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EXPLORING WILDLIFE DIVERSITY AT NOAKHALI SCIENCE AND TECHNOLOGY UNIVERSITY (NSTU) CAMPUS, BANGLADESH

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ABSTRACT: The study was aimed to assess the wildlife diversity at the Noakhali Science and Technology University (NSTU) campus between November 2023 and October 2024. Data were collected through direct field observations using the line-transect method, plot counting, and interviews with local people. A total of 131 species were identified, representing 24 orders and 69 families. Among these, 5 species (3.82%) were amphibians, 16 species (12.21%) reptiles, 97 species (74.05%) birds, and 13 species (9.92%) mammals. Species richness was highest in tree habitats (53 species, 25.60%), while the winter season was recorded with the highest occurrence (102 species, 35.92%). Among the recorded species, 39 (29.77%) were categorized as very common, 14 (10.69%) as common, 22 (16.79%) as fairly common, and 56 (42.75%) as few. *Duttaphrynus melanostictus* was found as the most abundant amphibian (49.06%), *Calotes versicolor* among reptiles (28.74%), *Passer domesticus* among bird species (10.81%), and *Canis aureus* was the abundant mammal (27.03%). According to diversity indices, birds exhibited the highest diversity with a Shannon-Wiener index (H = 3.39) and Simpson's diversity index (Ds = 0.95). Of the 97 bird species, 83 (85.57%) were resident and 14 (14.43%) were migratory. Conversely, amphibians showed the highest evenness (E = 0.60). The findings suggest the need for long-term systematic monitoring and a comprehensive conservation strategy to conserve the wildlife diversity of the study region.

Key words**:** Diversity, Wildlife, NSTU, Conservation, Bangladesh

INTRODUCTION

Biodiversity is a fundamental characteristic of natural ecosystems that ensures resilience against environmental changes and the capacity to withstand significant disruptions (Jankielsohn 2018). Bangladesh, with its unique geographical position, diverse ecosystems, and favorable climatic conditions, is rich in wildlife biodiversity (Khan 2018, Nishat *et al.* 2002). Currently, the

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country is home to 57 amphibian species, 167 reptile species, 690 bird species, and 127 mammalian species (IUCN Bangladesh 2015, Shome *et al.* 2022, Khan 2018). These wild faunas represent approximately 3.5% of global biodiversity (Khan 2008, Jaman *et al.* 2015). This diversified species has an important ecological role in pest control, disease regulation, scavenging, pollination, seed dispersal, mosquito control, and food provision for humans (Islam *et al.* 2018, Jaman *et al.* 1999, Mukul 2008). However, their critical contributions to ecosystem services in Bangladesh often remain underappreciated.

Anthropogenic activities pose significant threats to wildlife biodiversity in the region. Habitat destruction, overpopulation, over-harvesting, pollution, invasive species introduction, and unplanned development are major contributors to the rapid loss of biodiversity (Mandal *et al.* 2021, Khan 2018, Prakash and Verma 2022). Declines in species diversity and abundance are evident in both protected and non-protected areas, highlighting the urgent need for conservation efforts. Non-protected areas, such as agricultural fields, urban green spaces, wetlands, community forests, fallow lands, homestead forests, canals, ponds, and roadside trees, support various wildlife species by providing critical habitats and resources. Despite the lack of formal conservation measures, these areas enable species to survive and thrive (IUCN Bangladesh 2015, Shome *et al.* 2020, Khan 2018, Mukul 2008).

However, wildlife outside protected areas faces numerous hazards, including human persecution driven by misunderstandings and superstitions prevalent in rural areas (Jaman *et al.* 2021, Islam *et al.* 2018, Rabbe *et al.* 2021). Baseline data on wildlife diversity, abundance, and habitat usage in these regions are crucial for effective conservation planning.

Although various studies have examined wildlife diversity across Bangladesh (Jaman *et al.* 2021, Shome *et al.* 2020, Islam *et al.* 2018, Mandal *et al.* 2021), there has been no specific research conducted in the Noakhali region. This study tries to address a gap by providing baseline data on the diversity, abundance, seasonal occurrence, and habitat usage of wildlife in the region. The findings could play an essential in directing conservation initiatives and safeguarding wildlife and their habitats in this area.

