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Investigation of Wild Mammals in the Kurupelit Main Campus of Ondokuz Mayıs University Using Camera Trapping: The First Record of Grey Wolf (*Canis lupus*) at Low Altitude (180 Meters Above Sea Level) in Türkiye

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Abstract: Rapid urbanisation and environmental threats to wildlife habitats pose major global challenges for biodiversity conservation. Depending on their location, large university campuses at the wildlife interface can provide critical refugia for local biodiversity within urban green matrices. This study aimed to assess the species richness and population status of wild mammals within the Ondokuz Mayıs University (OMU) Kurupelit Campus in Samsun, employing a "One Health" framework. A systematic survey was conducted between 1.10.2025 and 10.02.2026, utilising three passive infrared (PIR) camera traps. The equipment was periodically monitored for battery status, field of view, storage capacity, structural stability, and connectivity. Additionally, external tracking devices were employed to provide real-time and daily verification of the equipment's coordinates. The study identified the Golden jackal (*Canis aureus*,n=8), Grey wolf (*Canis lupus*,n=2), Roe deer (*Capreolus capreolus*,n=2), and a marten species (*Martes sp.*,n=1). The most significant finding was the detection of the Grey wolf at an elevation of only 180 metres above sea level. This represents the first scientific record of the species at such a low altitude in Türkiye. Furthermore, the presence of a resident jackal pack indicates the successful adaptation of the species to peri-urban environments. These findings suggest that the OMU campus functions as both a biodiversity hotspot and an ecological corridor. To mitigate potential human-wildlife conflicts, effective management strategies and continuous monitoring within a "One Health" framework are essential. Expanding future research and promoting ecological awareness within the university community could significantly enhance long-term wildlife conservation and urban biodiversity management.

Keywords: Biodiversity, camera trap, campus fauna, *Canis lupus*, urban ecology.

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Ondokuz Mayıs Üniversitesi Merkez Yerleşkesi Kurupelit Kampüsü'ndeki Yabani Memeli Hayvanların Fotokapan Yöntemiyle Araştırılması: Bozkurdun (*Canis lupus*) Türkiye'de Alçak Rakımdaki (180 metre) İlk Kaydı

Öz: Hızlı kentleşme ve yaban hayatı habitatlarına yönelik çevresel tehditler küresel anlamda yaban hayatı için zorluklar oluşturmaktadır. Bulunduğu konumlara bağlı olmakla birlikte geniş ve yaban hayatı ile temas halindeki üniversite kampüsleri, kentsel yeşil alanlar içinde yerel biyoçeşitlilik için önemli alanlar sunabilmektedir. Çalışmamızda, Ondokuz Mayıs Üniversitesi (OMÜ) Kurupelit Kampüsü Samsun'daki yabani memelilerin tür çeşitliliğini ve popülasyon durumlarını "Tek Sağlık" perspektifiyle belirlemek amaçlamıştır. 1.10.2025 – 10.02.2026 tarihleri arasında, 3 adet pasif kızılötesi (PIR) fotokapan kullanılarak sistematik bir araştırma yürütülmüştür. Fotokapanlar düzenli aralıklarla enerji durumu, görüş açısı, depolama alanı, sabitliği ve bağlantı noktaları yönlerinden kontrol edilmiştir. Ayrıca harici olarak yerleştirilen konum takip cihazları sayesinde günlük ve anlık olarak da mevcut konumları teyid edilmiştir. Çalışma sonucunda, Altın çakal (*Canis aureus*,n=8), Bozkurt (*Canis lupus*,n=2), Karaca (*Capreolus capreolus*,n=2) ve Sansar türü (*Martes sp.*,n=1) belirlenmiştir. Çalışmanın en önemli bulgusu, Bozkurdun deniz seviyesinden 180 metre yükseklikte kaydedilmesidir. Bu durum, türün Türkiye'de bu kadar alçak bir rakımda kaydedildiği ilk bilimsel veri niteliğini taşımaktadır. Ayrıca, yerleşik bir çakal sürüsünün varlığı, türün kent çevresi alanlara başarılı adaptasyonunu göstermektedir. Bu bulgular, OMÜ kampüsünün bir biyoçeşitlilik noktası ve ekolojik koridor olarak işlev gördüğünü göstermektedir. Potansiyel insan-yaban hayatı çatışmalarını en aza indirmek için "Tek Sağlık" çerçevesinde etkili yönetim stratejileri ve sürekli izleme gereklidir. Gelecek araştırmaların kapsamını genişletmek ve üniversite topluluğu içinde ekolojik farkındalığı artırmak, yaban hayatının uzun vadeli korunmasına ve kentsel biyoçeşitlilik yönetiminin başarısına önemli ölçüde katkı sağlayabilir.

