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Shantiban forest patch as an oasis for birds in Pokhara city

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A R T I C L E I N F O

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A B S T R A C T

Urban forests provide recreational sites for urban dwellers and are equally important for resident as well as migratory bird species. Shantiban is a small forest patch in the middle of the Pokhara city. This green space has been serving as an important habitat for birds. Seasonal surveys were carried out in 2023 and 2024 to comprehend bird composition and importance of urban forest patches by applying Non-Metric Dimensional Scaling (NMDS) with Bray–Curtis Dissimilarity. A total of 81 bird species were documented and Shannon Index of 3.53 (3-07-3.48) and Pielou's Evenness of 0.80 (0.81-0.86) were obtained. Species richness and diversity index were significantly higher in the winter than in the summer, with a total of 15 species across both seasons. Season and year have significant effects on bird composition (PERMANOVA: $F = 7.90$, $R2 = 0.40$, $p = 0.001$), explaining 40% of the variation, while season alone explained 22% of the variation and year alone explained 8% of the variation in the bird community. Moreover, the NMDS plot also showed distinct clustering of the bird community by season and year. Despite its small size, Shantiban supports diverse avifauna, underscoring the ecological significance of conserving small urban green spaces for biodiversity and sustainable city environments.

INTRODUCTION

Urbanization has been considered as the second leading cause of species loss and endangerment after invasive species (Blair and Johnson, 2008). Organisms in urban areas encounter abrupt environmental variation from those in which they have evolved (Suárez–Rodríguez et al., 2013). Urban forest patches are subjected to intense anthropogenic pressures, leading to significant environmental transformation and threatening biodiversity and the ecological services crucial for humanity (Muller et al., 2013). Thus, the protection of biodiversity in urban areas has become increasingly important (Schrauth et al., 2026) as they can be biodiversity hotspots holding threatened species (Ives et. al, 2016). Urban forest patches carry significant ecological functions, serve as green spaces, enhance air quality and provide habitats for wildlife (Muller et al., 2013; Schrauth et al., 2026).

Birds are among the most common casualties of rapid urbanization, suffering habitat loss, increased stress, diminished reproductive success (Slabbekoorn and Ripmeester, 2008) and alterations in their physiology, behaviour and morphology (Isaksson, 2018). In response to changes in urban ecosystems, birds either avoid cities or adapt to the urban environment (Ives et al., 2016). The current trends in urban development generally have a negative impact on biodiversity maintenance, primarily due to the ongoing expansion of roads and buildings to accommodate the growing population (Yokohari et al., 2000). Alternately, cities can be designed to promote bird populations, enhancing the chances for people to enjoy birdwatching and connect with nature (Hedblom and Murgui, 2017; Shrestha et al., 2023a). Cities and suburbs often have parks, avenues, greenways and other semi-natural areas that provide habitats for

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various species (Ersoy, 2016). These green spaces can also serve as pathways for species to move through (Bolger et al., 2001). Maintenance and importance of urban forest primarily in metropolitan cities are gaining momentum in Nepal. Studies have indicated that urban forest patches can hold threatened bird species (Ives, et al., 2016; Schrauth et al., 2026) and green spaces are breeding sites for urban birds (Spotswood et al., 2021). Bird species richness is determined by forest patch size and age of trees, and standing dead trees determine predictors for bird abundance (Schrauth et al., 2026).

Nepal is an avian biodiversity hotspot, with 892 species, representing 9% of the world's avifaunal population (DNPWC and BCN, 2022). Some more bird species new for Nepal have been documented in recent years. Alternately, species diversity has been declining in metropolises like Kathmandu and Butwal (Katuwal et al., 2018; Aryal et al., 2021; Bhusal and Ghimire, 2023). Habitat quality markedly influences avian diversity, feeding guild and composition (Moning and Müller, 2008; Shrestha et al., 2023b). Pokhara Lekhnath metropolitan city is on the race of urbanization. With lush natural beauty, lakes and vibrant lifestyle, it is a prime tourist destination in Nepal. These attractions have rapidly developed it into a bustling city. Shantiban forest patch has enhanced the natural beauty of the city and attracts visitors. Hundreds of residents and visitors visit the forest patch for varied purposes. The forest patch is an important refugium for resident and migratory birds. Maintaining a balance between recreational purposes for city dwellers and preservation as a bird habitat is necessary for the sustainable utilization of the forest patch.

This study was carried out with the aim of interpreting the value of urban forest patches as bird habitats, showing the species richness, abundance, feeding guild and bird composition of the Shantiban forest patch for its preservation and sustainable use as a nature learning centre, birdwatching spot and other eco-friendly purposes. In addition, this study has set baseline database on birds for further studies.