MATERIAL AND METHODS

Study area: The study was conducted at the Noakhali Science and Technology University (NSTU) campus, situated in the coastal region of Noakhali, Bangladesh (Fig. 1). The campus is located in Sonapur, approximately 8 km southwest of Maijdee, encompassing an area of 101 acres (0.41 km^2) that spans 93 Salla and 95 Noakhali Mouza. Geographically, the study area lies

between 90°24′ and 91°52′ east longitudes and 22°26′ and 22°56′ north latitudes. The region contains diverse natural habitats, including ponds, playgrounds, agricultural fields, permanent and temporary waterbodies, and bushy areas surrounding residential and educational buildings, providing a rich environment for wildlife.

Fig.1. Map of the study area

Methods: Data collection took place from November 2023 to October 2024, focusing on direct field observations. Observations were conducted primarily in the early morning (6:30–8:00 AM) and late afternoon (4:00–5:30 PM) to align with peak wildlife activity. Additionally, nocturnal surveys for herpetofauna, nocturnal birds, and mammals were carried out after sunset. Data collection was conducted for four days per month, dividing the study period into three seasons: summer (March–June), rainy (July–October), and winter (November–February). Wildlife identification was carried out based on established field guides (Khan 2015, Khan 2018, IUCN Bangladesh 2015, Hasan *et al.* 2014).

Transect Line Method: Fifteen transect lines, each measuring 100m × 20m, were systematically surveyed across the study area. During observations, species were recorded along with their population counts and corresponding habitat types. Habitats were classified into six categories- agricultural land, bush, tree, aerial, wetland, and urban settlement.

Plot Counting: Twenty plots, each measuring 20m × 10m, were selected to record species presence and abundance. All visible individuals within the plot boundaries were counted, although individuals escaping the plot were not included.

Interviewing Local People: Some species, particularly nocturnal ones, were difficult to observe directly during the study period. To supplement the data, local residents were interviewed about the wildlife in the area. They were shown images from a visual field guide and asked about the presence of various species. This approach leveraged local ecological knowledge to enhance the accuracy of species records.

Data Analysis: The relative abundance of wildlife species was calculated by dividing the number of individuals of a specific species by the total number of individuals observed, then multiplying by 100. Species abundance patterns were visualized using a rank abundance plot based on Whittaker (1965). Observation statuses were categorized as very common (VC: 80–100%), common (C: 50–79%), fairly common (FC: 20–49%), and few (F: 10–19%), following Khan (2015). Diversity indices were calculated using the Shannon-Wiener index (Shannon and Wiener 1949) and Simpson's index (Simpson 1949). Evenness was determined by dividing the Shannon-Wiener index value by the natural logarithm of species richness. Statistical analyses were performed using MS Excel and PAST version 4.03 software, ensuring accuracy and consistency in data interpretation.

RESULTS AND DISCUSSION

Species Composition and Abundance: Over the study period, a total of 131 wildlife species were observed at the Noakhali Science and Technology University (NSTU) campus. These included 97 bird species (74.05%), 16 reptile species (12.21%), 13 mammal species (9.92%), and 5 amphibian species (3.82%) (Table 1). A total of 9,973 individuals were recorded. Diversity indices indicated that birds exhibited the highest diversity, with a Shannon-Wiener index (H = 3.39) and Simpson's index (Ds = 0.95), whereas amphibians showed the highest evenness (E = 0.60) (Table 2).

Among amphibians, 1 species of toad and 4 species of frogs were observed. Reptile species comprised 9 snakes, 4 lizards, and 3 turtles. Passeriformes dominated the avian diversity, with 40 species (41.24%), of which 83 (85.57%) were resident and 14 (14.43%) were migratory, including common gull-billed tern (*Gelochelidon nilotica*) as a passage migrant and others as winter migrants. Rodents constituted the highest proportion of mammals (5 species, 38.46%). Notably, two turtle species (Indian eyed turtle and Indian roofed turtle) were categorized as Vulnerable, and one bird species (Grey-headed fish eagle) was listed as Near Threatened (IUCN 2021).

