First records of *Eledonoprius serrifrons* (Reitter, 1890) from Greece and *Eledona hellenica* Reitter, 1885 from Bulgaria (Coleoptera: Tenebrionidae): a contribution to the Bolitophagini of southern Balkan Peninsula with a special reference to Greece

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**Abstract.** The Western Palaearctic representatives of the tribe Bolitophagini comprise of seven species in three genera. Research on Bolitophagini of Greece has been minimal reporting on the presence of four species. In this paper, the rarely collected *Eledonoprius serrifrons* (Reitter, 1890) is recorded for the first time from Greece, while the Balkan species *Eledona hellenica* Reitter, 1885 is proved from Bulgaria for the first time. Material from the collection of the first author alongside a literature survey provide a distributional overview of the Greek Bolitophagini, while raising the number of known to Greek species within the tribe to five. Ecological remarks and the conservation of these two species are briefly discussed.

**Key words:** Tenebrioninae, Bolitophagini, mycetophagous darkling beetles.

**Introduction**

The darkling beetle tribe Bolitophagini includes 20 genera distributed around the world [Bouchard et al., 2021]. In the Western Palaearctic, the tribe is represented only by three genera including seven extant species, *Bolitophagus interruptus* Illiger, 1800, *B. reticulatus* (Linnaeus, 1767), *B. subinteger* Reitter, 1896, *Eledona agricola* (Herbst, 1783), *E. hellenica* Reitter, 1885, *Eledonoprius armatus* (Panzer, 1799), and *E. serrifrons* (Reitter, 1890) [Iwan et al., 2020].

Up to date, four of the mentioned species have been recorded from Greece, excluding *Bolitophagus interruptus*, *B. subinteger* and *Eledonoprius serrifrons* [Iwan et al., 2020]. In particular, *Bolitophagus reticulatus* and *Eledona agricola* are widely distributed in Europe [Iwan et al., 2020], while *E. hellenica* has been recorded from Greece and the European Turkey [Schawaller, 2002]. Although the species appears in the catalogue of Spanish Tenebrionidae, these records are considered doubtful [Fuenmayor y Morales, 1935; Español, 1985; Carpaneto et al., 2013]. In addition, the species is mentioned as present in Croatia only in the Fauna Europaea [Fattorini, 2013].

*Eledonoprius armatus* seems to be widely distributed in the Western Palaearctic extending its distribution from Azerbaijan to the Iberian Peninsula and Scandinavia towards the north [Kompanetsve, Tschigel, 2000; Carpaneto et al., 2013]. In addition, it has been considered as an "Urwald relict species", i.e. associated with old-growth forests [Müller et al., 2005]. Regarding *E. serrifrons*, known localities were elegantly presented in Sivilov and Cvetkovska-Gorgievska [2014], including seven countries. *Eledonoprius serrifrons* was first described from Azerbaijan [Reitter, 1890] followed by records from Italy [Schawaller, 2002] and Spain [Castro Tovar et al., 2008]. Follow-up studies detected the species in France [Corsica] [Soldati et al., 2009] and Armenia [Abdurakhmanov, Nabozhenko, 2011] while Syria was later added to the species’ distribution list alongside further distributional records from Italy and Spain [Carpaneto et al., 2013]. This division in the known distributional range of *E. serrifrons* [Carpaneto et al., 2013] was subsequently bridged by records from Bulgaria [Sivilov, Cvetkovska-Gorgievska, 2014].
Material and methods

Locality data on Greek Bolitophagini were extrapolated and corrected from the available scientific literature as well as specimens deposited in the private collection of the first author. The literature records are summarized in Table 1.

**Bolitophagus reticulatus** (Linnaeus, 1767)

**Material.** 1 specimen, Greece, Thessaly, Karditsa, Oxya, 39.3°N / 21.5°E, 1500 m, under the bark of rotting Fagus sylvatica, 24.06.1987 (G. Kakiopoulos); 1 specimen, Greece, Epirus, Ioannina, Grammos, near Kamenik peak, 40.20°N / 20.71°E, 1400 m, in Fagus sylvatica forest, 8.06.2019 (G. Kakiopoulos).

