

A review of the ground beetle fauna (Coleoptera: Carabidae) of the Tambov Region

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Abstract

Based on published sources and original data, an annotated checklist of ground beetles of the Tambov Region was compiled, comprising 250 species belonging to 57 genera. The highest species richness was recorded in the genera *Amara* (30 species), *Harpalus* (29), *Bembidion* (25), *Pterostichus* (16), *Agonum* (15), *Carabus* (14), and *Ophonus* (8). The ground beetle fauna of the Tambov Region is typical of the central part of European Russia. The proportion of species shared with the fauna of the Tambov Region in neighboring regional faunas increases from north to south and ranges from 76.2% to 83.2%. High faunal similarity is observed for the Voronezh and Saratov Regions, which border the Tambov Region to the south, as well as for the Lipetsk Region, located at the same latitude. In regions situated further north, the proportion of shared species gradually decreases. Four species were identified as dominant; three of them – *Carabus granulatus* Linnaeus, 1758, *Harpalus rufipes* (De Geer, 1774), and *Pterostichus melanarius* (Illiger, 1798) – are eurybionts with wide geographic distributions and high ecological tolerance, occurring across a broad range of habitats.

Keywords

Biodiversity, Russia, Tambov Region, fauna, beetles

Introduction

Beetles of the family Carabidae are among the most diverse and abundant taxa in terrestrial ecosystems. They represent an important functional component of ecosystems. Most carabids are predators and feed on a wide range of food resources of both plant and animal origin. Some species also act as scavengers (Busato et al. 2024; Schat et al. 2024; Bonacci 2025). Carabidae are frequently used in large-scale ecological and faunistic studies. Studies of ground beetles play an important role in biodiversity assessment and in monitoring the ecological condition of protected areas (Rainio and Niemelä 2003; Koivula 2011; Ruchin et al. 2023; Aleksanov et al. 2024; Sushko 2025). In regional studies, this family is often used as an indicator taxon for assessing ecosystem health. However, effective monitoring first requires a detailed assessment of the regional fauna of the target insect family, including the identification of rare, common, and abundant species, as well as the evaluation of their abundance and representation across ecosystems (Egorov et al. 2023; Araújo et al. 2024; Dedyukhin 2024; Figueiredo et al. 2024; Schat et al. 2024; Štípková et al. 2024; Afonina and Tashlykova 2025; Aleksanov 2025; Fiser et al. 2025; Vdovina et al. 2025).

The study of ground beetles in the Tambov Region began in the late 1960s. The greatest contribution was made by carabidologists from Michurinsk State Pedagogical Institute. Many studies were applied in nature and focused on the carabid fauna of industrial orchards (Romankina 1996, 2000, 2010b; Kolesnikov 2009; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2018, 2023) and field crops (Kasandrova 1996, 2007; Popova and Kozlova 1996; Popova and Potapova 2005; Romankina 2010a). A number of studies investigated ground beetle assemblages in natural forests (Shalamova and Sharova 2002; Shalamova and Shalamov 2005; Shalamova et al. 2012) and in artificial forest communities (Romankina and Akhmadulina 2002; Romankina and Simakova 2004; Romankina 2009a; Romankina and Shalamova 2013). Considerably less attention was given to ground beetles of meadow (Romankina 2010c, 2014b, 2017; Romankina and Frolova 2005) and urbanized (Romankina 2007; Romankina et al. 2007; Shalamova and Popova, 2007) ecosystems. The accumulated data formed the basis for review studies on the ecology (Romankina and Sharova 2011; Romankina 2013, 2019), zoogeography (Romankina 2014a), and adaptatiogenesis (Popova and Starikova 2002) of ground beetles.

The establishment of the Voroninsky Nature Reserve in 1994 stimulated interest in the study of its fauna, and the results of investigations by various authors were repeatedly published (Kasandrova et al. 2002a, 2002b; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009, 2010; Bilomar 2011; Bilomar et al. 2015; Volodchenko et al. 2015; Sazhnev et al. 2019; Sergadeeva and Ignatenko 2022; Volodchenko and Seleznev 2022). The compilation of the Red Data Book of the Tambov Region increased interest in the study and monitoring of rare species (Kasandrova 1999, 2000; Zheltov and Sokolov 2003; Volodchenko 2020). Over a 50-year period, 167 publications addressing various aspects of carabidology were produced by fac-

ulty members, postgraduate students, and students. An important outcome of these studies was the publication of a systematic checklist of ground beetles comprising 208 species (Kasandrova 2007). Subsequent investigations added new ground beetle species to the regional fauna (Beskokotov and Samokhin 2009; Bilomar 2011; Bilomar et al. 2015; Kolesnikov 2009; Samokhin and Kasandrova 2007; Sazhnev et al. 2019; Volodchenko et al. 2018, 2021), which created the need for a new synthesis of the newly obtained and previously available data.

Materials and methods

The Tambov Region is located in the central part of European Russia and covers an area of 34.462 km² (Fig. 1). The region lies between 53°48' and 51°36' N latitude and between 39°53' and 43°15' E longitude. Its maximum extent from north to south is 245 km and from west to east, 220 km. The Tambov Region is situated in the central part of the East European Plain; its eastern part is occupied by spurs of the Volga Upland, while the remaining territory belongs to the Oka–Don Lowland. The relief is predominantly flat and dissected by a network of ravines and gullies. Absolute elevations range from 160 to 220 m, while minimum elevations along river valleys reach 90–100 m. The climate is temperate continental, with a mean annual temperature of about 7.0 °C; the average temperature in January is –8 °C and in July +19.4 °C. Annual precipitation ranges from 322 to 807 mm, with the highest amounts recorded in the northern part of the region. Black earth (chernozem) soils dominate the soil cover.

