

Research article

The rediscovery of *Isolabella graeca* Verhoeff, 1902 (Dermaptera, Spongiphoridae) in Greece after 123 years

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Abstract: The first confirmed Greek records of *Isolabella graeca* Verhoeff, 1902 since the species' original description is reported. A female and a male were collected in the Parnonas mountain range, providing the first verified Greek material in 123 years and clarify a long-standing biogeographic uncertainty. A short description of the specimens is provided, along with a discussion of its taxonomic status in relation to *Pseudisolabis kosswigi* Burr, 1947.

Keywords: Dermaptera, faunistics, Greece, taxonomy

Introduction

Isolabella graeca Verhoeff, 1902 is a rarely collected Dermaptera that was originally assigned to the family Cheliduridae (Verhoeff, 1902), later to Carcinophoridae (Harz & Kaltenbach, 1976), and finally to Labiidae (Steinmann, 1989), which is now Spongiphoridae (Engel & Haas, 2007). The species was originally described from a single male specimen reported only as originating from “Graecia, Coll. Stein” without specific locality information (Verhoeff, 1902). *Pseudisolabis kosswigi* Burr, 1947 described from Turkey was transferred to *Isolaboides* Hincks, 1958 and later synonymised with *I. graeca* (Hincks, 1958; Harz, 1975; Harz & Kaltenbach, 1976). Due to the absence of any verified Greek material after 1902, *I. graeca* was generally regarded as an Anatolian endemic, with Harz & Kaltenbach (1976) giving the distribution of the genus *Isolabella* Verhoeff, 1902 in India, Lebanon and Turkey.

Steinmann (1983) stated that the synonymy with *Isolabella* was incorrect and treated *I. kosswigi* and *I. graeca* as two separate species belonging to different subfamilies, Isolaboidinae and Labiinae respectively (Steinmann, 1989). This position was followed by Anlaş & Kočárek (2012), with the reasoning being that Harz & Kaltenbach's record of *I. graeca* from Denizli, Turkey, was based on the type specimens of *I. kosswigi*, and that their description of *I. graeca* was

consequently confused with that of *I. kosswigi* due to the then-accepted synonymy. Note that Harz concluded the synonymy after the examination of the remains of the holotype of *I. graeca* and a specimen from Turkey (Harz, 1975). Later Turkish authors also used *I. kosswigi* as a valid species, reporting it from several provinces of Turkey (Özgen et al., 2016; Örgel et al., 2020).

Herein the first confirmed occurrences of *I. graeca* in Greece, 123 years since its original description, are provided, while the first female from Greece is presented.

Materials and methods

On 15 of November 2025, two individuals, a female (Fig. 1A) and a male (Fig. 1B) Dermaptera were collected by the author under stones in two nearby montane localities of the Parnonas mountain range, Peloponnese. The female was collected in a small glade surrounded by *Abies cephalonica* Loudon, 1838, at 1465 m altitude (37°15'18.9"N 22°36'17.2"E), 4 km west of Kastanitsa, while the male was collected on a man-made plateau surrounded by (mostly) planted *Pinus nigra* J.F. Arnold, 1785, at 1395 m altitude (37°15'33.3"N 22°35'14.3"E), 5.5 km west of Kastanitsa. The male specimen was identified as *I. graeca* using the original description by Verhoeff

