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Cover: Parts of *Vachellia nilotica*, medium - watercolours. © P Kritika



A checklist of the avifauna of the Noakhali Science and Technology University campus, Noakhali, Bangladesh

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Abstract: A study was conducted on the avifauna of the Noakhali Science and Technology University (NSTU) campus, Noakhali, Bangladesh, from October 2023 to July 2024. Ninety species of birds belonging to 44 families and 13 orders were identified, of which 51 species were non-passerines, and 39 species were passerines. Among the birds, 73 species were residents, 12 species were winter visitors, four species were recorded as both residents and winter visitors, and one species was a passage migrant. Of the recorded birds, three species were very common, six species were common, 18 species were uncommon, 35 species were few, and 28 species were rare. The local status of these birds in NSTU has also been compared with their national status in Bangladesh. Anthropogenic activities such as human interventions, construction projects, pollution, agriculture, and deforestation were prevalent at the NSTU campus, posing potential threats to birds. Therefore, it is essential to implement appropriate measures to conserve this unique habitat.

Keywords: Anthropogenic activities, birds, habitat fragmentation, Lesser Whistling Duck, point count, relative frequency.

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Author contribution: ARJ and TA conceptualized and designed the study. ARJ and MRR conducted the field surveys and compiled the data. ARJ and TA analyzed the data and prepared the manuscript. All authors reviewed and approved the final manuscript.



INTRODUCTION

Bangladesh has rich plant and animal diversity because of its fertile soil and moderate climatic conditions. The sub-tropical monsoon climate shows three climatological seasons: pre-monsoon (hot) March to May; monsoon (rainy season) - June to October, and winter (dry) - November to February (Ahmad 1968). Bangladesh, covering a land mass of 147,570 km², has 650 bird species; of these, 302 are residents, 176 are seasonal visitors, and 143 are vagrants (Siddiqui et al. 2008).

One of the most important ecological indicators for determining habitat quality, maintaining the trophic level, and evaluating the general health of an ecosystem is the diversity of avifauna (Whelan et al. 2008; Mathibalan et al. 2026). They are highly susceptible to changes in the habitat in which they live due to people's disrespect for their protection and conservation (Sarker et al. 2001). Birds provide all four categories of ecological services: provisioning, regulating, cultural, and supporting (Whelan et al. 2008). Through the services offered by birds, they indirectly and directly benefit humans as bio-indicators, pollinators, seed dispersers, predators, scavengers, and ecosystem engineers (Sekericioglu 2006; Wenny et al. 2011).

The diversity of avifauna in different educational institution campuses of Bangladesh has been studied by many authors. Mohsanin & Khan (2009) worked on the status and seasonal occurrence of the birds in Jahangirnagar University Campus, Dhaka; whereas Reza et al. (2012) recorded the birds of the Rajshahi University Campus, Rajshahi. Chowdhury et al. (2014) conducted a study on the checklist of avian fauna of the Dhaka University Campus, Dhaka; while Kabir et al. (2017) documented a checklist of the avian fauna of the Chittagong University campus, Chittagong.

Noakhali Science and Technology University (NSTU) is a notable habitat for plants and birds. This habitat functions as a feeding, resting and breeding ground for many birds. In addition to birds, various amphibians, reptiles and mammals are also observed in this habitat. However, no recent work has been done on the avifauna of the NSTU campus. So, the present work was undertaken to list the avifauna of the NSTU campus with special reference to their country status, relative frequency and anthropogenic threats, which will provide some basic information for future investigation and conservation of the birds in the NSTU campus.

