

# Coleoptera (Insecta) collected or observed around Chelopech Village, Western Bulgaria

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**Abstract:** A list of 58 species of order Coleoptera registered around Chelopech Village, Sofia District, Western Bulgaria, is presented. All the species are reported for the first time from this region. *Stelidota geminata* (Say, 1825), representing a recent American introduction in the Palaearctic fauna, is new country record.

**Keywords:** Coleoptera, Bulgaria, Chelopech, new records

## Introduction

In the summer of 2018, as a result of a short-term baseline assessment of the biodiversity at two buffer areas of the enterprise Dundee Precious Metals Chelopech EAD, the author collected or observed material of Coleoptera near Chelopech Village.

The first area of collecting lied on the southern slopes of Etropolevska Planina Mountain, a part of Stara Planina Range. It comprised terrains situated west, north, and northeast of the enterprise, and west and northwest of the village. The second area of collecting was located south of both the enterprise and village. It lied in the southern part of Zlatitsa–Pirdop Valley, in close proximity to Chelopech Tailings Pond (part of the industrial zone of the enterprise).

## Material and methods

The present study was based on the identification of 159 specimens belonging to 58 species of 18 families of Coleoptera. Specimens were randomly collected or observed by the author in June–August 2018. The collected material was caught by hand-collecting and using pitfall traps. The specimens are preserved in the entomological collection of the National Museum of Natural History, Sofia.

The arrangement of the families and taxa within each family follows the recent editions of the catalogues of the Palaearctic Coleoptera (volumes 4–8, Löbl & Smetana, 2007–2013; volumes 1, 2/1, and 3, Löbl & Löbl, 2015–2017).

A general description of the localities and collecting methods is provided below. Since more than one GPS point was taken from some localities, the precise GPS coordinates are given in the List of taxa. To determine habitat types, the author used the following source: [EUNIS habitat type](#).

- 01 Etropolevska Planina Mts, northwest of Chelopech Village, Vozdol River Valley, 777–783 m a.s.l., riverside deciduous forest (EUNIS habitat type: G.1.21), pitfall traps;
- 02 Etropolevska Planina Mts, northwest of Chelopech Village, Vozdol River Valley, 860–868 m a.s.l., ruderal grassy vegetation, on a disturbed terrain adjacent to dirt road (EUNIS habitat type: J.4.2), hand-collecting;
- 03 Etropolevska Planina Mts, northwest of Chelopech Village, Vozdol River Valley, 875 m a.s.l., grassy riverside vegetation, close to the river (EUNIS habitat type: G.1.21), hand-collecting;
- 04 Etropolevska Planina Mts, northwest of Chelopech Village, Vozdol River Valley, 830–843 m a.s.l., beech forest on steep northern slope (EUNIS habitat type: G.1.693), pitfall traps;

- 05 Etropole Mts, northwest of Chelopech Village, Vozdol River Valley, 882–886 m a.s.l., beech forest above the storage reservoir (EUNIS habitat type: G.1.693), pitfall traps;
- 06 Etropole Mts, west-northwest of Chelopech Village, 871–910 m a.s.l., grassy vegetation near the big fan of mining galleries (EUNIS habitat type: E.2), hand-collecting;
- 07 Zlatitsa–Pirdop Valley, south of Chelopech Tailings Pond, 634–652 m a.s.l. small lot of primary, well-preserved oak forest (EUNIS habitat type: G.1.73), hand-collecting and pitfall traps;
- 08 Zlatitsa–Pirdop Valley, south of locality 07, 628–645 m a.s.l., meadow and solitary oak trees (EUNIS habitat types: E.1 & G.1.73), hand-collecting;
- 09 Zlatitsa–Pirdop Valley, south-southeast of locality 07, 580–610 m a.s.l., path with grassy vegetation alongside Vozdol River before it flows into Topolnitsa River (EUNIS habitat type: E.2), hand-collecting.

The following abbreviations are used: m a.s.l. = metres above sea level; obs. = observed specimen/s; pit. = specimen/s collected in pitfall traps; rem. = remains of dead specimen/s; spm. = hand collected specimen/s which sex were not investigated; ♂ = hand collected male specimen/s; ♀ = hand collected female specimen/s; \* = species of conservation significance.

