MÜHENDİSLİK ÇALIŞMALARI

Editör: Dr.Öğr.Üyesi Ali PAŞAOĞLU

yaz
yayınları

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yaz yayınları

2024

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E_ISBN 978-625-6642-92-8

Temmuz 2024 – Afyonkarahisar

Dizgi/Mizanpaj: YAZ Yayınları

Kapak Tasarım: YAZ Yayınları

YAZ Yayınları. Yayıncı Sertifika No: 73086

M.İhtisas OSB Mah. 4A Cad. No:3/3
İscehisar/AFYONKARAHİSAR

www.yazyayinlari.com

yazyayinlari@gmail.com

info@yazyayinlari.com

İÇİNDEKİLER

Determination of Large Mammals in The Trabzon Hıdırnebi Plateau Ecotourism Area, Türkiye 1
Beste ÇELİKÇİ, Alptuğ SARI

Thermodynamic Analysis of Methanol and Ethanol Combustion Reactions: Adiabatic Approach 28
Ahmet ELBİR, Mehmet Erhan ŞAHİN

Şırnak Asfaltit Ocaklarından Çıkan Kil Atıklarının İnşaat Sektöründe Kullanılabilirliğinin Ön Araştırılması.....42
Öykü BİLGİN

Doğal Dil İşleme ile Duygu Analizi 52
Zeynep Şebnem ÜZMEZ, Sinem AKYOL

İnşaatta Yenilikçi Yaklaşımlar: Nanomalzemeler 68
Necim KAYA, Berfin RAMAZANOĞLU

Determination of Statistical Relationships Between Water Quality Parameters of Karasu Stream, Muş/Turkey 88
Ayşenur TURAN, Adnan ALDEMİR, Ali Rıza KUL

Eklemeli İmalat Yöntemleri, Kullanım Alanları ve Tekstil Uygulamalarının Araştırılması.....123
Kamile GÖK, Devrim SOYASLAN

"Bu kitapta yer alan bölümlerde kullanılan kaynakların, görüşlerin, bulguların, sonuçların, tablo, şekil, resim ve her türlü içeriğin sorumluluğu yazar veya yazarlarına ait olup ulusal ve uluslararası telif haklarına konu olabilecek mali ve hukuki sorumluluk da yazarlara aittir."

DETERMINATION OF LARGE MAMMALS IN THE TRABZON HIDIRNEBI PLATEAU ECOTOURISM AREA, TÜRKİYE[1]

Beste ÇELİKÇİ[2]

Alptuğ SARI[3]

1. INTRODUCTION

Türkiye is one of the richest countries in terms of biological diversity among the countries in the semi-temperate zone due to its geographical conditions, following the equatorial belt countries in the world (Sarı and Arpacık, 2020; Sarı, 2020). It is extremely important to manage nature and wildlife resources sustainably in order to transfer them to future generations. One of the natural areas that stand out with the increasing popularity of nature tourism is ecotourism areas that raise awareness about wildlife in society. To date, more than 90 ecotourism areas have been established in Türkiye and opened to visitors. Although the number of ecotourism areas that reflect the rich biological diversity of Türkiye and offer the opportunity to watch wild animals in their natural habitats is increasing day by day, scientific studies on many wild animals and important habitats that are distributed in these areas are not at a sufficient level.

[1] This study was produced from the Undergraduate Student Project numbered FLÖ-2023-10935 supported by the Scientific Research Projects Coordination Unit of Karadeniz Technical University (KTU).

[2] Undergraduate, KTU, Faculty of Forestry, Department of Wildlife Ecology and Management, bestcelikci@gmail.com, ORCID: 0009-0002-5254-669X.

[3] Assoc. Prof. Dr., KTU, Faculty of Forestry, Department of Wildlife Ecology and Management, alptugsari@ktu.edu.tr, ORCID: 0000-0001-8003-5825.