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**Eledona agricola** (Herbst, 1783)

**Material and observations.** 7 specimens, Greece, Larissa, Stomio, Pineios river estuary, 39.87°N / 22.73°E, 5 m, on fungus growing on the bark of Populus alba, 3.12.1995 (G. Kakiopoulos); 5 specimens, Greece, Epirus, Plikati, Grammos Range, near Kamenik peak, 40.29°N / 20.77°E, on fungus growing on the bark of Salix sp., 13.06.1996 (G. Kakiopoulos); observed specimen, Greece, Attica, Kaza, 38.18°N / 23.36°E, 600 m, on fungus growing on the bark of Salix sp., 1998 (G. Kakiopoulos); observed specimen, Greece, Western Greece, Ilia, Foloi-Koumani forest, 37.79°N / 21.75°E, on fungus growing on the bark of Quercus sp., 27.11.2005 (G. Kakiopoulos).

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**Eledona hellenica** Reitter, 1885

**Material and observations.** 1 dead specimen, Greece, Central Greece, Euboea Island, Rouklia, Ochi Mt., 38.0°N / 24.4°E, on fungus growing on the bark of Platanus orientalis, date unknown (G. Kakiopoulos); 4 specimens, Greece, Epirus, Ioannina, Vrosina, 39.64°N / 20.51°E, 600 m, on fungus growing on the bark of Quercus sp., 5.01.1992 (G. Kakiopoulos); 2♂ (private collection of H. Brustel, Toulouse, France), Greece, Central Greece, Euboea Island, Roukla, Ochi Mt., 38.0°N / 24.4°E, 500 m, on fungus growing on the bark of Quercus sp., 19.11.2011 (G. Kakiopoulos); 6 specimens, Bulgaria, Malko Tarnovo, near Grammatikovo vill., 42.0°N / 27.6°E, and more than 50 individuals observed on large fungus (45 cm in diameter) growing on the bark of Quercus sp., 2.07.2004 (G. Kakiopoulos).

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**Eledonoprius armatus** (Panzer, 1799)

**Material.** 1 specimen, Greece, Western Greece, Aitoloakarnania, Arakynthos, 1 km S of Ellinika vill., 38.47°N / 21.41°E, on fungus growing on the bark of Quercus sp., 27.11.2005 (G. Kakiopoulos).

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**Eledonoprius serrifrons** (Reitter, 1890)

**Material.** 1 specimen, Greece, Western Greece, Aitoloakarnania, Arakynthos, 1 km S of Ellinika vill., 38.47°N / 21.41°E, on fungus growing on the bark of Quercus sp., 27.11.2005 (G. Kakiopoulos).

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Discussion

Our literature survey shows that the tribe Bolitophagini has not been adequately researched in Greece, with records of species being scarce [Oertzen, 1886; Kühnelt, 1965; ...]
Fig. 1. Known distribution of Greek Bolitophagini including new records of *Eledona hellenica* from Bulgaria and *Eledonoprius serrifrons* from Greece. Records of Oertzen [1886] and Legakis [1990] were not mapped due to the large spatial scale of given localities. The record of *Bolitophagus interruptus* from Bulgaria was included in the map due to its close proximity to Greece. The inset shows a specimen of *Eledonoprius serrifrons* collected from Ellinika, Greece (private collection of G. Kakiopoulos).
distribution and conservation status of Bolitophaginini both on European as well as on a national levels. Considering the utilization of rotting wood, an important micro-habitat for saproxylic beetles, management actions against the major threats to saproxylic beetles (e.g. logging, tree loss and wood harvesting; urbanisation and tourism development; increase in fire frequency/intensity) [Cálix et al., 2018] could potentially benefit also rare and the range restricted species of Bolitophaginini such as Eledona hellenica and Eledonoprius serrifrons.

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