



# First Documented Record of the Endangered Pine Marten *Martes martes* (L.) (Carnivora: Mustelidae) in Lyulin Mtn., Bulgaria

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**Abstract:** The European pine marten *Martes martes*, an endangered and protected species in Bulgaria, was registered with a camera trap outside its currently known distribution, in Lyulin Mtn., Western Bulgaria. The two new detections were at a relatively low altitude (902 m a.s.l.), within a beech (*Fagus sylvatica* L.) and common oak (*Quercus robur* L.) forest. The pine martens in Lyulin Mtn. might face poaching due to the external similarities to the sympatric stone marten (*Martes foina* Erxl.). Thus, a much more detailed study of the distribution of the species in Lyulin Mtn. is needed, which would aid in planning suitable and effective conservation measures.

**Key words:** new record, distribution, conservation

## Introduction

The pine marten *Martes martes* (L., 1758) is a species of conservation significance for Bulgaria. It is listed as Endangered [EN, C2a(i)] in the Red Data Book of the Republic of Bulgaria and included in Appendices II and III of the Bulgarian Biodiversity Act (SPASSOV & SPIRIDONOV 2011). The pine marten is considered rare; however, it is understudied in the country and the published data on its distribution and population is scarce. Until now, the pine marten's distribution has been considered to include most of the higher mountains in Bulgaria, with largest population segments in the Western Rhodopi, Central and Western Balkan Range, Rila, Pirin and Strandzha. It is also present in Nature Park “Vitosha”, which is

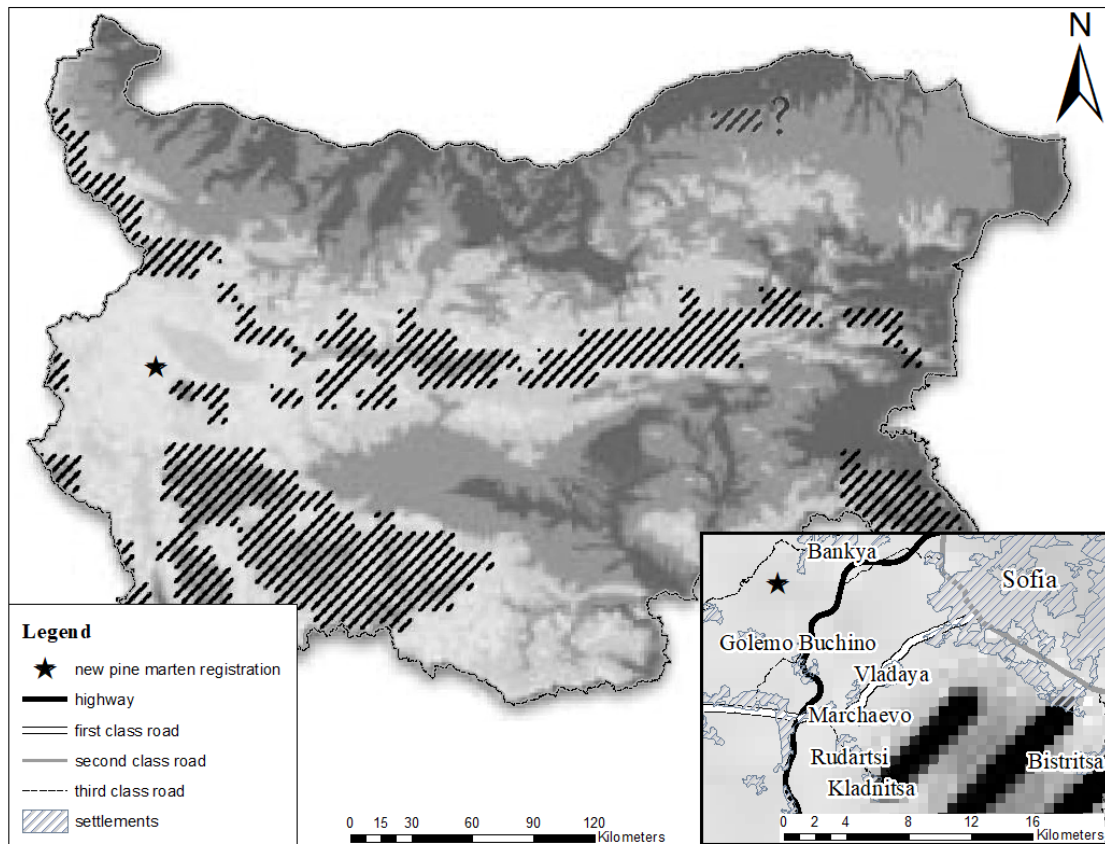
closely located to Lyulin Mtn. (SPASSOV & SPIRIDONOV 2011). Additionally, an interesting observation was made in 2014 – a pine marten in the lowlands of Northern Bulgaria (BELCHEV & ZLATANOVA 2016).

