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Diet composition of Barn Owl *(Tyto alba)* and Spotted Owlet *(Athene brama)* in an agricultural landscape of Central Assam, India

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Abstract This study examined the food habits of coexisting Barn Owls *(Tyto alba)* and Spotted Owlets *(Athene brama)* from January 2021 to January 2022 in two agricultural landscapes in Nagaon district, Assam, India. Pellet analysis at two sites, Nonoi and Puranigudam, revealed that Barn Owls primarily preyed on small mammals, such as Asian House Shrew *(Suncus murinus)* (42.05%) and Black Rat *(Rattus rattus)* (9.88%), with some avian species like Common Myna *(Acridotheres tristis)* and Oriental Magpie-robin *(Copsychus saularis)*. In contrast, Spotted Owlets predominantly consumed insects (Coleoptera, 50.47%) and small mammals (House Mouse *Mus musculus*, 16.19%). The dietary niche breadth was wider for Barn Owls (4.9) compared to Spotted Owlets (3.3). Both species contribute significantly to pest management in agricultural ecosystems, emphasizing their role as natural biocontrol agents.

Keywords: Barn Owl *(Tyto alba)*, Spotted Owlet *(Athene brama)*, Nagaon, Assam, dietary niche breadth, pellet analysis, agricultural pest control, coexistence

Összefoglalás A tanulmány az együtt élő gyöngybagoly *(Tyto alba)* és a brama kuvik *(Athene brama)* táplálkozási szokásait vizsgálta két mezőgazdasági tájban az indiai Assam állam Nagaon régiójában 2021 januárja és 2022 januárja között. A két területen, Nonoiban és Puranigudamban végzett bagolyköpet elemzés kimutatta, hogy a gyöngybagoly elsősorban kisemlősöket zsákmányolt, mint a Távol-keleti pézsmapatkány *(Suncus murinus)* (42,05%) és a házi patkány *(Rattus rattus)* (9,88%), valamint néhány madárfajt, mint például a pásztormejnót *(Acridotheres tristis)* és a Dayal-rigót *(Copsychus saularis)*. Ezzel szemben a brama kuvik túlnyomórészt rovarokat (Coleoptera, 50,47%) és kisemlősöket (házi egér *Mus musculus*, 16,19%) fogyasztott. A gyöngybagoly táplálék niche-szélessége nagyobb volt (4,9), mint a brama kuviké (3,3). Mindkét faj jelentősen hozzájárul a kártevők elleni védelemhez a mezőgazdasági ökoszisztémákban, hangsúlyozva a természetes biokontrollban betöltött szerepüket.

Kulcsszavak: gyöngybagoly *(Tyto alba)*, brama kuvik *(Athene brama)*, Nagaon, Assam, táplálkozási niche-szélesség, köpetvizsgálat, mezőgazdasági kártevő kontroll, együttélés

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Introduction

Owls are a prevalent group of avian fauna that inhabit rural, semi-urban, and urban landscapes. Primarily nocturnal, these birds of prey often roost in tall trees during the day (Lewis 2015). In India, the Spotted Owlet *(Athene brama)* and the Barn Owl *(Tyto alba)* are common species, particularly in Northeast India (Ali & Ripley 1983). Each owl species has specific prey preferences: Scops and Screech Owls primarily feed on insects, Barn Owls prefer rodents such as mice, shrews, and voles. Eagle Owls (*Bubo* sp.) hunt hares, young foxes, and birds up to the size of ducks, while Fish Owls (*Ketupa* sp.) are adept at catching fish. However, most owls exhibit opportunistic feeding behaviour, adapting their diet to the available prey in their habitat.

Owls, classified under the order Strigiformes, have a unique feeding habit of swallowing their prey whole and later regurgitating indigestible parts as compact pellets. Analyzing these pellets provides valuable insights into their diet and serves as a primary method for studying their feeding habits (Goguen 2016). This analysis also yields data on the small vertebrate fauna present in a given area (Heisler *et al.* 2016), making it a crucial tool that supplements traditional small mammal trapping methods. Pellets can capture data on species that typically avoid traps due to elusive behaviour or low population densities (Rocha *et al.* 2015).

Owls play a critical role in maintaining ecological balance, as they occupy the apex of trophic levels in both terrestrial and aquatic ecosystems (Sergio *et al.* 2008). They are particularly noted for their role in pest control (Pande & Dahanukar 2011, Kross *et al.* 2016, Moysi *et al.* 2018). Among India's owl species, Barn Owls and Spotted Owlets are frequently found in agricultural and human-dominated landscapes. Barn Owls are generalist predators, primarily preying on rodents (Taylor 1994). Similarly, the Spotted Owlet is a generalist predator, consuming a wide variety of prey, including rodents, small birds, reptiles, amphibians, and invertebrates such as insects and annelids (Jadhav & Parasharya 2003, Pande *et al.* 2007).

