

# Some unusual findings of Güldenstaedt's White-toothed Shrew, *Crocidura gueldenstaedtii* (Pallas, 1811) (Mammalia: Eulipotyphla: Soricidae) from Bulgaria

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**Abstract.** Here we reported some unusual findings of the Güldenstaedt's White-toothed Shrew, *Crocidura gueldenstaedtii* from Bulgaria. Probably the first documented case of arboreal activity of this shrew - found in a nest box attached to a tree at 1.5 m height. In the Western Rhodope Mountains, we found a female shrew with a purple-red underpart, more intense around the chest and cheek.

**Key words:** Withe-toothed shrew, arboreal activity, color variation.

## Introduction

In Bulgaria, two White-toothed Shrews occur - the Bicolored Shrew (*Crocidura leucodon* Hermann, 1780) and Güldenstaedt's White-toothed Shrew (*Crocidura gueldenstaedtii* Pallas, 1811) (formerly *C. suaveolens*) (Peshev *et al.* 2004). Recent genetical studies revealed a complex phylogenetical relationship within the *C. suaveolens* group, as for the shrews that occur in most of Europe (from Iberia in west to western Ukraine in east), Asia Minor, and south of Caucasus the name *C. gueldenstaedtii* (terra typica - Tbilisi, Georgia) has been proposed (Burgin *et al.* 2018).

Both species prefer mainly lowland open habitats, often found together (Peshev *et al.* 2004, Popov & Sedefchev 2003, our field notes). Records from the mountains are exceptional (Peshev *et al.* 2004). Their ecology and biology are little studied in Bulgaria. Here we reported some unusual and interesting findings regarding the Güldenstaedt's White-toothed Shrew from Bulgaria.

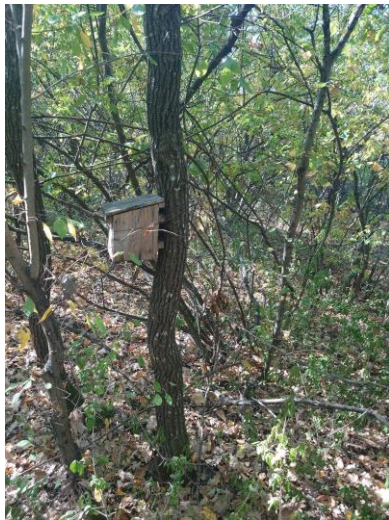
## Results and Discussion

During a regular check of nest boxes placed for dormice in a small patch of forest (approximately 380 ha) surrounded by agricultural fields near Shishmantsi village (Plovdiv district) on 15.10.2023, in one of the boxes, we found a Güldenstaedt's White-toothed Shrew (*C. gueldenstaedtii*) inside. The box is set about 1.5 meters high on a young oak tree (*Quercus* sp.), it was filled with nest materials (oak leaves and moss) from a forest dormouse (*Dryomys nitedula*, Pallas 1778). The box is located at the edge of the forest, about 10 m from a forest pat.

The shrew's presence in that forest was documented in our previous study on small mammals by live-trapping (Longworth traps). On 20.08.2018 among 17 captured small

mammals from 4 species (*Apodemus flavicollis* Melchior, 1834- 14 ind.; *A. agrarius* Pallas; 1771 - 1 ind. and *D. nitedula* - 1 ind.), there was one *C. gueldenstaedtii*.

Arboreal activity has been documented in some tropical members of the genus *Crocirura* (Esselstyn *et al.* 2021). The diversity of shrews in the tropics is remarkable, there are shrew communities with 4 to 10 *Crocirura* species (Esselstyn *et al.* 2021). Probably to reduce the competition they exploit different strata from the habitats.



**Fig.1.** The Güldenstaedt's White-toothed Shrew in a nest box, the nest materials are from forests dormouse (*Dryomys nitedula*) nest previously recorded from the box.

During an opportunistic survey of small mammals using live-traps (Lonworth and Hesliga traps) in the Western Rhodopes on 20.09.2024, we got one (in a Heslinga trap) adult lactating female along the stone wall above the Zhrebevo village (Smolyan district) (N41.5694, E24.41838, elevation 1300 m). The shrew had a purple-red underpart, more intense around the chest and cheek. The shrew was released at the capture site. Alongside the shrew at the same site, we got a snow vole (*Chionomys nivalis* Martins, 1842) and bicolored white-toothed shrews (*Crocirura leucodon* Hermann, 1780).

Color coat deviations in white-toothed shrews (genus *Crocirura*) from Europe are rare, Nedyalkov *et al.* (2014) reported an albino *C. leucodon* from south Bulgaria.

The shrew usually inhabits lower elevations and, in the mountainous regions is rarely recorded, Peshev *et al.* (2004) reported it from Teshel (1200 m) (approximately 15 km north from our record) and Konyarnika (Vitosha Mountain) - 1840 m, the last one is the highest record from Europe. On the Balkans, the shrew is reported mainly from the lowlands, but there are some records from mountain ranges - 1000- 1100 m (Petrov 1992). In the Czech Republic, it is recorded from the top of the highest mountain of Sněžka (1603 m a. s. l.) (Anděra & Hanzal 2022).



**Fig. 2a.** Purple-red underpart of a female The Güldenstaedt's White-toothed Shrew - in situ (photo Dana Iavoroschi).



**Fig. 2b.** Purple-red underpart of a female The Güldenstaedt's White-toothed Shrew.

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