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Prevalence of birds in different habitats in Hisar, Haryana

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Abstract

The present study was aimed at assessing the bird diversity in different habitat i.e., urban and rural residential localities, aquatic habitats, agricultural fields and roadside plantation in and around city Hisar, Haryana (29.17°N and 75.72°E). To observe the prevalent avian species, Lines Transect and Point Count methods were used. Analysis of recorded data revealed that the order Passeriformes was most dominant in all selected habitats except aquatic habitat where order Ciconiiformes was dominant. Relatively higher bird diversity (38 bird species belonging to 11 orders) was recorded in agricultural fields as compare to other habitats due to easy availability of food and nesting sites as well as dense protective cover. Traffic on the road had a direct effect on the prevalence of birds on the flora on roadside plantations.

Key words: Bird diversity, residential localities, flora.

Introduction

Hisar city (29.17°N and 75.72°E) is located 164 Km north-west of Delhi on national highway, NH-10. Temperature is as high as 48°C in summer and as low as 0°C in winter. It is a semi-arid region of very inadequate rainfall where agriculture is supported by canals and ground water irrigation. Prominent flora of Hisar includes trees like *Accacia leucophoria*, *Accacia nilotica*, *Albizia lebleck*, *Azadirachita indica*, *Callistemon lanceolotus*, *Cassia fistula*, *Ficus bengalensis*, *Ficus religiosa*, *Dalbergia sisso*, *Saraca indica*, *Zizypus jujuba*, *Prosopis cineraria*, *Eucalyptus* sp. and shrubs like *Hibiscus rosasinensis*, *Zizypus mauritiana*, *Calotropis procera*, *Duranta* sp., *Bougainvillea glabra*, *Capparis desidua* and herbs like *Cannabis sativa*, *Cynodon dactylon*, *Digera arvensis*, *Trianthema* sp., *Parthenium hysterophorus* and *Pergularia aemioa*. The varied habitats support a rich avian fauna. The present study was designed to record the prevalent avian fauna in different habitats in and around Hisar city.

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Material and Methods

Study Area: The study area included urban and rural residential localities, agricultural fields, aquatic habitats and roadside plantation in and around Hisar city (Fig. 1).

Urban localities: These comprised of 9 sites, namely, Jindal Park, Madhuban Park, New Rishi nagar, Prem nagar, Sector 15, 16 and Town Park were selected in urban localities of city of Hisar.

Rural localities: These included residential areas in villages of Hisar city, namely, Kamri, Ladwa, Mangali, Satrod, Sultanpur and Talwandi rana. Avian fauna was observed on residential premises, electric wires, poles in streets and on trees approaching residential sites.

Agricultural fields: These included field areas of some selected villages of Hisar city. Herbs, shrubs, trees and crops in agricultural fields were scanned to record prevalent avian fauna.

Aquatic habitats: These included village ponds and canals in selected villages in and around Hisar city. Bird species were observed in the waterbodies, on terrestrial surface outside the water as well as on plantations around the waterbodies.

Roadside plantation: It comprised plantations along three different types of roads, one each having low, moderate and heavy traffic respectively in the outskirts of Hisar city.

Methodology

In the present study, periodic weekly survey was conducted in a variety of habitats in and around Hisar city. During each visit, sites were visited from 6.00 am to 9.00 am in the morning and from 4.30 pm to

7.30 pm in the evening. Besides, several erratic visits were also conducted during different hours of the day to record the existing avian fauna.

Lines Transect method (Gaston, 1975) and Point Count methods (Altman, 1974) were used to record avian species. Birds were observed using binoculars and then photographed with Sony handycam camera (DSC-H9, Digital). The photographed were identified using field guides (Ali and Ripley, 1974; Ali and Ripley, 1987; Grimmett *et al.*, 1999; Ali, 2002). Finally, list of recorded all bird species in different sites along with status were prepared and segregated into orders and families.

Results and Discussion

List of birds along with their habitat, recorded during the study period has been presented in Table 1.1 to 1.5. A total of 17 bird species belonging to 6 orders were sighted in selected sites in urban residential localities. Maximum bird species i.e., 9 species belonged to order Passeriformes, followed by order Columbiformes (4 species) while the remaining orders were represented by only single bird species each. In urban residential localities, 12 bird species were observed on houses as well as on ground/flora in park and 11 bird species were sighted on ground/flora as well as on electric wires and plantations approaching residential localities and 10 bird species were recorded on houses/electric wires and roadside plantations (Table 1.1).

In rural residential premises, a total 16 bird species belonging to 7 orders were found either perching or in search of food in all available sites. Order Passeriformes (6 species) was the most abundant order and followed by Columbiformes (4 species), Coraciiformes (2 species) and remaining all other orders included only single species. Out of total 16 species, 12 bird species were seen on houses, 13 species on electric wires/poles and 10 species on trees approaching residential localities (Table 1.2).