Due to their nocturnal and elusive nature, the population status and basic biology of many owl species remain largely unknown. In Northeast India, particularly, there is limited understanding of the distribution and habitat preferences of various owl species. Understanding the owl species co-occurrence in a given area and identifying the key habitat attributes they rely on are essential for comprehending how owls utilize their environment.

This study highlights the role of owls in controlling agricultural pests, specifically rodents, which pose significant threats to crops. As natural predators, owls help manage rodent populations in different geographical regions (Kross *et al.* 2016, Moysi *et al.* 2018), with over twenty species identified as major agricultural pests in India (Sridhara & Tripathi 2006). Conserving owls not only enhances rodent control, thereby preventing substantial crop losses, but also reduces the need for chemical interventions, contributing to the preservation of ecological diversity. This study also aims to investigate the diet composition and seasonal dietary variations in an agricultural landscape of Nagaon District, Assam.

Material and Methods

The study was conducted in Nagaon District of Assam, India, from January 2021 to January 2022, covering all four seasons. The focus was on two primary sites: Nonoi Agricultural Field (26.268651° N, 92.713536° E) and Puranigudam Agricultural Field (26.376473° N, 92.780771° E) *(Figure 1)*. These sites were chosen due to the presence of sacred fig *(Ficus religiosa)* trees, which provide ideal nesting sites for the Barn Owl and Spotted Owlet. Additional sites, including Samaguri Beel Par, Jaysagar Doloni, and Teliagaon, were also surveyed to broaden trophic ecological understanding.

Nesting and roosting sites were identified using modified protocols from Pande *et al.* (2011) and Mehta and Kulkarni (2018). These protocols included direct observations for owls, pellets, prey remains, excreta, and feathers, as well as monitoring potential nesting trees, conducting auditory surveys during late evening hours (19:00–21:00 hrs), and engaging residents through structured interviews. Data collection focused on the two primary sites where both owl species coexisted in the same nesting trees. Key parameters for data collection included gathering regurgitated pellets, prey remains, and feathers from beneath nesting trees during morning from 06.00 to 11.00 and evening from 15.30 to 19.30 sampling slots.

The study comprised 105 field days and a total of 158 hours of data collection. Spotted Owlet's pellets were collected during early morning hours (06.00–07.00) to minimize

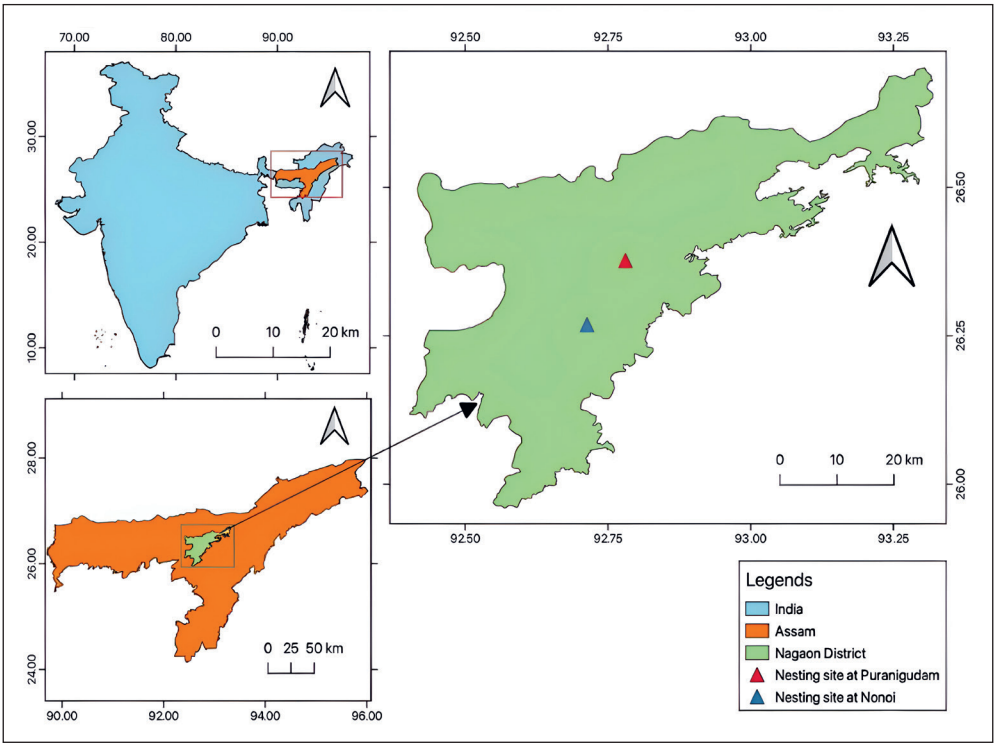

Figure 1. Map of the study area showing the investigated nesting sites of the two owl species
1. ábra A kutatási terület térképe a két bagolyfaj vizsgált fészkelőhelyeivel

disintegration risks, especially during the monsoon season. They were carefully handled, measured using a Vernier calliper, sun-dried for six hours to eliminate parasitic insect larvae, and stored in labelled plastic bags for analysis. Nikon P900 and Nikon D500 cameras were used to capture photographic evidence of owl activity and nesting sites.

