

Original Research Article

Avian Diversity of Nature Park, Kolkata (West Bengal, India)

ABSTRACT

This study is a preliminary inventory of the avifauna diversity in Nature Park, situated in the south western periphery of Kolkata within the state of West Bengal, India. A rigorous study of avifauna was carried out from March 2022 to February 2024. Basic line transects and point count methods were used in this study. A total of 108 bird species taxonomically belonging to 79 genera, 41 families and 12 orders were recorded from the study site. Passeriformes was the most predominant order with 48 species belonging to 21 families. Ardeidae with 11 species was the most dominant family. Maximum numbers of species were noted in genus *Ardea*. One vulnerable and one near threatened bird species was recorded from the study site regarding IUCN status.

Keywords: Avifauna diversity; ecological indicators; IUCN status; line transects; point count.

1. INTRODUCTION

Avifauna and their diversity constitute a central part of the natural environment. Birds are important ecological indicators assessing the quality of habitats [1]. Birds play various roles in ecosystem as pollinators, agents of seed dispersals, predators and scavengers [2]. Biodiversity is under threat worldwide and avian diversity is not an exception. Avifauna diversity has been reducing due to natural phenomenon as well as anthropogenic activities. Urbanization coupled with climate change aggravates the problem [3]. Destruction of natural habitats is one of the

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General comments

Positive side of this research:

- 1). Title is so informative
- 2). Long study period in ecological survey is appreciable.

Drawbacks of this article, that should be corrected before publications.

1. Is this article or research article? If yes, it lacks lots of scientific information's in which it were be contained, for instance:

- Abstract section lacks data analysis methods
- Introduction section: It lacks basic information's of the study in the globe, no detail description about the habitats of the study area
- No data analysis section at all
- In method section: study site description needs more info. about the habitat types, their area coverage.
- This section also lacks the core of the study. How many lines transects you used? How you decide that number? How many from each habitat? What was your benchmark/reason to use that particular numbers? The same questions to point count method?
- In results and discussion section; I have not got any discussion at all. But it is the key components as other sections
- In results section: some are repeated in words and figures.
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important reasons for decreasing bird diversity [4]. The Indian subcontinent is rich in avifauna diversity due to huge habitats variability, prevalent climatic conditions and a wide range of altitudes from the peak of Himalaya to the sea level. As a result more than 13% of the world's avifauna is found here [5].

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Present study aims to prepare a baseline survey report on avifauna diversity in Nature Park. Nature Park is considered as wetland ecosystem which contains a wide variety of habitats. According to WWF-India, wetlands are one of the most threatened of all ecosystems in India. Wetlands are one of the important, diverse and highly productive ecosystems. Wetlands are recognized for their essential biological, hydrological and ecological functions. Not only these, they also have socio-economic functions.

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2. MATERIALS AND METHODS

2.1 Study Site

The present study was conducted in Nature Park of Kolkata, West Bengal, India (Fig. 1). The study area is situated within the geographic range of 22° 31' 23"-22° 33' 00" N and 88° 17' 15"- 88° 18' 26" E. The whole area is habitat of more than 120 plant species including herbs, shrubs, grasses and trees. In addition the Nature Park occupies thousands of hectares of wetlands. The water body, greenery, plenty of flowers and fruits, availability of foraging, breeding and nesting sites attracts a wide variety of avifauna (Fig. 2).

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2.2 Avifauna Survey

An extensive study of avifauna was carried out for two consecutive years at regular intervals of fifteen days from March 2022 to February 2024. Bird survey was conducted both in the early morning and evening hours. Basic line transects and point count methods were used in this study [6]. Activity of birds like calling, perching, mobbing, overflying, walking, nest building

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and feeding during the study period was also noted. Birds were identified by using field guides [7, 8] and by searching internet resources. Observations were carried out with the help of binocular (Olympus 8x40) and data was recorded from different habitat during each survey. Photography was also done with digital camera (Canon power shot SX50 HS) for documentation of avifauna. For Scientific nomenclature and authorship of Bird species, Howard and Moore 4th Edition was followed [9, 10].

