

First record of *Vadonia unipunctata makedonica* Holzschuh, 1989 (Cerambycidae: Lepturinae) in Bulgaria

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Abstract. *Vadonia unipunctata makedonica* Holzschuh, 1989 (Cerambycidae: Lepturinae) is reported from the Bulgarian part of Falakro Mts. The nominative subspecies *V. unipunctata unipunctata* (Fabricius, 1787) is also present in Bulgaria. Photographs of the beetles of both subspecies are provided.

Key words: *Vadonia unipunctata*, distribution, taxonomy

Introduction

The species *Vadonia unipunctata* (Fabricius, 1787) (Cerambycidae: Lepturinae) has a complex and unresolved taxonomic structure, with nine subspecies accepted (Danilevsky, 2020). Six subspecies – *V. unipunctata unipunctata* (Fabricius, 1787), *V. unipunctata albanica* Vartanis, 2019, *V. unipunctata dalmatina* (J. Müller, 1907), *V. unipunctata ikariaensis* Danilevsky & Vartanis, 2015, *V. unipunctata makedonica* Holzschuh, 1989 and *V. unipunctata ohridensis* Holzschuh, 1989 are known for the Balkan Peninsula. Recently, another subspecies *V. unipunctata bulgarica* Vartanis & Resl, 2023 has been described from Bulgaria and Romania (Vartanis & Resl, 2023). Before the last description, only the subspecies *unipunctata* was considered present in Bulgaria (Danilevsky, 2020).

Herein we report a third subspecies of *V. unipunctata* for the country and compare it with a Bulgarian population of the nominative subspecies.

Materials and Methods

The material for the presents study was collected by the authors in the period 2018 – 2021 in SW Bulgaria. The beetles were collected by hand from flowers of herbaceous plants. The specimens are preserved in the Zoological Collection of Sofia University “St. Kliment Ohridski”, Faculty of Biology (BFUS).

Results and Discussion

Vadonia unipunctata makedonica Holzschuh, 1989

Material examined: Bulgaria, Falakro Mts, Beslen Vill., 41°28.462'N 23°57.770'E, 704 m a.s.l., 24.v.2020, roadside verges, 1 ♀, Y. Petrova leg.; Bulgaria, Falakro Mts, NW Beslen Vill., 41°28.631'N 23°57.629'E, 717 m a.s.l., 05.vi.2021, roadside meadows (Fig. 1A), 1 ♂, 1 ♀, on Apiaceae, D. Gradinarov leg.; the same data, 41°28.560'N 23°57.760'E, 710 m a.s.l., 05.vi.2021, meadows and roadside verges, 1 ♂, Y. Petrova leg.; the same data, 41°28.520'N 23°57.600'E, 725 m a.s.l., hillside meadows, 5 ♂, 3 ♀♀, on Apiaceae, *Achillea*

sp. and *Filipendula* sp., Y. Petrova leg.; the same data, road to the Mesta River, 41°28.720'N 23°57.757'E, 688 m a.s.l., dirt road, xerothermic vegetation (Fig. 1B), 1 ♂, 2 ♀♀, on Apiaceae, D. Gradinarov leg.; the same data, 41°28.939'N 23°57.721'E, 662 m a.s.l., meadows (Fig. 1C), 5 ♂♂, 3 ♀♀, D. Gradinarov leg.

***Vadonia unipunctata unipunctata* (Fabricius, 1787)**

Material examined: Bulgaria, Pernik Distr., 1 km NW Potsarnentsi Vill., 42°30.069'N 22°51.983'E, 780 m a.s.l., 20.v.2018, meadows, 18 ♂♂, 9 ♀♀, on Asteraceae and *Filipendula* sp., D. Gradinarov & Y. Petrova leg.