The presence of diverse habitats such as flowering plants, fruiting trees, agricultural fields, and water bodies likely contributed to the abundance and diversity of wildlife. However, the relatively low amphibian and mammal diversity

Table 1. Wildlife in the NSTU campus observed during November 2023 to October 2024

Scientific Name	Common Name	N	RA	OS	H	SE
Class: Amphibia						
Duttaphrynus melanostictus	Asian Common Toad	78	49.06	VC	BU, US, TR	A
Euphlyctis cyanophlyctis	Indian Skipper Frog	14	8.81	FC	WL	A
Hoplobatrachus tigerinus	Indian Bullfrog	61	38.36	C	WL, AL	A
Humerana humeralis	Groaning (Bh amo) frog	3	1.89	F	WL, BU	R, W
Polypedates leucomystax	Common tree Frog	3	1.89	F	BU	R
Class: Reptilia						
Calotes versicolor	Oriental Garden Lizard	71	28.74	VC	BU, TR, AL	A
Amphiesma stolata	Striped Keelback	3	1.21	F	US	S, R
Coelognathus radiatus	Copper-headed Trinket Snake	2	0.81	F	AL	S, R
Dendrelaphis tristis	Common Bronzeback	1	0.40	F	BU	S
Lycodon aulicus	Common Wolf Snake	13	5.26	FC	BU, US	A
Bungarus caeruleus	Common Krait	4	1.62	F	BU, US	S, R
Bungarus fasciatus	Banded Krait	4	1.62	F	BU, US	A
Naja kaouthia	Monocellate Cobra	2	0.81	F	BU	S
Naja naja	Binocellate Cobra	3	1.21	F	BU, US	A
Hemidactylus frenatus	Common House gecko	19	7.69	C	US	A
Eutropis carinatus	Common Skink	43	17.41	C	BU, TR	A
Indotyphlops braminus	Brahminy blindsnake	6	2.43	F	TR	S, R
Varanus bengalensis	Bengal Monitor	46	18.62	VC	BU, TR	S, W
Morenia petersi	Indian Eyed Turtle	3	1.21	F	WL	S, W
Pangshura tecta	Indian Roofed Turtle	10	4.05	FC	WL, BU	S, R
Lissemys punctata	Spotted Flapshell Turtle	17	6.88	FC	WL	A
Class: Aves						
Elanus caeruleus	Black Winged Kite	1	0.01	F	AE	W
Haliastur indus	Brahminy Kite	140	1.50	VC	AE, TR	A
Icthyophaga ichthyaetus	Grey headed Fish Eagle	35	0.37	C	AE, TR, WL	A
Milvus migrans	Black Kite	56	0.60	VC	TR, AE	A
Dendrocygna javanica	Lesser Whistling Duck	610	6.53	VC	WL, AE	R, W
Nettapus coromandelianus	Cotton Pygmy Goose	3	0.03	F	WL	S, W
Cypsiurus balasiensis	Asian Palm Swift	250	2.68	VC	AE	A
Upupa epops	Common hoopoe	2	0.02	F	AE, TR	S, W
Charadrius mongolus[wm]	Lesser Sand Plover	10	0.11	F	WL	S
Vanellus cinereus [wm]	Grey headed Lapwing	166	1.78	VC	WL	S, W
Vanellus indicus	Red wattled Lapwing	7	0.07	F	WL, AE	R, W
Metopidius indicus	Bronze-winged Jacana	218	2.33	VC	WL, BU	A
Gelochelidon nilotica[pm]	Gull-billed Tern	2	0.02	F	AE	S
Rostratula benghalensis	Greater Painted Snipe	2	0.02	F	WL	W
Tringa glareola [wm]	Wood Sandpiper	60	0.64	C	WL	S, W
Anastomus oscitans	Asian Openbill	71	0.76	VC	WL, AE	A
Columba livia	Rock Dove	173	1.85	VC	US, TR	A
Streptopelia suratensis	Western Spotted Dove	697	7.46	VC	US, TR, AL	A
Streptopelia decaocto	Eurasian Collard Dove	184	1.97	VC	US, TR, AL	A
Streptopelia tranquebarica	Red Turtle Dove	94	1.01	VC	TR, US	A
Treron bicinctus	Orange breasted Green Pigeon	2	0.02	F	TR	S
Alcedo atthis	Common Kingfisher	42	0.45	VC	WL, US	A
Ceryle rudis	Pied Kingfisher	3	0.03	F	WL	S, R
Halcyon pileata	White breasted Kingfisher	6	0.06	FC	WL, AE	S, W
Merops orientalis	Asian green bee-eater	120	1.28	VC	AE, WL, BU	R, W
Centropus sinensis	Greater Coucal	21	0.22	C	TR	A
Cacomantis merulinus	Plaintive Cuckoo	1	0.01	F	TR	S
Eudynamys scolopaceus	Asian Koel	54	0.58	C	TR	A