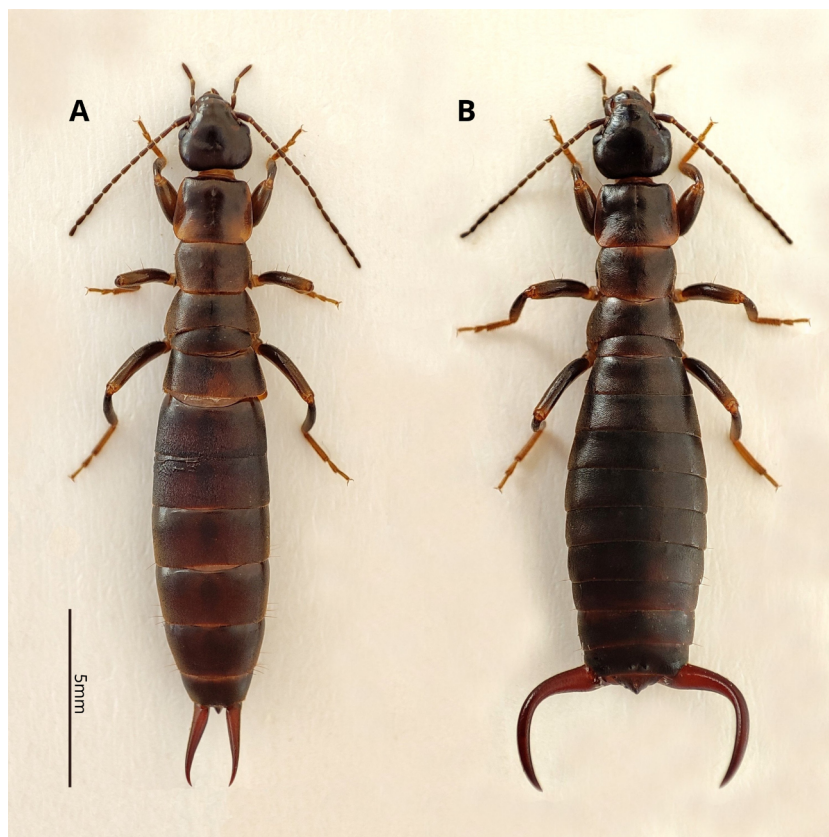


Fig. 1. Habitus of *Isolabella graeca* Verhoeff, 1902: A – female dorsal view; B – male dorsal view.

(1902), while the female was obviously of the same species. The two specimens are dry mounted on paper boards (the genitalia are preserved in glycerol), stored in the authors' collection.

Results and discussion

Both specimens are fully apterous, characterised by black colour, 17-segmented antennae, and dark red cerci. Orange markings are present on parts of the legs, the edges of the thorax, and as a post-ocular spot (Fig. 1). An exceptional post-mortem colour change was recorded in the female, which darkened to brown (Fig. 1A) before returning to black after 24 hours. The male measure 16.5 mm, while the female is slightly longer at 17.5 mm, both measurements excluding cerci.

The head is smooth, with few, short, erect setae, a longitudinal furrow on the vertex and faint transverse furrows toward the eyes. The pronotum is smooth, with few, short, erect setae, trapezoidal, possesses a distinct median furrow, and measures 1.8 mm in length in both sexes, although it is broader in the male

(measuring 2.4 mm) than in the female (measuring 2.2 mm). The mesonotum, the metanotum and the legs, are covered by pubescence, with a few, large erect setae. Note that the hind right leg of the male specimen, possesses only two tarsi (Fig. 1B).

The abdomen is covered by pubescence, with a few, large erect setae, and is densely and finely punctured. The male possesses terga that are distinctively shorter and broader. The first abdominal tergum is very small and is even more reduced in the male. The eighth tergum of the female is simple and narrow, while the tenth tergum of the male has a median longitudinal sulcus, with a small tubercle on each side of it towards the apex. The pygidium projects in the middle, a feature that is more pronounced and forms an obtuse angle in the male, whereas in the female it is short and pointed.

The cerci exhibit a significant sexual dimorphism. In the male, they are symmetrical, strongly curved, measure 3.6 mm in length, and are slightly covered by pubescence along the outer margin. They are slightly flattened on the inner and ventral sides and have a unique orientation with the left cercus pointing

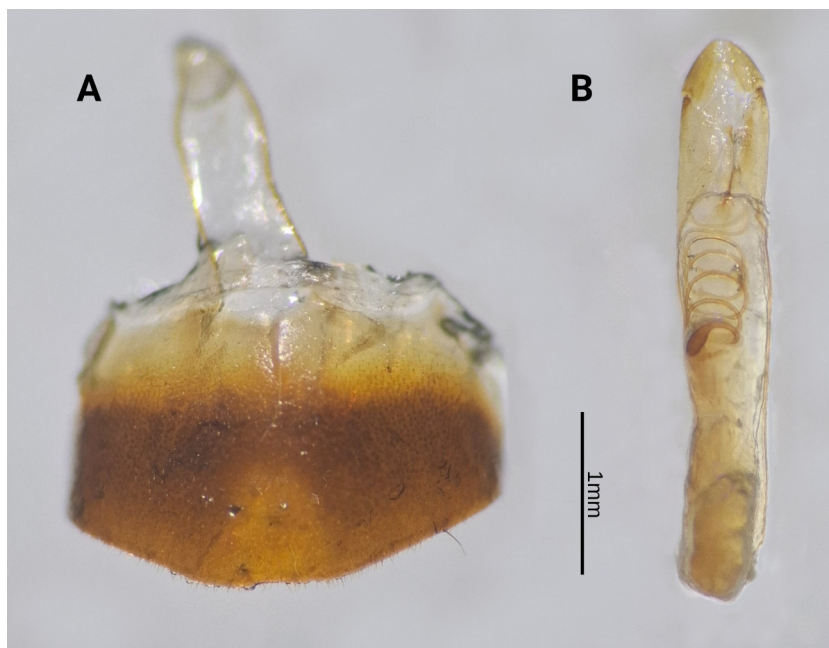


Fig. 2. *Isolabella graeca* Verhoeff, 1902 male: A – penultimate sternite, ventral view; B – genital armature, ventral view.