MATERIALS AND METHODS

Study area

Shantiban is a small forest patch of 5 hectares (ha) in the centre (28°12'36.28"N and 83°59'31.32"E) of Pokhara Lekhnath Metropolitan City (**Error! Reference source not found.**). It is the only forest patch in the bustling Pokhara Lekhnath Metropolitan City. The average daily temperature of the city ranges between 25°C and 33°C in summer and between –2°C and 15°C in winter. It lies in the lower tropical bioclimatic zone with tropical forest ecosystem (Kansakar et al., 2004). The forest patch is an open canopy with almost flat terrain (806–821 masl) and is about 600 m long and 200 m wide. Red Silk-cotton Tree (*Bombax ceiba*), Needlewood Tree (*Schima wallichi)*, Indian Chestnut (*Castonopsis indica*) and Indian Butter Tree (*Diploknema butyracea*) are the major tree vegetation, while Wild Sage (*Lantana camera*), Spanish Needle *(Bidens pilosa*), Croftonweed (*Ageratina adenophora),* Goat Weed (*Ageratum conyzoides*), and Floss Flower (*Ageratum houstonianum*) are some ground vegetation in the study area. Golden Jackal (*Canis aureus*), Rhesus macaque (*Macaca mulatta*) and Indian Flying Fox (*Pteropus medius)* were some common mammals observed in the forest patch during the study. The Seti River flows across the forest patch. The forest patch is widely used by local residents and visitors for recreational activities, such as picnic, walking, jogging, meditation and for bird watching by naturalists. Therefore, human-induced disturbances, including bush clearance, solid waste disposal, stray dog activities and recreational pressures, were noted.

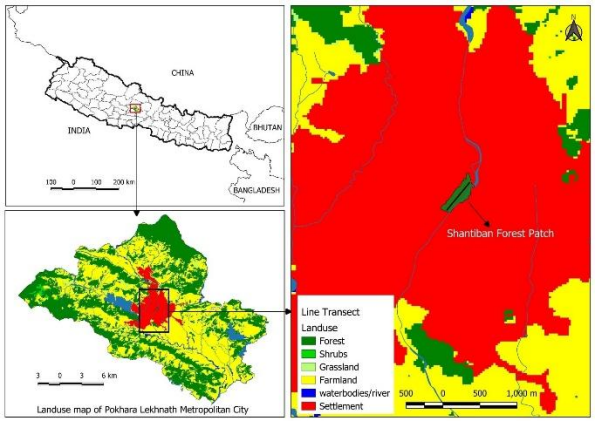

Figure 1: Study area map showing Shantiban with a bird study transect (black rectangle)

Method

A single line transect of 600 m along the foot trail in the forest patch was laid for the study of birds. Bird species and number observed or heard at the periphery alongside the transect were recorded while walking slowly along the 600 m-long transect on existing trails in about an hour (Raman, 2003). The study was carried from 07:30 AM to 08:30AM. Altogether 10 visits in winter, during 04–17 January, and in summer, during 16–29 June over 2023 and 2024, were made to record all potential bird species refuge in the study area. Binoculars with magnification of 10*42 mm (Kite Falco, Vortex Crossfire) and 8*32 mm (Opticorn) were used for observing birds and photos were captured through Canon EOS 90D with 100–400 mm lens. Birds observed and/or photographed and their migratory status were identified and assigned following the Birds of Nepal: Helm Field Guides (Grimmett et al., 2016). Bird nomenclature, threatened categories and CITES appendix enlisting were assigned following Birds of Nepal: an updated checklist (DNPWC and BCN, 2022). The feeding guild of birds was assigned following the National Red List of Nepal's Birds (Inskipp et al., 2016). Fieldwork was carried by three observers.

Data analysis

Data analysis was performed in R studio 4.2.2. Shapiro Wilk test was performed to test normality of data, followed by variance test. Due to non-normal distribution of data, Wilcoxon ranked sum test was applied to test the significance difference of bird species and count of birds between the seasons. Chi Square test of goodness was performed to examine the significance of association between the seasons and feeding guilds.

Several methods are available for the calculation of diversity indices. Pertinent to the higher variation in

sighting incidence of species with repetitive counts of common species and fewer or no count of rare and cryptic species, Shannon–Wiener Diversity Index (H') (Shannon, 1948) was applied for accounting species diversity index, with the reason that Shannon–Wiener Diversity Index is based on the theoretical foundation that is equally sensitive to rare and abundant species (Jost, 2007). The daily bird survey data was pooled to calculate seasonal as well as overall species diversity index. The distribution of bird species was assessed by Pielous's Evenness Index (J) (Pielou, 1966). Evenness showed the degree to which individuals are split among species. The low values indicate that one or a few species dominate, whereas high values indicate that relatively equal numbers of individuals belong to each species (Morris et al., 2014). Evenness measurement is dependent on compound diversity measures such as H' (Morris et al., 2014); hence Shannon–Wiener Diversity Index (H') is used for measurement of Evenness in this study. The mathematical expression of H' and J are:

Shannon–Wiener Diversity Index

$$H' = -\sum_{i=1}^{S} pi \ln pi$$

…….. equation (i)

Where "pi" represents the proportion (n/N) of individuals belonging to a particular species (n) relative to the total number of individuals recorded (N), "In" denotes the natural logarithm, E is the summation of the calculations and is the total number of species.

