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# *Anthaxia (Anthaxia) amandae* (Coleoptera: Buprestidae: Buprestinae), a new species from Mallorca, Spain

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**Abstract.** A new species, *Anthaxia (Anthaxia) amandae* (Coleoptera: Buprestidae: Buprestinae), from Mallorca, Spain is described. *Anthaxia amandae* belongs to the *A. dimidiata* species group and externally very closely resembles *A. dimidiata* (Thunberg). External and internal features are presented enabling the two species to be differentiated from each other.

**Key words.** Dissection, median lobe, identification, taxonomy, habitus, cryptic species.

**ZooBank registration.** urn:lsid:zoobank.org:pub:62FFA437-8944-4300-9E8D-F71DF1004978

## Introduction

Buprestidae Leach, 1815 contains over 15,500 species, making it the eighth largest beetle family (Imrei et al. 2020). Within the Buprestidae, the very large genus *Anthaxia* Eschscholtz, 1829 contains in excess of 1000 species (Bellamy 2008). *Anthaxia* is split into six subgenera, four of which occur in Spain: *Anthaxia* (35 Spanish species), *Cratomerus* Solier, 1833 (one Spanish species), *Haplanthaxia* Reitter, 1911 (ten Spanish species), and *Melanthaxia* Richter, 1949 (15 Spanish species) (Hanot 2024). Our knowledge of *Anthaxia* spp. from Mallorca is limited; indeed, Hanot (2024) only lists one species known from the Balearic Islands: *A. (Melanthaxia) rugicollis* Lucas, 1846, although the author has found *A. dimidiata* Thunberg, 1789 many times on Mallorca. In the current study, a new species from Mallorca is described belonging to the *A. (Anthaxia) dimidiata* species group (Bílý 1984).

## Materials and Methods

Four specimens were studied. Dissection was carried out under a Brunel BMSL zoom stereo LED microscope and involved hooking out and withdrawing the aedeagus. Habitus images were captured at ×15 magnification using a Canon EOS 2000D camera mounted on the BMSL microscope. Images of aedeagi and the terminal tergite were captured at ×50 magnification using a Canon EOS 1300D camera mounted on a Brunel monocular SP28 microscope. After dissection, for each specimen all body parts were mounted on a card. The antennae were teased out and images were taken at ×50 magnification. All images were fed through Helicon Focus Pro version 8.2.2 focus-stacking software. Measurements were made using DsCap.Ink software version 3.90. Measurements taken:

- Body length (BL): distance from anterior margin of pronotum to the apex of the elytra.
- Body width (BW): maximum distance across the elytra
- Pronotum width (PW): maximum distance across the pronotum
- Pronotum length (PL): midline length of the pronotum
- Paramere length (PaL): distance from the anterior end of the parameres to the apex of the parameres
- Median lobe length (ML): from posterior tip to tip of one anterior stirrup.

Scale bars were added using ImageJ 1.53M (Schneider et al. 2012). A distribution map was generated using SimpleMappr (Shorthouse 2010). All examined specimens are deposited in the Museu de Ciències Naturals de Barcelona (MCNB).