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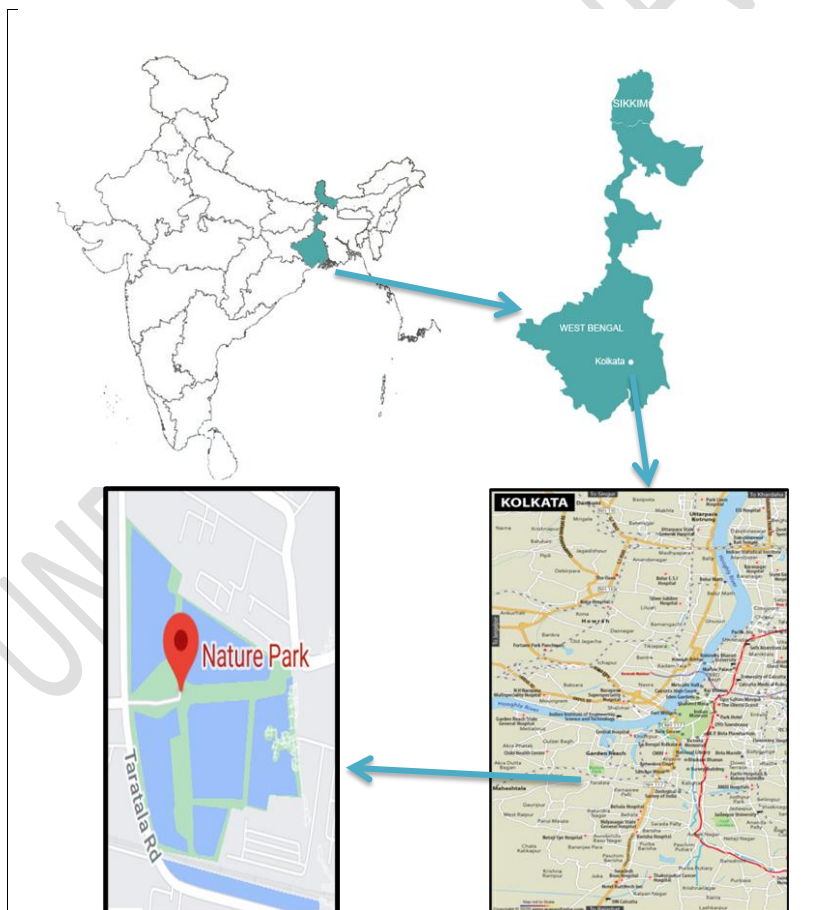


Fig. 1. Maps showing location of Nature Park, Kolkata, West Bengal, India (Source: Google Earth).



Fig. 2. "A" in Nature Park, Kolkata, West Bengal, India

3. RESULTS AND DISCUSSION

A total of 108 bird species taxonomically belonging to 79 genera, 41 families and 12 orders were recorded from the study site (Table 1). Different species of birds were photographically documented during survey from Nature Park (Fig. 3 and Fig. 4). Bird calls recording was done for identification of some bird species. The habitats with nests of some bird species were also noted (Fig. 5).

Table 1. Avifauna recorded from Nature Park, Kolkata, West Bengal, India during survey.

| Common Name | Scientific Name | Family | Order | Current status (IUCN 3.1) |
|--------------------------|---|--------------|-----------------|---------------------------|
| 1. Black kite | <i>Milvus migrans</i> (Boddaert, 1783) | Accipitridae | Accipitriformes | Least concern |
| 2. Lesser Whistling Duck | <i>Dendrocygna javanica</i> (Horsfield, 1821) | Anatidae | Anseriformes | Least concern |
| 3. Bronze winged Jacana | <i>Metopidius indicus</i> (Latham, 1790) | Jacanidae | Charadriiformes | Least concern |