MATERIALS AND METHODS

STUDY AREA

NSTU is a public university in the coastal terrain of Noakhali, Bangladesh. It is situated at Sonapur, Noakhali Sadar Upazila, which is 8 km south of Maijdee Town (22.792° N, 91.102° E; Image 1). The NSTU campus covers a land area of 101 ac (0.41 km²). The total area constitutes 5% permanent wetlands, 10% seasonal wetlands, 15% agricultural lands, 5% playgrounds, 35% constructed storied building sites, and 30% other areas. This area is adorned with beautiful natural resources. Both indigenous and exotic plant species inhabit this area. The study area is covered with a wide variety of trees like Haritaki *Terminalia chebula*, Koroi *Albizia procera*, Jarul *Legestroemia speciosa*, Jhau *Tamarix dioica*, Sissu *Dalbergia sissoo*, Mandar *Erythrina variegata*, Banyan *Ficus benghalensis*, and Acacia *Acacia auriculiformis*. Fruit-bearing plants, such as Mango *Mangifera indica*, Jackfruit *Artocarpus heterophyllus*, Coconut *Cocos nucifera*, Boroi *Zizyphus mauritiana*, Banana *Musa acuminata*, and Papaya *Carica papaya* are also seen in this area. In the agricultural lands, different types of crops are cultivated, such as, Rice *Oryza sativa* and Sunflower *Helianthus* sp. There are some experimental plots in which Watermelon *Citrullus lanatus*, Dragon Fruit *Selenicereus* sp., Chilli *Capsicum* sp., Carrot *Daucus carota*, and Tomato *Solanum lycopersicum* are cultivated.

The area is under a tropical climate, and it has significant rainfall most months, with a short dry season. The monthly temperature, humidity and precipitation were varied during the study period. May recorded the highest temperature at (41°C), while the lowest temperature (18°C) was observed in January; the maximum humidity (80%) was in July and the minimum (52%) in February. July experienced its highest level of precipitation, reaching 671 mm.

Methods

The study was conducted from October 2023 to July 2024. Bird surveys were conducted on four days per month. The timing of the fieldwork was selected based on the visibility of avian species. A total of 40 days were spent bird-watching throughout the study period. In addition to that some human disturbances were also documented during the present study.

Regular surveys were conducted along existing roads and walking trails of the NSTU campus from 0700–1700 h. Birds were surveyed using point count method, with a distance of 100 m between adjacent points (Bibby et al. 2000). The duration at each point for counting signs,



Image 1. Map of the Noakhali District showing the study area.

recording calls, and observing birds was 5 min. Bushnell (10x42) binocular was used to observe bird species. Whenever a bird called, flew, moved around plants and trees, or nested on a tree or bushes, pictures and video clips were taken whenever feasible to identify birds accurately at the generic and species level. Opportunistic sightings were also included in the checklist. The recorded birds were identified with the help of the books (Siddiqui et al. 2008; Grimmett et al. 2021).

The relative frequency of the available bird species

has been assessed as very common (VC): seen during 80–100 % of the field visits; common (C): found during 50–79 % of the field visits; uncommon (UC): observed during 20–49 % of the field visits; few (F): met less than 19% field visits and rare (R): found occasionally (Khan 1982; Kabir et al. 2017). All the avian species have been categorized as residents, winter migrants, resident and winter migrants, and passage migrants following Siddiqui et al. (2008).

RESULTS

Species composition

Ninety species of birds representing 44 families and 13 orders were observed from the NSTU campus during October 2023–July 2024; of which 51 (56.67%) species were non-passerine and 39 (43.33%) passerine (Table 1). Among the recorded 90 species of birds, 25 species are water birds. The resident birds represented the major composition (73 species, i.e., 81.11%) in the campus and passage migrants constituted the lowest proportion (1 species, i.e., 1.11%) (Image 3). Among the orders, Passeriformes constituted the highest number (39 species, i.e., 43.33%) and three orders (Suliformes, Apodiformes and Anseriformes) represented one (1.11%) species each (Table 1; Image 2).

Among the 44 families, Ardeidae had the dominating number, nine species (10%) of Rallidae five species (5.55%); Sturnidae, Cuculidae, Columbidae, and Picidae had four species (4.44%) each; Corvidae, Dicruridae, Nectariniidae, Estrildidae, Cisticolidae, Accipitridae, Alcedinidae, and Charadriidae had three species (3.33%) each; Muscicapidae, Motacillidae, Megalaimidae, Scolopacidae, and Strigidae had two species (2.22%) each; and all rest of the families had one species (1.11%) (Table 1).

