

B I O D I V E R S I T Y O F B U L G A R I A

4

Biodiversity of Western Rhodopes

(Bulgaria and Greece)

II

Editor
Petar Beron



NATIONAL MUSEUM OF NATURAL HISTORY – SOFIA

 PENSOFT

The Scarabaeoid Beetles (Insecta: Coleoptera: Scarabaeoidea) in the Bulgarian Section of the Western Rhodopes

Borislav V. GUÉORGUIEV, Jorge M. LOBO, Evgeni CHEHLAROV

Guéorguiev B., J. M. Lobo, E. Chehlarov. 2011. The Scarabaeoid Beetles (Insecta: Coleoptera: Scarabaeoidea) in the Bulgarian Section of the Western Rhodopes. – In: Beron P. (ed.). Biodiversity of Bulgaria. 4. Biodiversity of Western Rhodopes (Bulgaria and Greece) II. Pensoft & Nat. Mus. Natur. Hist., Sofia, 237-265.

Abstract. The species of the superfamily Scarabaeoidea from the Bulgarian part of the Western Rhodopes has been studied. The study is based on a critical review of the literature, revision of the material kept in the Institute of Zoology of Sofia, and newly collected material. A total of, 153 species are cited. The species are divided in three groups. The first group includes 138 species belonging to the families Lucanidae (4), Trogidae (1), Bolbo-
ceratidae (1), Geotrupidae (7), Ochodaeidae (2), Glaphyridae (1), Aphodiidae (47), Scarabaeidae (26), Melolonthidae (24), Rutelidae (10), Dynastidae (3) and Cetoniidae (12). These species are considered as reliable records for the region; 17 of them are first cited for the Western Rhodopes, *Aphodius (Chilothorax) conspurcatus* (Linnaeus, 1758) being a new species for the Bulgarian fauna. A second group comprises 12 species which have not been cited with exact records or which probably concern misidentifications; their occurrence in the region remains in question. The third group put aside *Lehrus elephas*, *Blitopertha lineata* and *Mimela junii*, cited in the past, but which actually do not live in Bulgaria. Finally, 14 species of conservation importance are defined and commented.

Key words: Coleoptera, Scarabaeoidea, Bulgaria, Western Rhodopes, literature data, new records

Introduction

The representatives of Scarabaeoidea Latreille, 1802 from the Western Rhodopes have not been of special interest until, and critical review of available faunistic information on this region is necessary. Although many publication reported do not include original data, 136 Scarabaeoidea species are for the Western Rhodopes in 37 papers published in the last 112 years (APFELBECK, 1894; IOAKIMOV, 1904; NEDELKOV, 1905; NEDELKOV, 1909a; NEDELKOV, 1909b; ROUBAL, 1933; STOLFA, 1938; PITTIONI, 1940; GOLJAN, 1953; KANTARDJIEVA-MINKOVA, 1953; MIKŠIĆ, 1953; MIKŠIĆ, 1954; MIKŠIĆ, 1957; HORION, 1958; MIKŠIĆ, 1958; MIKŠIĆ,

1959; MINKOVA, 1959; ZACHARIEVA-STOILOVA, 1962; ANGELOV, 1964; ANGELOV, 1965; ZACHARIEVA, 1965a; ZACHARIEVA, 1965b; ZACHARIEVA-STOILOVA, 1970; ZACHARIEVA & DIMOVA, 1975; JONKOVA, 1989; KRELL, 1991; KRÁL & MALÝ, 1993; RÖSSNER, 1995; RÖSSNER, 1997a; RÖSSNER, 1997b; BUNALSKI, 2000; BUNALSKI, 2001a; BUNALSKI, 2001b; RÖSSNER & KRELL, 2001; GUÉORGUIEV & BUNALSKI, 2004; RÖSSNER & AHRENS, 2004; RÖSSNER, 2005). The present study aims to establish a complete catalogue of the Scarabaeoidea species collected in the Western Rhodopes. For that we critically examined all references mentioned above as well as some recently collected material, and we made a revision of the existing material at the Institute of Zoology of Sofia. The analysis of all mentioned above taxonomic and faunistic information allowed us to delineate finally three main groups of species according to their probability of occurrence the analyzed region. Lastly, we commented on the species with higher conservation relevance.

Material and methods

The material kept at the Institute of Zoology, Sofia, including the collection of B. Zacharieva, was revised. Moreover, we additionally collected and identified 6712 specimens belonging to 49 dung beetle species (Geotrupidae, Aphodiidae and Scarabaeidae) in the periods: 10-19 May 2004, 14-21 October 2004 and 15-21 July 2005 as a result of a Spanish-Bulgarian scientific collaborative project (LOBO et al., in press). Both the sampling methods and the surveyed localities are shown in Table 1 (see acronyms). The material in question was deposited in the collections of the National Museum of Natural Sciences in Madrid, the National Museum of Natural History of Sofia and the Institute of Zoology of the same city. This material will be cited in the text without mentioning these depositories. In addition, a small fresh collection of several "Pleurosticti" taxa was also included.

Acronyms used in the text: ** – species new for the fauna of Bulgaria; * – species new for the Western Rhodopes; ? – species in question for the fauna of the Western Rhodopes; # – species cited incorrectly for the fauna of the Western Rhodopes and excluded from the regional list; A. M. – A. Markovich leg.; AS – A. Slivov leg.; BE – I. Belog leg.; BG – B. Guéorguiev leg.; BZ – B. Zacharieva leg.; DD – D. Doichev leg.; DI – D. Iltcheff leg.; EM – E. Migliacchio leg. & collection; f. – female/s; GP – G. Peshev leg.; IB – I. Buresch leg.; IZ – collection Institute of Zoology, Sofia; JG – J. Ganev leg.; JM – J. Milde leg.; LT- collection Lesotechnical University, Sofia; m. – male/s; MJ – M. Josifov leg.; MW – M. Witanova leg.; NMNHS – collection National Museum of Natural History, Sofia; PD – P. Drenski leg.; PS – P. Stoev leg.; s. – specimen/s; TL – T. Ljubomirov leg.; VD – V. Dimova leg.; WK – W. Krasteva leg.; WM – W. Martino leg. The underlined specimens correspond to the revised material of the Institute of Zoology.

Table 1

List of Rhodopes localities where dung beetles were collected during the period 2004-2005

Site	Manual sampling	Trap sampling
1	Open stony terrain, 2 km north of Yugovo Village, ca. 600 m	
2	Open terrain at Chepelarska River near to Narechen Village, 662 m	
3		Open place near to potato field and beech forest, 0.5 km south of Sokolovtsi Village, 985 m
4	Meadows along mixed forest, 1-2 km south of Sokolovtsi Village, 991 m	
5	Steep meadow, ca. 1000 m, Chepelare Town	
6	Open stony place near mixed forest, southwest of quarter Ezerovo (Smolyan Town), 1274 m	
7		Meadow near mixed forest, southwest of quarter Ezerovo (Smolyan Town), 1307 m
8		Steep meadow near to coniferous forest, 2 km southeast of Rozhen Pass, 1403 m
9	Meadows near to coniferous forest, Rhozen Pass, 1510 m	
10	Open place near to potato field, 2 km southwest of "Momchil Yunak" Chalet, 1712 m	
11	Open place in the middle of coniferous forest, 4-5 km east of "Perelik" Chalet, 1771 m	
12		Open place in the middle of coniferous forest, 4-5 km east of "Perelik" Chalet, 1780 m
13	Subalpine meadow, 0.5 km south of "Perelik" Chalet, 2014 m	
14		Subalpine meadow, 2 km south of "Perelik" Chalet, 2016 m

Abbreviations: AuM – autumn material collected manually during 14-21 October 2004; AuT – autumn material collected in traps during 14-21 October 2004; SpM – spring material collected manually during 10-19 May 2004; SpT – spring material collected in traps during 10-19 May 2004; SuM – summer material collected manually during 15-21 July 2005; SuT – summer material collected in traps during 15-21 July 2005.

Systematic part

Family **Lucanidae**

? *Ceruchus chrysomelinus* (Hochenwarth, 1785)

Literature data: “Rhodopes”, Belovo (GUÉORGUIEV & BUNALSKI, 2004: 255).

Notes. The exact collection place of the material concerning this record remain unclear, e.g. if it is on the left side or the right side of the Yadenitsa River. The valley of the Yadenitsa River is the formal border between the Rila Mt. and the Western Rhodopes. GUÉORGUIEV & BUNALSKI (2004) assigned the record in question to the former mountain.

1. *Dorcus parallelipipedus* (Linnaeus, 1758)

Literature data: Assenovgrad, VI (ANGELOV, 1964: 309).

Material examined: Bachkovski Manastir, 29.IV.1961, 1 s., MW (IZ); Bachkovo, 30.VI.2001, 1 m., DD (LT).

2. *Lucanus cervus* (Linnaeus, 1758)

Literature data: Assenovgrad, VII; Markovo, IV (ANGELOV, 1964: 309); Chepinska Reka River Valley; Alabak (JONKOVA, 1989: 27).

Material examined: Velingrad, 15.VII.1965, 1 s., WK (IZ); Bachkovo, 24.06.2001, 2 m. / 29.06.2001, 1 m., DD (LT); Bachkovski Manastir, 23.VII.2001, 1 f., EM (EM).

Notes. A protected beetle in Bulgaria.

3. *Platycerus caraboides* (Linnaeus, 1758)

Literature data: place “Ardashla”, 1750 m (ANGELOV, 1964: 308); Assenovgrad, IV-V; Bachkovski Manastir, 14.V.1923, 1 s. revised, DI (IZ); Polkovnik Serafimovo, VII; Rudozem, V (GUÉORGUIEV & BUNALSKI, 2004: 258).

4. *Sinodendron cylindricum* (Linnaeus, 1758)

Literature data: Shiroka Laka, VI; near to Lepenitsa Cave, VII; Batak-Beglika, VI; Velingrad, VI (GUÉORGUIEV & BUNALSKI, 2004: 259).

Material examined: “Chervenata stena” Reserve near Bachkovo, 500 m, 13.XI.2005, 1 f., DD (LT).

Notes. A species that inhabit forest biomes being currently rare in its whole range.

Family **Trogidae**

5. *Trox hispidus niger* P. Rossi, 1792

Literature data: Polkovnik Serafimovo, VII (GUÉORGUIEV & BUNALSKI, 2004: 260).

Family **Bolboceratidae**

6. *Bolboceras armiger* (Scopoli, 1772)

Literature data: Trigrad, 1250 m, VII (ZACHARIEVA & DIMOVA, 1975: 188 sub *Odonteus armiger*); Chepelare, VII; Polkovnik Serafimovo, VII (GUÉORGUIEV & BUNALSKI, 2004: 261-262 sub *Odonteus armiger*).

Family **Geotrupidae**

7. ***Anoplotrupes stercorosus* (Hartmann in L.G. Scriba, 1791)**

Literature data: Bezovo Hut; Progled; Persenk Hut, IX; Ruen Hut; Bashmandra Place; Zdravets Hut, V; Mezadgidik Place (ANGELOV, 1965: 101).

Material examined: AuM4 (1 s.); AuT3 (3 s.); SpM2 (1 s.); SpM4 (10 s.); SpM11 (1 s.); SpM13 (5 s.); SpT3 (305 s.); SpT12 (5 s.); SpT14 (1 s.); SuM4 (12 s.); SuM10 (2 s.); SuM13 (12 s.); SuT3 (8 s.); SuT12 (24 s.); SuT14 (7 s.).

8. ***Geotrupes mutator* Marsham, 1802**

Literature data: Smolyan, 1010 m (ZACHARIEVA, 1965a: 132).

Material examined: AuM1 (2 s.).

*9. ***Geotrupes spiniger* Marsham, 1802**

Material examined: AuM1 (10 s.); AuM9 (2 s.); AuT3 (3 s.).

Note. First citation for the Western Rhodopes.

*10. ***Geotrupes stercorarius* (Linnaeus, 1758)**

Material examined: AuM1 (1 s.).

Note. First citation for the Western Rhodopes.

11. ***Jekelius (Reitterius) punctulatus* (Jekel, 1865)**

Literature data: Alabak (IOAKIMOV, 1904: 20 sub *Geotrupes puncticollis*); Yundola (ANGELOV, 1965: 101 sub *Geotrupes punctulatus*).

Notes. This Balkan endemic species belongs to a monotypic Balkan endemic subgenus (Croatia, Bosnia Herzegovina, Serbia, Montenegro, Macedonia, Bulgaria).