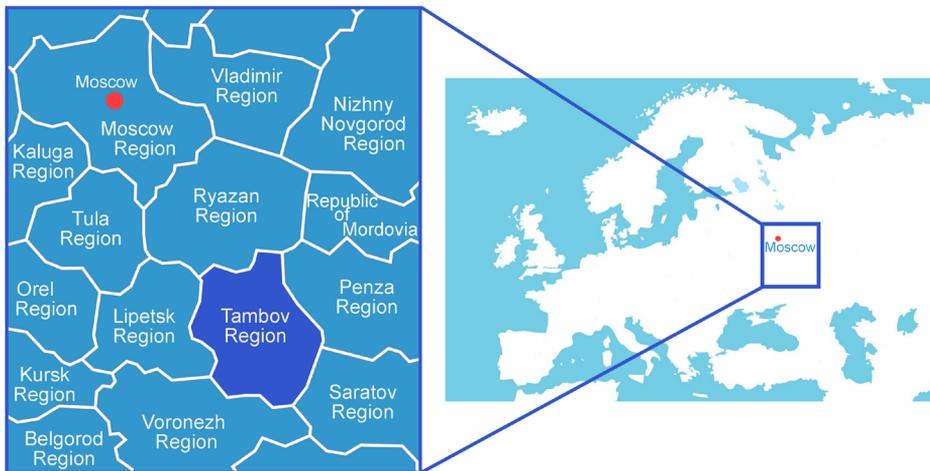


Figure 1. The location of the Tambov Region in the central part of European Russia.

The Tambov Region lies entirely within the forest-steppe natural zone, with landscapes characterized by an alternation of steppe and forest communities, many of which have now been largely replaced by artificial biocenoses. Steppe meadows and meadow-steppes prevail, representing the northernmost variant of zonal steppe vegetation. Prior to human development, forest communities covered 40% of the territory; currently, forested areas occupy only 11% of the region. The forested areas comprise broad-leaved forests (oak and linden stands), small-leaved forests (birch and aspen stands), mixed forests (oak-pine forests), and coniferous forests (pine stands). Intrazonal landscapes are represented by meadows and wetlands (Abramova et al. 2022).

This article uses literature on ground beetles of the Tambov Region published up to 2025. Sources dealing with the biology of individual economically important or widely distributed species were not considered. Particular attention was given to species included in various editions of the Red Data Book of the Tambov Region.

In addition to published data, collections made by the authors from 2019 to 2024 in the Inzhavino, Kirsanov, Muchkapsky, Rasskazovo, Tambov, Petrovskoye and Uvarovo districts were used. Ground beetles were collected using soil pitfall traps from April to September. The traps consisted of 0.5-liter plastic cups with an opening diameter of 85 mm, filled halfway with a preservative liquid. In different habitat types, 10 traps were arranged in a row at 2–3 m intervals. Some specimens were collected by hand and in yellow bowls. All material was identified by the authors.

The nomenclature of ground beetles follows the Catalogue of Palearctic Coleoptera (2017), and the taxonomic sequence follows the Systematic List of Ground Beetles (Carabidae) of Russia (Makarov et al. 2020). Species lists of the genus *Harpalus* were revised using recent data (Kataev 2023). Subspecific names are given only for non-nominative subspecies. The zoogeographical characteristics of species are given with reference to information on their regional distribution (Kryzhanovskij et al. 1995). Life-form characteristics are provided according to I.Kh. Sharova (1981).

To assess the contribution of each species to the regional fauna, a dominance index was calculated using the Renkonen scale (Renkonen 1938). Species whose abundance exceeded 5% of the total number of Carabidae in a given phytocoenosis were considered dominant; species with 2–5% abundance were considered subdominant; and species with less than 2% abundance were classified as rare.

Results

Based on both original and published data, an annotated checklist of ground beetles of the Tambov Region was compiled. New species for the region are marked with an asterisk (*).

Subfamily CICINDELINAE Latreille, 1802

Tribe Cicindelini Latreille, 1802

1. *Cylindera (Cylindera) germanica* (Linnaeus, 1758)

Literature data: Kasandrova 1999, 2000, 2002; Romankina and Frolova 2005; Kasandrova et al. 2007; Romankina 2009b, 2010a, 2010c, 2014a, 2014b, 2017, 2019; Bilomar 2011; Red Book of Tambov Region: Animals 2012; Bilomar et al. 2015.

2. *Cicindela (Cicindela) hybrida* Linnaeus, 1758

Literature data: Kasandrova 1999, 2000; Kasandrova et al. 2007; Romankina 2014a, 2019; Bilomar et al. 2015.

3. *Cicindela (Cicindela) maritima* Dejean, 1822

Literature data: Kasandrova 1999, 2000; Kasandrova et al. 2007; Red Book of Tambov Region: Animals 2012; Romankina 2014a.

4. *Cicindela (Cicindela) soluta* Dejean, 1822

Literature data: Kasandrova et al. 2002a, 2002b, 2007; Beskokotov and Samokhin 2009; Red Book of Tambov Region: Animals 2012; Bilomar et al. 2015; Volodchenko 2020.

5. *Cicindela (Cicindela) campestris* Linnaeus, 1758

Literature data: Kasandrova 1999, 2000; Kasandrova et al. 2007; Red Book of Tambov Region: Animals 2012; Romankina 2014a; Volodchenko 2020.

Subfamily OMOPHRONINAE Bonelli, 1810

Tribe Omophronini Bonelli, 1810

6. *Omophron (Omophron) limbatum* (Fabricius, 1777)

Literature data: Kasandrova 1996, 1999; Kasandrova et al. 2007; Red Book of Tambov Region: Animals 2012; Romankina 2019.

Subfamily NEBRIINAE Laporte, 1834

Tribe Nebriini Laporte, 1834

7. *Leistus (Leistus) ferrugineus* (Linnaeus, 1758)

Literature data: Kasandrova 1999; Kasandrova et al. 2007; Kolesnikov 2009; Kolesnikov and Boldyrev 2014a; Romankina 2019.

Material. Inzhavino Dist., Horoshavka, 3.06–7.07.2022, 1 ex.; Rasskazovo Dist., Kotovsk, 20.06–20.07.2023, 1 ex.; Inzhavino Dist., Nikitino, 18.05–20.06.2023, 2 ex.; Inzhavino Dist., Karai-Pushchino, 20.06–19.07.2023, 1 ex.