Relative frequency

Frequency of observation showed that three species were very common, six species were common, 18

species were uncommon, 35 species were few and 29 species were rare. The status of these birds in NSTU has also been compared with the country's status (Image 3).

Species classified under the few category constituted the largest proportion of the assemblage, accounting for 38.89% (35 species), and the very common species represented the lowest (3.33%, 3 species) in the NSTU (Image 4). The Black Drongo *Dicrurus macrocercus*, Oriental Magpie-Robin *Copsychus saularis* and Red-vented Bulbul *Pycnonotus cafer* were recorded as very common bird species.

Problems and threats

The anthropogenic activities such as habitat fragmentation, construction and infrastructure development, destruction of habitat, pollution, agricultural intensification, overuse of agrochemicals, and subsistence hunting of birds have been documented to negatively impact birds and their activity patterns in the study area. Water, sound and plastic pollution, pesticides, and heavy metals harm birds directly and indirectly. Pesticides can be toxic, and birds often ingest plastics or get entangled in them. Structural development, agriculture, deforestation, grass and reed burning and other land use changes directly destroy the natural habitats of birds. These activities impacted birds through habitat fragmentation. Direct human threats like poaching, hunting, stone throwing, etc., also harm water and forest birds. Because it is still evolving, the avifauna has a hard time figuring out where to nest, where to

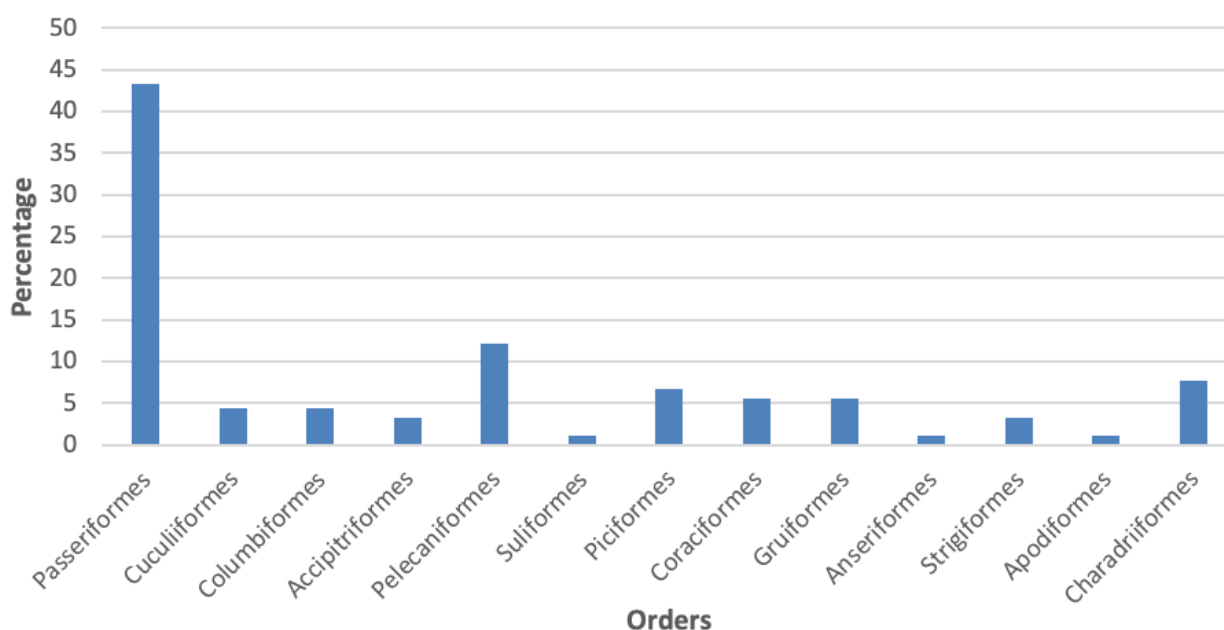


Image 2. Birds under different orders observed in the NSTU campus.

