes	Ardeidae	<i>Ardeola grayii</i>	Indian Pond Heron	A	R	LC	+	+	+	+
85	Pelecaniformes	Ardeidae	<i>Ardea purpurea</i>	Purple Heron	M	R	LC	+	+	+	+
86	Pelecaniformes	Ardeidae	<i>Ixobrychus sinensis</i>	Yellow Bittern	M	LM	LC	+	+	+	+
87	Pelecaniformes	Ardeidae	<i>Ixobrychus cinnamomeus</i>	Cinnamon Bittern	M	LM	LC	+	+	+	+
88	Pelecaniformes	Ardeidae	<i>Ixobrychus flavicollis</i>	Black Bittern	M	M	LC	+	+	+	+
89	Suliformes	Podicipedidae	<i>Podiceps cristatus</i>	Great Crested Grebe	R	M	LC	+	+	+	+
90	Suliformes	Podicipedidae	<i>Tachybaptus ruficollis</i>	Little Grebe	R	M	LC	+	+	+	+
91	Suliformes	Anhingidae	<i>Anhinga</i>	Oriental Darter	R	R	NT	+	+	+	+

			<i>melanogaster</i>								
92	Suliformes	Phalacrocoracidae	<i>Phalacrocorax carbo</i>	Great Cormorant	R	R	LC	+	+	+	+
93	Suliformes	Phalacrocoracidae	<i>Phalacrocorax fuscicollis</i>	Indian Cormorant	A	R	LC	+	+	+	+
94	Suliformes	Phalacrocoracidae	<i>Microcarbo niger</i>	Little Cormorant	A	R	LC	+	+	+	+

Result and Discussion: Resident bird species in Rajnandgaon wetlands include various waterfowl, such as the Indian Pond Heron (*Ardeola grayii*), and raptors like the Western Marsh-Harrier (*Circus aeruginosus*). These species are adapted to the local conditions and rely on wetland habitats year-round for breeding and feeding. Their presence and population trends offer insights into the stability and quality of the wetland environments. Migratory birds use Rajnandgaon wetlands as important stopover sites during their seasonal journeys. Species such as the Painted Stork (*Mycteria leucocephala*) and the Common Pochard (*Aythya ferina*) are observed in significant numbers during migration periods. These migratory patterns are crucial for understanding regional and global bird migration routes and the role of Rajnandgaon wetlands in supporting these movements. The seasonal fluctuations in water levels and flow patterns affect habitat availability and resource distribution for birds. Changes in these regimes can impact breeding success and food availability. The types and densities of vegetation in wetland areas provide critical resources such as nesting sites and food. Changes in vegetation cover can influence the presence and abundance of different bird species. Land use changes, pollution, and other anthropogenic pressures can alter wetland habitats and impact bird populations. Understanding the effects of these activities is essential for effective conservation planning. Rajnandgaon District, situated in the heart of Chhattisgarh, India, is renowned for its diverse and ecologically significant landscapes. The district is characterized by a variety of habitats, including forests, hills, rivers, and, notably, wetlands. These wetlands, which range from expansive floodplains and marshes to small ponds and reservoirs, are integral components of the region's ecological network. They support a myriad of species and perform critical functions such as water purification, flood control, and climate regulation. Wetlands are among the most productive ecosystems on the planet, offering a multitude of ecological services. They act as buffers against floods, recharge groundwater, and filter pollutants from the water. In Rajnandgaon District, wetlands play a vital role in sustaining local biodiversity, particularly

avian species. They provide essential resources such as food, water, and nesting sites, making them critical habitats for both resident and migratory birds. The ecological health of these wetlands directly influences the quality of life for numerous species and the overall stability of the regional ecosystem. The diversity of avian fauna in Rajnandgaon's wetlands reflects the ecological richness of these habitats. Wetlands attract a wide range of bird species, including waterfowl, waders, raptors, and passerines. Resident species such as the Indian Pond Heron (*Ardeola grayii*) and the Purple Swamphen (*Porphyrio porphyrio*) coexist with migratory species like the Northern Shoveler (*Anas clypeata*) and the Common Teal (*Anas crecca*). The presence of diverse bird species indicates the health and productivity of the wetland environments. Additionally, the seasonal variations in bird populations provide insights into the dynamics of wetland ecosystems and the impacts of environmental changes. Several factors influence the abundance and distribution of avian species in Rajnandgaon wetlands. Seasonal changes play a significant role, with migratory patterns affecting the composition of bird communities throughout the year. Habitat quality, including vegetation cover, water levels, and food availability, also impacts bird populations. Human activities such as agriculture, development, and pollution can alter wetland conditions and affect avian diversity and abundance. Understanding these factors is crucial for assessing the ecological status of wetlands and implementing effective conservation strategies. The conservation status of wetland avian fauna in Rajnandgaon District is influenced by both natural and anthropogenic factors. Habitat loss, pollution, and climate change pose significant threats to wetland ecosystems. Deforestation, land conversion for agriculture, and industrial activities contribute to the degradation of wetland habitats. Climate change impacts, such as altered precipitation patterns and temperature changes, can further exacerbate these issues. Addressing these challenges requires a comprehensive understanding of avian diversity and abundance, as well as targeted conservation efforts to protect and restore wetland habitats.