Scientific Name	Common Name	N	RA	OS	H	SE
Amaurornis phoenicurus	White breasted Waterhen	108	1.16	VC	WL, BU	A
Fulica atra [wm]	Eurasian Coot	4	0.04	F	WL	W
Gallinula chloropus	Common Moorhen	33	0.35	C	WL	S, W
Porphyrio porphyrio	Purple (Western) Swamphen	169	1.81	VC	WL	A
Rallus indicus	Eastern (brown cheeked) Water Rail	5	0.05	F	WL	S, W
Zapornia fusca	Ruddy breasted Crake	43	0.46	FC	WL	A
Acrocephalus stentoreus	Clamorous reed Warbler	2	0.02	F	TR	S, W
Aegithina tiphia	Common iora	5	0.05	F	TR	S
Artamus fuscus	Ashy Wood Swallow	4	0.04	F	AE	W
Coracina melanoptera	Black headed Cuckooshrike	1	0.01	F	TR	W
Pericrocotus cinnamomeus	Small Minivet	2	0.02	F	TR	S
Abroscopus superciliaris	Yellow bellied Warbler	1	0.01	F	BU	W
Orthotomus sutorius	Common Tailorbird	74	0.79	VC	BU, TR	A
Prinia inornata	Plain Prinia	2	0.02	F	BU	W
Corvus levaillantii	Jungle (Large billed) Crow	12	0.13	FC	TR, US	A
Corvus splendens	House crow	2	0.02	F	TR	S
Dendrocitta vagabunda	Rofous treepie	15	0.16	FC	TR	A
Dicrurus aeneus	Bronzed drongo	6	0.06	F	TR	A
Dicrurus macrocercus	Black drongo	515	5.51	VC	US, TR, BU	A
Lonchura atricapilla	Chestnut Munia	26	0.28	FC	TR, BU	S, R
Lonchura malacca	Tricoloured Munia	4	0.04	F	TR	W
Hirundo rustica [wm]	Barn Swallow	69	0.74	FC	AE, US	S, W
Lanius cristatus [wm]	Brown Shrike	10	0.11	FC	WL, BU	A
Lanius schach	Long tailed shrike	113	1.21	VC	BU, TR, US	A
Lanius tephronotus [wm]	Grey backed Shrike	1	0.01	F	TR	W
Megalurus palustris	Striated grassbird	13	0.14	F	BU, AL	S, W
Anthus rufulus	Paddyfield Pipit	1	0.01	F	BU	W
Motacilla alba [wm]	White Wagtail	5	0.05	F	TR	R, W
Motacilla cinerea [wm]	Grey Wagtail	69	0.74	F	WL	W
Motacilla citreola [wm]	Citrine Wagtail	27	0.29	FC	WL	S
Copsychus saularis	Oriental Magpie Robin	227	2.43	VC	TR, US	A
Arachnothera longirostra	Little Spiderhunter	1	0.01	F	TR	R
Nectarinia asiatica	Purple Sunbird	7	0.07	FC	TR	A
Nectarinia zeylonica	Purple Rumped Sunbird	50	0.54	VC	TR	A
Oriolus chinensis	Black hooded Oriole	30	0.32	VC	TR, AE	A
Oriolus kundu	Indian Golden Oriole	7	0.07	FC	TR, AE	A
Parus major	Cinereous Tit	1	0.01	F	BU	W
Passer domesticus	House sparrow	1010	10.81	VC	US, TR	A
Phylloscopus fuscatus [wm]	Dusky Warbler	4	0.04	VC	BU	W
Ploceus philippinus	Baya Weaver	379	4.06	VC	BU, WL	A
Pycnonotus jocosus	Red vented Bulbul	850	9.10	VC	BU, US, TR, AL	A
Rhipidura albicollis	White Throated Fantail	119	1.27	VC	BU, TR	A
Acridotheres tristis	Common Myna	320	3.42	VC	TR. BU, US	A
Acridotheres fuscus	Jungle Myna	225	2.41	VC	BU, US, TR	A
Gracupica contra	Indian Pied Myna	814	8.71	VC	US, TR, AL	A
Sturnia malabarica	Chestnut tailed Starling	520	5.56	VC	BU, US, TR	S, R
Ardeola grayii	Indian Pond Heron	115	1.23	VC	WL, AE	A
Ardea alba	Great Egret	22	0.24	C	WL	A
Ardeinae bubulcus	Cattle Egret	15	0.16	FC	WL	S, W
Ardea cinerea	Grey Heron	2	0.02	F	TR	S, W
Ardea intermedia	Intermediate Egret	35	0.37	C	WL, AE	S, W