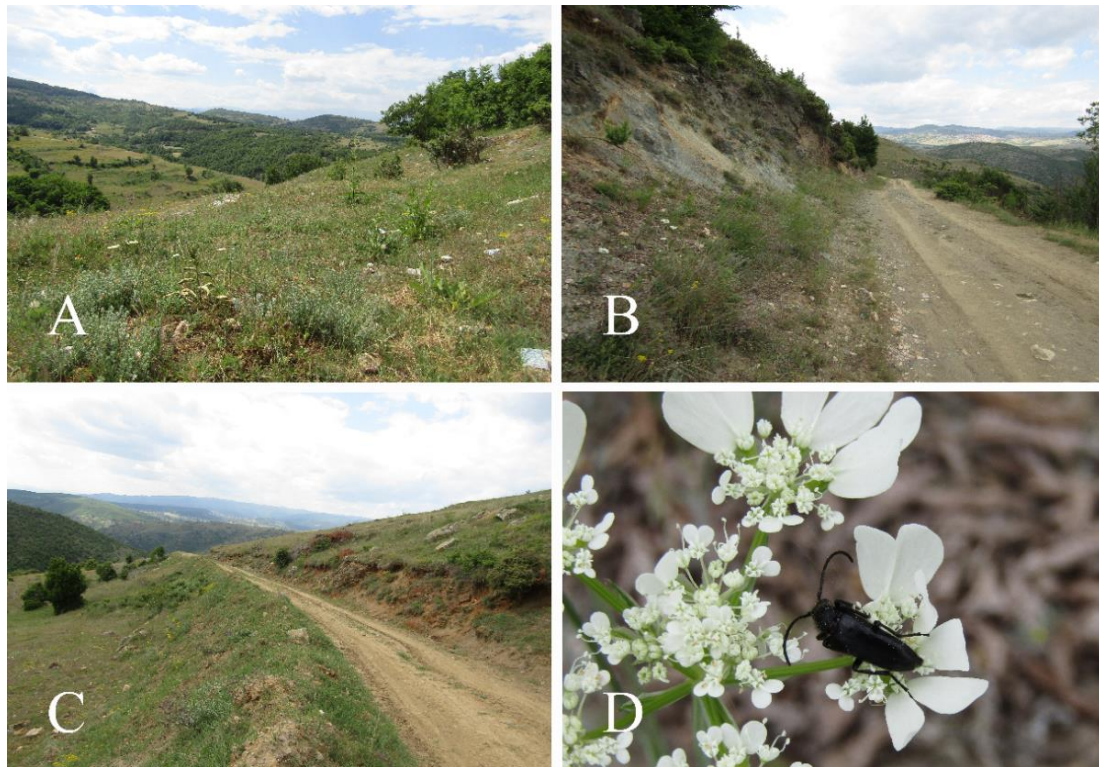


Fig. 1. Habitat and feeding plant of *Vadonia unipunctata makedonica* near Beslen Vill., Bulgaria. A – roadside meadows near the village; B, C – road to the Mesta River; D – *V. unipunctata makedonica* on inflorescence of *Orlaya grandiflora*.

The specimens of *V. unipunctata makedonica* were collected on white inflorescences – more often on *Orlaya grandiflora* (L.) Hoffm. (Apiaceae) (Fig. 1D), but also on *Achillea* sp. (Asteraceae) and on *Filipendula* sp. (Rosaceae).

The subspecies *V. unipunctata makedonica* has been known until now only from Northeastern Greece (Holzschuh, 1989; Danilevsky, 2020; Vartanis, 2023). According to Vartanis (2023), the subspecies is “very rare”. The subspecies is characterized by a predominant black colouring of the body and black pubescence (Fig. 2A, B), and in only few of the specimens in the type series the elytra are reddish-brown (Holzschuh, 1989; Vartanis & Resl, 2023). Such lighter specimens were not observed in the population of the subspecies from Beslen Vill. The type series of *V. unipunctata makedonica* includes specimens from several localities in Greek Macedonia and Aegean Thrace (Holzschuh, 1989). One of these localities – “Graecia, Mac.or., Granitis” is only 20 km south from the subspecies localities in Bulgaria, also in the Falakro Mts. It seems that the localities near Beslen Vill. represent a natural extension of the range of the subspecies in Greece.

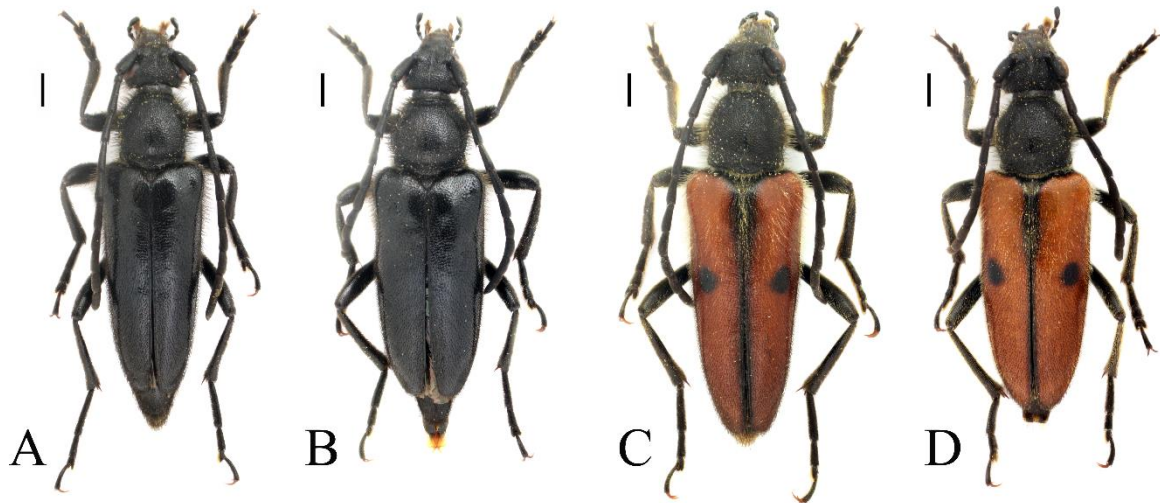


Fig. 2. *Vadonia unipunctata* from Bulgaria. A, B – male and female of *V. unipunctata makedonica*, Beslen locality, 05.vi.2021; C, D – male and female of *V. unipunctata unipunctata*, Potsarnentsi locality, 20.v.2020. Scale bars: 1 mm.



