

Avian Diversity of Maihar District of Rewa, Madhya Pradesh

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Abstract:

A seasonal survey was carried out to evaluate the avian diversity of Maihar District of Rewa, Madhya Pradesh. During the study, a total of 123 bird species representing 19 orders and 49 families were documented. Among the recorded species, *Gyps indicus* was identified as Critically Endangered and *Neophron percnopterus* as Endangered; both belong to the Order Falconiformes and the Family Accipitridae. The greatest species richness was observed within the Order Passeriformes and the Family Muscicapidae. Certain species, including the Asian Woolly-necked Stork and the Black-headed Ibis, were encountered only occasionally during the survey. Birds were recorded from a variety of habitats such as agricultural fields, wetlands, forested regions, and residential areas. However, bird diversity is increasingly threatened by anthropogenic disturbances, environmental pollution, inadequate public awareness, and a lack of interest in bird conservation. Therefore, enhancing public awareness and promoting conservation initiatives are essential for the long-term protection of avian diversity in the Maihar District of Madhya Pradesh.

Keywords: *Anthropogenic activity, Avian diversity, Conservation, Threatened, Endangered*

Introduction:

Birds constitute a highly diverse and visually prominent component of terrestrial and aquatic ecosystems. Owing to their sensitivity to environmental alterations, migratory birds are widely recognized as valuable bioindicators and useful models for monitoring ecological changes (Zöckler, 2005). The Madhya Pradesh State Biodiversity Board reports that nearly 36% of India's biodiversity is represented within the state, with 469 bird species recorded from Madhya Pradesh (MPSBB, 2024).

Birds are vital components of ecosystems and provide numerous ecological services. They help control populations of agricultural insect pests and rodents, act as scavengers by removing organic waste, facilitate seed dispersal, and assist in the pollination of various plant species. Through these functions, birds play a crucial role in sustaining ecological equilibrium and biodiversity. Furthermore, several bird species possess economic significance, as they are utilized for products such as down and feathers (Simone et al., 2002). Habitat modification and changing land-use practices have been recognized as major drivers of bird population decline (Roy et al., 2012).

Avian diversity and its conservation represent critical issues in the contemporary scenario. Because environmental sustainability demands global research efforts to ensure the future survival of avian species, scientists worldwide are actively engaged in monitoring and protecting these populations. Some world-wide contributions are Simeone, (2002). central Chile; Tanalgo et al. (2015) in South-Central Mindanao, Philippines.

A numerous researchers and academicians from different parts of India have studied avian fauna. Key studies include those by Dar and Dar (2009) in the wetlands of Kashmir; Chopra et al. (2012) in Sultanpur National Park, Haryana; Roy et al., (2012), North Bengal, India; Patra and Chakrabarti (2014) in West Bengal; Dapke et al. (2015) in Nagpur, Central India; Chaturvedi et al. (2017) in Chitrakoot, Uttar Pradesh; Sinha et al. (2019) in Uttarakhand; and Gund et al. (2020) in Karnataka.

Similarly, noteworthy contributions to the study of avian fauna in Madhya Pradesh include works by Joshi and Shrivastava (2012) in Hoshangabad; Garg et al. (2013) in Datia (M.P.); Tripathi et al. (2015), District Rewa, Madhya Pradesh. Shukla and Singh (2016) in Unchehara, Satna (M.P.) and Lodhi et al. (2018) in Gwalior (M.P.).

Although avian diversity has been studied in several areas of Madhya Pradesh, no comprehensive assessment has been carried out in Maihar District of Rewa (M.P.). Therefore, the present investigation was designed to develop a comprehensive inventory of bird species inhabiting the region and to identify species of conservation concern. The information generated through this study will enhance our understanding of the avifaunal diversity of Maihar District and serve as a valuable resource for future biodiversity conservation and management initiatives.

Material and Methods:

Study area: Maihar District is selected for the study of Birds Diversity. It is located 24.262°N and 80.761°E. It lies 367m above sea level. Annual rain fall in the district is 980 mm and the average maximum and minimum temperatures recorded in the district are 40.30 degree Celsius and 10.00 degree Celsius respectively.

Study period: The duration of the study period was from March, 2024 to April, 2025.