Scientific Name	Common Name	N	RA	OS	H	SE
Ardea purpurea	Purple Heron	9	0.10	FC	TR, WL	A
Egretta garzetta	Little Egret	23	0.25	C	WL	A
Ixobrychus cinnamomeus	Cinnamon Bittern	1	0.01	F	AE	R
Ixobrychus sinensis	Yellow Bittern	13	0.14	FC	BU, WL	S, W
Plegadis falcinellus [wm]	Glossy Ibis	9	0.10	F	WL	S
Dendrocopos macei	Fulvous Breasted Woodpecker	42	0.45	VC	TR	A
Dinopium benghalense	Black rumped Flameback	27	0.29	VC	TR	A
Jynx torquilla [wm]	Eurasian Wryneck	1	0.01	F	TR	S
Picus xanthopygaeus	Streak throated woodpecker	2	0.02	F	TR	S
Psilopogon asiaticus	Blue throated Barbet	2	0.02	F	TR	S
Psilopogon haemacephalus	Coppersmith Barbet	1	0.01	F	AE	W
Psilopogon lineatus	Lineated Barbet	2	0.02	F	TR	W
Psittacula krameri	Rose ring Parakeet	6	0.06	F	TR	S
Athene brama	Spotted owlet	9	0.10	FC	US, TR	A
Ninox scutulata	Brown Boobook	2	0.02	F	US	W
Tyto alba	Common Barn Owl	15	0.16	C	TR, US	A
Anhinga melanogaster	Oriental Darter	2	0.02	F	TR	R, W
Microcarbo niger	Little Cormorant	55	0.59	VC	WL, TR, AE	A
Class: Mammalia						
Canis aureus	Asiatic Jackal	60	27.03	C	BU, AL	A
Felis chaus	Jungle Cat	3	1.35	F	BU	S, W
Prionailurus viverrinus	Fishing Cat	6	2.70	F	BU	S, W
Herpestes auropunctatus	Small Indian Mongoose	14	6.31	FC	BU, WL	S, W
Pteropus medius	Indian flying Fox	29	13.06	VC	AE, TR	A
Pipistrellus coromandra	Indian Pipistrelle(Chamchika)	11	4.95	FC	AE, US	S, W
Suncus murinus	Asian House Shrew	58	26.13	VC	BU, TR, US	A
Macaca mulatta	Indian Rhesus Macaque	2	0.90	F	TR	W
Hystrix indica	Indian Crested Porcupine	2	0.90	F	BU	S
Bandicota bengalensis	Lesser Bandicoot Rat	6	2.70	FC	WL, TR	A
Mus booduga	Little India-n Field Mouse	2	0.90	F	AL	S
Mus musculus	House Mouse	22	9.91	C	US, BU	A
Rattus rattus	Black Rat	7	3.15	FC	TR, BU	S, W

