

AN INVENTORY OF BIRD ASSEMBLAGES IN THE KADALUNDI–VALLIKUNNU COMMUNITY RESERVE, KERALA

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ABSTRACT

Avian communities serve as reliable indicators of ecosystem health and play an important role in maintaining ecological functions, particularly within wetland environments that support both resident and migratory species. The Kadalundi–Vallikkunnu Community Reserve in Kerala comprises a mosaic of coastal habitats, including mudflats, mangrove patches, sandy shorelines, and shallow estuarine waters, and is internationally recognized for its importance to migratory shorebirds. To evaluate bird species diversity and assemblage structure, systematic surveys were conducted between October 2024 and February 2025. The study employed total count census methods along with direct visual and auditory observations, aided by standard identification guides and expert verification. A total of 28 bird species representing 16 families were recorded during the survey period. Members of the family Ardeidae were most abundant, accounting for six species, followed by Alcedinidae and Scolopacidae with three species each. Several migratory shorebirds, including sandpipers and shanks, were also observed. When compared with previously published records, the present findings suggest a decline in migratory shorebird occurrence, potentially linked to habitat alteration, pollution pressures, and changing climatic conditions. The study emphasizes the urgent need for wetland habitat restoration, mangrove protection, and increased community engagement, to sustain avian diversity, ecosystem functions, and nature-based tourism in the reserve.

Keywords: *Avian community, wetland, Ardeidae, Alcedinidae, Scolopacidae*

INTRODUCTION

Birds (Class Aves) are widely recognised as sensitive indicators of environmental change and habitat quality due to their ecological diversity, mobility, and position in food webs (Bibby et al., 2000). Wetland ecosystems, in particular, support a high diversity of avifauna by providing essential resources such as feeding, nesting, and roosting habitats for both resident and migratory species. Coastal wetlands play a crucial role along migratory flyways, offering stopover and wintering grounds for shorebirds and waterbirds.

The Kadalundi–Vallikkunnu Community Reserve, located along the Malabar Coast of Kerala, is an ecologically important coastal wetland comprising estuarine waters, mudflats, mangroves, sandy beaches, and shallow water bodies. The reserve is well known for supporting migratory shorebirds, especially during the winter season, and has been designated as a protected area due to its avifaunal significance. Mangrove vegetation, particularly *Acanthus ilicifolius*, contributes to habitat complexity by providing shelter and foraging opportunities for a variety of bird species.

Although the reserve is recognised for its importance to birds, detailed and updated

documentation of avian species composition and family-wise distribution remains limited. Baseline studies are essential for detecting changes in avian assemblages over time and for formulating effective conservation and management strategies. The present study aims to document the avian diversity of the Kadalundi–Vallikkunnu Community Reserve, analyse species composition and family-wise representation, and assess the occurrence of migratory birds within the wetland ecosystem

MATERIALS AND METHODS

The present study was conducted at the Kadalundi–Vallikkunnu Community Reserve, situated in Kozhikode District, Kerala, along the southwest coast of India. The reserve encompasses a mosaic of habitats including estuarine regions, intertidal mudflats, mangrove patches, sandy shorelines, shallow waters, and adjacent human-influenced landscapes such as coconut plantations. These diverse habitat types collectively support a wide range of avian species. Data collection for the present study was done during the period of October 2024 to February 2025, corresponding to the migratory season. Birds were recorded using direct observation and total count census methods. Observations were made during daylight hours when bird activity was high. Species identification was based on visual sightings and auditory cues, using standard field guides (Ali, 2002; Ali and Ripley, 1983; Grimmett et al., 1999), and identifications were further validated through expert consultation when required. All observed species were recorded and classified family-wise to analyse avian composition.

RESULTS

Species Richness and Family Composition: The avifaunal survey conducted at the Kadalundi–Vallikkunnu Community Reserve recorded a total of 28 bird species belonging to 26 families (Table 1, Fig. 1) during the study period (October 2024–February 2025). The observed species comprised both resident and migratory birds, indicating the importance of the reserve as a multi-season habitat. Among the recorded families, Ardeidae was the most species-rich (Fig 2), represented by six species, followed by Alcedinidae and Scolopacidae with three species each followed by Accipitridae (2 spp), Corvidae (2 spp) and Columbidae (2 spp). The remaining families were represented by one species each, contributing to the overall diversity of the avian assemblage.