Pielou's Evenness Index

$J = H'/\mathrm{LnS}$ ……..equation (ii)

Where, H' is Shannon–Wiener Diversity Index and LnS is natural logarithm of species richness.

For the comprehensive understanding of bird composition between the seasons and years, Non-Metric Dimensional Scaling (NMDS) with Bray–Curtis Dissimilarity was applied. Ecological analysis was performed using the vegan package, data manipulation was done using the dplyr package, and visualization was done using the ggplot2 package.

RESULTS

The study recorded 81 species belonging to 35 families across 13 orders, with a total of 3,787 individual birds counted throughout the study period. Out of all the bird species observed in Shantiban, 82.72% (67 species) were residential, while 17.28% (14 species) were visitors. Egyptian Vulture (*Neophron percnopterus)* was classified as globally endangered. Egyptian Vulture, Brown Fish-owl (*Ketupa zeylonensis*) and Himalayan Griffon (*Gyps himalayensis*) are three Nationally Vulnerable bird species sighted in the Shantiban forest patch. Of the total, 10 species observed are listed in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendix II (Table 1).

Bird Composition

The habitat in the study area was observed to be highly suitable for bird species preferring bush-dominated environments, due to the presence of bushes throughout the forest. Muscicapidae family are at the top of the composition, with nine species, followed by Picidae, Phylloscopidae, Corvidae and Accipitridae, with five species each from the families (Figure 2).

Table 1: Globally Threatened Species (GTS), Nationally Threatened Species (NTS) and CITES-listed bird species observed in the Shantiban forest patch

S.N	Common Name	Scientific name	GTS	NTS	CITES
1	Asian Barred Owlet	*Glaucidium cuculoides*			II
2	Black Kite	*Milvus migrans*			II
3	Brown Fish-owl	*Ketupa zeylonensis*		VU	II
4	Common Kestrel	*Falco tinnunculus*			II
5	Egyptian Vulture	*Neophron percnopterus*	EN	VU	II
6	Himalayan Griffon	*Gyps himalayensis*		VU	II
7	Kalij Pheasant	*Lophura leucomelanos*			II
8	Oriental Honey-buzzard	*Pernis ptilorhynchus*			II
9	Shikra	*Accipiter badius*			II
10	Slaty-headed Parakeet	*Psittacula himalayana*			II

Species richness and diversity indices between seasons and years

A Shannon–Wiener Diversity Index of 3.53 was obtained for the study area, with the seasonal diversity index ranging from 3.07 to 3.48. Species diversity in winter is slightly higher than in summer. A Pielou's Evenness Index of 0.80 was obtained, with the seasonal evenness value ranging from 0.81 to 0.86. The diversity index value inferenced the diverse species composition, with moderate dominance of certain bird species. In 2023, species richness (Wilcoxon rank sum test, w =, df = 1, p = 0.0002), count of individuals (Wilcoxon rank sum test, w =, df = 1, p = 0.0002) and the Shannon–Weiner diversity index (Wilcoxon rank sum test, w =, df = 1, p = 0.0052) were significantly higher in winter than in summer, while the Pielou's evenness index (Wilcoxon rank sum test, w =, df = 1, p = 0.0089) was significantly lower in winter. Similarly, the winter season showed significant species richness (Wilcoxon rank sum test, w =, df = 1, p = 0.0028) and Pielou's Evenness Index (Wilcoxon rank sum test, w =, df = 1, p = 0.0007) in winter, with no significant difference in the count (Wilcoxon rank sum test, w = , df = 1, p = 0.3150) and the Shannon–Weiner Diversity Index (Wilcoxon rank sum test, w = , df = 1, p = 0.1431) between the seasons in 2024 (Table 2).

The bird community differed significantly between seasons and years. The combined model, including seasons and years, explained 40% of variation in bird assemblage (PERMANOVA: F = 7.90, R2 = 0.40, p = 0.001). The season had influence (PERMANOVA: F = 10.85, R2 = 0.22, p = 0.001), accounting for 22% of the variation. Similarly, the year had a smaller but significant effect (PERMANOVA, F = 3.42, R2 = 0.08, p = 0.002) on bird composition, explaining 8% of the variation in bird assemblage. The residual variation accounted for 92% and 78% of the total variation for year and season respectively. The NMDS analysis based on Bray–Curtis dissimilarity showed distinct clustering of bird composition by season, explaining 80% of the variance with a stress value of 0.20, indicating a good fit of data (Figure 3)

