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Avifauna diversity and distribution pattern in Village, Daurala of Meerut region,Uttar Pradesh

Priya[1] and Dr. Garima Pundir[1]

[1]*Department of Zoology, Raghunath Girls' Post Graduate College , Meerut, Affiliated to Chaudhary Charan Singh University, Meerut, Uttar Pradesh, India*

* Corresponding author. E-mail- gaarimaa112@yahoo.co.in
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ABSTRACT

The present systematic investigation of Avifauna was conducted in village Daurala ,Meerut Uttar Pradesh for 4 months from August 2025 to November 2025 (summer to winter) the observation were recorded monthly at different time of the day (morning, mid-day and evening) variable viz.. family name, habitat preference and characteristics features (identifying feature) were noted during the survey. A total of 33 species, belonging to 28 families were recorded. Most of the bird species were found to be frequent visitor and also most of species used more than one habitat with highest number of species 33 was observed on the trees , whereas the lowest number of species 4,was found around the ponds .

Introduction

India is a country full of diversities due to the great diversity of climatic and physical conditions in India, there is a great variety of animals with about 92,037 species and about 40,000 species of plants (Bailey and King 2019; Koli 2014). For the protection of animals, there are many types of wildlife sanctuaries, national parks, tiger reserves etc. There are 544 wildlife sanctuaries in India and 27 in different area. India has the large biodiversity regions contains agriculture fields, deserts, grassland and forest as well as the highest ranges of mountains in the world. The seasonal environmental conditions and variation in rainfall at different regions are responsible for having different types of ecosystems, which supports varied avifauna.

Birds are conspicuous elements of the ecosystem and suitable bio indicator for monitoring the health of an ecosystem (Gregory *et al*., 2003). Birds also explain the state of the ecosystems such as forest edges, wetlands and major river basins. Expanding urbanization is causing global loss of biodiversity, subsequently, a bird survey calls for improved understanding of urban biodiversity (Marzluff *et al*., 2008 and McDonnell *et al*., 2009) and its importance for human wellbeing (Fuller *et al*., 2007) as well as an indicate of change environmental condition (Dearborn and Kark, 2010). India is a country full of diversities. Due to the great Diversity of climatic and physical conditions in India, There is a great variety of animals with about 92,037 species and about 40,000 species of plants (Bailey and King 2019; Koli 2014). For the protection of animals, one of which Is known as Hastinapur wildlife sanctuary in Baran District of Uttar pradesh. By now the number of bird species and for that matter, the number and distribution of geographica races have been all but not completely determined (Steresemann , 1975). The bird life of Uttar Pradesh in rich and varied, nearly 500 species are found, including some extremely rare ones. Among the Critically endangered species. Oriental white – backed vulture (*Gyps bengalensis*) , long-billed vulture (*Gyps indices*) and slender – billed vulture (*Gyps tenuirostris*) are found in this State .Bird Life International(2001) has listed ten endangered species; the Bengal floriculture, the white headed duck (*Oxyura leucocephala*) and lesser florican (*Sypheotides indica*) are occasionally seen and the greater adjutant (*Leptoptilos dubious*) has not been recorded recently (Rahmani *et al*.,1990) .

Avifauna surveyed in Village Daurala

The vegetation status in Daurala (fig.-1) block in the Meerut district of Uttar Pradesh is primarily dominated by agricultural activity, with a high intensity of sugarcane and wheat cropping. While the broader Meerut district has seen a marginal increase in total forest cover (from 2.67% in 2019 to 2017 reports, though definitions vary), the vegetation in the industrial vicinity of Daurala (fig.-1) is under pressure from urbanization, agricultural intensification and pollution. Villages in the vicinity of the Hastinapur Wildlife Sanctuary, which includes Daurala Village, are home to a diverse avian population, with species like the sarus Crane ,peacock and various vultures being notable resident species such a bulbul ,mynahs and sparrows as well as migratory birds like the bar – headed Goose and common teal ,especially near the abundant water bodies. A total of 117 species have been recorded in the wider region of the Sanctuary, including wetland and forest – dwelling birds . Due to its location in the agricultural landscape of the Meerut district, the avian fauna of Daurala village would likely be similar to that of the broader region. Specific, village-level data is not publicly available, but general regional checklists can provide a strong indication of the birds you might encounter. Based on regional studies and checklists from nearby areas like Aligarh and

Hastinapur, the following bird species are representative of the agricultural and wetland habitats around Meerut.

