

Assessment of Avifaunal Diversity of Aligarh, India

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Abstract

A present investigation was done on three different sites of the Aligarh district to check the variety of bird species. In the study period, 55 bird species were recorded, they belong to 14 orders and 35 families. Order Passeriformes represented dominant with 25 species which accounts 45%, of the species, while Columbiformes with 5 species, Piciformes and Coraciiformes with four species each, Piciformes with 3 species, Accipitriformes, Bucerotiformes, Charadriiformes, Cuculiformes, Galliformes, Psittaciformes with two species each and Strigiformes orders represented with one species. One vulnerable species Sarus crane (*Grus antigone*) and one endangered species Egyptian vulture (*Neophron percnopterus*) was also noted during the period of study. However, the study area site 1 and site 2 are highly disturbed due to urbanization and human activities. More studies and suitable conservation strategies are required in the study area.

Diversity of the Birds is one of the most important ecological indicators to give clues about the overall health of nature and status of habitats¹³ and the habitat fragmentation caused changes long term effects in their behavior, ability of reproduction and population¹⁰. Birds play an important role as a pest and insect controller in food web and they also abet in pollination of plants and dispersal of seeds⁹. Many mythologies given honor and good conservative value to the bird, Maa Saraswati (God of Wisdom), in Hindu mythologically called as “Hansavahini” used the swan as her vehicle and the supreme God Vishnu used *Garuda* (eagle) for his vehicle¹¹. Avifauna is

also important for the tourism industries and they support the economic growth of country¹². Nowadays Avian diversity has been disturbing and decreasing due to urbanization, human interference, pollution and destruction of plants and habitat⁷ similar threats also observed in this study. conservation of urban biodiversity received very little attention compared to natural and protected ecosystems⁶. This study highlights importance of bird in maintenance of the ecological balance for sustainable planning for urban development and provide not only a checklist of diversity but also find resident status, feeding pattern and discussed for public awareness and their

conservation.

Study area :

Aligarh district of Uttar Pradesh is located with latitude and longitude 27.532°N, 78.042°E and bounded by the rivers Yamuna and Ganga. Three different sites of Aligarh city selected for the purpose of sampling (Figure 3), Site Ist is UP-Jal Nigam Laboratory (Developed urban area), Site IInd is Gayatri Chetana Kendra (Open and developing area) and site IIIrd is Agriculture fields (bushes and swampy area) along Railway track.

Sampling :

The present study was carried out from April to July 2019, in three different sites of Aligarh district. Data of bird was collected at every day during the morning and evening by direct field observation. The birds were observed either by Nikon Binocular (8X42) or by naked eyes depending upon the distance. Record data about the diet group and observation site (Table 1). For identifying bird species, standard field guides⁸ were used.

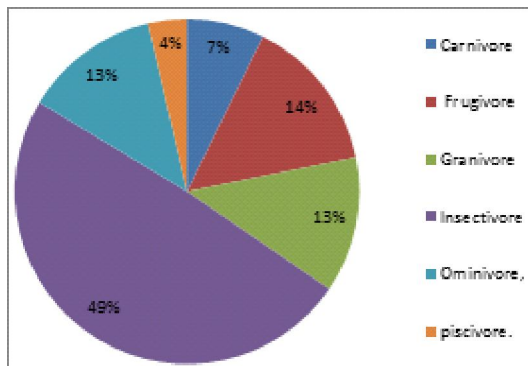


Fig. 1: Dietary pattern of Diversity

A total of 55 bird species of 35 families and 14 orders were observed during the study period, a similar finding was recorded by Darke *et al.*,⁶ in Nagpur. Order Passeriformes represented by 15 families with 25 bird species contributes to about 45% of the avifaunal species (Figure 5). Food preference of birds showed insectivores were dominating with 49% followed by frugivores 14%, granivores and omnivores with 13%, carnivore 7%, piscivore 4% respectively in bird community (Figure 1). Kumar *et al.*⁹ evaluated similar feeding pattern in Nawabganj Bird Sanctuary, Unnao.

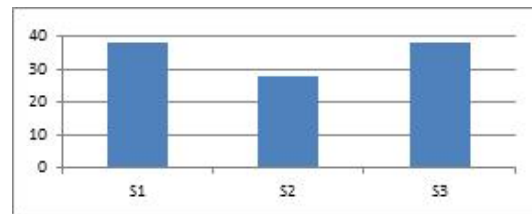


Fig. 2 Number of species on different sites.