Table 1. Observed bird species at the NSTU campus, Noakhali, Bangladesh.

	Common name	Scientific name	Family	NSTU status	Relative frequency (%)	Country status
	Order: 1. Passeriformes					
1	Rufous Treepie	<i>Dendrocitta vagabunda</i> (Latham, 1790)	1. Corvidae	F	10	Resident
2	Large-billed Crow	<i>Corvus macrorhynchos</i> (Wagler, 1827)		R	7.5	Resident
3	House Crow	<i>Corvus splendens</i> (Vieillot, 1817)		F	15	Resident
4	Black-hooded Oriole	<i>Oriolus xanthornus</i> (Linnaeus, 1758)	2. Oriolidae	UC	32.5	Resident
5	White-throated Fantail	<i>Rhipidura albicollis</i> (Vieillot, 1818)	3. Rhipiduridae	UC	32.5	Resident
6	Bronzed Drongo	<i>Dicrurus aeneus</i> (Vieillot, 1817)	4. Dicruridae	F	12.5	Resident
7	Black Drongo	<i>Dicrurus macrocercus</i> (Vieillot, 1817)		VC	82.5	Resident
8	Ashy Drongo	<i>Dicrurus leucophaeus</i> (Vieillot, 1817)		F	10	Winter visitor
9	Small Minivet	<i>Pericrocotus cinnamomeus</i> (Linnaeus, 1766)	5. Campephagidae	F	17.5	Resident
10	Common Iora	<i>Aegithina tiphia</i> (Linnaeus, 1758)	6. Aegithinidae	R	7.5	Resident
11	Barn Swallow	<i>Hirundo rustica</i> (Linnaeus, 1758)	7. Hirundinidae	R	7.5	Resident + Winter visitor
12	Oriental Magpie-Robin	<i>Copsychus saularis</i> (Linnaeus, 1758)	8. Muscicapidae	VC	85	Resident
13	Red-throated Flycatcher	<i>Ficedula albicilla</i> (Pallas, 1811)		R	5	Winter visitor
14	Orange-headed Thrush	<i>Geokichla citrina</i> (Latham, 1790)	9. Turdidae	R	5	Resident
15	House Sparrow	<i>Passer domesticus</i> (Linnaeus, 1758)	10. Passeridae	C	60	Resident
16	White Wagtail	<i>Motacilla alba</i> (Linnaeus, 1758)	11. Motacillidae	F	10	Winter visitor
17	Citrine Wagtail	<i>Motacilla citreola</i> (Pallas, 1776)		R	5	Winter visitor
18	Baya Weaver	<i>Ploceus philippinus</i> (Linnaeus, 1766)	12. Ploceidae	F	12.5	Resident
19	Indian Pied Starling	<i>Gracupica contra</i> (Linnaeus, 1758)	13. Sturnidae	C	62.5	Resident
20	Chestnut-tailed Starling	<i>Sturnus malabaricus</i> (Gmelin, 1789)		C	50	Resident
21	Jungle Myna	<i>Acridotheres fuscus</i> (Wagler, 1827)		F	10	Resident
22	Common Myna	<i>Acridotheres tristis</i> (Linnaeus, 1766)		F	17.5	Resident
23	Common Tailorbird	<i>Orthotomus sutorius</i> (Pennant, 1769)	14. Cisticolidae	UC	37.5	Resident
24	Plain Prinia	<i>Prinia inornata</i> (Sykes, 1832)		R	7.5	Resident
25	Dark-necked Tailorbird	<i>Orthotomus atrogularis</i> (Temminck, 1836)		F	12.5	Resident
26	Blyth's Leaf Warbler	<i>Phylloscopus reguloides</i> (Blyth, 1842)	15. Phylloscopidae	F	12.5	Winter visitor
27	Blyth's Reed Warbler	<i>Acrocephalus dumetorum</i> (Blyth, 1849)	16. Acrocephalidae	R	7.5	Winter Visitor
28	Red-vented Bulbul	<i>Pycnonotus cafer</i> (Linnaeus, 1766)	17. Pycnonotidae	VC	85	Resident
29	Red-whiskered Bulbul	<i>Pycnonotus jocosus</i> (Linnaeus, 1758)		R	7.5	Resident
30	Purple-rumped Sunbird	<i>Leptocoma zeylonica</i> (Linnaeus, 1766)	18. Nectariniidae	UC	22.5	Resident
31	Purple Sunbird	<i>Cinnyris asiaticus</i> (Latham, 1790)		F	10	Resident
32	Little Spiderhunter	<i>Arachnothera longirostra</i> (Latham, 1790)		R	5	Resident
33	Chestnut Munia	<i>Lonchura atricapilla</i> (Vieillot, 1807)	19. Estrildidae	UC	32.5	Resident
34	White-rumped Munia	<i>Lonchura striata</i> (Linnaeus, 1766)		UC	20	Resident
35	Scaly-breasted Munia	<i>Lonchura punctulata</i> (Linnaeus, 1758)		UC	25	Resident
36	Great Tit	<i>Parus major</i> (Linnaeus, 1758)	20. Paridae	F	10	Resident
37	Long-tailed Shrike	<i>Lanius schach</i> (Linnaeus, 1758)	21. Laniidae	UC	30	Resident
38	Common Woodshrike	<i>Tephrodornis pondicerianus</i> (Gmelin, 1789)	22. Vangidae	F	12.5	Resident
39	Indian White-eye	<i>Zosterops palpebrosus</i> (Temminck, 1824)	23. Zosteropidae	R	7.5	Resident

