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Cover: Digital illustration of Smooth-coated Otter *Lutrogale perspicillata* by Dupati Poojitha. Reference from the picture taken by Rana & Sugandhi.

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ARTICLE

Composition and ecological guild structure of birds at Chaudhary Devi Lal University campus, Haryana, India

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Abstract: Documentation of avian diversity is an effective method to monitor the quality of a habitat, along with long-term effects of habitat fragmentation, developmental activities, and urbanization. In the current investigation, the avifauna diversity of the university campus was examined from December 2022 to December 2024. A transect survey was carried out by regular walking on fixed routes in the campus. Eighty-four species from 72 genera, 43 families, and 16 orders were observed. Sixty-six species were resident, five were summer migrants, 12 were winter migrants, and one was a passage migrant. The campus supported 27 (32%) omnivorous, 10 (12%) carnivorous, 31 (37%) insectivorous, six (7%) granivorous, seven (8%) frugivorous, one (1%) nectarivorous, and two (2.4%) piscivorous species. Passerine species had higher relative diversity than non-passerines. Two 'Near Threatened' species were recorded and global population trends were 39 stable, 18 decreasing, 18 increasing, and nine unknown. Conservation efforts, including planting of native trees and preserving green cover on campus, should continue to support avifaunal diversity.

Keywords: Avian diversity, conservation, ecosystem, frugivorous, green cover, guilds, insectivore, omnivorous, Passeriformes, threatened, winter migrants.

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Author contributions: The authors have made significant contributions to this manuscript. Harkrishan Kamboj and Vivek Goyal designed the study, performed data acquisition and data analysis. Vijay Singh and Vinay Malik performed statistical, and revised the manuscript. Harkrishan Kamboj supervised and finally approved the manuscript.

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INTRODUCTION

Birds are among the most widespread vertebrates that act as sensitive bioindicators while playing a dynamic role in interconnecting various food chains in aquatic as well as terrestrial habitats (Abd 2019; Byju et al. 2024). An abundance of avifaunal diversity contributes to the development of the biotic community within the ecosystems. Birds also serve as monitors to examine the long-term effects of both habitat fragmentation and habitat loss (Gupta et al. 2009; Rashiba et al 2022). India harbours approximately 1,364 species of birds that belong to 26 orders, 115 families, and 497 genera, contributing approximately 13.81% of total avian species around the world (Praveen & Jayapal 2024). In Haryana alone, 450 bird species have been documented (Goyal et al. 2014; Rai et al. 2017). Unfortunately, the global decline in bird diversity is a concerning issue, primarily driven by the widespread use of agrochemicals in intensive agricultural practices, impacts of climate change, and habitat loss due to the expanding footprint of urbanization (Kiran et al. 2022; Kumar et al. 2025). According to the IUCN Red List, 1,311 avian species are threatened globally, with 182 of them native to India (IUCN 2024). Avian fauna constitutes a vital component of the biotic community across all ecosystems, contributing significantly to ecological stability and functioning by performing a wide range of essential ecological roles in pollination, seed dispersal, nutrient dispositioning, scavenging, and control of insect pests and rodents (Kumar & Sahu 2019). This highlights the urgent need for conservation efforts in diverse habitats to protect avian biodiversity.

Monitoring avian diversity in educational institutions provides valuable information on the ecological health of the campus, which can be used to launch an awareness drive regarding the conservation of habitat and biodiversity. Unfortunately, these sites are comparatively less considered in studies of avian diversity (Kiran et al. 2022). Although numerous researchers have documented the avian diversity within educational institutions around the world, the studies are limited, as they lack comprehensive and systematic assessments.

Estimation of diversity through a scientific approach is also essential to plan the conservation strategies for threatened avian species in any habitat. Therefore, a comprehensive exploration of avian diversity is the need of the time. Chaudhary Devi Lal University (CDLU) was founded in 2003 and is still in the process of developing its campus, with ongoing construction of buildings, roads, and hostels. The ecosystem of such developing institutes faces tremendous pressure, such as tree cutting for construction activities to make way for new infrastructure. These activities may have an impact on the quality of natural habitats. Therefore, the impacts of these changes on the structure and composition of bird diversity are yet to be fully understood. In general, birds are highly sensitive to such activities and are affected by changes in density and species composition. This has prompted us to make a survey of birds in the campus of this University, as information is lacking. Therefore, we assessed species richness, feeding guild composition and residential status of birds in a rapidly urbanizing university campus to evaluate its ecological role as a refuge habitat.

MATERIALS AND METHODS

Study area

The present study was conducted at the University campus of CDLU, Sirsa (29.546°N, 75.044°E), Haryana, India (Figure 1). The campus covers an area of 1.1 km^2, which comprises buildings, lawns, trees, grassland with herbs and shrubs, and one water body. Neem *Azadirachta indica*, Peepal *Ficus religiosa*, and Shisham *Dalbergia sissoo* dominate the campus, providing a suitable place and attracting a significant number of avian species. The campus experiences sub-tropical climatic conditions characterized by three distinct seasons: rainy season (July–September), winter season (October–February), and dry hot season (March–June). The campus experiences a high temperature of 48 ± 1 °C during the summer and as low as 3 ± 1 °C in winter, with a usual annual rainfall of 350–400 mm.