Material and Method

Study area : in present investigation we identified the avian fauna of village Daurala (fig.- 1) , Meerut Uttar Pradesh during the period of four – five months. (August 2025 -December 2025) and covering the following season; late summer, winter and early summer. Four Sites were selected for survey in village Daurala (fig.-1),Meerut and the selections of sites were based on bird's habitat. These sites included Forest, Grassland , Agriculture field , and Pond. These sites are marked as site -1 ,site 2 , site -3 , site-4 , shown in figure 1 .The area selected for study was village Daurala (fig.1) present in Meerut in Uttar Pradesh and survey for avifauna with identification has been done .

Vegetation of study sites: The diversity of main habitat type is shown on figure 2 .These land cover type can be classified in the major categaries : forest , agriculture field ,pond ,grassland area.

Type of sites were: site -1 Grassland area ,site -2 pond area , site-3 forest area , site-4 agriculture field.

Observation Methodology

By using local maps the representation locations were found and identified periodic observation was done at three to four times in a day .Morning (before and after the sunrise) mid of the day and evening (before the sunset) Mainly eye observation were made to watch the birds . Phone was used to locate the bird at a distance and to observe them more clearly. Phone camera was used to take photographs of the birds.

Species identification

The identification of birds was done using field guides such as "A pictorial guide to the birds of the India Subcontinent "(Ali and Ripley; 1989), Birds of Northern India (Grimmett and I Inskipp 2003). The identification of species was also done with the help of standard literature of " Collins Handguide to the birds of India sub-continent " (Woodcock 1980) and "A pocket guide to the Birds of the India Subcontinent " (Grimmett *et al*.,1999).

The following three characteristics were applied to identify the bird species.

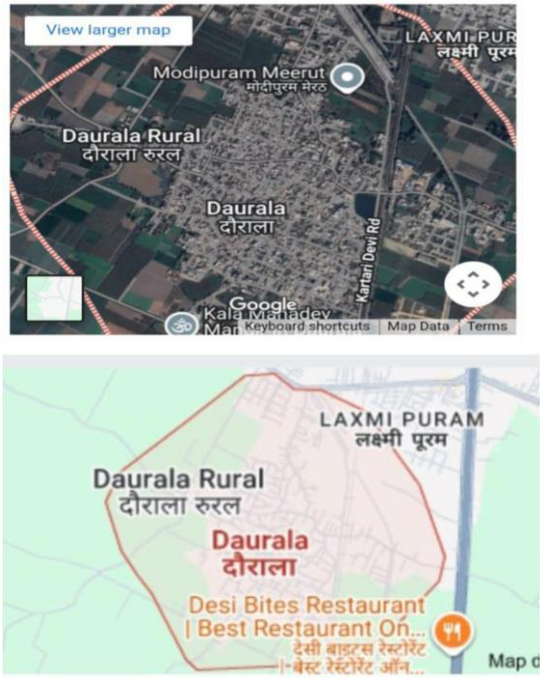
External morphometry : Colour ,shape , size , beak, leg and tail of the birds were the most important features for the identification of birds species.

Song and calls : Identification of bird's species was also made on the basis of song or / calls of the birds.

Habitats: The species were also identified by observing the habitats of the birds : 1.open area ,2. Agricultural landscape, 3. Human habitation , 4. Tree, 5.Pond ,6. Other water bodies.

