**Diversity of Avifauna in Musiri Taluk, Tiruchirappalli District,**

**Tamil Nadu, India**

**Abstract**

The present study investigates the avifaunal diversity of a part of Musiri Taluk, documenting a total of 120 bird species across 21 orders and 56 families. The order *Passeriformes* emerged as the most species-rich, comprising 26 families, followed by *Charadriiformes* with five families. Other notable orders include *Coraciiformes* (three families) and *Accipitriformes*, *Strigiformes*, *Pelecaniformes*, and *Piciformes*, each consisting of two families. Another fourteen orders each represented a single family. Based on the IUCN Red List, out of the 120 species recorded, 118 species were classified as Least Concern, while two species *viz.,* the Red-necked Falcon (*Falco chicquera*) and the Pallid Harrier (*Circus macrourus*), were categorized as Near Threatened. Among the species, 77% were resident, and 23% were migratory, with key migratory species including the Pallid Harrier and Alpine Swift (*Tachybaptus melba*). The study further categorized the bird species based on their feeding habits as insectivores (36.60%), followed by omnivores (24.20%) and carnivores (22.50%). Other feeding types included granivores (11.70%), nectivores (2.50%), and frugivores (1.70%), with only a single piscivorous species, the Little Cormorant (*Microcarbo niger*), accounting for 0.80% of the total species. In line with the Wildlife Protection Act, 1972, 15 species were listed under Schedule I, and 103 species under Schedule II. Notably, the Rock Pigeon (*Columba livia*) and House Crow (*Corvus splendens*) are excluded from the Act. This study provides valuable insights into the avian diversity, distribution, and feeding behaviours in the region, offering important information for future conservation efforts.

**Keywords:** Avifauna; Conservation; Diversity; Grassland; Tiruchirappalli

**Introduction**

 Birds are one of the most well-known groups of vertebrates, found in nearly every habitat worldwide, and they provide numerous ecosystem services (Whelan et al., 2008). There are approximately 11,000 bird species globally (BirdLife International, 2024). The Indian subcontinent, with its diverse climatic conditions, varied habitats, and extensive vegetation, supports a wide range of avifauna, including many endemic species, throughout the year. This region is home to around 1,300 bird species, accounting for over 13% of the world's bird species (Grimmett et al., 2011; Ali, S., 2002). Tamil Nadu, in particular, is known for its rich avian diversity, with over 450 species, including several endemic and conservation-prioritized species (Islam and Rahmani, 2004). Birds also serve as valuable subjects for studying various ecological and conservation-related questions (Urfi, 2003). Recent research has focused on the effects of climate change on birds and their responses to the ongoing environmental challenges (Van Buskirk et al., 2010; Gardner et al., 2011). However, studies on the avifauna of agricultural lands and economically important crop plantations, such as tea, rubber, and coconut, remain scarce. Moreover, the role of human-altered landscapes in bird conservation has been largely overlooked (Kottawa-Arachchi et al., 2010). The conversion of vast areas of grassland and shrub-steppe vegetation into agricultural land and urban development has significantly reduced the available habitat for breeding birds (Herkert, 1994; Best et al., 1995). Additionally, landscape changes have increased the exposure of bird populations to nest predation and brood parasitism (Robinson et al., 1995; Blouin-Demers and Weatherhead, 2001). Earlier studies on avifauna diversity in Tiruchirappalli district have been conducted across different landscapes and wetlands. These include studies on the birdlife of Koothappar Big Tank (Siva and Neelanarayanan, 2017), birds in and around Puthanampatti Lake (Siva and Neelanarayanan, 2019a), avifaunal diversity in a contaminated wetland (Lakshmanan et al., 2020), and observations at Thinnanur Lake (Siva and Neelanarayanan, 2021). Other research has focused on various aspects, such as the avifaunal richness and abundance along an urban-rural gradient with an emphasis on vegetative and anthropogenic factors (Menon et al., 2016), territorial birds in agricultural areas at the Sugarcane Research Station, Sirugamani (Mathialagan et al., 2022), the avifauna checklist of the Nehru Memorial College campus (Siva and Neelanarayanan, 2022), and the diversity of avifauna during different developmental stages of paddy crops in Tiruchirappalli district (Siva and Neelanarayanan, 2019b). Siva *et al.,* (2019) also reported on the diet of the Indian Eagle Owl (*Bubo bengalensis*), including the birds in its prey list, from the Tiruchirappalli district. Building on these prior studies, the current research aims to further explore the avifauna diversity in the region and same is reported.

