

Checklist of Faunal Diversity of Kesnand-Wadebolhai, Pune, M/S, India

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Abstract: Biodiversity is important in the preservation of ecological balance, and faunal diversity in any area is a reflection of its ecological health. Kesnand-Wadebolhai, being in Pune District, Maharashtra, supports varied habitats like cropland, grassland, and human habitation and hence is an ecologically important place. This research intends to record the faunal diversity of this area, emphasizing species richness and ecological importance. Field surveys involved direct observation, pitfall trap, and opportunistic sampling methods. Species were identified using standard taxonomic keys and literature at hand. There were 47 species from several taxonomic groups, such as Insecta, Arachnida, Chilopoda, Malacostraca, Amphibia, Reptilia, Aves, and Mammalia. The checklist gives clues to the diversity and distribution of the species that can be included in baseline ecological studies in the future. The findings indicate a rich collection of insects, arachnids, amphibians, reptiles, birds, and mammals with key species like *Apis dorsata* (Giant Honey Bee), *Mesobuthus tamulus tamulus* (Indian Red Scorpion), *Naja naja* (Cobra), and *Corvus splendens* (House Crow). The diversity of these species shows the presence of a well-balanced ecosystem, but growing urbanization is a likely threat to biodiversity. The research highlights the need for conservation measures to safeguard the faunal richness of Kesnand-Wadebolhai. Knowledge of species distribution and their ecological functions can help in formulating biodiversity conservation and sustainable land-use planning strategies. Additional studies and ongoing monitoring are suggested to evaluate long-term environmental alterations and their effects on the fauna of the region.

Keywords: Biodiversity; Conservation; Faunal Diversity; Habitat; Kharadi-Wagholi; Urbanization

I. Introduction

Biodiversity is the very basis of ecological stability and offers key ecosystem services like pollination, nutrient cycling, and pest control (Gaston & Spicer, 2004). Faunal diversity, in specific, is a key measure of environmental health and habitat quality. India is one of the world's 17 megadiverse nations and supports approximately 7-8% of the biodiversity of the globe (Myers et al., 2000). Of the different zones, Maharashtra is rich in faunal diversity caused by its diverse topography and climatic factors (Sharma et al., 2017; Sharad Giramkar 2023 b). Kesnand-Wadebolhai, in the Pune District, is a semi-urban habitat with a composition of agricultural fields, grassland, and human habitations. These diverse environments harbor a varied fauna from insects to mammals. But the danger of rapid urbanization and fragmentation of habitats has been a big threat to biodiversity in the region (Singh & Kushwaha, 2006). Various studies have identified the effects of human interference on loss of biodiversity, underscoring conservation measures (Sala et al., 2000). The major aim of the present study is to record the faunal richness of Kesnand-Wadebolhai and offer baseline information for future ecological surveys. This research is anticipated to enhance knowledge of species distribution and assist in the development of conservation policies for the protection of the region's biodiversity.

II. Materials and Methods

Faunal survey were done in Kesnand-Wadebolhai, Pune District, Maharashtra, India, which was an area represented by heterogeneous habitat types like grasslands, cultivations, and human settlements. Standardized sampling methods like sweep netting, beating sheets, hand collection, pitfall trapping, direct observation, and opportunistic sampling were employed to record faunal diversity. Direct visual counts were conducted during the peak periods of activity (dawn and dusk) with the aid of binoculars and cameras to document avian and mammalian species. Ground-dwelling arthropods and small vertebrates were trapped using pitfall traps, and sweep netting was employed for collecting insects from vegetation. Beating sheets and manual collection assisted in detecting tree-dwelling arthropods and slow-moving invertebrates such as scorpions and centipedes. Opportunistic sampling facilitated the incorporation of species seen beyond scheduled surveys. Species were identified through field guides, taxonomic keys, and internet databases such as GBIF and ITIS. The result table was made for the knowledge of faunal diversity in Kesnand-Wadebolhai and form a foundation for future conservation initiatives.

