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On the daily activity of the Red Fox (*Vulpes vulpes*) in two village areas of Bulgaria: a case study

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Abstract. The study was carried out by digital camera traps in two village areas of South Bulgaria. Total of 99 photos of Red Fox (*Vulpes vulpes*) were made in the villages of Byaga and Isperihovo. They were compared with 1133 photos made in "Sinite Kamani" Nature Park (published by Georgiev *et al.*, 2015). It was evident that there was no any activity during daylight in the villages studied, compared with the natural habitats.

Key words: camera traps, activity, Red Fox.

Introduction

The activity of the predatory mammals depends on species and individual characteristics, climate, relief, prey availability, human disturbance and other (Kachamakova & Zlatanova, 2014; Hisano *et al.*, 2014; 2015; Peeva, 2015; Peeva & Raichev, 2016).

The Red Fox (*Vulpes vulpes* Linnaeus, 1758) inhabits a variety of habitats, ranging from semi-arid desert to tundra, from agro areas to boreal forests. Generally, heterogeneous and fragmented landscapes are preferred as fox habitats (Lloyd, 1980; Catling & Burt, 1995; Popov & Sedevchev, 2003). The ability to hunt seems to be the most important factor influencing habitat use (Halpin & Bissonette, 1988; Jones & Theberge, 1982; Phillips & Catling, 1991).

The Red Fox prefers bush vegetation habitats in the winter, while the wooded areas with developed tree vegetation are avoided, probably due to the greater snow accumulations and low hardness of the snow (Halpin & Bissonette 1988; Theberge & Wedeles, 1989). In the anthropogenic regions, foxes are more abundant in residential suburbs and less in industrial and commercial areas (Harrisand & Rayner, 1986).

In this article I present a brief note considering the activity of the Red Fox (*Vulpes vulpes*), studied by camera traps in two anthropogenic habitats – village areas of Byaga and Isperihovo (99 photos). It was compared with previously published data for "Sinite Kamani" Nature Park (1034 photos) by Georgiev *et al.* (2015).

Material and Methods

The camera traps (LTL-5210A) in the area of the villages Byaga and Isperihovo were shot for two years from March 2015 to March 2017. The traps were checked weekly and the pictures were taken every 30 seconds. To attract the animals dog and cat baits (in some cases fish and others) were used.

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The villages of Byaga and Isperihovo are located in a valley surrounded by hills (Besaparski Heights and the slopes of Western Rhodopes). Agriculture in the area is well developed and most of the exploited areas are occupied by orchards.

Results and Discussion

Based on the photos taken by Georgiev *et al.* (2015): 1034 (Sinite Kamani Natural Park) and made by me: 99 (the village of Byaga and the village of Isperihovo), I found that the activity of the red fox is different in the two habitats.

In the natural forest habitats, activity was observed almost throughout the day, with peaks at the the time intervals of 15-9 hours and 12-14 hours (Figure 1).

In anthropogenically influenced habitats there is an increase of activity during the intervals between 00-09h and 18-00h. No any activity was registered during daylight (Figure 2). In the studied anthropogenically influenced habitats, the fox has a night-slimy activity and is inactive during the real part of the day. The largest number of pictures of the species was taken between 19:00 and 00:00 and fewer are photos taken in the morning until 05:00.

Fig. 1. Red Fox (*Vulpes vulpes*) feeding in front of a camera trap, Isperihovo village.

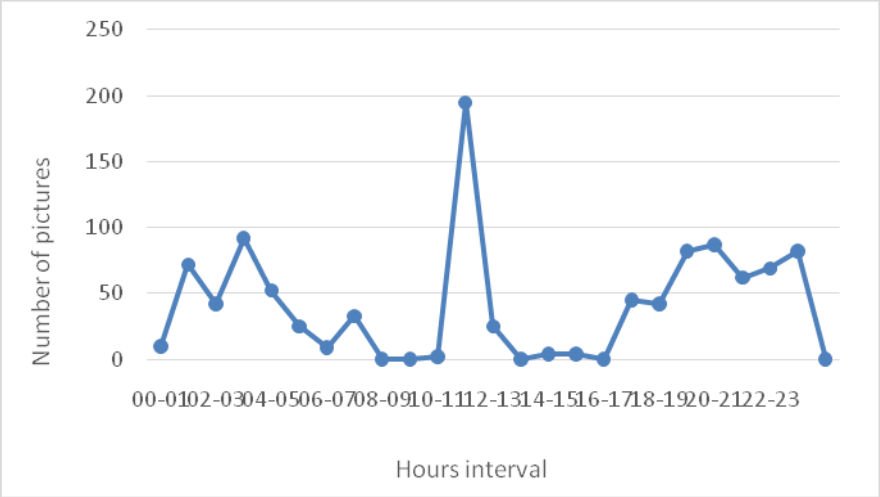

Fig.2. Number of all pictures of the red fox (*Vulpes vulpes*) made in 24 hours interval (number of images per hour) for NP "Sinite Kamani" (Georgiev *et al.*, 2015).

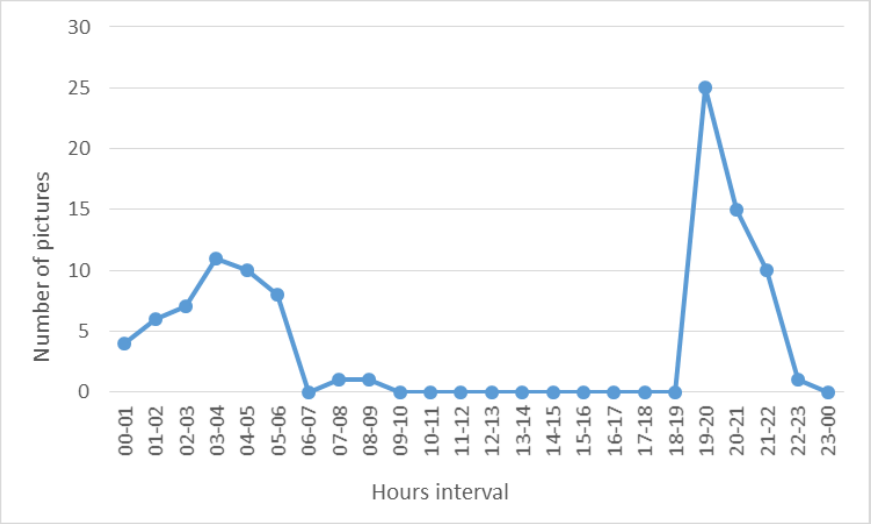

Fig. 3. Number of all pictures of the fox (*Vulpes vulpes*) made in 24 hours interval (number of images per hour) for the villages of Byaga and Isperihovo.

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