Fig. 3. Male genitalia of *Vadonia unipunctata* from Bulgaria. A, B – apex of penis and parameres of *V. unipunctata makedonica*, Beslen locality, 05.vi.2021; C, D – apex of penis and parameres of *V. unipunctata unipunctata*, Potsarnentsi locality, 20.v.2020. Scale bar: 1 mm.

The studied population of *V. unipunctata* from Potsarnentsi Vill. has the characters of the nominative subspecies – reddish-yellow elytra with black spot in the middle of each elytron (Fabricius, 1787; Vartanis, 2023), moderately long erect golden-yellow to light brown pubescence of the pronotum and the basal third of the elytra (this pubescence is very long and recumbent in *V. unipunctata bulgarica*), 5th antennomer clearly longer than 4th and 6th (as long as 4th and 6th in *V. unipunctata bulgarica*) as well the usual for *V. unipunctata* anteriorly widened black sutural elytral line (Danilevsky & Vartanis, 2015; Danilevsky, 2020; Vartanis & Resl, 2023).

The studied specimens of the both subspecies have characteristic for *V. unipunctata* morphology of the male genitalia – aedeagus with slightly dilated arrow-shaped apex and strongly widened leaf-shaped parameres (Danilevsky & Vartanis, 2015) (Fig. 3).

According to Migliaccio *et al.* (2007), the species *V. unipunctata* is widespread in Bulgaria, but in fact no records are available from the Middle Mesta River Valley, including the surrounding mountainous areas – Falakro Mts, Pirin Mts (Georgiev *et al.*, 2022) and the Western ridges of the Rodopi Mts (Georgiev *et al.*, 2006). The only record for Slavyanka Mts (Heyrovský, 1931) doesn't provide a specified locality and may not concern the eastern parts of the mountain. During our research in this region of SW Bulgaria, we also did not find *V.*

unipunctata unipunctata. It seems that the ranges of *V. unipunctata unipunctata* and *V. unipunctata makedonica* do not overlap in this part of Bulgaria.

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References

- Csiki, E. (1943) Coleopteren von Alibotusch-Gebirge in Süd-Bulgarien. *Mitteilungen aus den Königlichen Naturwissenschaftlichen Instituten in Sofia – Bulgarien* 16: 214-218.
- Danilevsky, M. L. & Vartanis, J. (2015) A new subspecies of *Vadonia unipunctata* (Fabricius, 1787) (Coleoptera, Cerambycidae) from Ikaria Island, Greece. *Humanity space. International almanac* 4 (2): 224-227.
- Danilevsky, M. L. (2020) Taxa from West Europe, and North Africa to countries of former Soviet Union, and Mongolia. In: Danilevsky, M. L. (Ed.), *Catalogue of Palaearctic Coleoptera, vol. 6 (1), Chrysomeloidea I (Vesperidae, Disteniidae, Cerambycidae). Revised and updated edition*. Brill, Leiden/Boston, pp. 118-480.
- Georgiev, G., Migliaccio, E. & Doychev, D. (2006) Longhorn beetles (Coleoptera: Cerambycidae) in Western Rhodopes (Bulgaria). In: Beron, P. (Ed.), *Biodiversity of Bulgaria. 3. Biodiversity of Western Rhodopes (Bulgaria and Greece) I*. Pensoft Publishers & Natural Museum of Natural History, Sofia, pp. 347-360.
- Georgiev, G., Sakalian, V., Mirchev, P., Georgieva, M. & Belilov, S. (2022) A checklist and areography of the longhorn beetles (Coleoptera, Cerambycidae) of Pirin Mountains, Bulgaria. *Biodiversity Data Journal* 10: e93718.
- Fabricius, J. C. (1787) *Mantissa insectorum, sistens eorum species nuper detectas adiectis characteribus genericis, differentiis specificis, emendationibus, observationibus*. Tomus I. Hafniae, C. G. Proft, xx + 348 pp.
- Heyrovský, L. (1931) Beitrag zur Kenntnis der bulgarischen Cerambyciden. *Mitteilungen aus den Königlichen Naturwissenschaftlichen Instituten in Sofia – Bulgarien* 4: 78-86.
- Holzschuh, C. (1989) Beschreibung neuer Bockkäfer aus Europa und Asien (Cerambycidae, Col.). *Koleopterologische Rundschau* 59: 153-183.
- Migliaccio, E., Georgiev, G. & Gashtarov, V. (2007) An annotated list of Bulgarian Cerambycids with special view on the rarest species and endemics (Coleoptera: Cerambycidae). *Lambillionea* 107 (1), Supplément 1: 1-78.
- Vartanis, J. (2023) A revision of the species *Vadonia unipunctata* and its subspecies in Europe and the Palaearctic area (Coleoptera: Cerambycidae). *Munis Entomology & Zoology* 18, Supplement: 1891-1898.
- Vartanis, J. & Resl, J. (2023) A new subspecies of *Vadonia unipunctata* Mulsant, 1863 (Coleoptera: Cerambycidae) from Bulgaria and Romania. *Munis Entomology & Zoology* 18, Supplement: 1814-1819.