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Publisher
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www.wild.zooreach.org

Host
Zoo Outreach Organization
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Cover: Mixed media illustration of a Blue bird and Sunbird. © Lakshmi Niranjana.
Diversity of bird species in Ebpanan Marsh, Maguindanao del Norte, Bangsamoro Autonomous Region in Muslim Mindanao (BARMM), Philippines

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Abstract: Wetland areas such as the marsh provide vital habitats for birds. However, marshes in the Philippines have been threatened by anthropogenic disturbances and may be further degraded. This study conducted a rapid bird assessment in Ebpanan Marsh located in Maguindanao del Norte within the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) on 06–12 March 2022. A total of 36 bird species belonging to 24 families were recorded during the rapid assessment. Among the bird species recorded, two species—Anas luzonica and Streptopelia dusumieri—are considered as Vulnerable, while Padda oryzivora is considered ‘Endangered’ in the IUCN Red List of Threatened Species. Eight of the bird species recorded are endemic and are observed in the remaining freshwater swamp forest of the Ebpanan Marsh. Despite habitat degradation and anthropogenic disturbance, the Ebpanan Marsh can still accommodate threatened and endemic bird species. Increasing the number of observation sites and extending the sampling duration of bird assessment will be required in order to complete the list of birds on the Marsh and understand the spatial and temporal variation in bird populations in the area.

Keywords: Anthropogenic disturbance, conservation assessment, endemic birds, freshwater swamp forest, habitat degradation, rapid assessment, species richness, threatened bird species, wetland conservation.
INTRODUCTION

A wetland is an area of land that is either covered by water or saturated with water (PAWB-DENR 2013). These areas are varied and include lakes, rivers, marshes, swamps, and reservoirs (Lopez-Calderon & Riosmena-Rodriguez 2016). The Philippines has about 216 lakes, 421 principal rivers, and 22 marshes, swamps, and reservoirs (Scott 1989). Several studies have been conducted highlighting the importance of wetland areas in the country in providing refuges for birds (van Weerd & van der Ploeg 2004; Villamor 2006; Lador & Seronay 2020). These ecosystems provide critical habitats for a wide range of bird species. However, wetland areas in the country, such as marshes, are considered to be one of the threatened ecosystems as the result of changes in land use, pollution, and climate change (Sespeñe et al. 2016). Marsh, a wetland ecosystem mostly dominated by grasses (Keddy 2010), provides a habitat for a rich diversity of flora and fauna, especially birds (Raj et al. 2010; Mohan et al. 2023).

Currently, in the Mindanao Island of the Philippines, there are around 455 species of birds documented of which 49 are globally threatened and 39 are endemic (Avibase 2023). The diversity of bird species has been noted to be a good bio-indicator of ecosystems (Datta 2011; Roshnath & Shruthi 2015), especially in wetland areas (Khadka et al. 2017; Studholme et al. 2022). However, in the Philippines’ wetland areas, the diversity of birds is declining due mostly to anthropogenic pressures particularly the conversion of wetland areas for agricultural purposes (Haribon Foundation 2014).

Ebpanan marsh is a wetland area that stretches along different municipalities in Maguindanao del Norte and Maguindano del Sur provinces, and is part of the largest marsh in the country by area, the Ligawasan marsh. The Ligawasan marsh has been considered an Important Bird Area (IBA) and key biodiversity site and this warrants the need to for regular monitoring and updates of the bird composition in the area (Donald et al. 2018). This study provides a list of bird species recorded during the rapid bird assessment conducted in one of the conglomerates of the Ligawasan Marsh, the Ebpanan Marsh located within the Kabuntalan municipality, Maguindanao del Norte. Data from this study may contribute to the knowledge of the current list of birds in Ebpanan Marsh and is possibly the first published report of birds in the area. Government agencies, private stakeholders, and local communities may benefit from this study as this may serve as the basis for crafting conservation and protection policies for Ebpanan Marsh.

METHODS

Study area

The localized rapid bird assessment was conducted in the Ebpanan marsh (7.1451, 124.3391) that is located in Barangay Lower Taviran, Kabuntalan, Maguindanao del Norte, BARMM. The surveyed area for rapid bird assessment was approximately 64.23 hectares and is at least 5 km away from the national road. The marsh is one of three marshes, including the Ebpanan Marsh, Libungan Marsh, and Ligawasan Marsh proper, that collectively form the Ligawasan Marsh, one of the largest wetland areas in the Philippines. The southern to the western portion of the marsh is surrounded by concrete roads and residential areas, making the area easily accessible. The northern portion of the marsh is bordered by the Libungan Marsh while the lower eastern portion is bordered by the Ligawasan Marsh proper. Perennial agroforestry plants such as coconut Cocos nucifera, mango Mangifera indica and cashew Anacardium occidentale are common within the residential areas of the marsh. The study area also included marsh habitats, such as freshwater swamp forests and herbaceous swamp habitats. The presence of Terminalia catappa ‘Talisay’, Terminalia copelandii ‘Lanipau’, Antidesma ghaesemilla ‘Binayuyo’, and Pterocarpus indicus ‘Narra’ was common in the freshwater swamp forest while Water Hyacinth Eichhornia crassipes, Water Lettuce Pistia stratioides, and Duckweed Lemna paucilora were present in the herbaceous swamp habitat. Most of the residents along the Ebpanan marsh depend heavily on its aquatic resources for food and as a source of income, evidenced by the presence of fish pens and nets. Furthermore, when the dry season arrives and floodwater recedes, certain swamp areas are utilized for cultivating watermelon Citrullus lanatus providing the residents with an alternative source of income.