Türkiye has a rich species diversity due to its climate and topographical features (Sarı et al., 2022). The world is divided into 6 zoogeographic regions according to the distribution and diversity of mammals. Approximately 475 mammal species live in the Palaeoearctic region, which includes Türkiye (Ak, 2017). In Türkiye, according to the National Biodiversity Database, 175 mammal taxa have been recorded to date (TOB, 2024a). The Eastern Black Sea Region hosts many different habitats for 95 mammal taxa identified to date (TOB, 2024b). Trabzon province, where the study area is located, is home to 50 mammal taxa (TOB, 2024c). However, the number of studies conducted in the Eastern Black Sea and Trabzon is still insufficient. Başkaya (1997) investigated the status of predatory mammals in the Eastern Black Sea Region. Başkaya et al. (2008) conducted a study on some important large mammal wild animals in Northeastern Anatolia. Gündoğdu et al. (2015) conducted a study on the census of large mammal wild animals in Türkiye. Gündoğdu et al. (2017) conducted a study on the large predators of Uzungöl Special Environmental Protection Area. A scientific study on large mammal wild animals in Hıdırnebi Plateau Ecotourism Area, the first and only ecotourism area of Trabzon province, has not been conducted so far.

Türkiye has a very important position especially for Europe due to its high richness of large mammal species (Morrison et al., 2007). Türkiye, which is a bridge between Asia, Africa and Europe and hosts species from these three continents, is also a very important country in terms of large predatory mammals (Başkaya, 2018). Large mammal species are recognized as an essential and important part of the ecosystems they inhabit (Morrison et al., 2007; Soyumert, 2010). It is known that information on large mammals in Türkiye is limited. Therefore, it is necessary to collect appropriate data and use widely applicable and reliable field methods for wildlife

conservation and management (Can and Togan, 2009; Karahan, 2018). Large mammal species, which are considered key species in many terrestrial ecosystems, are an important factor in shaping species diversity (Sinclair, 2003). For this reason, the ecological characteristics of large mammal species in that area should be known in order to effectively evaluate a studied region (Soyumert, 2010).

Large mammal species are a group of organisms that are very difficult to study by direct methods due to their hiding behavior and low population size. For this reason, indirect methods are frequently used in studies on this living group (Soyumert, 2010). Indirect methods are carried out by detecting trace-signs that will prove the presence of the creature without seeing or capturing the creature directly. In indirect methods, only signs such as footprints, feces, hairs, nests, etc. left by the animal in its environment during its daily movements can be used (Long et al., 2008). Another indirect method used in the study of large mammal species is the camera trap method, which does not harm wildlife and does not disturb living creatures (Soyumert, 2010). By nature, animals exhibit timid behavior and tend to hide and run away from humans. Most of the large mammal species that are the subject of research also have a nocturnal feeding behavior. Although these species are sometimes active during the day, especially in winter, they start to search for their prey after dark and this hunting process continues until dawn. Therefore, technological devices such as camera traps should be widely used in these studies (Gündoğdu et al., 2017). In addition, the camera trap method is a method that makes important contributions to wildlife management studies as it allows the evaluation of protected areas in terms of large mammal species (Rayan and Mohamad, 2009).

Ecotourism is one of the types of tourism that prioritizes visiting, protecting and transferring natural areas to future

generations. Türkiye has a wide variety of ecotourism resources. The Eastern Black Sea Region is one of the geographies with the most natural resources and has become the center of attention of tourists in recent years for many reasons such as virgin natural habitats, highland culture, and the vastness of green areas (Kaya and Yıldırım, 2020). Although there are many studies on ecotourism in Türkiye, these studies are generally focused on area assessment and potential ecotourism activities. With the studies initiated by the General Directorate of Forestry in 2017 for the first time in order for citizens to benefit more from nature, 90 ecotourism areas have been brought to the tourism of Türkiye so far, contributing 1 billion TL annually to rural development and the national economy (OGM, 2023). Approximately 4 million people have visited the 90 ecotourism areas created so far (URL-1, 2024). By the end of 2028, a total of 200 ecotourism areas will be established and put into service (OGM, 2023). Although ecotourism areas in Türkiye are increasing day by day, there is not enough scientific monitoring and data on wildlife in these areas. In this study, large mammal wild animal species distributed in Hıdırnebi Plateau Ecotourism Area within the borders of Akçaabat district of Trabzon province were investigated.