	Common name	Scientific name	Family	NSTU status	Relative frequency (%)	Country status
	Order: 2. Cuculiformes					
40	Asian Koel	<i>Eudynamys scolopaceus</i> (Linnaeus, 1758)	24. Cuculidae	F	10	Resident
41	Greater Coucal	<i>Centropus sinensis</i> (Stephens, 1815)		UC	35	Resident
42	Common Cuckoo	<i>Cuculus canorus</i> (Linnaeus,1758)		F	10	Passage migrant
43	Plaintive Cuckoo	<i>Cacomantis merulinus</i> (Scopoli, 1786)		R	5	Resident
	Order: 3. Columbiformes					
44	Rock Dove	<i>Columba livia</i> (Linnaeus, 1758)	25. Columbidae	UC	35	Resident
45	Eastern Spotted Dove	<i>Spilopelia chinensis</i> (Scopoli, 1786)		C	50	Resident
46	Eurasian Collared Dove	<i>Streptopelia decaocto</i> (Fridvaldszky, 1838)		C	50	Resident
47	Red Collared Dove	<i>Streptopelia tranquebarica</i> (Hermann, 1804)		UC	42.5	Resident
	Order: 4. Accipitriformes					
48	Brahminy Kite	<i>Haliastur indus</i> (Boddaert, 1783)	26. Accipitridae	C	50	Resident
49	Black Kite	<i>Milvus migrans</i> (Boddaert, 1783)		F	12.5	Resident
50	Grey-headed Fish Eagle	<i>Ichthyophaga ichthyaetus</i> (Horsfield, 1821)		F	10	Resident
	Order: 5. Pelecaniformes					
51	Indian Pond Heron	<i>Ardeola grayii</i> (Sykes, 1832)	27. Ardeidae	UC	22.5	Resident
52	Little Egret	<i>Egretta garzetta</i> (Linnaeus, 1766)		UC	22.5	Resident
53	Inter mediate Egret	<i>Ardea intermedia</i> (Wagler, 1829)		F	12.5	Resident
54	Grey Heron	<i>Ardea cinerea</i> (Linnaeus, 1758)		R	5	Resident +Winter visitor
55	Great White Egret	<i>Ardea alba</i> (Linnaeus, 1758)		UC	22.5	Resident
56	Cinnamon Bittern	<i>Ixobrychus cinnamomeus</i> (Gmelin, 1789)		F	12.5	Resident
57	Cattle Egret	<i>Bubulcus ibis</i> (Linnaeus, 1758)		F	12.5	Resident
58	Yellow Bittern	<i>Ixobrychus sinensis</i> (Gmelin, 1789)		R	7.5	Resident
59	Purple Heron	<i>Ardea purpurea</i> (Linnaeus, 1766)		R	5	Resident
60	Glossy Ibis	<i>Plegadis falcinellus</i> (Linnaeus, 1766)	28. Threskiornithidae	R	5	Winter visitor
61	Asian Openbill	<i>Anastomus oscitans</i> (Boddaert, 1783)	29. Ciconiidae	F	10	Resident
	Order: 6. Suliformes					
62	Little Cormorant	<i>Microcarbo niger</i> (Vieillot, 1817)	30. Phalacrocoracidae	UC	22.5	Resident
	Order: 7. Piciformes					
63	Fulvous-breasted Woodpecker	<i>Dendrocopos macei</i> (Vieillot, 1818)	31. Picidae	F	12.5	Resident
64	Black-rumped Flameback	<i>Dinopium benghalense</i> (Linnaeus, 1758)		R	5	Resident
65	Common Flameback	<i>Dinopium javanense</i> (Ljungh, 1797)		R	5	Resident
66	Eurasian Wryneck	<i>Jynx torquilla</i> (Linnaeus, 1758)		R	2.5	Winter visitor
67	Lineated Barbet	<i>Psilopogon lineatus</i> (Vieillot,1816)	32. Megalaimidae	F	17.5	Resident
68	Blue-eared Barbet	<i>Psilopogon cyanotis</i> (Blyth, 1847)		F	10	Resident
	Order: 8. Coraciiformes					
69	Green Bee-eater	<i>Merops orientalis</i> (Latham, 1802)	33. Meropidae	UC	25	Resident
70	Common Kingfisher	<i>Alcedo atthis</i> (Linnaeus, 1758)	34. Alcedinidae	F	12.5	Resident
71	Stork-billed Kingfisher	<i>Pelargopsis capensis</i> (Linnaeus, 1766)		R	5	Resident
72	White-throated Kingfisher	<i>Halcyon smyrnensis</i> (Linnaeus, 1758)		F	10	Resident
73	Common Hoopoe	<i>Upupa epops</i> (Linnaeus, 1758)		35. Upupidae	F	10