## Results

### *Anthaxia (Anthaxia) amandae* Holloway, new species

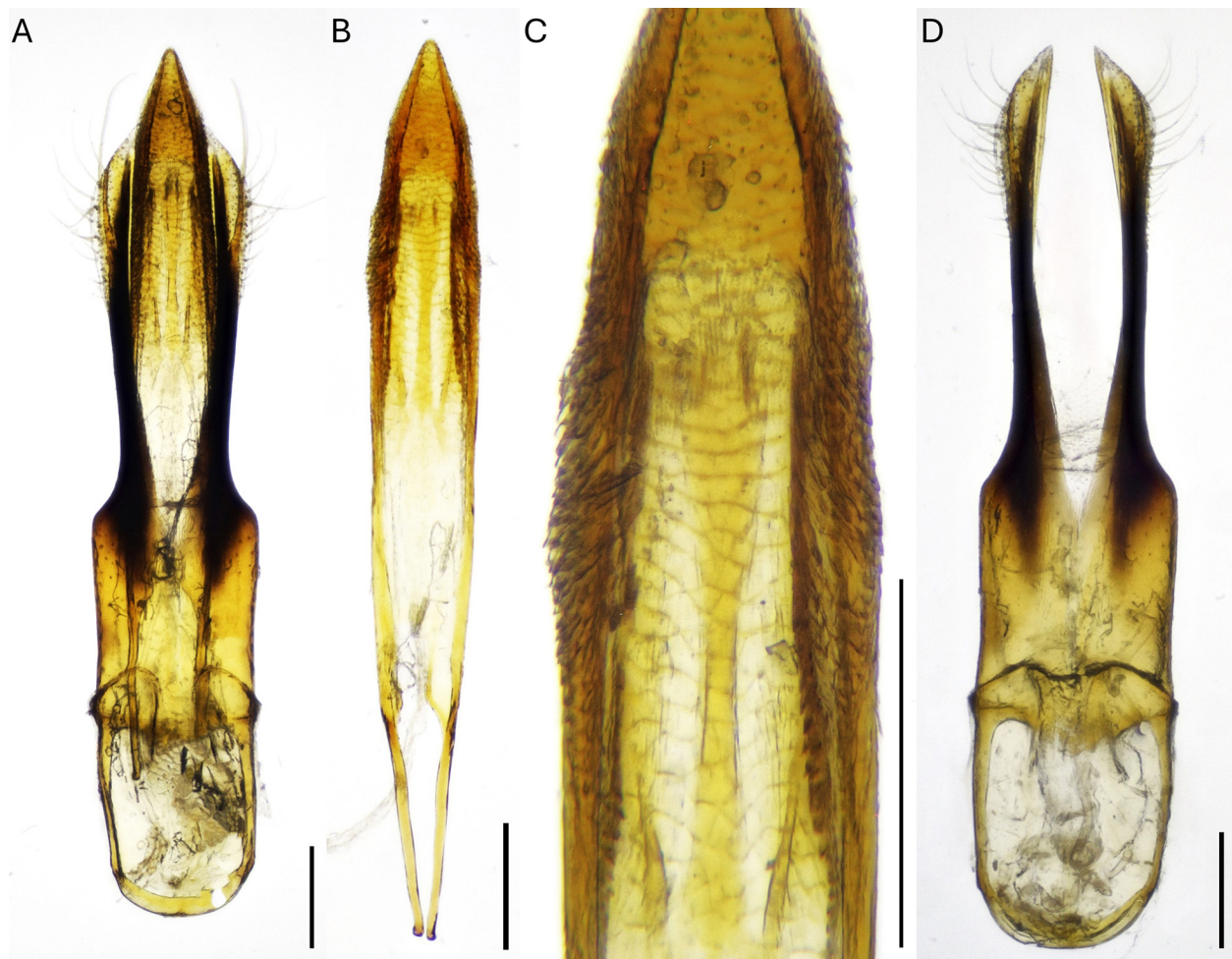
(Fig. 1–2)

**Type specimen. Holotype male.** Spain, Mallorca, Cases de Son Real (39.737, 3.181), 16<sup>th</sup> May 2024 A. Callaghan leg., collected from wild carrot, *Dorcus carota* L. (Museu de Ciències Naturals de Barcelona, MCNB).



**Figure 1.** *Anthaxia amandae* holotype. A) Habitus dorsal aspect (scale bar = 1 mm). B) Antenna (scale bar = 200 µm).





**Figure 2.** *Anthaxia amandae* holotype. A) Aedeagus. B) Median lobe. C) Median lobe illustrating scaly margins. D) Parameres. Scale bars = 200  $\mu$ m in all cases.