8. *Leistus (Leistus) terminatus* (Panzer, 1793)

Literature data: Kasandrova et al. 2007; Kolesnikov 2009; Kolesnikov and Boldyrev 2014a; Romankina 2014a.

Tribe Notiophilini Motschulsky, 1850

9. *Notiophilus aquaticus* (Linnaeus, 1758)

Literature data: Kasandrova et al. 2007; Romankina 2019.

10. *Notiophilus palustris* (Duftschmid, 1812)

Literature data: Kasandrova et al. 2002b, 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Kolesnikov and Boldyrev 2014a; Bilomar et al. 2015; Romankina 2019.

Material. Rasskazovo Dist., Rasskazovo, 3.06–7.07.2022, 4 ex.; 7.07–12.08.2022, 6 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 2 ex.; 20.06–19.07.2023, 1 ex.; Inzhavino Dist., Karai-Saltykovo, 19.05–20.06.2023, 3 ex.; 20.06–19.07.2023, 3 ex.; 19.07–22.08.2023, 1 ex.

11. *Notiophilus germinyi* Fauvel, 1863

Literature data: Kasandrova et al. 2007; Kolesnikov 2009; Kolesnikov and Boldyrev 2014a; Romankina 2014a; Sazhnev et al. 2019.

12. *Notiophilus biguttatus* (Fabricius, 1779)

Literature data: Shalamova and Sharova 2002; Kasandrova et al. 2007; Shalamova et al. 2012; Bilomar et al. 2015.

Subfamily CARABINAE Latreille, 1802

Tribe Carabini Latreille, 1802

13. *Calosoma (Calosoma) sycophanta* (Linnaeus, 1758)

Literature data: Kasandrova 1999, 2000; Zheltov and Sokolov 2003; Kasandrova et al. 2007; Red Book of Tambov Region: Animals 2012; Romankina 2014a; Volodchenko et al. 2015; Volodchenko 2020.

14. *Calosoma (Calosoma) inquisitor* (Linnaeus, 1758)

Literature data: Kasandrova 1999, 2000; Kasandrova et al. 2002a, 2002b, 2007; Shalamova and Sharova 2002; Zheltov and Sokolov 2003; Romankina and Frolova 2005; Shalamova and Shalamov 2005; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Samokhin 2009; Kolesnikov 2009; Bilomar 2011; Shalamova et al. 2012; Red Book of Tambov Region: Animals 2012; Kolesnikov and Boldyrev 2014a, 2014b; Romankina 2014a; Volodchenko et al. 2015; Bilomar et al. 2015; Kolesnikov et al. 2018, 2023; Volodchenko 2020.

Material. Inzhavino Dist., Inzhavino, 3.06–7.07.2022, 4 ex.; Kirsanov Dist., Derben, 8.05–17.06.2023, 1 ex.; Muchkapsky Dist., Nizhneye Chuevo, 13.05–8.07.2024, 4 ex.; Rasskazovo Dist., Rasskazovo, 3.06–7.07.2022, 1 ex.; Tambov Dist., Tambov, 3.06–7.07.2022, 1 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 1 ex.; 18.05–20.06.2023, 2 ex.; Inzhavino Dist., Karai-Saltykovo, 19.05–20.06.2023, 30 ex.; Inzhavino Dist., Karai-Pushchino, 19.05–20.06.2023, 3 ex.; Petrovskoye Dist., Tynkovo, 27.05–20.06.2023, 1 ex.

15. *Calosoma (Calosoma) maderae* (Fabricius, 1775)

Literature data: Kasandrova 1999, 2000; Zheltov and Sokolov 2003; Kasandrova et al. 2007; Red Book of Tambov Region: Animals 2012.

Material. Uvarovo Dist., Lebyazh'ye, 7.07–12.08.2022, 3 ex.

16. *Calosoma (Calosoma) denticolle* Gebler, 1833

Literature data: Kasandrova 1999, 2000; Kasandrova et al. 2007; Red Book of Tambov Region: Animals 2012; Romankina 2014a.

17. *Calosoma (Calosoma) investigator* (Illiger, 1798)

Literature data: Kasandrova 1999, 2000; Popova and Kozlova 1996; Popova and Starikova 2002; Zheltov and Sokolov 2003; Popova and Potapova 2005; Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Samokhin 2009; Romankina 2009b, 2010a, 2010c, 2014a, 2014b, 2017; Bilomar et al. 2015; Kolesnikov et al. 2018.

Material. Tambov Dist., Orlovka, 7.07–12.08.2022, 3 ex.

18. *Carabus (Tachypus) cancellatus* Illiger, 1798

Literature data: Kasandrova 1999, 2000, 2002; Kasandrova et al. 2002a, 2002b; Popova and Starikova 2002; Shalamova and Sharova 2002; Popova and Potapova 2005; Romankina and Frolova 2005; Shalamova and Shalamov 2005; Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Romankina 2009a, 2010a, 2014a, 2014b, 2019; Samokhin 2010; Shalamova et al. 2012; Kolesnikov and Boldyrev 2014a; Bilomar et al. 2015; Kolesnikov et al. 2018, 2023.

Material. Inzhavino Dist., Inzhavino, 3.06–7.07.2022, 3 ex.; Tambov Dist., Tulinovka, 27.05–20.06.2023, 7 ex.; 20.06–20.07.2023, 2 ex.; Tambov Dist., Danilovka, 20.06–20.07.2023, 6 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 21 ex.; 18.05–20.06.2023, 121 ex.; 20.06–19.07.2023, 31 ex.; 19.07–21.08.2023, 29 ex.; 21.08–26.09.2023, 24 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 5 ex.; 19.05–20.06.2023, 43 ex.; 20.06–19.07.2023, 10 ex.; 19.07–22.08.2023, 13 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 5 ex.; 19.05–20.06.2023, 6 ex.; 20.06–19.07.2023, 3 ex.; 19.07–22.08.2023, 1 ex.; 22.08–27.09.2023, 2 ex.; Kirsanov Dist., Ramza, 19.04–19.05.2023, 26 ex.; 19.05–20.06.2023, 64 ex.; 20.06–19.07.2023, 30 ex.; 19.07–22.08.2023, 6 ex.; 22.08–27.09.2023, 3 ex.