***Lethrus (Lethrus) elephas* Reitter, 1890 [= *mandibularis* B. Jakovlev, 1892]**

Notes. This species was cited from the vicinity of the Asenova Krepost near Assenovgrad (NEDELKOV, 1909a: 34) and "Rhodopes" (MIKŠIĆ, 1959: 65-66 sub *L. mandibularis*). In fact *L. elephas* does not live in Bulgaria, and the data for it most probably concern the following species.

12. ***Lethrus (Lethrus) schaumii* Reitter, 1890**

Literature data: above Asenova Krepost near Assenovgrad (NEDELKOV, 1909a: 34 sub *L. elephas*).

Notes. *L. schaumii* is a rare endemic species, which range is located in the Thracian Lowland, Central-Eastern Bulgaria (GUÉORGUIEV & BUNALSKI, 2004). The record near Asenova Krepost represents the marginal occurrence of a typical lowland species in the Western Rhodopes; the aforementioned authors omitted this data.

13. ***Trypocopris (Trypocopris) vernalis vernalis* (Linnaeus, 1758)**

Literature data: Bezovo Hut; Ruen Hut; Zdravets Hut, V; Bachkovo (ANGELOV, 1965: 101); Trigrad, 1100 m (ZACHARIEVA, 1965a: 132 sub *Geotrupes vernalis*).

Material examined: Hut, 7-12.V.1979, 1 s., AS (IZ); Martsiganitsa Hut, 1330 m, 22.V.2005, 1 s., PS (IZ); SpM2 (1 s.); SpM4 (1 s.); SpM10 (4 s.); SpM11 (1 s.); SpT3 (3 s.); SpT7 (4 s.); SpT12 (4 s.); SuM10 (4 s.); SuM11 (1 s.); SuT3 (21 s.); SuT12 (56 s.); Yundola, 26-28.V.2008 (1 s.).

Family **Ochodaeidae**

14. *Ochodaeus chrysomeloides* (Schrank, 1781)

Literature data: Byala Cherkva, V (GUÉORGUIEV & BUNALSKI, 2004: 269).

15. *Ochodaeus thalycroides* Reitter, 1893

Literature data: Asenova Krepost near Assenovgrad, VI (BUNALSKI, 2001b: 167).

Family **Glaphyridae**

16. *Eulasia (Eulasia) arctos martes* (I. Frivaldszky von Frivald, 1845)

Literature data: Bratsigovo, V; Peshtera, V; Krichim, V (MINKOVA, 1959: 8).

Notes. A Balkan endemic subspecies (Macedonia, Bulgaria).

Family **Aphodiidae**

Subfamily **Orphininae**

17. *Chaetonyx schatzmayri* Mariani, 1946

Literature data: Bachkovo, 300-500 m, VI; Mostovo, 700-900 m, VII (KRÁL & MALÝ, 1993: 21).

Notes. A Balkan endemic species (Bulgaria, Northern Greece).

Subfamily **Aegialiinae**

18. *Aegialia arenaria* (Fabricius, 1787)

Literature data: Markovo (ANGELOV, 1965: 100).

Subfamily **Aphodiinae**

*19. *Aphodius (Acanthobodilus) immundus* Creutzer, 1799

Material examined: Hvojna, 17.VI.1980, 2 s., BZ (IZ).

Notes. First citation for the Western Rhodopes.

20. *Aphodius (Acrossus) depressus* (Kugelann, 1792)

Literature data: Zdravets Hut, V (ANGELOV, 1965: 100).

Material examined: SpM9 (4 s.); SpM10 (7 s.); SpM11 (7 s.); SpT3 (1 s.); SpT7 (6 s.); SpT8 (1 s.); SpT12 (24 s.); SpT14 (1 s.); SuM6 (1 s.); SuT12 (13 s.); SuT14 (1 s.).

21. *Aphodius (Acrossus) luridus* (Linnaeus, 1775) [= *nigripes* (Schönherr, 1806)]

Literature data: Zdravets Hut, V; Ruen Hut; Assenovgrad (= Gorni Voden); Yavorovo; Skobeleva (ANGELOV, 1965: 99); Stojkite Place; Trigrad, 1100 m (ZACHARIEVA, 1965a: 132 sub forma typ. & ab. *nigripes*); Debrashtitsa, V; Assenovgrad, V (ZACHARIEVA, 1965b: 237-278 sub forma typ. & ab. *nigripes*).

Material examined: SpM6 (1 s.); SpT3 (1 s.); SpT7 (3 s.).

22. *Aphodius (Acrossus) rufipes* (Linnaeus, 1758)

Literature data: Persenk Hut, IX; Mezargidik Place, 1900 m; Bashmandra Place (ANGELOV, 1965: 100); Velingrad, 800 m, VII; Gyumyurchal Place near Velingrad, VII; Persenk Peak, 2091 m, VII; "Golyam Beglik" (= Vassil Kolarov) Dam, 1600 m, VII (ZACHARIEVA & DIMOVA, 1975: 189); Smolyanski Ezera, 1400 m (BUNALSKI, 2000: 87).

Material examined: SuM4 (9 s.); SuM6 (3 s.); SuM9 (1 s.); SuT3 (9 s.); SuT7 (6 s.); SuT8 (6 s.); SuT12 (9 s.); SuT14 (6 s.).

23. *Aphodius (Agoliinus) satyrus* Reitter, 1892

Literature data: Golyam Persenk, 1600-2000, VI; Manastir, 1600-1900 m, VII; Pamporovo, 1300-1600, VII; Prespa, 1800-1900 m, VI (KRÁL & MALÝ, 1993: 22).

***24. *Aphodius (Agrilinus) ater convexus* Erichson, 1848**

Material examined: Rozhen, 16.VI.1980, 19 s., BZ (IZ); AuT12 (1 s.); SpM4 (4 s.); SpM9 (20 s.); SpM10 (18 s.); SpM11 (13 s.); SpM13 (1 s.); SpT3 (7 s.); SpT7 (1 s.); SpT8 (1 s.); SpT12 (3 s.); SpT14 (2 s.); SuM4 (1 s.); SuM10 (2 s.); SuM13 (3 s.); SuT12 (37 s.); SuT14 (16 s.); Yundola, 26-28.V.2008 (1 s.).

Notes. First citation for the Western Rhodopes.

25. *Aphodius (Agrilinus) scybalarius* (Fabricius, 1781) [= *rufus* (Moll, 1782)]

Literature data: Persenk Hut, IX (ANGELOV, 1965: 98 sub *A. rufus*); Smolyan, 1100 m, VII; Erkyupriya (= Chudnite Mostove) Place, 1480 m, VII; Zabardo, VI; Gyumurchal Place, VII; "Golyam Beglik" (= Vassil Kolarov) Dam, 1600 m, VII; Beglika, VII; Yundola, 1380 m, VII-VII; Persenk Peak, 2091 m, VII; Trigrad, 1250 m, VI-VII; Peshtera, VII; Pobit Kamak Place, VII; Karatepe Place, VII; Varnitsite Place, VIII; Selishteto Place, VII (ZACHARIEVA & DIMOVA, 1975: 190).

Material examined: AuM1 (1 s.); AuM4 (1 s.); AuT3 (2 s.); AuT14 (1 s.); SuM1 (4 s.); SuM4 (4 s.); SuM6 (3 s.); SuM9 (1 s.); SuT3 (4 s.); SuT8 (3 s.); SuT12 (6 s.); SuT14 (2 s.); Yundola, 26-28.V.2008 (1 s.).

26. *Aphodius (Amidorus) cribrarius* Brullé, 1836

Literature data: Hvojna, IX (BUNALSKI, 2001a: 29).

27. *Aphodius (Amidorus) obscurus obscurus* (Fabricius, 1792)

Literature data: Erkyupriya (= Chudnite Mostove) Place, 1480 m, VII; Zabardo, VI; Trigrad, 1250 m, VII; Devin, 800 m, VI; "Golyam Beglik" (= Vassil Kolarov) Dam, 1600 m, VII; Selishteto Place, VII; Karatepe Place, VII; Vishteritsa Place, 1380 m, VII (ZACHARIEVA & DIMOVA, 1975: 189).

Material examined: SpM11 (2 s.); SpT12 (2 s.); SuM6 (1 s.); SuM10 (3 s.); SuM13 (7 s.); SuT7 (2 s.); SuT12 (44 s.); SuT14 (89 s.).

28. *Aphodius (Amidorus) thermicola* Sturm, 1800

Literature data: Varnitsite Place, VII (ZACHARIEVA & DIMOVA, 1975: 190).

Material examined: Trigrad, 29.VI.1964, 1 s. / 4.X.1978, 12 s., BZ (IZ); AuM1 (20 s.); AuM4 (1 s.).

29. *Aphodius (Ammoecius) brevis* Erichson, 1848

Literature data: Mostovo, 700-900 m, VII (KRÁL & MALÝ, 1993: 22).

30. *Aphodius (Aphodius) fimetarius* (Linnaeus, 1758)

Literature data: Chepelare, Narechenski Bani; Smolyan; Bashmandra Place; Mezargidik Place, 1900 m; Zdravets Hut, V; Byala Cherkva; Persenk Hut, IX (ANGELOV, 1965: 97); Stojkite Place; Trigrad, 1100 m (ZACHARIEVA, 1965a: 133); Debrashtitsa, V; Assenovgrad, V (ZACHARIEVA, 1965b: 238).

Material examined: Chepelare, 5.IV.1974, 1 s., JG (IZ); AuM1 (5 s.); AuM4 (9 s.); AuM6 (31 s.); AuM9 (39 s.); AuM10 (55 s.); AuM13 (4 s.); AuT3 (30 s.); AuT7 (123

s.); AuT8 (7 s.); AuT12 (11 s.); AuT14 (44 s.); SpM4 (2 s.); SpM6 (34 s.); SpM9 (7 s.); SpM10 (20 s.); SpM11 (6 s.); SpT3 (8 s.); SpT7 (37 s.); SpT8 (3 s.); SpT12 (1 s.); SuM1 (20 s.); SuM4 (14 s.); SuM5 (8 s.); SuM6 (4 s.); SuM9 (1 s.); SuM10 (6 s.); SuM11 (4 s.); SuM13 (1 s.); SuT3 (1 s.); SuT7 (71 s.); SuT12 (3 s.); SuT14 (3 s.); Jundola, 25-27. IX.2007 (16 s.); / 26-28.V. 2008 (7 s.) / 12-14.IX.2008 (3 s.).

31. *Aphodius (Aphodius) foetens* (Fabricius, 1787) [= *aestivalis* Stephens, 1838]
Literature data: Narechenski Bani, VIII; Chepelare, VIII (ANGELOV, 1965: 97 sub *Aphodius aestivalis*); Hvojna, IX (BUNALSKI, 2001a: 30).

32. *Aphodius (Bodilus) lugens* Creutzer, 1799
Literature data: Devin, 800 m, 26.VI.1969, 1 s. revised, BZ (IZ) (ZACHARIEVA & DIMOVA, 1975: 190).

Notes. A species which is here confirmed for the regional fauna.

33. *Aphodius (Calamosternus) granarius* (Linnaeus, 1767)
Literature data: Stojkite Place (ZACHARIEVA, 1965a: 133); Trigrad, 1250 m, VII; Devin, 800 m, VI (ZACHARIEVA & DIMOVA, 1975: 190).
Material examined: AuM9 (1 s.); SpM9 (1 s.).

**34. *Aphodius (Chilothorax) conspurcatus* (Linnaeus, 1758)
Material examined: Glutnitsa near Trigrad, 2.X.1978, 2 s., VD (IZ); Trigrad, 4.X.1978, 1 s., VD (IZ).

Notes. **This is a new species for the Bulgarian fauna.** ALONSO-ZARAZAGA (2004) indicates the species for the Balkan Peninsula only for former Yugoslavia (currently Montenegro and Serbia). It seems that this citation is based on an earlier indication for Serbia (MIKŠIĆ, 1957: 178). ÁDÁM (2003) recorded *A. conspurcatus* for Serbia (Vojvodina) too and noted a first record for Croatia. The records near Trigrad trace out the southern border of the species range (BARAUD, 1992; ALONSO-ZARAZAGA, 2004).

*35. *Aphodius (Chilothorax) distinctus* (O.F. Müller, 1776)
Material examined: Glutnitsa near Trigrad, 2.X.1978, 5 s., VD (IZ); Trigrad, 2.X.1978 / 4.X.1978, 6 s., VD (IZ); AuT12 (1 s.).

Note. First citation for the Western Rhodopes.