Methodology

We surveyed the avifauna for two years (December 2022 to December 2024), covering all the seasons. This field surveys were conducted on alternate weeks, using the point and line transect method (Gaston 1975 ; Sutherland et al. 2005), mainly during the peak activity times of the birds, i.e., in the morning (0600–1000 h) and evening (1600–1900 h), along with some incidental sightings during day time by walking through fixed routes (transect) to cover the entire campus. Eight linear transects of 200 m (each) were randomly deployed within the campus, with regular count stations at every 20 m intervals along the transect (Archana et al. 2024). Birds in each transect were explored with the help of Nikon Action binoculars (10 × 50) and photographed

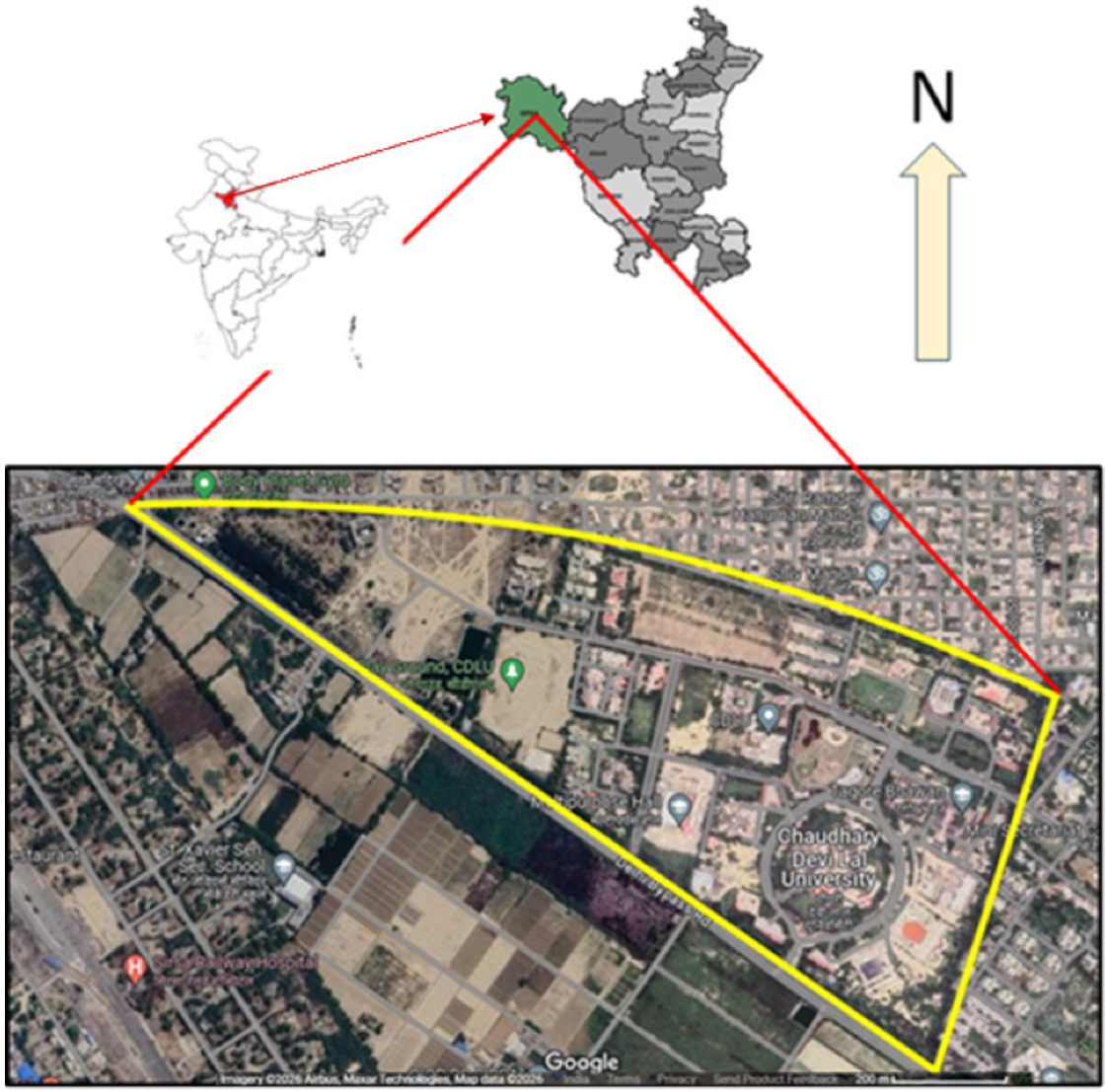

Figure 1. Location map of study area, Chaudhary Devi Lal University.

