

THE FIRST RECORD OF *Trox perrisii* FAIRMAIRE, 1868 IN CROATIA

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A single specimen of *Trox perrisii* was collected from Mt. Ivanščica, north-western Croatia. This is the first record of this species in Croatia, and it fills the distribution gap between Slovenia and Hungary. An updated checklist of the Trogidae family of Croatia is provided, consisting of ten species.

Diversity, distribution, hide beetles, checklist

T. KOREN: Prvi nalaz vrste *Trox perrisii* Fairmaire, 1868. u Hrvatskoj. Entomol. Croat. Vol. 19. Num. 1–4: 31–35.

Jedna jedinka vrste *Trox perrisii* skupljena je u sjeverozapadnoj Hrvatskoj na planini Ivanščici. Ovo je prvi nalaz ove vrste za Hrvatsku pa popunjava prazninu u distribuciji između Slovenije i Mađarske. Priložen je i nadopunjeni popis vrsta iz porodice Trogidae koje dolaze u Hrvatskoj, a sastoji se od 10 vrsta.

Raznolikost, distribucija, Trogidae, popis vrsta

Introduction

The family Trogidae MacLeay (Coleoptera: Scarabaeoidea) consists of approximately 330 species worldwide (Nádai & Merkl, 2004). About 17 species occur in Europe (Baraud, 1992). They primarily inhabit the temperate and arid regions of the world (Strümpher et al., 2014). Trogidae differ from other Scarabaeidae by having only 5 sternites (Brelj et al., 2010). Most species are small, under 2 cm in length. The body is oval, the abdomen being flat. The elytra of most species contain tubercles and ridges of different appearances. The body colour of most species is gray or black. The adult beetles are generally active at dusk and at night (Nádai & Merkl, 2004). The members of this family are unique in respect to their diet preferences – all known species feed almost exclusively on keratin. They are most often found on dry remains of dead animals, where they feed on feathers, fur, and skin. Many species are found inside bird and mammal nests. Adult hide beetles are capable of stridulation when disturbed and will often play dead by retracting their appendages.



Figure 1. *Trox perrisii* from Mt. Ivanščica, Croatia

The hide beetle fauna of the Northern Balkans is relatively well known in terms of occurrence in specific countries and general distribution, and the same is true for Croatia. However, most records are based on old literature data, in some cases unconfirmed or unreliable (e. g. Mikšić, 1970). The main goal of this paper is to present the first record of *Trox perrisii* for Croatia and an updated checklist of Trogidae species occurring in the country.

Materials and Methods

A single specimen of *T. perrisii* (Fig. 1) was found during a moth fauna study of Mt. Ivanščica. The beetle was collected in a light trap tent near the top of the mountain on June 9, 2014 (N: 46.18013500, E: 16.12425600). The habitat included beech forest and calcareous slopes with bushes and grasses. The collected specimen is stored in the author's private entomological collection.

In addition, available literature about the Trogidae family was consulted, and an updated checklist, based only on published species-records from Croatia was created. For comparison, checklists of the neighbouring countries are also given. For the species identification standard keys were used (Mikšić, 1962; Ballerio et al., 2010).

Results and Discussion

Trox perrisii (Fairmaire, 1868) is distributed from the Iberian Peninsula to Hungary, but is localized and rarely encountered along its whole range. It is present in Portugal (Grosso-Silva & Serrano, 2000), Spain (Bolaño & Villero, 2006), central and southern France (Paulian, 1959), Germany (Baraud, 1977), Italy (Baraud, 1979; Ballerio et al., 2010), and Hungary (Ádám, 1980; Nádai & Merkl, 2004). Recently it was

also recorded in Bulgaria (Bunaksi, 2000). Additionally, records from Austria, the Czech Republic and Poland are also listed in the Catalogue of Palaearctic Coleoptera (Pittino, 2006). Outside of Europe, it is known only from Algeria (Balthasar, 1936).

Knowledge about the biology of this rare species is still very poor, due to the scarce number of records in general. This stenotopic species frequently inhabits small burrows and hollows, previously occupied by birds (Breljih et al., 2010). In this regard, Paulian (1959) reports its presence in hollow trees inhabited by birds of prey and *Dendrocopos major* (Linnaeus, 1758). Ádám (1980) found this species in the nests of *Falco vespertinus* Linnaeus, 1766 and *Falco tinnunculus* Linnaeus, 1758. In general, this species is most commonly encountered using light traps (e.g. Nádai & Merkl, 2004; Bolaño & Villero, 2006).

