RESEARCH ARTICLE

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Research on the daily activity of the stone marten (*Martes foina* Erxl.) in anthropogenically influenced habitats in Bulgaria

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ABSTRACT
The study was done on a kind of a small predator by digital photo cameras in three remote geographic areas. There have been 709 photos of stone marten (*Martes foina*), of which 518 in Sinite Kamani Nature Park, 118 in State Hunting Department "Chepino" and 75 in anthropogenically influenced habitats in the villages of Byaga and Isperihovo. By analyzing the daily activity of the species, night or twilight activity between 17 and 7:00 hours (morning, evening or night) was recorded. In the time interval from 07 to17 during the day, the activity of the species was not registered.

Key words: Mustelidae, photo traps, activity, anthropogenically influenced habitats

Introduction

The social organization (Kruuk, 1989; Mills, 1989), feeding habits marital behavior (Mills, 1982), the size of the territory (Harris, 1980; Macdonald, 1983; Lovari et al. 1991), models of activity (Cavallini & Lovari, 1991; Zielinski et al. 1983) of predators can vary in relation to seasonal and geographical variation in the environment.

Carnivores' activity is mostly nocturnal - they manage to catch their prey better than in daylight. Another reason for this behavior is anthropogenic pressure, and the experience of these mammals to avoid contact with people. The activity of these mammals depends mainly on the characteristics of the species as by individual characteristics, climate, topography, availability and abundance of prey and other (Servin at al. 1991; Jaeger et al. 2007; Ilemin & Gürkan, 2010; Racheva et al. 2012; Kachamakova & Zlatanova, 2014; Zalewski, 2000).

In this article we present a brief note of the marten's day and night activity (*Martes foina*), studied with digital photo-traps in anthropogenically influenced habitat - the villages of Byaga and Isperihovo and two forest habitats Sinite Kamani Nature Park and State Hunting Department "Chepino".

Materials and Methods

The analysis is based on 709 pictures of stone martens, of which 516 are taken from 10 digital photo traps for Sinite Kamani Nature Park, 118 taken from from 5 digital photo traps for State Hunting Department "Chepino" and 75 from 2 digital camera traps for the region of the villages of Byaga and Isperihovo.

Camera traps (Bushnell) in the Byaga and Isperihovo villages have filmed for a year from March 2015 till March 2016. The traps were checked weekly, and photos were taken every 30 seconds.The camera traps (LTL-5210A) in Sinite Kamani Nature Park filmed for one year from October 2013 to October 2014. The cameras were in 10 different areas. The camera traps (LTL-5210A) in the State Hunting Department "Chepino" have filmed for half a year, from January 2015 to June 2015. The traps were located in five different areas of the hunting. The traps were checked monthly, and the photos were taken every 30 seconds. To attract the animals in front of the cameras have been used for bait dog and cat pellets (in some cases, fish, etc.).

Area of study

The Byaga and Isperihovo villages are situated in a lowland like place, surrounded by Besaparski reeds and the beginning of the Rhodopes. Agriculture is developed in the villages, so as the anthropogennian factor is very high. Much

of the exploited areas are filled with orchards mainly from Malus domestica and less Persica vulgaris.

Sinite Kamani Nature Park is 11,380.8 hectares, located within the southern slope of the eastern chain of Stara Planina. The main habitats are deciduous forests of *Quercus* sp. with low height and common beech in 1000 m asl. The southern part of the area consists of rocky areas occupied by grass or shrubs.

State Hunting Department "Chepino" is located within the western part of the Rhodopes. The hunting and business area which manages about 33,000 hectares. The main habitats are coniferous forests of *Pinus sylvestris*, *Abies alba* and *Picea abies* in different percentages.

Results and Discussion

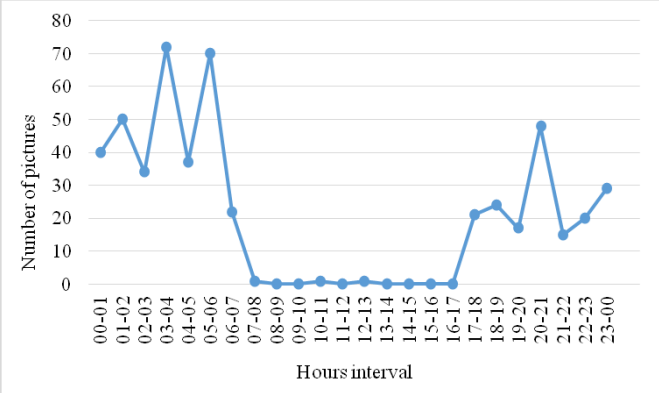

Figure 1. *Number of all pictures of marten (Martes foina) made in 24 hours interval (number of images per hour) for the region of the villages of Byaga and Isperihovo.*

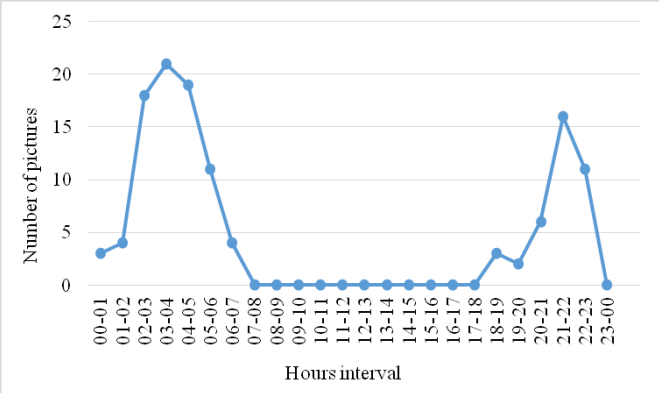

Figure 2. *Number of all pictures of stone marten (Martes foina) made in 24 hours interval (number of images per hour) for Sinite Kamani Nature Park.*

Based on the 75 (Byaga and Isperihovo) 516 (Sinite Kamani Nature Park) and 118 (State Hunting Department "Chepino") taken pictures, we have established that although geographically distant, the activity of stone marten is the same for all three habitats. It is observed increase in activity in the hours between 00-07 h and 17-00 h. In the time interval between 07-17h.the activity of the type is not registered (Figure 1, 2 and 3). In the studied forest and anthropogenical influenced habitats marten has a dim night-active and inactive in the main part of the day. The largest number of photos of the species were taken between 3 and 7 am and a few photos early morning or early evening to 24 hours, and then between 24 and 2 AM during the night.

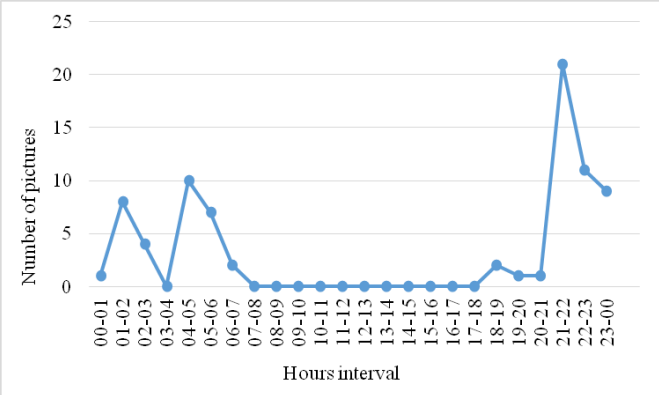

Figure 3. *Number of all pictures of stone marten (Martes foina) made in 24 hours interval (number of images per hour) for State Hunting Department "Chepino".*

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