**Description, external characteristics.** Holotype *Anthaxia (Anthaxia) amandae* (Fig. 1A) BL = 4.75 mm, BW = 2.03 mm. Medium-sized, slim, parallel-sided (Fig. 1A). Center of frons heavily punctate, glossy black. Lateral and lower margin of frons plus clypeus iridescent golden/copper. From front edge to rear of vertex, iridescent golden through to green and finally to turquoise. Pronotum broad (PW = 2.05 mm, PL = 1.1 mm), rounded lateral margins broadest just before midpoint, slightly sinuous from midpoint back to toothed hind angles. Surface of pronotum heavily sculptured with concentric ridges, shallow punctures and micro sculpture, iridescent golden at margins and along antero-posterior midline. Inside the golden iridescence pronotum black with bluish sheen. Scutellum equilateral triangle, shining purple, densely covered in tiny punctures. Parallel-sided elytra (1.76 times long as wide) heavily rugose and punctured, bases iridescent golden to scutellum and  $\frac{1}{4}$  way down elytral suture. Below and inside iridescent gold elytra deep indigo blue up to including the shoulder calluses. Disc of elytra to halfway intense fuchsia. From the fuchsia to the margins and apices of elytra deep purple tinted fuchsia. Abdominal tergites heavily punctured, intense iridescent blue. Abdominal ventrites heavily sculptured with a network of ridges, shining green, bright fuchsia margins. Antennae (Fig. 1B) serrated, with 11 antennomeres, antennomeres 1–5 shining black, antennomeres 6–11 reddish brown (segments 6 and 7 darker along longest margin). Femora bright, shining green, tibiae and tarsi shining greenish black.

**Description, internal characteristics.** Slim, pointed, pale brown median lobe (Fig. 2B, ML = 1.43 mm) extends well beyond paramere tips (Fig. 2A). Median lobe margins heavily scaled  $\frac{1}{4}$ – $\frac{1}{2}$  mm from posterior tip (Fig. 2C).