**Material and Methods**

**Study Area**

The present study was carried out in a section of Musiri Taluk (50 sq. km) within Tiruchirappalli district, Tamil Nadu (Fig. 1). The study area mainly consists of revenue land, with villages scattered throughout. The landscape features a variety of ecological environments, including dry grasslands, scrub forests, agricultural fields, human settlements, and hillock habitats. The villages included in the study are *Peruganur* (11.120177°N 78.420629°E)*, Devanoor* (11.100662°N 78.443512°E)*, Devanoor* *Puthur* (11.109485°N 78.433527°E), and *Paithamparai* (11.071931°N 78.460729°E).

**Data collection**

The data were collected based on random Line transect surveys conducted from January 2019 to April 2022 *i.e.,* for 40 months. The surveys were carried out between 6 a.m. and 6 p.m., once in a week except during the COVID-19 lockdown periods during April 2020 and May 2020. Additionally, data on occasional bird sightings during non-birding trips were also included. Birds were observed using an Olympus 8x40 binocular, and photographs were captured with a Nikon D3300 camera. All species identifications were made according to the references provided by Grimmett et al. (2011). In addition, the statuses of threatened and migratory birds were taken from the checklist of IUCN Red List (IUCN 2025). The foraging and feeding behaviours of birds were classified based on the information from “Birds of the World” ([https://birdsoftheworld.org](https://birdsoftheworld.org/)), offering insights into their feeding habits, preferred food sources, and foraging strategies. The results of the present study are presented in the form of Tables and graphs.

**Fig. 1:** Location of the study area



**Results**

 The results of present study on the avifaunal diversity of the selected area revealed that the area has a total of 120 bird species across 21 orders and 56 families (vide Table1; Fig. 2). The order Passeriformes, comprising 26 families, was the most species-rich order in the area, followed by Charadriiformes, which includes five families. Coraciiformes includes three families, while Accipitriformes, Strigiformes, Pelecaniformes and Piciformes each comprise two families. The remaining fourteen orders namely Cuculiformes, Columbiformes, Apodiformes, Galliformes, Falconiformes, Caprimulgiformes, Anseriformes, Podicipediformes, Ciconiiformes, Suliformes, Gruiformes, Pterocliformes, Psittaciformes and Bucerotiformes were present each contain a single family (vide Table 1; Fig. 3). The assessment of avian species in the study area, based on the IUCN Red List Category and Criteria, reported that out of 120 bird species, 118 were classified as Least Concern (LC). The remaining two species, the Red-necked Falcon (*Falco chicquera*) and the Pallid Harrier (*Circus macrourus*), were categorized as Near Threatened (NT). Out of the 120 species, 92 (77%) were resident species, while the remaining 28 (23%) were migratory (vide Table1; Fig. 4). Key migratory species included the Pallid Harrier (*Circus macrourus*), Alpine Swift (*Tachybaptus melba*), Eurasian Wryneck (*Jynx torquilla*), Lesser Whitethroat (*Curruca curruca*), Chestnut-tailed Starling (*Sturnia malabarica*), Blue Rock-Thrush (*Monticola solitarius*), Asian Brown Flycatcher (*Muscicapa dauurica*), Brown-breasted Flycatcher (*Muscicapa muttui*), Richard's Pipit (*Anthus richardi*), and Grey-necked Bunting *(Emberiza buchanani*).