## List of taxa

### Carabidae Latreille, 1802

1. *Carabus (Archicarabus) montivagus montivagus* Palliardi, 1825. Material examined: 05 (42.71342, 24.06182, 1 ♀/pit., 12.VI–5.VII; same data, 1 ♂, 1 ♀/pit., 5–21.VII).
2. *Carabus (Chaetocarabus) intricatus intricatus* Linnaeus, 1761. Material examined: 01 (42.70693, 24.07785, 1 ♀/pit., 12.VI–14.VII); 05 (42.71325, 24.06195, 1 ♀/pit., 5–21.VII). Notes: Lower Risk / near threatened according to IUCN Red List (2018).
3. *Carabus (Megodontus) violaceus azureus* Dejean, 1826. Material examined: 05 (42.71342, 24.06182, 1 ♀/pit., 5–21.VII). Notes: The subspecies is a Balkan endemic form (Croatia, Bosnia and Herzegovina, Montenegro, Albania, Kosovo, Serbia, Ma-

cedonia, Bulgaria) of the European–Siberian species *C. violaceus* Linnaeus, 1758.

4. *Carabus (Procrustes) coriaceus hopffgarteni* (Kraatz, 1877). Material examined: 07 (42.66293, 24.08318, 1 ♂/obs., 8.VI; 42.66398, 24.08262, 1 rem., 4.VIII). Notes: A Balkan endemic subspecies (Serbia, Macedonia, Bulgaria, Greece) of the European–northern Levantine species *C. coriaceus* Linnaeus, 1758.

5. *Carabus (Tomocarabus) convexus dilatatus* Dejean, 1826. Material examined: 05 (42.71342, 24.06182, 1 ♂, 2 ♀♀/pit., 5–21.VII); 07 (42.66293, 24.08318, 4 ♂♂, 1 ♀/pit., 21.VII–4.VIII).

6. *Harpalus (Harpalus) affinis* (Schrank, 1781). Material examined: 06 (42.70148, 24.06905, 1 ♂, 5.VII).

7. *Harpalus (Harpalus) atratus* Latreille, 1804. Material examined: 05 (42.71342, 24.06182, 1 ♂/pit., 12.VI–5.VII).

8. *Harpalus (Harpalus) caspius* (Steven, 1806). Material examined: 06 (42.70148, 24.06905, 1 ♀, 5.VII).

9. *Harpalus (Harpalus) honestus* (Duftschmid, 1812). Material examined: 02 (42.71315, 24.06765, 1 ♀, 5.VII).

10. *Harpalus (Harpalus) rubripes* (Duftschmid, 1812). Material examined: 06 (42.70148, 24.06905, 1 ♂, 5.VII).

11. *Harpalus (Harpalus) rufipalpis rufipalpis* Sturm, 1818. Material examined: 03 (42.71295, 24.06563, 1 ♂, 12.VI).

12. *Molops (Molops) rufipes klisuranus* Apfelbeck, 1902. Material examined: 05 (42.71342, 24.06182, 1 ♀/pit., 12.VI–5.VII). Notes: The subspecies *klisuranus* is a Central Balkan endemic form of the Balkan endemic species *M. rufipes* Chaudoir, 1843. The subspecies lives in several mountains of Kraishite Region situated in Southeastern Serbia and Western–Central Bulgaria, as well as in the western and central parts of Stara Planina Range in Bulgaria.

13. *Myas (Myas) chalybaeus* (Palliardi, 1825). Material examined: 05 (42.71342, 24.06182, 2 ♀♀/pit., 5–21.VII); 07 (42.66303, 24.08303, 2 ♀♀/pit.,



Figures 1–4. Protected species of Coleoptera in the region of Chelopech Village: (1–2) *Lucanus cervus* and *Cerambyx cerdo*, respectively, both observed on 7.VI.2018 in oak forest (locality 07); (3) *Cerambyx cerdo*, observed on 12.VI.2018 on solitary oak tree (locality 08); (4) *Morimus asper funereus*, observed on 12.VI.2018 in beech forest (locality 05).

21.VII–4.VIII; 42.66263, 24.08388, 1 obs., 4.VIII). Notes: *M. chalybaeus* is a Southeastern European endemic forest species considered a paleoendemic form of the Tertiary Age (Guéorguiev, 2007).

#### Histeridae Gyllenhal, 1808

14. *Margarinotus (Paralister) punctiventer* (Marseul, 1854). Material examined: 05 (42.71307, 24.06245, 1 pit., 12.VI–5.VII).

#### Leiodidae Fleming, 1821

15. *Colenis (Colenis) immunda* (Sturm, 1807). Material examined: 01 (42.70693, 24.07785, 1 pit., 12.VI–14.VII).

16. *Sciodrepoides watsoni watsoni* (Spence, 1815). Material examined: 01 (42.70693, 24.07785, 6 ♂♂,

10 ♀♀/pit., 12.VI–14.VII); 05 (42.71307, 24.06245, 4 ♂♂, 12 ♀♀/pit., 12.VI–5.VII; same data, 1 ♀/pit., 5–21.VII). Notes: One of the commonest representatives of the family in the country, which lives primarily in the forest leaf litter.