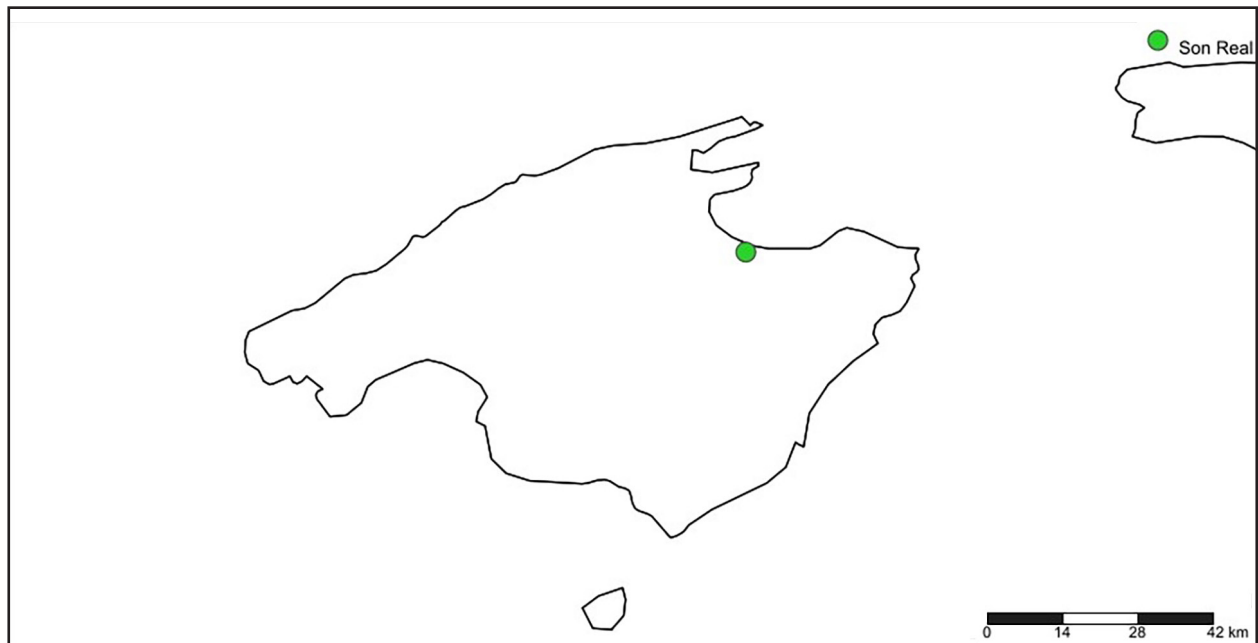


Figure 3. Map of Mallorca showing point of collection of holotype.

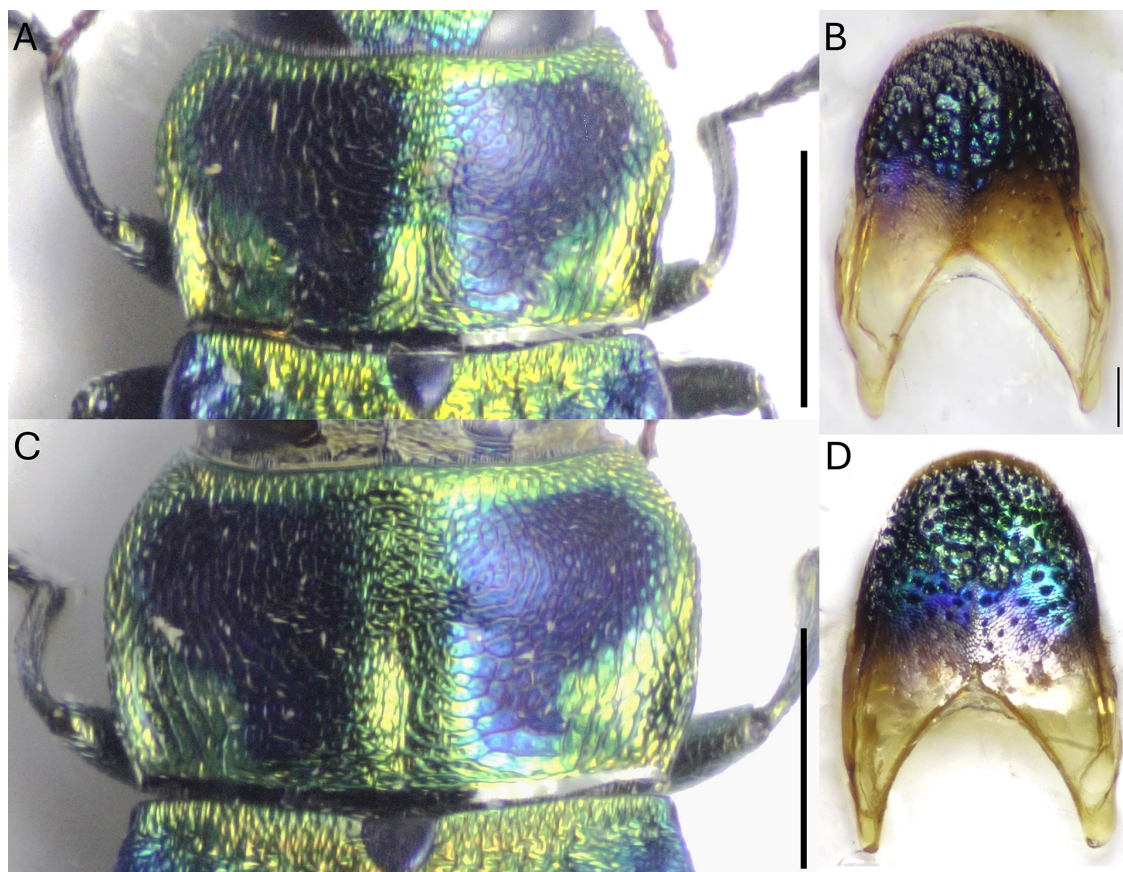


Figure 4. *Anthaxia amandae*. A) Pronotum (scale bar = 1 mm). B) Terminal tergite (scale bar = 200  $\mu$ m). *Anthaxia dimidiata*: C) Pronotum (scale bar = 1 mm). D) Terminal tergite (scale bar = 200  $\mu$ m).



