

Notes on the presence of *Harpalus luteicornis* (Duftschmid, 1812) (Coleoptera: Carabidae) in Bulgaria

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Abstract. This communication confirms the presence of the ground beetle *Harpalus luteicornis* (Duftschmid, 1812) (Coleoptera: Carabidae) in the Bulgarian fauna.

Key words: carabids, confirmation, distribution update.

Introduction

Bulgarian ground beetles (Coleoptera: Carabidae) are one of the intensively researched groups of animals, and many new species (for the country or for given regions) have been reported in the last years (e.g., Teofilova *et al.* 2020, Teofilova 2025, Migliaccio *et al.* in press).

The most diverse, species-rich, and abundant carabid tribe, in Bulgaria as a whole and in separate regions, is Harpalini Bonelli, 1810, with the genus *Harpalus* Latreille, 1802 being the most rich in species (e.g., Teofilova & Kodzhabashev 2020, Teofilova in prep.). Currently, 56 species of *Harpalus* live in Bulgaria; two (*H. modestus* Dejean, 1829, and *H. serdicanus* Apfelbeck, 1904) are considered doubtful for the country, and four were recently excluded from the species list (Teofilova in prep.). *Harpalus luteicornis* (Duftschmid, 1812) has been mentioned several times from different regions in Bulgaria, up to 1800 m a.s.l. – the Bulgarian Black Sea coast, Eastern Danubian plain, Western and Middle Forebalkan, Western Bulgaria Region, Vitosha, Pirin and Rhodope Mountains and Mesta River Valley (Teofilova in prep.), but after discussions with my carabidologist colleague Dr. Borislav Guéorguiev (National Museum of Natural History, Sofia) regarding its real status, we have reached to conclusion that the species has to be excluded from the Bulgarian Carabidae list. Personal note of Prof. David W. Wrase also pointed out that “The species *sensu auct.*, especially older ones, comprises two species later described, *xanthopus winkleri* Schaubberger, 1923 and *progreiens* Schaubberger, 1922“. Furthermore, the late Prof. Oleg L. Kryzhanovskij (unpubl. data) noted that “the species has been reported for Bulgaria, but this probably refers to *H. xanthopus winkleri*“. However, now we have a specimen proving that, actually, maybe all or at least part of those previous mentions of *H. luteicornis* might not be wrong at all. Unfortunately, we do not have any access to the material from these reports, and we cannot revise the specimens.

The goal of the present communication is to give confirmatory evidence for the presence of *H. luteicornis* in Bulgaria and to discuss the probable misidentification of this species and confusion with the other species in its group.

Material and Methods

The material, a single female, was collected by Dr. Nikolay Kodzhabashev (University of Forestry, Sofia), in the period from 15–19 April to 15–19 July 2008, in a pitfall trap with 4% formaldehyde, during a research on the biodiversity of the region of the Zlatiya Plateau in the Western Danubian Plane (for details about the area and data obtained, see Teofilova & Kodzhabashev 2020). The sampling site was located 5 km E of the Zlatiya village, 43°44'03"N, 23°35'06"E, 105 m, at the overgrown with hygrophilous marsh vegetation shore of a micro dam, built through subdivision of a gully with a small natural water source. The reservoir was heavily overgrown with reeds, bulrush (*Typha* L.), and willows (*Salix* L.), and the steep banks were afforested with Black locust (*Robinia pseudoacacia* L.).

The specimen was determined by the author and is stored in the author's collection in the IBER – BAS. The identification was also confirmed by Prof. Boris Kataev (Russian Academy of Sciences, Saint Petersburg, Russia).

Results and Discussion

During the study of the carabids of the region of the Zlatiya Plateau, a total of 138 species have been collected (Teofilova & Kodzhabashev 2020). However, one specimen remained undetermined. After careful re-examination, it was identified as *Harpalus luteicornis* (Fig. 1A, B), which now confirms the presence of this species in Bulgaria.

Currently, *H. luteicornis* falls into the new subgenus *Anamblystus* (Kataev 2023), corresponding to the Palaearctic 'latus' species group sensu Kryzhanovskij et al. (1995). Four other species from this group are known to live in Bulgaria: *H. latus* (Linnaeus, 1758), *H. marginellus* Gyllenhal, 1827, *H. progrediens* Schaubrerger, 1922, and *H. xanthopus winkleri* Schaubberger, 1923.

Although in Fauna Europaea *H. luteicornis* is marked as present in Bulgaria (Vigna Taglianti online), the species shows a European-West Siberian type of distribution, including mostly the central and northern parts of Europe, except the British islands, Iberia, and the Balkans (Kataev & Wrase 2017). This fact was one of the reasons to doubt its occurrence in Bulgaria. Actually, since *H. progrediens* and *H. xanthopus winkleri* have not been taken into account in the older faunal registers, the distribution data for *H. luteicornis* are uncertain (Lompe online).

In size and general habitus, *H. luteicornis* is very similar to *H. xanthopus winkleri*. According to Lompe (online), *H. luteicornis* is the smallest and narrowest species in its group. The single female from the Zlatiya Plateau is 7.5 mm long, smaller than *H. latus* and having a similar size to *H. xanthopus* (7–8 mm), indeed. Its pronotum is narrowed before the strongly punctate base (Fig. 1C). Humeral tooth is much smaller than in *H. latus*, similar to *H. xanthopus*. Elytra are dull. Microsculpture is coarse, as mentioned for *H. luteicornis* by Kryzhanovskij (unpubl. data). In *H. progrediens* and *H. xanthopus*, the pronotum is not narrowed and has a less punctate base, and the elytra are more shining. Epipleura are reddish (Fig. 1E), not black as in *H. xanthopus* and *H. progrediens*. The specimen is winged, with correspondingly long metepisterna (Fig. 1F), while *H. progrediens* is mostly brachypterous. In general, *H. progrediens* also differs already in habitus since its pronotum is with a wider base and with sharper, almost rectangular basal angles. Undoubtedly, the most important characteristic of *H. luteicornis* is its edentate submentum (Fig. 1D); this distinguishes it from *H. xanthopus*, which always has a distinct medial tooth.