III. Results and Discussion

A total of 45 faunal species were recorded in the study area, belonging to different classes such as Insecta, Arachnida, Chilopoda, Malacostraca, Amphibia, Reptilia, Aves, and Mammalia. The species documented are presented in Table 1.

Table 1: Checklist of Animals Recorded in the Study Area

Sr. No.	Class	Family	Local Name	Scientific Name
1	Insecta	Apidae	Small Honey bees	Apis florea
2	Insecta	Apidae	Giant Honey bees	Apis dorsata
3	Insecta	Coccinellidae	Fungus-eating Ladybird	Illeis galbula
4	Insecta	Nymphalidae	Common Crow Butterfly	Euploea core
5	Insecta	Mantidae	Green Praying Mantis	Mantis spp 1
6	Insecta	Blattidae	Cockroach	Periplaneta americana (Linnaeus, 1758)
7	Insecta	Termitidae	Termites	Mastotermes spp
8	Insecta	Meloidae	Blister beetle	Hycleus
9	Insecta	Vespidae	Wasp	Vespula vulgaris
10	Insecta	Gryllidae	House Cricket Nymph	Acheta domesticus
11	Arachnida	Uloboridae	Spider	Uloborus
12	Arachnida	Araneidae	Spider	Cyclosa
13	Arachnida	Hersiliidae	Spider	Hersilia
14	Arachnida	Thomisidae	Yellow Stripe Spider	Thomisus
15	Arachnida	Pholcidae	Daddy Longleg Spider	Crossopriza
16	Arachnida	Buthidae	Little Black Scorpions	Orthochirus bicolor (Pocock)
17	Arachnida	Buthidae	Indian Red Scorpions	Mesobuthus tamulus tamulus
18	Arachnida	Scorpionidae	Indian Red Scorpions	Hottentotta pachyurus
19	Arachnida	Scorpionidae	Asian Forest Scorpion	Heterometrus xanthopus (Pocock)
20	Arachnida	Scorpionidae	Indian Black Scorpion	Deccanometrus phipsoni
21	Chilopoda	Scolopendridae	Gom	Scolopendra
22	Malacostraca	Potamidae	Asian Freshwater Crab	Nanhaipotamon
23	Malacostraca	-	Lobsters	Panulirus spp
24	Malacostraca	-	Prawn	Macrobrachium spp
25	Amphibia	Ichthyophiidae	Limb-less Amphibia	Ichthyophis spp
26	Amphibia	Bufonidae	Toads	Bufo spp
27	Amphibia	Ranidae	Bull Frogs	Sphaerotheca spp
28	Amphibia	Dicoglossidae	Fork-tongued Frogs	Limnonectes spp
29	Reptilia	Gekkonidae	Wall Lizard	Hemidactylus spp
30	Reptilia	Chamaeleonidae	Chameleon	Chamaeleon spp
31	Reptilia	Colubridae	Indian Rat Snake	Ptyas spp
32	Reptilia	Elapidae	Cobra	Naja naja
33	Aves	Corvidae	House Crow	Corvus splendens
34	Aves	Corvidae	Jungle Crow	Corvus culminatus
35	Aves	Passeridae	Sparrow	Passer domesticus
36	Aves	Cuculidae	Asian Koel	Eudynamys scolopaceus
37	Aves	Accipitridae	Black Eared Kite	Milvus lineatus

38	Aves	Sturnidae	Common Myna	Acridotheres tristis
39	Aves	Alcedinidae	White-throated Kingfisher	Halcyon smyrnensis
40	Aves	Phalacrocoracidae	Little Cormorant	Phalacrocorax spp
41	Aves	Threskiornithidae	Glossy Ibis	Plegadis spp
42	Mammalia	Bovidae	Jersey Cattle	Holstein Friesian
43	Mammalia	Bovidae	Buffalo	Buffalo spp
44	Mammalia	Muridae	Rat	Rattus rattus
45	Mammalia	Canidae	Common Dogs	Canis spp

IV. Discussion

The rich insect diversity reported in this study stresses the significance of Kesnand-Wadebolhai as a pollinator and decomposer habitat. The pollination process is supported by *Apis dorsata* and *Apis florea*, which affect both natural vegetation and crops (Kevan & Baker, 1983). The existence of predator insects like *Mantis spp.* and *Illeis galbula* implies a balanced ecosystem with natural pest control mechanisms (Sharad Giramkar et al., 2024). Also, the arachnid species recorded, such as *Mesobuthus tamulus tamulus* and *Hottentotta pachyurus*, imply the existence of stable microhabitats, which sustain scorpion populations (Polis, 1990).