Results and Discussions

August to December 32 species had been recorded from the village Daurala (Meerut). Pigeon, Egart and crow was dominant species, which were recorded in the maximum numbers while Parrot , kingfishers and brown rock chat were seen is the average numbers sparrow, peacock and Greater cavcal were seen in the minimum number as during the course of the survey . Most of the birds are diurnal because they are active according to photo period. The birds should migrating behaviour from one place to another place in search of food. This behaviour was seen early morning before the sun rise and return after the sun set. While some birds migrate from one place to another place due to climatic change and back to home ground for the reproduction. India Subcontinent is very rich in biodiversity so here about 35% of the birds diversity is found. Birds are found in all types of habitat. The presence of birds mainly depend on the feeding habit of bird, each bird has different habitat, feeding and other activities. But some birds are found in mixed type of habitat. The birds diversity is very dispersal .The investigation also suggested that the most of species spend their time in the mixed habitat. They usually perched on a tree or a ground. Many birds are affected by the human activities in the forest and habitat the field of agriculture are affected .Few observations were recorded in respect of different parameters. Various variables ,like family name ,habitat preference and characteristics features (identifying feature) were noted during the survey period , a total no. of 30 species of birds belonging to many genera and different families were recorded from all four sites. The figures of all birds species is show on plate. Mostly birds prefer mixed habitat and their feeding depend upon availability of them.



Village Daurala map Fig- 1

	Comman Name	Scientific Name	Family	Food
1	Crow	*Corvus brachyrhynchos*	Corvidae	Seed,insects
2	Pigeon	*Columba livia*	Columbidae	Millets, seeds
3	Duck	*Anas platyrhynchos*	Anatidae	Insects, seeds
4	Indian mynah	*Acridotheres tristis*	Sturnidae	Insects, seeds
5	Cock	*Gallus gallus*	Phasianidae	Insects, wheat seeds ,etc.
6	Egret	*Bubulcusibis / Cattle egret*	Ardeidae	Insects, seeds
7	Koyal	*Eudynamys scolopceus*	Cuculidae	Insects, seeds
8	Sparrow	*Passer domesticus*	Passeridae	Seeds, insects
9	Parrot	*Psittacula krameri*	Psittacidae	Fruits, seeds
10	Indian robin	Copsychus fulicatus	Muscicapidae	Insects, seeds
11	Ring necked dove	*Streptopelia capicala*	Columbidae	Millets, wheat seeds, etc.
12	Greater coucal	*Centropus sinensis*	Cuculidae	Sugarcane, seeds Insects
13	Black drongo	*Dicrurus macrocercus*	Dicruridae	Insects, seeds
14	Wren	*Prinia socialis*	Cisticolidae	Insects,

	warbler			seeds
15	Brown rock chat	*Oenanthe fusca*	Muscicapidae	Seeds ,insects
16	Common bulbul	*Pycnonotus barbatus*	Pycnonotidae	Insects, seeds
17	King fisher	*Halcyon smyrnensis*	Halcyonidae	Insects, seeds
18	Brown bellied swallow	*Orochelidon murina*	Hirundinidae	Insects, seeds
19	Black winged slilt	*Himantopus himantopus*	Recurvirostridae	Seeds ,insects
20	Eagle	*Aquila chrysaetos*	Accipitridae	Insects, lower animals, birds
21	Bank mynah	*Acridotheres ginginianus*	Sturnidae	Insects, seeds
22	Jungle babbler	*Turdoides striata*	Leiothrichidae	Seeds ,insects
23	Rufous treepie	*Dendrocitta vagabunda*	Corvidae	Insects, seeds,
24	Black billed thrush	*Turdus ignobilis*	Turdidae	Insects, lower insects
25	Black winged kite	*Elanus caeruleus*	Accipitridae	Lower earthworm's, insects
26	Hoopoe	*Upupa epops*	Upupidae	Insects, seeds
27	Magpie robin	*Copsychus saularis*	Muscicapidae	Seeds,insects,
28	Common mynah	*Acridotheres tristis*	Sturnidae	Insects, seeds
29	Little cormorant	*Microcarbo niger*	Phalacrocoracidae	Lower animals, insects, birds etc.
30	White pigeon	*Columba livia domestica*	Columbidae	Seeds,millets, bajra etc.
31	Baaz (Hawk)	*Accipiter gentiles*	Accipitridae	Lower animals, insects, etc.
32	Peacock	*Pavo cristatus*	Phasianidae	Insects, etc.
33	Weaver bird	*Ploceus philippinus*	Ploceidae	Insects, millets etc.