19. *Carabus (Carabus) arvensis* Herbst, 1784

Literature data: Kasandrova 1999, 2000; Shalamova and Sharova 2002; Shalamova and Shalamov 2005; Beskokotov and Samokhin 2009; Samokhin 2009; Kasandrova et al. 2007; Samokhin and Kasandrova 2007; Romankina and Sharova 2011; Shalamova et al. 2012; Red Book of Tambov Region: Animals 2012; Romankina 2014a; Volodchenko 2020.

Material. Tambov Dist., Danilovka, 20.06–20.07.2023, 5 ex.; Inzhavino Dist., Karai-Saltykovo, 19.07–22.08.2023, 1 ex.

20. *Carabus (Carabus) stscheglowi* Mannerheim, 1827

Literature data: Kasandrova 1999, 2000; Shalamova and Sharova 2002; Shalamova and Shalamov 2005; Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Samokhin 2009; Romankina and Sharova 2011; Shalamova et al. 2012; Red Book of Tambov Region: Animals 2012; Romankina 2014a; Bilomar et al. 2015; Volodchenko 2020.

Material. Inzhavino Dist., Olkhovka, 19.07–21.08.2023, 1 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 13 ex.; 19.05–20.06.2023, 28 ex.; 20.06–19.07.2023, 1 ex.; 19.07–22.08.2023, 4 ex.; Kirsanov Dist., Ramza, 19.04–19.05.2023, 20 ex.; 19.05–20.06.2023, 38 ex.; 20.06–19.07.2023, 9 ex.; 19.07–22.08.2023, 6 ex.; 22.08–27.09.2023, 1 ex.

21. *Carabus (Carabus) granulatus* Linnaeus, 1758

Literature data: Kasandrova 1999, 2000; Kasandrova et al. 2002b, 2007; Shalamova and Sharova 2002; Popova and Potapova 2005; Romankina and Frolova 2005; Shalamova and Shalamov 2005; Romankina 2007, 2009b, 2019; Romankina et al. 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Samokhin 2010; Kolesnikov and Boldyrev 2014a; Bilomar et al. 2015; Kolesnikov et al. 2018.

Material. Inzhavino Dist., Horoshavka, 3.06–7.07.2022, 1 ex.; Rasskazovo Dist., Rasskazovo, 3.06–7.07.2022, 2 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 179 ex.; 18.05–20.06.2023, 147 ex.; 20.06–19.07.2023, 93 ex.; 19.07–21.08.2023, 39 ex.; 21.08–26.09.2023, 3 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 70 ex.; 19.05–20.06.2023, 138 ex.; 20.06–19.07.2023, 13 ex.; 19.07–22.08.2023, 174 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 296 ex.; 19.05–20.06.2023, 141 ex.; 20.06–19.07.2023, 121 ex.; 19.07–22.08.2023, 90 ex.; 22.08–27.09.2023, 67 ex.; Kirsanov Dist., Ramza, 19.04–19.05.2023, 15 ex.; 19.05–20.06.2023, 6 ex.; 20.06–19.07.2023, 9 ex.; 19.07–22.08.2023, 7 ex.; 22.08–27.09.2023, 3 ex.

22. *Carabus (Trachycarabus) sibiricus haeres* Fischer von Waldheim, 1823

Literature data: Romankina 2000; Popova and Potapova 2005; Kasandrova et al. 2007; Romankina 2009b.

23. *Carabus (Trachycarabus) estreicheri* Fischer von Waldheim, 1820*

Material. Kirsanov Dist., Inokovka, 29.06.2009, 1 ex.

24. *Carabus (Archicarabus) nemoralis* O.F. Muller, 1764

Literature data: Kasandrova 1999, 2000; Shalamova and Sharova 2002; Popova and Potapova 2005; Shalamova and Shalamov 2005; Kasandrova et al. 2007; Romankina et al. 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Shalamova et al. 2012; Kolesnikov and Boldyrev 2014a; Romankina 2014a; Kolesnikov et al. 2018.

25. *Carabus (Limnocarabus) clathratus* Linnaeus, 1760

Literature data: Kasandrova 1999, 2000; Romankina and Frolova 2005; Kasandrova et al. 2007; Red Book of Tambov Region: Animals 2012; Volodchenko et al. 2015; Bilomar et al. 2015; Kolesnikov et al. 2018; Romankina 2019; Volodchenko 2020.

Material. Inzhavino Dist., Inokovka 1, 11.06.2019, 1 ex.; Kirsanov Dist., Derben, 7.04–8.05.2023, 1 ex.; Muchkapsky Dist., Nizhneye Chuevo, 13.05–8.07.2024, 2 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 2 ex.; 20.06–19.07.2023, 1 ex.; 19.07–22.08.2023, 1 ex.; Kirsanov Dist., Ramza, 19.04–19.05.2023, 1 ex.

26. *Carabus (Pachystus) glabratus* Paykull, 1790

Literature data: Kasandrova 1999, 2000; Shalamova and Shalamov 2005; Kasandrova et al. 2007; Romankina 2009b, 2014a; Romankina and Sharova 2011; Kolesnikov et al. 2023.

Material. Rasskazovo Dist., Rasskazovo, 3.06–7.07.2022, 2 ex.; 7.07–12.08.2022, 8 ex.; Tambov Dist., Tulinovka, 27.05–20.06.2023, 2 ex.; 20.06–20.07.2023, 1 ex.; Tambov Dist., Danilovka, 20.06–20.07.2023, 2 ex.

27. *Carabus (Pachystus) hortensis* Linnaeus, 1758

Literature data: Kolesnikov 2009; Kolesnikov and Boldyrev 2014a; Kolesnikov et al. 2018.

Material. Rasskazovo Dist., Rasskazovo, 3.06–7.07.2022, 3 ex.; 7.07–12.08.2022, 4 ex.

