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First record of *Attagenus smirnovi* (Zhantiev, 1973) in Bulgaria (Insecta: Coleoptera: Dermestidae)

TSVETOMIR TSVETANOV[1], ANDREAS HERRMANN[2]

[1]*Lyulin 10, 1335 Sofia, Bulgaria, tsv_tsvetanov@abv.bg*
[2]*Bremervörder Straße 123, D-21682 Stade, Germany, herrmann@coleopterologie.de*

Abstract. The dermestid beetle *Attagenus smirnovi* (Zhantiev, 1973) is recorded for the first time in Bulgaria.

Key words: invasive species, beetles, Bulgaria.

Introduction

Attagenus smirnovi (Zhantiev, 1973) originated from tropical Africa (Šefrová & Laštůvka 2005), where it manifests itself as a nidicolous species, developing in the shelters of bats and bird nests (Zhantiev 1976). In Europe the species was observed for the first time in Moscow in 1961 (Zhantiev 1973) and it was described by Zhantiev (1973). In the first reports from Europe in the 1960s it was identified under various names, but after 1974 it has been identified as *Attagenus smirnovi* (Hansen *et al.* 2012). The species started to spread throughout Europe, including Sweden (Hagström 1962, Lundberg 1979), Denmark (Hansen 1965, Arevad 1975), the United Kingdom (Peacock 1979), Finland (Hämäläinen 1980), Norway (Ottesen 1980), Germany (Naumann 1986), the former Czechoslovakia (Černý 1988), Switzerland (Kiener, 1995), Latvia (Barševskis 2001), Belarus (Barševskis 2001), Poland (Ruta *et al.* 2004), Austria (Háva 2007), Ireland (Háva 2007), Romania (Háva 2007), Belgium (Bruge 2008), France (Callot 2009), Lithuania (Barševskis 2009), Estonia (Süda 2009), Hungary (Merkl *et al.* 2010), and Ukraine (Pawłowski 2012). Recently in Europe *Attagenus smirnovi* was reported from Slovenia (Háva & Herrmann 2019) and Italy (Guariento *et al.* 2019).

The species develops on different kinds of organic matter containing animal proteins and starch, such as hairs, wool, skin and feathers (Hansen *et al.* 2012). The larvae feed on materials containing both animal protein and starch such as those found in organic debris in voids in constructions (Hansen *et al.* 2011). Because of this peculiarity, the species can reach pest status in households, especially in museums where collections might be damaged (Querner *et al.* 2013, Pinninger 2013). The adults are aphagous (Zhantiev 1976).

In Europe *Attagenus smirnovi* mainly occurs in heated buildings, such as households and museums, because it is not winter resistant. However, a few outdoor sightings and its good flying ability indicate that the species does disperse in warmer months also outside buildings. The good flying ability also allows the species the spread from house to house on its own (Kiener 1995). Also a single male specimen was found in a nest of *Formica rufa* (Sazhnev & Turbanov 2019).

Attagenus smirnovi has one to two generations per year in indoor premises. Adult beetles are also attracted to light. They are often found in numbers in light fittings and have been observed flying during the months of April to August. Under optimal conditions (24 °C and relative humidity [RH] 70–80%), the adult lives about 20 days. Each female produces 30 to 70 eggs. The incubation time for eggs is 10-14 days (Hansen *et al.* 2011).

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The larvae can grow up to 10 mm in length. Body with mostly recumbent pubescens, elongate, cylindrical. Abdomen with a caudal brush of extremely long, slender setae. Mandible with a brush of setae on inner edge near base and with a pointed membranous prostheca. Spiracular sclerites at posterior corners of abdominal tergites each with 3 prominent setae. Abdominal sternites 2-9 each with an irregular row of about 6 stouter, more erect setae. Tergites yellowish brown with light yellowish brown lanceolate and linear setae on disc. Caudal setae short, about length of 3 abdominal segments (Peacock 1993).

The adult *Attagenus smirnovi* is dark brown to black with yellow pubescence, elytra red-brown in males, usually paler yellow-brown in females. Antennae and legs red-brown or yellow-brown. Male antennomere 11 slightly curved at the base, ca. four times longer than wide and ca. four times as long as the combined length of antennomeres 9 and 10. Female antennal club elongate, last antennomere not modified, ovoid. Propleurotrochantin exposed. Anterior ventral carina of mesofemur prominent and sharp, posterior carina weakly developed. Metacoxa reaching metepimeron. Body length: 2,3–4,0 mm (Halstead 1981, Kalik 1992, Peacock 1993).

Results and Discussion

Material: Sofia, Obelya district, 05.11.2022, 1 ♀ ex., obs. T. Tsvetanov, leg. T. Tsvetanov, in the Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, Sofia.

On 05.11.2022 the first author observed a single specimen of *Attagenus smirnovi* in an apartment in Obelya district, Sofia. The specimen is deposited in the Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, Sofia and photographed (Fig. 1).

Since *Attagenus smirnovi* is a potential pest, especially for museums and collections, records from other countries from Balkan Peninsula can be expected.

Fig. 1. *Attagenus smirnovi* (Zhantiev, 1973), Obelya district, Sofia, 595 m a.s.l., 05.11.2022, obs. T. Tsvetanov.

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