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| 4. Pheasant tailed Jacana | <i>Hydrophasianus chirurgus</i> (Scopoli, 1786) | Jacanidae | Charadriiformes | Least concern |
| 5. Red wattled Lapwing | <i>Vanellus indicus</i> (Boddaert,1783) | Charadriidae | Charadriiformes | Least concern |
| 6. Little Ringed Plover | <i>Charadrius dubius</i> Scopoli, 1786 | Charadriidae | Charadriiformes | Least concern |
| 7. Common Sandpiper | <i>Actitis hypoleucos</i> (Linnaeus,1758) | Scolopacidae | Charadriiformes | Least concern |
| 8. Green Sandpiper | <i>Tringa ochropus</i> Linnaeus,1758 | Scolopacidae | Charadriiformes | Least concern |
| 9. Wood Sandpiper | <i>Tringa glareola</i> Linnaeus,1758 | Scolopacidae | Charadriiformes | Least concern |
| 10. Common Snipe | <i>Gallinago gallinago</i> (Linnaeus, 1758) | Scolopacidae | Charadriiformes | Least concern |
| 11. Pintail Snipe | <i>Gallinago stenura</i> (Bonaparte, 1831) | Scolopacidae | Charadriiformes | Least concern |
| 12. River Tern | <i>Sterna aurantia</i> J.E. Gray, 1831 | Laridae | Charadriiformes | Vulnerable |
| 13. Gull billed Tern | <i>Gelochelidon nilotica</i> (J.F. Gmelin, 1789) | Laridae | Charadriiformes | Least concern |
| 14. Black winged Stilt | <i>Himantopus himantopus</i> (Linnaeus, 1758) | Recurvirostridae | Charadriiformes | Least concern |
| 15. Rock Pigeon | <i>Columba livia</i> J.F. Gmelin, 1789 | Columbidae | Columbiformes | Least concern |
| 16. Yellow footed Green Pigeon | <i>Treron phoenicopterus</i> (Latham, 1790) | Columbidae | Columbiformes | Least concern |
| 17. Spotted Dove | <i>Streptopelia chinensis</i> (Scopoli, 1786) | Columbidae | Columbiformes | Least concern |
| 18. Eurasian Collared Dove | <i>Streptopelia decaocto</i> (Frisvaldszky, 1838) | Columbidae | Columbiformes | Least concern |
| 19. Green Bee eater | <i>Merops orientalis</i> Latham, 1801 | Meropidae | Coraciiformes | Least concern |
| 20. White throated Kingfisher | <i>Halcyon smyrnensis</i> (Linnaeus, 1758) | Alcedinidae | Coraciiformes | Least concern |
| 21. Black Capped Kingfisher | <i>Halcyon pileata</i> (Boddaert,1783) | Alcedinidae | Coraciiformes | Least concern |
| 22. Pied Kingfisher | <i>Ceryle rudis</i> (Linnaeus,1758) | Alcedinidae | Coraciiformes | Least concern |
| 23. Stork billed Kingfisher | <i>Pelargopsis capensis</i> (Linnaeus, 1766) | Alcedinidae | Coraciiformes | Least concern |
| 24. Common King fisher | <i>Alcedo atthis</i> (Linnaeus,1758) | Alcedinidae | Coraciiformes | Least concern |
| 25. Common Hawk Cuckoo | <i>Hierococcyx varius</i> (Vahl,1797) | Cuculidae | Cuculiformes | Least concern |
| 26. Pied Cuckoo | <i>Clamator jacobinus</i> (Boddaert, 1783) | Cuculidae | Cuculiformes | Least concern |
| 27. Asian Koel | <i>Eudynamys scolopaceus</i> (Linnaeus,1758) | Cuculidae | Cuculiformes | Least concern |