28. *Carabus (Tomocarabus) convexus* Fabricius, 1775

Literature data: Kasandrova 1999, 2000; Kasandrova et al. 2002a, 2002b, 2007; Shalamova and Sharova 2002; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Samokhin 2009; Romankina 2009b, 2010a, 2010c, 2014a, 2014b, 2017; Shalamova et al. 2012; Red Book of Tambov Region: Animals 2012; Bilomar et al. 2015; Kolesnikov et al. 2018, 2023; Volodchenko 2020.

Material. Inzhavino Dist., Nikitino, 17.04–18.05.2023, 1 ex.; Inzhavino Dist., Olkhovka, 17.04–18.05.2023, 2 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 42 ex.; 19.05–20.06.2023, 39 ex.; 20.06–19.07.2023, 10 ex.; 19.07–22.08.2023, 33 ex.

29. *Carabus (Tomocarabus) marginalis* Fabricius, 1794

Literature data: Kasandrova 1999, 2000; Kasandrova et al. 2002a, 2002b, 2007; Shalamova and Sharova 2002; Romankina 2000, 2009b, 2013, 2014a, 2019; Shalamova and Shalamov 2005; Beskokotov and Samokhin 2009; Samokhin 2009; Romankina and Sharova 2011; Shalamova et al. 2012; Bilomar et al. 2015.

Material. Inzhavino Dist., Nikitino, 18.05–20.06.2023, 1 ex.; 20.06–19.07.2023, 2 ex.; 19.07–21.08.2023, 6 ex.; 21.08–26.09.2023, 7 ex.

30. *Carabus (Megodontus) violaceus aurolimbatus* Dejean, 1830

Literature data: Beskokotov and Samokhin 2009; Romankina 2014a.

31. *Carabus (Procrustes) coriaceus* Linnaeus, 1758

Literature data: Kasandrova 1999, 2000; Kasandrova et al. 2007; Kolesnikov 2009; Red Book of Tambov Region: Animals 2012; Kolesnikov and Boldyrev 2014a; Kolesnikov et al. 2018.

Tribe Cychrini Perty, 1830

32. *Cychrus (Cychrus) caraboides* (Linnaeus, 1758)

Literature data: Kasandrova 1999, 2000; Kasandrova et al. 2007; Red Book of Tambov Region: Animals 2012; Kolesnikov and Boldyrev 2014a.

Subfamily ELAPHRINAE Latreille, 1802

Tribe Elaphrini Latreille, 1802

33. *Blethisa multipunctata* (Linnaeus, 1758)

Literature data: Kasandrova 1999; Kasandrova et al. 2007; Romankina 2014a, 2019; Sazhnev et al. 2019.

34. *Elaphrus (Neoelaphrus) uliginosus* Fabricius, 1792

Literature data: Kasandrova et al. 2007; Romankina 2019.

Material. Muchkapsky Dist., Nizhneye Chuevo, 13.05–8.07.2024, 1 ex.

35. *Elaphrus (Neoelaphrus) cupreus* Duftschmid, 1812

Literature data: Popova and Potapova 2005; Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Samokhin 2010; Bilomar et al. 2015; Romankina 2019.

Material. Inzhavino Dist., Bobrovo, 23.04–17.05.2019, 1 ex.; Muchkapsky Dist., Nizhneye Chuevo, 13.05–8.07.2024, 2 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 3 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 1 ex.

36. *Elaphrus (Elaphrus) riparius* (Linnaeus, 1758)

Literature data: Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Kolesnikov and Boldyrev 2014a; Romankina 2014a, 2019; Bilomar et al. 2015.

Material. Inzhavino Dist., Innokovka 1, 16.07.2019, 2 ex.

37. *Elaphrus (Elaphroterus) angusticollis* R.F. Sahlberg, 1844

Literature data: Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009.

Material. Muchkapsky Dist., Nizhneye Chuevo, 13.05–8.07.2024, 1 ex.

Subfamily LORICERINAE Bonelli, 1810**Tribe Loricerini Bonelli, 1810****38. *Loricera (Loricera) pilicornis* (Fabricius, 1775)**

Literature data: Shalamova and Sharova 2002; Shalamova and Shalamov 2005; Kasandrova et al. 2007; Romankina 2009b, 2010a, 2014a, 2019; Samokhin 2010; Shalamova et al. 2012; Kolesnikov and Boldyrev 2014a; Volodchenko et al. 2018.

Material. Inzhavino Dist., Nikitino, 17.04–18.05.2023, 1 ex.; Inzhavino Dist., Karai-Pushchino, 20.06–19.07.2023, 1 ex.; Kirsanov Dist., Ramza, 19.07–22.08.2023, 1 ex.

Subfamily SCARITINAE Bonelli, 1810**Tribe Clivinini Rafinesque, 1815****39. *Clivina (Clivina) collaris* (Herbst, 1784)**

Literature data: Kasandrova et al. 2007.

40. *Clivina (Clivina) fossor* (Linnaeus, 1758)

Literature data: Kasandrova 1996, 2002; Popova and Starikova 2002; Romankina and Akhmadulina 2002; Romankina and Frolova 2005; Kasandrova et al. 2007; Kolesnikov 2009; Romankina 2009b, 2010a, 2014a, 2014b, 2017, 2019; Samokhin 2010; Bilomar 2011; Kolesnikov and Boldyrev 2014a, 2014b; Bilomar et al. 2015; Kolesnikov et al. 2018, 2023.

Material. Inzhavino Dist., Nikitino, 19.07–21.08.2023, 1 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 2 ex.

Tribe Dyschiriini H.J. Kolbe, 1880**41. *Dyschirius (Dyschirius) thoracicus* (P. Rossi, 1790)***

Material. Inzhavino Dist., Inzhavino, 7.06–11.07.2009, 1 ex.

Note: Beskokotov in Letopis – occasionally recorded in soil traps on Titov Island in 2009.

42. *Dyschirius (Eudyschirius) globosus* (Herbst, 1784)

Literature data: Kasandrova 1999; Kasandrova et al. 2007; Romankina 2019.

43. *Dyschirius (Dyschiriodes) nitidus* (Dejean, 1825)

Literature data: Volodchenko et al. 2021.

44. *Dyschirius (Dyschiriodes) aeneus* (Dejean, 1825)

Literature data: Kasandrova et al. 2007; Romankina 2019.