Observation:

Species Composition: Species such as the Indian Spot-billed Duck (*Anas poecilorhyncha*), Lesser Whistling Duck (*Dendrocygna javanica*), and Northern Pintail (*Anas acuta*) are commonly observed. The wetlands attract various shorebirds including the Common Sandpiper (*Actitis hypoleucos*), Green Sandpiper (*Tringa ochropus*), and Marsh Sandpiper (*Tringa stagnatilis*). Species such as the Black-winged Stilt (*Himantopus himantopus*), Greater painted snipe (*Rostratula benghalensis*), and Red-wattled Lapwing (*Vanellus indicus*) are prevalent [32]. The Great Egret (*Ardea alba*), Little Egret (*Egretta garzetta*), and Cattle Egret (*Bubulcus ibis*) are frequently observed. The wetlands are also visited by raptors like the Black Kite (*Milvus migrans*) [33].

Seasonal Variations: The diversity of wetland birds in Rajnandgaon District exhibits significant seasonal variation. During the monsoon season, the abundance and diversity of species increase due to the availability of abundant water resources and food. Migratory species from northern regions also arrive during this period, contributing to the increased avian diversity, the dry season sees a reduction in the

number of wetland birds as water levels decrease and food resources become scarcer. Some species migrate to other regions, while others adapt to the changing conditions by altering their foraging and nesting behaviors [34].

Population Trends: Population trends of avian species in Rajnandgaon wetlands reveal both stable and fluctuating patterns. Certain species, such as the Indian Spot-billed Duck and the Black-winged Stilt, exhibit stable populations due to their adaptability and the availability of suitable habitats [35]. These species are commonly observed and are indicators of healthy wetland ecosystems, conversely, some species, particularly migratory birds, display significant fluctuations in population numbers for instance, the arrival of migratory shorebirds varies annually based on climatic conditions and environmental factors [36].

Threats and Conservation: Human activities such as land reclamation, agriculture, and industrial development lead to habitat loss and degradation, this affects the availability of breeding and foraging sites for wetland birds. Pollution from agricultural runoff and industrial waste contaminates wetland habitats, impacting

bird health and food sources [37]. Changes in climate patterns, including altered precipitation and temperature, affect wetland ecosystems and avian migration patterns [40]. Efforts to mitigate these threats include conservation programs, habitat restoration initiatives, and community awareness campaigns, protecting wetland areas and ensuring sustainable practices are crucial for maintaining the diversity and abundance of avian fauna [38].

Ecological Significance: Birds help in nutrient cycling by consuming aquatic invertebrates and dispersing seeds, contributing to the health of wetland ecosystems, predatory birds regulate populations of aquatic pests, maintaining a balance in the food web, the presence and abundance of specific bird species serve as indicators of wetland health and water quality [39].