Bird Sampling Technique

Localized rapid bird assessment was conducted between 06–12 March 2022 through the ‘look and see’, point count, and opportunistic listing methods in the Ebpanan marsh located in Barangay Lower Taviran, Kabuntalan municipality, Maguindanao del Norte. Field reconnaissance was conducted to explore the area and to establish the observation sites. Observation sites were established based on accessibility and safety. 10 strategic observation sites were established in the study area (5 in freshwater swamp forest, and 5 in herbaceous swamp habitat). Observation of birds was done from 0600–0900 h and 1500–1730 h by three field observers. Bird
Figure 1. Map of Ebpanan Marsh, Maguindanao del Norte, Bangsamoro Autonomous Region in Muslim Mindanao (BARMM), Philippines (QGISv.3). The map on the upper left shows the map of the Philippines. The map on the lower left is the subset of the yellow polygon in the Philippines map, which is the Ebpanan Marsh located in the province of Maguindanao del Norte in Bangsamoro Autonomous Region in Muslim Mindanao (BARM). The map on the right is the subset of the yellow polygon from the map of Maguindanao del Norte, BARM. The part of Ebpanan Marsh located in the Barangay Lower Taviran, Kabuntalan municipality (7.1451, 124.3391) was the study area.

documentation was carried out using field notebooks, binoculars, and a DSLR camera. Identification of birds and their respective spatial distribution and habitat range used different available reference materials such as ‘Birds of the Philippines’ (Allen 2020), eBird (2023), and BirdLife International (2023). The weather was generally sunny during the rapid bird assessment.

RESULTS AND DISCUSSION

Thirty-six species of birds belonging to 24 families were documented during the rapid bird assessment conducted in the Ebpanan Marsh (Table 1). Among the documented species, Ardeidae was the most represented family with seven species. The results of this study show a similar trend in terms of bird species richness in Agusan Marsh (Ardeidae = 13 species) in which species belonging to this family are also abundant. Bird species from this family prefer still open water habitats (Choi et al. 2007) which is common in the marsh. Anecdotal reports mentioned that in some cases the residents of the Ebpanan Marsh hunt egrets for food. Although most of the species of the family Ardeidae are listed as of Least Concern, continuous hunting may threaten their population (Benitez-Lopez et al. 2017). On the other hand, 22% of the bird species documented in Ebpanan Marsh are classified as endemic. This number is low compared to Agusan Marsh (ASEAN Centre for Biodiversity 2023) thus increasing the number of bird surveys may significantly improve the list of birds in the marsh.

Among the 36 bird species recorded, two bird species—the Philippine duck *Anas luzonica* and the Philippine Collared Dove *Streptopelia dusumieri*—are considered ‘Vulnerable’ and *Padda oryzivora* as ‘Endangered’ as per the IUCN Red List of Threatened Species (Figure 2). The nearest sightings of *A. luzonica* from the Ebpanan Marsh are in Timaco Hill, Cotabato City (de Vera et al. 2023). Locals in the Ebpanan Marsh hunt and trap the *A. luzonica* along with the Common Moorhen *Gallinula chloropus* for food, thus further...
making them vulnerable to population decline (BirdLife International 2023). The Philippine Collared Dove is classified as Vulnerable due to its rapid decrease in population in Luzon, Philippines mainly attributed to competition from the Red-collared Dove *Streptopelia tranquebarica* and Spotted Dove *Streptopelia chinensis* (BirdLife International 2023). Informing the locals of the status of *A. luzonica* and *S. dusumieri*, and establishing key protected areas, are actions that should prevent further population declines (Nori et al. 2020).

<table>
<thead>
<tr>
<th>Family</th>
<th>Scientific name</th>
<th>Common name</th>
<th>Endemism*</th>
<th>Conservation status**</th>
</tr>
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<tbody>
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<td>Accipitridae</td>
<td>Elanus caeruleus</td>
<td>Black-winged Kite</td>
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<td>Least Concern</td>
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<td>Halastur indus</td>
<td>Brahminy Kite</td>
<td>Resident</td>
<td>Least Concern</td>
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<td>Least Concern</td>
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<td>Anatidae</td>
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<td>Least Concern</td>
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</tbody>
</table>