for further identification using Nikon Coolpix P1000 digital Camera. Standard field guides (Ali & Ripley 1983; Grimmett et al. 2014; Kalsi et al. 2019) were also used for birds' identification. The migratory/residential status of the reported bird species was confirmed by adopting the presence or absence method (Grimmett et al. 2014; Kumar et al. 2016). Recorded bird species were classified taxonomically by following Praveen & Jayapal (2024) and IUCN (2024). The abundance status of individual species was assigned depending on the frequency of sightings by following the standard criteria (MacKinnon & Phillipps 1993). The reported species were classified as common (observed on 80–100 % of visits), fairly common (observed on 60–79.9 % of visits), uncommon (observed on 20–59.9 % of visits), and rare (observed on less than 19.9 % of visits). Feeding guilds were determined by directly observing the foraging birds with binoculars and categorized into seven guilds (Omnivorous, Carnivorous, Frugivorous, Granivorous, Insectivorous, Nectarivorous and Piscivorous), and compared with the available literature (Rai & Vanita 2021). The conservation status, including local and global population trends of recorded avian species, was considered according to the latest IUCN Red List (2024). Further, RDi (relative diversity index) for bird families was determined following the standard formula as per Torre-Cuadros et al. (2017

$$RDi = \frac{\text{Number of species in a family}}{\text{Total number of species}} \times 100$$

RESULT AND DISCUSSION

A total of 84 species belonging to 72 genera, 43 families, and 16 orders (Table 1) were observed. The dominant order was Passeriformes (42 species), followed by Coraciiformes and Pelecaniformes (5 each), Charadriiformes, Columbiformes, Piciformes, Cuculiformes (4 each), and Gruiformes (3) (Figure 2). Tree habitat supported the highest biodiversity, followed by grassland, water body, garden, and buildings. Rock Dove *Columba livia* was the most dominant urban-adapted species, followed by Yellow-footed Green Pigeon *Treron phoenicopterus*, Jungle Babbler *Argya striata*, Red-wattled Lapwing *Vanellus indicus*, and Silver Bill *Euodice malabarica*.

Our observations align with findings from other areas, where order Passeriformes is the most prevalent avian taxon (Mathibalan et al. 2026). This dominance is attributed to their ability to occupy a wide range of habitats and capacity to consume diverse food sources (Goyal et al. 2014; Rai et al. 2017; Rai & Vanita 2021; Qing-Ming et al. 2021). Diversity and richness of avian species in any ecosystem are also influenced by various factors like vegetation, availability of food, roosting sites, number of fruiting trees, degree of noise pollution, human interference, and predation (Hossain & Aditya 2016; Chiawo et al. 2018). Analysis of relative diversity (RDi) revealed that the family Muscicapidae is the most diverse group with the greatest RDi value (7.14) and six species, followed by Sturnidae (5 species), Motacillidae, Columbidae and Cuculidae (4 species) respectively (Figure 3). Similar to our observation, Muscicapidae was also reported as a highly diverse family at the Campus of Bangalore University (Rajashekara & Venkatesha 2017).

We observed two 'Near Threatened' species: Alexandrine Parakeet *Psittacula eupatria* and Black-headed Ibis *Threskiornis melanocephalus*. Regarding residential status, 66 species were resident, five were summer migrants, 12 winter migrants, and one a passage migrant (Table 1) (Figure 4). All the migratory species are common to the earlier recorded studies on the migratory species at Ottu Lake, Sirsa, Haryana (Goyal et al. 2014; Rai & Vanita 2021). A similar pattern has also been reported by Sailo et al. (2019) at the Mizoram University campus, where the number of winter visitors was highest among migratory birds. In our investigation, the campus supported 27 (32 %) omnivorous, 10 (12%) carnivorous, 31 (37%) insectivorous, 6 (7.1%) granivorous, 7 (8.3%) frugivorous, 1 (1.2%) nectarivorous, and 2 (2.4%) piscivorous birds (Figure 5). The high number of insectivorous and omnivorous species indicates the campus provides abundant insects and varied food assets including seeds, grains, nuts, floral buds, fruits, nectar, and non-insect invertebrates. Hence, better conservation strategies should be adopted to conserve the campus ecosystem and avian diversity as well.

Passerine species dominated non-passerines in terms of relative diversity. Further analysis, in accordance with IUCN 2024 (Red List), revealed that 39 species have stable, 18 decreasing, 18 increasing, and nine unknown global population trends (Figure 6). Twenty-one species are found to be common, 25 are fairly common, seven are uncommon, and 31 are rare (Figure 7). Appropriate conservation planning is crucial for maintaining the diversity of rare species in a particular area of campus. The number of rare species in the current study area is approximately half of the number of rare species (60) reported by Rai & Vanita (2021) at Ottu Lake, Sirsa. Comparison between global population trends and local abundance status showed that three species, namely Rock Dove, Eurasian Thick Knee *Burhinus oedicnemus* and Rufous Treepie *Dendrocitta vagabunda*, with decreasing population at the global scale (as per the IUCN Red List), were present abundantly in the campus, most probably due to the presence of suitable environmental conditions and abundance of food resources.