Subfamily BROSCINAE Hope, 1838

Tribe Broscini Hope, 1838

45. *Broscus (Broscus) cephalotes* (Linnaeus, 1758)

Literature data: Kasandrova 2002; Kasandrova et al. 2007; Kolesnikov 2009; Romankina 2009b, 2010c, 2014b; Kolesnikov and Boldyrev 2014a; Kolesnikov et al. 2018.

Subfamily TRECHINAE Bonelli, 1810

Tribe Trechini Bonelli, 1810

46. *Blemus discus* (Fabricius, 1792)

Literature data: Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Romankina 2019.

47. *Trechus (Epaphius) secalis* (Paykull, 1790)

Literature data: Romankina 2000, 2010a, 2014a; Shalamova and Sharova 2002; Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Romankina and Sharova 2011; Shalamova et al. 2012; Bilomar et al. 2015.

Material. Inzhavino Dist., Nikitino, 19.07–21.08.2023, 29 ex.; 20.06–19.07.2023, 12 ex.; 21.08–26.09.2023, 10 ex.; Inzhavino Dist., Karai-Saltykovo, 19.07–22.08.2023, 1 ex.; Inzhavino Dist., Karai-Pushchino, 20.06–19.07.2023, 4 ex.; 19.07–22.08.2023, 2 ex.; 22.08–27.09.2023, 1 ex.

48. *Trechus (Trechus) quadristriatus* (Schränk, 1781)

Literature data: Kasandrova et al. 2007; Romankina 2010a, 2014a, 2019; Romankina and Sharova 2011.

49. *Trechus (Trechus) rubens* (Fabricius, 1792)

Literature data: Kasandrova et al. 2007; Romankina 2009b, 2019.

Tribe Bembidiini Stephens, 1827**50. *Tachyta (Tachyta) nana* (Gyllenhal, 1810)**

Literature data: Volodchenko et al. 2018.

51. *Asaphidion flavipes* (Linnaeus, 1760)

Literature data: Beskokotov and Samokhin 2009; Kolesnikov 2009; Samokhin 2010; Romankina 2014a; Bilomar et al. 2015; Kolesnikov and Boldyrev 2014a.

52. *Asaphidion pallipes* (Duftschmid, 1812)

Literature data: Kolesnikov 2009; Kolesnikov and Boldyrev 2014a.

53. *Bembidion (Bracteon) litorale* (Olivier, 1790)

Literature data: Bilomar et al. 2015.

54. *Bembidion (Metallina) lampros* (Herbst, 1784)

Literature data: Shalamova and Sharova 2002; Popova and Potapova 2005; Kasandrova et al. 2007; Kolesnikov 2009; Romankina 2010a; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2018, 2023.

Material. Tambov Dist., Tambov, 3.06–7.07.2022, 2 ex.; Petrovskoye Dist., Tynkovo, 27.05–20.06.2023, 1 ex.

55. *Bembidion (Metallina) properans* (Stephens, 1828)

Literature data: Kasandrova 1996, 2002; Popova and Kozlova 1996; Shalamova and Sharova 2002; Popova and Potapova 2005; Romankina and Frolova 2005; Kasandrova et al. 2007; Kolesnikov 2009; Romankina 2010a, 2010c, 2014a; Shalamova et al. 2012; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2018, 2023.

Material. Tambov Dist., Tambov, 20.06–20.07.2023, 1 ex.

56. *Bembidion (Paraprincipidium) ruficolle* (Panzer, 1796)

Literature data: Kasandrova et al. 2007; Romankina 2019.

57. *Bembidion (Testedium) bipunctatum* (Linnaeus, 1760)

Literature data: Kasandrova et al. 2007; Romankina 2014a; Kolesnikov et al. 2018.

58. *Bembidion (Notaphus) obliquum* Sturm, 1825

Literature data: Kasandrova et al. 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Romankina 2014a, 2019.

59. *Bembidion (Notaphus) semipunctatum* (Donovan, 1806)

Literature data: Kolesnikov 2009; Kolesnikov and Boldyrev 2014a; Volodchenko et al. 2021.

60. *Bembidion (Notaphus) varium* (Olivier, 1795)

Literature data: Romankina and Frolova 2005; Kasandrova et al. 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Bilomar 2011; Romankina 2014a, 2014b, 2017, 2019.

61. *Bembidion (Eupetedromus) dentellum* (Thunberg, 1787)

Literature data: Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Kolesnikov and Boldyrev 2014a; Romankina 2014b, 2017, 2019; Bilomar et al. 2015.

Material. Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 1 ex.

62. *Bembidion (Philochthus) biguttatum* (Fabricius, 1779)

Literature data: Romankina and Frolova 2005; Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Samokhin 2010; Bilomar 2011; Bilomar et al. 2015; Romankina 2017; Kolesnikov et al. 2018.

Material. Kirsanov Dist., Derben, 7.04–8.05.2023, 1 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 11 ex.; 18.05–20.06.2023, 3 ex.; 20.06–19.07.2023, 2 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 10 ex.

63. *Bembidion (Philochthus) guttula* (Fabricius, 1792)

Literature data: Kasandrova et al. 2007; Kolesnikov 2009; Kolesnikov and Boldyrev 2014a; Romankina 2019.

Material. Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 1 ex.

64. *Bembidion (Emphanes) azurescens* Dalla Torre, 1877

Literature data: Sazhnev et al. 2019.

65. *Bembidion (Emphanes) minimum* (Fabricius, 1792)

Literature data: Kasandrova et al. 2007.

66. *Bembidion (Trepanes) articulatum* (Panzer, 1796)

Literature data: Kasandrova et al. 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Romankina 2014a, 2017, 2019.

67. *Bembidion (Trepanes) octomaculatum* (Goeze, 1777)

Literature data: Kasandrova et al. 2007; Sazhnev et al. 2019.

68. *Bembidion (Trepanedoris) doris* (Panzer, 1796)

Literature data: Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Samokhin 2010; Bilomar et al. 2015.

69. *Bembidion (Semicampa) gilvipes* Sturm, 1825*

Material. Inzhavino Dist., Kipetz, 29.04.2009, 3 ex., Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 1 ex.

