NOTES

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Distribution extensions

New records of *Capreolus capreolus* Linnaeus, 1758 in the Monti Lepini (Lazio, Central Italy)

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Abstract

The Roe Deer was present in the Monti Lepini (Southern Lazio) up to the first half of the nineteenth century, then it went locally extinct. In this note we report four new records of this species that testify for the current existence of a (likely very small) local population, which would represent the only other wild ungulate in the area, in addition to the very common Wild Boar.

Key words: roe deer, camera trap, Monti Lepini, Central Italy

Resumen

El ciervo estuvo presente en los Montes Lepini (sur del Lacio) hasta la primera mitad del siglo XIX, luego se extinguió localmente. En esta nota informamos de cuatro nuevos registros de esta especie que atestiguan la existencia actual de una población local (probablemente muy pequeña), que representaría el único otro ungulado salvaje en la zona, además del muy común jabalí.

Palabras clave: ciervo, camara, monti lepini, Italia central

The Roe Deer (*Capreolus capreolus* Linnaeus, 1758) occurs in the Northern Apennines, but in the last two decades it is showing a general range expansion southward. In Central Italy it is widely distributed in Umbria, Abruzzo and Northern Lazio, partly due to reintroductions (Carnevali et al. 2009). In the Monti Lepini (Roma, Frosinone and Latina provinces, Southern Lazio) the species was present up to the first half of the nineteenth century (Fraikin 1914, Marozza & Corsetti 2020), but it went extinct locally following a general trend of both local and large scale extinction in Italy (Carnevali et al. 2009), documented also in central Italy (Battisti et al. 2015). Recent fauna inventories (Amori et al. 2002, Marozza & Corsetti 2020), some also based on camera trapping (Angelini et al. 2023), reported jointly a total of 30 terrestrial mammals species in the Monti Lepini, but none listed the Roe Deer, of which we report new records in this note.

Lepini Mountains are a carbonate ridge about 50 km Southeast of Rome, about 880 km^2 large, ranging in elevation from a few meters up to 1,536 masl (Figure 1). In the western

slope the climate is mitigated by the proximity of the Tyrrhenian Sea, whereas the eastern slope has a more continental climate. Various vegetation associations occur: garrigue, maquis shrubland, grassland, holm oak wood, heathland, broad-leaved forest with *Acer* spp., *Carpinus* spp., *Fraxinus* spp., and beech (*Fagus sylvatica*) forests (Copiz et al. 2018). One Special Protection Area (SPA) and nine Special Areas of Conservation (mostly included within the SPA) protect about 470 km^2 of the area. Our records come from occasional direct observations and from a video recorded on a camera trap during a study on the mammal community of the area.

FIGURE 1. Italian range of *Capreolus capreolus,* showing the distribution of the subspecies *C. c. capreolus* (dark gray) and *C. c. italicus* (light gray), location of the Monti Lepini (red area and enlargement) and new records of the species (black points and letters). Distribution redrawn from Carnevali et al. 2009. Letters in the enlargement refer to the records as in the text. The triangle indicates the Monte Semprevisa.

We recorded the species four times in the south western slope of Monte Semprevisa (13.09150, 41.56969, datum WGS84; Figure 1): a) 10th June 2021, 1,200 masl, we observed an adult female from a distance of less than 40 meters; b) 1st March 2022, 900 masl, we heard one individual barking repeatedly for 20 minutes; c) 12th March 2022, 900 masl, we heard one individual barking two times; d) 2nd May 2022, 850 masl, video recording of a male juvenile, likely 3 years old (Figure 2).

The recording places are within an area of 4.6 km^2. Places a-c are 1.3 km far from each other, b-d are 1.5 km far from each other, and the maximum distance is for c-d at 6.5 km from each other. A further indirect record is based on macroscopic analysis of hair found on 26th April 2022 between points b and d in feces of *Canis lupus*, which resulted compatible with Roe Deer hair. Considering the position of the Monti Lepini within the species' range, it is not possible to ascribe our records to either *C. c. capreolus* or *C. c. italicus* (Figure 1).

FIGURE 2. A frame from the video of *Capreolus capreolus* recorded by a camera trap in the Monti Lepini.

To our knowledge, an uncertain record of *C. capreolus* in the Monti Lepini was reported in December 2020 (https://www.montilepini.info/ritornano-i-caprioli-sui-monti-lepini/), in a not well identified location in the south eastern portion of the area (likely more than 5 km east of point c). In addition, on March 2022 a juvenile male has been caught in the Colleferro village (Rome province), just north to the Monti Lepini (https://www.cronachecittadine.it/colleferro-capriolo-incastrato-nelle-ringhiere-dei-giardini-di-via-giotto-liberato-e-curato-dal-servizio-veterinario-con-la-collaborazione-del-vice-sindaco-giulio-calamita-della-polizia-locale-e-d/). Nevertheless, our record of at least a female, a juvenile and an individual barking (attributable to males, although females bark sometimes, Rossi et al. 2002) represent the first evidences of a potential, likely small, local population of Roe Deer in the Monti Lepini.

While it is not possible to speculate about the routes which led to the recolonizations of the Monti Lepini, it is know that in the last two decades the species' range is expanding in

Central Italy, including Lazio (Carnevali et al. 2009). We also wonder if the reduction of human activity during the recent COVID-19 pandemic period could have fostered the return of the species in the Monti Lepini. We especially think that the severe reduction of road traffic may have facilitated recolonization, given the positive impact on wildlife overall (Perkins et al. 2022) and on *C. capreolus* in particular (Pokorny et al. 2022). Due to various kind of habitats occurring in the Monti Lepini, there are many ecotonal areas which meet the ecological requirements of the species (Perco & Perco 1979). Furthermore, over the past few decades, there has been a significant decrease in sheep and goat farming activity in the area, shifting from itinerant to more resident practices (Giunti et al. 2009). This transition has reduced the presence of strong ecological competitors for *C. capreolus*. Another reason for the significance of our records is their potential assignation to *C. c. italicus* subspecies. While *C. capreolus* is common and widespread, listed as Least Concern by IUCN (Lovari et al. 2016), *C. c. italicus* is rare and classified as Vulnerable (Rondinini et al. 2022).

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