The interest in tourism activities related to wildlife is increasing day by day. Benefiting from the wildlife elements of a region depends on the recognition, protection and regulation of these elements (Çakıroğlu and Mol, 1996). Wildlife watching is a type of ecotourism that takes into account the ecological values of the species and natural beauties in an area (Orhan and Karahan, 2010). The Eastern Black Sea Region is a prominent tourism region for wildlife watching, especially in terms of natural beauties (Kaya and Yıldırım, 2020). Hıdırnebi Plateau Ecotourism Area also has the potential to realize wildlife-based tourism activities such as wildlife watching, wildlife photography, nature walks. For this reason, it is necessary to

identify the wild animal species using the area in order to plan the management studies to be carried out in and around the ecotourism area by taking wildlife into consideration. In many countries, there are very few comprehensive field guides for mammals and the existing introductory books usually include large-sized species. In recent years, the prevalence and scope of mammal watching has increased dramatically around the world. People are beginning to realize that experiencing different and challenging adventures to see wild mammals can be as rewarding and enjoyable as birdwatching (Vladimir and Jon, 2018).

The aim of this study is to determine the species of large mammal wild animals distributed in Hıdırnebi Plateau Ecotourism Area in Trabzon province, to contribute to the forestry activities to be implemented in the area on wildlife management and to raise awareness in wildlife-based tourism activities in the area. At the same time, it is aimed to ensure continuity by considering all aspects of the resources in the sustainable management of nature and wildlife resources. It is aimed that the scientific data obtained at the end of the study will contribute to the wildlife management studies to be carried out in Hıdırnebi Plateau Ecotourism Area and set an example for all established and planned ecotourism areas throughout Türkiye.

2. METHOD

2.1.Material

The surveys were conducted between July 13, 2023 and May 13, 2024. In addition to the materials requested within the scope of the project, five Bushnell and Juo branded camera traps, two Vortex and Leica branded 10x42 binoculars and digital cameras were used to collect remote information during field observations. In order to identify the species of the mammals recorded during the field studies, Turan (1984) "Türkiye's Game

and Wild Animals/Mammals" and Demirsoy (1996) "Türkiye's Vertebrates Mammals" were used. The appearance, behavior and all other information (photographs, footprints, feces, hairs, nests, time of presence in the field, etc.) of the species that were difficult to identify were recorded in detail and then evaluated and clarified.

After determining the paths that mammal species can frequently use in the ecotourism area, 5 camera traps were set up in the field within the knowledge of the staff of the institution in a way that would not harm nature and wildlife. Photographic and video images of mammals were tried to be obtained with camera traps. Camera traps are capable of taking infrared photos and videos. For recording the data obtained, 10 memory cards of different sizes were used according to the capacities of the devices. Although the energy needs of the camera traps vary according to the model, they are generally provided with approximately 500 batteries of different sizes. While placing the camera traps in the areas deemed suitable, they were fixed to a selected tree or shrub trunk at an appropriate height and without damaging it, using galvanized thin iron wire and pliers. A small wooden board was used to cut all kinds of grass, branches and leaves at a distance of up to 10 meters, which may prevent continuous shooting during the operation of the devices and cause battery life to decrease.

2.2. Description the Study Area

Hıdırnebi, one of the most well-known plateaus of the province where the research area is located, is approximately 44 kilometers away from Trabzon and 1,742 meters above sea level (Taş, 2012). Hıdırnebi plateau has recently gained a touristic area certificate and has become a center of intense interest for both the Black Sea Region and other people of Türkiye (Şaroğlu et al. 2021). Hıdırnebi Plateau, which reaches the highest number of

visitors after Uzungöl in terms of nature tourism in Trabzon province, is one of the most important areas in terms of tourism in our region (URL-2, 2024). Due to the development of tourism around Hıdırnebi Plateau, the region has become a popular destination for local and foreign tourists. In the vicinity of Hıdırnebi Plateau where intensive forestry activities are carried out; "Hıdırnebi Plateau Ecotourism Area" was put into the service of nature lovers within the scope of ecotourism activities by the General Directorate of Forestry in order to create a sustainable tourism infrastructure, protect the environment and ensure that local people earn income from tourism. The most important component of the ecotourism area is the hiking trail. The main route of the trail is the Hıdırnebi old rock road, which was built by OGM using manpower in the 1950s. The rock road, which has an average altitude of 1,220 meters, has deteriorated over time and lost its effectiveness. The road, which has been made usable without disturbing its natural structure, is 4 meters wide and 3,400 meters long (OGM, 2021).