In agricultural fields, a total of 38 bird species belonging to 11 orders were sighted on the herbs, shrubs and trees in fields (Table 1.3). Prevalence of such high bird diversity in agricultural fields is due to easy availability of food and nesting sites as well as dense protective cover in these selected sites. As far as number of species is concerned, maximum number of bird species (23 species) belonged to order Passeriformes, followed by order Galliformes, Coraciiformes, Charadriiformes and Falconiformes, each of which was represented by two bird species while the remaining orders included only single species. Similar study was carried out by Laube *et al.* (2008) in Kenyan Agro ecosystem where they

recorded 22 forest bird species and 58 shrub land bird species.

In selected waterbodies, a total of 16 wetland bird species belonging to 9 orders were observed during study period. Out of total 16 species, 7 species were sighted in the waterbodies, 9 species were observed on the peripheral area outside the water and 5 species on plantations around waterbodies (Table 1.4). Compared to this, Gupta and Bajaj (1997) recorded 23 wetland bird species at Brahmisarovar, Kurukshetra. Bajaj (2002) recorded 88 wetland bird species in four bird sanctuaries in Haryana. Low diversity of wetland birds in study area (Hisar) was due to shortage of water in selected waterbodies as Hisar lies in semiarid region and rain was also occur only in monsoon season.

Traffic on the road had a direct effect on the prevalence of birds on the flora alongside roads as least number of bird species (4 species) were sighted on the plantations along the road having high traffic compared to 12 bird species observed on the plantations along the road having moderate traffic and maximum number of bird species (22 species) observed on the plantations along the road having low traffic (Table 1.5). Such a correlation between the prevalence of birds and vehicular traffic clearly suggest that birds get distracted due to traffic plying on roads and least preferred same plantation on roads with heavy traffic than the ones with moderate or low traffic.

Conclusion

Maximum species of birds (38 species) were observed in agricultural fields due to high flora in fields which provide perching/foraging sites as well as protective cover to the bird species. Order Passeriformes was dominant in all selected habitats except aquatic habitat where order Ciconiiformes was dominant. Noise generated by plying vehicles on the road had direct effect on the prevalence of bird diversity on plantations along the roads.

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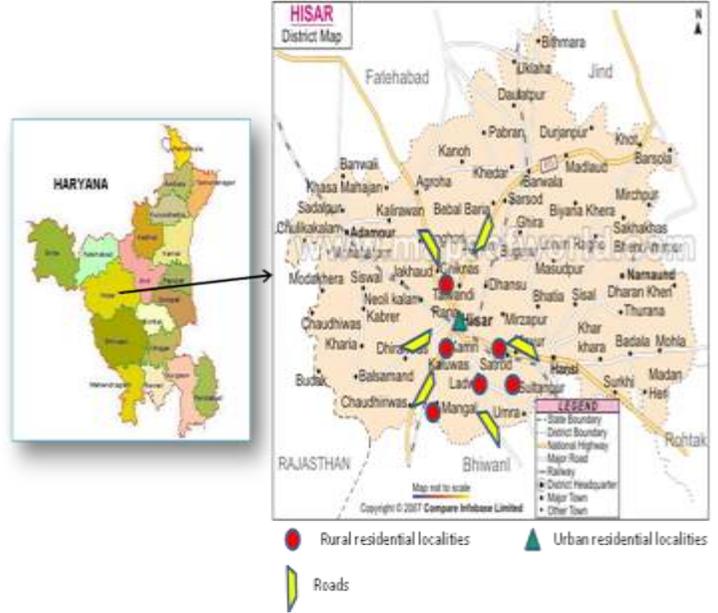


Fig. 1: Map showing the location of study sites in and around city Hisar

Table1.1: List of bird species recorded in urban residential localities

Order	Scientific name	Common name	Selected sites		
			Houses	Parks	Electric wires, trees approaching residential localities
Upupiformes	<i>Upupa epops</i>	Common Hoopoe	+	+	-
Coraciiformes	<i>Halcyon smyrnesis</i>	Whitebreasted Kingfisher	+	-	+
Cuculiformes	<i>Eudynamis scolopacea</i>	Asian Koel	-	+	+
Psittaciformes	<i>Psittacula krameri</i>	Rose ringed Parakeet	+	+	+
Columbiformes	<i>Columba livia</i>	Rock Pigeon	+	+	+
	<i>Streptopelia senegalensis</i>	Laughing Dove	+	+	+
	<i>Streptopelia decaocto</i>	Eurasian collared Dove	+	+	+
	<i>Treron phoeni</i>	Yellow footed Green Pigeon	-	+	+
Passeriformes	<i>Corvus splendens</i>	House Crow	+	+	+
	<i>Sexicoloides fulicata</i>	Indian Robin	+	+	-
	<i>Strunus contra</i>	Asian pied Starling	+	+	+
	<i>Acridotheres tristis</i>	Common Myna	+	+	+
	<i>Acridotheres ginginianus</i>	Bank Myna	+	+	+