Study design: Four sampling sites were selected in District Maihar, Madhya Pradesh, India. Bird observation was made from 06:00 am to till sunset in weekly basis and spent a total of 576 hours in whole study period. A bird survey was conducted using the Line transect and point count methods. Binoculars and digital cameras were used for proper bird record. Direct observation was made by walking on the roads, tracks, grassland and agriculture areas.

Species identification: Birds were identified following different books Ali and Ripley (1983, 1987), Ali (2002), Grimmett *et al.* (2000).

Data analysis: Documented bird species from sampling sites for each season were and a list of species found in specific habitat was created.

Results and Discussion

The present study documented a total of 123 bird species representing 19 orders and 49 families across the Maihar district of Madhya Pradesh.

Thapa and Saund (2012) observed a total of 77 species of birds belonging to 8 orders and 31 families in Jagdishpur Reservoir, Nepal. Ramchandra (2013) reported 151 bird species belonging to 15 orders and 45 families in Chandoli National Park in the Western Ghats of Maharashtra. Lodhi *et al.*, (2013) have also enlisted 45 avian species belonging to 13 families and 9 orders from the Dihaila Lake in Karera Bustard Sanctuary, Shivpuri (M.P.). Arya *et al.*, (2014) also worked in Madhav National Park and recorded 73 bird species in the Madhav National Park. Kanaujia *et al.*, (2014) noted 150 bird species belonging to 17 orders and 46 families in the Nawabganj Bird Sanctuary, Unnao, Uttar Pradesh, India. Chavhan and Dhamani (2014) observed a total of 76 species belonging to 39 families of birds in the Chaprala wildlife sanctuary in Maharashtra. Murlikrishnan *et al.*, (2017) observed a total of 52 species belonging to 29 families at Kondagai village, Sivaganga District, South India. Pant *et al.* (2020) reported a total of 81 avian species belonging to different families from the Rani Durgawati Vishwavidyalaya campus, Jabalpur, (M.P.). Rawat and Rao (2021) reported 104 species belonging to 16 orders and 48 families in north Madhya Pradesh, India.

As compared to their study, this study recorded a high level of bird diversity in the Maihar District. A year-long survey covering three seasons identified 123 bird species across 49 families and 19 orders throughout the study sites (Table 1, Fig. 1) in which the order Passeriformes emerged as the most dominant, accounting for 60 of the recorded species. The most frequently observed species included the House Sparrow, Brown Rock Chat, Common Myna, Indian Silverbill, Red-vented Bulbul, and Paddy field Pipit. Seasonally, avian richness peaked during the winter months, whereas relatively fewer species were recorded during the summer and monsoon seasons.

Conclusion

During the study one hundred twenty three species of birds were recorded in Maihar district of Madhya Pradesh, India. A large number of bird species were recorded in the diverse habitats of the Maihar and surrounding areas due to the diverse feeding, nesting forest area. The bird species belonged to 19 orders and the order Passeriformes are more dominant. As temperatures increase, birds tend to migrate to other places. This study shows that undisturbed habitats had greater prosperity and diversity than habitats altered by humans. To protect bird diversity and maintain the ecology of the area, problems must be brought to the notice of management so that they can take immediate action. There is a need for more understanding and documentation of the area.

Table:1 Check list of avifaunal species in Maihar District of Rewa (M.P.)