(Note: N- Number of individual; RA- Relative abundance; OS- Observation Status; VC- Very Common; C-Common, FC- Fairly common, Few- F; H-Habitat, AL- Agricultural land, TR- Tree, US- Urban settlement, WL- Wetland; AE- Aerial, BU- Bush; SE- Season, W-Winter, S- Summer and R- Rainy Season, A- Year round; wm- winter migrant, pm- passage migrant)

compared to other studies (Mandal *et al.* 2021, Shome *et al.* 2021, Hasan *et al.* 2017) may be attributed to flash floods, seasonal hibernation of amphibians, and the shorter study duration.

Seasonal Variation: Seasonal patterns of abundance revealed the highest species richness in winter (102 species), followed by summer (100 species) and the rainy season (82 species) (Fig. 2A). In terms of unique and shared species in three seasons, 60 species show a substantial overlap, indicating many species are adaptable across seasons. The high number of unique species in Summer (18) and Winter (17) reflects seasonal specialization or habitat preferences. Rainy

season hosts fewer unique species (3), suggesting these species are highly specific to wet seasonal conditions (Fig. 2B).

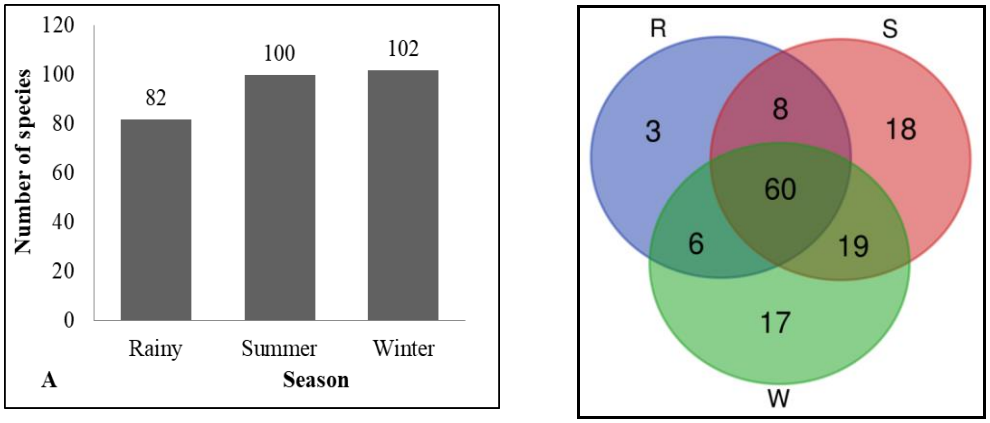

Fig. 2. A. Species richness in three seasons and B. Venn diagram showing the number of shared and unique species in three seasons (R- Rainy, S- Summer, W- Winter).

Diversity indices were the highest during summer (H = 3.54, Ds = 0.95), though evenness (E = 0.33) remained consistent across seasons (Table 2). Amphibians displayed peak richness in the rainy season, coinciding with their breeding period. Reptiles were most active during summer due to favorable conditions for feeding, basking, and reproduction. Birds and mammals exhibited the highest population and richness in winter, supported by the influx of 14 migratory bird species and increased food availability in agricultural fields and water bodies.