Anahtar Kelimeler: Biyoçeşitlilik, *Canis lupus*, fotokapan, kampüs faunası, kent ekolojisi.

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INTRODUCTION

Monitoring wildlife populations is essential for understanding ecosystem dynamics and developing effective conservation strategies. Traditional monitoring methods, such as direct observation, are often limited by the elusive and nocturnal nature of many mammal species. Consequently, camera trapping has emerged as a standard, non-invasive, and cost-effective tool in ecological research. This technology enables researchers to collect reliable data on species presence, abundance, and behaviour with minimal disturbance to the animals (Kucera & Barrett, 2011; Trolliet et al., 2014). Türkiye possesses a rich biodiversity due to its unique geographical location. Approximately 175 mammalian species have been recorded in the country, and the family Canidae, belonging to the order Carnivora, is represented worldwide by 13 genera and 35 species (Seyfi vd., 2021; Golenishchev et al., 2022; Gündüz vd., 2023). One of the prominent members of this family, the Grey wolf (*Canis lupus*), plays a crucial role in maintaining ecosystem health by regulating vertebrate populations. Because of this ecological function, wolves are considered keystone and umbrella species within ecosystems. Although Türkiye is reported to host a relatively healthy wolf population, increasing human activities in recent years have led to habitat fragmentation, habitat loss, and declining prey availability, which restrict wolves' natural habitats and make it more difficult for them to obtain food (Ölmez & Demirbaş, 2024). In recent years, camera trap studies have significantly contributed to the inventory of Türkiye's mammalian fauna. However, the majority of these studies have focused on protected areas, national parks, or remote forest ecosystems (Can & Togan, 2004; Çoğal & Sözen, 2020). There is a paucity of research regarding wildlife dynamics in human-dominated landscapes, particularly within urban and peri-urban environments. Urban ecosystems are increasingly recognized as important habitats for adaptable species. Carnivores such as the Golden jackal (*Canis aureus*) and omnivores like the Wild boar (*Sus scrofa*) are known to utilize resources in peri-urban areas (Massei et al., 2014). University campuses, with their mix of green spaces, natural plants, and quiet areas with little human activity, provide important habitats for wildlife. While interest in the subject has existed for some time, urban wildlife research has seen a significant and continuous increase in more recent years. These campuses act as vital bridges between the countryside and the city, helping animals adapt to urban life. Unlike the heavily built-up areas around them, they serve as 'green islands' where wildlife can find shelter and safely move through the city (Adams, 2005). Ondokuz Mayıs University (OMU) Kurupelit Campus, covering approximately 880 hectares on the Black Sea coast, represents a significant ecological corridor connecting coastal and inland habitats. In the context of rapid urban expansion, university campuses can function as ecological islands within predominantly human-dominated landscapes. These settings often provide a distinctive mix of resources, including remnants of natural vegetation that offer shelter, firearm regulations that effectively limit hunting activities, and various human-related food sources. As a result, campuses may serve as important refuges for wildlife seeking relief from hunting pressure and habitat degradation commonly observed in surrounding rural areas. Gaining a better understanding of the synurbisation process—namely, how wild species adjust their behaviour and spatial use to persist in campus environments—is essential for more effectively incorporating wildlife conservation into urban planning strategies.