For analysis, pellet samples were rehydrated in warm water and separated into identifiable components using tweezers, including bones, hair, feathers, and insect exoskeletons, following methods from Talmale and Pradhan (2009) and Mehta *et al.* (2020). Key prey items were identified based on skeletal elements; rodent pest species were identified from Sridhara and Tripathi (2006). To find out the association between pellet shape and dominant prey type Chi-square test was carried out. The food niche breadth (NB) was calculated using Levins' (1968) formula:

$$NB = (\sum Pi^2)^{-1}$$

where 'Pi' is the percentage of prey 'i' in the diet. Seasonal variations in diet composition were visualised using Microsoft Excel 2021, and geographic maps illustrating study sites were created using QGIS software, version 3.14, providing spatial context for the findings.

Results

Diet of Barn Owl

A total of 312 Barn Owl pellets were collected from the nesting habitat, revealing 517 distinct prey items, resulting in an average of 1.6 prey items per pellet. These pellets contained a total of 25 different prey species *(Table 1)*. The average pellet length was 43.26 mm (range: 31.1–68.6 mm, n=312), and the average width was 26.87 mm (range: 19.5–34.5 mm, n=312). The pellets exhibited various shapes, including cylindrical, oval, and irregular structures, and were dark brown and grey in colour. They were often covered with undigested parts of prey, such as fur, feathers, and small bone fragments.

Furthermore, a Chi-square test of independence revealed a significant association between pellet shape and dominant prey type ($\chi^2 = 76.20$, df = 2, $p < 0.001$). Cylindrical and oval pellets primarily contained small mammals, whereas pellets with undigested bird parts lacked a defined geometric shape. The vertebrate prey species identified in the pellets included two insectivores from the Soricidae family: Asian House Shrew *(Suncus murinus)* and an unidentified *Crocidura* species. The Barn Owl's diet also comprised two species of Microchiroptera, one of which was identified as a Greater False Vampire Bat *(Megaderma lyra)*. Additionally, the pellets contained seven species of Rodentia from the family Muridae, including Greater Bandicoot Rat *(Bandicota indica)*, Lesser Bandicoot Rat *(B. bengalensis*), Black Rat *(Rattus rattus)*, Sikkim Rat *(R. sikkimensis)*, an unidentified *Rattus* sp., Little Indian Field Mouse *(Mus booduga)*, and House Mouse *(Mus musculus)*, collectively accounting for 39% of the overall Barn Owl prey base in the study area.

Seven avian species were identified in the pellets, six of which were specified to the species level: Indian Pied Myna *(Gracupica contra)*, Jungle Myna *(Acridotheres fuscus)*,

Table 1. Seasonal relative percentage values of prey species in the Barn Owl's diet
1. táblázat A gyöngybagoly zsákmány fogyasztásának szezonális gyakorisági értékei

Prey items	Year around (%) (n=517)	Pre-monsoon (%) (n=142)	Monsoon (%) (n=149)	Retreating monsoon (%) (n=94)	Winter (%) (n=132)
Mammals					
Suncus murinus	41.97	53.52	40.94	42.55	30.30
Crocidura sp.	5.41	5.63	0.67	3.19	12.12
Megaderma lyra	0.19	0	0.67	0	0
Unidentified bat sp.	0.19	0	0	1.06	0
Bandicota indica	5.03	5.63	3.35	4025	6.82
Bandicota bengalensis	6.38	7.04	5.37	3.19	9.10
Rattus rattus	9.86	9.15	12.75	8.51	8.33
Rattus sikkimensis	8.70	6.34	9.39	8.51	10.61
Mus booduga	3.87	3.52	4.70	0	6.10
Mus musculus	5.22	3.52	8.72	0	6.82
Birds					
Gracupa contra	0.19	0	0	0	0.76
Acridotheres fuscus	0.38	0.70	0.67	0	0
Sturnia malabarica	0.97	0.70	1.34	2.13	0
Passer domesticus	1.16	0.70	0.67	4.25	0
Psilopogon asiaticus	0.19	0	0.67	0	0
Psilopogon haemacephalus	0.58	0	0.67	1.06	0.76
Acridotheres tristis	2.71	1.41	1.34	8.51	1.51
Copsychus saularis	3.28	0.70	2.68	9.57	2.27
Amphibians					
Unidentified *Anura* sp. 1	0.77	0	1.34	0	1.51
Unidentified *Anura* sp. 2	1.16	0	1.34	1.06	2.27
Reptiles					
Unidentified reptile sp.	0.19	0	0	1.06	0
Insets					
Hemiptera sp.	0.19	0.70	0	0	0
Coleoptera sp.	1.16	0.70	2.01	1.06	0.76
Orthoptera sp.	0.19	0	0.67	0	0

Chestnut-tailed Starling *(Sturnia malabarica)*, House Sparrow *(Passer domesticus)*, Blue-throated Barbet *(Psilopogon asiaticus)*, and Coppersmith Barbet *(Psilopogon haemacephalus)*. The observed pellets also contained herpetofauna (amphibians and reptiles) from the order Anura (specific species not identified), while the reptilian species could not be determined. Furthermore, the Barn Owl pellets included insect species belonging to the orders Coleoptera, Hemiptera, and Orthoptera, although these constituted only a minor portion of the Barn Owl's diet *(Figure 2)*.