? *Aphodius (Chilothorax) melanostictus* W. Schmidt, 1840
Literature data: Yundola, 1380 m, VIII; Selishteto Place, VII; Pobit Kamak Place, VII (ZACHARIEVA & DIMOVA, 1975: 189).

Notes. The identification of ZACHARIEVA & DIMOVA (1975) is questionable since our research in IZ cannot establish reliable material of this species from the Western Rhodopes.

36. *Aphodius (Chilothorax) sticticus* (Panzer, 1798)
Literature data: Zabardo, VI (ZACHARIEVA & DIMOVA, 1975: 189).
Material examined: AuM4 (23 s.); AuM6 (1 s.); AuT3 (5 s.); AuT7 (7 s.); AuT8 (2 s.); AuT12 (1 s.); SpM13 (2 s.); SpT3 (1 s.); SpT7 (1 s.); SpT8 (9 s.); SuM6 (1 s.); SuM11 (4 s.).

37. *Aphodius (Colobopterus) erraticus* (Linnaeus, 1758)

Literature data: Stojkite Place; Trigrad, 1100 m (ZACHARIEVA, 1965a: 132); Debrashtitsa, V; Assenovgrad, V (ZACHARIEVA, 1965b: 237); Smolyanski Ezera, 1350 m, VII; Trigrad, 1250 m, VI-VII (ZACHARIEVA & DIMOVA, 1975: 188).

Material examined: SpM2 (1 s.); SpM6 (1 s.); SpM10 (3 s.).

38. *Aphodius (Copriformus) scrutator* (Herbst, 1789)

Literature data: Persenk Hut, IX (ANGELOV, 1965: 96); Assenovgrad, V (ZACHARIEVA, 1965b: 237).

Material examined: Stojkite, 24.VII.1964, 8 s., BZ (IZ); Yundola, 22.VII.1965, 1 s., BZ (IZ); Smolyan, 26.VII.1965, 1 s., BZ (IZ); Progled, 27.VII.1965, 5 s., BZ (IZ); Rozhen, 27.VII.1965, 1 s., BZ (IZ); Persenk Peak, 29.VII.1965, 1 s., BZ (IZ); Beglika, 27.VII.1967, 3 s., BZ (IZ); Trigrad, 25.VI.1969, 2 s., BZ (IZ); Hvojna, 17.VI.1980, 8 s., BZ (IZ); AuM1 (4 s.); SuM6 (4 s.); SuM9 (4 s.).

39. *Aphodius (Esymus) merdarius* (Fabricius, 1775)

Literature data: Zdravets Hut, V (ANGELOV, 1965: 99).

Material examined: Kastrakli, 6.VII.1978, 4 s., BZ (IZ); Hvojna, 9.VII.1978, 1 s., BZ (IZ); Rozhen, 16.VI.1980, 3 s. (BZ).

***40. *Aphodius (Esymus) pusillus* (Herbst, 1789)**

Material examined: AuM6 (2 s.); AuM9 (2 s.); AuT7 (1 s.); SpM6 (1 s.); SpM10 (2 s.); SpM11 (7 s.); SpT3 (2 s.); SpT7 (5 s.); SpT8 (8 s.); SuM4 (5 s.); SuM9 (2 s.); SuM10 (2 s.); SuM11 (1 s.); SuM13 (4 s.); SuT3 (1 s.); SuT7 (3 s.); SuT14 (2 s.).

Notes. First citation for the Western Rhodopes.

41. *Aphodius (Eudolus) quadriguttatus* (Herbst, 1789)

Literature data: Markovo; Zdravets Hut, V (ANGELOV, 1965: 99).

Material examined: Hvojna, 9.VII.1978, 2 s., BZ (IZ).

42. *Aphodius (Euorodalus) paracoenosus* Balthasar et Hrubant, 1960

Literature data: Krichim; (RÖSSNER, 2005: 66).

Material examined: SpM2 (5 s.); SpM9 (10 s.); SpM10 (1 s.); SpT3 (25 s.); SpT8 (14 s.).

43. *Aphodius (Eupleurus) subterraneus* (Linnaeus, 1758)

Literature data: Assenovgrad, 16.V.1963, 1 s. revised, pasture, BZ (IZ) (ZACHARIEVA, 1965b: 237).

Notes. A species which is here confirmed for the regional catalogue.

44. *Aphodius (Limarus) maculatus* Sturm, 1800

Literature data: Assenovgrad, 200-500 m, VII; Bachkovo, 300-500 m, VI-VII; Dobrostan, 1400 m, VI-VII; Golyam Persenk, 1600-2000, VI; Manastir, 1600-1900 m, VII; Pamporovo, 1300-1600, VII (KRÁL & MALÝ, 1993: 23).

Material examined: Hvojna, 17.VI.1980, 1 s., BZ (IZ); AuT3 (1 s.); AuT8 (1 s.); SpT8 (1 s.); SuM4 (3 s.); SuM6 (20 s.); SuM9 (7 s.); SuM11 (2 s.); SuT3 (5 s.); SuT12 (1 s.); SuT14 (1 s.).

*45. *Aphodius (Liothorax) kraatzi* Harold, 1868

Material examined: Batak Dam, 1140 m, 2.V.2002, 4 s., EM (EM).

Notes. First citation for the Western Rhodopes.

46. *Aphodius (Melinopterus) consputus* Creutzer, 1799

Literature data: Stojkite Place (ZACHARIEVA, 1965a: 133).

Material examined: SpT12 (1 s.).

47. *Aphodius (Melinopterus) prodromus* (Brahm, 1790)

Literature data: Prespa Hut (ANGELOV, 1965: 99); Stojkite Place; Trigrad, 1100 m (ZACHARIEVA, 1965a: 133).

Material examined: Glutnitsa near Trigrad, 2.X.1978, 4 s., VD (IZ); Trigrad, 2.X.1978 / 4.X.1978, 58 s., VD (IZ); Rozhen, 16.VI.1980, 2 s., VD (IZ); AuM1 (2 s.); AuM6 (3 s.); AuT3 (8 s.); AuT7 (22 s.); SpM6 (50 s.); SpM9 (18 s.); SpM13 (1 s.); SpT3 (2 s.); SpT7 (100 s.); SpT8 (13 s.); SpT12 (2 s.).

48. *Aphodius (Melinopterus) sphaelatus* (Panzer, 1798)

Literature data: Chepelare, 1100 m, V; Manastir, 1600-1900 m, VII; Pamporovo, 1300-1600, VII; Prespa, 1800-1900 m, VI (KRÁL & MALÝ, 1993: 24).

Material examined: Glutnitsa near Trigrad, 2.X.1978, 31 s., VD (IZ); Trigrad, 2.X.1978, 49 s. / 4.X.1978, 61 s., VD (IZ); Borino, 5.X.1978, 1 s., VD (IZ); Kastrakli, Smolyan District, 6.X.1978, 11 s., VD (IZ); Rozhen, 16.VI.1980, 15 s., VD (IZ); AuM6 (1 s.); AuM9 (3 s.); AuT3 (1 s.); AuT14 (2 s.); SpM11 (1 s.); SpM13 (1 s.); SpT3 (3 s.); SpT7 (7 s.); SpT14 (8 s.); Jundola, 25-27.IX.2007 (8 s.) / 26-28.V.2008 (176 s.).

? *Aphodius (Neagolius) montanus* Erichson, 1848

Literature data: "Rhodopes" (MIKŠIĆ, 1957: 153).

Notes. MIKŠIĆ (1957) first indicated this species without exact locality. Later, MARIANI (1980) repeated this data, and KRELL (1991: 83) displayed a point on map from the Bulgarian part of the Western Rhodopes; both authors neither provide detailed location.

49. *Aphodius (Nialus) varians* Duftschmid, 1805 [= *niger* (Panzer, 1797)]

Literature data: Assenovgrad (ANGELOV, 1965: 98).

Notes. HORION (1958: 149) cited *A. niger* (Panzer, 1797) from Samokov, the Rila Mt. According to current taxonomic criteria this taxon is a synonym of *A. varians*.

*50. *Aphodius (Nimbus) contaminatus* (Herbst, 1783)

Material examined: AuT7 (2 s.).

Notes. First citation for the Western Rhodopes

*51. *Aphodius (Nimbus) obliteratus* Panzer, 1823

Material examined: AuM1 (21 s.); AuM4 (1 s.).

Notes. First citation for the Western Rhodopes.

52. *Aphodius (Nobius) serotinus* (Panzer, 1799)

Literature data: Kurtova Polyana (= Kurtovo) near Velingrad, IX; Yundola; Hvojna, IX (BUNALSKI, 2001a: 30).

53. *Aphodius (Otophorus) haemorrhoidalis* (Linnaeus, 1758) [= *sanguinolentus* Herbst, 1793]

Literature data: Smolyan; Narechenski Bani; Persenk Hut, IX; Mezargidik Place, 1900 m (ANGELOV, 1965: 97); Erkyupriya (= Chudnite Mostove), 1480 m, VII; Zabardo, VI; "Golyam Beglik" (= Vassil Kolarov) Dam, 1600 m, VII; Yundola, 1380 m, VII-VII; Beglika, VII; Satovcha, 990 m, VII (ZACHARIEVA & DIMOVA, 1975: 189 sub ab. *sanguinolentus* Herbst).

Material examined: SpM2 (1 s.); SuM1 (1 s.); SuM10 (1 s.); SuT14 (2 s.); Yundola, 27-29.VII.2007 (1 s.) / 26-28.V.2008 (1 s.) / 2-4.VIII.2008 (9 s.).

54. *Aphodius (Phalacrothus) biguttatus* Germar, 1824

Literature data: Bachkovo, V (BUNALSKI, 2001b: 168).

Material examined: Yundola, 2-4.VIII.2008 (2 s.).

55. *Aphodius (Planolinus) borealis* Gyllenhal, 1827

Literature data: Bachkovo, 300-500 m, VII; Dospat, 1000 m, VII; Manastir, 1600-1900 m, VII; Mostovo, 700-900 m, VII (KRÁL & MALÝ, 1993: 24).

56. *Aphodius (Planolinus) uliginosus* Hardy, 1847 [= *putridus* (Herbst, 1789) nec (Geoffroy, 1785)]

Literature data: Persenk Hut, IX (ANGELOV, 1965: 98 sub *Aphodius putridus* Herbst).

Material examined: Glutnitsa near Trigrad, 2.X.1978, 2 s., VD (IZ); Trigrad, 2.X.1978, 6 s., VD (IZ); AuM4 (5 s.); AuM11 (5 s.); AuM13 (7 s.); AuT3 (3 s.); AuT8 (7 s.); AuT12 (16 s.); AuT14 (23 s.); SpM13 (3 s.); SpT3 (1 s.); SpT8 (9 s.); SpT12 (1 s.).

*57. *Aphodius (Sigorus) porcus* (Fabricius, 1792)

Material examined: AuT7 (1 s.).

Note. First citation for the Western Rhodopes.

58. *Aphodius (Teuchestes) fossor* (Linnaeus, 1758)

Literature data: Bashmandra Place; Rozhen (ANGELOV, 1965: 96); Stojkite Place; Trigrad, 1100 m (ZACHARIEVA, 1965a: 132); Debrashtitsa, V (ZACHARIEVA, 1965b: 237); Smolyanski Ezera, 1350 m, VII (ZACHARIEVA & DIMOVA, 1975: 188).

Material examined: SpM4 (2 s.); SpM9 (2 s.); SpT3 (1 s.); SuM4 (1 s.); SuM9 (6 s.); SuT3 (1 s.).

59. *Aphodius (Trichonotulus) scrofa* (Fabricius, 1787)

Literature data: Assenovgrad, 200-500 m, VII; Bachkovo, 300-500 m, VI (KRÁL & MALÝ, 1993: 24).

60. *Euheptaulacus carinatus* (Germar, 1824)

Literature data: Erkyupriya (= Chudnite Mostove) place, 1480 m, VII; Studenets Hut, VII; Pamporovo, VII; "Golyam Beglik" (= Vassil Kolarov) Dam, 1600 m, VII; Beglika, VII; Yundola, 1380 m, VII-VII; Karatepe Place, VII; Selishteto Place, VII (ZACHARIEVA & DIMOVA, 1975: 190).

Material examined: SuM10 (28 s.); SuM13 (31 s.); SuT12 (5 s.).

61. *Eubeptaulacus sus* (Herbst, 1783)

Literature data: Bachkovo, 300-500 m, VI-VII (KRÁL & MALÝ, 1993: 25).