	<i>Turdoides cavdatus</i>	Common Babbler	-	+	-
	<i>Passer domesticus</i>	House Sparrow	+	+	+
	<i>Motacilla maderaspatensis</i>	White-browed Wagtail	+	+	-
Charadriformes	<i>Vanellus indicus</i>	Red-wattled Lapwing	-	+	-

+ present - absent

Table1.2: List of bird species recorded in rural residential localities

Order	Scientific name	Common name	Selected sites		
			Houses	Electric wires & poles	Trees approaching residential localities
Galiformes	<i>Pavo cristatus</i>	Indian Pea Fowl	+	-	-
Upupiformes	<i>Upupa epops</i>	Common Hoopoe	+	+	-
Coraciiformes	<i>Halcyon smyrnensis</i>	Whitebreasted Kingfisher	-	+	-
	<i>Merops orientalis</i>	Green Bee-eater	-	+	-
Cuculiformes	<i>Eudynamys scolopacea</i>	Asian Koel	-	-	+
Psittaciformes	<i>Psittacula krameri</i>	Rose ringed Parakeet	+	+	+
Columbiformes	<i>Columba livia</i>	Rock Pigeon	+	+	-
	<i>Streptopelia senegalensis</i>	Laughing Dove	+	+	-
	<i>Streptopelia decaocto</i>	Eurasian collared Dove	+	+	+
	<i>Treron phoeni</i>	Yellow footed Green Pigeon	-	-	+
Passeriformes	<i>Corvus splendens</i>	House Crow	+	+	+
	<i>Sexicoloides fulicata</i>	Indian Robin	+	+	+
	<i>Strunus contra</i>	Asian pied Starling	+	+	+
	<i>Acridotheres tristis</i>	Common Myna	+	+	+
	<i>Acridotheres ginginianus</i>	Bank Myna	+	+	+
	<i>Turdoides cavdatus</i>	Common Babbler	+	+	+
	<i>Passer domesticus</i>	House Sparrow	+	+	+

+ present - absent

Table1.3: List of bird species recorded in agricultural fields

Order	Scientific name	Common name	Selected sites		
			Herbs & fellow lands	Shrubs	Trees
Galiformes	<i>Francolinus pondicerianus</i>	Gray Francolin	+	-	-
	<i>Pavo cristatus</i>	Indian Pea Fowl	+	-	+
Piciformes	<i>Dinopium javanense</i>	Common golden backed Woodpecker	-	-	+
Bucerotiformes	<i>Ocyrceros birostris</i>	Indian grey Hornbill	-	-	+
Coraciiformes	<i>Coracias benghalensis</i>	Indian Roller	+	+	-
	<i>Merops orientalis</i>	Green Bee-eater	+	+	-
	<i>Eudynamys scolopacea</i>	Asian Koel	-	-	+
	<i>Centropus sinensis</i>	Crow Pheasant	+	+	-
Psittaciformes	<i>Psittacula krameri</i>	Rose ringed Parakeet	-	-	+
Columbiformes	<i>Columba livia</i>	Rock Pigeon	+	-	-
	<i>Burhinus oediconemus</i>	Eurasian Thick-knee	+	-	-
	<i>Vanellus indicus</i>	Red-wattled Lapwing	+	-	-
Falconiformes	<i>Accipiter badius</i>	Shikra	-	-	+
	<i>Accipiter nisus</i>	Eurasian Sparrowhawk	+	+	+
Ciconiiformes	<i>Bubulcus ibis</i>	Cattle Egret	+	-	-
	<i>Lanius vittatus</i>	Bay-backed Shrike	+	+	-