**Table 1: List of birds observed and recorded in the chosen study area during January 2019 through April 2022.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Family** | **Common Name** | **Scientific Name** | **IUCN Status** | **Status** | **Food Habit** | **WLPA, 1972****(Amended as on 2023)****Schedule** |
| Phasianidae | Grey Francolin | *Francolinus pondicerianus* | LC | RE | O | II |
| Indian Peafowl | *Pavo cristatus* | LC | RE | O | I |
| Anatidae | Indian Spot-billed Duck | *Anas poecilorhyncha* | LC | RE | O | II |
| Podicipedidae | Little Grebe | *Tachybaptus ruficollis* | LC | RE | C | II |
| Ciconiidae | Asian Openbill | *Anastomus oscitans* | LC | RE | C | II |
| Threskiornithidae | Glossy Ibis | *Plegadis falcinellus* | LC | RE | C | II |
| Ardeidae | Indian Pond-Heron | *Ardeola grayii* | LC | RE | C | II |
| Little Egret | *Egretta garzetta* | LC | RE | C | II |
| Cattle Egret | *Bubulcus ibis* | LC | RE | I | II |
| Phalacrocoracidae | Little Cormorant | *Microcarbo niger* | LC | RE | P | II |
| Falconidae | Red-necked Falcon | *Falco chicquera* | NT | RE | C | I |
| Eurasian Kestrel | *Falco tinnunculus* | LC | M | C | II |
| Elanidae | Black-winged Kite | *Elanus caeruleus* | LC | RE | C | II |
| Accipitridae | Black Kite | *Milvus migrans* | LC | RE | C | II |
| Brahminy Kite | *Haliastus indus* | LC | RE | C | I |
| Black Eagle | *Ictinaetus malaiensis* | LC | RE | C | I |
| Oriental Honey-buzzard | *Pernis ptilorhynchus* | LC | RE | C | II |
| Short-toed Snake Eagle | *Circaetus gallicus* | LC | RE | C | I |
| Pallid Harrier | *Circus macrourus* | NT | M | C | I |
| Shikra | *Accipiter badius* | LC | RE | C | I |
| White-eyed Buzzard | *Butastur teesa* | LC | RE | C | I |
| Booted Eagle | *Hieraaetus pennatus* | LC | M | C | I |
| Rallidae | White-breasted Waterhen | *Amaurornis phoenicurus* | LC | RE | O | II |
| Burhinidae | Indian Thick-knee | B*urhinus indicus* | LC | RE | O | II |
| Turnicidae | Barred buttonquail | *Turnix suscitator* | LC | RE | O | II |
| Charadriidae | Yellow-wattled Lapwing | *Vanellus malabaricus* | LC | RE | I | II |
| Red-wattled Lapwing | *Vanellus indicus* | LC | RE | I | II |
| Scolopacidae | Common Sandpiper | *Actitis hypoleucos* | LC | M | C | II |
| Wood Sandpiper | *Tringa glareola* | LC | M | C | II |
| Green Sandpiper | *Tringa ochropus* | LC | M | I | II |
| Glareolidae | Indian Courser | *Cursorious coromandelicus* | LC | RE | I | I |
| Pteroclidae | Chestnut-bellied Sandgrouse | *Pterocles exustus* | LC | RE | O | II |
| Columbidae | Rock Pigeon (Feral Pigeon) | *Columba livia* | LC | RE | G | - |
| Eurasian Collared-Dove | *Streptopelia decaocto* | LC | RE | G | II |
| Red Collared-Dove | *Streptopelia tranquebarica* | LC | M | G | II |
| Spotted Dove | *Spilopelia chinensis* | LC | RE | G | II |
| Laughing Dove | *Spilopelia senegalensis* | LC | RE | G | II |
| Psttiaculidae | Rose-ringed Parakeet | *Psittacula krameri* | LC | RE | G | II |
| Cuculidae | Jacobin Cuckoo | *Clamator jacobinus* | LC | RE | O | II |
| Common Hawk-Cuckoo | *Hierococcyx varius* | LC | RE | O | II |
| Grey-bellied Cuckoo | *Cacomantis passerinus* | LC | M | I | II |
| Blue-faced Malkoha | *Phaenicophaeus viridirostris* | LC | RE | O | II |
| Sirkeer Malkoha | *Taccocua leschenaultii* | LC | RE | O | II |
| Asian Koel | *Eudynamys scolopaceus* | LC | RE | O | II |
| Greater Coucal (Southern) | *Centropus sinensis* | LC | RE | O | II |
| Tytonidae | Asian Barn Owl | *Tyto alba* | LC | RE | C | I |
| Strigidae | Indian Scops-Owl | *Otus bakkamoena* | LC | RE | C | II |
| Spotted Owlet | *Athene brama* | LC | RE | C | II |
| Indian Eagle-Owl | *Bubo bengalensis* | LC | RE | C | I |
| Brown Fish-Owl | *Ketupa zeylonesis* | LC | RE | C | I |
| Mottled Wood-Owl | *Strix ocellata* | LC | RE | C | I |
| Caprimulgidae | Indian Nightjar | *Caprimulgus asiaticus* | LC | RE | I | II |
| Savanna Nightjar | *Caprimulgus affinis* | LC | RE | I | II |
| Apodidae | Little Swift | *Apus affinis* | LC | RE | I | II |
| Asian Palm-Swift | *Cypsiurus balasiensis* | LC | RE | I | II |
| Alpine Swift | *Tachybaptus melba* | LC | M | I | II |
| Upupidae | Eurasian Hoopoe | *Upupa epops* | LC | RE | I | II |
| Coraciidae | Indian Roller | *Coracias benghalensis* | LC | RE | C | II |