The primary objective of this study was to document the mammal species diversity and assess their population status within the OMU campus. To our knowledge, this is the first systematic camera trap survey conducted in this area.

MATERIAL AND METHOD

Study Area: The study was conducted at the Ondokuz Mayıs University Kurupelit Campus (41°22'N, 36°11'E), located in the Atakum district of Samsun province, Türkiye. The region experiences a typical Black Sea climate, characterised by high humidity and moderate precipitation throughout the year, which supports dense understory vegetation critical for mammal concealment. The campus covers an area of approximately 880 hectares and features a rugged topography with steep slopes and valleys. The vegetation is composed of mixed deciduous forests, dense scrublands, and open grasslands. The area is surrounded by suburban settlements, student dormitories, and agricultural land, creating a semi-urban interface. All procedures were approved by the Ondokuz Mayıs University Animal Experiments and Local Ethics Committee (Approval No: 2025-27). This study was conducted with the permission of the Republic of Türkiye Ministry of Agriculture and Forestry, General Directorate of Nature Conservation and National Parks (Ref. No: E-72784983-288.04-19044554, Date: 29.04.2025) and Republic of Türkiye Samsun Governorate (Ref. No: E-34266607-605-109597, Date: 02.06.2025).

Data Collection*:* Fieldwork was carried out between October 1, 2025, and February 10, 2026 (132 days). The study utilized three passive infrared (PIR) camera traps (K&F Concept, KF35.133). To maximize spatial coverage within the limited equipment capacity, a rotational sampling strategy was employed. Cameras providing regular wildlife data remained at their original stations, while those with low detection rates or high human disturbance were relocated to

alternative sites. To strictly observe natural behaviours and avoid artificially altering species distribution or local densities, no baits, lures, or olfactory attractants were used at any of the camera trap stations during the study. In total, 5 different sampling stations were surveyed across the campus. This resulted in a total sampling effort of approximately 396 camera-trap days (3 cameras × 132 days). Passive infrared (PIR) camera traps were mounted on trees at a height of 40–50 cm above the ground to capture both medium and large mammals. The devices were secured with locks and camouflaged to prevent theft and minimise visual disturbance (Figure 1). Cameras were programmed to record images upon motion detection, with a 30-second delay between consecutive triggers to ensure independence of capture events. The equipment was checked periodically to replace batteries and retrieve data. The altitudes of the camera trap stations were determined using an IOS-based device equipped with a barometric altimeter. To ensure measurement precision, the device was manually calibrated at a sea-level reference point (0 m a.s.l.) on the Samsun (Atakum) coastline immediately prior to the field survey. Following this calibration process, the altitude of each sampling station was recorded during the deployment of the equipment.

Figure 1. Installation of the passive infrared camera trap with camouflage to minimise visual disturbance.

Routine Checks and Relocation: The equipment was physically checked in the field at two-week intervals. During these routine visits, battery levels, memory card capacity, mounting stability, and camera angles were inspected to ensure continuous data recording. Initial analysis revealed frequent human activity in the camera trap stations located near the campus borders adjacent to surrounding villages. Specifically, during October and November, intense human presence due to seasonal mushroom picking was observed. To minimise anthropogenic disturbance and prevent data bias, these camera traps were relocated to more isolated, internal sections of the campus boundaries.

Camera Deployment and Relocation Strategy

The three camera traps utilised in the study were deployed across a total of five different stations (designated as Area 1 to Area 5) employing a rotational sampling strategy based on periodic field observations:

Camera 1 (Area 1): As this station consistently yielded high wildlife detection rates, proving to be a highly productive location, the device was not relocated and remained stationary for the entire 132-day study period.