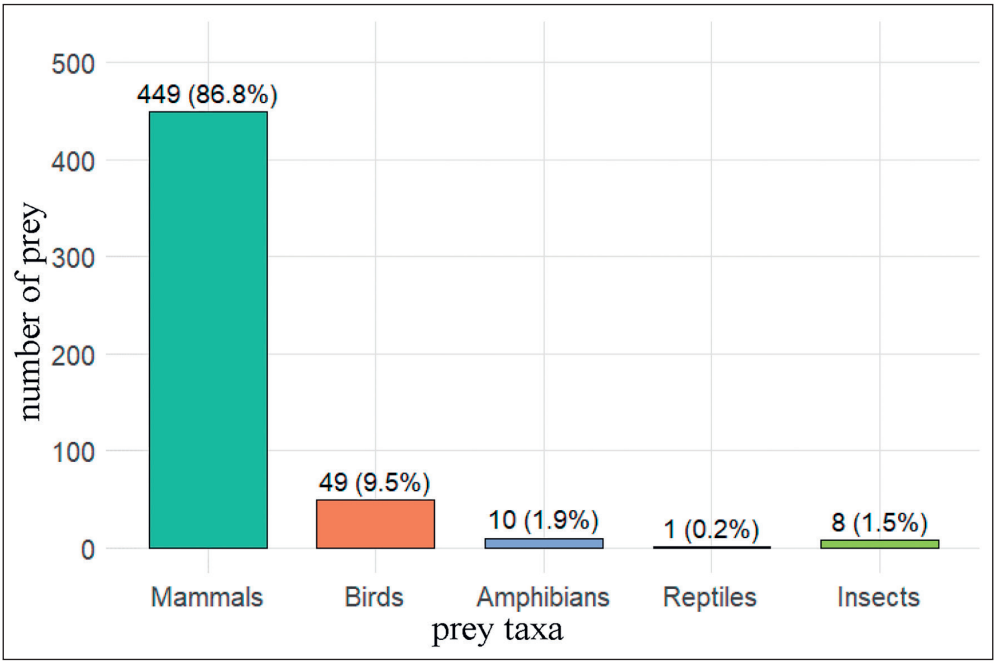

Figure 2. Distributioin of larger prey groups in the Barn Owl's diet during the year-round observation
2. ábra A gyöngybagoly fő zsákmánykategóriáinak megoszlása a teljes vizsgálati év adatai alapján

Seasonal variation of Barn Owl diet

During the pre-monsoon season (March–May), a total of 94 Barn Owl pellets were collected, yielding 142 identified prey items. Analysis revealed that small mammals dominated the diet, accounting for 94.3% of the total prey items observed in this season *(Table 1)*. The most common prey species included Asian House Shrew (53.5%), Greater Bandicoot Rat (5.6%), Lesser Bandicoot Rat (7%), and Black Rat (9.1%).

In the monsoon season (June–September), 87 pellets were collected, yielding 149 prey items, with small mammals again predominant at 87%. The Barn Owls most frequently hunted Asian House Shrew (40.9%), followed by Black Rat (12.7%) and Sikkim Rat (9.4%).

During the retreating monsoon season (October–November), 60 Barn Owl pellets were collected, revealing 94 prey items. Of these, small mammals constituted 71.3% of the diet, while birds made up 25.5%. Asian House Shrew was the most frequently hunted prey, comprising 42.5% of the diet.

In the winter season (December–February), 71 pellets were collected, from which 132 prey items were identified. Mammals were the most dominant prey group at 90.2%, followed by birds at 5.3%, with Asian House Shrew remaining the most frequently hunted species at 30.3%.