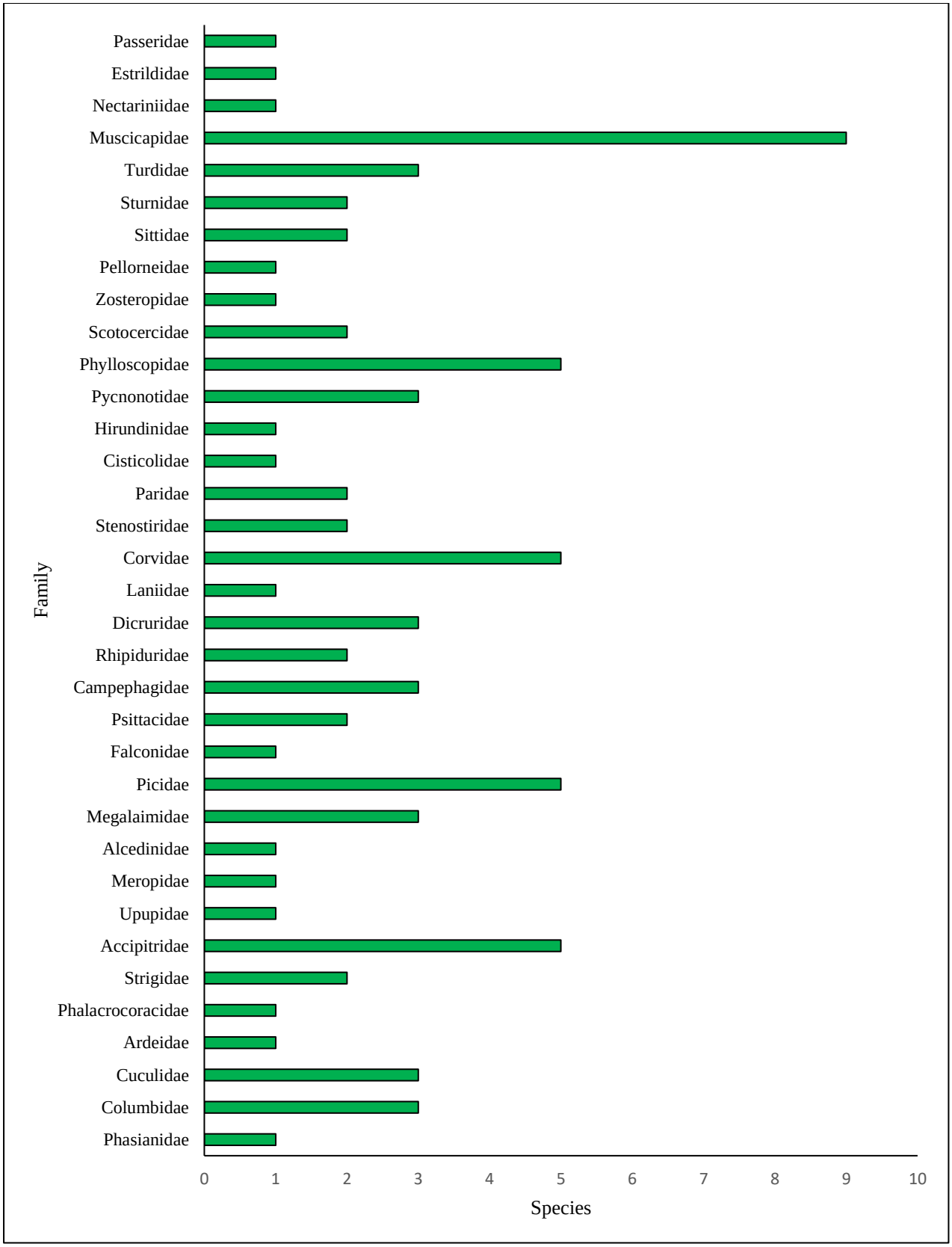

Figure 2: Bird composition by family in the Shantiban forest patch

Avian species richness and diversity

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Table 2: Species richness, diversity indices and evenness of birds in Shantiban forest

Diversity indices	Summer 2023	Winter 2023	p value	Summer 2024	Winter 2024	*p* value	Over all
Species Richness (mean ± SD per day)	43 (21 ± 3)	58 (28 ± 3)	0.0002***	39 (19 ± 4)	56 (26 ± 3)	0.0028**	81
Count (mean ± SD per day)	552 (55 ± 12)	1068 (107 ± 10)	0.0002***	921 (92 ± 22)	1246 (125 ± 56)	0.3150	3787
Shannon–Wiener Diversity Index (mean ± SD per day)	3.21 (2.8 ± 0.13)	3.48 (3.01 ± 0.11)	0.0052**	3.07 (2.69 ± 0.16)	3.26 (2.80 ± 0.10)	0.1431	3.53
Pielou's Evenness Index (mean ± SD per day)	0.85 (0.93 ± 0.02)	0.86 (0.90 ± 0.02)	0.0089**	0.84 (0.92 ± 0.02)	0.81 (0.87 ± 0.03)	0.0007***	0.80

