

New and unpublished data about Bulgarian ground beetles of the tribe Lebiini (Coleoptera: Carabidae)

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Abstract. This study gives new information and new records on 24 carabid species and 18 zoogeographical regions and subregions in Bulgaria. This is the second country record of *Dromius angustus*. There are another 13 species recorded for the first time in different regions. One species is reported for the second time in the region where it was currently collected. Eight species haven't been reported for more than 25 years in the Boboshevo-Simitli valley, Sandanski-Petrich valley, Vitosha Mts., Rila Mts., and Pirin Mts.

Key words: carabids, addition, new records, Bulgaria, distribution.

Introduction

Ground beetles (Coleoptera: Carabidae) represent one of the largest beetle families with cosmopolitan distribution and with decisive importance for the functioning of ecosystems. The representatives of the studied tribe Lebiini are very diverse, small to medium in size, mostly predacious. Some of them are specialized for hunting in the vegetation, which makes them hard to collect with standard methods as the pitfall trapping (e.g. Kryzhanovskij, Fauna Bulgarica – Carabidae, unpubl. data).

According to the last edition of the Palaeartic Catalogue of the Ground Beetles, in Bulgaria currently 58 species of Lebiini are known (Löbl & Löbl 2017). According to own recent estimations, however (Teofilova & Guéorguiev, unpubl. data), this number is not precise, because *Microlestes exilis* Schmidt-Göbel, 1846 is in fact a synonym of *Microlestes apterus* Holdhaus, 1912 and *Cymindis (Menas) violacea* Chaudoir, 1873 is still doubtful for the country (both are included in the Palaeartic Catalogue as occurring in Bulgaria). Therefore, the total number of the Lebiini currently established in Bulgaria should be 56.

The present study aims at complementing the data about the distribution of the ground beetles in Bulgaria by adding new records for 3% of the species in Bulgarian carabid fauna, collected in 18 zoogeographical regions and subregions.

Material and Methods

The most material on which this study is based is outcome of a field work carried out in different localities in Bulgaria in the period from 1980 to 2019. This material was collected by means of different sampling methods, such as handpicking, pan, Malaise, or pitfall trapping. The material was determined by the author, if not, that was pointed in the text. All material determined by others was re-examined by the author. All specimens are stored in the private collection of the author in the Institute of Biodiversity and Ecosystem Research (BAS, Sofia).

The following abbreviations of the collectors' names are used in the text: HV – Hristian Vulchev, IV – Ilko Vassilev, LP – Lyubomir Penev, MN – Maria Naumova, NK – Nikolay Kodzhabashev, PK – Plamen Kalushkov, TL – Toshko Ljubomirov, TT – Teodora Teofilova, YG – Yuli Ganev, VP – Vlada Peneva (Radkova).

The abbreviations of the zoogeographical regions are as follows: BS – Black Sea Coast, DE – Eastern Danubian Plain, DM – Middle Danubian Plain, DW – Western Danubian Plain, PRW – Western Predbalkan, SPW – Western Stara Planina Mts., WB – Western Bulgaria, K – Kraishte Region, OP – Osogovska Planina Mts., MPO – Maleshevska Planina Mts. and Ograzhden Mt., BSM – Boboshevo-Simitli Valley, SPT – Sandanski-Petrich Valley, V – Vitosha Mts., R – Rila Mts., P – Pirin Mts., T – Thracian Lowland, ST – Sakar-Tundzha Region, RDW – Western Rhodope Mts.

Results

The present study is based on various field observations and contains data about 24 carabid species from the tribe Lebiini, collected in 18 zoogeographical regions and subregions in Bulgaria. This is the second country record of *Dromius angustus*. There are another 13 species recorded for the first time in different regions. They are marked with three asterisks (***). One species is reported for the second time in the region where it was currently collected – marked with two asterisks (**). Eight species haven't been reported for the given regions for more than 25 years – marked with an asterisk (*).

SPECIES LIST:

LEBIINI Bonelli, 1810

1. *Cymindis (Cymindis) axillaris axillaris* (Fabricius, 1794)

Material: SPT* (Kozhuh Mt., about 230 m, 1♂, 2.III.1982, leg. YG).

2. *Cymindis (Cymindis) humeralis* (Geoffroy, 1785)

Material: V* (Kopitoto Site, 1340 m, 1♂, 29.III.1980, Tihya Kat Motel, N 42°38'18", E 23°13'03", 1050 m, 1♀, 29.IV.1980, leg. VP).