| Alcedinidae | White-throated Kingfisher | *Halcyon smyrnensis* | LC | RE | C | II |
| Meropidae | Asian Green Bee-eater | *Merops orientalis* | LC | RE | I | II |
| Blue-tailed Bee-eater | *Merops philippinus* | LC | M | I | II |
| Megalaimidae | Coppersmith Barbet | *Psilopogon haemacephalus* | LC | RE | F | II |
| Picidae | Eurasian Wryneck | *Jynx torquilla* | LC | M | O | II |
| Black-rumped Flameback | *Dinopium benghalense* | LC | RE | I | II |
| Vangidae | Common Woodshrike | *Tephrodornis pondicerianus* | LC | RE | I | II |
| Artamidae | Ashy Woodswallow | *Artamus fuscus* | LC | RE | I | II |
| Aegithinidae | Common Iora | *Aegithina tiphia* | LC | RE | I | II |
| Campephagidae | Small Minivet | *Pericrocotus cinnamomeus* | LC | RE | I | I |
| Laniidae | Brown Shrike | *Lanius cristatus* | LC | M | I | II |
| Bay-backed Shrike | *Lanius vittatus* | LC | M | I | II |
| Dicruridae | Black Drongo | *Dicrurus macrocercus* | LC | RE | I | II |
| Oriolidae | Indian Golden Oriole | *Oriolus kundoo* | LC | RE | O | II |
| Monarchidae | Indian Paradise-Flycatcher | *Terpsiphone paradisi* | LC | M | I | II |
| Corvidae | Rufous Treepie | *Dendrocitta vagabunda* | LC | RE | O | II |
| House Crow | *Corvus splendens* | LC | RE | O | - |
| Large-billed Crow | *Corvus macrorhynchos* | LC | RE | O | II |
| Hirundinidae | Barn Swallow | *Hirundo rustica* | LC | M | I | II |
| Red-rumped Swallow | *Cecropis daurica* | LC | M | I | II |
| Alaudidae | Jerdon's Bushlark | *Mirafra affinis* | LC | RE | O | II |
| Rufous-tailed Lark | *Ammomanes phoenicura* | LC | RE | O | II |
| Ashy-crowned Sparrow-Lark | *Eremopterix griseus* | LC | RE | O | II |
| Pycnonotidae | Red-vented Bulbul | *Pycnonotus cafer* | LC | RE | O | II |
| White-browed Bulbul | *Pycnonotus luteolus* | LC | RE | O | II |
| Cisticolidae | Jungle Prinia | *Prinia sylvatica* | LC | RE | I | II |
| Ashy Prinia | *Prinia socialis* | LC | RE | I | II |
| Plain Prinia | *Prinia inornata* | LC | RE | I | II |
| Zitting Cisticola | *Cisticola juncidis* | LC | RE | I | II |
| Common Tailorbird | *Orthotomus sutorius* | LC | RE | I | II |
| Acrocephalidae | Booted Warbler | *Iduna caligata* | LC | M | I | II |
| Sykes's Warbler | *Iduna rama* | LC | M | I | II |
| Blyth's Reed Warbler | *Acrocephalus dumetorum* | LC | M | I | II |
| Phylloscopidae | Greenish Warbler | *Phylloscopus trochiloides* | LC | M | I | II |
| Sylviidae | Lesser Whitethroat | *Curruca curruca* | LC | M | I | II |
| Leiothrichidae | Yellow-billed Babbler | *Argya affinis* | LC | RE | O | II |
| Large Grey Babbler | *Argya malcolmi* | LC | RE | I | II |
| Sturnidae | Common Myna | *Acridotheres tristis* | LC | RE | O | II |
| Chestnut-tailed Starling | *Sturnia malabarica* | LC | M | O | II |
| Brahminy Starling | *Sturnia pagodarum* | LC | RE | O | II |
| Rosy Starling | *Pastor roseus* | LC | M | O | II |
| Muscicapidae | Oriental Magpie-Robin | *Copsychus saularis* | LC | RE | I | II |
| Indian Robin | *Copsychus fulicatus* | LC | RE | I | II |
| Pied Bushchat | *Saxicola caprata* | LC | RE | I | II |
| Blue Rock-Thrush | *Monticola solitarius* | LC | M | O | II |
| Asian Brown Flycatcher | *Muscicapa dauurica* | LC | M | I | II |
| Brown-breasted Flycatcher | *Muscicapa muttui* | LC | M | I | II |
| Dicaeidae | Pale-billed Flowerpecker | *Dicaeum erythrorhynchos* | LC | RE | F | II |
| Nectariniidae | Purple-rumped Sunbird | *Leptocoma zeylonica* | LC | RE | N | II |
| Purple Sunbird | *Cinnyris asiaticus* | LC | RE | N | II |
| Loten's Sunbird | *Cinnyris lotenius* | LC | RE | N | II |
| Passeridae | House Sparrow | *Passer domesticus* | LC | RE | G | II |
| Yellow-throated Sparrow | *Gymnoris xanthocollis* | LC | RE | G | II |
| Ploceidae | Baya Weaver | *Ploceus philippinus* | LC | RE | G | II |
| Estrildidae | Indian Silverbill | *Euodice malabarica* | LC | RE | G | II |
| White-rumped Munia | *Lonchura striata* | LC | RE | G | II |
| Scaly-breasted Munia | *Lonchura punctulata* | LC | RE | G | II |
| Tricoloured Munia | *Lonchura malacca* | LC | RE | G | II |
| Motacillidae | White-browed Wagtail | *Motacilla maderaspatensis* | LC | RE | I | II |
| Richard's Pipit | *Anthus richardi* | LC | M | I | II |
| Paddyfield Pipit | *Anthus rufulus* | LC | RE | I | II |
| Emberizidae | Grey-necked Bunting | *Emberiza buchanani* | LC | M | G | II |