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| 28. Greater Coucal | <i>Centropus sinensis</i> (Stephens, 1815) | Cuculidae | Cuculiformes | Least concern |
| 29. Plaintive Cuckoo | <i>Cacomantis merulinus</i> (Scopoli, 1786) | Cuculidae | Cuculiformes | Least concern |
| 30. White breasted Water hen | <i>Amaurornis phoenicurus</i> (Pennant, 1769) | Rallidae | Gruiformes | Least concern |
| 31. Watercock | <i>Gallix rex cinerea</i> (J.F. Gmelin, 1789) | Rallidae | Gruiformes | Least concern |
| 32. Common Moorhen | <i>Gallinula chloropus</i> (Linnaeus, 1758) | Rallidae | Gruiformes | Least concern |
| 33. Green Leaf Warbler | <i>Seicercus nitidus</i> (Blyth, 1843) | Phylloscopidae | Passeriformes | Least concern |
| 34. House Crow | <i>Corvus splendens</i> Vieillot, 1817 | Corvidae | Passeriformes | Least concern |
| 35. Rufous Treepie | <i>Dendrocitta vagabunda</i> (Latham, 1790) | Corvidae | Passeriformes | Least concern |
| 36. Large billed crow | <i>Corvus macrorhynchos</i> Wagler, 1827 | Corvidae | Passeriformes | Least concern |
| 37. Black-headed Cuckoo shrike | <i>Lalage melanoptera</i> (Rüppell, 1839) | Campephagidae | Passeriformes | Least concern |
| 38. Small Minivet | <i>Pericrocotus cinnamomeus</i> (Linnaeus, 1766) | Campephagidae | Passeriformes | Least concern |
| 39. House Sparrow | <i>Passer domesticus</i> (Linnaeus, 1758) | Passeridae | Passeriformes | Least concern |
| 40. Black headed Munia | <i>Lonchura malacca</i> (Linnaeus, 1766) | Estrildidae | Passeriformes | Least concern |
| 41. Scaly breasted Munia | <i>Lonchura punctulata</i> (Linnaeus, 1758) | Estrildidae | Passeriformes | Least concern |
| 42. Black naped Oriole | <i>Oriolus chinensis</i> Linnaeus, 1766 | Oriolidae | Passeriformes | Least concern |
| 43. Eurasian golden Oriole | <i>Oriolus oriolus</i> (Linnaeus, 1758) | Oriolidae | Passeriformes | Least concern |
| 44. Black hooded Oriole | <i>Oriolus xanthornus</i> (Linnaeus, 1758) | Oriolidae | Passeriformes | Least concern |
| 45. Ashy Wood swallow | <i>Artamus fuscus</i> Vieillot, 1817 | Artamidae | Passeriformes | Least concern |
| 46. Grey backed Shrike | <i>Lanius tephronotus</i> (Vigors, 1831) | Laniidae | Passeriformes | Least concern |
| 47. Brown Shrike | <i>Lanius cristatus</i> Linnaeus, 1758 | Laniidae | Passeriformes | Least concern |
| 48. Long tailed Shrike | <i>Lanius schach</i> Linnaeus, 1758 | Laniidae | Passeriformes | Least concern |
| 49. Purple Sunbird | <i>Cinnyris asiaticus</i> (Latham, 1790) | Nectariniidae | Passeriformes | Least concern |
| 50. Purple rumped Sunbird | <i>Leptocoma zeylonica</i> (Linnaeus, 1766) | Nectariniidae | Passeriformes | Least concern |
| 51. Jungle Babbler | <i>Turdoides striata</i> (Dumont, 1823) | Leiothrichidae | Passeriformes | Least concern |