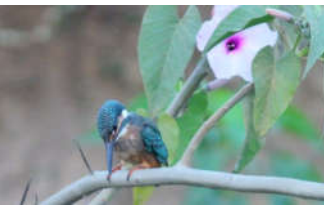
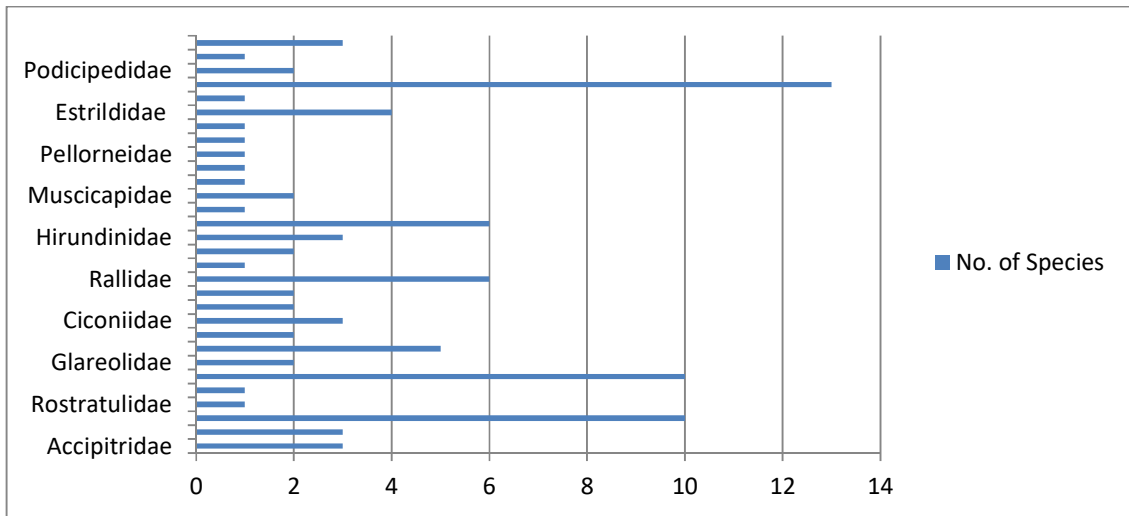
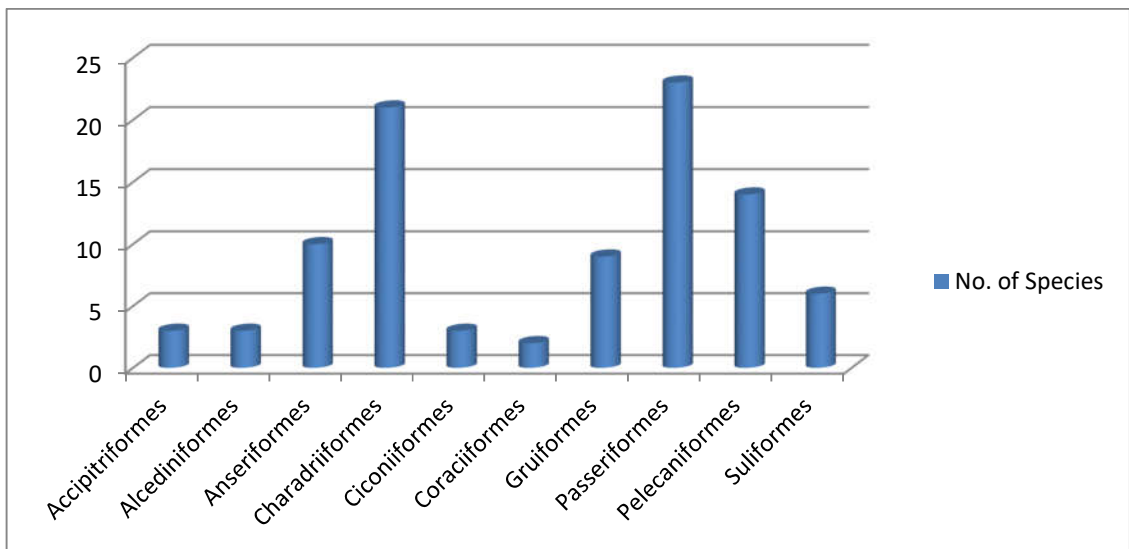
Table 02: Some avian fauna in study are.		
		
(A)	(B)	(C)
		
(D)	(E)	(F)
		
(G)	(H)	(I)
(A) Black crowned night heron	(B) Bronze winged jacana	(C) Common green shank
(D) Common sandpiper	(E) Pacific golden plover	(F) Lesser egret
(G) Black headed lbis	(H) Pond heron	(I) Common kingfisher