3. *Cymindis (Cymindis) lineata* (Quensel, 1806)

Material: BS (Durankulak Marsh, 0 m, sea shore, under stones, 1♀, 23.VII.1992, leg. LP); K*** (Golo Bardo Mt., about 1000 m, 1♀, 5.VIII.1982, leg. IV, det. F. Hieke).

4. *Cymindis (Cymindis) scapularis scapularis* Schaum, 1857

Material: BS (Durankulak Marsh, 0 m, sea shore, under stones, 1♂, 23.VII.1992, leg. LP, det. NK); DM (Shirokovo Vill., 1♂, 18.V.2016, leg. MN); DW (Shishmanov Val Dam, N 43°44'24", E 23°36'53", 100 m, 1♂, 1.VI.2012, leg. NK); MPO*** (Ograzhden Mts., about 650 m, 1♀, 11.V.1983, leg. YG); BSM*** (Blagoevgrad, about 515 m, 1 ex., 14.V.1980, leg. IV, det. O. Kryzhanovskij).

5. *Dromius (Dromius) angustus angustus* Brullé, 1834

Material: R*** (Parangalitsa Reserve, shaded habitat, above 1430 m, 1♀, 28.III.1981, leg. VP).

6. *Dromius (Dromius) fenestratus* (Fabricius, 1794)

Material: PRW*** (Resets Vill., 1♀, 20.VI.1981, leg. IV, det. H. Freude).

7. *Microlestes luctuosus luctuosus* Holdhaus, 1904

Material: T*** (SE Malak Chardak Vill., N 42°16'44", E 24°38'48", 198 m, 1♀, 25.IV.2018, leg. TL).

8. *Microlestes maurus maurus* (Sturm, 1827)

Material: OP*** ("Osogovo", 1♀, 20.VIII.1982, leg. YG, det. O. Kryzhanovskij).

9. *Microlestes minutulus* (Goeze, 1777)

Material: BS (Balchik, N 43°24'09", E 28°08'33", 49 m, 1♂, 13.V–2.VI.2014, Malaise trap, leg. HV&TL); SPW*** (Berkovski Balkan Mts., 1♂, IX.2016–IV.2017, pitfall trap, leg. TT&NK); R* (Slavovo Vill, 900 m, 1♀, 15.V.1981, leg. VP).

10. ***Paradromius (Manodromius) linearis linearis* (Olivier, 1795)**

Material: DE (Srebarna Lake, 1 ex., 1989, leg./det, NK); OP*** ("Osogovo", 1 ex., 20.VIII.1982, leg. YG, det. O. Kryzhanovskij); R*** (Bistritsa Vill., Brakadanski Bridge, 710 m, 1♀, 2.VI.1981, leg. VP).

11. ***Philorhizus notatus* (Stephens, 1827)**

Material: SPW (SW Berkovitsa, N 43°12'59", E 23°06'16", 643 m, mixed deciduous forest, 1♂, IX.2016–IV.2017, pitfall trap, leg. TT&NK).

12. ***Lebia (Lamprias) chlorocephala* (J. J. Hoffmann, 1803)**

Material: PRW*** (Reselets Vill., 1♂, 20.VI.1981, leg. IV, det. E. Kirschenhofer).

13. ***Lebia (Lamprias) cyanocephala cyanocephala* (Linnaeus, 1758)**

Material: BSM*** (Selishte Vill., about 515 m, 1♂, 24.VIII.1980, leg. IV).

14. ***Lebia (Lamprias) festiva krueperi* Apfelbeck, 1904**

Material: MPO*** (Ograzhden Mts., near Lebnitsa Vill., about 200 m, 1♀, 23.V.1984, leg. VP, det. O. Kryzhanovskij).

15. ***Lebia (Lebia) cruxminor cruxminor* (Linnaeus, 1758)**

Material: RDW (Chepelare, about 1230 m, 1♂, 27.IV.1983, leg. YG).

16. ***Lebia (Lebia) humeralis* Dejean, 1825**

Material: PRW*** (Hubavene Vill., about 300 m, 1♂, 16.V.1981, leg. IV, det. O. Kryzhanovskij).

17. ***Lebia (Lebia) marginata* (Geoffroy, 1785)**

Material: R** (Slavovo Vill., 900 m, 1♀, 31.V.1984, leg. LP).

18. ***Lebia (Lebia) scapularis scapularis* (Geoffroy, 1785)**

Material: SPT* (Kresna Gorge, 1 ex., 12.V.1983, leg. YG).

19. ***Lebia (Lebia) trimaculata* (Villers, 1789)**

Material: SPT* (Kozhuh Mt., about 230 m, 1 ex., 30.III.1982, leg. YG).