How poorly this species is known in the Balkans for the past several decades is shown by the fact that Mikšić (1970) did not even consider the occurrence of this species in ex-Yugoslavia, and did not include it in the possibly present species list. Only a few years ago was this species found for the first time at several localities in Slovenia, filling in the distribution gap between Italy and Hungary (Breljih et al., 2010). This record from Mt. Ivanščica represents the first record of this species in Croatia, and additionally extends the known range towards the southeast. The record from Croatia was expected to some extent, especially due to the many records of *T. perrisii* on the Hungarian side of the border between the two countries (Nádai & Merkl, 2004).

Based on the available sources, ten species of Trogidae have been recorded in Croatia so far (Table 1). Some species like *Trox hispidus* Pontoppidan, 1763, *Trox sabulosus* (Linnaeus, 1758) and *Trox scaber* (Linnaeus, 1767) are present in almost all of Croatia, and can be regarded as common.

The record of *T. cadaverinus* Illiger, 1801 is based on the record of Depoli (1938). This species was never confirmed afterwards, and was listed as doubtful by Mikšić (1970) in his catalogue of Yugoslavian Lamellicornia. However, in the Catalogue of Palaearctic Coleoptera (Pittino, 2006), the occurrence of this species in Croatia was noted. The presence of *Trox perlatus* Goeze, 1777 was mentioned from the locality Srijemska Mitrovica, but was also labelled as doubtful (Mikšić, 1962; Mikšić, 1970). Only historical records from the middle of the 19th century exist, for Slovenia (Breljih, 2010). It is possible that this species occurs in the western part of Croatia, but its presence still needs to be confirmed.

Three species not mentioned by Mikšić (1970), but recorded for Croatia are *Trox litoralis* Pittino, 1991, *Trox sordidatus* Balthasar, 1936 and *Trox niger* Rossi, 1792. Due to the scarce data and rare finding of hide beetle species, additional surveys are needed in order to expand the knowledge of their distribution range, biology and habitat preferences. An important contribution to the knowledge of Trogidae in Croatia would also be provided by an overview of the entomological collections in Croatia, which will be done in the near future.

Tab. 1. List of species of Trogidae family occurring in Croatia and neighbouring countries.

Species	Croatia	Slovenia	Hungary	Bosnia & Herzegovina	Serbia	Montenegro
<i>Trox cadaverinus</i> Illiger, 1801	?		+			
<i>Trox eversmanni</i> Krynický, 1832	+		+			
<i>Trox hispidus</i> Pontoppidan, 1763	+	+		+	+	+
<i>Trox litoralis</i> Pittino, 1991	+	+		+		+
<i>Trox niger</i> Rossi, 1792	+	+	+	+	+	+
<i>Trox perlatus</i> Goeze, 1777	?	+				
<i>Trox perrisii</i> Fairmaire, 1868	+	+	+			
<i>Trox sabulosus</i> (Linnaeus, 1758)	+	+	+	+	+	+
<i>Trox scaber</i> (Linnaeus, 1767)	+	+	+	+	+	+
<i>Trox sordidatus</i> Balthasar, 1936	+					

Legend: + valid occurrence in the country; ? uncertain or unconfirmed record.

With ten recorded species so far, Croatia has more species of hide beetles than the neighbouring countries (Tab. 1). Overviews exist only for Slovenia (Brelj et al., 2010),

Hungary (Nádai & Merkl, 2004) and Bosnia and Herzegovina, while the records for other countries were based primarily on the Catalogue of Palaearctic Coleoptera (Pittino, 2006). In that respect, an additional note about Bosnia and Herzegovina is needed. The recent overview of this family in B&H (Lelo, 2006), was based solely on literature data, but did not include some recently published species records (e. g. records from Pittino, 1991), and thus does not reflect the complete knowledge about this family in the country. Due to that, additional records could be expected in Bosnia and Herzegovina, as well as Serbia and Montenegro.

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