*< 0.05 *, < 0.01 **, < 0.001 ****

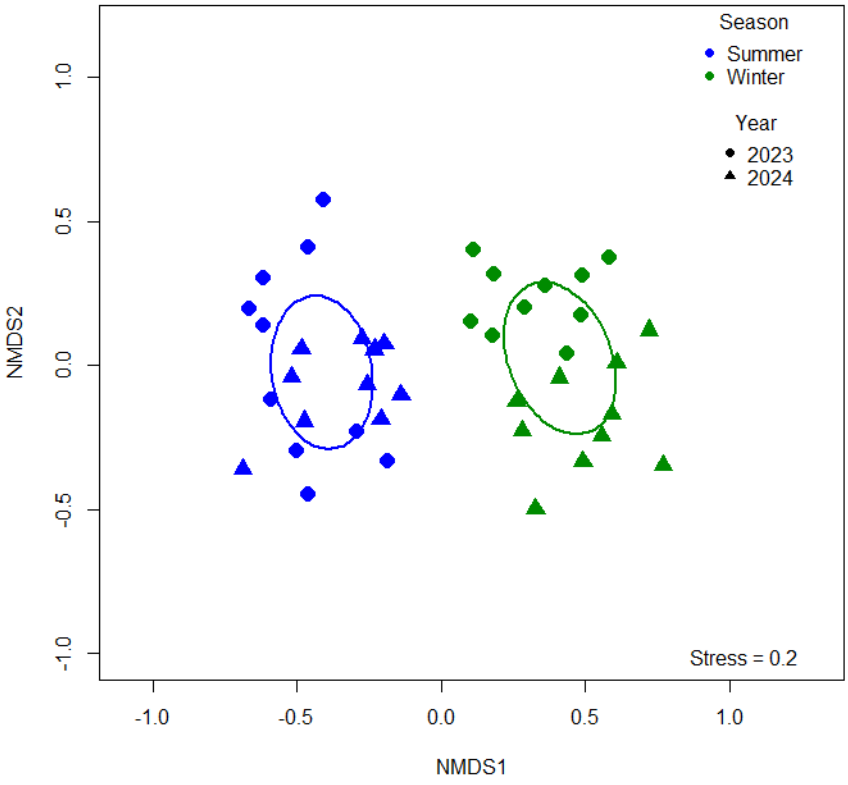

Figure 3: NMDS ordination of bird species composition across the sampling days, showing clustering by seasons and years

Feeding behaviour of birds

A significant association was observed between bird feeding guilds and both seasons (Chi square test: χ^2 = 77.18, df = 7, p < 0.001) and years (Chi square test: χ^2 = 66.71, df = 7, p < 0.001), indicating temporal variation in the feeding pattern.

Among the observed birds, omnivores constituted the largest group, with 34 species (43.58%), followed by insectivores, represented by 27 species (34.61%). Carnivores accounted for 7 species (8.97%), and frugivores comprised 5 species (6.41%). Smaller groups included granivores (3 species, 3.84%), scavengers (2 species, 2.56%), piscivores (2 species, 2.56%) and nectarivores (1 species, 1.28%) (Figure 7).

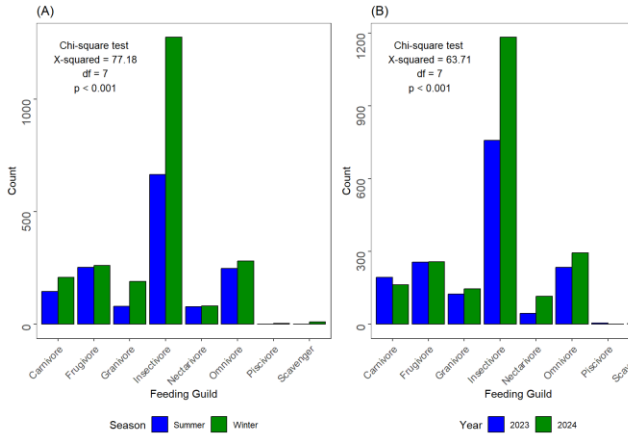

Figure 4: Seasonal (A) and annual (B) variation in bird feeding guid composition, showing a significant association with bird feeding guilds.

DISCUSSION

Shantiban forest patch has been serving as a critical refugium for a variety of bird species, along with seasonal visitors (Annex 1). The species under Passeriformes order were dominant in the study area, aligning with most of the bird studies carried out in Nepal.

Species richness was observed to be slightly higher during the winter season compared to summer, resulting in noticeable differences between 2023 and 2024. The study area, with 67 residential bird species and 14 visitor species, highlights its ecological significance as a stable and resource-rich habitat. The high number of residential birds (82.72%) indicates that the area provides consistent food, shelter and breeding opportunities year round. The presence of 14 visitor species (17.28%) emphasizes its role as a stopover or seasonal habitat for migratory birds, showcasing its importance as part of a larger ecological network. This diversity underscores the area's value for conservation of small forest patches in the centre of the city and its contribution to supporting avian biodiversity.