The reported avian diversity indicates that the campus ecosystem is healthy for avian fauna and also comparable with the earlier investigations conducted at various educational institutions situated in different regions of India (Table 2). For instance, Kiran et al. (2022) recorded 101 bird species that belong to 17 orders, 43 families, and 86 genera at agricultural lands and the campus of CCS Haryana Agricultural University, Hisar. Similarly, Rajashekara & Venkatesha (2017) reported 106 bird species belonging to 68 genera at the campus of Bangalore University. Devi et al. (2012) also reported 109 species under 44 families at Guwahati University campus. Seventy-seven bird species that belong to 35 families were reported in a previous investigation at the campus of Shri Krishna University, Chhatarpur (M.P), India (Shivhare et al. 2022). The current observation also supports that despite the limited area, the university campus harbors significant avian diversity when compared with the previous investigations made in this locality. This is comparable with the avian diversity observed at Ottu lake, Sirsa, Haryana, with an area of 950 acres and a depth of 15 feet, harbors total of 114 avian species belonging to 18 orders, 47 families and 91 genera (Rai & Vanita 2021). Additionally, Goyal et al. (2014) also reported 64 migratory bird species at the same lake, comprising 44 genera, 27 families, and nine

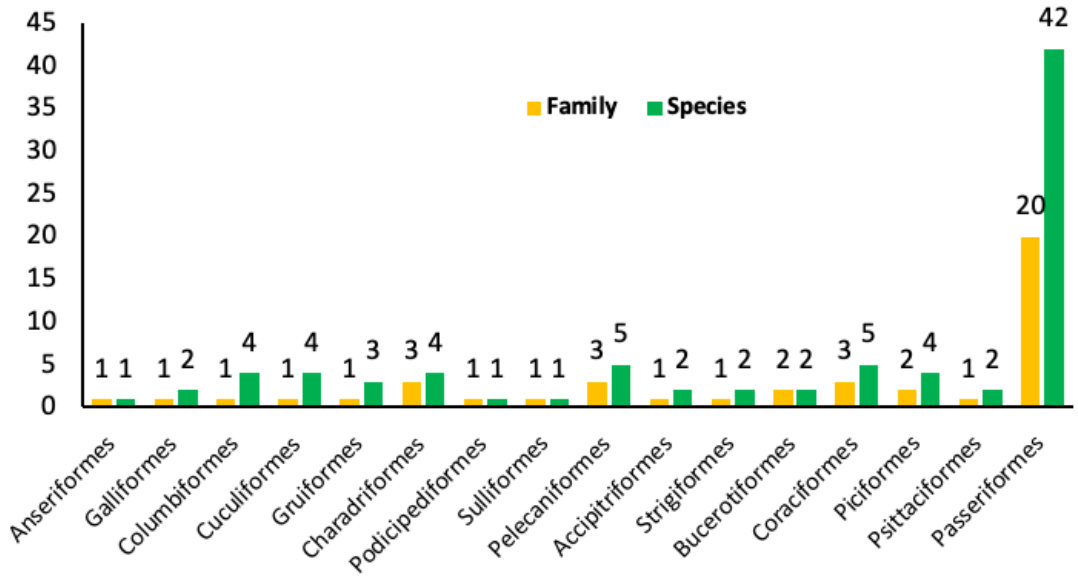

Figure 2. Order wise status of avian family at Chaudhary Devi Lal University.

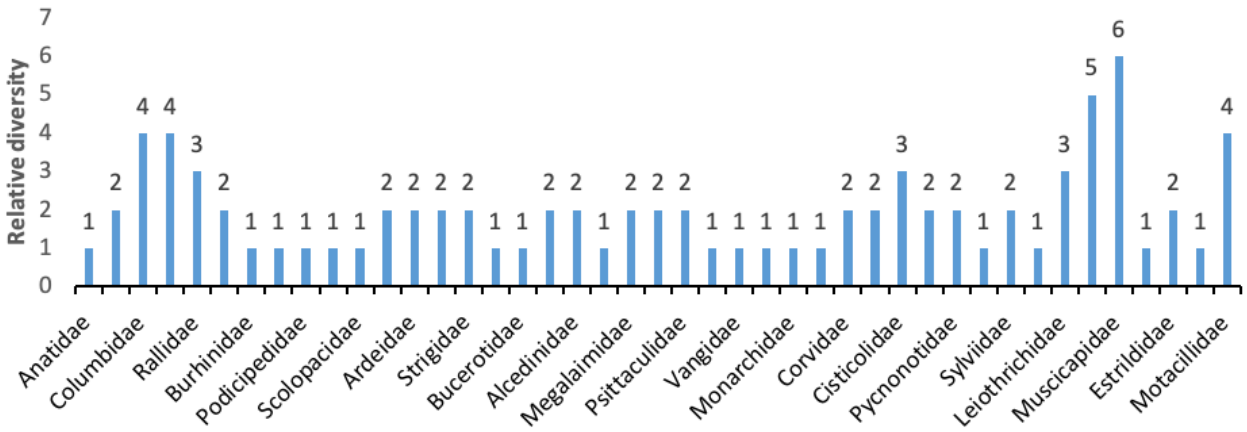

Figure 3. Relative species diversity among recorded avian families at Chaudhary Devi Lal University.

orders.