	Common name	Scientific name	Family	NSTU status	Relative frequency (%)	Country status
	Order: 9. Gruiformes					
74	Brown Crake	<i>Zapornia akool</i> (Sykes, 1832)	36. Rallidae	F	10	Resident
75	White-breasted Waterhen	<i>Amaurornis phoenicurus</i> (Pennant, 1769)		UC	25	Resident
76	Grey-headed Swampen	<i>Porphyrio porphyrio</i> (Linnaeus, 1758)		F	17.5	Resident
77	Common Moorhen	<i>Gallinula chloropus</i> (Linnaeus, 1758)		R	5	Resident
78	Eurasian Coot	<i>Fulica atra</i> (Linnaeus, 1758)		R	5	Winter visitor
	Order 10. Charadriiformes					
79	Wood Sandpiper	<i>Tringa glareola</i> (Linnaeus, 1758)	37. Scolopacidae	F	10	Winter visitor
80	Common Sandpiper	<i>Actitis hypoleucos</i> (Linnaeus, 1758)		F	10	Winter visitor
81	Bronze-winged Jacana	<i>Metopidius indicus</i> (Latham, 1790)	38. Jacanidae	UC	30	Resident
82	Grey-headed Lapwing	<i>Vanellus cinereus</i> (Blyth, 1842)	39. Charadriidae	F	10	Winter visitor
83	Red-wattled Lapwing	<i>Vanellus indicus</i> (Boddaert, 1783)		F	10	Resident
84	Kentish plover	<i>Charadrius alexandrinus</i> (Linnaeus, 1758)		R	5	Winter visitor
85	Greater Painted Snipe	<i>Rostratula benghalensis</i> (Linnaeus, 1758)	40. Rostratulidae	R	5	Resident
	Order: 11. Anseriformes					
86	Lesser Whistling Duck	<i>Dendrocygna javanica</i> (Horsfield, 1821)	41. Anatidae	F	12.5	Resident + Winter visitor
	Order: 12. Apodiformes					
87	Asian Palm Swift	<i>Cypsiurus balasensis</i> (Gray, 1829)	42. Apodidae	R	7.5	Resident
	Order: 13. Strigiformes					
88	Spotted Owlet	<i>Athene brama</i> (Temminck, 1821)	43. Strigidae	R	5	Resident
89	Brown Boobook	<i>Ninox scutulata</i> (Raffles, 1822)		R	5	Resident
90	Barn Owl	<i>Tyto alba</i> (Scopoli, 1769)	44. Tytonidae	R	5	Resident

