

A Study of Avifaunal Diversity of Vadnagar Town of Mehsana District of Gujarat State

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Abstract: *This study was conducted between July 2024 to June 2025 on the bird diversity in the city of Vadnagar in the Mehsana district. Vadnagar is a historic city with ecotone topography, with 36 man-made lakes and ponds connected by channels. In total, 77 species of birds belonging to 16 orders and 35 families were observed during the survey. The findings reveal a rich diversity of birds, including resident and migratory species, which are affected by habitat availability and seasonal changes. Among the documented species of birds in the current survey, the IUCN classified 73 as least concern, 02 as vulnerable and 02 as near-threatened species.*

Keywords: Avifaunal diversity, Vadnagar, Species, Migratory, Diversity

1. Introduction

Birds are one of the vital components of biodiversity and population very sensitive indicator of pollution in both terrestrial and aquatic ecosystem (Datta 2016). Unfortunately global diversity of birds is decreasing incessantly primarily due to anthropogenic disturbances (Rapoport, 1993) and climate change (Chen et al., 2011; Sekercioglu et al., 2012). Migratory birds are a vital biotic element of the wetland environment as they occupy numerous trophic tiers within side the meals net of wetland (Malik and Joshi 2013).

Now-a days, avifaunal diversity has been decreasing due to the destruction of natural habitats and human disturbances. Random destruction of natural habitats by cutting nesting trees and foraging plants for commercial use of woods and lands are the main factor responsible for narrow down in avian foraging habitat and their nesting sites (Vala and Trivedi 2018).

Present study focuses on avifaunal diversity of Vadnagar town which is located at northern part of Gujarat. Vadnagar is a historic city with ecotone topography & area of 7.08 sq. Km, with 36 man-made lakes and ponds connected by

channels. Vadnagar is potential site for wetland conservation approaches. More than 1250 species of birds were recorded in Indian subcontinent, among the various habitats (Ali et al.1983). Earlier study shows record of 46 bird species at Amadhu Lake, Vadnagar (Patel, 2016). Present Study reveals different birds from respective taxonomical groups with significant diversity.

2. Study Area

Vadnagar is an urban town located in Mehsana district of Gujarat, well known for historic importance and cultural heritage. Vadnagar is located at 23.78°N 72.63°E. It covers an area of about 7.08 km² (2.73 sq mi) and has an average elevation of 143 m (469 ft) above the mean sea level. The topography of town is rich with water bodies and making it suitable for avifauna to thrive. Among all water bodies, six sites were selected across Vadnagar viz.,

- 1) Sharmishtha lake
- 2) Ambaji kotha
- 3) Vishnupuri Kund
- 4) Amdu pond
- 5) Tana-Riri pond
- 6) Maniyar pond