Sr.No.	Order	Family	Scientific Name	Common Name
1	Accipitriformes	Accipitridae	<i>Pernis ptilorhynchus</i>	Oriental Honey-buzzard
2	Apodiformes	Apodidae	<i>Apus affinis</i>	Little Swift
3	Apodiformes	Hemiprocnidae	<i>Hemiprocne coronata</i>	Crested Treeswift
4	Anseriformes	Anatidae	<i>Tadorna ferruginea</i>	Ruddy shelduck
5	Anseriformes	Anatidae	<i>Dendrocygna javanica</i>	Lesser Whistling-Duck
6	Charadriiformes	Charadriidae	<i>Charadrius dubius</i>	Little ringed plover
7	Charadriiformes	Charadriidae	<i>Vanellus duvaucelii</i>	River Lapwing
8	Charadriiformes	Charadriidae	<i>Vanellus indicus</i>	Red-wattled Lapwing
9	Charadriiformes	Charadriidae	<i>Vanellus malabaricus</i>	Yellow-wattled Lapwing
10	Charadriiformes	Jacanidae	<i>Metopidius indicus</i>	Bronze-winged Jacana
11	Charadriiformes	Laridae	<i>Chlidonias hybrida</i>	Whiskered tern
12	Charadriiformes	Laridae	<i>Sterna aurantia</i>	River Tern
13	Charadriiformes	Recurvirostridae	<i>Himantopus himantopus</i>	Black-winged Stilt
14	Charadriiformes	Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper
15	Charadriiformes	Scolopacidae	<i>Tringa nebularia</i>	Common greenshank
16	Charadriiformes	Scolopacidae	<i>Tringa ochropus</i>	Green Sandpiper
17	Charadriiformes	Scolopacidae	<i>Tringa glareola</i>	Wood Sandpiper
18	Ciconiiformes	Ardeidae	<i>Ardea coromanda</i>	Eastern Cattle-Egret
19	Ciconiiformes	Ardeidae	<i>Ardea intermedia</i>	Medium Egret
20	Ciconiiformes	Ardeidae	<i>Ardea cinerea</i>	Gray Heron
21	Ciconiiformes	Ardeidae	<i>Ardeola grayii</i>	Indian Pond-Heron
22	Ciconiiformes	Ciconiidae	<i>Ciconia episcopus</i>	Asian Woolly-necked Stork
23	Columbiformes	Columbidae	<i>Treron phoenicopterus</i>	Yellow-footed Green-Pigeon
24	Columbiformes	Columbidae	<i>Columba livia</i>	Rock Pigeon
25	Columbiformes	Columbidae	<i>Spilopelia senegalensis</i>	Laughing Dove
26	Columbiformes	Columbidae	<i>Spilopelia chinensis</i>	Spotted Dove
27	Columbiformes	Columbidae	<i>Streptopelia tranquebarica</i>	Red Collared-Dove

28	Columbiformes	Columbidae	<i>Streptopelia decaocto</i>	Eurasian Collared-Dove
29	Coraciiformes	Alcedinidae	<i>Halcyon smyrnensis</i>	White-throated Kingfisher
30	Coraciiformes	Alcedinidae	<i>Alcedo atthis</i>	Common Kingfisher
31	Coraciiformes	Alcedinidae	<i>Ceryle rudis</i>	Pied Kingfisher
32	Coraciiformes	Coraciidae	<i>Coracias benghalensis</i>	Indian Roller
33	Coraciiformes	Bucerotidae	<i>Ocyeros birostris</i>	Indian Gray Hornbill
34	Coraciiformes	Meropidae	<i>Merops orientalis</i>	Asian Green Bee-eater
35	Cuculiformes	Cuculidae	<i>Eudynamys scolopaceus</i>	Asian Koel
36	Cuculiformes	Cuculidae	<i>Centropus sinensis</i>	Greater Coucal
37	Cuculiformes	Cuculidae	<i>Hierococyx varius</i>	Common Hawk-Cuckoo
38	Falconiformes	Accipitridae	<i>Elanus caeruleus</i>	Black-winged Kite
39	Falconiformes	Accipitridae	<i>Milvus migrans</i>	Black Kite
40	Falconiformes	Accipitridae	<i>Gyps Indicus</i>	Indian Vulture
41	Falconiformes	Accipitridae	<i>Tachyspiza badia</i>	Shikra
42	Falconiformes	Accipitridae	<i>Neophron percnopterus</i>	Egyptian Vulture
43	Galliformes	Phasianidae	<i>Ortygornis pondicerianus</i>	Gray Francolin
44	Galliformes	Phasianidae	<i>Pavo cristatus</i>	Indian Peafowl
45	Galliformes	Phasianidae	<i>Gallus Gallus</i>	Red Junglefowl
46	Gruiformes	Rallidae	<i>Gallinula chloropus</i>	Eurasian moorhen
47	Gruiformes	Rallidae	<i>Amaurornis phoenicurus</i>	White-breasted Waterhen
48	Passeriformes	Alaudidae	<i>Mirafra erythroptera</i>	Indian Bushlark
49	Passeriformes	Alaudidae	<i>Eremopterix griseus</i>	Ashy-crowed Sparrow - Lark
50	Passeriformes	Alaudidae	<i>Ammamanes phoenicura</i>	Rufous-tailed lark
51	Passeriformes	Cisticolidae	<i>Cisticola juncidis</i>	Zitting Cisticola
52	Passeriformes	Cisticolidae	<i>Orthotomus sutorius</i>	Common Tailorbird
53	Passeriformes	Cisticolidae	<i>Prinia socialis</i>	Ashy Prinia
54	Passeriformes	Cisticolidae	<i>Prinia inornata</i>	Plain Prinia
55	Passeriformes	Cisticolidae	<i>Prinia sylvatica</i>	Jungle Prinia
56	Passeriformes	Corvidae	<i>Corvus splendens</i>	House Crow
57	Passeriformes	Corvidae	<i>Corvus macrorhynchos</i>	Large-billed Crow
58	Passeriformes	Corvidae	<i>Dendrocitta vagabunda</i>	Rufous Treepie
59	Passeriformes	Estrildidae	<i>Lonchura punctulata</i>	Scaly-breasted Munia
60	Passeriformes	Dicruridae	<i>Dicrurus macrocercus</i>	Black Drongo
61	Passeriformes	Dicruridae	<i>Dicrurus caerulescens</i>	White-bellied Drongo
62	Passeriformes	Hirundinidae	<i>Hirundo rustica</i>	Barn Swallow
63	Passeriformes	Hirundinidae	<i>Ptyonoprogne concolor</i>	Dusky Crag-Martin
64	Passeriformes	Hirundinidae	<i>Hirundo smithii</i>	Wire-tailed Swallow
65	Passeriformes	Laniidae	<i>Lanius cristatus</i>	Brown Shrike
66	Passeriformes	Laniidae	<i>Lanius isabellinus</i>	Isabelline Shrike
67	Passeriformes	Laniidae	<i>Lanius schach</i>	Long-tailed Shrike
68	Passeriformes	Leiothrichidae	<i>Argya malcolmi</i>	Large Gray Babbler
79	Passeriformes	Leiothrichidae	<i>Argya striata</i>	Jungle Babbler
70	Passeriformes	Leiothrichidae	<i>Argya caudata</i>	Common Babbler