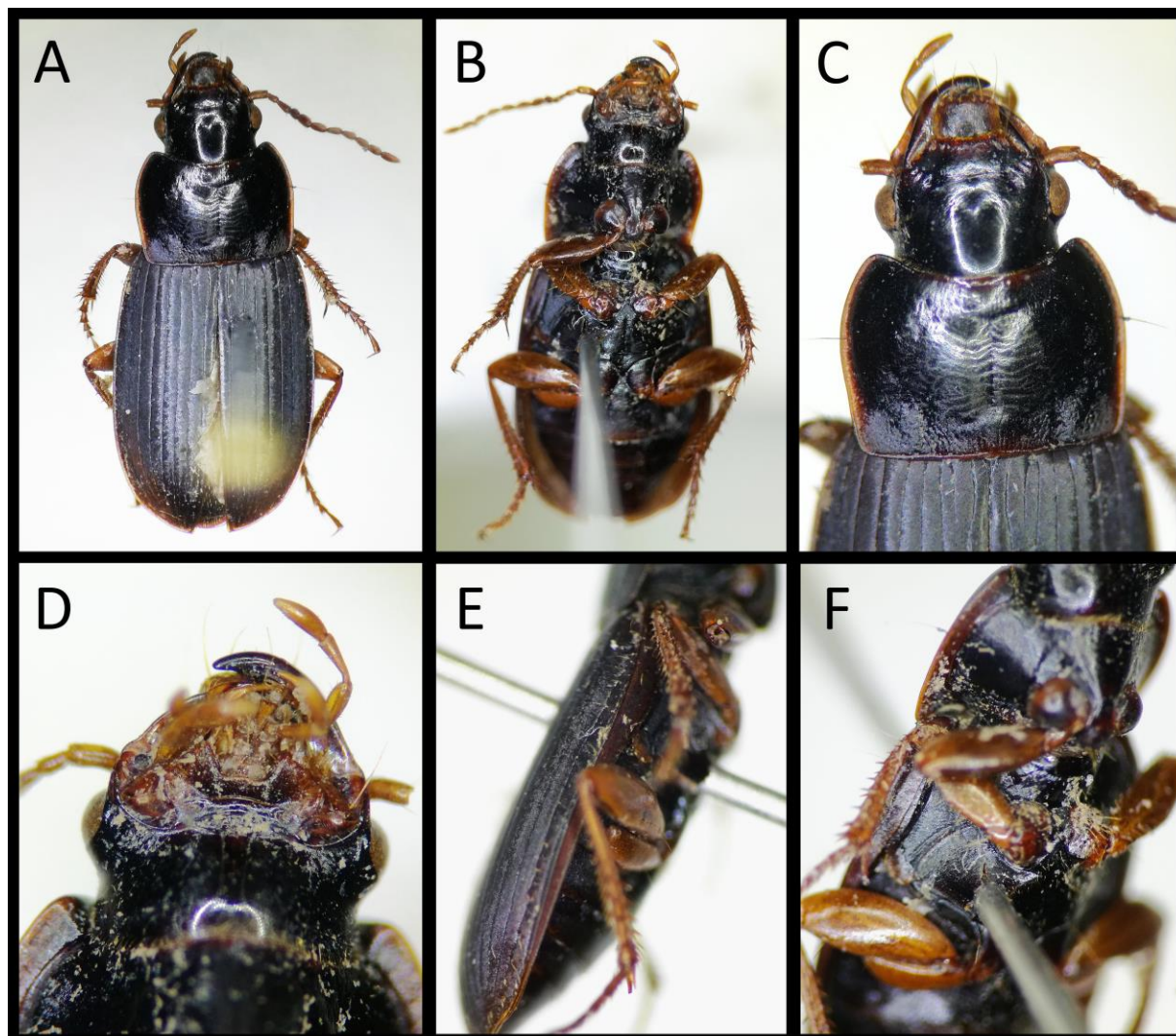


Fig. 1. Habitus and details of *Harpalus luteicornis*, female specimen from the Zlatiya Plateau, North Bulgaria: A – dorsal view; B – ventral view; C – head and pronotum; D – submentum (without a median tooth); E – right lateral view (reddish epipleuron); F – ventrolateral view (a long metepisternum).

There are many literary sources, containing good identification keys to all above-mentioned species, including *H. luteicornis*, e.g., Hůrka (1996), Allegro *et al.* (2022), Lompe (online), Kryzhanovskij (unpubl.). Therefore, the misidentification of *H. luteicornis* in general is not very likely.

Habitats of *H. luteicornis* are more mesophilous – broadleaf forests, meadows, elevated edges of waters (Hůrka 1996, Kryzhanovskij unpubl.), similar to *H. progreiens*. However, the latter species is rarely found in the lowlands, and in Bulgaria lives above 400 m a.s.l. (Teofilova, in prep.). We found our specimen in a moist habitat, too. *Harpalus latus* and *H. xanthopus* are more eurytopic and could endure more xerophilic conditions (Hůrka 1996, Kryzhanovskij unpubl.).

Many regions in Bulgaria are still not well studied in relation to their carabid fauna, and the knowledge about the spreading of many species is still not complete, as well, and the Danubian Plain is one of these regions (e.g., Migliaccio *et al.* in press).

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