



Additional data on the distribution of *Suncus etruscus* Savi, 1822 (Mammalia: Soricidae) in Eastern Anatolia

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Abstract

In this study, prey remains in the owl pellets collected from Ağrı province (Eastern Anatolia) were examined. In the contents of the owl pellets, *Suncus etruscus*, *Crocidura* sp. (Eulipotyphla), *Microtus* sp. (Rodentia) and unidentified bird remains were found. The remains of the *Suncus etruscus*, which are frequently found in owl pellets, are important in terms of determining the distribution limits of this species.

Keywords: Etruscan Shrew, owl, pellet, small mammal, Türkiye

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Doğu Anadolu'da *Suncus etruscus* Savi, 1822 (Mammalia: Soricidae)'un dağılımına dair ek veri

Özet

Bu çalışmada Ağrı ilinden (Doğu Anadolu) toplanan baykuş peletlerinin içeriğindeki av parçaları incelenmiştir. Baykuş peletlerinin içeriğinden *Suncus etruscus*, *Crocidura* sp. (Eulipotyphla), *Microtus* sp. (Rodentia) ve tanımlanamamış kuş kalıntılarına rastlanılmıştır. Baykuşlara ait peletlerde sıklıkla rastlanılan *Suncus etruscus* türüne ait kalıntılar, bu türün yayılış sınırlarının belirlenmesi açısından önem taşımaktadır.

Anahtar kelimeler: Baykuş, Etrüsk böcekçili, küçük memeli, pellet, Türkiye

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1. Introduction

Owls are specialized to prey on hard-to-trap or rare small mammal species too [1]. Owls regurgitate the indigestible parts of their prey as compressed pellets. A pellet can contain different body parts of prey such as fur, bones, and feathers [2]. Pellets offer a useful alternative method for identifying many small mammals due to the skull and mandible contained in them. Pellets provide a presumptive location rather than a certain location of small mammalian prey. Nevertheless, it can create a link between hunting and pellet extraction sites, thus facilitating and leading to further research with other techniques [3]. If the size of the predator's hunting area is known, it can be a clue to determine in which habitats the small mammal among their prey can be found.

The Pygmy white-toothed shrew, *Suncus etruscus* (Savi, 1822) is one of the smallest mammals with an average adult mass of less than three grams. *Suncus etruscus* are widely distributed across Africa, Europe and Asia [4]. In the region including Turkey, it distributes mostly around the Mediterranean coasts. [5, 6, 7, 8, 9]. However, in recent studies, it has been determined that this species also spreads in different geographies too (Iran, [10, 11]; Uzbekistan, [12]; Black Sea coastal region of Turkey, [13]; Russia, [14]). The records of this species, which also distributes in Turkey, are generally based on owl pellets [15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33]. The aim of this study is to present an additional record of *Suncus etruscus* from the eastern part of Turkey.

1. Material and Method

Pellets were collected from a steppe with wet meadows and dry farmlands surrounded by steep hillsides (Figure 1). The pellet collecting area is within the borders of Doğubeyazıt District of Ağrı Province in Eastern Turkey (Map no:26, Figure 2). The elevation is around 1730 m.



Figure 1. General view of pellet collecting area (Ağrı Province, in Eastern Anatolia)

Three pellets were collected from the study area (Figure 3d). The examination of the pellets was conducted according to standard procedures [34]. We used [24] for the identification of preys after the examination of pellets. The remains were obtained from the pellets were preserved at Artvin Vocational School, Artvin Çoruh University (sample number: 361-AYS).