71	Passeriformes	Leiotherichidae	<i>Motacilla citreola</i>	Citrine Wagtail
72	Passeriformes	Motacillidae	<i>Anthus rufulus</i>	Paddyfield Pipit
73	Passeriformes	Motacillidae	<i>Anthus trivialis</i>	Tree Pipit
74	Passeriformes	Motacillidae	<i>Motacilla cinerea</i>	Grey Wagtail
75	Passeriformes	Motacillidae	<i>Motacilla alba</i>	White Wagtail
76	Passeriformes	Motacillidae	<i>Motacilla maderaspatensis</i>	White-browed Wagtail
77	Passeriformes	Motacillidae	<i>Motacilla flava</i>	Western Yellow Wagtail
78	Passeriformes	Muscicapidae	<i>Oenanthe fusca</i>	Brown Rock Chat
79	Passeriformes	Muscicapidae	<i>Saxicola caprata</i>	Pied Bushchat
80	Passeriformes	Muscicapidae	<i>Phoenicurus ochruros</i>	Black Redstart
81	Passeriformes	Muscicapidae	<i>Copsychus fulicatus</i>	Indian Robin
82	Passeriformes	Muscicapidae	<i>Saxicola maurus</i>	Siberian Stonechat
83	Passeriformes	Muscicapidae	<i>Ficedula parva</i>	Red-breasted Flycatcher
84	Passeriformes	Muscicapidae	<i>Luscinia svecica</i>	Bluethroat
85	Passeriformes	Muscicapidae	<i>Monticola solitarius</i>	Blue Rock Thrush
86	Passeriformes	Muscicapidae	<i>Ficedula albicilla</i>	Taiga Flycatcher
87	Passeriformes	Muscicapidae	<i>Saxicola caprata</i>	Pied Bushchat
88	Passeriformes	Muscicapidae	<i>Copsychus saularis</i>	Oriental Magpie-Robin
89	Passeriformes	Nectariniidae	<i>Cinnyris asiaticus</i>	Purple Sunbird
90	Passeriformes	Nectariniidae	<i>Cinnyris jugularis</i>	Olive backed Sunbird
91	Passeriformes	Nectariniidae	<i>Leptocoma zeylonica</i>	Purple-rumped Sunbird
92	Passeriformes	Nectariniidae	<i>Euodice malabarica</i>	Indian Silverbill
93	Passeriformes	Ploceidae	<i>Ploceus philippinus</i>	Baya Weaver
94	Passeriformes	Passeridae	<i>Passer domesticus</i>	House Sparrow
95	Passeriformes	Passeridae	<i>Gymnoris xanthocollis</i>	Yellow-throated Sparrow
96	Passeriformes	Phylloscopidae	<i>Phylloscopus collybita</i>	Common Chiffchaff
97	Passeriformes	Phylloscopidae	<i>Phylloscopus humei</i>	Hume's Warbler
98	Passeriformes	Phylloscopidae	<i>Phylloscopus trochiloides</i>	Greenish Warbler
99	Passeriformes	Pycnonotidae	<i>Pycnonotus cafer</i>	Red-vented Bulbul
100	Passeriformes	Rhipiduridae	<i>Rhipidura aureola</i>	White-browed Faintal
101	Passeriformes	Sturnidae	<i>Acridotheres tristis</i>	Common Myna
102	Passeriformes	Sturnidae	<i>Acridotheres ginginianus</i>	Bank Myna
103	Passeriformes	Sturnidae	<i>Acridotheres fuscus</i>	Jungle Myna
104	Passeriformes	Sturnidae	<i>Gracupica contra</i>	Indian Pied Starling
105	Passeriformes	Sturnidae	<i>Sturnia pagodarum</i>	Brahminy Starling
106	Passeriformes	Vangidae	<i>Tephrodornis pondicerianus</i>	Common Woodshrike
107	Passeriformes	Zosteropidae	<i>Zosterops palpebrosus</i>	Indian White-eye
108	Pelecaniformes	Ardeidae	<i>Egretta garzetta</i>	Little Egret
109	Pelecaniformes	Phalacrocoracidae	<i>Microcarbo niger</i>	Little Cormorant
110	Pelecaniformes	Phalacrocoracidae	<i>Phalacrocorax fuscicollis</i>	Indian Cormorant
111	Pelecaniformes	Phalacrocoracidae	<i>Phalacrocorax carbo</i>	Great Cormorant
112	Pelecaniformes	Threskiornithidae	<i>Threskiornis melanocephalus</i>	Black-headed Ibis
113	Pelecaniformes	Threskiornithidae	<i>Platalea leucorodia</i>	Eurasian Spoonbill
114	Palecaniformes	Threskiornithidae	<i>Pseudibis papillosa</i>	Red-naped Ibis
115	Piciformes	Picidae	<i>Chrysocolaptes festivus</i>	White-naped