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| 52. Yellow billed Babbler | <i>Turdoides affinis</i> (Jerdon, 1845) | Leiothrichidae | Passeriformes | Least concern |
| 53. Pale billed flowerpecker | <i>Dicaeum erythrorhynchos</i> (Latham, 1790) | Dicaeidae | Passeriformes | Least concern |
| 54. Red vented Bulbul | <i>Pycnonotus cafer</i> (Linnaeus, 1766) | Pycnonotidae | Passeriformes | Least concern |
| 55. Red rumped Swallow | <i>Cecropis daurica</i> (Laxmann, 1769) | Hirundinidae | Passeriformes | Least concern |
| 56. Common Tailorbird | <i>Orthotomus sutorius</i> (Pennant, 1769) | Cisticolidae | Passeriformes | Least concern |
| 57. White Wagtail | <i>Motacilla alba</i> Linnaeus, 1758 | Motacillidae | Passeriformes | Least concern |
| 58. Yellow Wagtail | <i>Motacilla flava</i> Linnaeus, 1758 | Motacillidae | Passeriformes | Least concern |
| 59. Grey Wagtail | <i>Motacilla cinerea</i> Tunstall, 1771 | Motacillidae | Passeriformes | Least concern |
| 60. Forest Wagtail | <i>Dendronanthus indicus</i> (J.F. Gmelin, 1789) | Motacillidae | Passeriformes | Least concern |
| 61. Olive backed Pipit | <i>Anthus hodgsoni</i> (Richmond, 1907) | Motacillidae | Passeriformes | Least concern |
| 62. Tree Pipit | <i>Anthus trivialis</i> (Linnaeus, 1758) | Motacillidae | Passeriformes | Least concern |
| 63. Paddyfield Pipit | <i>Anthus rufulus</i> Vieillot, 1818 | Motacillidae | Passeriformes | Least concern |
| 64. Streaked weaver | <i>Ploceus manyar</i> (Horsfield, 1821) | Ploceidae | Passeriformes | Least concern |
| 65. Ashy Drongo | <i>Dicrurus leucophaeus</i> Vieillot, 1817 | Dicruridae | Passeriformes | Least concern |
| 66. Black Drongo | <i>Dicrurus macrocercus</i> Vieillot, 1817 | Dicruridae | Passeriformes | Least concern |
| 67. Bronzed Drongo | <i>Dicrurus aeneus</i> Vieillot, 1817 | Dicruridae | Passeriformes | Least concern |
| 68. Bank Myna | <i>Acridotheres ginginianus</i> (Latham, 1790) | Sturnidae | Passeriformes | Least concern |
| 69. Common Myna | <i>Acridotheres tristis</i> (Linnaeus, 1766) | Sturnidae | Passeriformes | Least concern |
| 70. Jungle Myna | <i>Acridotheres fuscus</i> (Wagler, 1827) | Sturnidae | Passeriformes | Least concern |
| 71. Chestnut Tailed Starling | <i>Sturnia malabarica</i> (J.F. Gmelin, 1789) | Sturnidae | Passeriformes | Least concern |
| 72. Asian Pied Starling | <i>Gracupica contra</i> (Linnaeus, 1758) | Sturnidae | Passeriformes | Least concern |
| 73. Indian Robin | <i>Saxicolodius fulicatus</i> (Linnaeus, 1766) | Muscicapidae | Passeriformes | Least concern |
| 74. Oriental Magpie Robin | <i>Copsychus saularis</i> (Linnaeus, 1758) | Muscicapidae | Passeriformes | Least concern |
| 75. Verditer Flycatcher | <i>Eumyias thalassinus</i> (Swainson, 1838) | Muscicapidae | Passeriformes | Least concern |