Camera 2 (Relocated from Area 2 to Area 4): Initially deployed in Area 2, this camera was active for the first 60 days. However, due to intense human and free-roaming dog activity detected during the day-60 routine check, the device was moved to Area 4 for the remainder of the study. During subsequent checks in Area 4, fresh footprints and signs of ground/vegetation disturbance were continuously observed; thus, the camera was kept in place to capitalise on this potential wildlife activity. Although routine inspections revealed no technical malfunctions regarding the field of view or trigger sensors, no image captures occurred at this station. We hypothesise that this absence of captures may be attributed to animals bypassing the sensor's narrow detection zone, the incidental nature of the tracks, or temporary sensor unresponsiveness caused by microclimatic variables such as high humidity and abrupt light fluctuations.

Camera 3 (Relocated from Area 3 to Area 5): The camera in Area 3 was subjected to heavy anthropogenic pressure, specifically from seasonal mushroom foragers and dogs, as noted during checks on days 30, 50, and 60. Consequently, to prevent data bias and equipment damage, it was relocated to Area 5 for the remaining duration of the study.

Security and Remote Monitoring: To ensure the security of the equipment against theft, vandalism, or wildlife damage, a location tracking device compatible with the IOS ecosystem was attached to each camera trap (XENON Smart, Smart Tag). These devices utilized signals from nearby mobile devices to update location data. Since the study area is situated in a semi-urban zone with proximity to rural settlements, signal transmission was reliable. This system allowed for daily remote monitoring of the devices' coordinates. It enabled the research team to immediately detect uncontrolled displacements caused by adverse weather conditions, physical intervention by wildlife, or unauthorized human handling, ensuring the continuity of the study.

Mapping and Privacy: A map showing the distribution of sampling stations is provided (Figure 2). However, due to the sensitive nature of the data and to prevent illegal hunting or malicious targeting of the identified species, exact GPS coordinates are not disclosed. The map presents approximate locations to represent the habitat types without compromising wildlife security.

Figure 2. Map of the study area showing the approximate locations of sampling stations (Exact GPS coordinates are withheld for security purposes).

Statistical Analysis*:* Retrieved images and video sequences were systematically reviewed to identify species. To prevent the overestimation of common species, consecutive triggers of the same species at the exact same location within a 30-minute interval were filtered out and recorded as a single independent capture event, unless individuals were visibly distinct. A significant portion of the raw data comprised false triggers caused by environmental factors (e.g., wind, moving vegetation) and non-target species (predominantly domestic dogs, stray cats, and human presence), which were categorised and excluded from the wild mammal analysis.

The total sampling effort was calculated as 396 camera-trap days (3 cameras × 132 days) across 5 different sampling stations. Although the Ondokuz Mayıs University campus covers a large area of approximately 880 hectares, sampling stations were strategically positioned within critical ecological corridors and micro-habitats to maximize detection probability with the available equipment.

For social and gregarious species, the Maximum Number of Individuals (MaxN) method was employed to provide a definitive minimum count and avoid double-counting. MaxN is defined as the highest number of individuals of a given species captured in a single, simultaneous photographic frame or continuous video sequence. Additionally, the Relative Abundance Index (RAI=[n/N]×100, where n is the number of independent captures and N is the sampling effort) was utilized to assess the relative density of the identified species. Spatial distribution was evaluated using Naive Occupancy, calculated as the proportion of stations where a species was detected out of the total number of stations.

RESULTS

This study provides the first systematic photographic evidence of large carnivore presence within the OMU Kurupelit Campus. During the study period, four wild mammal species belonging to the families Canidae, Cervidae, and Mustelidae were identified.

Golden Jackal (Canis aureus): The Golden jackal was the most frequently recorded species, primarily detected at Area 1 and initially at Area 2. Population size was estimated using the Maximum Number of Individuals (MaxN) method. In a specific night-vision video sequence, a careful analysis of simultaneous eye-shines and distinct body movements within a single frame revealed a pack of 5 individuals. Additionally, 3 other distinct individuals were identified at different camera trap stations based on spatiotemporal data. Consequently, the minimum estimated population size in the study area is approximately 8 individuals. This group size indicates a highly successful adaptation to the campus ecosystem (Figure 3).

Figure 3. *A camera* trap image capturing the resident Golden Jackal (*Canis aureus*) pack, showing multiple individuals.