In 35 families of bird dominant species were found from Columbidae with a contribution of 9% Sturnidae and Ardeidae family contribute about 7%, Cuculidae and Muscicapidae with 5%, Accipitridae, Alcedinidae, Corvidae, Estrildidae, Leiothrichidae, Megalaimidae with 4% each and other with 2% each (figure 4). Total 38 species like Indian Rock Pigeon, Black Drongo, Purple Sunbird, Green Bee Eater, Indian Robin, Oriental Magpie Robin, Jungle Babbler were found in high frequency on the site 1, it is similar to site 3, Past studies also have suggested that urban areas are more diverse than their farmland and rural counterparts¹. 28 species

Table 1: List of total avifauna, dietary pattern and status of seen in during the study.

Common Name	Scientific name	Dietary pattern	Resident status	Observation site
Egyptian vulture	<i>Neophron percnopterus</i>	1	CR	3
Shikra	<i>Accipiter badius</i>	1	CR	1,3
White-throated kingfisher	<i>Halcyon smyrnensis</i>	1	LCR	1,3
Common kingfisher	<i>Alcedo atthis</i>	6	LCR	1,3
Indian pond heron	<i>Ardeola grayii</i>	4	CR	1,3
Cattle egret	<i>Bubulcus ibis</i>	4	CR	3
Intermediate egret	<i>Ardea intermedia</i>	4	LCR	3
Great egret	<i>Ardea alba</i>	4	LCR	3
Indian grey hornbill	<i>Ocyrceros birostris</i>	2	CR	1,3
Red-wattled lapwing	<i>Vanellus indicus</i>	4	CR	1,2,3
Common tailorbird	<i>Orthotomus sutorius</i>	4	CR	1,2
Red-collared dove	<i>Streptopelia tranquebarica</i>	3	CR	1,2
Laughing dove	<i>Streptopelia senegalensis</i>	3	CR	1,2
Yellow-footed pigeon	<i>Treron phoenicoptera</i>	3	LCR	1
Rock pigeon	<i>Columba livia</i>	3	CR	1,2,3
Spotted dove	<i>Streptopelia chinensis</i>	3	CR	1,2,3
Indian roller	<i>Coracias benghalensis</i>	4	LCR	1,2,3
House crow	<i>Corvus splendens</i>	5	CR	1,2
Rufous treepie	<i>Dendroctta vagabunda</i>	2	CR	1,2,3
Great coucal	<i>Centropus sinensis</i>	5	CR	1,3
Common Hawk cuckoo	<i>Cuculus varius</i>	4	CR	3
Asian koel	<i>Eudynamys scolopacea</i>	2	CR	1,2,3
Black drongo	<i>Dicrurus macrocercus</i>	4	CR	1,2,3
Red avadavat	<i>Amandava amandava</i>	3	CR	3
Red avadavat	<i>Amandava amandava</i>	3	CR	3
Indian Silverbill	<i>Lonchura malabarica</i>	3	CR	3
Sarus crane	<i>Grus Antigone</i>	4	NR	3
Wire-tailed swallow	<i>Hirundo smithii</i>	4	CR	1
Jungle babbler	<i>Turdoides striatus</i>	4	CR	1,2,3
Common babbler	<i>Turdoides caudates</i>	4	CR	1,2
Brown-headed barbet	<i>Megalaima zeylanica</i>	4	CR	3
Coppersmith Barbet	<i>Megalaima haemacephala</i>	4	CR	3
Green bee-eater	<i>Merops orientalis</i>	4	CR	1,2