The rich avifauna diversity at this campus area can be attributed to the availability of a variety of food niches. However, the study also identified several moderate to low-level threats to avian diversity on the campus. These include limited water availability in the summer season, dusty storms in the month of May–July, that damage or destroy a significant number of both nests and nesting trees, predation of chicks by stray dogs and the presence of undeveloped land lacking suitable nesting trees. Although the campus authority has undertaken a large-scale plantation drive in the monsoon season (July–August 2025), planting more than 3,000 saplings across the premises, these require time to mature into fully developed trees capable of providing adequate nesting and foraging habitats. Therefore, additional tree plantation initiatives, effective management of stray dog populations, and increased awareness among students and staff could substantially help mitigate these threats and support the conservation of avian diversity on the campus.

CONCLUSION

Usually, urbanization leads to a decline in species diversity, favoring only a few urban-adapted species. This study highlights the significance of green spaces and habitat diversity within the institution for the conservation of avian fauna and the maintenance

Table 1. Guild, status, and composition of avian diversity recorded at the campus of Chaudhary Devi Lal University, Sirsa.

	Common name	Scientific name	Guild	IUCN Red List 2024	Residential status	Abundance status	Global trends
Order 1	**Anseriformes**						
1.1 Family	**Anatidae (RDi value 1.19)**						
1	Indian Spot-billed Duck	*Anas poecilorhyncha*	Omnivorous	LC	R	C	D
Order 2	**Galliformes**						
2.1 Family	**Phasianidae (RDi value 2.38)**						
2	Grey Francolin	*Ortygornis pondicerianus*	Omnivorous	LC	R	FC	S
3	Black Francolin	*Francolinus francolinus*	Omnivorous	LC	R	RA	S
Order 3	**Columbiformes**						
3.1 Family	**Columbidae (RDi value 4.76)**						
4	Rock Dove	*Columba livia*	Granivorous	LC	R	C	D
5	Eurasian Collared Dove	*Streptopelia decaocto*	Granivorous	LC	R	FC	I
6	Laughing Dove	*Spilopelia senegalensis*	Granivorous	LC	R	C	S
7	Yellow-footed Green Pigeon	*Treron phoenicopterus*	Frugivorous	LC	R	FC	I
Order 4	**Cuculiformes**						
4.1 Family	**Cuculidae (RDi value 4.76)**						
8	Greater Coucal	*Centropus sinensis*	Carnivorous	LC	R	C	S
9	Pied Cuckoo	*Clamator jacobinus*	Insectivorous	LC	SM	RA	S
10	Asian Koel	*Eudynamys scolopaceus*	Omnivorous	LC	SM	C	S
11	Common Hawk-Cuckoo	*Hierococcyx varius*	Insectivorous	LC	SM	RA	S
Order 5	**Gruiformes**						
5.1 Family	Rallidae **(RDi value 3.57)**						
12	Common Moorhen	*Gallinula chloropus*	Omnivorous	LC	R	C	S
13	Grey-headed Swamphen	*Porphyrio poliocephalus*	Omnivorous	LC	R	RA	U
14	White-breasted Waterhen	*Amaurornis phoenicurus*	Omnivorous	LC	R	C	U
Order 6	**Charadriformes**						
6.1 Family	**Charadriidae (RDi value 2.38)**						
15	Yellow-wattled Lapwing	*Vanellus malabaricus*	Insectivorous	LC	R	FC	S
16	Red-wattled Lapwing	*Vanellus indicus*	Insectivorous	LC	R	C	U
6.2 Family	Burhinidae **(RDi value 1.19)**						
17	Eurasian Thick-knee	*Burhinus oedicnemus*	Omnivorous	LC	R	FC	D
6.3 Family	**Recurvirostridae (RDi value 1.19)**						
18	Black-winged Stilt	*Himantopus himantopus*	Carnivorous	LC	R	C	I
Order 7	**Podicipediformes**						
7.1 Family	**Podicipedidae (RDi value 1.19)**						
19	Little Grebe	*Tachybaptus ruficollis*	Carnivorous	LC	R	UC	D
Order 8	**Suliformes**						
8.1 Family	**Phalacrocoracidae (RDi value 1.19)**						
20	Little Cormorant	*Microcarbo niger*	Piscivore	LC	R	C	U
Order 9	**Pelecaniformes**						
9.1 Family	**Scolopacidae (RDi value 1.19)**						
21	Wood Sandpiper	*Tringa glareola*	Insectivorous	LC	WM	FC	S
9.2 Family	**Threskiornithidae (RDi value 2.38)**						
22	Black-headed Ibis	*Threskiornis melanocephalus*	Carnivorous	NT	R	RA	D
23	Red-naped Ibis	*Pseudibis papillosa*	Carnivorous	LC	R	FC	D