Hıdırnebi Plateau Ecotourism Area, which is the research area, is within the borders of Kuruçam Neighborhood of Akçaabat district of Trabzon province. It is located 40 km from the center of Trabzon, 29 km from Akçaabat district center and approximately 25 km from the coast (URL-3, 2024). Hıdırnebi Plateau Ecotourism Area is within the responsibility area of Trabzon Regional Directorate of Forestry Trabzon Forest Management Directorate Akçaabat Forest Management Chief. The hiking trail starts from the southern entrance of Hıdırnebi Plateau and continues until the northern entrance and its length is 6.5 km (OGM, 2024a). An application prepared by OGM was used for the representation of the research area on the map (OGM, 2024b). Field studies were carried out on the walking path (Figure 1) and the paths connected to this path within the Hıdırnebi Plateau

Ecotourism Area. The necessary permits to conduct research in the ecotourism area were obtained from the General Directorate of Nature Conservation and National Parks and Trabzon Branch Directorate.

Figure 1. Study Area



Source: (OGM, 2024b)

2.3. Carrying out Field Observations

In this study, which was completed in a total period of 10 months, direct observation and indirect observation (species identifying features such as camera-traps, footprints, feces, hair) methods were used. Observations were made using the camera traps, binoculars, cameras and the materials (camera traps) provided within the scope of the project. Mammal species were observed directly with binoculars or cameras and video images were taken with camera traps. Direct observations were carried out by a team of two people at a point or along a line. The whole area was surveyed by two people along a transect at 20-50 meter intervals, depending on seasonal conditions. Traces and signs of tracks, feces, scratching, scraping, urine and food remains were also recorded throughout the study for indirect observations.

The observations were planned in liaison with the forest management directorate officials and carried out with a total of 10 field studies periodically every month in the ecotourism area by the researcher and the researcher together according to the climatic conditions (Figure 2).

Figure 2. Views from the field studies carried out in the study area



2.4. Installation of Camera Traps in the Study Area

Following the field survey, to maximize capture probabilities over a wide area, camera traps were placed along mammal tracks on the tops of ridges and in deep valleys and riverine ecosystems, and at randomly selected trail sites according to the method described by Karanth (1995) and York et al. (2001). In the Hıdırnebi Plateau Ecotourism Area, which is the subject of the study, a field observation was made every month during the study period and the camera traps were also checked.

As a result of the field studies, 5 camera traps were installed on the paths that were determined to be used intensively by mammals (Figure 3) and large mammal species in the area were recorded. The camera traps were kept in the study area for about 9 months during the study period and were monitored regularly every month.

Figure 3. Camera traps installations during field studies



2.5. Identification of Large Mammal Species

Mammal species in the study area were monitored and recorded by direct observations and camera traps. With the camera traps, the presence of mammals in the area and the behavior of mammal species in the field were also monitored. With the findings obtained, tables of the mammalian wildlife species using the Hıdırnebi Plateau Ecotourism Area and its surroundings were created (Table 1).

3. RESULTS

A total of 10 field studies were conducted in Hıdırnebi Plateau Ecotourism Area during the research period (July 13, 2023 - May 13, 2024). As a result of the observations, 17 large mammal species belonging to 9 families were identified. These species are Grey Wolf (*Canis lupus*), Golden

Jackal (*Canis aureus*), Red Fox (*Vulpes vulpes*), Brown Bear (*Ursus arctos*), Eurasian Lynx (*Lynx lynx*), Europan Wildcat (*Felis silvestris*), European Roe Deer (*Capreolus capreolus*), Wild Boar (*Sus scrofa*), Eurasian Badger (*Meles meles*), Beech Marten (*Martes foina*), Pine Marten (*Martes martes*), Least Weasel (*Mustela nivalis*), Stoat *(Mustela erminea*), European Hare (*Lepus europaeus*), Caucasian Squirrel (*Sciurus anomalus*), Eurasian Red Squirrel (*Sciurus vulgaris*) and Southern White-breasted Hedgehog (*Erinaceus concolor*). The distribution of the 17 large mammal species recorded in the study area during the study period according to families is given in Table 1.