Asian paradise flycatcher	<i>Terpsiphone paradisi</i>	4	LCS	2,3
Paddyfield Pipit	<i>Anthus rufulus</i>	4	CR	3
Oriental magpie robin	<i>Copsychus saularis</i>	4	CR	1,2
Indian robin	<i>Saxicoloides fulicata</i>	4	LCR	1,2,3
Bluethroat	<i>Lusciniasvecica</i>	4	CR	3
Purple sunbird	<i>Nectarinia asiatica</i>	6	CR	1,2,3
Eurasian Golden Oriole	<i>Oriolus oriolus</i>	4	CR	3
House sparrow	<i>Passer domesticus</i>	3	CR	2
Indian peafowl	<i>Pavo cristatus</i>	5	CR	1,3
Yellow Crowned	<i>Dendrocopos</i>	4	CR	2,3
Woodpecker	<i>mahrattensis</i>			
Plum Headed Parakeet	<i>Psittacula cyanocephala</i>	2	CR	2,3
Rose ringed parakeet	<i>Psittacula krameri</i>	2	CR	1,2,3
Red-vented bulbul	<i>Pycnonotus cafer</i>	2	CR	1,2
White-breasted water-hen	<i>Amaurornis phoenicurus</i>	4	LCR	3
Black-Winged Stilt	<i>Himantopus himantopus</i>	4	LCW	3
Spotted owl	<i>Athene brama</i>	1	CR	1
Common myna	<i>Acridotheres tristis</i>	5	CR	2,3
Brahminy starling	<i>Sturnus pagodarum</i>	2	LCR	1,2
Bank myna	<i>Acridotheres ginginianus</i>	5	CR	1
Asian pied starling	<i>Sturnus contra</i>	5	NR	1
Common hoopoe	<i>Upupa epops</i>	4	CR	2
Common Woodshrike	<i>Tephrodornis</i>	4	CR	2,3
	<i>pondicerianus</i>			
Oriental white-eye	<i>Zosterops palpebrosus</i>	4	CR	2

Resident status-

CR – Common Resident, LCR – locally common resident, LCS – locally common summer visitor, NR – not common resident, LCW – locally common winter visitor.

Dietary pattern-

1= Carnivore, 2= Frugivore, 3= Granivore, 4= Insectivore 5= Omnivore, 6= piscivore.

Conservation strategy :

In diversity conservation, an important role plays by green-spaces of the urban area⁴ So, city administration should be adopted green city or green building projects that minimizing

air pollution and as well as to stop the extinction of wildlife species. Promote awareness about wild-life and increase vegetation along with the road site and also in open public places to provide shelter or microhabitats. Cultivated more trees in backyards and lawns of house,

established parks and pollution-free ponds and wetlands in urban areas to attract a variety of aquatic and terrestrial birds¹. Sustainable and holistic management planning is necessary for developing area of the city⁵ and continuous monitoring of ecosystem health and population of birds will be helpful for conservation of birds.

In the study area diversity shares mix type of habitat such as agricultural fields including swampy area, developed urban area and open ground including bushes. The survey shows that the study area supports rich avian diversity and gives baseline data about the terrestrial and aquatic birds. This investigation will be helpful in the identification of anthropogenic threats, future urban planning, creating awareness to conserve microhabitat of avian diversity on the local level and also for species-specific research work on avifauna.

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References :

1. Akram, f., O. Ilyas and B. A. K. Prusty (2015). *International Journal of Engineering Technology Science and Research* 2(10): 1-11.
2. Arya, M., R. J. Rao and A. K. Mishra (2014). *Journal of Environmental Biology* 35: 703-708.
3. Badge, N. (2015). *International Journal of Life Sciences* 3(3): 210-218.
4. Chaturvedi, S. K., S. Nigam and A. Dwivedi (2017). *International Journal of Science and Research* 6(8): 1585-1590.
5. Chowdhury, S. (2017). *International Journal of Science and Research*, 6(3): 866-871.
6. Darke, S., R. Didolkar and S. Koushik (2015). *Journal of Entomology and Zoology Studies* 3(5): 141-146.
7. Edison, D. P. S., A. D. Abragamand and S. Vijila (2016). *International Journal of Advanced Research* 4(1): 390- 395.
8. Grimmet, R., C. Inskipp and T. Inskipp (1999). *Birds of the Indian subcontinent*. India: Pp. 1-135. *Oxford University Press*.
9. Kumar, A., A. Kanaujia, S. Kushwaha, and A. Kumar (2015). *Journal of Environmental Science, Toxicology and Food Technology* 9 (4): 81-91.
10. Okosodo, E. F., J. O. Orimaye and F. O. Obasogie (2016). *Greener Journal of Agricultural Sciences* 6 (1): 017-027.
11. Rao, R. J. (2016). *Bionature* 36(2): 71-79.
12. Seyoum, K., A. Bezawork and L. Kebeta (2018). *International Journal of Avian & Wildlife Biology* 3(5): 333-340.
13. Singh, K., A. Maheshwari and S.V. Dwivedi, (2018). *International Journal of Avian & Wildlife Biology*, 3(02): 184-187.