				woodpecker
116	Piciformes	Ramphastidae	<i>Psilopogon haemacephalus</i>	Coppersmith Barbet
117	Podicipediformes	Podicipedidae	<i>Tachybaptus ruficollis</i>	Little Grebe
118	Psittaciformes	Psittaculidae	<i>Psittacula krameri</i>	Rose-ringed Parakeet
119	Psittaciformes	Psittaculidae	<i>Psittacula eupatria</i>	Alexander ringed Parakeet
120	Psittaciformes	Psittaculidae	<i>Psittacula cyanocephala</i>	Plum -headed Parakeet
121	Strigiformes	Strigidae	<i>Athana Brama</i>	Spotted Owlet
122	Strigiformes	Strigidae	<i>Glaucidium radiatum</i>	Jungle Owlet
123	Upupiformes	Upupidae	<i>Upupa epops</i>	Eurasian Hoopoe

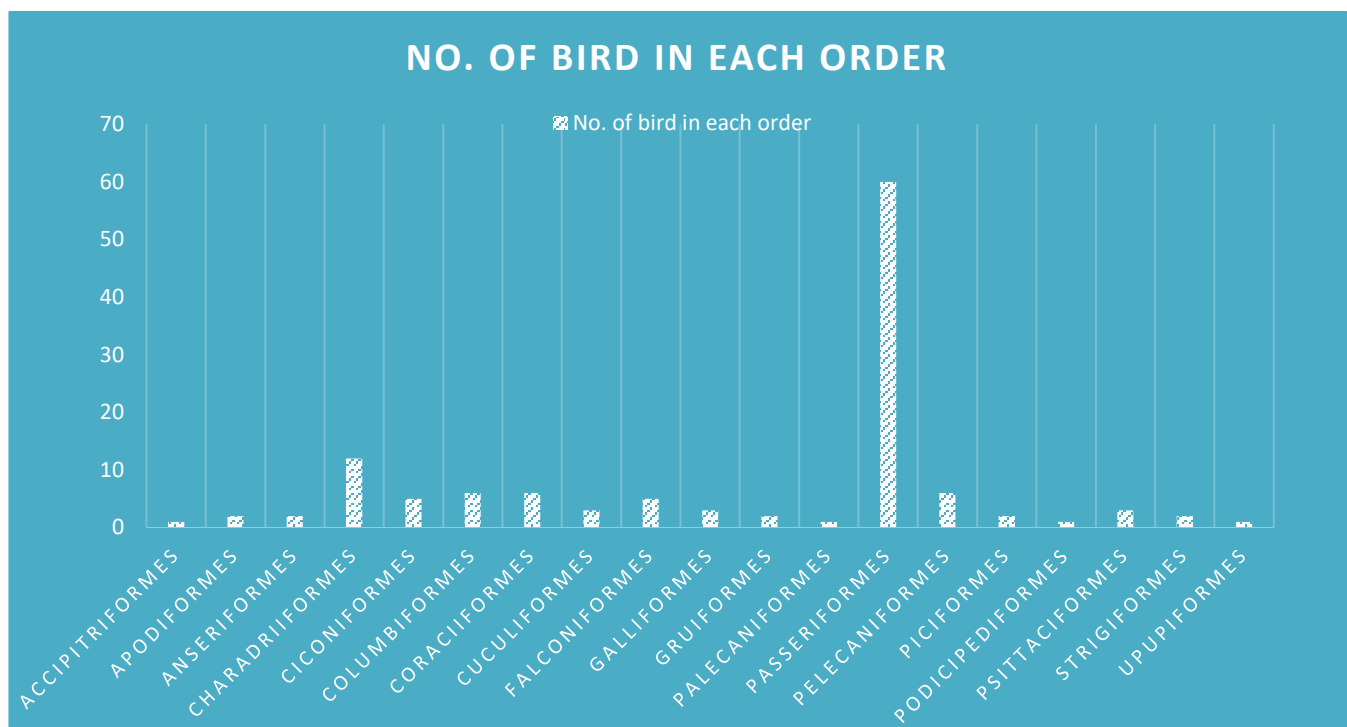
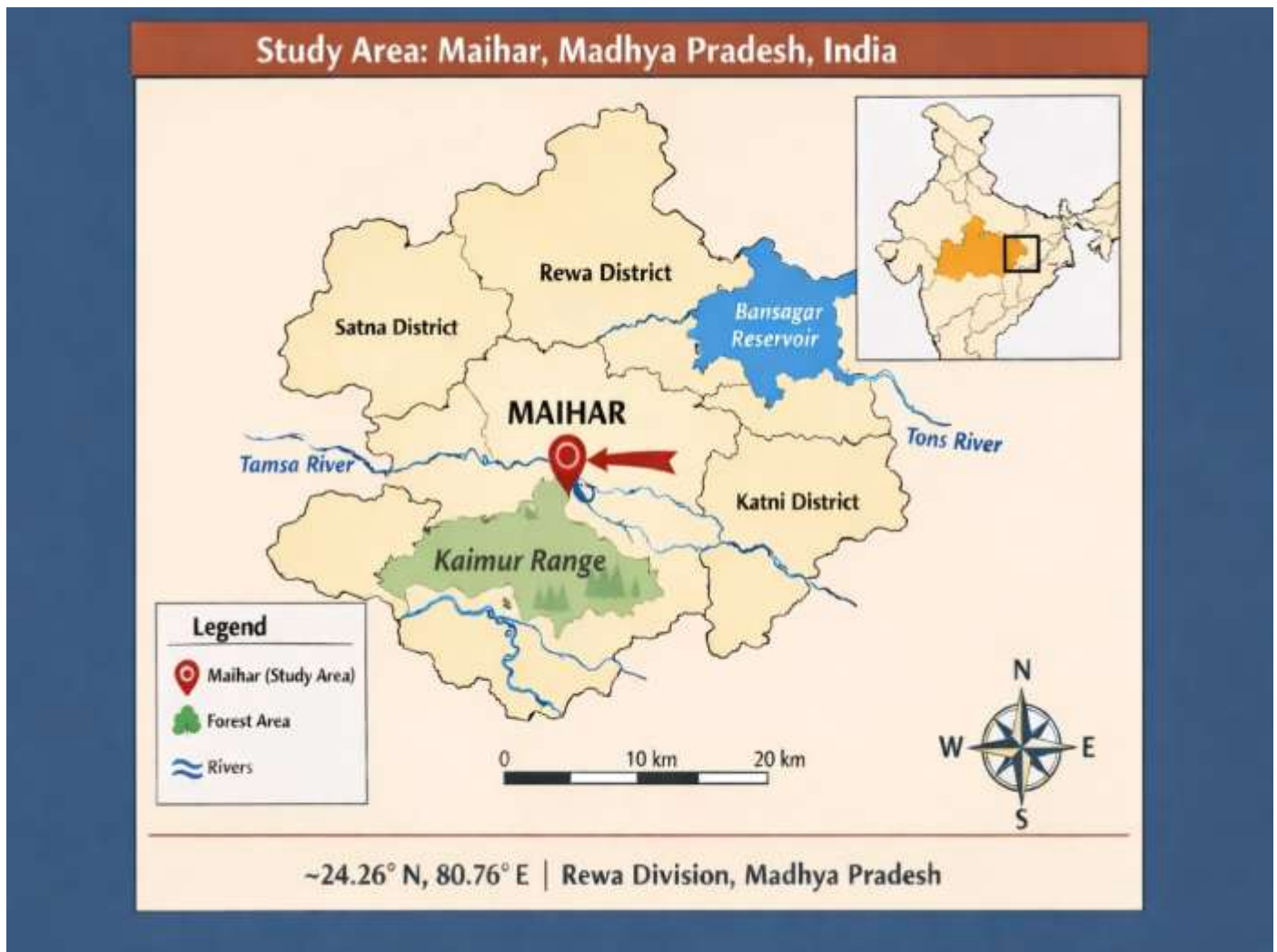