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| 76. Asian Brown Flycatcher | <i>Muscicapa dauurica</i> Pallas, 1811 | Muscicapidae | Passeriformes | Least concern |
| 77. Dark sided Flycatcher | <i>Muscicapa sibirica</i> J.F. Gmelin, 1789 | Muscicapidae | Passeriformes | Least concern |
| 78. Red throated Flycatcher | <i>Ficedula albicilla</i> (Pallas, 1811) | Muscicapidae | Passeriformes | Least concern |
| 79. Orange headed thrush | <i>Geokichla citrina</i> (Latham, 1790) | Turdidae | Passeriformes | Least concern |
| 80. Great tit | <i>Parus cinereus</i> Vieillot, 1818 | Paridae | Passeriformes | Least concern |
| 81. Open billed Stork | <i>Anastomus oscitans</i> (Boddaert, 1783) | Ciconiidae | Pelecaniformes | Least concern |
| 82. Little Cormorant | <i>Microcarbo niger</i> (Vieillot, 1817) | Phalacrocoraci dae | Pelecaniformes | Least concern |
| 83. Indian Cormorant | <i>Phalacrocorax fuscicollis</i> Stephens, 1826 | Phalacrocoraci dae | Pelecaniformes | Least concern |
| 84. Great Cormorant | <i>Phalacrocorax carbo</i> (Linnaeus, 1758) | Phalacrocoraci dae | Pelecaniformes | Least concern |
| 85. Indian Pond Heron | <i>Ardeola grayii</i> (Sykes,1832) | Ardeidae | Pelecaniformes | Least concern |
| 86. Black crowned Night Heron | <i>Nycticorax nycticorax</i> (Linnaeus, 1758) | Ardeidae | Pelecaniformes | Least concern |
| 87. Grey Heron | <i>Ardea cinerea</i> Linnaeus, 1758 | Ardeidae | Pelecaniformes | Least concern |
| 88. Little Egret | <i>Egretta garzetta</i> (Linnaeus, 1766) | Ardeidae | Pelecaniformes | Least concern |
| 89. Purple Heron | <i>Ardea purpurea</i> Linnaeus, 1766 | Ardeidae | Pelecaniformes | Least concern |
| 90. Cattle Egret | <i>Bubulcus ibis</i> (Linnaeus,1758) | Ardeidae | Pelecaniformes | Least concern |
| 91. Great Egret | <i>Ardea alba</i> Linnaeus, 1758 | Ardeidae | Pelecaniformes | Least concern |
| 92. Intermediate Egret | <i>Ardea intermedia</i> Wagler,1829 | Ardeidae | Pelecaniformes | Least concern |
| 93. Cinnamon Bittern | <i>Ixobrychus cinnamomeus</i> (J.F. Gmelin, 1789) | Ardeidae | Pelecaniformes | Least concern |
| 94. Yellow Bittern | <i>Ixobrychus sinensis</i> (J.F. Gmelin, 1789) | Ardeidae | Pelecaniformes | Least concern |
| 95. Black Bittern | <i>Ixobrychus flavicollis</i> (Latham, 1790) | Ardeidae | Pelecaniformes | Least concern |
| 96. Greater Flameback | <i>Chrysocolaptes guttacristatus</i> (Tickell,1833) | Picidae | Piciformes | Least concern |
| 97. Black rumped Flameback | <i>Dinopium benghalense</i> (Linnaeus, 1758) | Picidae | Piciformes | Least concern |
| 98. Rufous Woodpecker | <i>Micropternus brachyurus</i> (Vieillot, 1818) | Picidae | Piciformes | Least concern |
| 99. Streak throated Woodpecker | <i>Picus xanthopygaeus</i> (J.E. & G.R. Gray, 1846) | Picidae | Piciformes | Least concern |

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| 100. Fulvous breasted woodpecker | <i>Dendrocopos macei</i> (Vieillot, 1818) | Picidae | Piciformes | Least concern |
| 101. Eurasian Wryneck | <i>Jynx torquilla</i> Linnaeus, 1758 | Picidae | Piciformes | Least concern |
| 102. Coppersmith Barbet | <i>Psilopogon haemacephalus</i> (Statius Muller, 1776) | Ramphastidae | Piciformes | Least concern |
| 103. Blue throated Barbet | <i>Psilopogon asiaticus</i> (Latham, 1790) | Ramphastidae | Piciformes | Least concern |
| 104. Lineated Barbet | <i>Psilopogon lineatus</i> (Vieillot, 1816) | Ramphastidae | Piciformes | Least concern |
| 105. Rose-ringed Parakeet | <i>Psittacula krameri</i> (Scopoli, 1769) | Psittaculidae | Psittaciformes | Least concern |
| 106. Alexandrine Parakeet | <i>Psittacula eupatria</i> (Linnaeus, 1766) | Psittaculidae | Psittaciformes | Near Threatened |
| 107. Barn Owl | <i>Tyto alba</i> (Scopoli, 1769) | Tytonidae | Strigiformes | Least concern |
| 108. Spotted Owlet | <i>Athene brama</i> (Temminck, 1821) | Strigidae | Strigiformes | Least concern |