#### Silphidae Latreille, 1806

17. *Phosphuga atrata atrata* (Linnaeus, 1758). Material examined: 01 (42.70693, 24.07785, 1 ♀/pit., 12.VI–14.VII).

18. *Nicrophorus (Nicrophorus) interruptus* Stephens, 1830. Material examined: 05 (42.71307, 24.06245, 5 pit., 12.VI–5.VII). Notes: A common species in Bulgaria.

19. *Nicrophorus (Nicrophorus) vespilloides* Herbst, 1784. Material examined: 01 (42.70693, 24.07785,

2 pit., 12.VI–14.VII); 05 (42.71307, 24.06245, 3 pit., 12.VI–5.VII). Notes: As the preceding species, it is quite common in Bulgaria.

#### Lucanidae Latreille, 1804

20. *Dorcus parallelipedus* (Linnaeus, 1758). Material examined: 07 (42.66293, 24.08327, 1 ♂/obs., 7.VI; same data, 1 ♂, 1 ♀/obs., 8.VI). Notes: Least Concern according to the European Red List of Saproxyllic Beetles (Nieto & Alexander, 2010).

\*21. *Lucanus cervus cervus* (Linnaeus, 1758). Material examined: 07 (42.66365, 24.08303, 1 ♂/obs., 7.VI, Fig. 1; 42.66390, 24.08325, 1 rem., 21.VII; 42.66288, 24.08327, 1 rem., 21.VII; 42.66298, 24.08337, 1 ♀/rem., 4.VIII; 42.66285, 24.08383, 1 ♂/rem., 4.VIII); Chelopech Village (42.70022, 24.08350, 1 rem., 14.VII). Notes: The stag beetle is a species with high conservation importance. Included in Annex II of the EU Habitats Directive (92/43/EEC); protected by the Bulgarian legislation (included in Annexes 2 and 3 of the Biological Diversity Act, 2002). The species is listed also as Near Threatened in the European Red List of Saproxyllic Beetles (Nieto & Alexander, 2010).

#### Geotrupidae Latreille, 1802

22. *Trypocopris (Trypocopris) vernalis vernalis* (Linnaeus, 1758). Material examined: 05 (42.71325, 24.06195, 1 pit., 12.VI–5.VII). Notes: Occurs in most forest regions of the country except for its southeasternmost area (Guéorguiev & Bunalski, 2004).

#### Scarabaeidae Latreille, 1802

23. *Euoniticellus fulvus* (Goeze, 1777). Material examined: 06 (42.70380, 24.06488, 1 ♂, 2 obs., 4.VIII).

24. *Onthophagus (Onthophagus) illyricus* (Scopoli, 1763). Material examined: 06 (42.70380, 24.06488, 1 ♀, 3 obs., 4.VIII).

25. *Onthophagus (Palaeonthophagus) fracticornis* (Preysslér, 1790). Material examined: 06 (42.70380, 24.06488, 1 ♀, 4.VIII).

26. *Cetonia (Cetonia) aurata aurata* (Linnaeus, 1758). Material examined: 08 (42.66200, 24.08477, 1 obs., 8.VI).



Figure 5. *Dasytes plumbeus*. Scale line = 1 mm.

27. *Tropinota (Epicometis) hirta hirta* (Poda von Neuhaus, 1761). Material examined: 09 (42.66263, 24.09028, 1 spm., 8.VI).

#### Buprestidae Leach, 1815

28. *Acmaeoderella (Carininota) flavofasciata flavofasciata* (Piller & Mitterpacher, 1783). Material examined: 02 (42.71315, 24.06765, 1 spm., 14.VII). Notes: Widely distributed and common species up to 1500 m a.s.l. in Bulgaria (Sakalian, 2003).

#### Cleridae Latreille, 1802

29. *Trichodes apiarius* (Linnaeus, 1758). Material examined: 03 (42.71295, 24.06563, 1 spm., 12.VI; same data, 1 obs., 5.VII); 08 (42.66200, 24.08477, 1 spm., 8.VI).

#### Dasytidae Laporte, 1840

30. *Dasytes (Mesodasytes) plumbeus* (O.F. Müller, 1776). Material examined: 01 (42.70693, 24.07785, 1 pit., 12.VI–14.VII, Fig. 5).

#### Nitidulidae Latreille, 1802

31. *Pocadius ferrugineus* (Fabricius, 1775). Material examined: 08 (42.66222, 24.08270, 1 ♂, 4.VIII).