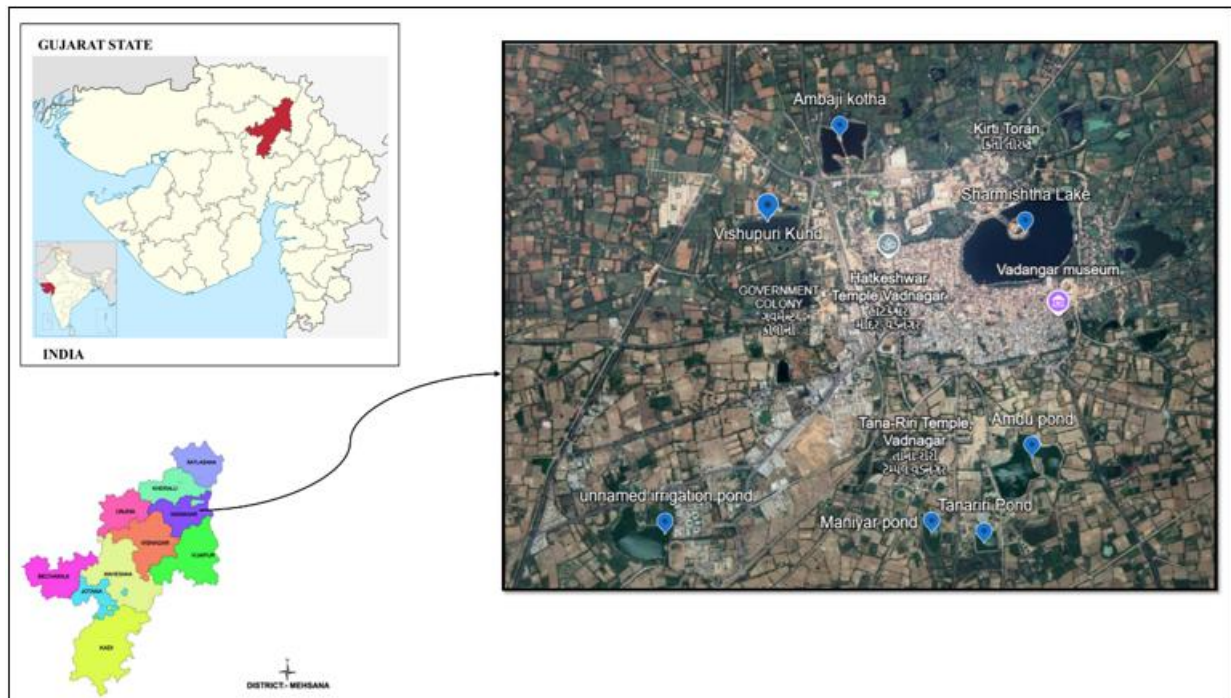


Figure 1: Study area

3. Methodology

The survey of bird's population was made by regular survey method and frequent visit to various ponds in Vadnagar during July, 2024 to June 2025,2024. All sites were visited four times in a month for study period. Birds observation carried out with the help of field binocular (8X42), during morning and evening hours viz. 06:00 to 10:00 am and 16:00 to 19:00 pm, respectively. And whole day observation also carried out for some days. Identification of different bird species was carried out by noting down the various characters and with the help of keynotes from the standard book (Richard et al., 1999).

4. Result and Discussion

In total, 74 species of birds belonging to 15 orders and 34 families were observed during the survey. The findings reveal a rich diversity of birds, including resident and migratory species, which are affected by habitat availability and

seasonal changes. The dominant taxonomic group was order Passeriformes with 8 families and 17 species, also family Anatidae and Ardeidae are dominant family with 8 species each.

The preliminary observation records that according to IUCN red data list 94% of total recorded species are enlisted as Least Concerned (LC), 3% as Vulnerable (VU) and 3% as Near Threatened (NT). Vulnerable Species includes Common Pochard (*Aythya ferina*) and River Tern (*Sterna aurantia*), while Near Threatened species includes Oriental Darter (*Anhinga melanogaster*) and Bar-tailed Godwit (*Limosa lapponica*).

Among the documented species of birds in the current survey, the IUCN classified 70 as least concern, 02 as vulnerable and 02 as near-threatened species. Major bird groups are omnivore and carnivores due to availability of feeding grounds in study area. Around 34% species are migratory & residential migratory showing probable seasonal variation in population dynamics.