The family richness of orders was estimated (Fig. 6). Order Passeriformes represented the highest richness with 21 families (51.21%) followed by Charadriiformes with 5 families (12.19%) and Pelecaniformes with 3 families (7.31%). Avian orders Strigiformes, Coraciiformes, Piciformes consisted 2 families each (4.87% each) of the total bird family. Orders Accipitriformes, Anseriformes, Columbiformes, Cuculiformes, Gruiformes and Psittaciformes consisted 1 family each (2.43% each) of the total family surveyed. The contribution of percentage of species in different orders of avifauna (Fig. 7) showed that Passeriformes was the most dominant order comprising 44.44% of total species followed by Pelecaniformes (13.88%), Charadriiformes (11.11%), Piciformes (8.33%), Coraciiformes (5.55%), Cuculiformes (4.62%), Columbiformes (3.70%), Gruiformes (2.77%), Strigiformes, Psittaciformes, (1.85% each), Anseriformes and Accipitriformes (0.92% each). The percentage of species in different families of avifauna was also analysed (Fig. 8). The result showed that out of 41 families, Ardeidae family (11 species) dominated the avifauna followed by Motacillidae (7 species), Muscicapidae, Picidae (6 species each), Scolopacidae,



Dendrocitta vagabunda *Dicurus leucophaeus* *Ardeola grayii* *Picus xanthopygaeus* *Turdoides striata*



Streptopelia decaocto *Centropus sinensis* *Treron phoenicopterus* *Phalacrocorax fuscicollis* *Oriolus xanthornus*



Egretta garzetta *Milvus migrans* *Merops orientalis* *Eudynamys scolopaceus* *Streptopelia chinensis*.

Fig. 3. Different species of birds documented during survey from Nature Park, Kolkata, West Bengal, India.



Leptocoma zeylonica *Bubulcus ibis* *Dicrurus leucophaeus* *Halcyon smyrnensis* *Pelargopsis capensis*,



Alcedo atthis *Gracupica cembra* *Orthotomus sutorius* *Turdoides affinis* *Copsychus saulari*



Chrysocolaptes guttacrastatus *Pycnonotus cafer* *Geokichla citrina* *Amaurornis phoenicurus* *Dendrocopos macei*.

Fig. 4. Different species of birds documented during survey from Nature Park, Kolkata, West Bengal, India.



