# NEW RECORDS OF THE LIVING ANATOLIAN LEOPARD (*PANTHERA PARDUS TULLIANA* L., 1758) IN THE MEDITERRANEAN REGION OF TURKEY

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**Abstract.** According to recent genetic studies, there are eight subspecies of leopards *(Panthera pardus)* all over the world. Among these subspecies, the Anatolian leopard *(Panthera pardus tulliana)* is distributed in the southern and western regions of Turkey. It is a terrestrial mammal subspecies of Anatolia that is important historically, culturally and biologically. To date, there have been no studies about the Anatolian leopard, which is at the top of the food chain and has the characteristics of an umbrella species, key species and flag species in conservation studies. It is known that until 1975, the Anatolian leopard had dispersed along the forests of Central Anatolia, Mediterranean and Aegean regions. Since then, no living records have been taken, with the exception of unconfirmed information from scientists, local people and hunters. With this study, for the first time in history, one living individual(s) of the Anatolian leopard (*P. p. tulliana*) was photographed and video recorded via camera trap method, in the Western Taurus Mountains of the Mediterranean region of Turkey.
**Keywords:** *big cats, Felidae, Anatolian leopard, conservation, camera trap, Mediterranean region, Turkey*

## Introduction

According to the classification adopted by most scientists, the leopard *(Panthera pardus)* has the largest distribution and food range among the 36 cat species of the *Felidae* family. However, it is categorized worldwide as Vulnerable (VU) and Critically Endangered (CR) on the Mediterranean scale, by the International Union for Conservation of Nature (IUCN) Red List (Stein et al., 2020; Laguardia et al., 2017; Jdeidi et al., 2010; Henschel et al., 2008). Leopards are the most adaptable top predators in the regions in which they live (Nowell and Jackson, 1996; Ripple et al., 2014). They are seen in mountainous and relatively remote habitats from South Africa to the deserts of central Africa, from the Middle East to Southeast Asia and in the extremes of northern Russia (Gavashelishvili and Lukarevskiy, 2008). They play roles in stabilizing populations of smaller and more populated animals which bear the potential of spreading diseases and/or causing economic damage in the agriculture areas. As a result of their ecology and biology,

leopards are timid species that live solitary. Their numbers are in rapid decline due to several mortality factors stemming from human activities such as industrialization, forest fires, tourism, and poaching (Madden, 2008; Linnell et al., 2001; Sarı, 2018; Zak and Riley, 2016; Ünal et al., 2020).

Previously, nine subspecies of leopard were identified in the world, (Uphyrkina et al., 2001). However, recent genetic studies have suggested that there are only eight subspecies of leopard (Miththapala et al., 1996; URL, 2021, Kitchener et al., 2017). These subspecies include *Panthera pardus pardus, Panthera pardus tulliana (Panthera pardus saxicolor and Panthera pardus ciscaucasica) Panthera pardus tusca, Panthera pardus kotiya, Panthera pardus delacouri, Panthera pardus orientalis, Panthera pardus melas, Panthera pardus nimr.* The Anatolian leopard *(Panthera pardus tulliana)* is distributed in the southern and western regions of Turkey, (Borner, 1977; Riffel, 1990; Ulrich and Riffel, 1993; Jackson, 1994) while *Panthera pardus saxicolor, Panthera pardus ciscaucasica* are also known to occasionally enter Turkey from the regions east of Turkey (Ulrich and Riffel, 1993; Jackson, 1994; Sarı, 2018; Arpacık, 2018).

According to the Convention on the International Trade of Endangered Species of Wild Animals and Plants (CITES) the Anatolian leopard is listed as an Annex I species (species that face threat of extinction and therefore the trade of their specimens must be strictly regulated and allowed only in exceptional circumstances (Friedmann and Traylor-Holzer, 2008). Research conducted by the Cats Specialist Group estimated the population size of the Anatolian leopard in Turkey as fewer than five (URL, 2021). This situation makes it necessary to investigate the distribution map in existing-potential living areas with comprehensive research and to take measures to identify, protect and develop individuals in these areas (Ünal and Çulhacı, 2018).

