



First record of *Palorus subdepressus* (Wollaston, 1864) (Coleoptera: Tenebrionidae) from Georgia (Sakartvelo)

Shota Japarashvili¹, Natalia Bulbulashvili², Armen Seropian¹

¹ Institute of Ecology, Ilia State University, Cholokashvili av. 3/5 Tbilisi, 0162, Georgia

² Rustaveli st. 8, 1400, Gori, Georgia

<http://zoobank.org/4A7991DB-635D-493C-9DB9-C4AF9EFE0331>

Corresponding author: Shota Japarashvili (shota.japarashvili.1@iliauni.edu.ge)

Academic editor: Levan Mumladze ♦ Received: 19 March 2022 ♦ Accepted: 3 November 2022 ♦ Published: 4 November 2022

Abstract

The darkling beetle *Palorus subdepressus* (Wollaston, 1864) is recorded from Georgia for the first time. Detailed information on the recording site, pictures of the voucher specimen, and identification criteria are given, along with a mini-review of the *Palorus* Mulsant, 1854 species ever recorded in Georgia.

Key words

Darkling beetle, South Caucasus, New record

Darkling beetles (Tenebrionidae) are one of the largest families of Coleoptera, most richly represented in the fauna of the arid regions of the earth, especially in the sub-tropical semi-deserts and deserts (Abdurakhmanov and Nabozhenko). One of the first lists of Caucasian beetles was published by Radde (1899) with only one species from the genus *Palorus* (*P. ratzeburgi* (Wissmann, 1848)) from Tbilisi (Tiflis). Later, Dzhambazishvili (2000), who studied Georgian darkling beetles for decades, provided the first check-list of 87 species of Tenebrionidae in Georgia, including *P. ratzeburgi* (Wissmann, 1848), the only representative of the genus in the country at that time. However, in a later works of Nikitski et al. (2008) and Abdurakhmanov et al. (2011), another species – *P. depressus* (Fabricius, 1790) is also indicated for Georgia. Another very recent list of darkling beetles from Lagodekhi Protected Areas (Georgia) was published by Japoshvili and colleagues with no record of any *Palorus* species (Japoshvili et al. 2022). This rather sporadic data clearly indicates a lack of knowledge of the diversity and distribution of *Palorus* species in Georgia.

During the CaBOL (Caucasus Barcode of Life - <https://ggbc.eu/>) short expedition to Kumisi (Gardabani Municipality, Georgia: 41.60794°N, 44.8655°E, 498 m a.s.l.) we

collected a single female specimen of *Palorus* under a rock in heathland near farms (24.IX.2021; leg. Bulbulashvili N.). The specimen was preserved in 96% ethanol and stored in a freezer under -30°C. The preserved specimen was photographed using a Canon EOS 550D camera with a Canon EF 100mm f/2.8 Macro USM lens and a Raynox DCR-250 Super Macro Snap-On Lens attached to it. Digital images were prepared using Zerene Stacker image stacking software and Adobe Photoshop CS6.

The specimen was identified as *Palorus subdepressus* (Wollaston, 1864) based on a petaloid genae forming two little horns (Abdurakhmanov et al. 2011; Fleischer 1900; Lillig et al. 2012) (Fig. 1). Hence, the species is the first record for Georgia and thus there are three species of *Palorus* distributed in Georgian territory. The voucher specimen is kept at Ilia State University under CaBOL-ID 1010376.

Palorus subdepressus (Wollaston, 1864) is a secondary pest of stored products. The species is thought to originate from Africa (Halstead 1967), and due to its lifestyle, has a cosmopolitan distribution today (Halstead 1967; Lillig et al. 2012; Nikitski et al. 2008). Previous records of *P. subdepressus* from the Caucasus were from Krasnodarki Kray (Russia) (Abdurakhmanov et al. 2011) and Azerbaijan (Lobl and Lobl 2020). Although expected, the first record of this



Figure 1. Dorsal view of *Palorus subdepressus* (Wollaston, 1864) (female), Kumisi, Georgia, 24.IX.2021. ©Armen Seropian.

species from Georgia indicates that the species is probably more widespread in the South Caucasus than previously thought. Additional studies are needed to identify the extent of its distribution in the region as well as the potential risks it could bring to local economy.

Acknowledgements

The project on which this study is based, was funded by the Federal Ministry of Education and Research under grant number 01DK20014A. The responsibility for the content of this publication lies with the author. Special thanks to Dmitry V Vlasov (head of the Natural History Department of the Yaroslavl State Historical, Architectural and Art Museum of the Reserve) for helping with identification and providing us with valuable information.

References

- Abdurakhmanov GM, Nabozhenko MV (2011) Keys and catalogue to darkling beetles (Coleoptera: Tenebrionidae s. str.) of the Caucasus and south of European part of Russia. KMK, Moscow. [In Russian]
- Dzhambazhshvili MY (2000) Catalog of Darkling Beetles (Coleoptera, Tenebrionidae) of Georgia. Proceedings of the Institute Zoology 20: 185–193. [In Russian]
- Fleischer A (1900) Uebersichtstabelle der Arten der Coleopteren-Gattung *Palorus*. Wiener entomologische Zeitung 19: 236–237.
- Halstead DGH (1967) A revision of the genus *Palorus* (sens. lat.) (Coleoptera: Tenebrionidae). Bulletin of the British Museum of Natural History, Entomology 19: 61–148.
- Japoshvili G, Gordiashvili N, Injia S, Tsiklauri K, Sulamanidze G (2022) Updates annotated checklist of insects from Lagodekhi Protected Areas, Sakartvelo (Georgia). Munis Entomology & Zoology 17(2): 793–841.
- Lillig M, Borg BH, Mifsud D (2012) An identification and informative guide to the Tenebrionidae of Malta (Coleoptera). Bulletin of the entomological Society of Malta 5: 121–160.
- Lobl I, Lobl D (2020) Catalogue of Palaearctic Coleoptera, Vol. 5. Tenebrionoidea. Revised and Updated Second Edition. Brill, Leiden, 945 pp. <https://doi.org/10.1163/9789004434998>
- Nikitski NB, Bibin AR (2008) Xylophilic Coleoptera (Insecta, Coleoptera) of the Caucasian state natural biosphere reserve and adjacent territories. Syktyvkar, Russian Academy of Science, Ural Branch, Komi Science Center, Institute of Biology 452 pp. [In Russian]
- Radde R (1899) Tenebrionidae, In: Coleoptera Caucasica. Museum Caucasicum, Tiflisi, I, Zoology, Typographie der Kanzelei des Landescheffs, 339–403. [In German]