The present communication reports a new observation of the pine marten outside the known species' range in Western Bulgaria.

## Material and Methods

In 2021, a detailed study on the vertebrate fauna was conducted in Lyulin Mtn. Ten camera traps (model Bolymedia BG590-24mHD) were placed according to a predefined grid (at a distance of approx. 1 km from each other) in three different areas. The camera traps were located within 5–10 m of an animal trail,

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**Fig. 1.** Location of the camera trap (marked with star) compared to the currently known distribution of the pine marten in Bulgaria (according to SPASSOV & SPIRIDONOV 2011) (large frame) and the closest known other population segment (small frame)

set up on a tree at approx. height of 1 m above the ground. The camera traps were set up to take one photo and one 10-second video upon triggering with 5-second interval. One of the camera traps located in the northwestern part of the mountain captured photos of a pine marten on two separate occasions (Fig.1). The species was identified based on its distinctly visible external morphological traits (POPOV & SEDEFCHEV 2003).

## Results

The camera trap (coordinates 42.6781N 23.1028E) captured two independent registrations of pine marten: at 6:04 p.m. on the 24th of June and at 4:30 p.m. on the 11th of September 2021. It was located at 902 m a.s.l., within a beech (*Fagus sylvatica* L.) and common oak (*Quercus robur* L.) forest (Fig. 2). The pine marten was moving on a common oak tree trunk fallen on the ground. The registrations were short, i.e. the animal passed through the visual field of the camera quickly and was not captured in the subsequent videos.

## Discussion

These observations are of interest due to several reasons. To the best of our knowledge, there have been no other documented records of the pine marten in Lyulin Mtn. and this mountain is not considered a part of its distribution range. The pine marten in Bulgaria is presumed to inhabit mostly mountainous coniferous forests (mainly of spruce *Picea abies* L.) and beech forests above 1200 m a.s.l. (PESHEV et al. 2004, SPASSOV & SPIRIDONOV 2011). However, the registrations in the current study are at a lower altitude in a mixed deciduous forest.

The closest known other pine marten population segment (Nature Park Vitosha) is located at approx. 13 km straight-line distance. The two locations are separated by the Struma Highway and a European B Class Road (E 871, a first class road), which appears not to hinder dispersal. Another study (KACHAMAKOVA 2016) has indicated that stone martens *Martes foina* (Erleben) regularly cross the Struma Highway through its drainpipes. LARROQUE et al. (2016) also note that roads cause low resistance to gene flow in pine martens and PEREBOOM et



**Fig. 2.** Camera trap photos of the two independent registrations of pine marten in Lyulin Mtn. with date, time and temperature

al. (2008) concluded that pine martens do not avoid roads. Thus, it seems likely that there is active gene flow between the pine martens inhabiting Vitosha Mtn. (which is much larger and protected) and Lyulin Mtn.

Our findings are also important in light of the conservation of the pine marten. Lyulin Mtn. is not a protected area, as opposed to the neighbouring Vitosha Mtn., which is largely covered by the Nature

Park of the same name. Consequently, the pine marten faces a great deal of disturbance in Lyulin Mtn., where hunting and logging is permitted. Furthermore, the sympatric, closely related stone marten (*Martes foina*), which is a game species in Bulgaria, is also present in the mountain and even captured on the same camera trap location. The two martens share very similar external characteristics and can easily be mistaken from a distance. Therefore, the

pine marten is also likely to be poached intentionally or unintentionally. Due to all of this, a much more detailed study of the distribution of the species in Lyulin Mtn. is needed, which would aid in planning suitable and effective conservation measures.

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