According to the criteria set by the International Union for Conservation of Nature (IUCN; iucn.org), 17 species occurring in the study area were found to be at low risk of extinction (LC) (IUCN, 2024).

According to the Bern Convention for the Conservation of European Wildlife and Natural Habitats (coe. int/en/web/bern-convention), 2 species identified in the research area, namely Caucasian Squirrel and Europan Wildcat, are under strict protection (KKA); 2 species, namely Grey Wolf and Brown Bear, cannot be taken under strict protection (KKA/TR), to which Türkiye has objected; 9 species, including European Hare, Eurasian Red Squirrel, Least Weasel, Stoat, Pine Marten, Beech Marten, Eurasian Badger, Eurasian Lynx and European Roe Deer, are under protection (KA); and 4 species, including Southern White-breasted Hedgehog, Golden Jackal, Red Fox and Wild Boar, have no status (BERN, 2024).

According to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES; cites.org), 4 species identified in the research area, namely Grey Wolf, Brown Bear, Europan Wildcat and Eurasian Lynx, are classified

as Appendix 2, and the other species are not classified (CITES, 2023).

According to the Ministry of Agriculture and Forestry, 10 species, including European Hare, Grey Wolf, Golden Jackal, Red Fox, Brown Bear, Least Weasel, Beech Marten, Eurasian Badger, Wild Boar and European Roe Deer, are game animals (AH) and no status is given for the other species (T.C. Resmi Gazete, 2022).

According to the Decision of the Central Hunting Commission (MAKK), 3 species of Least Weasel, Beech Marten and Eurasian Badger identified in the research area are under protection (KA); 3 species of European Hare, Golden Jackal, Red Fox and Wild Boar are determined as game animals for which hunting is allowed at certain times (AH), and no status is specified for other species (Official Gazette of the Republic of Türkiye, 2023).

With the findings obtained, tables of the large mammal species using the Hıdırnebi Plateau Ecotourism Area and its surroundings were created. Large mammal wild animals were included in the result table according to their global threat status and protection status (Table 1).

Some camera traps images of large mammal species detected during the research in Hıdırnebi Plateau Ecotourism Area are given in Figures 4.

Table 1. Large mammal species detected in Hıdırnebi Plateau Ecotourism Area

Queue	English name	Scientific name	IUCN	BERN	CITES	TOB	MAKK
INSECTIVORA							
	Gymnures & Hedgehogs	**Erinaceidae**					
1	Southern White-breasted Hedgehog	*Erinaceus concolor*	LC	—	—	—	—
LAGOMORPHA							
	Rabbits & Hares	**Leporidae**					
2	European Hare	*Lepus europaeus*	LC	P	—	GA	GA
RODENTIA							
	Squirrels, Chipmunks, Marmots & Priarie Dogs	**Sciuridae**					
3	Eurasian Red Squirrel	*Sciurus vulgaris*	LC	P	—	—	—
4	Caucasian Squirrel	*Sciurus anomalus*	LC	SP	—	—	—
CARNIVORA							
	Coyotes, Dogs, Foxes, Jackals & Wolves	**Canidae**					
5	Grey Wolf	*Canis lupus*	LC	SP/TR	App. II	GA	—
6	Golden Jackal	*Canis aureus*	LC	—	—	GA	GA
7	Red Fox	*Vulpes vulpes*	LC	—	—	GA	GA
	Bears	**Ursidae**					
8	Brown Bear	*Ursus arctos*	LC	SP/TR	App. II	GA	—
	Badgers, Otters, Weasels & Relatives	**Mustelidae**					
9	Least Weasel	*Mustela nivalis*	LC	P	—	GA	P
10	Stoat	*Mustela erminea*	LC	P	—	—	—
11	Pine Marten	*Martes martes*	LC	P	—	—	—
12	Beech Marten	*Martes foina*	LC	P	—	GA	P
13	Eurasian Badger	*Meles meles*	LC	P	—	GA	P
	Cats	**Felidae**					