62. *Oxyomus sylvestris* (Scopoli, 1763) [= *silvestris* auct.]

Literature data: Chepelare (ANGELOV, 1965: 96 sub *O. silvestris*).

Material examined: SpM6 (1 s.); SpT8 (1 s.); SuM1 (1 s.); SuT7 (3 s.).

Subfamily **Psammodiinae**

63. *Pleurophorus caesus* (Creutzer in Panzer, 1796)

Literature data: Peshtera, V (ANGELOV, 1965: 96).

Family **Scarabaeidae**

Subfamily **Coprinae**

64. *Caccobius schreberi* (Linnaeus, 1767)

Literature data: Bachkovski Manastir (PITTIONI, 1940: 228); Yavorovo; Narechenski Bani; Kukulek place; Smolyan; Zdravets Hut, V (ANGELOV, 1965: 106); Assenovgrad, V (ZACHARIEVA, 1965b: 232).

Material examined: SpM2 (16 s.); SpT3 (4 s.); SpT7 (3 s.); SuM1 (18 s.); SuM6 (1 s.); SuM13 (1 s.); SuT7 (1 s.); Jundola, 2-4.VIII.2007 (1 s.).

65. *Copris hispanus cavolini* (Petagna, 1792)

Literature data: Assenovgrad (= Stanimaka), V (NEDELKOV, 1905: 424 sub *C. hispanus* Linnaeus; PITTIONI, 1940: 224 sub *C. hispanus* Linnaeus; ZACHARIEVA, 1965b: 231); Asenova Krepost near Assenovgrad (NEDELKOV, 1909a: 35); Trigrad, 1100 m (ZACHARIEVA, 1965a: 130 sub *Copris hispanus*).

66. *Copris lunaris* (Linnaeus, 1758)

Literature data: Krichim / Krichimska Kuriya, IV-V; Bachkovski Manastir, V; Trigrad, VI (PITTIONI, 1940: 224); Smolyan, 1010 m; Trigrad, 1100 m (ZACHARIEVA, 1965a: 130); Trigrad, 1250 m, V-VI; Yundola, 1380 m, VIII (ZACHARIEVA & DIMOVA, 1975: 185).

Material examined: Bachkovski Monastery, 29.4.1961, 1 s., MW; Satovcha, 23.7.1965, 36 s., BZ; Dospat, 24.7.1965, 9 s. Yundola, 22.7.1965, 2 s., BZ; Devin, 26.6.1969, 13 s., BZ; Teshel, 25.7.1965, 1 s., BZ; AuM1 (2 s.); SpM2 (2 s.); SpM4 (3 s.); SpT3 (19 s.); SuM4 (1 s.); SuT3 (5 s.).

67. *Copris umbilicatus* Abeille de Perin, 1901

Literature data: Trigrad, 29.6.1964, 1260 m, 3 s. revised / 25.7.1965, 4 s. revised / 25.6.1969, 4 s. revised, BZ (IZ) (ZACHARIEVA, 1965a: 130; ZACHARIEVA-STOILOVA, 1970: 40).

Material examined: Trigrad, 20.5.1979, 3 s., BZ.

Notes. According to ZACHARIEVA-STOILOVA (1970) this rare species is a pre-glacial relict with scarce populations and a disjunct distribution in Central and South Europe. For the present the records around Trigrad are the only ones known in Bulgaria.

68. *Euoniticellus fulvus* (Goeze, 1777)

Literature data: Assenovgrad (= Stanimaka), V; Bachkovski Manastir, V; Hvojna, VIII (PITTIONI, 1940: 227 sub *Oniticellus fulvus*); Yavorovo; Narechenski Bani; Smolyan; Bashmandra place (ANGELOV, 1965: 102 sub *Oniticellus fulvus*); Assenovgrad, V (ZACHARIEVA, 1965b: 232 sub *Euoniticellus vulvus*).

Material examined: AuM1 (2 s.); AuT3 (6 s.); SpM2 (14 s.); SpM4 (1 s.); SpT3 (2 s.); SuM1 (15 s.); Jundola, 2-4.VIII.2007 (1 s.) / 26-28.V.2008 (1 s.) / 12-14.IX.2008 (2 s.).

69. *Euoniticellus pallipes* (Fabricius, 1781)

Literature data: Stojkite Place, 1480 m, 28.V.1964, 1 s. revised, BZ (IZ) (ZACHARIEVA & DIMOVA, 1975: 185 sub *Oniticellus pallipes*).

Notes. A species confirmed for the regional catalogue.

? *Euonthophagus amyntas* (Olivier, 1789)

Literature data: Trigrad, 1100 m (ZACHARIEVA, 1965a: 131 sub *Onthophagus amyntas alces* Fabricius); Assenovgrad, V (ZACHARIEVA, 1965b: 232 sub *Onthophagus amyntas alces* Fabricius).

Notes. The data of ZACHARIEVA (1965a; 1965b) are questionable since they may concern another species from the genus. Our research in IZ cannot establish reliable material of this species from the Western Rhodopes.

70. *Euonthophagus gibbosus* (L.G. Scriba, 1790)

Literature data: Assenovgrad; Narechenski Bani; Markovo; Yavorovo (ANGELOV, 1965: 104 sub *Onthophagus gibbosus*); Smolyanski Ezera, 1350 m, VII; Rozhen, VII; Trigrad, 1250 m, VI-VII; Persenk Peak, 2091 m, VII; Yundola, 1380 m, VII-VII; Dospat, 1500 m, VIII; Peshtera, VII (ZACHARIEVA & DIMOVA, 1975: 186).

Material examined: SuM1 (3 s.).

71. *Onthophagus (Furconthophagus) furcatus* (Fabricius, 1781)

Literature data: Assenovgrad (= Stanimaka), IV; Bachkovski Manastir (PITTIONI, 1940: 234); Yavorovo; Ruen Hut; Assenovgrad; Bashmandra Place; Narechenski Bani; Zdravets Hut; Kukulek place (ANGELOV, 1965: 104); Smolyan, 1010 m; Stojkite place (ZACHARIEVA, 1965a: 132); Assenovgrad, V; Debrashtitsa, V (ZACHARIEVA, 1965b: 233).

Material examined: SuM1 (1 s.).

72. *Onthophagus (Onthophagus) illyricus* (Scopoli, 1763)

Literature data: Narechenski Bani; Bashmandra Place (ANGELOV, 1965: 104).

Material examined: AuM1 (1 s.); AuT7 (1 s.); SpM2 (7 s.); SpT3 (24 s.); SuM1 (9 s.); SuT3 (4 s.).

73. *Onthophagus (Onthophagus) taurus* (Schreber, 1759)

Literature data: Assenovgrad (= Stanimaka), V; Bachkovski Manastir (PITTIONI, 1940: 233); Narechenski Bani (ANGELOV, 1965: 105); Smolyan, 1010 m; Stojkite Place; Trigrad, 1100 m (ZACHARIEVA, 1965a: 131-132); Debrashtitsa, V; Bachkovski Manastir, IV; Assenovgrad, V (ZACHARIEVA, 1965b: 233); Smolyanski Ezera, 1350 m, VII (ZACHARIEVA & DIMOVA, 1975: 187).

Material examined: AuT3 (2 s.); SpM2 (55 s.); SuM1 (32 s.); SuM6 (1 s.); SuT3 (15 s.); SuT7 (13 s.).

74. *Onthophagus (Palaeonthophagus) grossepunctatus* Reitter, 1905

Literature data: Hvojna, IX; Lepenitsa near Velingrad, IX (GOLJAN, 1953: 65; MIKŠIĆ, 1957: 144).

Material examined: Hvojna, 9.VII.1978, 73 s., VD (IZ); AuT3 (4 s.); SpM2 (9 s.); SpM4 (7 s.); SpM11 (2 s.); SpT3 (159 s.); SpT14 (3 s.); SuM6 (3 s.); SuM11 (11 s.); SuT7 (5 s.); SuT12 (181 s.).

75. *Onthophagus (Palaeonthophagus) joannae* Golian, 1953

Literature data: Kurtovo Place near Velingrad, IX (GOLJAN, 1953: 68; MIKŠIĆ, 1957: 144).

Material examined: AuM1 (1 s.); AuM6 (25 s.); AuM9 (3 s.); AuM10 (2 s.); AuM11 (4 s.); AuM13 (4 s.); AuT3 (9 s.); AuT8 (4 s.); SpM6 (38 s.); SpM9 (27 s.); SpM10 (17 s.); SpM11 (25 s.); SpM13 (1 s.); SpT3 (433 s.); SpT7 (93 s.); SpT8 (122 s.); SpT12 (21 s.); SuM1 (3 s.); SuM6 (14 s.); SuM9 (2 s.); SuM10 (31 s.); SuM11 (24 s.); SuT3 (41 s.); SuT7 (157 s.); SuT8 (23 s.); SuT12 (410 s.); SuT14 (4 s.).

76. *Onthophagus (Palaeonthophagus) ovatus* (Linnaeus, 1767)

Literature data: Bachkovski Manastir (PITTIONI, 1940: 233); Bashmandra Place; Zdravets Hut, V; Kukulek Place; Assenovgrad (= Gorni Voden); Persenk Hut, IX; Smolyan (ANGELOV, 1965: 105); Assenovgrad, V (ZACHARIEVA, 1965b: 233); Zabardo, VI; Devin, 800 m, VI; Yundola, 1380 m, VII; Batak, VII; Peshtera, VII (ZACHARIEVA & DIMOVA, 1975: 187).

Material examined: AuT12 (64 s.); AuT7 (2 s.); SpM11 (5 s.); SpT3 (161 s.); SuM1 (9 s.); SuM6 (2 s.); SuM10 (6 s.); SuM11 (35 s.); SuT3 (10 s.); SuT7 (49 s.); SuT8 (12 s.); SuT12 (135 s.).

77. *Onthophagus (Palaeonthophagus) ruficapillus* Brullé, 1832

Literature data: Belovo (PITTIONI, 1940: 234); Hvojna, IX (GOLJAN, 1953: 64); Kukulek Place; Yavorovo; Narechenski Bani; Bashmandra Place (ANGELOV, 1965: 105); Assenovgrad, V (ZACHARIEVA, 1965b: 233); Smolyanki Ezera, 1350 m, VII (ZACHARIEVA & DIMOVA, 1975: 187).

Material examined: Dospat, 25.VII.1965, 7 s., BZ (IZ); Bachkovski Manastir, 14.VII.1967, 1 s., BZ (IZ); Peshtera, 21.VII.1967, 28 s., BZ (IZ); Batak, 22.VII.1967, 1 s., BZ (IZ); Devin, 26.VI.1969, 1 s., BZ (IZ); Hvojna, 9.VII.1978, 1 s., VD (IZ); SpM2 (2 s.) Yundola, 26-28.V.2008 (1s.).

78. *Onthophagus (Palaeonthophagus) coenobita* (Herbst, 1783)

Literature data: Bachkovo (ANGELOV, 1965: 103).

79. *Onthophagus (Palaeonthophagus) fracticornis* (Preysler, 1790)

Literature data: Golem Belovski Balkan (NEDELKOV, 1905: 423); Assenovgrad (= Stanimaka), V; Belovo (PITTIONI, 1940: 235); Zdravets Hut, V; Smolyan; Persenk Hut, IX; Persenk Peak; Narechenski Bani; Yavorovo; Mezargidik Place; Bashmandra Place; Kukulek Place (ANGELOV, 1965: 104); Trigrad, 1250 m, V-VI; Stojkite Place, 1480 m, V (ZACHARIEVA & DIMOVA, 1975: 186).

Material examined: AuM4 (4 s.); AuM6 (3 s.); AuM9 (8 s.); AuM10 (9 s.); AuM11 (1 s.); AuT3 (188 s.); AuT7 (177 s.); AuT8 (71 s.); AuT12 (41 s.); AuT14 (1 s.); SpM2 (22 s.); SpM4 (12 s.); SpM6 (4 s.); SpM9 (28 s.); SpM10 (5 s.); SpM11 (3 s.); SpT3 (90 s.); SpT7 (126 s.); SpT8 (15 s.); SpT12 (1 s.); SuM1 (15 s.); SuM4 (1 s.); SuM6 (1 s.); SuM9 (1 s.); SuM13 (1 s.); SuT12 (57 s.); Narechen, 600 m, 25.X.2005, 9 s., TL (IZ); Jundola, 2-4.VIII.2007 (26 s.) / 25-27.IX.2007 (7 s.) / 26-28.V.2008 (19 s.) / 2-4.VIII.2008 (7 s.) / 12-14.IX.2008 (6 s.).