70. *Bembidion (Semicampa) schueppelii* Dejean, 1831

Literature data: Kasandrova et al. 2007; Romankina 2014a.

71. *Bembidion (Diplocampa) assimile* Gyllenhal, 1810

Literature data: Bilomar 2011.

72. *Bembidion (Diplocampa) clarkii* (Dawson, 1849)*

Material. Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 1 ex.

73. *Bembidion (Diplocampa) fumigatum* (Duftschmid, 1812)

Literature data: Bilomar 2011.

74. *Bembidion (Bembidion) quadrimaculatum* (Linnaeus, 1760)

Literature data: Popova and Kozlova 1996; Kasandrova 2002; Popova and Popatopova 2005; Kasandrova et al. 2007; Kolesnikov 2009; Romankina 2010a, 2010c, 2014a; Bilomar 2011; Kolesnikov and Boldyrev 2014a; Bilomar et al. 2015; Kolesnikov et al. 2018.

Material. Inzhavino Dist., Chernavka, 6.05–3.06.2022, 6 ex.; 3.06–7.07.2022, 2 ex.; Tambov Dist., Tambov, 3.06–7.07.2022, 3 ex.; Uvarovo Dist., Lebyazh'ye, 3.06–7.07.2022, 1 ex.; Tambov Dist., Tambov, 20.06–20.07.2023, 5 ex.

75. *Bembidion (Peryphus) andreae* (Fabricius, 1787)

Literature data: Kasandrova et al. 2007; Romankina 2019.

76. *Bembidion (Peryphus) femoratum* Sturm, 1825

Literature data: Kasandrova et al. 2007.

77. *Bembidion (Nepha) genei illigeri* Netolitzky, 1914

Literature data: Kasandrova et al. 2007.

Subfamily PATROBINAE Kirby, 1837**Tribe Patrobini Kirby, 1837****78. *Patrobus assimilis* Chaudoir, 1844**

Literature data: Kasandrova et al. 2007; Romankina 2019.

Material. Inzhavino Dist., Nikitino, 19.07–21.08.2023, 6 ex.; Inzhavino Dist., Karai-Pushchino, 20.06–19.07.2023, 1 ex.

79. *Patrobus atrorufus* (Strøm, 1768)

Literature data: Kasandrova 2002; Romankina and Frolova 2005; Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Bilomar et al. 2015.

Material. Inzhavino Dist., Nikitino, 17.04–18.05.2023, 1 ex.; 18.05–20.06.2023, 3 ex.; 20.06–19.07.2023, 4 ex.; 21.08–26.09.2023, 1 ex.; Inzhavino Dist., Karai-Pushchino, 20.06–19.07.2023, 1 ex.; 19.07–22.08.2023, 4 ex.; 22.08–27.09.2023, 10 ex.

Subfamily HARPALINAE Bonelli, 1810

Tribe Pterostichini Bonelli, 1810

80. *Stomis (Stomis) pumicatus* (Panzer, 1796)

Literature data: Kasandrova 2002; Romankina and Frolova 2005; Kasandrova et al. 2007; Romankina 2009b, 2010a, 2017, 2019; Kolesnikov and Boldyrev 2014a; Kolesnikov et al. 2018.

Material. Inzhavino Dist., Inzhavino, 3.06–7.07.2022, 2 ex.; 7.07–12.08.2022, 1 ex.; Tambov Dist., Tambov, 3.06–7.07.2022, 1 ex.; Tambov Dist., Danilovka, 20.06–20.07.2023, 1 ex.; Inzhavino Dist., Nikitino, 20.06–19.07.2023, 1 ex.; 17.04–18.05.2023, 1 ex.; Inzhavino Dist., Karai-Pushchino, 19.07–22.08.2023, 1 ex.

81. *Poecilus (Poecilus) cupreus* (Linnaeus, 1758)

Literature data: Kasandrova 1996, 2002; Popova and Kozlova 1996; Romankina 2000, 2007, 2009a, 2009b, 2010a, 2010b, 2010c, 2013, 2014a, 2017, 2019; Kasandrova et al. 2002a, 2002b, 2007; Popova and Starikova 2002; Romankina and Akhmadulina 2002; Shalamova and Sharova 2002; Popova and Potapova 2005; Romankina and Frolova 2005; Romankina et al. 2007; Samokhin and Kasandrova 2007; Shalamova and Popova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Romankina and Sharova 2011; Shalamova et al. 2012; Kolesnikov and Boldyrev 2014a, 2014b; Bilomar et al. 2015; Kolesnikov et al. 2018, 2023.

Material. Uvarovo Dist., Lebyazh'ye, 3.06–7.07.2022, 1 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 3 ex.; 19.05–20.06.2023, 3 ex.; Kirsanov Dist., Ramza, 19.04–19.05.2023, 1 ex.

82. *Poecilus (Poecilus) versicolor* (Sturm, 1824)

Literature data: Kasandrova 1996, 2002; Romankina 2000, 2007, 2009b, 2010a, 2010c, 2013, 2014a, 2017, 2019; Kasandrova et al. 2002b, 2007; Shalamova and Sharova 2002; Popova and Potapova 2005; Romankina and Frolova 2005; Romankina et al. 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Romankina and Sharova 2011; Shalamova et al. 2012; Kolesnikov and Boldyrev 2014a, 2014b; Bilomar et al. 2015; Kolesnikov et al. 2018, 2023.

Material. Inzhavino Dist., Chernavka, 6.05–3.06.2022, 1 ex.; 3.06–7.07.2022, 2 ex.; Rasskazovo Dist., Rasskazovo, 3.06–7.07.2022, 1 ex.; 7.07–12.08.2022, 1 ex.; Tambov Dist., Tambov, 3.06–7.07.2022, 3 ex.; Tambov Dist., Orlovka, 3.06–7.07.2022, 8 ex.; Petrovskoye Dist., Tynkovo, 27.05–20.06.2023, 239 ex.; Tambov Dist., Tulinovka, 27.05–20.06.2023, 1 ex.; Tambov Dist., Danilovka, 20.06–20.07.2023, 1 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 2 ex.; Inzhavino Dist., Alekseyevka, 17.04–18.05.2023, 2 ex.; 19.07–21.08.2023, 1 ex.; 21.08–26.09.2023, 2 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 5 ex.; 19.05–20.06.2023, 8 ex.; 20.06–19.07.2023, 1 ex.; 19.07–22.08.2023, 5 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 11 ex.; 19.05–20.06.2023, 15 ex.