Since *Panthera pardus* is found across a wide range of geographies and different habitats, body size varies from region to region (Heptner and Sludskii, 1992). Ulrich and Riffel (1993) reported that the Anatolian leopard is the largest subspecies of leopard. It is known that an adult male weighs up to 100 kg, and has a total body length of 2.5 meters, with a tail of up to 80 cm long (Johnson, 2003). The *Anatolian leopard* has bright, yellowish-brown, rather short hairy fur, a large thin-rimmed badge, and a long, feathered tail. Although the body colour is paler than subspecies in India and Africa, it has a distinctive golden colour (Sarı, 2018; Arpacık, 2018). *Panthera pardus saxicolor*, on the other hand, differs from the Anatolian leopard with its large size, pale long, yellowish fur, medium-sized badge and short tail. Borner (1977), described the lower part of the Anatolian leopard fur as lighter in colour but reddish dark yellow in his examination of five peltry obtained in Turkey. He stated that the badges are wide, black in colour and are continuous at the nape and tail bottom. He observed that the length of body hairs on the Anatolian leopard change between 1.5-2 cm on average, and the tail length is either as long as the body or longer than the body itself. He stated that the Persian leopard on the other hand has body hair growing up to almost 7 cm, is a creamy yellow, light white colour, and has a tail length shorter than the body length. Karataş (2016), reported that the subspecies, which also lives in the western and southern parts of Anatolia, whose fur has a pale yellow or grey colour, is the Anatolian leopard (*P. p. tulliana)*. The subspecies that occasionally appears in the eastern and north-eastern parts of Turkey, characterized by its grey hide, is either the Persian leopard (*P. p. saxicolor*) or the Caucasian leopard *(P. p. ciscaucasica).*

Leopards live near slopes and in rocky areas that have risen to the surface (Heptner and Sludskij, 1972). Leopard is a species that is rarely observed above 3,000 m. It is a species of Felidae that is mostly nocturnal and territorial. They can only be seen in groups during

breeding periods and when they are raising offspring (Hamilton, 1976). While in regions where there is no shortage of prey, an adult Leopard might cover a very narrow territory, whereas in regions where it must spend effort to search for food, it can designate a very large territory as a wandering area. Females can roam within an area of 8,400 km², while the home range size of an adult male may be up to 10,600 km² (Marker and Dickman, 2005). Male individuals mark their habitat completely every 3-4 weeks, repeating these markings in search of a female during breeding periods. In order to leave a scent males, drop scat, leave 35-50 cm long traces using their hind legs, and by scratch or rub trees or cliffs (Sunquist and Sunquist, 2002). Several females might be found in a male's territory and can travel between 25-75 km in one night (Green, 1991). Their prey extends from small and medium-sized mammals (such as rodents and large bivalves) to game birds, from ungulates to predators and sometimes even domestic animals such as poultry (Heptner and Sludskii, 1972; Khorozyan and Malkhasyan, 2005). They prefer prey that are smaller than themselves, ranging in body weight from 15 to 60 kg, rather than animals close to their own body size (Stander et al., 1997; Nowell and Jackson, 1996; Sarı, 2018; Arpacık, 2018).

*Panthera pardus tulliana* was found to have been translated into Turkish as "Anatolian Leopard" within the borders of Turkey. Roman statesman Marcus Tullius Cicero, while he was serving as Governor of Kilikia between 51-50 BC, asked Anatolian leopards to be sent from the Kibyratis region, which is today located between Antalya, Burdur and Denizli provinces of Turkey, to be used in gladiatorial battles. While modern researchers classified leopard species based on Cicero's notes on the properties of the leopard during this period, they named their inhabitants in Anatolia "Tulliana" inspired by Tullius, the forename of Cicero (Erön, 2020; Tozan, 2016). Information on the Anatolian leopard *(Panthera pardus tulliana),* dates back to ancient times. The oldest indicator of the existence of leopards in Anatolia is the wall reliefs on the Temple of Leopard (Leopard Shrine) in Çatalhöyük, Konya, dating back to 9,000 years. Throughout the history, many architectural artifacts, sculpture findings, ceramics and coins show the significance of the Anatolian leopard in almost every period in the Anatolian history (Akkurnaz, 2013).