The diverse feeding types observed in the study area indicate a rich and varied habitat capable of supporting a wide range of bird species. The predominance of omnivores (43.58%) and insectivores (34.61%) suggests a habitat abundant in generalist food resources, such as insects, fruits and plant matter, making it suitable for both flexible feeders and insect specialists. The presence of carnivores (8.97%) reflects the availability of prey species, while the existence of frugivores (6.41%) indicates the presence of fruiting trees. The smaller proportions of granivores (3.84%), nectarivores (1.28%), scavengers (2.56%) and piscivores (2.56%) suggest niche habitats, like flowering plants, water bodies (the Seti River gorge) and carrion sources (possibly in the waste dumped in the site) in the study area. Overall, the habitat is ecologically diverse, supporting a balanced ecosystem for different trophic groups. Avian diversity in the forest patch showed the park as a fundamental refugium for bird species and playing a critical role in maintaining the bird habitat (Basnet et al., 2016).

Seasonality plays an important role in the characterization of bird diversity in an ecosystem. It is one of the crucial factors affecting the availability of essential resources and, hence, bird diversity (Katuwal et al., 2016; Pandey et al., 2020). Winter has the highest Shannon–Wiener diversity index, consistent to a study carried out at the Gajedi wetland in Rupandehi district (Regmi et. al., 2023), at Dhaneshwor Baikiwa community forest in Kavrepalanchowk district (Nepali et al., 2021), at Banpale forest in Kaski district (Baral et al., 2022), and at Phulchoki hill in Lalitpur district (Jha, 2019). The higher diversity of birds in winter could be related to the higher number of resident birds, which shows altitudinal migration. Approximately 550 among 886 species are seasonal altitudinal migrants, and these species breed at higher elevations in the mountain region and descend to lower altitude for wintering (Inskipp et al., 2016). In addition, approximately 150 species of long-ranged migratory birds travel from the Northern Hemisphere, including China, Mongolia, Korea, Siberian region of Russia, and Central Asia, to spend the winter season in Nepal (Jha and Sharma, 2018). Similarly, when summer starts in Nepal, about 62 species of summer migrants from the South enter the country for breeding, and other species of birds that had migrated from the North return to their summer habitats (Baral and Inskipp, 2005). Many of these summer visitors come from Sub-Saharan Africa, travelling for more than 5,000 km (Bhushal, 2013). Others come from South-east Asia, North-east India and South India. All summer visitors that travel to Nepal every year inhabit in various forests in the Terai, hills and the foothills of mountain areas. Most of them stay until October and then return to their winter habitats (Jha, 2016).

The study area, Shantiban forest patch, provides a critical habitat for threatened species. Egyptian Vulture (*Neophron percnopterus*) holds an Endangered Global Status and was observed roosting in the large Red Silk-cotton Tree (*Bombax ceiba*) trees in the area. These trees offer vital roosting cover, while the presence of carcasses in nearby waste further supports its survival. Additionally, the Brown Fish Owl (*Ketupa zeylonensis*), a piscivore, thrives in the area, likely due to the proximity of the Seti River Gorge, which provides feeding opportunities. Furthermore, the presence of 10 species Globally and Nationally Threatened species listed in CITES underscore Shantiban's role as an important habitat. Shantiban serves as a crucial habitat for urban bird species in the heart of the Pokhara city. However, it is gradually degrading into a

dumping site due to the lack of proper waste management. The forest is primarily used by the local community for morning walks with dogs and for collecting wild yams during January, which involves digging large holes across the forest. The presence of a substantial number of stray dogs poses a significant threat to the bird population, as they were frequently observed chasing and preying on species such as the Kalij pheasant (*Lophura leucomelanos*). Additionally, with people often dumping waste within the study area, due to the lack of waste management practices, solid waste poses a major threat to the bird habitats. Conservation efforts are essential to maintain the ecological integrity of the site and the survival of at-risk species. Maintaining the area as parks, greenways or other semi-natural spaces can better support both the habitat and species (Ersoy, 2016).

CONCLUSION

Shantiban forest patch is an urban green space harbouring diverse avifaunal species in the rapidly urbanizing city of Pokhara. With 81 bird species documented, representing 9.08% of Nepal's total avian diversity, the area showcases its ecological importance. Despite lying in the middle of an urban city, the diversity index of 3.53 indicates that Shantiban provides the diverse bird species with variations in seasons. Passeriformes emerged as the dominant order, indicating the habitat's suitability for this group. The presence of certain CITES-listed birds and Globally and Nationally Threatened bird species underscores the critical conservation value of the forest patch. This study emphasizes the need for effective conservation strategies, including habitat management, waste management and community engagement, to sustain and enhance Shantiban's role as a vital urban biodiversity hotspot. Balancing urban development with ecological preservation is imperative to ensure the coexistence of human and wildlife populations in urban settings.