Fig. 1: Order wise Avifaunal species in maihar district of Rewa (M.P.)



References

1. Ali, Salim (1940). The Birds of Central India: Part II. *Journal of Bombay Natural History Society*, **41**: 470-488.
2. Arya M. and Mishra A. K., (2014) Checklist of Wetland Birds Of Sakhya Sagar Lake and Madhav Lakes in the Madhav National Park Shivpuri M.P. India, *Periodic Research*. III(I): 103.
3. Ali, S. & Ripley, D., (1995). A pictorial guide to the birds of the Indian Subcontinent. 2nd Edition. Published by BNHS, Oxford University press.
4. Balapure S., Dutta S. and Vyas V., (2013) Physico-chemical factors affecting the distribution of wetland birds of Barna Reservoir in Narmada Basin, Central India. *Journal of Biodiversity and Conservation Research*, 1(1): 028-036
5. Chavhan PR. And Dhamani AA., (2014) Avian diversity in and around Chaprala wild life sanctuary, District-Gadchiroli, Maharashtra, India. *International Journal of Fauna and Biological Studies*, 1(6): 90-95.
6. Chaturvedi, S.K., Nigam, S., Dwivedi, A., (2017). Preliminary Survey of Bird Fauna in Karwi Tehsil, District Chitrakoot, U.P., India. *International Journal of Science and Research*, Volume 6.
7. Chopra, G., Tyor, A. K., Kumari, S. and Rai, D., (2012) Status and Conservation of Avian Fauna Of Sultanpur National Park Gurgaon, Haryana (India). *Journal of Applied and Natural science*, 4(2): 207-213.
8. Dar A., and Dar A.R., (2009) Seasonal Variations of Avifauna of Sallabug Wetland Kashmir. *Jour. Wetland Ecology*, (2): 20-37.
9. Dapke, S., Didolkar, R. and Koushik, S., (2015) Studies On Diversity And Abundance of Avifauna In And Around Laxminarayan Institute Of Technology Campus, Nagpur, Central India. *Journal of Entomology and Zoology Studies*, 3(5): 141-146.