late summer and early winter, while comparatively less number of species was observed during late winter season. Among all groups of animal in the world, birds are more liked awing to their rich coloration, song, easy recognition and live lines . Moreover birds are present everywhere starting from forest, grassland , wetland to crop field and garden. Our country is very rich in bird found of nearly 10,000 different kinds of in the world ,1300 species or about 15% of the world's birds are found in Indian Subcontinent. The main reason of varied habitat. Many types of grasslands, wetlands and forest support the survival of various species of birds and other animals of the total number of bird species, which are estimated around 8600 comprising of about 30,000 forms, Indian Subcontinent with a vascular diver of climate and biodiversity feature, possesses most probably the richest avifauna (Ali,1964) environmental factor such as temperature, appropriate conditions (i.e..availability of food and competition) also play an important role in selection of habitat. These species of birds were frequently visiting all four sites but the few sites and site covered Mostly bird habitat. In total species, a large number of species prefer visiting of these three sites .It was also found. The some species were not frequently visitor of our sites. Abundance of bird species were also recorded according to survey time and site.The result revealed that the highest number of species of birds (diversity) occurred in site.

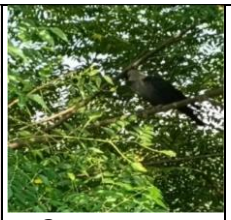
Site – 1

Site- 2

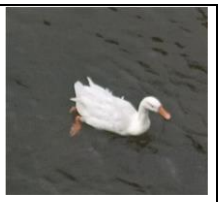
Site- 3

Site- 4

Columba livia



Corvus brachyrhynchos



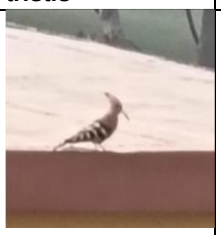
Anas platyrhynchos

Gallus gallus

Acridotheres tristis

Bubulcusibis

Streptopelia capicala



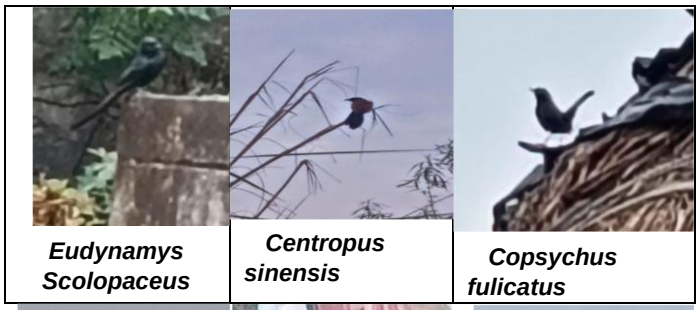
Upupa epops

Dendrocitta Vagabunda

Halcyon smyrnesis

Acridotheres ginginianus

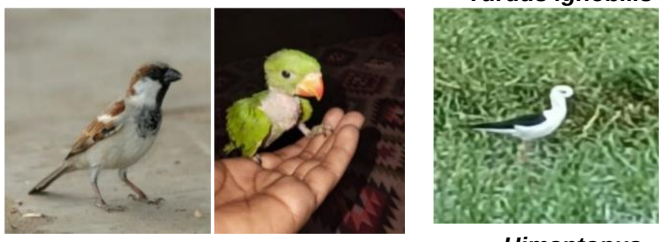
Dicrurus macrocercus



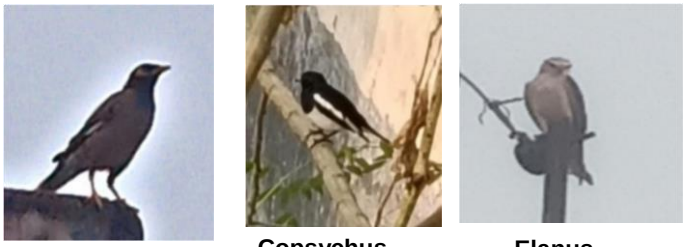
Eudynamys Scolopaceus | *Centropus sinensis* | *Copsychus fulicatus*