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ANNEX: SPECIES LISTED IN THE SHANTIBAN FOREST PATCH

S. N	English Name	Scientific Name	Nepali Name	GTS	NTS	CITES	Migratory status
Galliformes							
Phasianidae							
1	Kalij Pheasant	*Lophura leucomelanos*	कालिज			III	R
Columbiformes							
Columbidae							
2	Common Pigeon	*Columba livia*	मलेवा				R
3	Oriental Turtle-dove	*Streptopelia orientalis*	तामे ढुकुर				R
4	Spotted Dove	*Spilopelia chinensis*	कुर्ले ढुकुर				R
Caprimulgiformes							
Cuculidae							
5	Asian Koel	*Eudynamys scolopaceus*	कोहो कोइली				SV
6	Greater Coucal	*Centropus sinensis*	ढोडे गोकुल				R
7	Green-billed Malkoha	*Phaenicophaeus tristis*	हरित मालकौवा				R
Pelecaniformes							
Ardeidae							

8	Cattle Egret	*Bubulcus ibis*	वस्तु बकुल्ला				R
Suliformes							
Phalacrocoracidae							
9	Great Cormorant	*Phalacrocorax carbo*	जलेबा				WV
Strigiformes							
Strigidae							
10	Asian Barred Owlet	*Glaucidium cuculoides*	ठूलो डुन्डुल			II	R
11	Brown Fish-owl	*Ketupa zeylonensis*	मलाहा हुचील		VU	II	R
Accipitriformes							
Accipitridae							
12	Black Kite	*Milvus migrans*	कालो चील			II	R
13	Egyptian Vulture	*Neophron percnopterus*	सेतो गिद्ध	EN	VU	II	R
14	Himalayan Griffon	*Gyps himalayensis*	हिमाली गिद्ध		VU	II	R
15	Oriental Honey-buzzard	*Pernis ptilorhynchus*	मधुहा			II	R
16	Shikra	*Accipiter badius*	शिक्रा			II	R
Bucerotiformes							
Upupidae							
17	Common Hoopoe	*Upupa epops*	फाप्रे चरा				R
Coraciiformes							
Meropidae							
18	Blue-bearded Bee-eater	*Nyctyornis athertoni*	मधुमक्षी भक्षका				R
Alcedinidae							
19	White-throated Kingfisher	*Halcyon smyrnensis*	सेतोकण्ठे माटीकोरे				R
Piciformes							
Megalaimidae							
20	Blue-throated Barbet	*Psilopogon asiaticus*	कुथुर्के				R
21	Coppersmith Barbet	*Megalaima haemacephala*	मिलचरा				R
22	Great Barbet	*Psilopogon virens*	न्याउली				R
Picidae							
23	Fulvous-breasted Woodpecker	*Dendrocopos macei*	काष्ठकूट				R
24	Black-naped Woodpecker	*Picus guerini*	कालोगर्दने काठफोर				R
25	Greater Yellownape	*Chrysophlegma flavinucha*	ठूलो सुनजुरे काठफोर				R
26	Lesser Yellownape	*Picus chlorolophus*	सुनजुरे काठफोर				R
27	Speckled Piculet	*Picumnus innominatus*	थोप्ले ससिया				R
Falconiformes							
Falconidae							
28	Common Kestrel	*Falco tinnunculus*	बौंडाइ			II	R
Psittaciformes							
Psittacidae							
29	Rose-ringed Parakeet	*Psittacula krameri*	कण्ठे सुगा				R
30	Slaty-headed Parakeet	*Psittacula himalayana*	मदना सुगा			II	R
Passeriformes							
Campephagidae							