Figure 6. *Stelidota geminata*. Scale line = 1 mm.

Notes: The specimen was found within the fruiting body of *Lycoperdon* sp. growing on the roots of a solitary alive oak tree.

32. *Stelidota geminata* (Say, 1825). Material examined: 01 (42.70693, 24.07785, 1 pit., 12.VI–14.VII, Fig. 6). Notes: This is a native Southern Nearctic–Neotropic species, which, first, was introduced in the Oriental Region and in the Near East (Köhler, 2009). Subsequently, the species was registered in the Azores (Israelson, 1985) and thereafter in various European countries (Jelinek, 2007), as well in Southern Russia and the Caucasus (Tsinkevich & Solodovnikov, 2014). First species record from Bulgaria. *Stelidota geminata* is mainly a pest of strawberry (Connell, 1980) but it can also develop on fruits of other crops, such as raspberries, blueberries, apples, peaches. The sole specimen from Vozdol River Valley, Bulgaria, was found in a pitfall-trap, near to growing raspberries.

#### Endomychidae Leach, 1815

33. *Lycoperdina (Lycoperdina) pulvinata* Reitter, 1884. Material examined: 05 (42.71342, 24.06182, 1 pit., 5–21.VII). Notes: According to Tomaszewska (2007), this Balkan endemic species occurs in Croatia, Serbia, Kosovo, Macedonia, and Greece; there are no indication for its presence in Bulgaria in this source. However, some records for this species from the

country have been published recently (Guéorguiev & Ljubomirov, 2009; Guéorguiev, 2011; Bekchiev & Guéorguiev, 2015; present paper).

#### Coccinellidae Latreille, 1807

34. *Coccinella (Coccinella) quinquepunctata* Linnaeus, 1758. Material examined: 02 (42.71315, 24.06765, 1 spm., 5.VII).

35. *Harmonia axyridis* (Pallas, 1773). Material examined: 08 (42.66175, 24.08295, 1 spm., 4.VIII); 09 (42.66263, 24.09028, 2 spm., 8.VI).

#### Tenebrionidae Latreille, 1802

36. *Gnaptor spinimanus* (Pallas, 1781). Material examined: 01 (42.70698, 24.07790, 1 obs., 12.VI); 06 (42.70108, 24.06945, 1 obs., 5.VII).

37. *Accanthopus velikensis* (Piller & Mitterpacher, 1783). Material examined: 05 (42.71307, 24.06245, 5 pit., 5–21.VII); 07 (42.66293, 24.08318, 3 pit., 21.VII–4.VIII).

#### Oedemeridae Latreille, 1810

38. *Oedemera (Oedemera) femorata* (Scopoli, 1763). Material examined: 02 (42.71315, 24.06765, 1 ♀, 21.VII); 06 (42.70380, 24.06488, 1 ♀, 4.VIII).

39. *Oedemera (Oedemera) podagrariae podagrariae* (Linnaeus, 1767). Material examined: 09 (42.66263, 24.09028, 1 ♀, 8.VI).

#### Meloidae Gyllenhal, 1810

40. *Mylabris (Eumylabris) fabrici* Sumakov, 1924. Material examined: 03 (42.70373, 24.06497, 1 spm., 12.VI).

41. *Mylabris (Mylabris) quadripunctata quadripunctata* (Linnaeus, 1767). Material examined: 06 (42.70373, 24.06497, 3 spm., 5.VII).

42. *Mylabris (Mylabris) variabilis* (Pallas, 1781). Material examined: 06 (42.70373, 24.06497, 2 spm., 5.VII; same data, 7 obs., 4.VIII). Notes: This is the most common species of the tribe Mylabrini in the studied region.

### Cerambycidae Latreille, 1802

43. *Leptura quadrifasciata quadrifasciata* Linnaeus, 1758. Material examined: 02 (42.71315, 24.06765, 1 spm., 5.VII). Notes: A quite common species in the region, which was observed in large numbers on flowers in June–August.

44. *Pachytodes erraticus erraticus* (Dalman, 1817). Material examined: 02 (42.71315, 24.06765, 1 ♂, 21.VII).

45. *Rutpela maculata maculata* (Poda von Neuhaus, 1761). Material examined: 09 (42.66263, 24.09028, 1 spm., 8.VI). Notes: As the preceding species, it was observed in large numbers on flowers everywhere in June–August.

46. *Stenurella melanura* (Linnaeus, 1758). Material examined: 02 (42.71315, 24.06765, 1 ♂, 21.VII).