IUCN Status (<https://www.iucnredlist.org>): LC - Least Concern, NT – Near Threatened;

Status (<https://www.iucnredlist.org>): RE – Resident, M – Migratory;

Food Habit (<https://birdsoftheworld.org>): O – Omnivorous, C – Carnivorous, P – Piscivorous, I – Insectivorous, G – Granivorous, F – Frugivorous, N – Nectivorous;

WLPA 1972 - Wildlife Protection Act 1972 (amended as on 2023)

**Fig. 2:** **Number of families observed and recorded in the chosen study area based on orders during January 2019 through April 2022.**

**Fig. 3:** **Number of bird species observed and recorded in the chosen study area based on orders during January 2019 through April 2022.**

 Further, the observed and recorded bird species were classified into seven groups based on the food habits (vide Fig. 5). A total of 44 species (36.60%) were classified as insectivores, making them the most common feeding strategy observed and recorded. The next most common feeding type were omnivores, with 29 species (24.20%) exhibiting this behaviour. Carnivores were also prominent, with 27 species (22.50%) identified as such. Additionally, 14 species (11.70%) were categorized as granivores, while 3 species (2.50%) were nectivorous. Frugivores accounted for 2 species (1.70%), and only a single species, the Little Cormorant (*Microcarbo niger*), which represented 0.80% of the total species, was Piscivorous (Table 1; Fig. 3). According to the Wildlife Protection Act, 1972, which has been updated in April 2023, out of the 120 bird species recorded in the investigation, 15 species are listed under Schedule I, and 103 species are listed under Schedule II. However, the Rock Pigeon (*Columba livia*) and House Crow (*Corvus splendens*) are not included in the Wildlife Protection Act, 1972.

**Fig. 4: The observed and documented status of birds in the chosen study area during January 2019 through April 2022.**

**Fig. 5: The observed and recorded birds which were categorised into seven based on their food habits in the chosen study area during January 2019 through April 2022.**