Occurrence of Migratory Birds: Migratory shorebirds, including sandpipers and shanks, were recorded

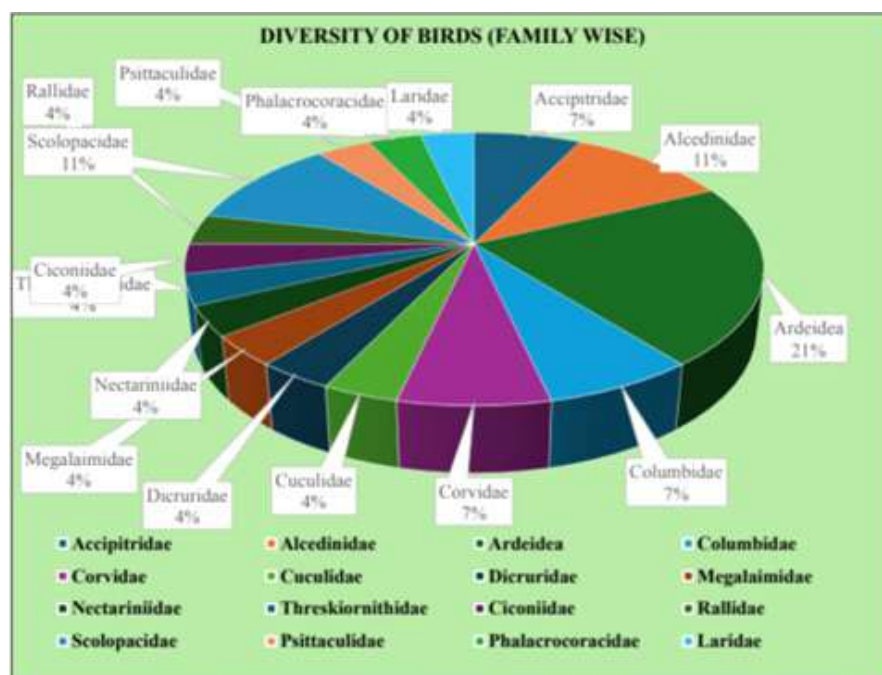


Fig. 1: Diversity of the Birds (Family wise)

during the survey period. These species were primarily observed utilising the intertidal mudflats and shallow water zones of the reserve for feeding and roosting. Their presence confirms the role of the Kadalundi–Vallikkunnu Community Reserve as a seasonal habitat for migratory birds along coastal flyways.

Table 1: List of Birds observed from the study area

SLNo	Family	Common Name	Scientific Name
1	Accipitridae	Brahminy Kite	<i>Haliastur indus</i>
		Black Kite	<i>Milvus migrans</i>
2	Alcedinidae	Common Kingfisher	<i>Alcedo atthis</i>
		Stork-billed Kingfisher	<i>Pelargopsis capensis</i>
		White-throated Kingfisher	<i>Halcyon smyrnensis</i>
3	Ardeidae	Great Egret	<i>Ardea alba</i>
		Little Egret	<i>Egretta garzetta</i>
		Striated Heron	<i>Butorides striata</i>
		Indian Pond-Heron	<i>Ardeola grayii</i>
		Grey Heron	<i>Ardea cinerea</i>
		Western Reef Heron	<i>Egretta gularis</i>
4	Columbidae	Rock Pigeon	<i>Columba livia</i>
		Spotted Dove	<i>Spilopelia chinensis</i>
5	Corvidae	House Crow	<i>Corvus splendens</i>
		Large-billed Crow	<i>Corvus macrorhynchos</i>
6	Cuculidae	Greater Coucal	<i>Centropus sinensis</i>
7	Dicruridae	Greater Racket tailed drongo	<i>Dicrurus paradiseus</i>
8	Megalaimidae	White Cheeked barbet	<i>Psilopogon viridis</i>
9	Nectariniidae	Purple Rumped sunbird	<i>Leptocoma zeylonica</i>
10	Threskiornithidae	Black headed Ibis	<i>Threskiornis melanocephalus</i>
11	Ciconiidae	Asian Openbill	<i>Anastomus oscitans</i>
12	Rallidae	White breasted waterhen	<i>Amaurornis phoenicurus</i>
13	Scolopacidae	Common sandpiper	<i>Actitis hypoleucos</i>
		Redshank	<i>Tringa tetanus</i>
		Whimbrel	<i>Numenius phaeopus</i>
14	Psittaculidae	Rose ringed parakeet	<i>Psittacula kramera</i>
15	Phalacrocoracidae	Little Cormorant	<i>Microcarbo niger</i>
16	Laridae	Black headed gull	<i>Chroicocephalus ridibundus</i>