10. Joshi, P. and Shrivastava, V. K., (2012) Avifaunal Diversity Of Tawa Reservoir And It's Surrounding Areas Of Hosangabad District (Madhya Pradesh). *International Journal of Plant, Animal And Environmental Sciences*. 2(1): 47-51.
11. Garg R.K., Rao R. J. and Saksena D. N., (2013) Spatial relations of migratory birds and water quality management of Ramsagar Reservoir, Datia, Madhya Pradesh, India. *Journal of Ecology & The Natural Environment*, 5 (10): 335- 339.
12. Gund, N. and Kadadevaru, G., (2020) Avifaunal diversity of some selected water bodies of Khanapur Taluka, Belagavi District, Karnataka, India. *Journal of Threatened Taxa* 12(5): 15572– 15586.
13. Grimmett, Inskipp, C., R. & Inskipp, T. (2011). *Birds of the Indian Subcontinent (Helm Field Guides) –first edition. Bloomsbury Publication India pvt.ltd*
14. Kanaujia A., Kumar A., Kumar A., Kushwaha S. and Kumar A., (2014) Blooming Faunal Diversity Nawabganj bird Sanctuary, Unnao, Uttar Pradesh, India. *Journal of Environmental Science and Technology*, 2(20): 14-24.
15. Lodhi R.K., Kushwah K. and Rao R.J., (2013) Biodiversity Conservation in Wetland of Dihaila Lake with Reference to Migratory Birds. *International Journal of Current Research*, 5(12): 3649-3651.
16. Madhya Pradesh State Biodiversity Board (2024). <https://mpforest.gov.in/mpsbb/>
17. Muralikrishna S., Nagendren A., Pandiaraja D., Nair A. and Kubendran T., (2017) Avifaunal Diversity and Water Analysis of an Indian Pond, Kondagai Village, Sivaganga District, South India. *Int. J. Curr. Microbiol. App. Sci.* 6(7): 4437-4452.
18. Pant H., Malviya S. J., Dubey S., (2020) Avian Faunal Diversity Of River Narmada Basin At Jabalpur District Of Madhya Pradesh. *Journal of Natural Resource and Development*. 15(2): 78-86.
19. Patra G. and Chakrabarti S., (2014) Avian Diversity in and around Digha, District— East Midnapore (West Bengal, India). *Advances in Bioscience and Biotechnology*, (5): 596-602.
20. Sinha A., Hariharan H., Adhikari B., Krishnamurthy R., (2019), Bird diversity along riverine areas in the Bhagirathi Valley, Uttarakhand, India. *Biodiversity Data Journal*. 7: e31588.
21. Thapa J.B. and Saund T.B., (2012) Water Quality Parameters and Bird Diversity in Jagdishpur Reservoir, Nepal. *Nepal Journal of Science and Technology*, 13(1): 143- 155.
22. Rawat S.N. and Rao R. J., (2020) Urban Bird Diversity Of Sheopur City, North Madhya Pradesh, India. *Uttar Pradesh Journal Of Zoology*, 41(1): 1-9.
23. Ramchandra A. M., (2013) Diversity and richness of bird species in newly formed habitats of Chandoli National Park in Western Ghats, Maharashtra State, India. *Biodiversity Journal*. 4(1): 235-242.
24. Roy, U.K., Banerjee, P., and Mukhopadhyay, S.K., (2012). Study of avifaunal diversity from different regions of north Bengal, India. *Asian journal of conservation Biology*, December 2012. Vol.1 No.2, pp. 120-129.
25. Shukla, A. and Singh, Shivesh Pratap, (2016). Avian Fauna of Unchehara, Satna District of Madhya Pradesh. *National Journal of Life Science*, Vol.13 (2):201-206.
26. Simeone, A., Araya, M.B. M. Bernal, Diebold, E. N. Grzybowski, K. Michaels, M. Teare, J.A. Wallace R.S. and Willis, M.J. (2002). Oceanographic and climatic factors influencing breeding and colony attendance patterns of Humboldt Penguins *Spheniscus humboldti* in Simeone,. *Marine Ecology Progress Series* 227:43–50.
27. Thapa J.B. and Saund T.B., (2012) Water Quality Parameters and Bird Diversity in Jagdishpur Reservoir, Nepal. *Nepal Journal of Science and Technology*, 13(1): 143-155.
28. Tripathi, P., Tiwari, A., Singh, S.P., and Agnihotri, S. (2015). Study on Bird Diversity of Chuhiya Forest, District Rewa, Madhya Pradesh, India. *International Journal OF Pharmacy & Life Sciences*. ISSN:0976-7126.
29. Tanalgo, K.C., K.C., Pineda, J.A.F., Agravante, M.E., and Amerol, Z.M., (2015) Bird Diversity and Structure in Different Land-use Types in Lowland South-Central Mindanao, Philippines. *Tropical life science research* , 26(2), 85–103, 2015
30. Zockler, c. (2005). Migratory bird species as indicators for the state of the environment.