VC—very common | C—common | UC—uncommon | F—few | R—rare.

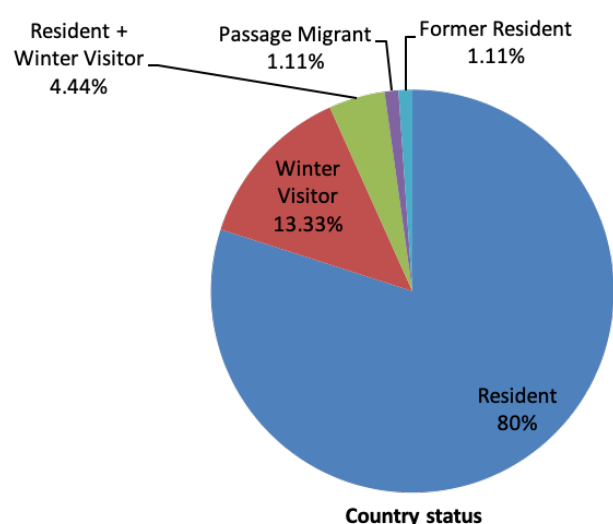


Image 3. Country status of the birds observed in the NSTU campus.

hide, or how to feed in this area. These problems might be affecting the bird species in the study area.

DISCUSSION

The NSTU campus, despite its small area, has a rich avian diversity. The study recorded 90 species, of which 25 species (27.78%) are waterbirds. It indicates that the wetlands of the study area are suitable as a foraging ground for the water birds. Compared to other major university campuses in Bangladesh, NSTU's diversity is competitive given its size. Previous studies have documented varying richness across the country. Rajshahi University campus observed a total of 159 species of birds across 36 families (Reza et al. 2012), whereas Chittagong University (CU) recorded 215 species across 63 families (Kabir et al. 2017). Dhaka University recorded 54 to 70 species recorded in different periods (Banu et al. 2016; Shome et al. 2022), and Jahangirnagar