Table No. 03: Simpson Diversity Index

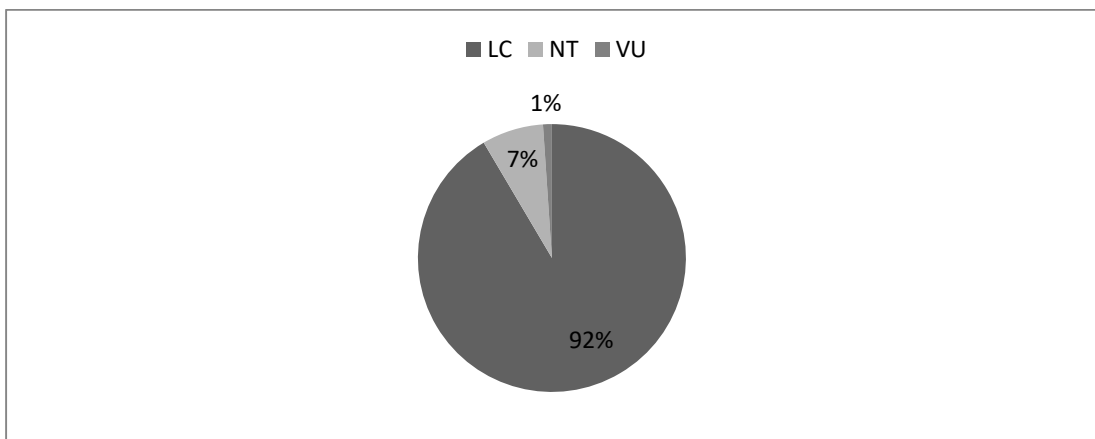
Family	ni	n-1	N(N-1)	SDI /Ds
Accipitridae	3	2	6	17.52
Alcedinidae	3	2	6	17.52
Anatidae	10	9	90	17.52
<i>Rostratulidae</i>	1	0	0	17.52
Recurvirostridae	1	0	0	17.52
Scolopacidae	10	9	90	17.52
Glareolidae	2	1	2	17.52
Charadriidae	5	4	20	17.52
Sternidae	2	1	2	17.52
Ciconiidae	3	2	6	17.52
Meropidae	2	1	2	17.52
Jacaniidae	2	1	2	17.52
Rallidae	6	5	30	17.52
Turnicidae	1	0	0	17.52
Turdidae	2	1	2	17.52
Hirundinidae	3	2	6	17.52
Motacillidae	6	5	30	17.52
Sylviidae	1	0	0	17.52
Muscicapidae	2	1	2	17.52
Saxicolinae	1	0	0	17.52
Terpsichoridae	1	0	0	17.52
Pellorneidae	1	0	0	17.52
Cisticolidae	1	0	0	17.52
Ploceidae	1	0	0	17.52
Estrildidae	4	3	12	17.52
Threskiornithidae	1	0	0	17.52
Ardeidae	13	12	156	17.52
Podicipedidae	2	1	2	17.52
Anhingidae	1	0	0	17.52
Phalacrocoracidae	3	2	6	17.52
	N = 94		Σn(n-1) = 472	17.52



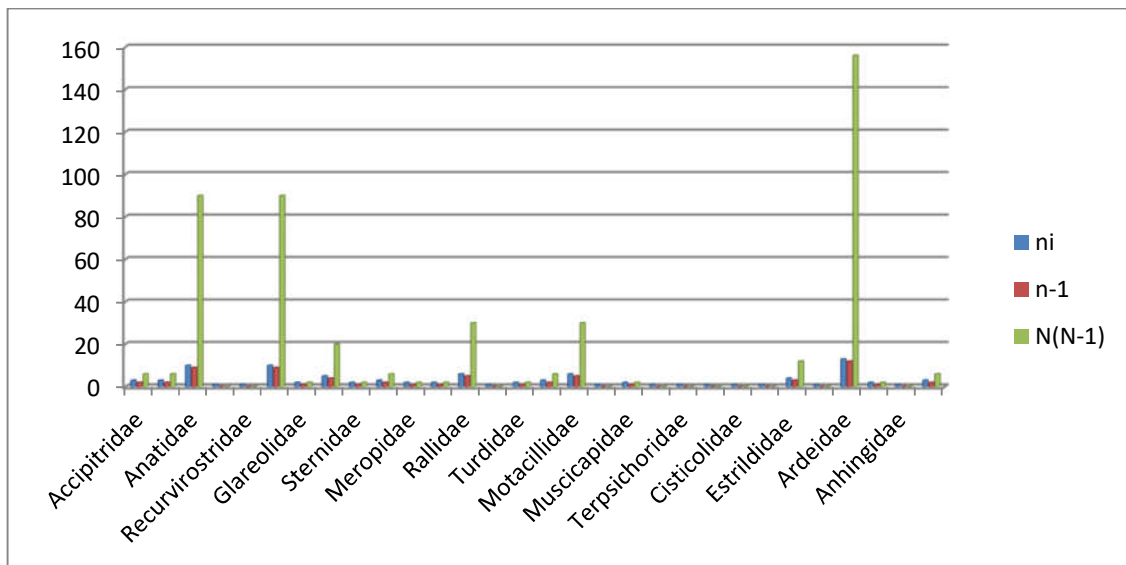
Family wise Number of Species



Order wise Number of Species Composition



IUCN Status of Bird Species of Study Area



Family Wise Simpson Diversity Index

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