**Discussion**

Monitoring the diversity and population status of indicator species is essential for assessing ecosystem health, identifying conservation priorities, and guiding decision-making in conservation efforts (McComb *et al.,* 2010; Fitzpatrick & Rodewald 2016). Birds are often used as monitoring targets due to their presence in a wide range of environments and their ability to live in various ecological niches within these habitats (Kahl *et al.,* 2021). The species composition of a specific area or community is linked to the available resources, including the physical structure of the habitat, food availability, and biotic interactions (Terdalkar *et al.,* 2005). Our findings demonstrate that the study area supports similarly diverse grassland bird communities year-round and maintains comparable abundances of most grassland songbird species, including those of highest conservation concern. We observed higher numbers of individuals such as the Common Myna (*Acridotheres tristis*), followed by the House Crow (*Corvus splendens*), Indian Peafowl (*Pavo cristatus*), Ashy-crowned Sparrow-Lark (*Eremopterix griseus*), and Blue-tailed Bee-eater (*Merops philippinus*). These results suggest that the study area provides the necessary conditions for the recorded avifauna. Similar studies have been conducted in Gujarat, such as those by Parihar *et al*., (2020) and Vala *et al*., (2020). It is obvious that their findings largely emphasize waterbirds rather our results suggest a higher prevalence of terrestrial birds compared to waterbirds, indicating a different pattern in bird diversity and distribution.

Siva and Neelanarayanan (2021) documented 102 bird species at Thinnanur Lake in Tiruchirappalli District, and their findings closely align with our results. In the present study, two species are categorized as Near Threatened by the IUCN, the Red-necked Falcon (*Falco chicquera*) and the Pallid Harrier (*Circus macrourus*). Both these bird species were recorded in both studies. Additionally, Lakshmanan et al. (2020) compiled a checklist of 64 bird species from the polluted *Chinna Eri* in Thuraiyur, where common species recorded in urban areas also appeared in our findings. Siva and Neelanarayanan (2017) reported the first sighting of the Grey-necked Bunting (*Emberiza buchanani*) at Devanoor Puthur, which is one of our study locations, and we also documented this species in the same area. According to Aloysius *et al.,* (2021), the maximum recorded abundance of the Indian Courser (*Cursorius coromandelicus*) in Deft Island, Sri Lanka was 18 ± 4.64 individuals. However, in our study at Devanoor Puthur, we observed an impressive presence of over 26 individuals in just one day. This observation indicates that the current study's findings surpass the abundance reported in the previous research. In another study we also documented the food composition of the Indian Eagle Owl (*Bubo bengalensis*) (Siva *et al.,* 2019). Furthermore, Muthusamy *et al.,* (2024) reported the home range of the Indian Eagle Owl (*Bubo bengalensis*) in the same locality, while Lakshmanan *et al.,* (2024) provided details on the diet of the Brown Fish Owl (*Ketupa zeylonensis*) in the same area.

The current survey provides valuable insights into the diversity and community dynamics of the avifauna, as well as its interaction with the environmental conditions of the area. These findings contribute to the management and conservation of the habitat, helping to preserve the rich avifaunal diversity within the region. Moreover, this study emphasizes the importance of continued monitoring and further research to understand the ecological relationships and potential conservation strategies required for maintaining a healthy and diverse bird community.

**Conclusion**

The present study on the avifaunal diversity of the selected area has identified 120 bird species, distributed across 21 orders and 56 families, showcasing a rich and diverse birdlife. The order *Passeriformes* emerged as the most species-rich, highlighting the prominence of passerines in the region. This finding provides important insight into the ecological structure of the local avian community. Notably, a majority of species (77%) are resident birds, while a substantial portion (23%) are migratory, including key species like the Pallid Harrier (*Circus macrourus*) and Alpine Swift (*Tachybaptus melba*). The study also underscores the importance of legal protection for bird species. A significant proportion of the species in the region are listed under the Wildlife Protection Act, 1972, offering legal safeguards. However, the omission of species like the Rock Pigeon (*Columba livia*) and House Crow (*Corvus splendens*) from this list calls for a reassessment of their conservation status. Establishing a long-term monitoring program to track changes in species populations, particularly the Near Threatened species, such as the Pallid Harrier and Red-necked Falcon. Targeted conservation programs should be initiated for migratory species, especially those that are rare or face threats during their migratory routes. Special attention should be paid to habitat preservation and management to ensure that these species have safe migratory corridors. A more detailed investigation into the relationship between food habits and habitat preferences could provide deeper insight into the ecological niches of different species. This could inform habitat restoration and management efforts to support the most diverse food strategies. Increased public awareness programs on the importance of local bird species, their roles in ecosystems, and the significance of migratory birds could help foster community-driven conservation initiatives. Through these efforts, the preservation of avifaunal diversity in the study area can be better ensured, contributing to broader conservation goals in the region.

Disclaimer (Artificial intelligence)

Option 1: Applicable

Author(s) hereby declares that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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