*—eBird Cornell Laboratory for Ornithology (2023) | **—IUCN Red List of Threatened Species (2023).
The introduced Java Sparrow *Padda oryzivora* was recorded during the rapid bird assessment in Ebpanan Marsh. A flock was recorded near the rice field within the study area. This bird species was considered to be a pest in rice crops. Eight out of the 36 recorded bird species in Ebpanan marsh were classified as endemic. Twenty-three of the 36 species were classified as a resident, four bird species were migrants, and one bird species as introduced (Figure 2). All endemic birds recorded in this study were observed in freshwater swamp forests. Despite the presence of residential areas and the conversion of some areas to agricultural land, the marsh can still harbor endemic bird species. Unfortunately, during the conduct of rapid bird assessment in the area, one *G. chloropus* was trapped and captured, however, this was later freed by local inhabitants. They also mentioned that, based on their observations, there was a decline in the number of bird species and their frequency in the Ebpanan Marsh, and they attributed this to climate change and bird hunting. Aside from bird hunting, another threat that the birds in Ebpanan Marsh are facing is the conversion of freshwater swamp forests into agricultural land. Thus, conservation measures, such as hunting regulations and identifying protected areas within the marsh, are recommended (Dudley 2008).

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Bird species in Ebpanan Marsh, Philippines


Bird species in Ebpanan Marsh, Philippines

Limbaro et al.


Articles

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Current conservation status of Bengal Florican Houbaropsis bengalensis in Manas National Park, Assam, India
– Miranda Thakur, Jonmani Kalita, Namita Brahma, Koushik Rajbongshi, Kangkaniyoti Bhattacharyya, Amal Chandra Sarmah, Alolika Sinha, Deba Kumar Dutta, Dhiritman Das & Bibhuti Prasad Lahkar, Pp. 25507–25515

Assemblages of frugivorous butterflies in two urban parks in Quezon City, Philippines

Assessment of the status of Spodoptera species (Lepidoptera: Noctuidae: Armyworm) in India through DNA barcoding technique

Taxonomy and distribution of some orthopteran species (Orthoptera: Gryllidae, Trigonididae, Acrididae) from northwestern Morocco
– Hanae El Harche, Samiha Kaioua & Dalale Mansouri, Pp. 25536–25544

Impact of root harvest on Decalepis hamiltonii Wight & Arn. population across habitats in Savandurga Reserve Forest, Karnataka, India

Communications

Rare encounters: Jungle Cat Felis chaus Schreber, 1777 (Mammalia: Carnivora: Felidae) in the lower reaches of the Jordan River, Jordan
– Ehab Eid & Mohammad Farid Alayyan, Pp. 25571–25576

Diversity of bird species in Ebpanan Marsh, Maguindanao del Norte, Bangsamoro Autonomous Region in Muslim Mindanao (BARMM), Philippines
– Gindol Rey A. Limbaro, Benito Anthony A. Pingoy & Peter Jan D. de Badon, Pp. 25577–25583

Heleocoris stephanus (Heteroptera: Naucoridae: Laccocorinae), a new species of creeping water bug from Kallada River, Kerala, India
– Dani Benchamin, R. Sreejai & M.S. Arya, Pp. 25584–25589

Incidence and risk factors associated with parasitic infections in captive wild mammals and birds in Indian zoos

Bryophyte diversity of Berinag (Pithoragarh District) in Kumaun Himalaya, Uttarakhand, India
– D. Dhami & P. Chaturvedi, Pp. 25598–25603

Short Communications

The opportunistic feeding behaviour of Schistura notostigma (Teleostei: Nematichthidae) in tropical mountain streams in Sri Lanka

First record of Pieris napi L. (Lepidoptera: Pieridae) from Kashmir Valley, India
– Firdousa Rasool & Altaf Hussain Mir, Pp. 25609–25612

Reassessment of Strobilanthes recurvo (Acanthaceae), an endangered plant from Manipur, India
– Rajkumari Jashmi Devi & Biseshwori Thongam, Pp. 25613–25616

New distribution record of Slender Wild Basil Clinopodium gracile (Benth.) Kuntze (Lamiaceae: Nepetoideae: Mentheae) for the flora of Himachal Pradesh, India
– Rimjhim Chandra & Mamita Kalita, Pp. 25617–25622

Notes

Rusty-spotted Cat Prionailurus rubiginosus (L. Geoffroy Saint-Hilaire, 1831) (Mammalia: Carnivora: Felidae) in the semi-natural subterranean habitat in Karnataka, India

First record of Scaly-breasted Munia Lonchura punctulata (Linnaeus, 1758) (Aves: Passeriformes: Estrildidae) from Kashmir, India
– Shazia Shafayat, Fayaz Ahmad Ahanger, Tariq Ahmad, Bilal A. Bhat & Zakir Hussain Najar, Pp. 25627–25629

First record of Prosynksia diatreta (Simon, 1902) (Araneae: Salticidae) from Gujarat, India
– Manisha P. Patel & Dhruv A. Prajapati, Pp. 25630–25631

Medicago monantha (Fabaceae) and Euphorbia jodhpurensis (Euphorbiaceae) as new additions to the flora of Maharashtra State, India
– Praveen V. Kale & Rajendra D. Shinde, Pp. 25632–25636

Book Review

All eyes on the island: A book review of The Great Nicobar Betrayal
– Lakshmi Ravinder Nair, Pp. 25637–25638