DISCUSSION

Avian Diversity and Habitat

Suitability: The recorded avian species diversity reflects the ecological suitability of the Kadalundi–Vallikkunnu Community Reserve for wetland-associated bird species. The dominance of the family Ardeidae suggests the availability of shallow-water and mudflat habitats that support prey

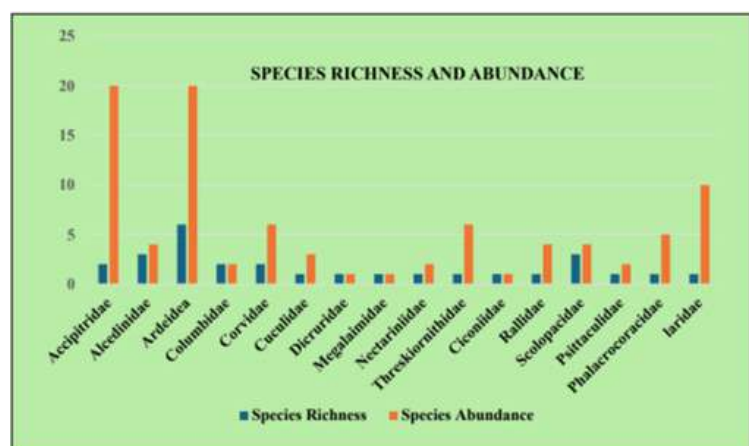


Fig. 2: Species richness and abundance in each Family observed

organisms such as fish and aquatic invertebrates. Similar patterns of heron and egret dominance have been reported from other tropical coastal wetlands (Ali, 2002). The presence of multiple kingfisher (Alcedinidae) indicates favourable aquatic conditions and adequate fish resources, while the occurrence of raptors belonging to Accipitridae suggests the availability of prey and the presence of a relatively stable trophic structure within the ecosystem.

The observation of migratory shorebirds such as sandpipers and shanks highlights the importance of the reserve as a wintering and stopover site. Mudflats provide nutrient-rich foraging grounds essential for migratory waders during long-distance movements. However, when compared with earlier records from the region, the present observations suggest a reduced occurrence of migratory shorebirds, which may indicate declining habitat quality. Such declines in migratory bird populations have been widely attributed to habitat loss, pollution, human disturbance, and climate-related changes affecting coastal wetlands globally (Wetlands International, 2012).

Influence of Habitat Heterogeneity: The heterogeneity of habitats within the reserve, including estuarine waters, mangrove vegetation, mudflats, and sandy stretches, plays a crucial role in supporting diverse bird assemblages. Mangrove vegetation, particularly *Acanthus ilicifolius*, offers shelter and roosting sites, while open mudflats and shallow waters support the feeding activities of waders and waterbirds. Despite increasing anthropogenic pressures in surrounding areas, the continued presence of diverse avian species indicates that the core wetland habitats remain functionally important.

Overall, the observed species composition, family-wise dominance, and occurrence of migratory shorebirds indicate that the habitat structure of the Kadalundi–Vallikkunnu Community Reserve continues to support diverse avian assemblages, while also suggesting emerging pressures that may influence bird distribution patterns.

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