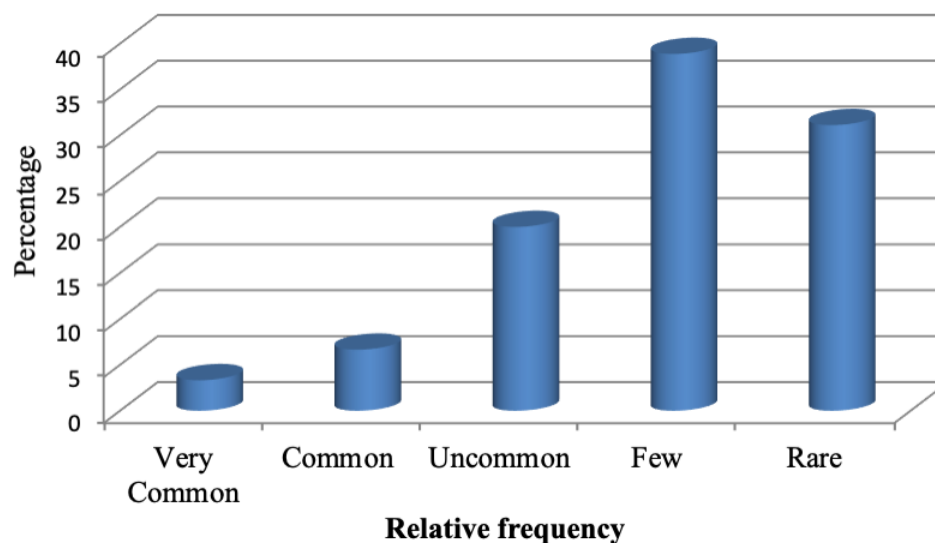


Image 4. Relative frequency of the birds observed in the Noakhali Science and Technology University campus.

University documented 78 species (Chowdhury et al. 2014) and 92 species (Ahsan & Khanom 2005).

Both resident and migratory birds were documented in the study area. Among them, the majority were residents. Brown Crake *Zapornia akool*, a rare bird (Grimmett et al. 2021) reported from the study area, is known as a former resident of Bangladesh (Siddiqui et al. 2008). From the Rajshahi University campus, Reza et al. (2012) observed 121 species of residents and 38 species of migratory birds; whereas Banu et al. (2016) reported 10 (19%) species as migrants and 44 (81%) as residents in the Dhaka University campus. According to Kabir et al. (2017), 74.42% of resident birds and 25.58% of local and seasonal migrants were observed in the Chittagong University Campus. These findings mirror the trends observed in other academic landscapes.

For most of the species, the relative frequency was categorized as few, whereas the least number of species was categorized as very common. In the Rajshahi University campus, Reza et al. (2012) found very common (30 species), common (30 species), fairly common (34 species), few (32 species) and rare (34 species). From the Dhaka University campus, Banu et al. (2016) recorded 14 (26%) species as very common, 7 (13%) species as common, 10 (19%) species as uncommon, and 23 (43%) species as rare; while Kabir et al. (2017) recorded 101 species were very common, 36 species as common, 29 species as uncommon, 22 species as few and 27 as rare from the Chittagong University campus. The smaller size of the study area might have influenced the frequency of observation of the birds on the campus.

Anthropogenic activities refer to the actions or

processes originating from human activity that impact the environment, ecosystems or natural resources and destroy biodiversity, including avian populations (Miller & Spoolman 2012; Manigandan et al. 2021). These activities are responsible for excessive habitat degradation, reduce nesting sites, destroy feeding grounds, affect overall activity patterns, and break the migration rhythm of diversified avifauna. The waterbirds belonging to the orders Anseriformes, Pelecaniformes, and Charadriiformes are mostly impacted due to human disturbances (Byju et al. 2025). The present study documented that these disturbances have contributed to the excessive decline of the Lesser Whistling Duck *Dendrocygna javanica* and affected their migration rhythm. Some bird species from the orders Passeriformes, Piciformes, and Columbiformes are also impacted by extreme human intervention.

These findings align with global and local concerns regarding habitat loss as the leading cause of avian extinction (Fahrig 2001). Similar trends of habitat loss due to human activity have been recorded on Hatiya Island (Hossain et al. 2004) and in urban spaces like Ramna Park (Rajia et al. 2015). Without targeted management to mitigate hunting, fishing, and noise pollution, the avian richness of the NSTU campus remains at risk of significant decline.

CONCLUSION

The current study suggests that the NSTU campus possesses a wealth of biodiversity and has the potential

to become a habitat for birds. However, anthropogenic threats such as clearing trees, pollution and agricultural intensification in their natural habitat could affect the breeding and other behavioural activities of birds. Restoration of the habitat is necessary to support birds' forage, shelter, and breeding to protect the avifauna of the NSTU campus. Key recommendations include planting fruit-bearing trees to attract several insectivorous and frugivorous birds to reside there. Consequently, in order to maintain the bird species and their population sustainability, awareness should be raised among the university's faculty, staff and students about the need to protect these exquisite creatures.

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