Notes. According to ZACHARIEVA & DIMOVA (1975) this species is most abundant in the altitudinal interval between 1250 and 1480 meters.

80. *Onthophagus (Palaeonthophagus) lemur* (Fabricius, 1781)

Literature data: Assenovgrad (= Stanimaka), V (PITTIONI, 1940: 236); Zdravets Hut, V; Yavorovo (ANGELOV, 1965: 104); Bachkovo, VI; Asenova Krepost near Assenovgrad, IV; Debrashtitsa, V (ZACHARIEVA, 1965b: 234); Zabardo, VI; Stojkite Place, V, 1480 m; Trigrad, 1250 m, VI-VII; Dospat, 1500 m, VII; Peshtera, VII (ZACHARIEVA & DIMOVA, 1975: 186).

Material examined: SpM2 (2 s.); SpT3 (8 s.).

81. *Onthophagus (Palaeonthophagus) similis* (L.G. Scriba, 1790)

Literature data: Smolyan, 1100 m, VII; Zabardo, VI; Stojkite Place, V, 1480 m; Smolyanski Ezera, 1350 m, VII; Chajra Place, 1400 m, VII; Yundola, 1380 m, VII-VII; Trigrad, 1250 m, VI-VII; Devin, 800 m, VII; Persenk Peak, 2091 m, VII; Peshtera, VII; Batak, VII; Dospat, 1500 m, VIII (ZACHARIEVA & DIMOVA, 1975: 187).

Material examined: AuM1 (5 s.); AuM4 (13 s.); AuM6 (5 s.); AuM9 (9 s.); AuM10 (10 s.); AuM11 (3 s.); AuM13 (3 s.); AuT3 (87 s.); AuT7 (37 s.); AuT8 (18 s.); AuT12 (47 s.); AuT14 (6 s.); SpM2 (37 s.); SpM4 (4 s.); SpM6 (8 s.); SpM9 (6 s.); SpM10 (12 s.); SpM11 (2 s.); SpM13 (1 s.); SpT3 (111 s.); SpT7 (54 s.); SpT8 (13 s.); SpT12 (4 s.); SpT14 (9 s.); SuM6 (9 s.); SuM9 (3 s.); SuM11 (2 s.); SuM13 (11 s.); SuT3 (1 s.); SuT7 (43 s.); SuT12 (27 s.); SuT14 (4 s.); Yundola, 2-4.VIII.2007 (19 s.) / 26-28.V.2008 (4 s.) / 2-4.VIII.2008 (20 s.) / 12-14.IX.2008 (6 s.).

82. *Onthophagus (Palaeonthophagus) vacca* (Linnaeus, 1767)

Literature data: Stojkite Place; Trigrad, 1100 m (ZACHARIEVA, 1965a: 132); Debrashtitsa, V (ZACHARIEVA, 1965b: 234); Yundola, 1380 m, 23.VII.1967, 1 s. revised, BZ (IZ) (ZACHARIEVA & DIMOVA, 1975: 187).

Material examined: Bachkovski Manastir, 14.VI.1967, 1 s., BZ (IZ); Batak, 22.VII.1967, 2 s., BZ (IZ); Trigrad, 25.VI.1969, 5 s., BZ / 4.X.1978, 1 s., VD (IZ); Devin, 26.VI.1969, 2 s., BZ (IZ); Zabardo, 26.VI.1969, 2 s., BZ (IZ); Kastrakli, 6.VII.1978, 2 s., VD (IZ); SpM2 (1 s.); SpM6 (1 s.); SpT3 (4 s.); SuM1 (2 s.); Yundola, 2-4.VIII.2007 (2 s.).

83. *Onthophagus (Palaeonthophagus) verticicornis* (Leicharting, 1781)

Literature data: Zdravets Hut, V; Hrabrino (ANGELOV, 1965: 105); Smolyan, 1010 m; Stojkite Place; Trigrad, 1100 m (ZACHARIEVA, 1965a: 132); Bachkovski Manastir, IV; Debrashtitsa, V; Assenovgrad, V (ZACHARIEVA, 1965b: 234); Zabardo, VI; Trigrad, 1250 m, VI-VII; Devin, 800 m, VII (ZACHARIEVA & DIMOVA, 1975: 188).

Material examined: SpM2 (46 s.); SpM4 (83 s.); SpM9 (5 s.); SpT3 (107 s.); SpT8 (5 s.); SuM4 (2 s.); SuT3 (10 s.); SuT12 (1 s.).

? *Onthophagus (Palaeonthophagus) vitulus* (Fabricius, 1776) [= *camelus* Fabricius, 1787]

Literature data: "Rhodopes" (NEDELKOV, 1905: 423 sub *O. camelus*).

Notes. Probably this species will be finding in rodent nest as result of further terrain studies.

Subfamily **Scarabaeinae**

84. *Gymnopleurus geoffroyi* (Füessly, 1775) [= *cantharus* Illiger, 1803]

Literature data: Bachkovski Manastir (NEDELKOV, 1905: 423 sub *G. cantharus*); Peshtera, V; Velingrad (= Ladjene), VIII; Assenovgrad (= Stanimaka), V; Bachkovski Manastir, V (PITTIONI, 1940: 221); Assenovgrad (ANGELOV, 1965: 102); Suchoto Dere near Razlog, 1350 m, VIII; Batak, 1100, VIII (ZACHARIEVA & DIMOVA, 1975: 184).

85. *Gymnopleurus mopsus* (Pallas, 1781)

Literature data: Krichim, V; Peshtera, V; Velingrad (= Ladjene), VII; Belovo (PITTIONI, 1940: 220); Suchoto Dere near Razlog, 1350 m, VIII (ZACHARIEVA & DIMOVA, 1975: 184).

86. *Gymnopleurus sturmi* McLeay, 1821

Literature data: Assenovgrad (= Stanimaka), V (PITTIONI, 1940: 220).

87. *Scarabaeus (Scarabaeus) pius* (Illiger, 1793)

Literature data: Assenovgrad (= Stanimaka), 30.IV.1906, 3 s. revised / V.1906, 3 s. revised (IZ); Peshtera, 2.V.1909, 1 s. revised (IZ) (PITTIONI, 1940: 218); Hrabrino; Krichim (ANGELOV, 1965: 102).

Material examined: Bachkovski Manastir, VI.1956, 1 s., BE (NMNHS).

88. *Scarabaeus (Scarabaeus) typhon* Fischer von Waldheim, 1823 [= *affinis* Brullé, 1832]

Literature data: Assenovgrad (= Stanimaka) (STOLFA, 1938: 149; MIKŠIĆ, 1959: 49); Krichim, 5.V.1908, 1 s. revised (NMNHS); Peshtera, 27.V.1905, 2 s. revised (NMNHS) (PITTIONI, 1940: 217 sub *S. affinis*).

Material examined: Bratsigovo, 1 s., AM; Perushtitsa, VII.1921, 2 s., Sakazov leg.

89. *Sisyphus schaefferi* (Linnaeus, 1758) s.l.

Literature data: Assenovgrad (= Stanimaka), V; Trigrad, VI; Krichim, V (PITTIONI, 1940: 221 sub forma typ. & ssp. *boschniaki* Fischer von Waldheim); Trigrad, 1250 m, V-VI; Yundola, 1380 m, VIII (ZACHARIEVA & DIMOVA, 1975: 184).

Family **Melolonthidae**

Subfamily **Melolonthinae**

90. *Anoxia (Anoxia) villosa* (Fabricius, 1781)

Literature data: Krichim (HORION, 1958: 215).

91. *Anoxia (Protanoxia) orientalis* (Krynicky, 1832)

Literature data: Velingrad, 800 m, 15.VII.1965, 1 s. revised, WK (IZ) (ZACHARIEVA & DIMOVA, 1975: 191).

Note. A species confirmed for the regional catalogue.

? *Melolontha hippocastani* Fabricius, 1801

Literature data: Bratsigovo, V (NEDELKOV, 1905: 426).

Notes. KANTARDJIEVA-MINKOVA (1953) reported *M. pectoralis* for the Western Rhodopes based on single specimen collected by N. Nedelkov near Bratigovo. However, according to our opinion this material could be identical with that published by NEDELKOV (1905: 426) as *M. hippocastani*. Despite of that the former author gave no comments about eventual misidentification, we treat the latter as doubtful for the region.

92. *Melolontha melolontha* (Linnaeus, 1758)

Literature data: Belovo, V; Krichim, V; Ustina, V (KANTARDJIEVA-MINKOVA, 1953: 286).

93. *Melolontha pectoralis* Megerle von Mühlefeld, 1812

Literature data: Bratsigovo (KANTARDJIEVA-MINKOVA, 1953: 287).

Notes. See the notes under *M. hippocastani*.

94. *Polyphylla (Polyphylla) boryi* Brullé, 1832

Literature data: Smolyanski Ezera, 1400 m (BUNALSKI, 2000: 87).

Notes. A Balkan endemic species (Croatia, Bulgaria, Greece, European Turkey).

95. *Polyphylla (Polyphylla) fullo* (Linnaeus, 1758)

Literature data: Peshtera, VII; Krichim, VI-VII (KANTARDJIEVA-MINKOVA, 1953: 282).

96. *Polyphylla (Polyphylla) olivieri* Laporte, 1840

Literature data: Krichim, VII-VIII (KANTARDJIEVA-MINKOVA, 1953: 282).

Subfamily **Rhizotroginae**

species group "*atrum*"

97. *Amphimallon assimile* (Herbst, 1790)

Literature data: Assenovgrad (= Stanimaka), V (KANTARDJIEVA-MINKOVA, 1953: 300); Velingrad, 800 m, 15.VII.1965, 7 s. revised, WK (IZ); Matan Dere, 27.VII.1966, 1 s. revised, MW (IZ) (ZACHARIEVA & DIMOVA, 1975: 191).

Material examined: Smolyan, 26.VII.1965, 1 s., BZ (IZ).

98. *Amphimallon burmeisteri* Brenske, 1886

Literature data: Bachkovo, VI; Chepelare, 1000, VII; Manastir, 1900 m, VII; Pamporovo, 1400 m, VII (KRÁL & MALÝ, 1993: 26; RÖSSNER & KRELL, 2001: 196).

Material examined: Chepelare, 22-28.VII.1977, 1 s., JG (IZ); W of Rozhen, 1400 m, 17.VII.2005, 1 m., 1 f., BG (NMNHS).

99. *Amphimallon majale* (Razoumovsky, 1789)

Literature data: Smolyanski Ezera, 1400 m (BUNALSKI, 2000: 89).
species group “*solstitiale*”

*100. *Amphimallon caucasicum* (Gyllenhal, 1817)

Material examined: Velingrad, 15.VII.1965, 4 s., WK (IZ).
Notes. First citation for the Western Rhodopes.

101. *Amphimallon solstitiale* (Linnaeus, 1758) s.l.

Literature data: Trigrad, VI; Velingrad (= Ladjene), VII; Chepelare, VII (KANTARDJIEVA-MINKOVA, 1953: 299); Smolyanski Ezera, 1400 m (BUNALSKI, 2000: 89).

Material examined: Velingrad, 15.VII.1965, 1 s., WK (IZ); Smolyan, 26.VII.1965, 1 s., BZ (IZ); Sokolovtsi, 985 m, 17.VII.2005, 1 m., BG (NMNHS); near to Vucha River close to quarter Nastan (Devin Town), 19.VII.2005, 1 s., BG (NMNHS).

102. *Aplidia transversa transversa* (Fabricius, 1801)

Literature data: “Rhodopes” (NEDELKOV, 1905: 425 sub *Haplidia transversa*); Assenovgrad (= Stanimaka) (HORION, 1958: 193 sub *Haplidia transversa*).

103. *Miltotrogus aequinoctialis* (Herbst, 1790)

Literature data: Krichim, V (KANTARDJIEVA-MINKOVA, 1953: 295 sub *Rhisotrogus aequinoctialis*).

104. *Miltotrogus fallax* (Marseul, 1879)

Literature data: Belovo, IV (KANTARDJIEVA-MINKOVA, 1953: 282 sub *Rhisotrogus fallax*).

105. *Miltotrogus vernus* (Germar, 1823)

Literature data: Assenovgrad (= Stanimaka), V (KANTARDJIEVA-MINKOVA, 1953: 294 sub *Rhisotrogus vernus*); Pavelsko, IX (ZACHARIEVA, 1965b: 242).