	<i>Corvus splendens</i>	House Crow	+	+	+
	<i>Dicrurus macrocercus</i>	Black Drongo	-	+	+
	<i>Sexicoloides fulicata</i>	Indian Robin	+	+	-
	<i>Sexicola caprata</i>	Common stonechat	+	+	-
	<i>Sexicola contra</i>	Pied buschat	+	+	-
	<i>Strunus contra</i>	Asian pied Starling	+	+	+
	<i>Acridotheres tristis</i>	Common Myna	+	+	+
	<i>Acridotheres ginginianus</i>	Bank Myna	+	+	+
	<i>Strunus pagodarum</i>	Brahmny Myna	+	+	-
	<i>Pycnonotus leucotis</i>	White-eared Bulbul	+	+	-
	<i>Pycnonotus cafer</i>	Red-vented Bulbul	+	+	-
	<i>Prinia gracilis</i>	Graceful Prinia	-	+	-
	<i>Cettia fortipes</i>	Bush Warbler	+	+	-
	<i>Turdoides cavdatus</i>	Common Babbler	+	+	+
	<i>Turdoides striatus</i>	Jungle Babbler	+	+	-
	<i>Turdoides malcolini</i>	Large grey Babbler	+	+	+
	<i>Turdoides earlei</i>	Striated Babbler	+	+	-
	<i>Galerida cristata</i>	Crested Lark	+	+	-
	<i>Aethopyga siparaya</i>	Crimson Sunbird	+	+	-
	<i>Passer domesticus</i>	House Sparrow	+	+	+
	<i>Motacilla maderaspatensis</i>	White-browed Wagtail	+	-	-
	<i>Ploceus philippinus</i>	Baya Weaver	-	+	+

+ present - absent

Table1.4: List of bird species recorded in and around ponds and canals

Order	Scientific name	Common name	Selected sites		
			In water	Around water	On plantation
Anseriformes	<i>Anas poecilorhyncha</i>	Spot billed duck	+	-	-
Coraciiformes	<i>Ceryle rudis</i>	Pied Kingfisher	-	+	-
Cuculiformes	<i>Eudynamis scolopacea</i>	Asian Koel	-	-	+
Cuculiformes	<i>Centropus sinensis</i>	Crow Pheasant	-	-	+
Psittaciformes	<i>Psittacula krameri</i>	Rose ringed Parakeet	-	-	+
Gruiformes	<i>Amaurornis phoenicurus</i>	White breasted Waterhen	-	+	+
Charadriformes	<i>Actitis hypoleucos</i>	Common Sandpiper	+	+	-
	<i>Himantopus himantopus</i>	Black-winged Stilt	+	-	-
	<i>Vanellus indicus</i>	Red-wattled Lapwing	-	+	-
Pelecaniformes	<i>Phalacrocorax niger</i>	Little Cormorant	+	+	-
Ciconiiformes	<i>Egretta garzetta</i>	Little Egret	+	+	-
	<i>Casmerodius albus</i>	Great Egret	+	+	-
	<i>Bubulcus ibis</i>	Cattle Egret	-	+	-
	<i>Ardeola grayii</i>	Indian Pond Heron	+	-	-
Passeriformes	<i>Pycnonotus cafer</i>	Red-vented Bulbul	-	-	+
	<i>Motacilla maderaspatensis</i>	White-browed Wagtail	-	+	-

Table1.5: List of bird species recorded on plantation along different roads

Order	Scientific name	Common name	Selected sites		
			Heavy traffic road	Moderate traffic road	Low traffic road
Galiformes	<i>Francolinus pondicerianus</i>	Gray Francolin	-	-	+
Piciformes	<i>Dinopium javanense</i>	Common golden backed Woodpecker	-	+	+
Bucerotiformes	<i>Ocyceros birostris</i>	Indian grey Hornbill	-	-	+
Coraciiformes	<i>Halcyon smyrnesis</i>	Whitebreasted Kingfisher	+	+	+
	<i>Merops orientalis</i>	Green Bee-eater	-	+	+
Cuculiformes	<i>Clamator jacobnus</i>	Pied Cuckoo	-	-	+
	<i>Eudynamys scolopacea</i>	Asian Koel	-	-	+
Psittaciformes	<i>Psittacula krameri</i>	Rose ringed Parakeet	-	+	+
Columbiformes	<i>Columba livia</i>	Rock Pigeon	-	-	+
	<i>Streptopelia decaocto</i>	Eurasian collared Dove	+	+	+
Falconiformes	<i>Accipiter badius</i>	Shikra	-	-	+
Passeriformes	<i>Lanius vittatus</i>	Bay-backed Shrike	-	-	+
	<i>Corvus splendens</i>	House Crow	+	+	+
	<i>Dicrurus macrocercus</i>	Black Drongo	-	+	+
	<i>Sexicoloides fulicata</i>	Indian Robin	-	+	+
	<i>Sexicola caprata</i>	Common stonechat	-	-	+
	<i>Sexicola contra</i>	Pied buschat	-	+	+
	<i>Acridotheres tristis</i>	Common Myna	+	+	+
	<i>Acridotheres ginginianus</i>	Bank Myna	-	+	+
	<i>Pycnonotus cafer</i>	Red-vented Bulbul	-	+	+
	<i>Turdoides cavdatus</i>	Common Babbler	-	-	+
	<i>Passer domesticus</i>	House Sparrow	-	-	+

+ present - absent

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