	Common name	Scientific name	Guild	IUCN Red List 2024	Residential status	Abundance status	Global trends
9.3 Family	**Ardeidae (RDi value 2.38)**						
24	Black-crowned Night Heron	*Nycticorax nycticorax*	Carnivorous	LC	R	UC	D
25	Cattle Egret	*Ardea ibis*	Carnivorous	LC	R	C	I
Order 10	**Accipitriformes**						
10.1 Family	**Accipitridae (RDi value 2.38)**						
26	Oriental Honey Buzzard	*Pernis ptilorhynchus*	Insectivorous	LC	R	RA	D
27	Shikra	*Tachyspiza badia*	Carnivorous	LC	R	FC	S
Order 11	**Strigiformes**						
11.1 Family	**Strigidae (RDi value 2.38)**						
28	Indian Scops-Owl	*Otus bakkamoena*	Insectivorous	LC	R	RA	S
29	Spotted Owlet	*Athene brama*	Carnivorous	LC	R	FC	S
Order 12	**Bucerotiformes**						
12.1 Family	**Upupidae (RDi value 1.19)**						
30	Eurasian Hoopoe	*Upupa epops*	Insectivorous	LC	R	FC	D
12.2 Family	**Bucerotidae (RDi value 1.19)**						
31	Indian Grey Hornbill	*Ocyceros birostris*	Frugivorous	LC	R	FC	S
Order 13	**Coraciiformes**						
13.1 Family	**Meropidae (RDi value 2.38)**						
32	Asian Green Bee-eater	*Merops orientalis*	Insectivorous	LC	SM	C	I
33	Blue-cheeked Bee-eater	*Merops persicus*	Insectivorous	LC	SM	RA	S
13.2 Family	**Alcedinidae (RDi value 2.38)**						
34	White-throated Kingfisher	*Halcyon smyrnensis*	Omnivorous	LC	R	C	I
35	Pied Kingfisher	*Ceryle rudis*	Piscivore	LC	R	UC	U
13.3 Family	**Coraciidae (RDi value 1.19)**						
36	Indian Roller	*Coracias benghalensis*	Omnivorous	LC	R	RA	I
Order 14	**Piciformes**						
14.1 Family	**Megalaimidae (RDi value 2.38)**						
37	Coppersmith Barbet	*Psilopogon haemacephalus*	Frugivorous	LC	R	RA	I
38	Brown-headed Barbet	*Psilopogon zeylanicus*	Frugivorous	LC	R	RA	S
14.2 Family	**Picidae (RDi value 2.38)**						
39	Eurasian Wryneck	*Jynx torquilla*	Insectivorous	LC	WM	RA	D
40	Black-rumped Flameback	*Dinopium benghalense*	Insectivorous	LC	R	FC	S
Order 15	**Psittaciformes**						
15.1 Family	**Psittaculidae (RDi value 2.38)**						
41	Alexandrine Parakeet	*Psittacula eupatria*	Frugivorous	NT	R	RA	D
42	Rose-ringed Parakeet	*Psittacula krameri*	Frugivorous	LC	R	C	I
Order 16	**Passeriformes**						
16.1 Family	**Campephagidae (RDi value 1.19)**						
43	Small Minivet	*Pericrocotus cinnamomeus*	Insectivorous	LC	R	RA	D
16.2 Family	**Vangidae (RDi value 1.19)**						
44	Common Woodshrike	*Tephrodornis pondicerianus*	Insectivorous	LC	R	RA	S

	Common name	Scientific name	Guild	IUCN Red List 2024	Residential status	Abundance status	Global trends
16.3 Family	**Dicruridae (RDi value 1.19)**						
45	Black Drongo	*Dicrurus macrocercus*	Insectivorous	LC	R	FC	U
16.4 Family	**Monarchidae (RDi value 1.19)**						
46	Indian Paradise-Flycatcher	*Terpsiphone paradisi*	Insectivorous	LC	R	RA	S
16.5 Family	**Laniidae (RDi value 1.19)**						
47	Long-tailed Shrike	*Lanius schach*	Carnivorous	LC	WM	RA	U
16.6 Family	**Corvidae (RDi value 2.38)**						
48	Rufous Treepie	*Dendrocitta vagabunda*	Omnivorous	LC	R	FC	D
49	House Crow	*Corvus splendens*	Omnivorous	LC	R	UC	S
16.7 Family	**Alaudidae (RDi value 2.38)**						
50	Indian Bushlark	*Plocealauda erythroptera*	Omnivorous	LC	R	RA	S
51	Crested Lark	*Galerida cristata*	Omnivorous	LC	R	RA	D
16.8 Family	Cisticolidae **(RDi value 3.57)**						
52	Common Tailorbird	*Orthotomus sutorius*	Omnivorous	LC	R	RA	S
53	Ashy Prinia	*Prinia socialis*	Insectivorous	LC	R	RA	S
54	Plain Prinia	*Prinia inornata*	Insectivorous	LC	R	FC	S
16.9 Family	**Hirundinidae (RDi value 2.38)**						
55	Wire-tailed Swallow	*Hirundo smithii*	Insectivorous	LC	R	C	I
56	Streak-throated Swallow	*Petrochelidon fluvicola*	Insectivorous	LC	R	C	I
16.10 Family	**Pycnonotidae (RDi value 2.38)**						
57	Red-vented Bulbul	*Pycnonotus cafer*	Frugivorous	LC	R	C	I
58	White-eared Bulbul	*Pycnonotus leucotis*	Omnivorous	LC	R	RA	D
16.11 Family	**Phylloscopidae (RDi value 1.19)**						
59	Common Chiffchaff	*Phylloscopus collybita*	Insectivorous	LC	WM	FC	S
16.12 Family	**Sylviidae (RDi value 2.38)**						
61	Lesser Whitethroat	*Curruca curruca*	Omnivorous	LC	WM	RA	S
60	Blyth's Reed- warbler	*Acrocephalus dumetorum*	Insectivorous	LC	WM	FC	I
16.13 Family	**Zosteropidae (RDi value 1.19)**						
62	Indian White-eye	*Zosterops palpebrosus*	Insectivorous	LC	R	UC	D
16.14 Family	**Leiothrichidae (RDi value 3.38)**						
63	Large Grey Babbler	*Argya malcolmi*	Omnivorous	LC	R	FC	S
64	Jungle Babbler	*Argya striata*	Omnivorous	LC	R	C	S
65	Common Babbler	*Argya caudata*	Omnivorous	LC	R	FC	S
16.15 Family	**Sturnidae (RDi value 5.95)**						
66	Rosy Starling	*Pastor roseus*	Omnivorous	LC	PM	RA	U
67	Indian Pied Starling	*Gracupica contra*	Omnivorous	LC	R	RA	I
68	Brahminy Starling	*Sturnia pagodarum*	Omnivorous	LC	WM	RA	U
69	Common Myna	*Acridotheres tristis*	Omnivorous	LC	R	FC	I
70	Bank Myna	*Acridotheres ginginianus*	Omnivorous	LC	R	RA	I
16.16 Family	**Muscicapidae (RDi value 7.14)**						