Overall, the analysis clearly indicated that the Barn Owl's diet is primarily composed of small mammalian species across all four seasons, with mammals consistently being the dominant prey group. Among small mammals, rodents are particularly significant, peaking at 90.2%

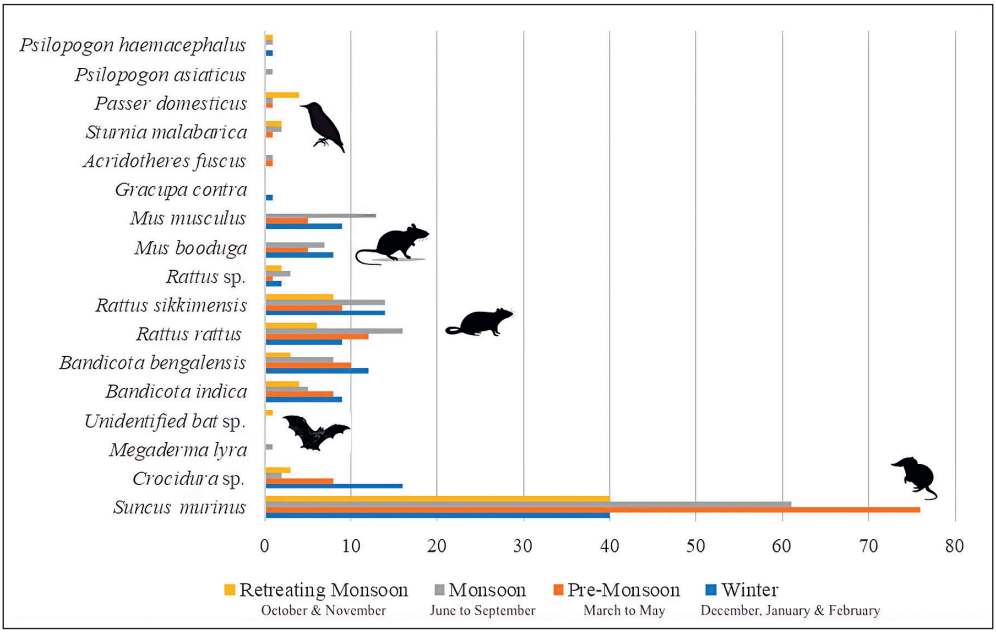

Figure 3. Distribution of prey species consumed by the Barn Owl in different seasons
3. ábra A gyöngybagoly által fogyasztott zsákmányfajok megoszlása a különböző évszakokban

during the winter season. Birds also contribute to the diet, with consumption increasing during the retreating monsoon. While amphibians constitute a minor component, their consumption shows a surprising increase in winter. Insects form a negligible part of the Barn Owl's diet, with their consumption rising slightly during the monsoon season *(Figure 3)*.

Diet of Spotted Owlet

The pellets of the Spotted Owlet exhibit consistent size and shape characteristics. The average length of the pellets is 25.08 mm (range: 21–34.1 mm, n=72), and the average width is 14.02 mm (range: 12–17.2 mm, n=72). These pellets are elongated and cylindrical, dark brown when dried, and covered with undigested prey remains such as insect exoskeletons and bone fragments from small mammals.

Analysis of 72 Spotted Owlet pellets revealed 105 prey items (1.5 prey items per pellet) belonging to 10 species *(Table 2)*. The diet of the Spotted Owlet predominantly consists of arthropods, which make up 55.2% of the diet. Among these, beetles (order Coleoptera) and grasshoppers (order Orthoptera) are the most frequently consumed. Mammals constitute 40% of the diet, followed by amphibians (2.9%) and birds (1.9%) *(Figure 4)*. The pellets contained remains of mammals primarily from the orders Insectivora and Rodentia. Within Insectivora, species from the family Soricidae and the genus *Crocidura* were identified. In the order Rodentia, four species from the Murinae family – Lesser Bandicoot Rat, Sikkim Rat, Little Indian Field Mouse, and House Mouse – were recorded. Additionally, amphibian remains from the order Anura, and one bird species were found.

Table 2. Seasonal relative percentage values of prey species in the Spotted Owlet's diet
2. táblázat A brama kuvik zsákmányfogyasztásának szezonális gyakorisági értékei

Prey Items	Year around (%) (n=105)	Pre-monsoon (%) (n=29)	Monsoon (%) (n=22)	Retreating monsoon (%) (n=13)	Winter (%) (n=41)
Mammals					
Crocidura sp.	9.52	6.9	9.1	7.7	12.2
Bandicota bengalensis	0.95	0	0	0	2.4
Rattus sikkimensis	2.86	0	4.5	15.4	0
Mus booduga	16.19	17.2	13.6	0	4.9
Mus musculus	10.48	20.7	13.6	0	22
Birds					
Orthotomus sutorius	1.90	0	0	7.7	2.4
Amphibians					
Unidentified *Anura* sp.	2.86	0	4.5	0	4.9
Insects					
Coleoptera	50.48	55.20	45.4	61.5	46.3
Hymenoptera	3.81	0	9.1	0	4.9
Orthoptera	0.95	0	0	7.7	0