106. *Pseudotrematodes frivaldszkyi* (Ménétriés, 1836)

Literature data: Assenovgrad (= Stanimaka), V (IOAKIMOV, 1904: 20 sub *Rhizothrogus frivaldszkyi*; NEDELKOV, 1909a: 36); “Sveti Petar” Manastir (NEDELKOV, 1909a: 36).

Notes. A Balkan endemic species (Macedonia, Bulgaria, Greece, European Turkey).

Subfamily **Sericinae**

107. *Maladera (Maladera) holosericea* (Scopoli, 1772)

Literature data: Narechen, VII; Pavelsko, IX; Asenova Krepost near Assenovgrad, VII (ZACHARIEVA, 1965b: 240).

species group “*erythroptera*”

108. *Omaloplia (Omaloplia) cerrutti* (Sabatinelli, 1977)

Literature data: Bachkovo, 500 m, VII; Bachkovski Manastir, 700 m, VI (RÖSSNER, 1995: 133); Bachkovo, 500 m, VI-VII; Bachkovski Manastir, 700 m, VI; Hvojna, VII; Krichim, VI (RÖSSNER & AHRENS, 2004: 49).

109 *Omaloplia* (*Omaloplia*) *erythroptera* **Frivaldszky, 1835** [= *carbonaria* (Blanchard, 1850)]

Literature data: "Sveti Petar" Manastir (NEDELKOV, 1909a: 36); Stojkite Place, 1480 m, 19.VI.1964, 1 m. revised (genitalia examined), BZ (IZ); Trigrad, 1250 m, VII (ZACHARIEVA & DIMOVA, 1975: 191); Bachkovo; Chepelare (RÖSSNER, 1995: 134); Krichim, VI; Yakoruda, VI; W of Velingrad, VI; Chepelare, VII; Bachkovo, VII (RÖSSNER & AHRENS, 2004: 47).

Material examined: Kastrakli, 6.VII.1978, 81 s. (genitalia of 6 m. examined, BZ (IZ); Trigrad, 7.VII.1978, 6 s., BZ (IZ).

species group "*graeca*"

110. *Omaloplia* (*Omaloplia*) *caeca* **Baraud, 1965**

Literature data: Pamporovo, VI-VII; Chepelare, VII; Yagodina, VII; Manastir, 1900 m, VII (RÖSSNER & AHRENS, 2004: 36-37).

Material examined: Kastrakli, 1100 m, 12-16.VII.76, 1 m. (genitalia examined), MJ (IZ); Kastrakli, 6.VII.1978, 26 s. (genitalia of 5 m. examined), BZ (IZ); 5 km E of Perelik Hut, 1780 m, 17.VII.2005, 1 f., BG (NMNHS).

Notes. A Balkan endemic species (Serbia, Macedonia, Bulgaria, Greece).

111. *Omaloplia* (*Omaloplia*) *iris* (**Reitter, 1887**)

Literature data: Assenovgrad, VI (RÖSSNER & AHRENS, 2004: 41).

Notes. A Balkan endemic species (Montenegro, Macedonia, Bulgaria, Romanian Dobrogea, North Greece).

species group "*ruricola*"

112. *Omaloplia* (*Omaloplia*) *baraudi pontica* **Ádám, 1994**

Literature data: Bachkovo, 500 m, VII; Bachkovski Manastiri, 700, VI; Martsiganitsa, 1200-1400 m, VII; Hvojna, 800 m, VII; Mostovo, 1200-1450 m, VII; Smolyan; Narechenski Bani, VII (RÖSSNER, 1997a: 105; RÖSSNER & AHRENS, 2004: 23).

Material examined: Sokolovtsi, 985 m, 17.VII.2005, 3 s. (genitalia of 1 m. examined), BG (NMNHS).

Notes. It is the most abundant representative of the genus in the Western Rhodopes.

? *Omaloplia* (*Omaloplia*) *ruricola ruricola* (**Fabricius, 1775**) [= *marginata* (Fuessly, 1775)]

Literature data: "Rhodopes" (NEDELKOV, 1905: 425 sub *Homaloplia marginata*).

Notes. This record probably concerns to *O. baraudi pontica*.

113. *Serica brunnea* (**Linnaeus, 1758**)

Literature data: "Golyam Beglik" (= Vassil Kolarov) Dam, 1600 m, VII (ZACHARIEVA & DIMOVA, 1975: 191); Smolyanski Ezera, 1400 m (BUNALSKI, 2000: 89).

Material examined: Chepelare, 13-19.VII.1975, 1 s., JG (IZ).

Family **Rutelidae**

Subfamily **Hoplineae**

114. *Hoplia argentea* (**Poda, 1761**) [= *farinosa* auct. nec (Linnaeus, 1761)]

Literature data: “Rhodopes” (NEDELKOV, 1905: 428 sub *Hoplia farinosa*); Pamporovo: Snezhanka Peak, 1700 m, VII (RÖSSNER, 1997b: 191).
Material examined: Trigrad, 7.VII.1978, 16 s., BZ (IZ).

115. *Hoplia dilutipes* Reitter, 1890

Literature data: Pamporovo, 1400 m, VII (RÖSSNER, 1997b: 192).

Subfamily Rutelinae

species group “*zwicki*”

? *Anisoplia (Anisoplia) flavipennis* Brullé, 1832

Literature data: “Rhodopes” (MIK IĆ, 1959: 99).

? *Anisoplia (Anisoplia) lata lata* Erichson, 1847

Literature data: “Rhodopes” (NEDELKOV, 1905: 428); “high mountainous regions” (ZACHARIEVA & DIMOVA, 1975: 192).

species group “*deserticola*”

116. *Anisoplia (Anisoplia) thessalica* Reitter, 1888

Literature data: Assenovgrad; Hvojna (MIKŠIĆ, 1953); ZACHARIEVA, 1965b: 246); Krichim, VI (ZACHARIEVA-STOILOVA, 1962: 102).

species group “*agricola*”

? *Anisoplia (Anisoplia) agricola* (Poda, 1761)

Literature data: “Rhodopes” (ZACHARIEVA-STOILOVA, 1962: 92); “high mountainous regions” (ZACHARIEVA & DIMOVA, 1975: 192). species group “*villosa*”

117. *Anisoplia (Anisoplia) bulgarica* Apfelbeck, 1909

Literature data: Dospat, 1500 m, VIII; Satovcha, 990 m, VII; Smolyan, 1100 m, VII; Smolyanski Ezera, 1350 m, VII; Stojkite Place, 1480 m, VI; Varnitsite Place, VII; Persenk Peak, 2091 m, VII; Batak, VII; ZACHARIEVA & DIMOVA, 1975: 192).

Notes. A Balkan subendemic (Bulgaria, Romania).

118. *Anisoplia (Anisoplia) villosa* (Goeze, 1777) [= *villica* Mulsant & Rey, 1870]

Literature data: Assenovgrad (= Stanimaka), V (Ioakimov, 1904: 19 sub *C. villica*).

? *Anisoplia (Autanisoplia) austriaca austriaca* (Herbst, 1783)

Literature data: “Rhodopes” (NEDELKOV, 1905: 428).

119. *Anomala (Anomala) dubia* (Scopoli, 1763) [= *aenea* (DeGeer, 1774); *oblonga* (Fabricius, 1776); *fallax* Schildsky, 1888]

Literature data: Byala Cherkva (APFELBECK, 1894: 550 sub *Anomala aenea*); Velingrad (= Chepino), VI (IOAKIMOV, 1904: 19 sub *Anomala! aenea*); Chepelare (ROUBAL, 1933: 144 sub *Anomala oblonga*); Trigrad, 1250 m, 25.VII.1964, 52 s. revised, BZ (IZ); Smolyanski Ezera, 1350 m, 24.VII.1964, 3 s. revised, BZ (IZ); Dospat, 1500 m, 23.VII.1965, 1 s. revised, BZ (IZ); Teshel, 1100 m, 25.VII.1965, 1 s., BZ (IZ) (ZACHARIEVA & DIMOVA, 1975: 192 sub forma typ. & ab. *fallax* Schildsky); Trigrad, 1250 m, 25.VII.1964, 3 s. revised, BZ (IZ) (ZACHARIEVA & DIMOVA, 1975: 192 sub *Anomala junii*).

Material examined: Smolyan, 29.VII.1957, 1 s., GP (IZ); Chepelare, 13-19.VII.1975, 11 s., JG (IZ).

Notes. In IZ we found and revised three specimens referred to *Mimela junii* (ZACHARIEVA & DIMOVA, 1975 sub *Anomala junii*), which in fact are aberrant specimens of *A. dubia*.

*120. *Anomala (Anomala) solida* Erichson, 1847

Material examined: Krichim, 18.VI.1934, 1 s., IB (IZ); Dospat, 22.VII.2001, 1 s., EM (EM); Pamporovo, 1500 m, 23.VII.2001, 1 s., EM (EM); Bachkovo, 23.VII.2001, 1 s., EM (EM).

Notes. First citation for the Western Rhodopes

Blitopertha lineata (Fabricius, 1798)

Notes. Ioakimov (1904: 19 sub *Phyllopertha fineata*!) and ZACHARIEVA (1965b: 244 sub *Blitopertha lineata*) cited this species from the area of Assenovgrad (see the following species). However, *B. lineata* is a Western Mediterranean taxon, which does not live in Bulgaria and we assume that these records concern to *B. lineolata*.

121. *Blitopertha lineolata* (Fischer, 1823)

Literature data: Assenovgrad (= Stanimaka), V (Ioakimov, 1904: 19 sub *Phyllopertha fineata*!); Asenova Krepost near Assenovgrad, 10.VI.1961, 1 s. revised, GP (IZ); Bachkovski Manastir, VI (ZACHARIEVA, 1965b: 244 sub *Blitopertha lineata*).

Material examined: Krichim, 21.V.1908, 2 s. (IZ); Assenovgrad, 9.V.1960, 1 s., MW (IZ).

*122. *Chaetopteropia segetum balcanicola* Machatschke, 1961

Literature data: "Rhodopes" (NEDELKOV, 1905: 428 sub *Anisoplia segetum*).

Material examined: vicinity of Krichim Town, 10.VI.1942, 1 s., IB. (IZ).

Notes. First record of this Balkan endemic subspecies (Albania, Macedonia, Bulgaria, Greece) for the Western Rhodopes.

123. *Mimela aurata* (Fabricius, 1801)

Literature data: Golem Belovski Balkan (NEDELKOV, 1905: 427 sub *Anomala aurata*); Teshel, 1100 m, VII (ZACHARIEVA & DIMOVA, 1975: 192 sub *Rhombonyx aurata*).

Material examined: Devin, 5.VII.1978, 1 s., BZ (IZ); Grashevo, 21.VII.2001, 1 s., EM (EM); Sokolovtsi, 985 m, 17.VII.2005, 1 f., BG (NMNHS).

Mimela junii (Duftschmid, 1805)

Notes. ZACHARIEVA & DIMOVA (1975: 192 sub *Anomala junii*) recorded this species from Trigrad. Actually this record is a misidentification (see the notes under *Anomala dubia*). *Mimela junii* is a widely distributed Western Mediterranean species which presence in Bulgaria is doubtful (ALONSO-ZARAZAGA, 2004). We exclude it for the Rhodopes.

Family **Dynastidae**

124. *Oryctes nasicornis kuntzeni* Minck, 1914

Literature data: Chepinska Reka River Valley; Alabak (JONKOVA, 1989: 27).

Material examined: Devin, 25.VII.1964, 1 f., BZ (IZ); Velingrad, 15.VII.1965, 1 m., 2 f., WK (IZ).

Notes. A protected beetle in Bulgaria. According to ZACHARIEVA & DIMOVA (1975) this species is common in the Rhodopes.

125. *Pentodon bidens punctatum* (Villers, 1789)

Literature data: Assenovgrad (= Stanimaka), V (IOAKIMOV, 1904: 19).

*126. *Pentodon idiota idiota* (Herbst, 1789)

Material examined: Krichim, 5.V.1908, 2 s. (IZ).

Notes. First citation for the Western Rhodopes.

Family **Cetoniidae**

Subfamily **Cetoniinae**

127 *Cetonia aurata aurata* (Linnaeus, 1761) [= *viridiventris* Reitter, 1896]

Literature data: Assenovgrad (= Stanimaka), VII (NEDELKOV, 1905: 430 sub var. *viridiventris* Reitter; MIKŠIĆ, 1959: 109 sub ab. *viridiventris* Reitter); Bachkovski Manastir, VI (ZACHARIEVA, 1965b: 248 sub var. *viridiventris* Reitter).