Until 1975, the Anatolian leopard was known to have distributed in the forests of Central Anatolia, Mediterranean regions, which are dominated by low-closed and deformed woodlands, open areas and high mountain ecosystems, (Sarı, 2018). In 1975, some individuals were hunted (shot dead) in Beypazarı district of Ankara province and Seferler and Asar villages of Aydın province. Since then, it has been a topic of discussion to this day whether they have continued to exist in Turkey. Although there are several opinions about the existence of the species, no living record has been obtained. Various research has been carried out on this subject. Kasparek and Kasparek (1990), stated that the Anatolian leopard subspecies has likely disappeared in Turkey, and even if there are some living individuals, they are not viable populations. Based on fresh scat found in 1992 in Termessos National Park in the province of Antalya it was claimed that the species was still alive in Anatolia (Ullrich and Riffel, 1993). Based on data obtained during research carried in the Taurus Mountains between 2000 and 2001, it was stated that leopard species were distributed over a wide area in the Mediterranean region (Can, 2002). Although research has been carried out and published to prove the existence of the Persian leopard *(P. p. saxicolor)*, which is known for its distribution in the northern regions of the country and is known to migrate seasonally on the Iran-Iraq border, there has been no comprehensive research to date on the existence of Anatolian leopard *(P. p tulliana),* which is known for its distribution in Central and South Anatolia (Toyran, 2018; Avgan et

al., 2016). Does it still live in the old natural sprawl area? If so, what region or regions does it live in? What kind of habitat does it use? What is the number of living individuals? These questions have not yet been answered by scientists. There are few studies to date about the leopard in Turkey. Başkaya and Bilgili (2004) and subsequently Sarı et al. (2020) have revealed tracks and signs of leopard living in the Eastern Black Sea Mountains. In the same region, within the Caucasian ecological region studies, it was revealed that cross-border movements and habitats can be found in our north-eastern Anatolia and eastern Black Sea region, which are covered by small Caucasian Mountain range (Zazanashvili and Bitsadze, 2020; Başkaya et al., 2022). Within the scope of Turkey's national biodiversity inventory studies, data on the existence of the subspecies, which is *Panthera pardus,* were revealed because of camera trap studies around Şırnak province of south-eastern Anatolia region (Ubenis, 2019, Karataş et al., 2021). However, there has been no scientific evidence for the detection of Anatolian leopard on the Mediterranean scale, which is the natural distribution area in the west.

History indicates that the Anatolian leopard *(P. p. tulliana) had* spread throughout the Mediterranean region in the past. Although there is current information about the existence of the Anatolian leopard in Turkey from scientists, local people and hunters, this information is not clear. For this reason, the aim of this study is to use the camera trap method to detect the Anatolian leopard. To make the first video detection of the Anatolian leopard (*P. p. tulliana*), whose last individuals were detected (dead, hunted, rumour) years ago in the Mediterranean region of Turkey, and whose existence has been the subject of controversy ever since, using the camera trap method. In light of the data obtained, this study will prepare the way for future scientific-based research, state plans, and policies to be formed.

The use of camera trap in wildlife studies around the world was first started in the early 20th century (Chapman, 1927). It appears to have been widely used in the last 20 years after this period (Rowcliffe and Carbone, 2008). The camera trap method is commonly used in studies involving new scientific results on species' protection and species' ecology (behaviour, population density, activity pattern, habitat preference, etc.) with the detection of rare species that are often difficult to be seen and detected, (Kinnaird et al., 2003; Rovero et al., 2008; Kays and Slauson, 2008; Linkie and Ridout, 2011; Burton et al., 2015). With the advancement of technology, the use of camera trap was relatively cheaper than other population determination methods and effective results were obtained (Tobler et al., 2008). The camera trap is a remotely activated camera, equipped with a motion sensor or infrared sensor, or using a beam of light as a trigger (Swann and Perkins, 2014.). The use of camera traps in wildlife studies increases because of the progress in technology (Meek et al., 2012). Camera trap data are widely used to obtain information about the detection of rare carnivorous terrestrial mammals, population conditions, behaviours, habitat preferences, activity patterns and interactions with other species and people living in rural areas (Amaya-Castaño and Palomares, 2018; Trolliet et al., 2014; Soyumert et al., 2010). McCain and Childs (2008) photographed the Jaguar (*Panthera onca*) 64 times between 2004 and 2007, after 1940 in the Southeast Arizona Region, which was photographed only once in 1996 and no other live recordings were found. Ahmed et al. (2016) proved the existence of the Arabian Sand Cat (*Felis margarita harrisoni*) subspecies using a total of nine camera traps in Baynouna Abu Dhabi, United Arab Emirates. The camera trap method was preferred in our study to view the Anatolian leopard live.