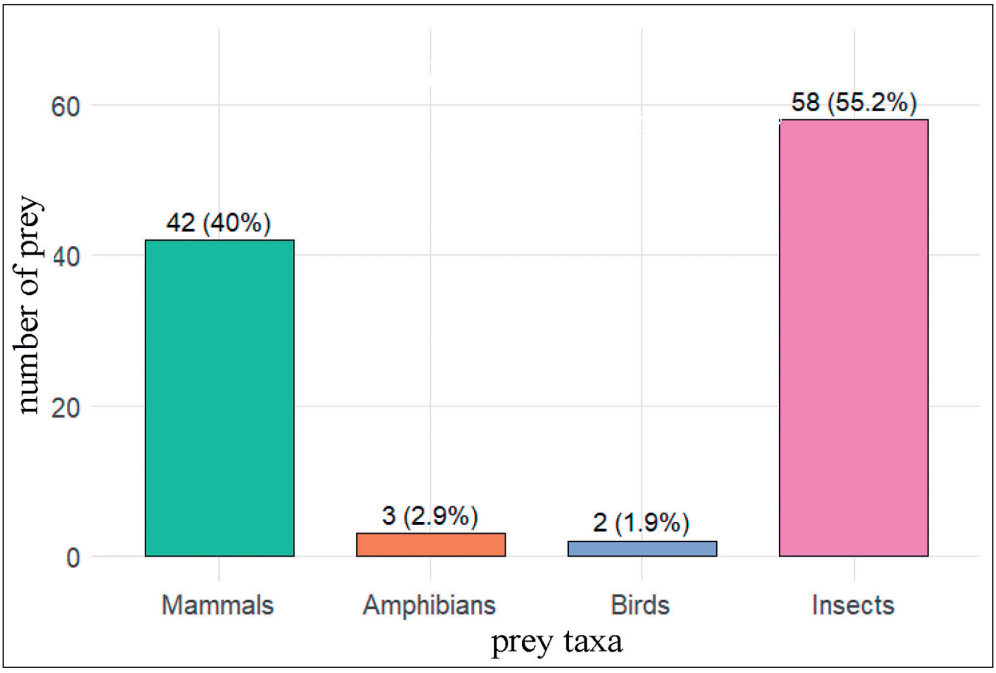

Figure 4. Distribution of larger prey groups in the Spotted Owlet's diet during the year-round observation
4. ábra A brama kuvik fő zsákmánykategóriáinak megoszlása a teljes vizsgálati év adatai alapján

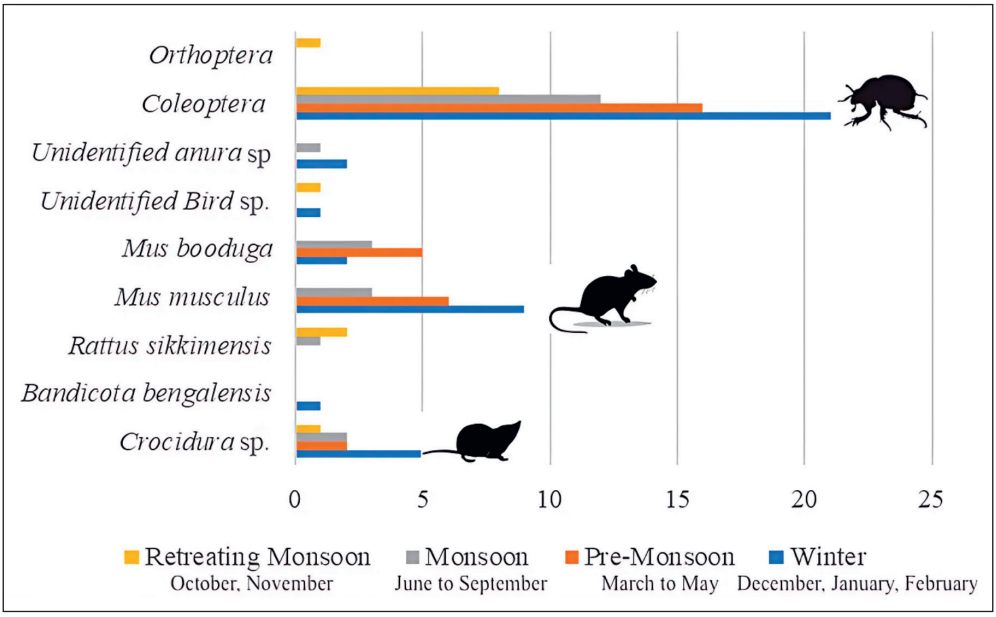

Figure 5. Distribution of prey species consumed by the Spotted Owlet in different seasons
5. ábra A brama kuvik által fogyasztott zsákmányfajok megoszlása a különböző évszakokban

Seasonal variation in Spotted Owlet diet

Analysis of Spotted Owlet pellets collected across different seasons shows variations in diet composition *(Table 2)*. During the pre-monsoon season (March–May), 19 pellets yielded 29 prey items, with insects making up 55.2% of the diet, particularly coleopterans. In the monsoon season (June–September), 15 pellets contained 22 prey items, with insects constituting 54.5% of the diet, again with coleopterans being the preferred prey. During the retreating monsoon season, 11 pellets revealed 13 prey items, with insects being predominant (69.2%) and coleopterans the most frequently consumed. In winter (December–February), 27 pellets yielded 41 prey items, with insects comprising 51.2% of the diet. Other prey items included Lesser Bandicoot Rat and House Mouse, with coleopterans remaining the most preferred prey *(Figure 5)*. Overall, the diet of the Spotted Owlet is primarily composed of insects and small mammals, with rodents being particularly important during the pre-monsoon season (44.8%).