	Common name	Scientific name	Guild	IUCN Red List 2024	Residential status	Abundance status	Global trends
71	Indian Robin	*Copsychus fulicatus*	Insectivorous	LC	R	C	S
72	Oriental Magpie-Robin	*Copsychus saularis*	Omnivorous	LC	R	RA	S
73	Bluethroat	*Luscinia svecica*	Omnivorous	LC	WM	FC	S
74	Red-breasted Flycatcher	*Ficedula parva*	Insectivorous	LC	WM	FC	I
75	Black Redstart	*Phoenicurus ochruros*	Insectivorous	LC	WM	FC	I
76	Brown Rock Chat	*Oenanthe fusca*	Insectivorous	LC	R	C	S
16.17 Family	**Nectariniidae (RDi value 1.19)**						
77	Purple Sunbird	*Cinnyris asiaticus*	Nectarivorous	LC	R	C	S
16.18 Family	Estrildidae **(RDi value 2.38)**						
78	Indian Silverbill	*Euodice malabarica*	Granivorous	LC	R	RA	S
79	Scaly-breasted Munia	*Lonchura punctulata*	Granivorous	LC	R	RA	S
16.19 Family	**Passeridae (RDi value 1.19)**						
80	House Sparrow	*Passer domesticus*	Granivorous	LC	R	UC	D
16.20 Family	**Motacillidae (RDi value 4.76)**						
81	Western Yellow Wagtail	*Motacilla flava*	Insectivorous	LC	WM	UC	D
82	White-browed Wagtail	*Motacilla maderaspatensis*	Insectivorous	LC	R	FC	S
83	White Wagtail	*Motacilla alba*	Insectivorous	LC	WM	FC	S
84	Paddy Field Pipit	*Anthus rufulus*	Insectivorous	LC	R	RA	S

IUCN status: LC—Least Concerned, NT—Near Threatened | Resident status: R—Resident, SM—Summer Migrant, WM—Winter Migrant | Abundance status: RA—Rare, FC—Fairly Common, C—Common, UC—Uncommon | Global Trends: S—stable, I—Increasing, D—Decreasing, U—Unknown.

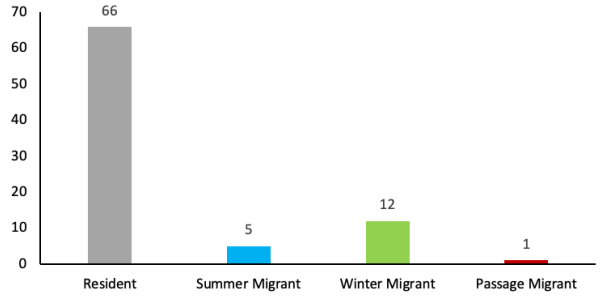

Figure 4. Residential status of different avian species recorded at Chaudhary Devi Lal University.