## Methods

### *Research area*

This study has been carried out in the Western Taurus Mountain range of Turkey, extending from Antalya to Burdur, Muğla and Denizli since 2019. The research area is located between 28°59'6" (west) - 30°45'48" (east) eastern longitudes and 36°17'11" (south) - 37°31'33" (north) northern latitudes (*Fig 1*). The region is dominated by a typical Mediterranean climate, characterized by hot, dry summers and warm, rainy winters. Favourable climatic conditions allow the tourism season to extend throughout the year, which increases the intensity of tourism and recreational activities (Atik and Altan, 2004). For this reason, all kinds of factors in the working area are able to affect the focal species. Information on summer and winter temperatures and precipitation is needed, as well as about the vegetation and size of the research area.
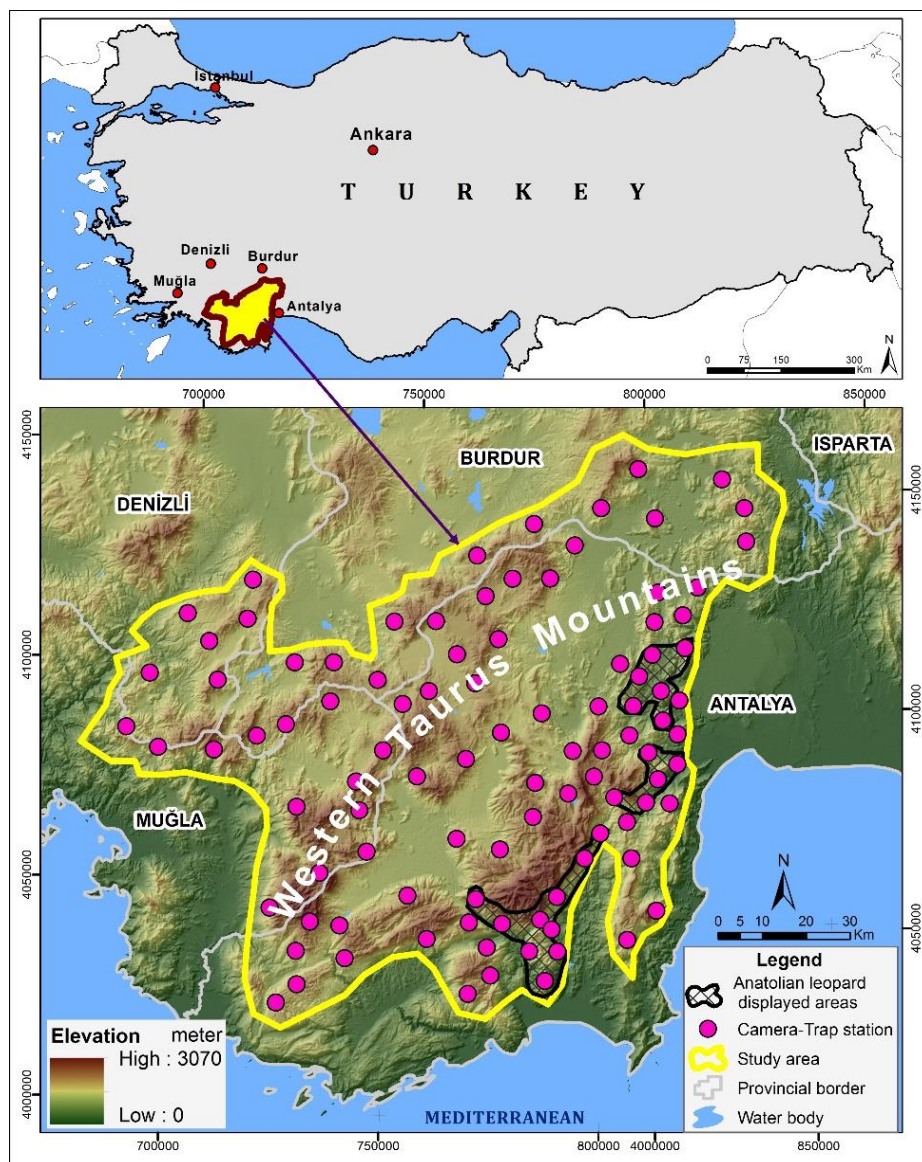


***Figure 1.*** *Research area and camera trap layout. Due to the priority of protecting the individual leopard that we have captured with camera trap, information about the individual's location or recorded coordinate data is not displayed*