Parameres (Fig. 2D, PaL = 1.56 mm) with pale brown anterior half, dark brown, slim posterior lobes. Outer margins of posterior lobes bulge out before sweeping in towards sharp, white apices tilting slightly inwards. Narrowly whitish outer margins at bulge towards posterior tip carrying many long, posterior curved setae.

**Distribution.** *Anthaxia (Anthaxia) amandae* is only known from Mallorca (Fig. 3).

**Etymology.** *Anthaxia (Anthaxia) amandae* is named after Professor Amanda Callaghan, Curator of the Cole Museum of Zoology (REDCZ), University of Reading, UK.

**Differential diagnosis.** *Anthaxia (Anthaxia) amandae* belongs to the *Anthaxia (A.) dimidiata* (Thunberg, 1789) species group as defined by Bílý (1984), and very closely resembles *A. dimidiata*. Externally, the only differences that could be detected were the lateral pronotal margins were more heavily reflexed resulting in slightly deeper outer foveae and slightly more marginal sinuosity down to the posterior corners (Fig. 4A, 4C), and the shape of the terminal tergite (Fig. 4B, 4D). In *A. amandae*, the terminal tergite margins bulge outwards from the anterior horns much more than *A. dimidiata*. Internally, the most obvious differences lie in the shorter extension of the (less heavily scaled) median lobe tip beyond the tips of the parameres in *A. dimidiata* (Fig. 5A, 5B), and the shapes of the posterior tips of the parameres. In *A. amandae*, the paramere outer margins are white from where they sweep outwards before the tips (Fig. 5C), with several long marginal setae at the bulge and many smaller punctures in towards the disc of the paramere tips. The outer margins of the *A. dimidiata* parameres do not bulge out



**Figure 5.** *Anthaxia dimidiata*. A) Aedeagus. B) Median lobe illustrating reduced scales on margins. C–D) Posterior tips of parameres. C) *Anthaxia amandae*. D) *Anthaxia dimidiata*.

before the paramere tips producing a narrower, gradually but only slightly expanding paddle before the posterior tip (Fig. 5D) compared with the broader, more accentuated paddle in *A. amandae*. The very tips of the *A. dimidiata* parameres carry tiny, but obvious extensions.

## Discussion

The discovery of *A. amandae* increases the number of *Anthaxia* species in Spain to 62. Hanot (2024) lists only one *Anthaxia* species from the Balearics, *A. rugicollis*. Hanot's (2024) list is not likely to be complete, at least for Mallorca, as inspection of iNaturalist (2024) reveals seven *Anthaxia* species from Mallorca: *A. confusa* Gory, 1841, *A. croesus* Villers, 1789, *A. dimidiata*, *A. millifolii* (Fabricius, 1801), *A. parallela* Gory and Laporte, 1839, *A. rugicollis*, *A. umbellatarum* (Fabricius, 1787). With *A. amandae*, the Mallorcan list of *Anthaxia* species lies at eight. Three new species of beetles have been discovered from Mallorca in recent years: *Anthrenus amandae* Holloway, 2019, *Globicornis peckhamae* Holloway and Cañada Luna, 2023, and now *Anthaxia amandae*. All three are cryptic species confused with other, more common species, *Anthrenus pimpinellae* (Fabricius, 1775), *G. bifasciata* (Perris, 1866), and *A. dimidiata*, respectively. There is no current information to suggest that these three new species exist beyond Mallorca; in other words, all might be island endemics.

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