Grey Wolf (Canis lupus): A significant finding of this study was the confirmation of *Canis lupus* presence. Two distinct individuals were recorded in the same video frame simultaneously at Area 5, definitively confirming the presence of more than one individual rather than repeated captures of a solitary wolf. This represents the first scientific record of wolves within the campus boundaries. The individuals appeared to be in good physical condition with no visible signs of mange (Figure 4).

Figure 4. The first photographic record of the Grey Wolf (*Canis lupus*) within the campus boundaries, showing two individuals simultaneously.

Roe Deer (Capreolus capreolus): Two female Roe deer were recorded in the south-western forested section of the campus (Area 1). The presence of this ungulate indicates the availability of suitable cover and forage (Figure 5).

Figure 5. Image of the female Roe Deer (*Capreolus capreolus*) recorded in the forested section.

Pine or Stone Marten (Martes sp.): A single Pine or Stone marten was recorded during nocturnal hours at Area 2, consistent with the species' typical behaviour in urban environments (Figure 6). The individual was identified as Pine or Stone marten (*Martes sp.*) because the available camera-trap images provided only lateral and posterior views. As the diagnostic throat patch—white and typically bifurcated in stone marten and yellowish to orange in pine marten—was not visible, reliable species-level identification was not possible. Therefore, to avoid potential misclassification, the record was conservatively reported as *Martes sp.*

General Findings and Species Distribution Statistics: A total sampling effort of 396 camera-trap days yielded the identification of four wild mammal species within the 880-hectare campus. The Golden jackal (*Canis aureus*) was the most widely distributed species with a naive occupancy of 0.40, being recorded at 40% of the sampling stations (Area 1 and Area 2). In contrast, the Grey wolf (*Canis lupus*), Roe deer (*Capreolus capreolus*), and Marten (*Martes sp.*) each exhibited a naive occupancy of 0.20. Based on the Maximum Number of Individuals (MaxN) method, the minimum population sizes were estimated as 8 individuals for Golden jackals, 2 for Grey wolves, 2 for Roe deer, and 1 for Marten.

Figure 6. *Nocturnal record of a Martes sp.*

However, temporal analysis reveals that the probability of detection remains relatively low across all species. While the Golden jackal was recorded in five independent capture events (n=5), resulting in a Relative Abundance Index (RAI) of 1.26, the Roe deer was recorded twice (n=2, RAI: 0.51), and the Grey wolf and Marten were each recorded only once (n=1, RAI: 0.25). This statistical discrepancy suggests that while these species are spatially present within the campus matrix, the actual likelihood of an encounter during the 132-day survey period was significantly limited. The most significant finding remains the confirmation of *Canis lupus* at an elevation of only 180 m a.s.l. in Area 5, which may be considered the first scientific record of the species at such a low altitude in Türkiye. Furthermore, the lack of wild mammal detections in Area 3 and Area 4 might point to a potential correlation between high anthropogenic pressure—specifically seasonal human activity and the presence of free-roaming dogs—and reduced wildlife presence within these specific interfaces

DISCUSSION AND CONCLUSION

Camera traps have proven to be an effective method for detecting elusive species in semi-urban environments (Kucera & Barrett, 2011; Kays & Slauson, 2008). The primary objective of this research was to address a crucial knowledge gap regarding wildlife dynamics in human-dominated landscapes, demonstrating

the ecological value of peri-urban green spaces. Our findings demonstrate that the OMU Kurupelit Campus supports a diverse mammalian fauna, including apex predators.

The detection of a Golden jackal pack (8 individuals) aligns with recent trends regarding the expansion of this species in Europe and Türkiye (Rutkowski et al., 2015; Trouwborst et al., 2015). Jackals are highly adaptable opportunists capable of exploiting anthropogenic food sources (Markov & Lanszki, 2012). While their presence indicates a functional ecosystem, high densities in peri-urban areas pose potential risks regarding disease transmission (e.g., rabies, distemper) and conflicts with stray dogs. Therefore, continuous monitoring is essential from a "One Health" perspective (Giannatos, 2004). Given that the campus environment involves frequent spatial overlap between wildlife, domestic stray animals, and humans, integrating this perspective serves as a vital framework for assessing and mitigating cross-species disease transmission risks.