dorsally and the right ventrally. In contrast, the female's cerci are straighter and slenderer, the apex tapering and bending inward, dorsally pointing, measure 2.3 mm, and are completely covered by pubescence. Penultimate (9th) sternite (Fig. 2A) of male broader than long, hind margin broadly rounded. Male genitalia (Fig. 2B) with parameres almost pointed at the tip; virga strongly sclerotised with 7 spiral coils and a strongly sclerotised vesicle-like cyst.

In his work, Steinmann (1989) described the genitalia of *I. graeca* as being of Labiidae-type, describing the external parameres obtuse and that the virga lacks a basal vesicle, without any mention of a coiled or spiral structure. However, in the original description by Verhoeff (1902), the external parameres are described as being almost pointed at the tip and a highly specialised virga with 8 screw-like coils originating from a “distinct, robust vesicle”. The examined male here (Fig. 2B), possesses 7 spiral coils and a well-defined heavily sclerotised, vesicle-like cyst at its base, alongside almost pointed parameral tips, and they are identical with the illustrations of Burr (1947) in the original description of *I. kosswigi* and later Harz & Kaltenbach (1976). Furthermore, the unusually elongated and distinctive appearance of the tenth tergite figured by Steinmann (1989) is clearly an artifact; due to the broken abdomen of the severely damaged holotype (missing terga 5 to 8), the entire

structure of the tenth tergite was artificially exposed, causing its hidden anterior base and lateral apodemes to appear as exaggerated structural margins that do not reflect the natural morphology of an intact specimen.

The key diagnostic characters provided by Anlaş & Kočárek (2012) to separate the males of the two supposed species, and place them in different subfamilies in the text, are not applicable in the examined male from Greece. They defined *I. graeca* by a “trapezoidal, prominent” pygidium and an “incised” hind margin on the ultimate tergite, while *I. kosswigi* by a “trigonal medial projection, invisible from dorsal view” and the ultimate tergite with a straight hind margin. However, examination of the male *I. graeca* from Greece reveals discrepancies on both key characteristics. The pygidium is consistent with Verhoeff's (1902) description of a “hump-like bump,” forms a prominent medial obtuse angle, a shape incompatible with a simple trapezoid, while the hind margin of the ultimate tergite in the Greek specimen is relatively straight, not incised. These observations demonstrate that the defining characters in the key do not accurately describe the true *I. graeca*. Furthermore, it should be noted that no information on male genital morphology is provided. Given that the overall morphology of the Greek specimen agrees closely with published Turkish material (Burr, 1947; Harz & Kaltenbach, 1976) and

does not fit the contrasting characters proposed in the key, the separation of the two nominal taxa in different subfamilies is not currently supported. Direct comparative examination of Greek and Turkish specimens will be necessary to resolve their status, but based on the available evidence, *I. kosswigi* is treated herein as a junior synonym of *I. graeca*. Even if the two species are ultimately confirmed to be distinct, their morphology nonetheless indicates placement within the same genus.

In Turkey, *I. graeca* (as *I. kosswigi*) is a widespread species found across a variety of elevations, from 300 m to over 2100 m (Burr, 1947; Anlaş et al., 2010; Anlaş & Kočárek, 2012; Örgel et al., 2020). The rediscovery of the species in Greece, at elevations of 1395 m and 1465 m in Mount Paronassos, falls well within this range. However, its apparent rarity in Greece is notable. This disjunct distribution pattern can probably be explained that either the species exists in Greece as a rare, localised, and potentially relict population at the periphery of its range, or its perceived rarity is an artifact of insufficient field research targeting its specific microhabitats in the country, or an incomplete sampling of the Greek fauna in general.

Conflicts of interest

No potential conflict of interest has been reported by the author, reviewers, or subject editor.

Author's contributions

(using [CrediT](#))

Gastouniotis Georgios: conceptualisation, data curation, formal analysis, investigation, methodology, resources, visualisation, writing—original draft.

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