Among vertebrates, the occurrence of amphibians like *Sphaerotheca* spp. and *Limnonectes* spp. implies the existence of freshwater sources, which are necessary for their breeding cycles (Wells, 2007). Reptilian fauna, such as *Naja naja* and *Ptyas* spp., signify the existence of a food web sustained by small mammals and frogs (Whitaker & Captain, 2004). The presence of birds like *Corvus splendens* and *Acridotheres tristis* signifies the ability of birds to adapt in human-altered environments (Ali & Ripley, 1983; Sharad Giramkar, 2023b). The high avifaunal and insect diversity reflect the ecological importance of the study area (Sharad Giramkar, 2025). Mammalian species registered, such as *Rattus rattus* and *Canis* spp., signify the interaction of wildlife with human settlements.

V. Conclusion

The study highlights the faunal diversity of Kesnand-Wadebolhai, emphasizing its rich biodiversity. Conservation efforts are essential to protect these species and maintain the ecological balance of the region.

Ethical Approval Statement

This study did not require ethical approval as it did not involve human participants or animal experimentation. The research was conducted following all applicable ethical guidelines and regulations.

Conflict of Interest

The authors declare that there are no conflicts of interest.

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Reference

1. Ali, S., & Ripley, S. D. (1983). *Handbook of the Birds of India and Pakistan*. Oxford University Press.
2. Gaston, K. J., & Spicer, J. I. (2004). *Biodiversity: An Introduction*. Blackwell Publishing.
3. Kevan, P. G., & Baker, H. G. (1983). Insects as Flower Visitors and Pollinators. *Annual Review of Entomology*, 28, 407-453.
4. Polis, G. A. (1990). *The Biology of Scorpions*. Stanford University Press. PP 241-256
5. Sala, O. E., Chapin, F. S., Armesto, J. J., Berlow, E., Bloomfield, J., Dirzo, R., ... & Wall, D. H. (2000). Global biodiversity scenarios for the year 2100. *Science*, 287(5459), 1770-1774.
6. Sharma, G., Singh, S., & Mishra, S. (2017). Biodiversity conservation in Maharashtra: An overview. *International Journal of Biodiversity and Conservation*, 9(4), 124-132.
7. Singh, S. P., & Kushwaha, S. P. S. (2006). Biodiversity conservation through traditional beliefs in India. *Current Science*, 91(1), 100-111.
8. Sharad Giramkar (2023 a). Checklist of animal diversity in Pirangut of Mulshi Tehsil, M/S, India. *Dogo Rangsang Research Journal*, 14(2), 316-320.
9. Sharad Giramkar (2023 b). Checklist of Animal Diversity In And Around Lawale, M/S, India, *Journal of Emerging Technologies and Innovative Research*, 9(9), 598-601

10. Sharad Giramkar, Anju Mundhe and Mahesh Joshi 2024. Fauna of Annasaheb Magar Mahavidyalaya Hadapsar Campus Pune, M/S, India. Journal of Emerging Technologies and Innovative Research, 11(3), 673-677.
11. Sharad Giramkar (2025). Urbanization and Faunal Diversity: A Systematic Checklist of Different Faunal Species in Kharadi-Wagholi, M/S, India. Uttar Pradesh Journal of Zoology, 46(8), 133-140. DOI: <https://doi.org/10.56557/upjoz/2025/v46i84900>
12. Wells, K. D. (2007). The Ecology and Behavior of Amphibians. University of Chicago Press.
13. Whitaker, R., & Captain, A. (2004). Snakes of India: The Field Guide. Draco Books.