47. *Stictoleptura (Stictoleptura) fulva* (De Geer, 1775). Material examined: 02 (42.71315, 24.06765, 1 ♂, 14.VII); 06 (42.70373, 24.06497, 1 ♂, 5.VII).

48. *Saphanus piceus ganglbaueri* Brancsik, 1866. Material examined: 04 (42.71283, 24.06815, 1 pit., 12.VI–14.VII). Notes: *Saphanus piceus* (Laicharting, 1784) lives in Southern and Central Europe. Its subspecies *ganglbaueri* is a Balkan endemic form, which occurs in Bulgaria in the mountains (Angelov, 1995). *Saphanus piceus* (with *ganglbaueri* treated as synonym) is assessed as Least Concern in IUCN Red List (Dodelin et al., 2017).

\*49. *Cerambyx cerdo cerdo* Linnaeus, 1758. Material examined: 07 (42.66410, 24.08278, 1 ♂/obs., 7.VI, Fig. 2; 42.66283, 24.08333, 1 rem., 7.VI; 42.66278, 24.08332, 1 ♂/obs., 7.VI); 08 (42.66217, 24.08267, 1 obs., 12.VI, Fig. 3). Notes: *Cerambyx cerdo* is a species with high conservation significance, listed in Annex II and Annex IV of the EU Habitats Directive (92/43/EEC) and protected by the Bulgarian national legislation as being included in Annexes 2 and 3 of the Biological Diversity Act from 2002. Further, it is included in both the IUCN Red List (2018) as Vulnerable A1c+2c and the European Red List of Saproxylic Beetles as Near Threatened (Nieto & Alexander, 2010).

50. *Stenopterus rufus rufus* (Linnaeus, 1767). Material examined: 06 (42.70373, 24.06497, 2 spm., 5.VII). Notes: Included as Least Concern in the European Red List of Saproxylic Beetles (Nieto & Alexander, 2010).

51. *Agapanthia (Epopetes) villosoviridescens* (De Geer, 1775). Material examined: 03 (42.71295, 24.06563, 1 spm., 12.VI).

52. *Agapanthia (Epopetes) kirbyi* (Gyllenhal, 1817). Material examined: 09 (42.66263, 24.09028, 1 spm., 8.VI).

\*53. *Morimus asper funereus* Mulsant, 1862. Material examined: 05 (42.71310, 24.06242, 1 obs., 12.VI, Fig. 4). Notes: The species is included in Annex II of the EU Habitats Directive (92/43/EEC) and protected by the Bulgarian legislation as being included in Annex 2 of the Biological Diversity Act from 2002. It is also assessed as Vulnerable A1c in the IUCN Red List (2018).

54. *Mesosa (Aplocnemia) nebulosa nebulosa* (Fabricius, 1781). Material examined: 05 (42.71310, 24.06242, 1 obs., 12.VI; same locality, 1 spm., 14.VII); 07 (42.66278, 24.08332, 2 obs., 7.VI).

### Chrysomelidae Latreille, 1802

55. *Cryptocephalus (Cryptocephalus) hypochoeridis* (Linnaeus, 1758). Material examined: 02 (42.71315, 24.06765, 1 spm., 14.VII). Notes: Widely distributed and common species up to 2000 m a.s.l. in Bulgaria (Gruev & Tomov, 1984).

56. *Chrysomela vigintipunctata vigintipunctata* (Scopoli, 1763). Material examined: 09 (42.66263, 24.09028, 3 spm., 3 obs., 8.VI). Notes: As the preceding species, it is widely distributed in the country but reaches up to 1200 m a.s.l. Known as pest on *Salix* spp. and *Populus* spp. (Gruev & Tomov, 1986).

57. *Gonioctena (Gonioctena) linnaeana linnaeana* (Schrank, 1781). Material examined: 09 (42.66263, 24.09028, 1 spm., 8.VI). Notes: In Bulgaria, the species was found according to Gruev & Tomov (1986) from Stara Planina Range (Dryanovski Manastir; above Sliven) and Western Rhodopes (Shiroka Laka; Teshel; Bedenski Bani; east of Yakoruda Town).

58. *Cassida subreticulata* Suffrian, 1844. Material examined: 08 (42.66175, 24.08295, 1 spm., 4.VIII). Notes: In Bulgaria, the species is known from Lakatnik, Varna, Petrich, Harmanli, and Elhovo (Gruev & Tomov, 1986). All known previous samples were collected in April–June, thus the specimen near Chelopech was the first caught in August. A possible reason for such late finding could be the rainy and very wet weather between mid-June and late July in 2018.

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