Queue	English name	Scientific name	IUCN	BERN	CITES	TOB	MAKK
14	Europan Wildcat	*Felis silvestris*	LC	SP	App. II	—	—
15	Eurasian Lynx	*Lynx lynx*	LC	P	App. II	—	—
ARTIODACTYLA							
	Hogs & Pigs	**Suidae**					
16	Wild Boar	*Sus scrofa*	LC	—	—	GA	GA
	Deer, Elk & Moose	**Cervidae**					
17	European Roe Deer	*Capreolus capreolus*	LC	P	—	GA	—

***IUCN**: Global threat status*, **CR**: Critically endangered, **EN**: Endangered, **VU**: Vulnerable, **NT**:Near threatened, **LC**: Least concern, **DD**: Data deficient, **NE**: Not evaluated.

***BERN**: Conservation Status according to the BERN Convention on the Conservation of European Wildlife and Natural Habitats*, **P**: Protected**, SP**: Strictly protected, **SP/TR**: Türkiye objects to a species that cannot be strictly protected.

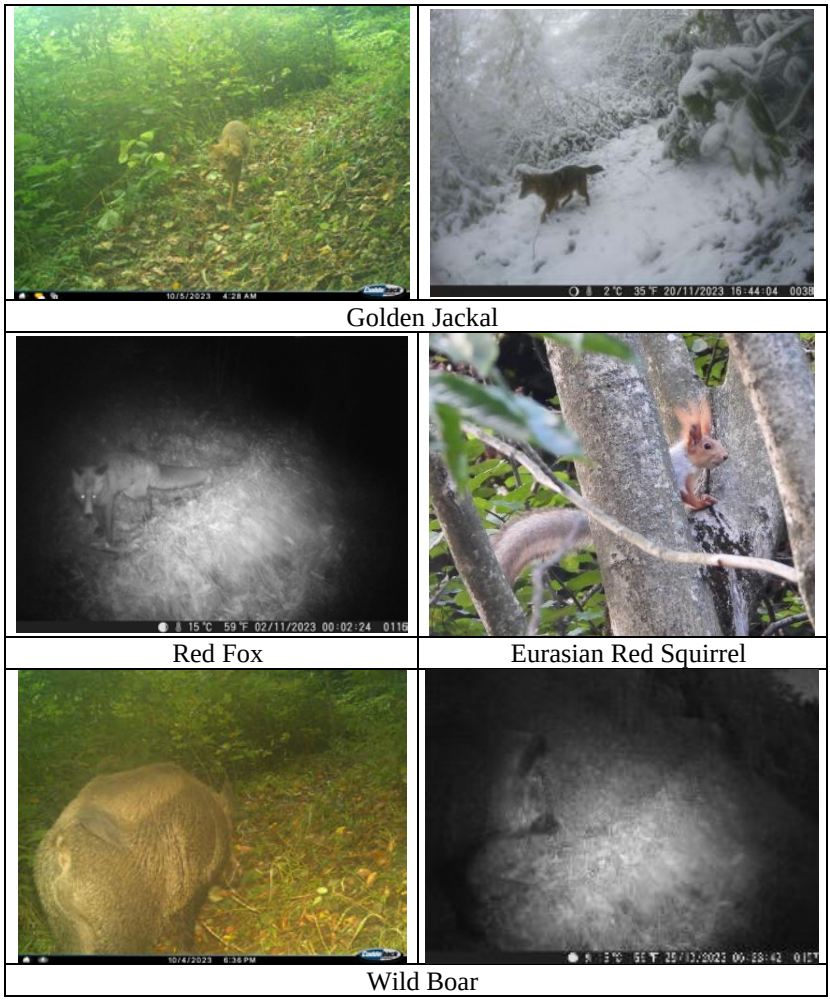
***CITES**: Status according to the Convention on International Trade in Endangered Species of Wild Fauna and Flora*, **App. I**: Species threatened with extinction, species that may only be allowed to be traded in exceptional circumstances, **App. II**: Species that are not in absolute danger of extinction but are subject to controlled trade to prevent uses that could jeopardize their extinction.