Material examined: Chepelare, 8.VIII.1974, 6 s. / 13-19.VII.1975, 2 s., JG (IZ); Trigrad, 7.VII.1978, nearly 30 s., BZ (IZ); Hvojna, 9.VII.1978, 2 s., BZ (IZ); Zabardo, 14.VII.1985, 3 s., JG (IZ); Persenk, 14.VII.1975, 1 s. JG (IZ); Dospat, 22.VII.2001, 1 s., EM (EM); Narechenski Bani, 23.VII.2001, 13 s., EM (EM).

128. *Protaetia (Cetonischema) aeruginosa aeruginosa* (Drury, 1770) [= *speciosissima* (Scopoli, 1786)]

Literature data: Assenovgrad (= Stanimaka), V (Ioakimov, 1904: 19 sub *C. speciosissima*); Hvojna (MIKŠIĆ, 1954).

Material examined: Belovo, 26.VII.1953, 1 s., WM (IZ).

129. *Protaetia (Netocia) ungarica ungarica* (Herbst, 1790) [= *viridis* (Fabricius, 1792)]

Literature data: Assenovgrad (= Stanimaka), V (Ioakimov, 1904: 19 sub *C. viridis*).

130. *Protaetia (Netocia) subpilosa* (Desbrochers, 1869)

Literature data: Narechenski Bani, VI (BUNALSKI, 2001b: 171).

131. *Protaetia (Netocia) vidua* (Gory et Percheron, 1833)

Literature data: Assenovgrad (= Stanimaka), VII; Krichim (MIKŠIĆ, 1957: 174).

132. *Protaetia (Potosia) cuprea obscura* (Andersch 1797)

Literature data: Krichim (MIKŠIĆ, 1957: 173; MIKŠIĆ, 1958: 186); Persenk Peak, 2091 m, VII (ZACHARIEVA & DIMOVA, 1975: 193); Smolyanski Ezera, 1400 m (BUNALSKI, 2000: 89 sub *P. cuprea metallica*).

Material examined: "Golyam Beglik" (= Vassil Kolarov) Dam, 1600 m, 25.VII.1967, 1 s., BZ (IZ); Trigrad, 7.VII.1978, 11 s., BZ (IZ); Sarnitsa, 21.VII.2001, 1 s., EM (EM).

133. *Tropinota (Epicometis) hirta* (Poda, 1761) [= *hirtellus* Linneus, 1766]

Literature data: Assenovgrad (= Stanimaka) (NEDELKOV, 1909b: 99); Stojkite Place, 1480 m, VI; Suchoto Dere, W from Srebren Peak, 1350 m, VIII; (ZACHARIEVA & DIMOVA, 1975: 193 sub *Epicometes hirta*).

Table 2

Species and subspecies of Scarabaeoidea considered as of conservation importance that inhabit the Western Rhodopes

Taxa	IUCN 2006	PRO	BUL	BAL	REL	RAR
<i>Lucanus cervus</i>		+				
<i>Sinodendron cylindricum</i>						+
<i>Jekelius punctulatus</i>				+		
* <i>Lethrus schaumii</i>			+			+
* <i>Eulasia arctos martes</i>				+		
<i>Chaetonyx schatzmayri</i>				+		
<i>Copris umbilicatus</i>					+	+
<i>Polyphylla boryi</i>				+		
* <i>Pseudotrematodes frivaldszkyi</i>				+		
<i>Omaloplia caeca</i>				+		
<i>Omaloplia iris</i>				+		
* <i>Chaetopteropia segetum balcanicola</i>				+		
<i>Oryctes nasicornis kuntzeni</i>		+				
<i>Osmoderma eremita</i>	+					+
All	1	2	1	8	1	4

Abbreviations: IUCN – Red List of Threatened Species 2006; Pro – Protected species in Bulgaria; Bul – Bulgarian endemic; Bal – Balkan endemic; Rel – Relic species; Rar – Rare species in Bulgaria; * – lowland species with marginal occurrence in the Western Rhodopes.

Table 3

Reported and supposed (in brackets) number of the scarab species by families in Bulgaria and in the Bulgarian part of the Western Rhodopes

Families	Bulgaria	Western Rhodopes
Glaresidae	1 (1)	0 (0)
Lucanidae	8 (8)	4 (5-6)
Trogidae	6 (8)	1 (3-4)
Bolboceratidae	2 (2)	1 (1)
Geotrupidae	12 (14-15)	7 (7)
Hybosoridae	1 (1)	0 (0)
Ochodaeidae	5 (6-7)	2 (3)
Glaphyridae	9 (11-12)	1 (1-2)
Aphodiidae	91 (104-110)	47 (56-59)
Scarabaeidae	53 (55-56)	26 (29-30)
Melolonthidae	48 (57-58)	24 (28-29)
Euchiridae	1 (1)	0 (0)
Rutelidae	35 (36-37)	10 (15-16)
Dynastidae	4 (4)	3 (3)
Cetoniidae	24 (26-27)	12 (13-14)
All	316 (335-345)	138 (164-174)

Material examined: Persenk, 10.V.1975, 2 s., JG (IZ); Kostandovo near Velingrad, 27.VI.2002, 1 s., EM (EM).

134. *Oxythyrea funesta* (Poda, 1761)

Literature data: Assenovgrad (= Stanimaka) (NEDELKOV, 1909b: 99); Stojkite Place, 1480 m, 19.VI.1964, 3 s. revised, BZ (IZ); Batak, 22.VII.1967, 1 s. revised, BZ (IZ); (ZACHARIEVA & DIMOVA, 1975: 193).

Material examined: Devin, 5.VII.1978, 1 s., BZ (IZ); Hvojna, 9.VII.1978, nearly 250 s., BZ (IZ); Grashevo, 21.VII.2001, 2 s., EM (EM); Sokolovtsi, 1000 m, 16.VII.2005, 1 s., BG (NMNHS); Yugovo, 600 m, 16.VII.2005, 3 s., BG (NMNHS).

Subfamily **Trichiinae**

? *Gnorimus nobilis nobilis* (Linnaeus, 1758)

Literature data: "Rhodopes" (NEDELKOV, 1905: 428; MIKŠIĆ, 1959: 105).

135. *Osmoderma eremita* (Scopoli, 1763)

Literature data: Velingrad (= Chepino; Ladjene), VI-VII (IOAKIMOV, 1904: 19; NEDELKOV, 1909a: 36).

Material examined: Belovo, 1 s., JM (NMNHS); Lepenitsa River, 28.VII.1925, 1 s., PD (NMNHS).

Note. A species listed in the IUCN red list of the threatened species for the year of 2006.

*136. *Trichius fasciatus* (Linnaeus, 1758) [= *succinctus* Fabricius, 1787; *scutellaris* Kraatz, 1891]

Literature data: "Rhodopes" (NEDELKOV, 1905: 429 sub *T. succinctus* & *T. scutellaris*).

Material examined: Persenk, 7.VIII.1974, 3 s. (genitalia of 1 m. examined), JG (IZ); 14.VII.1975, 1 f., JG (IZ); Grashevo, 21.VII.2001, 2 s., EM (EM); Dospat, 22.VII.2001, 1 s., EM (EM).

Notes. First citation for the Western Rhodopes.

137. *Trichius sexualis* Bedel, 1906 [= *bivittatus* Mulsant, 1842]

Literature data: Assenovgrad (= Stanimaka) (NEDELKOV, 1905: 429 sub *T. bivittatus*).

Material examined: vicinity of Krichim Town, 8.VII.1940, 1 m. (genitalia examined), IB (IZ); Persenk, 7.VIII.1974, 1 m. (genitalia examined), JG (IZ); Dospat, 22.VII.2001, 1 s., EM (EM); near to Vuch River close to quarter Nastan (Devin Town), 19.VII.2005, 1 m. (genitalia examined), BG (NMNHS).

Subfamily **Valginae**

*138. *Valgus hemipterus* (Linnaeus, 1758)

Material examined: vicinity of Krichim Town, 18.V.1940, 1 s., IB. (IZ).

First citation for the Western Rhodopes.

Faunistic results

The complete catalogue of the superfamily Scarabaeoidea for the Bulgarian part of the Western Rhodopes lists a total of 153 species, which can be grouped in three categories according to their probably at occurrence in the region to live there. The first group contains 138 species reported with unfailing and exact data for the region. They belong to 12 families – Lucanidae (4 species), Trogidae (1), Bolboceratidae (1), Geotrupidae (7), Ochodaeidae (2), Glaphyridae (1), Aphodiidae (47), Scarabaeidae (26), Melolonthidae (24), Rutelidae (10), Dynastidae (3) and Cetoniidae (12). Seventeen species are reported for the first time for the studied region, *Aphodius (Chilothorax) conspurcatus* (Linnaeus, 1758) being a new species for the Bulgarian fauna. New records for other 65 species were added as well. The second group comprises 12 species cited for the region without any specific locality (as Rhodopes) or based on probable misidentifications. Therefore, the presence of these taxa in the region remains in question. As a result of evident misidentifications or incorrect systematic treatment, the third category puts aside the species *Lethrus elephas*, *Blitopertha lineata* and *Mimela junii* cited from the Western Rhodopes in the past. We consider that these species do not live in Bulgaria so they are excluded from the regional list.

Beetles of conservation importance

Table 2 lists fourteen scarabs that may be considered of conservation importance based on three criteria: i) a low number of collected specimens (demographically rare species), ii) a limited distributional range (endemic species), and iii) their inclusion in international and national red lists (protected species). *Sinodendron cylindricum*, *Lethrus schauumi*, *Copris umbilicatus* and *Osmoderma eremita* follow the first criteria. *L. schauumi* is also a Bulgarian endemic, while *C. umbilicatus* is considered a pre-glacial relic species (ZACHARIEVA-STOILOVA, 1970) distributed from France and Italy in the west, to Slovakia and the Balkan Peninsula in the east. Current populations of the latter species around Trigrad are unique in Bulgaria. Other eight species are endemic of the Balkan Peninsula (*Jekelius punctulatus*, *Eulasia arctos martes*, *Chaetonyx schatzmayri*, *Polyphylla boryi*, *Pseudotrematodes frivaldszkyi*, *Omaloplia caeca*, *O. iris* and *Chaetopteropia segetum balcanicola*). Moreover, *Pseudotrematodes* Jacquelin du Val, 1860 is a monotypic, and consequently a Balkan endemic genus. Lastly, three more species (*Lucanus cervus*, *Oryctes nasicornis kuntzeni* and *Osmoderma eremita*) are currently included either in national or international red lists. Our opinion is that at least the first taxon is not rare in Bulgaria (GUÉORGUIEV & BUNALSKI, 2004: 256). Eight taxa from the scarab species of conservation importance inhabit open biomes, but others are characteristics of forest (*L. cervus*, *S. cylindricum*, *J. punctulatus* and *O. nasicornis kuntzeni*) or ecotone habitats (*C. schatzmayri* and *O. eremita*).

Conclusion

Based on the total number of reported species (138 spp.) we estimate that approximately 79-84 % of the Scarabaeoidea species that supposedly occur in the Bulgarian part of the Western Rhodopes have precise distributional information and can be considered as proper elements of the fauna of this region (Table 3). However, this level of knowledge differs between families. A high percentage (90-100%) of Bolboceratidae, Geotrupidae, Dynastidae and Cetoniidae species previously mentioned for the region can be considered good citations. On the contrary, Scarabaeidae (85-90 %), Aphodiidae and Melolonthidae (80-85 %), and Rutelidae (60-65 %) species seem to show moderate or high proportions of not recorded species until now. The group that seems to be the less surveyed is Trogidae with only a single recorded species, which is only 25-33 % from the real species number that probably inhabit the Western Rhodopes. Thus, to increase the regional Scarabaeoidea list, it is necessary to accomplish more comprehensive faunistic studies on Trogidae, Orphinidae, Aphodiinae and Psammodiinae as well as on "Pleurosticti".

Acknowledgements

We are sincerely grateful to Dr. T. Ljubomirov (IZ-BAS) for his assistance in our revision of the collections of the Institute of Zoology, Sofia. We thank also Mr. D. Doichev (LT), Mr. E. Migliacchio (Roma, Italy), Dr. P. Stoev (NMNHS) and again to Dr. T. Ljubomirov (IZ) for the donated material. This work was made possible principally thanks to two collaborative projects between the CSIC (Spain) and BAS (Bulgaria) (2004BG0012 and 2005BG0022) as well as by grant MU-B-1604/06 of the National Science Fund, Bulgarian Ministry of Education and Science.