### Camera trapping

Cuddeback and KeepGuard Color camera traps were used during the study. Cuddeback camera traps belong to Isparta University of Applied Sciences. Cuddeback camera traps can shoot in black flash E3 colour. Cuddeback camera traps have infra-red shooting, 0.25 s trigger time, 15 meters night vision, 20-megapixel image quality, 1-5 photo shooting settings and video capture at the same time (Mengüllüoğlu and Ambarlı, 2019). KeepGuard camera trap Cam KG-690NV, passive infrared cameras (Keepway Industrial Inc.) with a trigger speed of 0.8 s, programmed to take three photos with a five min delay. We mounted cameras on trees 1.0–1.2 m above ground level, at an appropriate distance (between ca. 5–15 m) from the trail and angled to take pictures of the whole body of medium- and large-sized animals (Apps and McNutt, 2018a,b). Google Earth, ArcMap 10.4 and Microsoft excel computer programs were used to detect camera trap stations on the map and record them digitally. Taking into account the ecological demands of the Anatolian leopard, the camera trap stations were carefully chosen from routes where leopards could hunt, hide or use as a gateway. Camera trap stations were established by the random opportunist method. A total of 100 camera traps were installed in 300 stations. They were active for 3 months, and during each camera trap period, the camera traps worked for an average of 30 days. Cameras were installed at the interior parts of mountain and forest habitats within the research area, (*Fig. 1*), at suitable and sheltered tree trunks from a height of 0.30–1.00 m above the ground (Harmsen et al., 2011; Amaya-Castaño and Palomares, 2018).

After the camera traps were installed in the research area, we continuously checked whether the camera trap continued to record actively. The day value of the camera traps that were active during the controls was calculated using the number of days between the start date and the control dates. However, during the checks, if it was determined that the camera trap was not active for various reasons (full memory card, flat battery, technical failures, etc.), the last photo taken by the camera trap was accepted as the last day of the camera trap (Soyumert, 2010; Stein et al., 2008). The study period was from September 2019 to October 2020. Observations were made within this period. As additional information, the leopard individual and its habitat identified at that time are still being observed. The cameras made observations on a 24/7 basis during the periods they were used. Controls were usually carried out on a weekly basis.

The first camera trap recording of Anatolian leopard in the Mediterranean region was obtained on August 08, 2019 by VI. Regional Directorate of Nature Conservation and National Parks (NCNP), under the Ministry of Agriculture and Forestry. Following this development, a team was formed under the leadership of the General Directorate of NCNP, in cooperation with the VI. Regional Directorate and the Department of Wildlife Ecology and Management of the Faculty of Forestry at Isparta University of Applied Sciences. In the first stage, a total of 100 camera traps were placed between September 22-27, 2019. Approximately three weeks after the beginning of the study, on October 10, and October 11, 2019 a camera trap image and a 20-second video recording of the same individual were obtained, respectively.

According to the research conducted by Jule et al. (2008), the survival rate of large carnivores that have returned to their natural habitat after being kept in captivity is very low (30%). Among the causes of death for these large carnivores that have been returned to their natural habitat, 50% are human caused. Other reasons include starvation and disease. Similar studies show that predators returning to the wild are in

search for easy prey as they have difficulty hunting, and in this case may experience conflict with humans. The male individual we identified was tracked for more than one year and even continues to be tracked. It was easily observed from the records that he was easily fed and healthy during this period, which is also supported from the hunting remains we detected in the field. In addition, no records of leopard human contact and conflict were disclosed in interviews with residents and administrative institutions. This indicates that the detected individual is a wild individual who can easily survive in its own habitat, avoids human habitat, and is not used to human presence. In the study on large mammals within the western Taurus Mountains of Turkey's Mediterranean region by Ünal et al. (2018), answers obtained from interviews with local people mention a long-tailed cat with badges on a large yellow body, was frequently seen in the region and is thought to reside in the region.

## Results

On October 11, 2019, one of the camera traps installed at the work site recorded a male Anatolian leopard, *(Panthera pardus tulliana)* (photo and 20-second video) (*Table 1*). This recording is the first live Anatolian leopard video image that has been obtained in the Mediterranean region within the borders of Turkey. For this reason, this record has an important value and originality. In this research, while there are no other living records other than unconfirmed information from scientists, local people and hunters since 1975, the Anatolian leopard *(P. p. tulliana),* which is thought to have disappeared, was recorded in the Mediterranean region for the first time in history with the camera trap method (*Table 1*). This valuable first record was obtained with camera traps after intensive field work. Since then, 20 different camera trap stations have obtained leopard images by NCNP.