Anastomus oscitans in nest



Cormorant habitat



Bird nests on trees

Fig. 5. Habitats with nests of some bird species

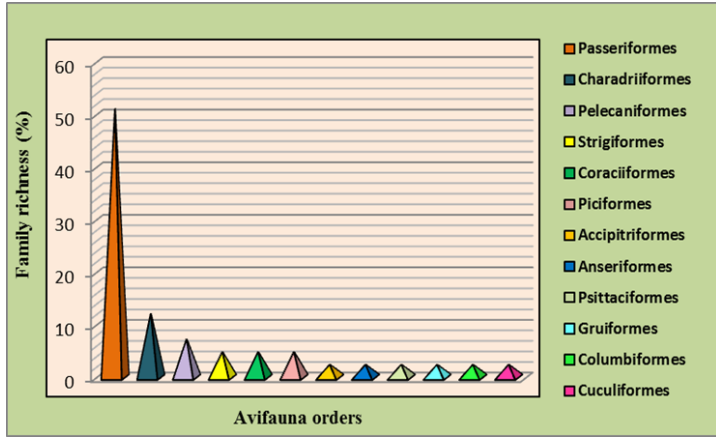


Fig. 6. Family richness of avifauna orders in Nature Park

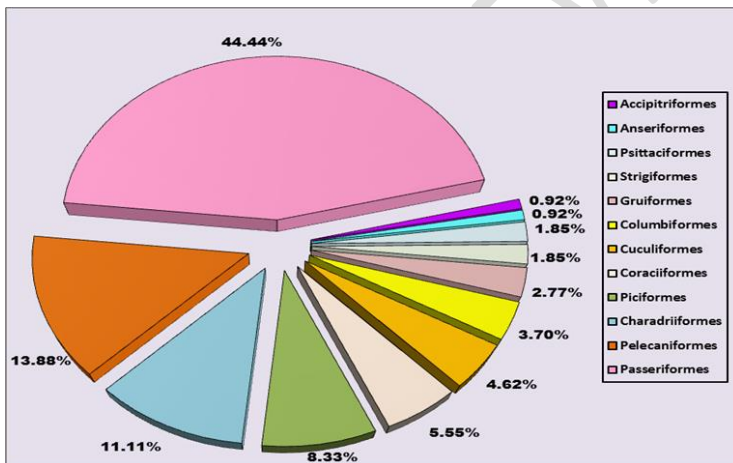


Fig. 7. Percentage of species composition under different avian orders in Nature Park

Alcedinidae, Sturnidae, Cuculidae (5 species each), Columbidae (4 species), Rallidae, Corvidae, Oriolidae, Laniidae, Dicruridae, Phalacrocoracidae, Ramphastidae (3 species each), Jacanidae, Charadriidae, Laridae, Campephagidae, Nectariniidae, Estrildidae, Leiothrichidae, Psittaculidae (2 species each), Strigidae, Anatidae, Recurvirostridae, Meropidae, Phylloscopidae, Passeridae, Artamidae, Dicaeidae, Pycnonotidae, Hirundinidae, Cisticolidae, Ploceidae, Paridae, Tytonidae, Ciconiidae, Accipitridae, Turdidae (1 species each). The

maximum numbers of bird species were seen in the genus *Ardea*. Of the total bird species recorded, River Tern (*Sterna aurantia*) was Vulnerable and Alexandrine Parakeet (*Psittacula eupatria*) was near threatened according to IUCN status. Rest of the bird species were least concern.

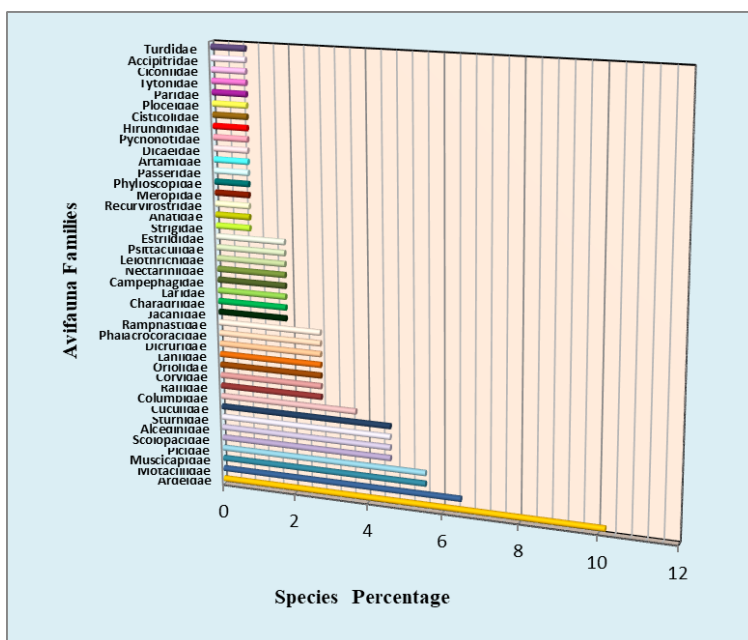


Fig. 8. Percentage of species in different avifauna families in Nature Park

4. CONCLUSION

Ornithological surveys provide necessary information for basic and applied ecology. It is also important for identifying priority areas for conservation. The present study was an attempt to reveal preliminary record of avifauna in Nature Park that has not been explored previously. Nature Park supports significant number of avifauna being a part of urban Kolkata. The diversity of passerine (Order Passeriformes) was higher in Nature Park with 48 species as compared to non -passerine (60 species). Ecologically suitable and healthy environment of

Nature Park made it possible. Of the total bird species recorded in this study, 1 species was vulnerable and 1 species was near threatened indicating their conservation significance. So there is a need to protect the ecosystem and conserve the diversity of the study area. Further, in order to attract more avifauna, plantation of all seasonal variety of flowering and fruiting plants along with regular monitoring is very important.

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I do not think so.