Table 2. Diversity indices for different wildlife group in different seasons

Categories		Simpson's Index (Ds)	Shannon-Weiner Index (H)	Evenness (E)	Abundance (A)
Overall Diversity		0.95	3.60	0.28	9973
Groups	Amphibia	0.61	1.09	0.60	159
	Reptilia	0.84	2.16	0.54	247
	Aves	0.95	3.39	0.31	9345
	Mammalia	0.83	2.04	0.59	222
Season	Summer	0.95	3.54	0.33	3363
	Rainy	0.94	3.23	0.33	2984
	Winter	0.95	3.53	0.33	3616

Relative Abundance and Observation Status: Observation status indicated that 39 species (29.77%) were very common, 14 (10.69%) common, 22 (16.79%) fairly common, and 56 (42.75%) few (Table 1). Amphibians, reptiles, birds, and mammals all exhibited a high proportion of species categorized as few, reflecting

uneven species distribution within the community. Such patterns of uneven distribution may reflect varying habitat preferences, ecological adaptability, and sensitivity to environmental changes. The prevalence of species categorized as "few" highlights the vulnerability of many taxa to habitat degradation and other anthropogenic pressures.

Species abundance patterns highlighted *Duttaphrynus melanostictus* (49.06%) as the most abundant amphibian, *Calotes versicolor* (28.74%) among reptiles, *Passer domesticus* (10.81%) among birds, and *Canis aureus* (27.03%) among mammals (Fig. 3). The species abundance data indicate that certain species exhibit much higher relative abundance compared to others. For instance, *Duttaphrynus melanostictus* (Asian Common Toad) accounted for nearly half (49.06%) of the recorded amphibians, likely due to its adaptability to human-modified landscapes and proximity to human settlements (Rabbe *et al.* 2022). Other most abundant species are known for their resilience to habitat disturbances, suggesting their capacity to exploit anthropogenic habitats for survival (Khan 2018). The rank abundance plot emphasized the critical role of habitat conversion in driving wildlife population declines.

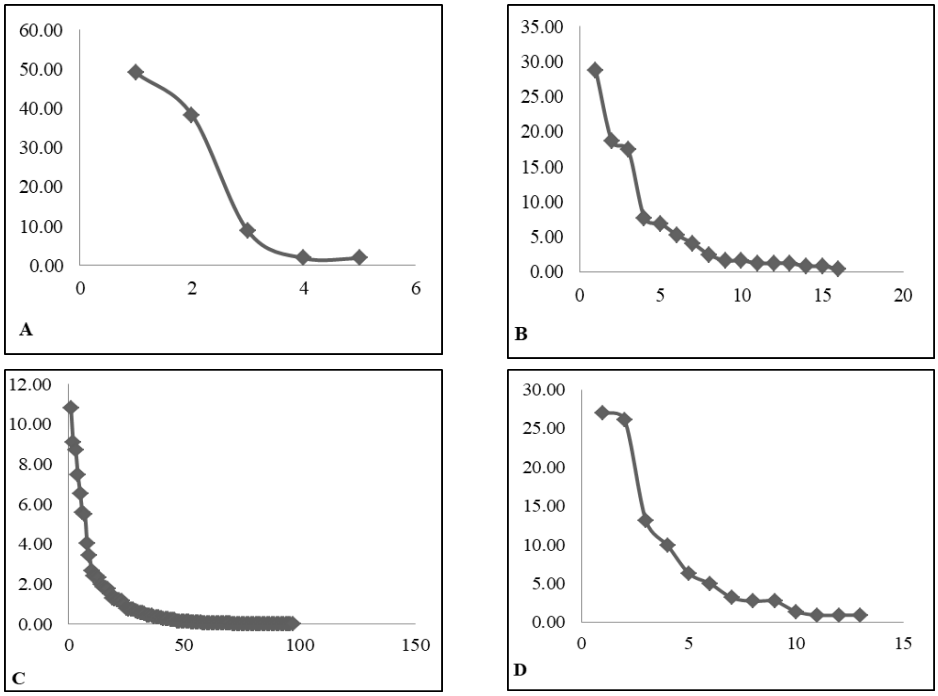

Fig. 3. Rank-abundance curves: A. Amphibia; B. Reptilia; C. Aves; and D. Mammalia. The y-axis shows the relative abundance and the x-axis ranks the species in order of their abundance from the highest to the lowest.