***TOB**: Species protected by the Ministry of Agriculture and Forestry*, **P**: Protected, **GA**: Game animals/Species allowed to be hunted at specified times of the year.

***MAKK**: Conservation Status According to Central Hunting Commission Decision (2023-2024)*, **P**: Protected, **GA**: Game animals/Species allowed to be hunted at specified times of the year.

*TOB: Species protected by the Türkiye Ministry of Agriculture and Forestry (MAF), MAKK: Protection Status According to the Decision of the Central (National) Hunting Commission of the MAF.

Figure 4. Images of large mammal species detected in the study area



During the study, it was determined that Golden Jackal, Red Fox and Wild Boar individuals preferred the same paths as a result of the examination of the camera trap images installed on the paths used by mammals in the research area.

The images obtained from the camera traps placed in the research area show that domestic animals (sheep, dogs, etc.) and stray dogs and cats use the habitats of wild animals (Figures 2).

Figure 2. Some camera traps images of domestic and stray animals in the study area



4. CONCLUSION AND RECOMMENDATIONS

As a result of the observations made during the research in Hıdırnebi Plateau Ecotourism Area, 17 species belonging to 9 families were identified (Table 1). These species are Grey Wolf (*Canis lupus*), Golden Jackal (*Canis aureus*), Red Fox (*Vulpes*

vulpes), Brown Bear (*Ursus arctos*), Eurasian Lynx (*Lynx lynx*), Europan Wildcat (*Felis silvestris*), European Roe Deer (*Capreolus capreolus*), Wild Boar (*Sus scrofa*), Eurasian Badger (*Meles meles*), Beech Marten (*Martes foina*), Pine Marten (*Martes martes*), Least Weasel (*Mustela nivalis*), Stoat *(Mustela erminea*), European Hare (*Lepus europaeus*), Caucasian Squirrel (*Sciurus anomalus*), Eurasian Red Squirrel (*Sciurus vulgaris*) and Southern White-breasted Hedgehog (*Erinaceus concolor*).

Stray dogs and cats identified in the research area are a threat to wildlife and their habitats. Stray dogs and cats cause serious damage to wildlife by hunting and scaring wild animals, sharing the food resources of predatory species, disrupting the genetic structure, transmitting diseases and disrupting the balance of the ecosystem. Therefore, stray dogs and cats in the area are a threat to wild animals and their habitats, and also disturb people visiting the area.

The population sizes of large mammals in Hıdırnebi Plateau Ecotourism Area and their impacts on their habitats are not known. However, as a result of the observations made in the area, it has been determined that forestry activities that take wildlife into account have not been carried out in order to improve the habitats of wild animals.

With the realization of the study, large mammals were detected for the first time in this ecotourism area using the camera trap method. In addition, the nature and hunting tourism potential of the area was also revealed by determining the large mammal species distributed in the research area. Thus, it is possible to form a basis for the wildlife management plans to be made in the region in the following years. At the same time, the research data provided a gain in terms of determining the biological diversity of Türkiye.

With this study carried out in Hıdırnebi Plateau Ecotourism Area, it was aimed to identify the large mammal species distributed in the area and to contribute to the wildlife management plans to be implemented in the ecotourism area. For this purpose, according to the results of the study, some measures to be taken for wildlife in Hıdırnebi Plateau Ecotourism Area are listed below.