The most remarkable finding is the presence of the Grey wolf (*Canis lupus*). Wolves are typically associated with wilderness areas; however, recent studies indicate their ability to adapt to human-dominated landscapes when persecution is low (Chapron et al., 2014). The presence of wolves in the campus suggests that the area functions as an ecological corridor connecting the coast to the larger forest blocks in the hinterland. This finding is consistent with observations of wolf adaptability in Western Türkiye (İlemin, 2014). Literature on the distribution of Grey wolves (*Canis lupus*) in Türkiye suggests that the species typically retreats to mountainous areas above 800 m a.s.l. (Above sea level) in summer and descends to 400 m a.s.l. in winter, primarily due to human persecution (Ertürk, 2010; Massolo & Meriggi, 1998; Sulkava & Pulliainen, 1999; Turan, 1984). However, previous research (İlemin, 2014) reported records at 215 m a.s.l., demonstrating that the species can persist at significantly lower altitudes when provided with suitable habitat conditions, such as adequate prey availability and minimal human disturbance. In our study, the detection of Grey wolves (*Canis lupus*) at approximately 180 m a.s.l. represents an even lower altitude than previously documented records. Although the Grey wolf was recorded in a single independent event (RAI: 0.25), we believe the simultaneous presence of two distinct individuals in the same video frame provides strong evidence of coordinated movement rather than an anomalous, transient individual. While specific wolf scat or track analyses were not systematically conducted, the direct photographic evidence of multiple healthy individuals, combined with the refuge effect of the campus and the abundance of primary prey, suggests that this exceptionally low-altitude habitat may be functionally utilized by the species. Despite the relatively high level of human activity within the campus environment, the presence of wolves in this area underscores the ecological productivity and species diversity of the region. Although Wild boar (*Sus scrofa*) were not directly recorded by the camera traps during the survey, their presence in the campus and bordering areas is strongly supported by local, physical, and clinical evidence. Anamnestic reports from the inhabitants of the surrounding villages indicate frequent sightings of wild boars near the campus borders, frequently reporting significant damage to their agricultural crops and gardens. Furthermore, during routine equipment checks, indirect field signs such as footprints and characteristic rooting marks were frequently observed near the sampling stations. These local observations are clinically corroborated by the OMU Veterinary Faculty Animal Hospital, which reports recurrent cases of hunting dogs sustaining injuries from wild boar encounters in these adjacent areas. This combination of local sightings, agricultural impact, direct field signs, and clinical records by veterinarians strongly supports the assumption that the availability of such primary prey species is a key parameter allowing wolves to exploit these low-altitude habitats. Finding both the Grey wolf, acting as the top predator, and the Golden Jackal, a medium-sized predator, sharing a relatively small area of 880 hectares is a remarkable ecological finding. In the wild, larger members of the dog family typically do not tolerate smaller ones. The dominant predators usually drive the smaller ones away from their territories to reduce competition, or they may even hunt them directly. The fact that both species successfully coexist on the OMU campus suggests a few interesting possibilities. First, the environment might offer such abundant food sources—including natural prey like roe deer, as well as easily accessible food waste generated by human activities in the surrounding semi-urban areas—that the animals simply do not need to compete fiercely. Alternatively, these two species might be actively avoiding direct encounters by carefully dividing the habitat between them. For instance, they could be using different sections of the campus forests, or they might be hunting at completely different times of the night to ensure they do not cross paths. To fully understand how these carnivores manage to share this environment without conflict, future research should specifically monitor their daily activity patterns and movements. Furthermore, the undisturbed forested sections of the campus may provide suitable cover resembling the secluded rendezvous sites preferred by wolves in human-dominated landscapes (Capitani et al., 2006).