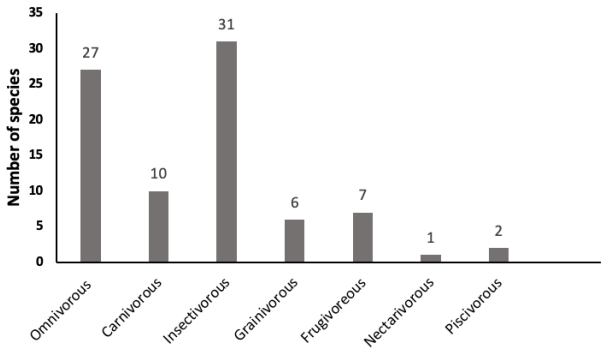

Figure 5. Guild status of reported bird species in Chaudhary Devi Lal University.

of ecological balance. It also underscores the global importance of protecting such habitats, which serve as safe havens and food niches for a wide variety of bird species. The adjoining areas of this campus are rapidly losing greenery due to construction activities, including the establishment of a medical college and other developmental projects; however, the CDLU campus itself is progressing in the opposite direction, and efforts are being directed toward enhancing its green cover. Specifically, during the monsoon season (July–August), large-scale tree plantation drives are being organized across the campus. Such initiatives are expected to play a crucial role in conserving habitats and sustaining food resources for local bird populations. Further action plan involves mitigation of threats, long-term monitoring of avian diversity through active student participation, focusing on species density, habitat utilization, seasonal variations in abundance, and aspects of nesting and breeding ecology, thereby contributing valuable insights into bird conservation and ecosystem management.

Table 2. Avian diversity reported at different educational institutes of India.

Educational Institute	Area surveyed	Avian species reported	Time frame	Region	Key findings	References
CCS Haryana Agricultural University Campus, Hisar	-------	101	2 Years	Hisar, Haryana, India	101 bird species belonging to 17 orders and 43 families. Order Passeriformes most dominating	Kiran et al. 2022
Kurukshetra University, Kurukshetra, Haryana, India	160 hectares	92	3 Years, 9 Months	Kurukshetra, Haryana, India	92 bird species belonging to 37 families. Order Passeriformes most dominating	Gupta et al. 2009
Bangalore University Campus, Bengaluru, India	445.15 hectares	106	2 Years	Bengaluru, India	106 bird species belonging to 42 families and 68 genera	Rajashekara & Venkatesha 2017
Gauhati University Campus, Jalukbari, Assam, India	195.87 hectares	109	3 Years	Jalukbari, Assam, India	109 bird species belonging to 42 families	Devi et al. 2012
Indian Institute of Technology Guwahati Campus, Assam, India	280 hectares	152	3 Years	Guwahati, Assam, India	152 bird species belonging to 14 orders and 50 families	Rathod & Bhaduri 2022
Shri Krishna University Campus, Chhatarpur (M.P), India	40 hectares	77	6 Months	Chhatarpur (M.P), India	77 bird species belonging to 35 families	Shivhare et al. 2022
Durgapur Government College Campus, West Bengal, India	12 hectares	106	7 years	West Bengal	106 bird species belonging to 47 families	Adhurya et al. 2023

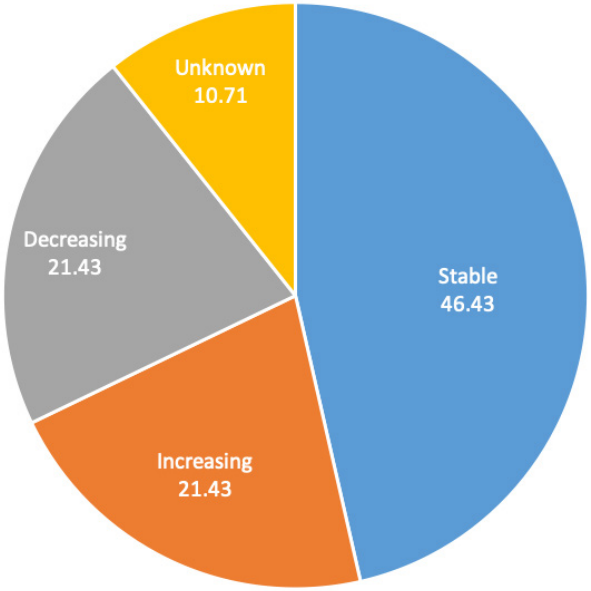

Figure 6. Global population trend of avian species reported at campus of Chaudhary Devi Lal University (IUCN 2024).

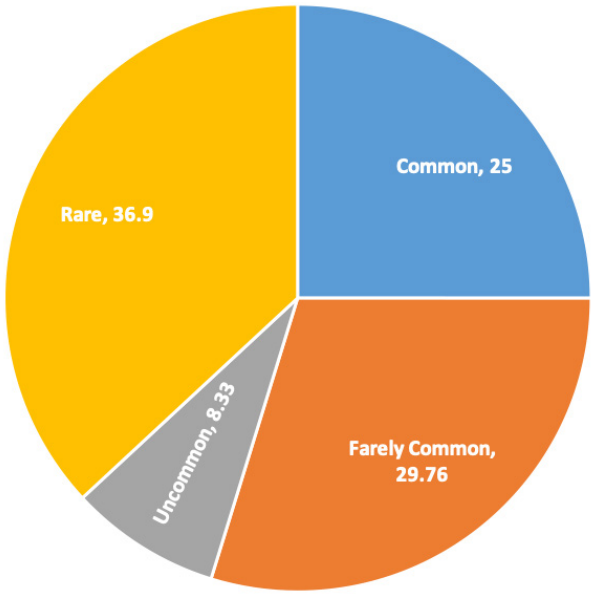

Figure 7. Abundance status of avian species at Chaudhary Devi Lal University.

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