- In order to protect biodiversity and improve the habitats of wild animals in Hıdırnebi Plateau Ecotourism Area, management plans that take wildlife into account should be implemented. In order to manage wildlife in the ecotourism area correctly, the plans to be prepared should be carried out by wildlife experts trained in the relevant field. For this reason, it should be ensured that graduates of the "Wildlife Ecology and Management" department, which provides undergraduate education in Türkiye, are employed within the relevant institutions. In Türkiye, forest engineers or biologists working in the relevant institutions are generally used in wildlife management. However, the knowledge and experience of these personnel on wildlife, especially mammals, is not sufficient. It is essential for the preparation and implementation of a successful wildlife management plan that expert personnel have all kinds of information (ecology, biology, behavior, etc.) related to mammal species.
- Stray dogs and cats that cause serious damage to wild animals and their habitats should be collected from the ecotourism area. Domestic animals (shepherd dogs, domestic cats and dogs) brought to the area by citizens should not be allowed to roam freely.
- A continuous monitoring program should be carried out for large mammal species in the area. Continuous

mammal observations in the ecotourism area by wildlife experts trained in their field in all seasons of the year will increase the success of the management plan. For this reason, mammal observations should be made regularly in the area every month of the year.

- Censuses and management plans should be made for large mammal species. In populations of large mammal species, individuals above the carrying capacity should be hunted in a planned and controlled, i.e. legal manner. In order to implement this, the population status of the species should be determined through census (inventory) studies by applying scientific methods.
- Education and awareness raising activities should be emphasized. Within the scope of education and awareness-raising activities, local people and visitors should be informed about the large mammal species in the area. Warning and informative signs about wildlife should be placed in different areas within Hıdırnebi Plateau Ecotourism Area.
- Necessary precautions should be taken regarding all kinds of waste. The garbage bins in the area must be closed, fixed in place and surrounded by wire fences. It should be prevented to leave garbage in areas other than garbage bins and necessary legal measures should be taken in this regard.
- During the breeding periods of large mammal species in the area, care should be taken to ensure that the activities carried out in the area do not disturb wild animals. For this reason, grazing etc. activities in the area should be carried out in a planned and controlled manner.
- Renewal and improvement works should be carried out in the area by planting fruit trees and shrubs suitable for

food preferences, which are in decline in the habitats of large mammal species and have even disappeared in many places.

- Hıdırnebi Plateau Ecotourism Area has a wildlife-based tourism potential in terms of large mammal diversity. First of all, local people should be made aware of the environment. It is seen that human intervention in nature is at the root of all these problems. In order to raise awareness of local people, an education system starting from primary education should be established; villagers, shepherds, mukhtars, teachers, military and civil administrators should be trained. For this purpose, booklets, brochures, etc. should be prepared and awareness should be raised through local TV and radio programs. As a result, with the improvement of the habitat, the ecotourism area, which hosts significant large mammal species even under these conditions, will be more noticeable. In this way, while improving the habitat of the existing large mammal species, tourism income can also be generated by organizing wildlife observation activities for visitors at certain times of the year to make use of this diversity. With the mammal wildlife observation activities to be organized, the local people will also be able to provide economic income.

With this research, it has been seen that the wildlife-based tourism potential of Hıdırnebi Plateau Ecotourism Area can be further increased with these measures to be taken. This feature can be used as an income-generating resource for the local people by advertising it worldwide using communication tools with a comprehensive expression. In this way, it will be easier for the local people to embrace the site.

It is thought that the data determined in this study may be useful in solving the problems that Hıdırnebi Plateau Ecotourism Area may encounter in terms of wildlife.

Acknowledgements

This study was supported by Karadeniz Technical University (KTU) Scientific Research Projects (BAP) Coordination Unit within the scope of Undergraduate Student Project with project number FLÖ-2023-10935. We would like to thank the Rectorate of KTU and the BAP Coordination Unit for their financial support, the Trabzon Branch Directorate of the 12th Regional Directorate of Nature Conservation and National Parks (GDNCNP) and the authorities of Akçaabat and Yıldızlı Forest Management Directorate of Trabzon Regional Directorate of Forestry for granting research permission for Hıdırnebi Plateau Ecotourism Area and sharing the requested information easily.

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M.İhtisas OSB Mah. 4A Cad. No:3/3
İscehisar / AFYONKARAHİSAR
Tel : (0 531) 880 92 99
yazyayinlari@gmail.com • www.yazyayinlari.com