*Table 1.* *Location, registration date, and record type (Photo or Video) of the same individual Anatolian leopard (Panthera pardus tulliana) by camera trap method. Considering the importance and threats towards the species, coordinate information was not given due to very high poaching activities in the area*

| No. | Registration date | Record type and record number | Photograph & video |
|---|---|---|---|
| 1 | 08 August 2019 | Photo (2) | a |

| 2 | 11 October 2019 | Photo (3), video | <br>b |
|---|---|---|---|
| 3 | 10 November 2019 | Photo (6), video | <br>c |
| 4 | 05 January 2020 | Photo (2) | <br>d |
| 5 | 22 March 2020 | Photo, video | <br>e |

| 6 | 10 July 2020 | Photo |  |
|---|---|---|---|
| | | | f |
| 7 | 21 August 2020 | Photo |  |
| | | | g |
| 8 | 20 September 2020 | Photo (4), video |  |
| | | | e |
| 9 | 16 October 2020 | Photo (3), video |  |
| | | | h |

The estimated criteria and features obtained from the images of the detected individual and the anatomical features of the Anatolian leopard were compared, and it was determined that the shoulder height, tail and body length, head size and head to body ratio, badge width, and the peltry colour were quite similar.

In light of these data, the genetic material of the individual was collected from the field (2020) and analysed by matching it with the data in the World gene bank. The results of the analysis entered in the World gene bank database is Anatolian leopard (*P. p tulliana*), (URL, 2022). These data from the genetic study are in preparation for future publication.

We conducted a camera trap study on leopards in the Mediterranean region of Turkey from September 2019 to October 2020. During the research period, the camera traps were deployed using the opportunist method in 300 camera trap stations. Google Earth, ArcMap 10.4, and Microsoft Excel programs were used to display the camera trap stations on the map. 9000 camera trapping days were obtained throughout the fourteen-month sampling period. A total of 5450 photos were captured, 2378 of which were wild animals. One leopard was photographed in a total of 9 different camera trap locations. Other animals seen at the leopard station are *Capra aegagrus*, *Vulpes vulpes*, *Lynx lynx*, *Sus scrofa*, *Lepus europaeus*, and *Caracal caracal*. The percentages of appearance of these species; *Sus scrofa* 38%, *Capra aegagrus* 34%, *Lepus europaeus* 11%, *Vulpes vulpes* 9%, *Lynx lynx* 4%, *Caracal caracal* 4%.

**Discussion**

The history and culture of the leopard, which is the most important terrestrial predatory mammal species in Anatolia, is of great importance. In this context, it was predicted that the species would become extinct in the Anatolian region after 1975. However, the use of camera traps recordings has provided evidence that the Anatolian leopard is once again present in the Mediterranean and Aegean region of Turkey. For this reason, the significance of the natural areas in Western Taurus Mountains has increased many fold. The conservation status of this area should be strengthened, and species awareness studies/projects should be developed on national and local scales. Awareness studies, especially for local people, are an urgent priority. Training activities for local people and hunters should start under the guidance of the relevant institutions. In addition, research should be expanded to identify different groups of individuals, if any, by focusing on scientific projects.

This research is a historical milestone as it reveals evidence for the existence of the Anatolian leopard (*P. p. tulliana*). Once was known to have dissemination in the Mediterranean and Aegean region but other than unverified reports from local people and hunters had no recent scientific record. Despite the studies carried out to date, there is no information about the population of this species. The protection and sustainability of this subspecies, which has come within an edge of extinction in Asia Minor due to human, can only be possible by human support. Although each study was carried out to achieve limited objectives, the crucial point is the restoration of this important subspecies in Anatolia and reach the level it deserves. This research, proving the existence of the Anatolian leopard within the Western Taurus Mountain range where is the natural dissemination area in Turkey, forms a fundamental literature resource for further research and projects that will be designed for the protection and succession of this species.

