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New Data on the Mammals of the "Sinite Kamani" Nature Park, Bulgaria

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Abstract. "Sinite Kamani" Nature Park is located in the eastern part of the Stara Planina Mountains (eastern Bulgaria) and has a relatively poorly studied biodiversity. To study the mammals inhabiting the nature park, a study based on the camera trap method was conducted from 2023 to 2024. A total of 16 mammal species were recorded during the study period, three of which were domesticated. For the first time, a common dormouse was recorded using camera traps. This study is a continuation of a study also conducted using the camera trap method in 2013-2014. The results of this study, compared with the previous one, will track trends in the development of mammal species in the park and will contribute to their better management.

Key words: wild animals, protected area, camera traps.

Introduction

Eastern Stara Planina Mts is among the mountainous regions in Bulgaria that are poorly studied in terms of mammal species composition. This also applies to the territory of the „Sinite Kamani“ Nature Park (NP). In-depth studies over the years since its establishment (1980) are limited to only one (conducted in 2013-2014), when the species composition and the status of the mammal populations registered in this study were studied using the camera trap method (Georgiev *et al.* 2015, Dolapchiev *et al.* 2024a). It is extremely important to conduct systematic studies to establish trends in the development of the populations of the different species of mammals inhabiting the nature park. Periodic studies are also important in order to establish the dangers for the different species and thus implement better management of the protected areas. It is for this reason that, since 2023, a study of the species status of mammals has been conducted using the trap method on the territory of the „Sinite Kamani“ NP. The current study aims to establish trends in the development of mammal populations inhabiting the park, 10 years after the first study, using the same methods.

Materials and Methods

The „Sinite Kamani“ NP is located in the eastern part of Stara Planina Mts. (Fig. 1), stretchingover an area of 11380.1 ha (113.8 km2). The highest peak is Bulgarka (1181 m). The climate is temperate continental, with characteristic and frequent winds from the Mediterranean Region. The amplitude in absolute temperatures varies between +41C° to -20C°. Deciduous forests (9,000 ha) occupy most of the park’s territory, with over 600 ha occupied by conifers (Dolapchiev *et al.* 2024b).

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The data was collected in the period 7 April 2023 – 31 December 2024. Nine camera traps (Moultrie MCG 13331, Scoutguard, Suntek) were placed opportunistically in forested areas on animal maximise animal detection (Fig. 1). The total number of trap days of operational camera traps was 3175. The average altitude of the camera traps was 785 m a.s.l (lowest point 585 m and highest 1022 m). The camera traps were set up to take three consecutive pictures, five seconds apart. The next series of photos could be taken one minute after the previous triggering. A standard form was filled for each camera trap, recording location, and describing habitat characteristics. A common database was filled in Camera Base 1.7 (Tobler 2015, http://www.atrium-biodiversity.org/tools/camerabase). Photos and videos of prolonged stay (up to 30 min) of the same individual/individuals in front of the camera trap were considered as independent events to avoid overrepresentation of the species. This was done to deal with the overrepresentation of the same individual in multiple photos, leaving only the independent events (entries in front of the camera).

Fig. 1. Location of the Sinite Kamani Nature Park and distance of the camera traps to the city of Sliven in kilometres.

Results

Sixteen mammal species were documented to the species level, 13 wild and 3 domesticated (Tab. 1). The most common and widely distributed mammals were the roe deer (*Capreolus capreolus* L.), which were registered on all camera traps (579 independent registrations). In second place was the badger (*Meles meles* L.) (267 independent registrations), and in third place was the European brown hare (*Lepus europeus* P.) (106 independent registrations) (Tab. 1). Among predators, the red fox (*Vulpes vulpes* L.) had the most independent registrations (89), followed by the pine marten (*Martes martes* L.) (41) and the golden jackal (*Canis aureus* L.) (32) (Tab. 1).

The results related to the study of the number of species recorded by camera traps (Tab. 2) showed that the camera trap located closest to the city of Sliven recorded the most mammal species – 12 (out of a total of 13 registered on the territory of the park).

Table 1. Number of independent registrations from the camera traps (07.04.2023 – 31.12.2024).

Species	**Independent registrations**
Wild boar *Sus scrofa*	**55**
Roe Deer *Capreolus capreolus*	579
Golden Jackal *Canis aureus*	32
Red Fox *Vulpes vulpes*	89
Martes sp. *(M. martes* and *M. foina*)	81
European Brown Hare *Lepus europaeus*	106
Badger *Meles meles*	267
Felis sp.	27
Red Deer *Cervus elaphus*	18
Southern White-Breasted Hedgehog *Erinaceus concolor*	2
Red Squirrel *Sciurus vulgaris*	8
European Dormouse *Glis glis*	10

Table 2. Number of species recorded by camera traps.

Camera traps	Registered species
Mollova gora	11
Skalite	9
Kutelka	7
Dolapite	9
Archangel	8
Dragieva cheshma	8
Mecha polqna	11
Sotirq	8
Film	7

Discussion

In this study, 18 independent registrations of red deer were recorded, and a total of eight individuals (four females and four males) were identified based on characteristic external features. It should be noted that a dead animal (male) was found right next to the villa area of the city of Sliven. A total of 55 independent records of wild boar were recorded at eight locations. It should also be noted that the impact that African swine fever has had on the number of registrations reported in wild boar.

The presence of roe deer was recorded in all nine camera traps, with the number of independent registrations being 579. In this study, a total of 106 a hares were recorded at

three locations. It is worth noting that registrations were recorded both in the lower part of the park (Mollova Gora – 588 m, altitude) and the higher part (Skalite 985 m., altitude).

A total of 267 independent registrations were reported for the badger. The main reason was that one of the camera traps was placed in front of a badger den. Only this one was registered 163, out of a total of 267 independent registrations. The presence of a badger was recorded in all camera traps.

There were 32 independent sightings of the golden jackal, which were recorded by all camera traps placed in the field.

89 independent registrations were made at the red fox. A red fox was recorded in all nine camera traps.

In the current study, due to the poor quality of the photographs and the possibility of error in identifying the two species, the pine marten and the stone marten were assigned the same name, *Martes* sp. The stone marten was identified in nine independent records, and the pine marten in 41. The number of independent records when the two species could not be distinguished was 31.

The wild cat was identified in a total of 11 independent records. In eight independent records, the hybrid form between a wild and a domestic cat was recorded, and in another eight, it was not possible to distinguish the species from its wild or hybrid variant. Records were recorded in eight of the nine camera traps.

A total of 23 independent recordings of the squirrel were recorded, from seven of the nine camera traps set.

A European dormouse (*Glis glis* L.) was recorded at two locations with a total of 10 independent records. There were no records of the species in the previous survey.

There were 14 independent dog sightings, from a total of six camera traps. The domestic cat was recorded a total of three times, from only one camera trap.

One of the results of this study is the clear preference of mammals for the location where the camera trap "Mollova Gora" is located. The highest number of mammal species were found there (Tab.2). Another characteristic feature of this camera trap compared to the others is that it is located closest to the city of Sliven (Fig.1). To establish the reasons that lead to the apparent preference of the registered mammals to the location where this camera trap is located, we need different types of cross-sectional studies (dietary analysis, occupancy, diurnal and spatial activity).

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