Rodent pests in owl diet

A total of six rodent species were identified from the Barn Owl and Spotted Owlet pellets and all are considered as major agricultural pests. Analysis of 312 Barn Owl pellets revealed the remains of six rodent pest species, including Greater Bandicoot Rat (13%), Lesser Bandicoot Rat (16%), Black Rat (25%), Sikkim Rat (22%), Little Indian Field Mouse (10%), and House Mouse (14%). A total of 202 rodent prey were identified in Barn Owl pellets during the study period. Similarly, analysis of 72 Spotted Owlet pellets showed the

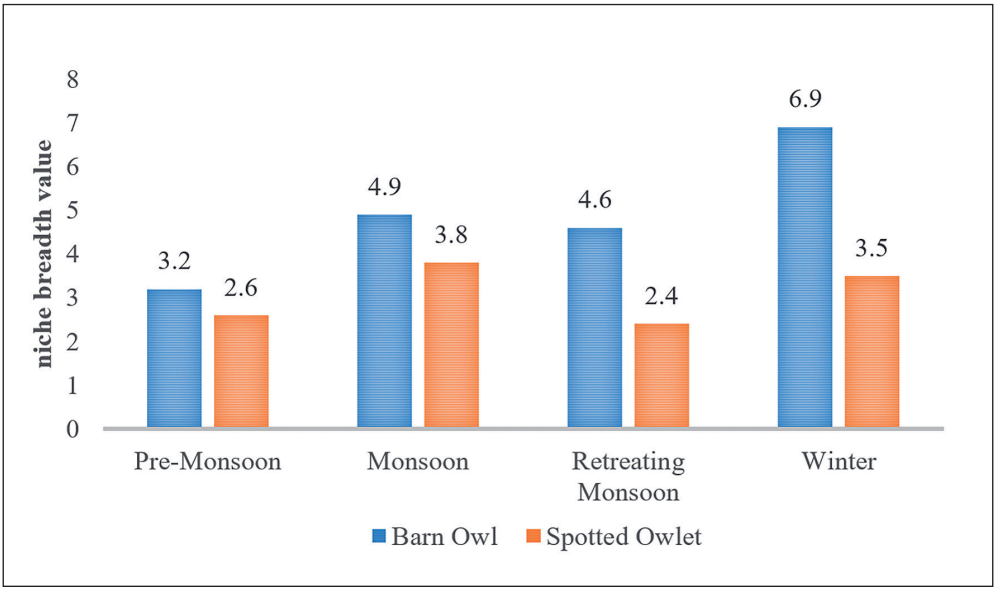

Figure 6. Seasonal variation of niche breadth of Barn Owls and Spotted Owlets
6. ábra A gyöngybagoly és a brama kuvik táplálék niche-szélességének szezonális eltérése

remains of Lesser Bandicoot Rat (3.1%), Sikkim Rat (9.3%), Little Indian Field Mouse (34.3%), and House Mouse (53.1%). In total, 32 rodent preys belonging to 4 species were identified in Spotted Owlet pellets during the study period.

Trophic niche breadth of the owl species

The trophic niche breadth of the Barn Owl was determined to be 4.9, exhibiting seasonal variation. The narrowest niche breadth was recorded during the pre-monsoon season (3.2), followed by an increase to 4.9 in the monsoon, a slight decline to 4.6 during the retreating monsoon, and a peak of 6.9 in winter. In contrast, the Spotted Owlet displayed a trophic niche breadth of 3.3, with seasonal fluctuations. The niche breadth was at its lowest during the retreating monsoon (2.4), reached its highest point in the monsoon (3.8), and measured 2.6 in the pre-monsoon and 3.5 in winter *(Figure 6)*.

Discussion

The morphometric measurements of Barn Owl pellets in this study show notable variation when compared to previous research. Studies by Ali and Santhanakrishnan (2012), Santhanakrishnan *et al.* (2010), Almeida *et al.* (2021), and Nadeem *et al.* (2012) reported pellet lengths of 37±8.8 mm (range: 10–80 mm) and widths of 25±5.3 mm (range: 8–40 mm); 37±9.1 mm (range: 10–80 mm) and widths of 24.7±5.4 mm (range: 8–40 mm); and 48.2±0.82 mm (range: 39.7–55.4 mm) and widths of 38.2±0.46 mm (range: 33.8–40.8 mm),

respectively. The variation in pellet size observed throughout the year is consistent with previous findings by Stegeman (1957) and Hardy (1977), who suggested that pellet size is influenced by diet composition, prey size, and prey nutritive value. Our study also found that Barn Owl pellets containing multiple prey items were generally smaller than those with a single prey item, contrasting with the findings of Nadeem *et al.* (2012), who reported larger pellets in areas where Barn Owls primarily preyed on avian species.