31	Large Cuckooshrike	*Coracina macei*	लटुशक विरहीचरी				R
32	Long-tailed Minivet	*Pericrocotus ethologus*	लामपुच्छे रानीचरी				WV
33	Scarlet Minivet	*Pericrocotus flammeus*	रानीचरी				R
Rhipiduridae							
34	White-browed Fantail	*Rhipidura aureola*	कुमथोप्ले मारुनीचरी				R
35	White-throated Fantail	*Rhipidura albicollis*	नक्कले मारुनीचरी				R
Dicruridae							
36	Ashy Drongo	*Dicrurus leucophaeus*	ध्वाँसे चिवे				WV
37	Black Drongo	*Dicrurus macrocercus*	कालो चिवे				R
38	Spangled Drongo	*Dicrurus hottentottus*	केशराज चिवे				R
Laniidae							
39	Long-tailed Shrike	*Lanius schach*	भद्राई				R
Corvidae							
40	Gray Treepie	*Dendrocitta formosae*	पहाडी कोकले				R
41	House Crow	*Corvus splendens*	घर काग				R
42	Large-billed Crow	*Corvus macrorhynchos*	कालो काग				WV
43	Red-billed-Blue Magpie	*Urocissa erythroryncha*	स्यालपोथरी लामपुच्छे				R
44	Rufous Treepie	*Dendrocitta vagabunda*	कोकले				R
Stenostiridae							
45	Gray-headed Canary-flycatcher	*Culicicapa ceylonensis*	चञ्चले अर्जुनक				WV
46	Yellow-bellied Fairy-fantail	*Chelidorhynx hypoxanthus*	पहेँलो मारुनीचरी				
Paridae							
47	Asian Tit	*Parus cinereus*	चिचिल्कोटे				R
48	Black-lored Tit	*Machlolophus xanthogenys*	पाण्डु चिचिल्कोटे				R
Cisticolidae							
49	Common Tailorbird	*Orthotomus sutorius*	पातसिउने फिस्टो				R
Hirundinidae							
50	Barn Swallow	*Hirundo rustica*	घरगौँथली				R
Pycnonotidae							
51	Black Bulbul	*Hypsipetes leucocephalus*	बाखे जुरेली				R
52	Himalayan Bulbul	*Pycnonotus leucogenys*	जुल्फे जुरेली				R
53	Red-vented Bulbul	*Pycnonotus cafer*	जुरेली				R
Phylloscopidae							
54	Chestnut-crowned Warbler	*Phylloscopus castaniceps*	रातोटाउके फिस्टो				WV
55	Gray-hooded Warbler	*Phylloscopus xanthoschistos*	तुमूलकारी फिस्टो				R
56	Hume's Warbler	*Phylloscopus humei*	चञ्चले फिस्टो				WV
57	Lemon-rumped Warbler	*Phylloscopus chloronotus*	पीतकटी फिस्टो				WV
58	Whistler's Warbler	*Phylloscopus whistleri*	सुसेली फिस्टो				WV
Scotocercidae							
59	Chestnut-headed Tesia	*Cettia castaneocoronata*	रातोटाउके टिसिया				WV
60	Gray-bellied Tesia	*Tesia cyaniventer*	फुस्रोपेटे टिसिया				WV
Zosteropidae							

61	Indian White-eye	*Zosterops palpebrosus*	काइकीर				R
Pellorneidae							
62	Puff-throated Babbler	*Pellorneum ruficeps*	थोप्ले भ्याकुर				R
Sittidae							
63	Chestnut-bellied Nuthatch	*Sitta cinnamoventris*	कटुसे मट्टा				R
64	Velvet-fronted Nuthatch	*Sitta frontalis*	मखमली मट्टा				R
Sturnidae							
65	Common Myna	*Acridotheres tristis*	डाङ्ग्रे रुपी				R
66	Jungle Myna	*Acridotheres fuscus*	वन रुपी				R
Turdidae							
67	Black-throated Thrush	*Turdus atrogularis*	कालोकण्ठे चाँचर				WV
68	Orange-headed Thrush	*Geokichla citrina*	सुन्तले चाँचर				WV
69	Scaly Thrush	*Zoothera dauma*	गोब्रे चाँचर				WV
Muscicapidae							
70	Blue-throated Flycatcher	*Cyornis rubeculoides*	नीलकण्ठे अर्जुनक				SV
71	Blue Whistling-Thrush	*Myophonus caeruleus*	कल्चौंडे				R
72	Little Pied Flycatcher	*Ficedula westermanni*	श्यामश्वेत अर्जुनक				WV
73	Oriental Magpie-Robin	*Copsychus saularis*	धोबिनी चरा				R
74	Rufous-bellied Niltava	*Niltava sundara*	सुन्दर नीलतभा				WV
75	Rufous-gorgeted Flycatcher	*Ficedula strophiata*	सेतोटिके अर्जुनक				WV
76	Small Niltava	*Niltava macgrigoriae*	सानो नीलतभा				R
77	Taiga Flycatcher	*Ficedula albicilla*	लालकण्ठे अर्जुनक				WV
78	Verditer Flycatcher	*Eumyias thalassinus*	नीलतुथो अर्जुनक				WV
Nectariniidae							
79	Crimson Sunbird	*Aethopyga siparaja*	सिपराजा बुङ्गेचरा				R
Estrildidae							
80	White-rumped Munia	*Lonchura striata*	सेतोढाडे मुनियाँ				R
Passeridae							
81	House Sparrow	*Passer domesticus*	घर भँगेरा				R

Globally Threaten Status, NTS - Nationally Threatened Status, ER- -Endangered, VU - Vulnerable,
CITES - Convention on International Trade in Endangered Species of Wild Fauna and Flora, II- Appendix-II; III- Appendix-III
R- Resident; WV- Summer Visitor; WV- Winter Visitor