

Short scientific note

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***Eidophelus caucasicus* (Lindemann, 1877) a bark beetle confirmed for the Italian fauna after almost 100 years (Coleoptera: Curculionidae, Scolytinae)**

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Abstract

A monitoring project focused on saproxylic beetles of “Sasso Fratino Integral Nature Reserve” (Bagno di Romagna, FC), allowed to confirm the presence of the bark beetle *Eidophelus caucasicus* (Lindemann, 1877) for the Italian fauna. This species was previously known only for “Venezia Tridentina” (corresponding to the current Trentino-South Tyrol) from an old record, never confirmed for Italy since.

Key words: Curculionidae, Scolytinae, monitoring, distribution, Integral Nature Reserve.

Introduction

The ancient beech forest of “Sasso Fratino”, the first Integral Nature Reserve established in Italy in 1959 (Bottacci 2009), has become part of the UNESCO World Heritage list in 2017. Carabinieri Biodiversity Department of Pratovecchio (the managing body of the Reserve) and Carabinieri Biodiversity Department of Verona – Carabinieri National Centre for Biodiversity (CNCB) “Bosco Fontana”, started a monitoring project to investigate the saproxylic beetle community of “Sasso Fratino” in cooperation with Carabinieri Biodiversity Department of Belluno and with the LIFE ESC360 project. The complete results of this monitoring project will be published in due course. In this preliminary note, interesting data on four specimens of the bark beetle *Eidophelus caucasicus* (Lindemann, 1877) are presented.

Bark beetles, being able to develop on dead, dying and also on healthy plants (Ruzzier et al. 2023), are a constant presence in forest ecosystems and their fundamental ecological role in decomposition processes of dead wood is quite well known, as well as their reputation of forest

pests. Up to date, 163 bark beetle species are known for Italy, according to Dal Cortivo et al. (2021) updated by Colombari et al. (2022) and Marchioro et al. (2022). Among them, *E. caucasicus* was generally reported for “Italien” by Reitter (1885), a record repeated by Porta (1932). Luigioni (1929) gave a geographically more precise information on the presence of the species in Italy, indicating as distribution “Ven.[ezia] trid.[entina]”: a then region in northern Italy, corresponding to the current Trentino-South Tyrol. Thereafter, *E. caucasicus* had not been reported from Italy.

Study Area

The Sasso Fratino Integral Nature Reserve is a low altitude portion of the ancient forest, where beech is mixed mainly with oak, silver fir and linden, between 820 and 888 m a.s.l. This is one of the few almost natural forests in Italy, where very limited timber harvest, the most recent of which had been carried out in 1934-1943. Thereafter the forest developed almost without anthropic activities (Bianchi et al. 2011).

Material and methods

The specimens were collected using flight intercept window traps baited with 70% ethanol. The traps had been hung from beech trees and were exposed from April to October in 2021; the contents of the traps were collected approximately every two weeks by volunteers of the LIFE ESC360 project. The identification of specimens was made using a Nikon SMZ1500 stereoscopic zoom microscope, with a range of magnifications from 7,5x to 225x. Specific identification was made according to Balachowsky (1949) and Pfeffer (1994).

The body length of specimens is measured from the apical margin of pronotum to the apical margin of elytra. The studied material is deposited in the Carabinieri Biodiversity Department of Verona - Carabinieri National Centre for Biodiversity “Bosco Fontana” entomological collection.

Results

GBIF <https://www.gbif.org/species/5022046>

Material examined

Two specimens (1.46 mm – 1.64 mm) in window flight trap BW6

- a) Scientific name: *Eidophelus caucasicus* (Lindemann, 1877); continent: Europe; country: Italy; countryCode: IT; stateProvince: Emilia Romagna; country: Forli-Cesena; municipality: Bagno di Romagna; locality: Poggio della Cornioleta - R.N.I. Sasso Fratino; decimalLatitude: 43.84164; decimalLongitude: 11.82788; geodeticDatum: WGS84; eventDate: 2021-06.16/2021-06.30; IndividualCount: 2; lifeStage: adult; recordedBy: volunteers LIFE ESC360; identifiedBy: Marialuisa Dal Cortivo. One specimen (1.72 mm; Fig. 1) in window flight trap BW1
- b) Scientific name: *Eidophelus caucasicus* (Lindemann, 1877); continent: Europe; country: Italy; country-



Fig. 1 –*Eidophelus caucasicus* (Lindemann, 1877) (1,72 mm).

Code: IT; stateProvince: Emilia Romagna; country: Forli-Cesena; municipality: Bagno di Romagna; locality: Poggio della Cornioleta - R.N.I. Sasso Fratino; decimalLatitude: 43.84361; decimalLongitude: 11.83067; geodeticDatum: WGS84; eventDate: 2021-08.24/2021-09.08; IndividualCount: 1; lifeStage: adult; recordedBy; volunteers LIFE ESC360; identifiedBy: Marialuisa Dal Cortivo.

One specimen (1.68 mm) in window flight trap BW8

- c) Scientific name: *Eidophelus caucasicus* (Lindemann, 1877); continent: Europe; country: Italy; countryCode: IT; stateProvince: Emilia Romagna; country: Forli-Cesena; municipality: Bagno di Romagna; locality: Poggio della Cornioleta - R.N.I. Sasso Fratino; decimalLatitude: 43.83976; decimalLongitude: 11.82616; geodeticDatum: WGS84; eventDate: 2021-07.28/2021-08.09; IndividualCount: 1; lifeStage: adult; recordedBy; volunteers LIFE ESC360; identifiedBy: Marialuisa Dal Cortivo.

Discussion and conclusion

According to Alonso-Zarazaga et al. (2023), the species is distributed in Europe and in Azerbaijan, Iran and Turkey. Marković & Stojanović (2000) first found the species in Yugoslavia (current Serbia) on *Tilia* sp. (Malvaceae), Doychev & Ovcharov (2006) found it in the Bulgarian Rhodopes on *Tilia tomentosa* Moenchand. Nikulina et al. (2015) firstly reported the taxon for Carpathians on *Tilia dasystyla* Steven.

Publicly available records of *Eidophelus caucasicus* can be accessed via GBIF <https://www.gbif.org/species/5022046>.

The above data confirm the presence of *E. caucasicus* in Italy after almost a hundred years (Luigioni 1929). The presence of linden (*Tilia cordata* Mill. and *T. platyphyllos* Scop.) and that of *Ulmus glabra* Huds. (Ulmaceae) inside the Sasso Fratino nature reserve (Bottacci 2009) is consistent with Pfeffer's (1995) findings that *E. caucasicus* reproduces on *Tilia cordata*, *T. platyphyllos*, *T. rubra* (= *T. platyphyllos*), *T. tomentosa* and *U. glabra*.

Even though a large number of beetle surveys have been conducted in Italy in recent decades, like in other state nature reserves (e.g. Audisio et al. 2008; Sitzia et al. 2015), in other natural protected areas (e.g. Bellò et al. 2023; Bellò & Ruzzier 2019) or in urban areas (e.g. Colombari et al. 2022), it is interesting to note that in none of them *E. caucasicus* has been found. The records reported here are from one of the few near natural forests in Italy, which was left for many decades almost without anthropic activities (Bianchi et al. 2011) demonstrating once more the importance of protecting and preserving the ancient forests, which are vital for the conservation of our country's biodiversity heritage.

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