The average number of prey items per pellet was 1.6, differing from other studies (Travaini *et al.* 1997, Bellocq 1998, Neelanarayanan 2007, Magrini & Facure 2008, Charter *et al.* 2009, Nadeem *et al.* 2012). Consistent with research from various regions (Glue 1974, Marti 1974, Lovari *et al.* 1976, Taylor 1994, Pezzo & Morimando 1995, Travaini *et al.* 1997, Bose & Guidali 2001, Leonardi & Arte 2006, Magrini & Facure 2008), small mammals were the primary contributors to the Barn Owl's prey biomass, a pattern supported by numerous studies (Marti 1974, Gubanyi *et al.* 1992, Pezzo & Morimando 1995, Travaini *et al.* 1997, Bose & Guidali 2001, Leonardi & Arte 2006, Magrini & Facure 2008). The most frequently hunted and significant prey species was Asian house shrew, likely due to its abundance and nocturnal behavior, in line with previous studies (Santhanakrishnan *et al.* 2010, Nadeem *et al.* 2012).

While other studies noted a significant proportion of bats in the Barn Owl's diet (Bellocq 2000, Escarlate-Tavares & Pessoa 2005, Sommer *et al.* 2005, Nadeem *et al.* 2012), this study recorded only a negligible amount, with just two individuals consumed. Birds made up 5.4% of the diet, and other studies have suggested that Barn Owls may specialize to birds when other prey is scarce (Bose & Guidali 2001, Leonardi & Arte 2006, Nadeem *et al.* 2012). Reptiles and amphibians were consumed in smaller numbers, accounting for 0.19% and 1.93% of the diet, respectively, consistent with previous research (Pezzo & Morimando 1995, Sommer *et al.* 2005, Neelanarayanan 2007, Santhanakrishnan *et al.* 2010). Insects from the orders Coleoptera, Hemiptera, and Orthoptera constituted 1.54% of the Barn Owl's diet, which aligns with findings from other regions where arthropods comprise less than 2.5% of the diet (Rifai *et al.* 1998, Santhanakrishnan *et al.* 2010).

Seasonal variation was observed in the Barn Owl's diet, though small mammals remained dominant throughout the year. Rodents were particularly prevalent during the winter season, likely due to the agricultural cycle in Assam, where paddy fields are harvested in December and January, exposing small mammals to predation. Additionally, the cessation of breeding among small mammals, except for the black rat, in the colder months (December–January) may have contributed to this pattern. The reproductive cycles and changes in vegetation cover significantly influence the availability and abundance of small mammals, including Asian house shrew, which remained a staple diet item across all four seasons.

In contrast, the Spotted Owlet's diet was characterized by a higher proportion of insect prey, consistent with previous studies (Santhanakrishnan *et al.* 2011, Patki *et al.* 2016. Mehta *et al.* 2018). Coleoptera were the most frequently consumed insects, followed by Hymenoptera and Orthoptera. Despite the prevalence of insect consumption, small mammals, particularly those weighing less than 30 g (such as *Crocidura* and *Mus* species), were important prey items, corroborating earlier research (Nadeem *et al.* 2012). Seasonal variation was also observed in the Spotted Owlet's diet, with small mammals forming a larger part of the prey biomass during the winter and pre-monsoon seasons when agricultural fields are cleared,

exposing small mammals to predators. Insect consumption increased during the monsoon and retreating monsoon seasons, corresponding to a rise in insect abundance.

The findings suggest that the Barn Owl is a more generalist predator, with a prey base comprising 25 species, compared to the Spotted Owlet. Levin's index for the Barn Owl was smaller than reported by Petrovici *et al.* (2013) but larger than in Nadeem *et al.* (2012). The Barn Owl's niche breadth varied across seasons, peaking in winter, likely due to the increased availability of rodents. For the Spotted Owlet, Levin's index was larger than that reported by Nadeem *et al.* (2012), with seasonal variations, and the widest niche breadth occurring in winter, again likely due to the availability of small mammals.

This study provides valuable insights into the prey base and dietary variations of the Barn Owl and Spotted Owlet in Assam. Given the limited research conducted in Northeast India, these findings underscore the ecological importance of owls. Barn Owls are potential predators of rodent pests, and their role as biological pest controllers in agricultural areas could be harnessed to reduce the use of harmful chemical pesticides. Farmers in some western countries already use Barn Owls for this purpose (Meyrom *et al*. 2009, Kross *et al.* 2016), and installing artificial nest boxes in agricultural fields could further promote this practice in India. Raising awareness among local communities about the ecological role of owls is essential. Owl pellet analysis also serves as an efficient method for studying small mammal populations, such as rodents and shrews, which are otherwise difficult to monitor using conventional trapping methods. The frequent presence of certain species in owl pellets indicates high population densities in the study area, making this a valuable tool for ecological monitoring.

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