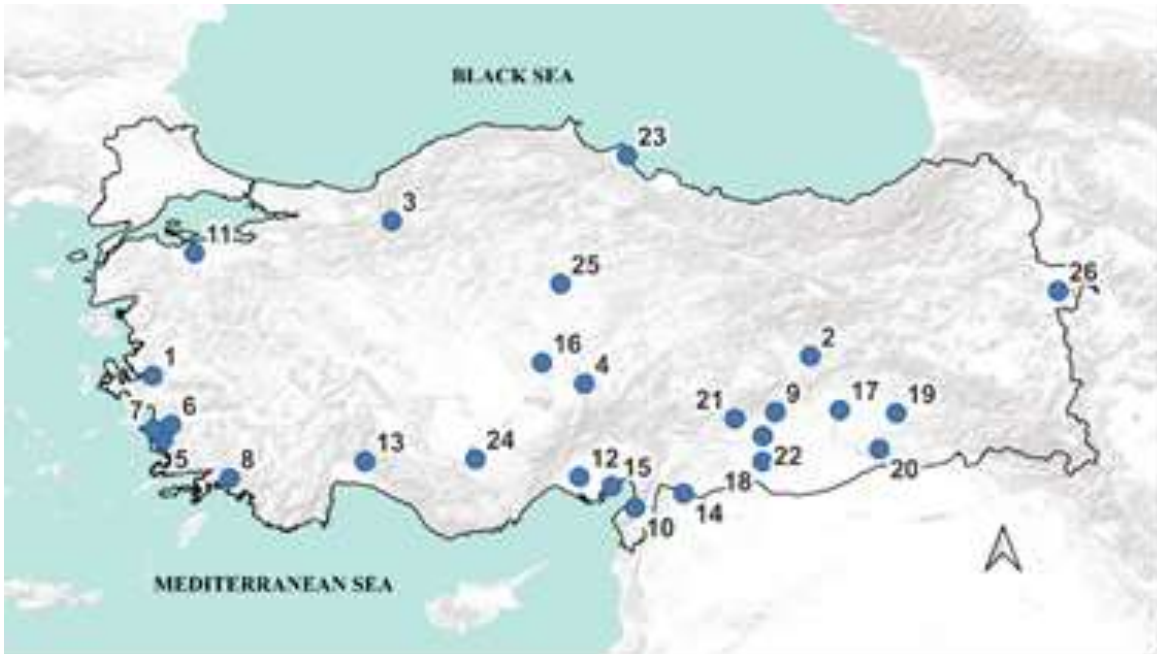


Figure 2. Distribution of the *S. etruscus*'s records in Turkey. 1: [15, 16]; 2: [17]; 3: [15]; 4: [18]; 5: [19]; 6: [20]; 7: [21]; 8: [22]; 9-10: [23]; 11-12: [24]; 13: [25]; 14: [27]; 15: [28]; 16: [29]; 17: [30, 31]; 18-19-20-21-22: [30]; 23: [26]; 24: [32]; 25: [33]; 26: [Current study]

2. Results

Three remains belong to *Microtus* sp., one belongs to *Crocidura* sp. (Figure 3: a, b), one belongs to a passerine bird and also mandible and skull belongs to *Suncus etruscus* (Figure 3: c) were found in the three pellets collected from the study area (Figure 3: d).



Figure 3. Comparative skull and mandible of *Crocidura* sp. (a: skull, b: mandible) and *S. etruscus* (c: maxilla and mandible) and pellets (d). arrow: unicuspid teeth on the maxilla.

3. Discussion and Conclusion

Due to very low body weight of *S. etruscus* (1.5-3g) and its rarity [24], it is difficult to catch by classical traps [14, 35]. The main predators of *S. etruscus* are owls and owl pellets can contain the remains of the species [12, 36]. The evidence regarding the distribution of the species in Turkey is based on owl pellets (except one alive specimen, [30]; a dead specimen found in a pitfall trap, [16]) [13, 15, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, Current study].

Studies on the *S. etruscus* species in Anatolia are based on morphological characters such as four unicuspid teeth in the upper jaw [24]. The analysis of the dental formula is typical for *Suncus* shrews and distinguishes them from representatives of another genus of the white-toothed shrews, *Crocidura* [14, 24, 37]. Our study suggests that this record is the easternmost distribution of *S. etruscus* in Anatolia. Although, further researches are necessary to understand the current distribution and taxonomic status of this species in Turkey and neighboring region.

Acknowledgments

This finding was possible during the field work focusing on mapping active faulting of the region (PI: Azad Sağlam Selçuk) supported by National Earthquake Research Program (UDAP-G-20-06). Mandible and skull samples (sample number: 361-AYS) of *Suncus etruscus* are preserved at Artvin Çoruh University.

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