20. ***Apristus subaeneus* Chaudoir, 1846**

Material: BSM*** (Bachinovo Vill., about 430 m, 1♀, 18.IV.1981, leg. VP).

21. ***Lionychus (Lionychus) quadrillum* (Duftschmid, 1812)**

Material: WB (S Popovyane Vill., about 930 m, 1♂, VI.2015, leg. PK); BSM* (Blagoevgrad, 1♂, 20.X.1984, leg. IV, det. O. Kryzhanovskij); R* (Bistritsa Vill., 540 m, 2♀4♂, 29.V.1981, 1♀, 1.VIII.1981, Bistritsa Vill., Brakadanski Bridge, 710 m, 1♀, 30.VIII.1981, leg./det. VP); P* (Bansko, 1 ex., 16.VII.1982, leg. IV, det. O. Kryzhanovskij).

22. ***Syntomus obscuroguttatus* (Duftschmid, 1812)**

Material: SPW (Berkovski Balkan Mts., 2♀, IX.2016–IV.2017, pitfall trap, leg. TT&NK).

23. ***Syntomus pallipes* (Dejean, 1825)**

Material: SPT* (Kozhuh Mt., about 230 m, 1♀, 15.VII.1982, leg. YG, det. F. Hieke); R* (Dobro Pole Vill., 1150 m, 1♀, 1.X.1981, leg. VP); ST (Sakar Mt., W Oreshnik Vill., Oreshevo Swamp, N 42°04'08", E 26°21'40", 229 m, 1♂, 29.III.2019, leg. MN).

24. ***Syntomus truncatellus* (Linnaeus, 1761)**

Material: SPW*** (Berkovski Balkan Mts., Gorna Koriya Reserve, N 43°10'55", E 23°04'20", about 1650 m, 1♂, IX.2016–IV.2017, pitfall trap, leg. TT&NK); R* (Parangalitsa Reserve, above 1400 m, 1♀1♂, 23.V.1982, leg. IV, det. H. Freude & TT).

Discussion

The present study gives some novelty about the carabid fauna of Bulgaria and more precisely, the tribe Lebiini, containing many diverse and interesting, mostly hortobiontic species. Fourteen of the 24 species collected are recorded for the first time in different regions. *Dromius angustus* is here reported for the first time from the Rila Mts., at altitude above 1430 m a.s.l., as in fact this is the second record of this species for Bulgaria after the Eastern Rhodope Mts. at 250 m (Guéorguiev 2004). Similar is the case with *Lebia festiva*, reported here firstly for the Ograzhden Mt., since it was so far known only from the

Sandanski-Petrich Valley (Guéorguiev & Guéorguiev 1995a). *Lebia humeralis*, *L. chlorocephala*, and *Dromius fenestratus* are new to the Western Predbalkan, and to the whole Predbalkan as well; *Microlestes minutulus* and *Syntomus truncatellus* are new to the Western Stara Planina Mts.; *Cymindis lineata* is here reported firstly for the Kraishte Region; *Microlestes maurus* and *Paradromius linearis* are new to the Osogovska Planina Mts., and *P. linearis* is also new to the Rila Mts.; *Cymindis scapularis* is new to the region of the Maleshevska Planina Mts. and Ograzhden Mt. and to the Boboshevo-Simitli Valley; *Apristus subaeneus* and *Lebia cyanocephala* are new to the Boboshevo-Simitli Valley too; *Microlestes luctuosus* is new for the Thracian Lowland.

Lebia marginata is a rare species and here its second record for the Rila Mts. since 1995 is presented (Guéorguiev & Guéorguiev 1995a, 1995b). Eight species haven't been reported for more than 25 years for the regions where they are currently collected. Guéorguiev & Guéorguiev (1995a) are the last who reported: *Lionychus quadrillum* for the Boboshevo-Simitli Valley, Rila Mts. and Pirin Mts.; *Syntomus pallipes* for the Sandanski-Petrich Valley and the Rila Mts.; *Cymindis axillaris*, *Lebia scapularis* and *L. trimaculata* for the Sandanski-Petrich Valley; *Syntomus truncatellus* and *Microlestes minutulus* for the Rila Mts. Same year, *Cymindis humeralis* is reported for the last time in the Vitosha Mts. (Krusteva *et al.* 1995).

Although the ground beetle fauna of Bulgaria is relatively well studied, there are still some regions representing “white spots” in relation to the knowledge about their carabid species composition and community structure. The more complete knowledge of the diversity of this group in the country could be revealed only after carrying out further studies in these poorly-examined regions.

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