Microcarbo niger | *Oenanthe fusca* | *Pycnonotus barbatus*

Prinia socialis | *Turdoides striata* | *Turdus ignobilis*



Passer domestica | *Psittacula krameri* | *Himantopus himantopus*



Acridotheres | *Copsychus saularis* | *Elanus caeruleus*

Orochelidon murina | *Aquila chrysaetos* | *Columba livia domestica*

Accipiter gentiles | *Pavo cristatus* | *Ploceus philippinus*

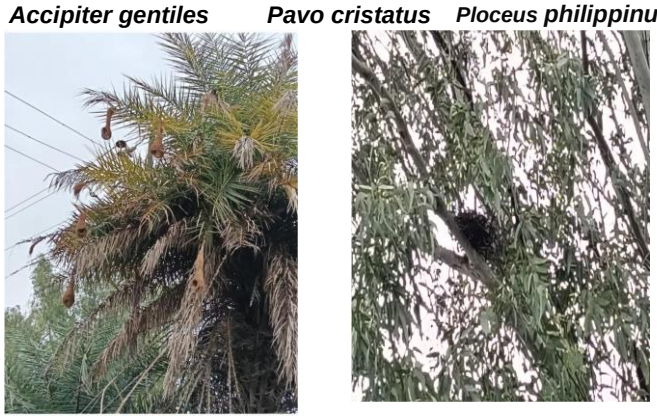


Fig.-3

Nesting Behavior of Weaver birds : The nests in the (Fig.- 3) appear to be made by weaver birds, possibly a species like the Baya weaver, which are known to build intricate, hanging nests on palm trees. The nests are distinctive, retort-shaped (hanging, with a downward-pointing entrance tube), and woven from plant materials. They are attached to the fronds of a date palm tree, a common location for such birds to build their nests for safety from predators. This type of nest is called a hanging woven nest (also known as a pendulous nest, Usually many nests together on palm or acacia trees (colonial nesting). The narrow hanging entrance protects eggs and chicks from snakes, crows and predators along with the swinging motion makes it difficult for enemies to enter.

Nesting behavior of crow: Crows are highly intelligent, territorial, and social birds that build sturdy, cup-shaped nests, typically in March–May. They prefer building 10–12 meters high in trees, often using twigs, bark, and moss, and will sometimes utilize man-made structures. Both parents build the nest, which can take 1–2 weeks.

Key Aspects of Crow Nesting Behavior:

Nest Structure: Nests are built of sturdy branches and twigs, lined with softer materials like moss, hair, or bark.

Location: They prefer large trees with big crowns, often selecting conifers or dense foliage for protection.

Breeding Pair: Pairs are generally monogamous and may stay together year-round.

Clutch Size & Incubation: Females lay 3–5 eggs, which they incubate for 2–3 weeks.

Care for Young: Both parents, sometimes aided by "helpers" (previous offspring), feed the young.

Territoriality: While they may form loose colonies, they are often aggressive toward other crows, defending their nesting tree.

Conclusion

Study shows that the village,Daurala is the major avian biodiversity hotspot as data collected on one time study in August month and we found 30 species of birds, so it can be concluded that the village, Daurala is rich in avian diversity including several agricultural farms . The observation revealed that the most suitable environment of birds is forest. During the present survey, we recorded 30 bird species from the forest habitat. Our observation demonstrated that some bird selected mixed habitat and their feeding depend upon the food availability. So,environmental factor such as light, temperature, humidity and other appropriate conditions (i.e..

availability of food and competition) also play an important role for the selection of habitat for a particular species. This study and survey will provide valuable information for further avifauna survey with changing pattern of rural backgrounds to urbanisation in Meerut region. The conservation of avian species will be dependent on a better understanding of ecological requirements and the quantity of visitor birds.

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