References

- ÁDÁM L. 2003. Faunisztikai adatok a Kárpát-medencéből (Coleoptera: Scarabaeoidea). – *Folia Historico naturalia Musei Matraensis*, **27**:101–136.
- ALONSO-ZARAZAGA, M. A. 2004. Family Aphodiinae. – In: M. A. ALONSO-ZARAZAGA (ed.), *Coleoptera. Fauna Europaea* (web edition version 4.XI.2004) <http://www.faunaeur.org/>
- ANGELOV P. 1964. Coleoptera aus der Thrakischen Tiefebene und einigen angrenzenden Gebieten. – In: Valkanov A. K. (ed.): *Die Fauna Thrakiens*. Sofia, 1: 307-324. (In Bulgarian, German summary).
- ANGELOV P. 1965. Mistkäfer (Coprinae, Scarabaeidae) aus Bulgarien. – *Travaux scientifique de l'école normale supérieure, Plovdiv, Biologie*, **3(1)**: 95-109. (In Bulgarian, German summary).
- APFELBECK V. 1894. Bericht über die im Jahre 1892 ausgeführte entomologische Expedition nach Bulgarien und Ostrumelien. – *Wiss. Mitt. Bosn. Herceg*, **2**: 543-552.
- BARAUD J. 1992. Coléoptères Scarabaeoidea d'Europe. *Faune de France*. 78. Société linnéenne de Lyon, 856 p.
- BUNALSKI M. 2000. Contribution to the knowledge of Scarabaeoidea (Coleoptera) of Bulgaria. Part I. Results of the Expeditions 1996 and 1998. – *Wiadomosci Entomologiczne*, **19(2)**: 85-92.
- BUNALSKI M. 2001a. Contributions to the knowledge of Scarabaeoidea (Coleoptera) of Bulgaria. Part II. Species not recorded from Bulgaria before. *Wiadomosci Entomologiczne*, **20**: 29-32.

- BUNALSKI M. 2001b. Checklist of Bulgarian Scarabaeoidea (Coleoptera) {Fourth contribution to the knowledge of Scarabaeoidea of Bulgaria}. – *Polskie Pismo Entomologiczne*, **70**(3): 165-172.
- GOLJAN A. 1953. Studies on Polish beetles of the *Onthophagus ovatus* (L.) group with some biological observations on coprophagans (Coleoptera, Scarabaeidae). – *Annales Musei zoologici Polonici*, **15**(6): 55-81.
- GUÉORGUIEV B., M. BUNALSKI. 2004. Critical Review of the Families Glaresidae, Lucanidae, Trogidae, Bolboceratidae, Geotrupidae, Hybosoridae and Ochodaeidae in Bulgaria (Coleoptera: Scarabaeoidea). – *Acta zool. bulg.*, **56**(3): 253-276.
- HORION A. 1958. Faunistik der mitteleuropäischen Käfer. Band VI, Lamellicornia (Scarabaeidae – Lucanidae). Überlingen, Bodensee, XXIII + 343 p.
- IOAKIMOV D. 1904. Contribution to the fauna of insects of Bulgaria – Insecta. I. Coleoptera. – *Sbornik za narodni umotvorenia, nauka i knižnina*, **20**: 1- 43. (In Bulgarian).
- JONKOVA E. 1989. Expedition “Alabak’ 88”. – *Priroda i znanie*, **2**: 22-28. (In Bulgarian).
- KANTARDJIEVA-MINKOVA S. 1953. Der Artbestand und die Verbreitung der Maikäfer (Melolonthinae Coleopt.) in Bulgária. – *Bulletin de l’Institut de Zoologie*, **2**: 275-312. (In Bulgarian, German summary).
- KRÁL D., V. MALÝ 1993. New records of Scarabaeoidea (Coleoptera) from Bulgaria. – *Acta Societatis Zoologicae Bohemoslovaca*, **57**: 17-29.
- KRELL F.-T. 1991. *Aphodius (Agolius) montanus* Erichson, 1848, neu für Österreich (Coleoptera: Scarabaeoidea). – *Zeitschrift der Arbeitsgemeinschaft Österr. Entomologen*, **43**: 82-84.
- LOBO J.M., E. CHEHLAROV, B. GUÉORGUIEV. In press. Dung beetle assemblage variation with altitude in the Bulgarian Rhodopes Mountains: a comparison. – *European Journal of Entomology*.
- MARIANI G. 1980. Gli *Aphodius* italiani del sottogenere *Agolius* Muls. (Coleoptera Aphodiidae) – *Memorie della Società Entomologica Italiana*, **58**: 41-94.
- MIKŠIĆ R. 1953. Fauna Insectorum Balcanica – Scarabaeidae. – *Godišnjak Biološkog instituta u Sarajevu*, **6**: 49-281.
- MIKŠIĆ R. 1954. Beiträg zur Kenntnis der balkanischen *Potosia*-Arten. – *Plant protection Faunistički priloge-Beograd*, **23**: 1-44.
- MIKŠIĆ R. 1957. Zweiter Nachtrag zur “Fauna Insectorum Balcanica – Scarabaeidae”. (Coleoptera, Lamellicornia). 24. Beitrag zur Kenntnis der Scarabaeidae. – *Acta Musei Macedonici scientiarum naturalium*, **4**: 139-214.
- MIKŠIĆ R. 1958. Beitrag zur Kenntnis der palaearktischen Arten der Gattung *Potosia* Muls. – *Acta Musei Macedonici scientiarum naturalium*, **5**: 181-215.
- MIKŠIĆ R. 1959. Dritter Nachtrag zur “Fauna Insectorum Balcanica – Scarabaeidae”. – *Godišnjak Biološkog instituta u Sarajevu*, **12**: 47-136.
- MINKOVA S. 1959. Untersuchungen über die Arten der Gattung *Amphicoma* (Col. Scarabaeidae) in Bulgarien. – *Bulletin de l’Institut de Zoologie*, **8**: 3-14. (In Bulgarian, German summary).
- NEDELKOV, N. 1905. [Contribution to the entomological fauna of Bulgaria]. – *Periodichesko spisanie na bulgarskoto knizhovno druzhestvo v Sofia*, **66**: 404-439. (In Bulgarian).
- NEDELKOV N. 1909a. [Fifth contribution to the fauna of insects of Bulgaria]. – *Sbornik za narodni umotvorenia, nauka i knižnina*, **25**: 3-37. (In Bulgarian).
- NEDELKOV 1909b. [Our entomological fauna]. – *Archiv na ministerstvoto na narodnoto prosveshlenie*, **1** (3): 83-135. (In Bulgarian).
- PITTONI B. 1940. Die Arten der Unterfamilie Coprinae (Scarabaeidae, Coleoptera) in der Sammlung des Kgs. Naturh. Museum in Sofia. – *Mitteilungen aus den Königlichen Naturwissenschaftlichen Instituten, Sofia*, **13**: 211-238.
- RÖSSNER E. 1995. Neue Kenntnisse zur Verbreitung von *Omaloplia cerrutii* Sabatinelli, 1977 (Col., Scarabaeoidea, Melolonthidae). – *Ent. Nachr. Ber.*, **39**(3): 133-136.
- RÖSSNER E. 1997a. *Omaloplia pontica* Ádám, 1994 – neu für die europäische Fauna (Col., Melolonthidae, Sericinae). – *Ent. Nachr. Ber.*, **41**(2): 103-106.
- RÖSSNER E. 1997b. Die Arten der Gattung *Hoplia* Illiger, 1803 in Bulgarien (Col., Scarabaeoidea, Melolonthidae). – *Ent. Nachr. Ber.*, **41**(3): 190-194.
- ROSSNER E. 2005. Die Verbreitung von *Aphodius (Eurodalus) coenosus* (Panzer, 1798) und *Aphodius (Eurodalus) paracoenosus* Balthasar & Hrubant, 1960 in Deutschland und Mitteilung von Funddaten zu den Gesamtarealen beider Arten (Coleoptera: Scarabaeidae). – *Entomologische Zeitschrift, Stuttgart*, **115**(2): 59-69.

- RÖSSNER E., F.-T. KRELL. 2001. *Amphimallon burmeisteri* Brenske, 1886: Designation des Lectotypus und Abgrenzung von *A. assimile* (Herbst, 1790) (Coleoptera, Scarabaeidae, Melolonthinae) – die Schwärmzeit als entscheidendes Bestimmungsmerkmal. – Entomologische Blätter, **96**(3): 171-198, Goecke & Evers, Kelttern.
- RÖSSNER E., D. AHRENS. 2004. Taxonomie und Chorologie der Gattung *Omaloplia* Schoenherr, 1817 (Coleoptera: Scarabaeidae: Sericini). – Verlag im Internet GmbH, Berlin, 153 p.
- ROUBAL J. 1933. Fragmente zur Koleopterfaunistik des balkanischen Festlands. – Entomologischer Anzeiger, **13**: 144.
- STOLFA E. 1938. Revisione delle specie paleartiche del sottogenere *Scarabaenus* s. str. – Atti del Museo civico di Storia naturale Trieste, **13**: 141-156.
- ZACHARIEVA-STOILOVA B. 1962. Faunistisch – biologische Untersuchungen über die Arten von der Gattung *Anisoplia* Fischer (Coleoptera, Scarabaeidae) in Bulgarien. – Bulletin de l'Institut de Zoologie et Musée, **11**: 59-115 (In Bulgarian, German summary).
- ZACHARIEVA B. 1965a. Beitrag zur Erforschung der coprophagen Scarabaeidae (Coleoptera) aus den Osthodopen. – Bulletin de l'Institut de Zoologie et Musée, **19**: 129-134 (In Bulgarian, German summary).
- ZACHARIEVA B. 1965b. Scarabaeidae (Coleoptera) aus Thrakien. – In: Valkanov A. K. (ed.): Die Fauna Thrakiens. Sofia, 2: 229-254 (In Bulgarian, German summary).
- ZACHARIEVA-STOILOVA B. 1970. Die seltene Art *Copris umbilicatus* Ab. (Scarabaeidae, Coleoptera). – Bulletin de l'Institut de Zoologie et Musée, **32**: 39-44 (In Bulgarian, German summary).
- ZACHARIEVA B., V. DIMOVA 1975. Faunistische Untersuchungen über die Scarabaeidae (Coleoptera) aus den Rhodopen. – In: G. Peshev (ed.): La faune des Rhodopes. Matériaux. Sofia. 183-196 (In Bulgarian, German summary).

Authors' addresses:

Dr. Borislav V. Guéorguiev
National Museum of Natural History – BAS
1, Tzar Osvoboditel Blvd
1000 Sofia, Bulgaria
e-mail: bobivg@yahoo.com

Dr. Jorge M. Lobo
Departamento de Biodiversidad y Biología Evolutiva
Museo Nacional de Ciencias Naturales, C.S.I.C.
Madrid, Spain
e-mail: mcnj117@mncn.csic.es

Evgeni Chehlarov
Institute of Zoology – BAS
1, Tzar Osvoboditel Blvd
1000 Sofia, Bulgaria
e-mail: chehlarove@abv.bg

**Скарабеоидните бръмбари (Insecta: Coleoptera: Aderhaga)
в българския дял на Западните Родопи**

Борислав В. ГЕОРГИЕВ, Хорхе М. ЛОБО, Евгени ЧЕХЛАРОВ

(Резюме)

Обект на изследване са представителите на надсемейство Scarabaeoidea от българската част на Западните Родопи. След направен критичен преглед на литературни данни публикувани през периода 1894 – 2005 г., ревизия на материалите от колекцията на Института по зоология – БАН и обработка на непубликувани данни в списъка на видовете са включени 153 таксона, групирани в три категории. Първата категория включва 138 вида от 12 семейства, Lucanidae (4), Trogidae (1), Volboceratidae (1), Geotrupidae (7), Ochodaecidae (2), Glaphyridae (1), Aphodiidae (47), Scarabaeidae (26), Melolonthidae (24), Rutelidae (10), Dynastidae (3) и Cetoniidae (12), цитирани с конкретни данни за изследвания район. Седемнадесет вида от същата група се съобщават за първи път от Западните Родопи, а *Aphodius* (*Chilothorax*) *conspurcatus* (Linnaeus, 1758) е нов за българската фауна. Втората категория обединява 12 вида под въпрос за фауната на региона. Видовете *Lethrus elephas*, *Blitopertha lineata* and *Mimela junii*, цитирани за изследвания район в резултат на грешни определения, са понастоящем изключени от списъка на регионалната фауна. В дискуссионната част на работата са определени и коментирани 14 вида с консервационна значимост.