Borner (1977) mentions the existence of the Anatolian leopard in the western Taurus Mountains. After hearing from local people and forest managers he even recorded that some individuals were poisoned and shot dead. The re-detection of the Anatolian leopard's existence in Western Taurus Mountains after 45 years is an important development for Turkey's biodiversity. In light of this progress, solutions should be designed with urgency, in order to tackle the direct and indirect threats towards its population. In particular, the possibility of interaction with people increases at alarming rates every day due to the fact that Anatolian leopard is active both day and night. Currently, threats and threat levels to individuals are critical, high, medium, low, or unknown. Some of the threats and treatments towards the species that need to be taken into account include: (1) Poaching of wild animals, which is the food source of Anatolian leopards (Critical), (2) Destruction of habitats, poaching and/or unconscious hunting of leopards (Medium) and dog-borne diseases released by farm animals (Low), (3) Lack of necessary and adequate research and monitoring methods identifying the interaction between leopards and the animals they prey, (4) Lack of regional knowledge about the biology of the subspecies. Threats to the species' habitats include: (1) forest destruction, grazing and competition between wild animals and farm animals, (2) agricultural expansion and deforestation as well as unintended use of forest areas, (3) Infrastructure expansion, (4) Highway construction, (5) Disconnection of habitats due to excessive mining, hydro electrical power plants, factories etc., (6) Mining, (7) Lack of knowledge about the distribution of the population, (8) Lack of knowledge of the ecology of the subspecies, (9) Lack of information about the routes via which their populations are dispersed and passed, (10) Insufficient information about appropriate habitats, (11) Lack of knowledge on the dissemination map, (12) Limited information about human and leopard encounters and many more threat factors should be taken into account.

Future research should focus on the detection of the potential dissemination areas of the Anatolian leopard and the preparation of a dissemination map to identify, protect and sustain young leopard populations. Urgent attention should be drawn towards the direct and indirect threats of leopard populations. At this stage, it is necessary to obtain survey data in potential habitats, to make an ecosystem inventory (vegetation, environmental variables) and to implement the camera trap method in these areas. Additionally, in the implementation of the findings obtained by means of field studies, it is necessary to evaluate the compatibility of the compliance of each factor used in the habitat conformity model and to draw the roadmap according to these results (Malone et al., 2018; Sass et al., 2017). During the planning and implementation phase, the following issues should be applied in turn:

1. In potential habitats, information meetings and awareness raising training should be started with the participation and support of local representatives. For this reason, discussions, surveys, interviews, and educational meetings should be planned with interest groups (local people such as farmers, herders, and hunters, the General Directorate of Nature Conservation and National Parks (NCNP), the General Directorate of Forestry (FGD), Municipality, village legal entities, Non-Governmental Organization (NGO) members etc.) to obtain information on the biopolitical, socioeconomic and cultural structure of the region, to determine social pressure and planning opportunities and to share information about the project.

2. There is a need to determine the presence of the Anatolian leopard species in habitats thought to exist and to identify its habitat preferences between altitude, aspect and various vegetation types. In order to estimate the extent to which these habitat types

are used, it is necessary to correlate obtained data with habitat factors such as elevation, aspect and slope (Oğurlu and Yavuz 1999). In potential habitats, screening data, predator species identification, diversity, density, and distribution, human domestic animal and other species interaction levels should be identified.

3. Existing variables in habitats where tracks and signs are found should be determined and these variables should be prioritized (Özkan, 2009). In order to reveal the mentioned variables, the information obtained from a detailed field-land inventory must be analyzed with up-to-date statistical methods and package programs (Alho 1990; Buckland et al., 2000). Within modern evaluation techniques, methods such as Occupancy Model, maximum entropy, classification and regression tree technique (SRAT), logistics regression method and generalized linear or additive models can be used for distribution modelling of animal species. With these methods, evaluations can be made for species present data, present-absent data, categorical data or continuous data (Özkan 2012). During the research period, the Anatolian leopard potential habitat model should be created by using environmental variables by adding data obtained from habitats in other regions in addition to 9 different camera trap records, traces and signs of the Anatolian leopard obtained particularly in Western Taurus Mountains of Turkey.

Leopards have a much wider food network than any other predator. It has the ability to adapt well to the environment so that it can survive in various ecological environments according to the quality and quantity of its prey in different climatic regions (Nowell and Jackson 1996; Daniel, 1996; Sunquist 1999; Edgaonkar and Chellam 2002). It has been concluded that the primary food of the Anatolian leopard is the Wild goat (*Capra aegagrus*), which is known to exist in large numbers in the research area and is detected by our camera traps at a very high rate. However, the fact that there have been no complaints so far that there is an attack on farm animals in the region, supports our hypothesis that it is due to the abundance of food in the wild.

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