The presence of Roe deer, a primary prey species for wolves (Jedrzejewski et al., 2000), suggests a

functional food web within the campus. Additionally, the marten record in our study was conservatively classified as Martes sp. due to the diagnostic limitations of the captured images. Both the Stone marten (*Martes foina*) and the Pine marten (*Martes martes*) are distributed in Türkiye. The primary morphological distinction between these two species relies on the throat patch which is typically white and bifurcated in *M. foina*, and yellowish to orange in *M. martes*. Because the nocturnal images only provided lateral and posterior views, this critical diagnostic feature was obscured, precluding a reliable species-level identification. Nevertheless, regardless of the exact species, the presence of *Martes sp.* on the campus is highly consistent with the well-documented synanthropic behaviour and adaptability of this genus in peri-urban environments (Genovesi et al., 1996). The biodiversity of the campus is likely supported by the protection it offers against hunting, which is prevalent in the surrounding rural areas (Luniak, 2004).

It is acknowledged that the current study has certain limitations. The research was conducted using a limited number of camera traps (n=3) over a vast study area of approximately 880 hectares. While our rotational sampling strategy across five stations provided a sampling density of approximately one station per 176 hectares, this low spatial density inherently reduces the overall detection probability, particularly for highly mobile or elusive species. Consequently, the recorded RAI values and population estimates are considered conservative underestimates of the actual population dynamics. To compensate for the limited effective area per camera, a targeted, non-random sampling design was implemented instead of a uniform grid. The equipment was strategically positioned within critical ecological corridors, natural funnels, and human-wildlife interfaces to maximize detection probability within the constraints of available hardware. Furthermore, as the study primarily covered the autumn and winter seasons, seasonal variations in vegetation cover, breeding periods, and fluctuating anthropogenic activity levels during the academic year must be considered, as these factors may significantly influence mammal detectability. Future research utilizing simultaneous and higher-density camera trap networks is recommended to provide a more robust quantitative assessment of species occupancy across the entire campus area.

In conclusion, the OMU Kurupelit Campus harbours a richer mammalian fauna than previously documented. The detection of the Grey wolf (*Canis lupus*) at an altitude of 180 m is a particularly noteworthy finding in light of current literature in Türkiye. While naive occupancy rates confirm the spatial presence of these species, the calculated Relative Abundance Index (RAI) values (ranging from 0.25 to 1.26) are relatively low. However, these figures are thought to be consistent with general expectations for camera-trapping studies conducted in human-dominated or peri-urban landscapes, where highly elusive species typically exhibit low detection rates. Rather than indicating unviable population sizes, we consider that these low RAI values may suggest these mammals utilize the campus area primarily as a strategic transit corridor and a temporary refuge, rather than a permanent residential core habitat.

The presence of species such as Roe deer (*Capreolus capreolus*) and Golden jackal (*Canis aureus*) further reflects the campus's role as a functional ecological bridge within an urban matrix.

However, it can be suggested that anthropogenic pressure and the presence of domestic dogs potentially restrict wildlife distribution, highlighting the campus's status as a critical yet vulnerable biological refuge. Therefore, the campus should be managed not only as an educational facility but also as a significant urban biodiversity area. Future management plans must prioritise the protection of habitat connectivity and the monitoring of human-wildlife interactions. While the current study establishes a critical baseline, expanding this research through continuous, long-term monitoring with a greater number of camera traps is essential for tracking ecological trends and ensuring the long-term presence of these species.

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AUTHOR CONTRIBUTIONS

OFD: Concept, data collection, design, equipment procurement

CN: Analysis, concept, data collection, design, writing

ETHICS COMMITTEE APPROVAL

All procedures were approved by the Ondokuz Mayıs University Animal Experiments and Local Ethics Committee (Approval No: 2025-27). This study was conducted with the permission of the Republic of Türkiye Ministry of Agriculture and Forestry, General Directorate of Nature Conservation and National Parks (Ref. No: E-72784983-288.04-19044554, Date: 29.04.2025) and Republic of Türkiye Samsun Governorate (Ref. No: E-34266607-605-109597, Date: 02.06.2025).

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