Habitat Usage and Conservation Issues: Species richness varied by habitat, with trees supporting the highest richness (53 species), followed by bush (43), wetland (41), urban settlements (29), aerial (23), and agricultural land (18). While 72 species utilized only one habitat type, many species overlapped across habitats (Fig. 4). The loss of bushy areas, water bodies, and other natural habitats has likely contributed to the observed uneven distribution and lower abundance of many species. Bushy areas and temporary water bodies provide essential resources such as insect food, grains, and breeding grounds for various species. The destruction of these habitats has significant implications for wildlife communities, as seen in previous studies (Jaman *et al.* 2021, Shome *et al.* 2022). For example, the clearing of bushes and jungles in the study area may have reduced suitable habitats for species dependent on these microhabitats, such as amphibians and small mammals. The drying of

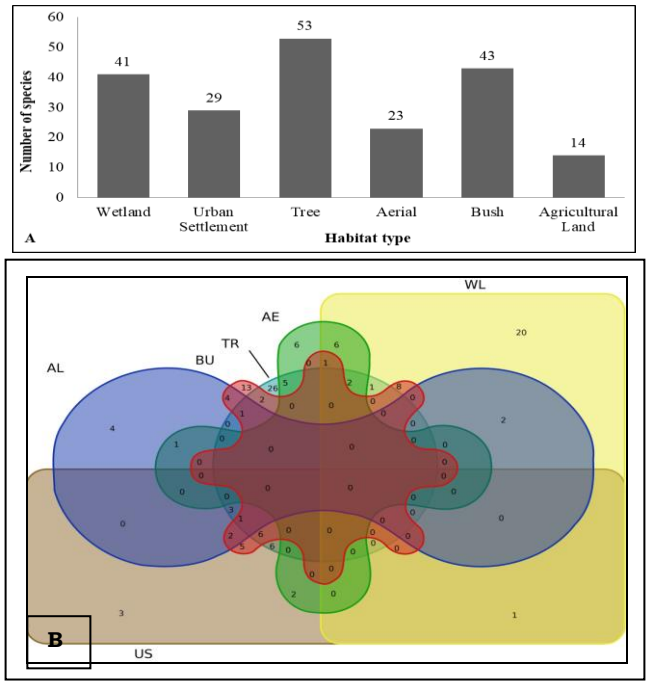

Fig. 4. A. Species richness in different habitats. B. Venn diagram showing the number of shared and unique species in six habitats (AG-Agricultural Land, BU-Bush, WL- Wetland, US- Urban Settlement, TR-Tree, AE- Aerial)

temporary water bodies, often used as breeding grounds by amphibians, is another critical threat. Such changes have been shown to negatively impact the survival of eggs and tadpoles, thereby reducing amphibian populations (Hasan *et al.* 2014). Additionally, the conversion of wetlands has disrupted habitats for

wetland-dependent species, forcing them to migrate elsewhere (Shome *et al.* 2022).Human activities posed significant threats to wildlife, including bushy areas and large trees cleaning for agriculture, planting foreign trees to enhance beauty, noise and light pollution, infrastructure development (roads, drain, and buildings), wetland drainage and conversion for fish farming or paddy cultivation, and plastic pollution which can entangle animals. For example, drying temporary water bodies disrupted amphibian breeding, while clearing bushes around Nildighi and library areas impacted the natural habitat of *Canis aureus*. Local practices, such as hunting *Lissemys punctata* for consumption, further exacerbated these threats.

CONCLUSION

This study provides a baseline overview of vertebrate wildlife diversity at NSTU campus, highlighting the importance of diverse habitats in supporting wildlife. However, ongoing developmental activities, habitat degradation, and anthropogenic pressures threaten biodiversity. The shorter study period likely resulted in some species being missed, underscoring the need for long-term research. Future studies should focus on understanding the impacts of anthropogenic factors and devising strategies for wildlife conservation at NSTU and similar human-dominated landscapes. Proper planning and awareness initiatives are essential to mitigate threats and preserve wildlife diversity.

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