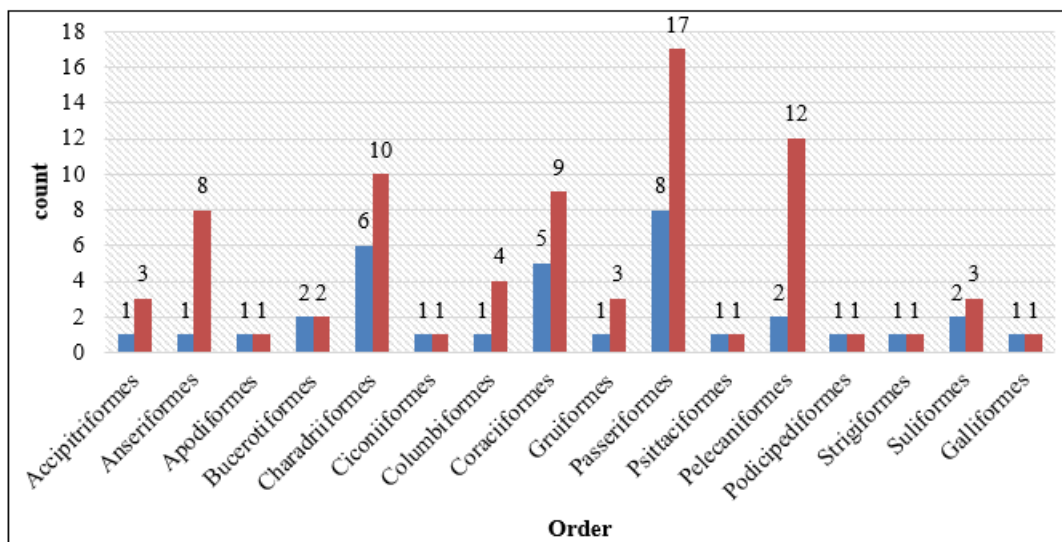


Figure 2: Orders with number of families and species

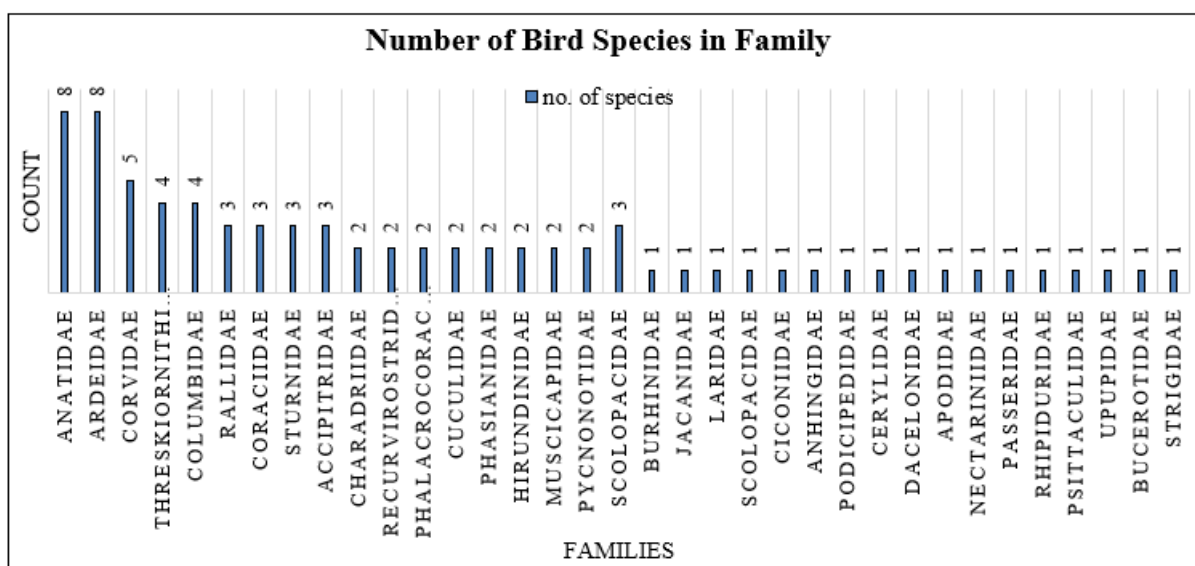


Figure 3: Chart showing record of number of species in respective families

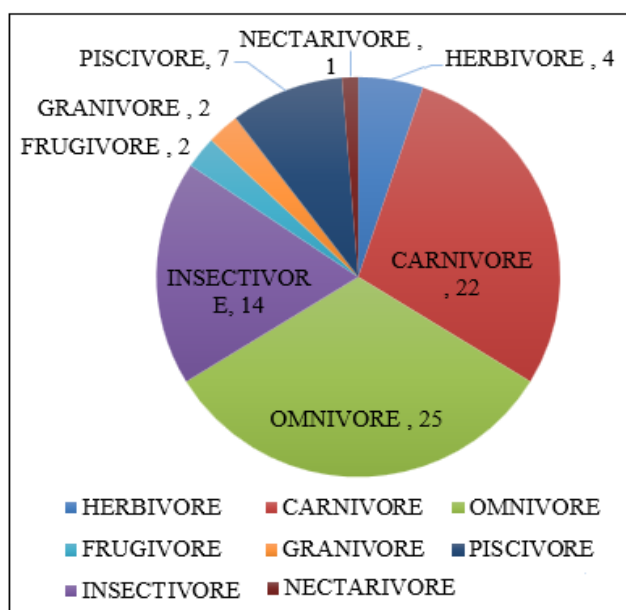


Figure 4: Feeding guild of recorded species

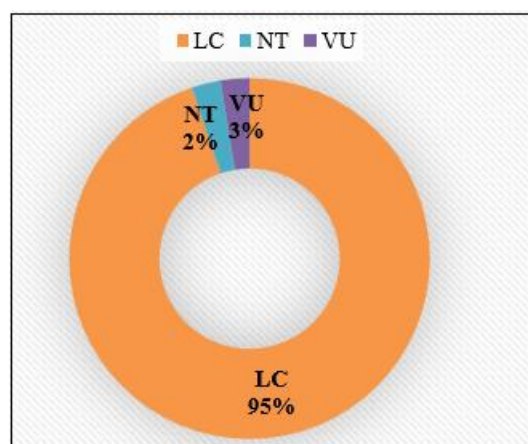


Figure 5: IUCN status of recorded species

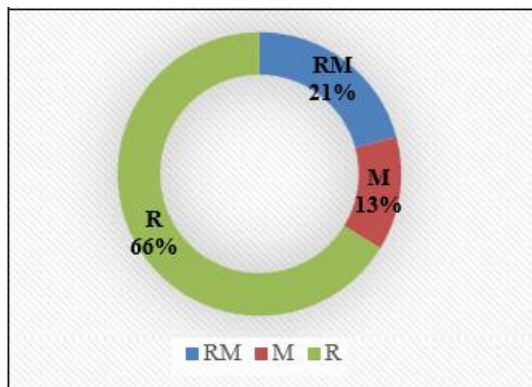


Figure 6: Migratory status of recorded species

RM- Residential Migratory, M- Migratory, R- Residential

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Author Profile



Makwana Shrikant Valjibhai received the B.Sc. and M.Sc. degrees in Zoology from Gujarat University in 2015 and 2017, respectively. During 2021-2023, he served in School of Science, Birsa Munda Tribal University, Rajpipla, Gujarat working on freshwater ecology, and avifauna. He is currently posted as Assistant professor in Zoology at Government Science College, Vadnagar, Gujarat.