83. *Poecilus (Poecilus) lepidus* (Leske, 1785)

Literature data: Kasandrova 2002; Shalamova and Sharova 2002; Kasandrova et al. 2007; Romankina 2009b, 2010a, 2010c, 2014a; Kolesnikov and Boldyrev 2014a; Kolesnikov et al. 2018.

Material. Tambov Dist., Orlovka, 7.07–12.08.2022, 1 ex.

84. *Poecilus (Poecilus) punctulatus* (Schaller, 1783)

Literature data: Kasandrova et al. 2002b, 2007; Beskokotov and Samokhin 2009; Romankina 2009b, 2010a, 2010c, 2014a; Kolesnikov and Boldyrev 2014a; Kolesnikov et al. 2018.

85. *Poecilus (Poecilus) koyi* Germar, 1823

Literature data: Shalamova and Sharova 2002; Shalamova and Shalamov 2005; Kasandrova et al. 2007; Romankina 2010c.

86. *Poecilus (Ancholeus) crenuliger* Chaudoir, 1876

Literature data: Kasandrova et al. 2007.

87. *Pterostichus (Platysma) niger* (Schaller, 1783)

Literature data: Sharova and Denisova 1997a, 1997b; Romankina 2000, 2009a, 2009b, 2010a, 2010c, 2014a, 2017, 2019; Kasandrova 2002; Kasandrova et al. 2002a, 2002b, 2007; Shalamova and Sharova 2002; Popova and Potapova 2005; Romankina and Frolova 2005; Shalamova and Shalamov 2005; Beskokotov and Samokhin 2009; Kolesnikov 2009; Romankina and Sharova 2011; Shalamova et al. 2012; Kolesnikov and Boldyrev 2014a, 2014b; Bilomar et al. 2015; Kolesnikov et al. 2018, 2023.

Material. Kirsanov Dist., Derben, 7.04–8.05.2023, 5 ex.; Rasskazovo Dist., Rasskazovo, 3.06–7.07.2022, 3 ex.; 7.07–12.08.2022, 17 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 4 ex.; 18.05–20.06.2023, 8 ex.; 20.06–19.07.2023, 23 ex.; 19.07–21.08.2023, 81 ex.; 21.08–26.09.2023, 14 ex.; Inzhavino Dist., Alekseyevka, 19.07–21.08.2023, 1 ex.; Inzhavino Dist., Karai-Saltykovo, 19.07–22.08.2023, 24 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 2 ex.; 19.05–20.06.2023, 5 ex.; 20.06–19.07.2023, 6 ex.; 19.07–22.08.2023, 63 ex.; 22.08–27.09.2023, 41 ex.;

Kirsanov Dist., Ramza, 19.05–20.06.2023, 1 ex.; 20.06–19.07.2023, 3 ex.; 19.07–22.08.2023, 1 ex.; 22.08–27.09.2023, 1 ex.

88. *Pterostichus (Argutor) vernalis* (Panzer, 1796)

Literature data: Kasandrova 2002; Popova and Potapova 2005; Romankina and Frolova 2005; Kasandrova et al. 2007; Romankina 2007, 2010a, 2010c, 2017, 2019; Beskokotov and Samokhin 2009.

Material. Inzhavino Dist., Horoshavka, 6.05–3.06.2022, 1 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 14 ex.; 20.06–19.07.2023, 1 ex.; 19.07–22.08.2023, 2 ex.; 22.08–27.09.2023, 1 ex.

89. *Pterostichus (Adelosia) macer* (Marsham, 1802)

Literature data: Kasandrova et al. 2007; Romankina 2014a.

Material. Inzhavino Dist., Horoshavka, 6.05–3.06.2022, 1 ex.; Inzhavino Dist., Horoshavka, 3.06–7.07.2022, 1 ex.

90. *Pterostichus (Pseudomaseus) anthracinus* (Illiger, 1798)

Literature data: Kasandrova 1996, 2002; Kasandrova et al. 2002b, 2007; Popova and Potapova 2005; Romankina and Frolova 2005; Beskokotov and Samokhin 2009; Kolesnikov 2009; Romankina 2010a, 2014a, 2017, 2019; Samokhin 2010; Kolesnikov and Boldyrev 2014a, 2014b; Bilomar et al. 2015; Kolesnikov et al. 2018, 2023.

Material. Inzhavino Dist., Yakutino, 23.04–17.05.2019, 1 ex.; Kirsanov Dist., Derben, 7.04–8.05.2023, 1 ex.; Uvarovo Dist., Lebyazh'ye, 7.07–12.08.2022, 2 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 47 ex.; 18.05–20.06.2023, 19 ex.; 20.06–19.07.2023, 7 ex.; 19.07–21.08.2023, 2 ex.; Inzhavino Dist., Alekseyevka, 17.04–18.05.2023, 2 ex.; 20.06–19.07.2023, 1 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 2 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 110 ex.; 19.05–20.06.2023, 43 ex.; 20.06–19.07.2023, 33 ex.; 19.07–22.08.2023, 13 ex.; 22.08–27.09.2023, 2 ex.; Kirsanov Dist., Ramza, 22.08–27.09.2023, 1 ex.

91. *Pterostichus (Pseudomaseus) gracilis* (Dejean, 1828)

Literature data: Kasandrova et al. 2007; Bilomar 2011; Bilomar et al. 2015; Romankina 2017, 2019.

Material. Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 6 ex.

92. *Pterostichus (Pseudomaseus) minor* (Gyllenhal, 1827)

Literature data: Kasandrova et al. 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Kolesnikov and Boldyrev 2014a; Volodchenko and Seleznev 2022.

Material. Kirsanov Dist., Derben, 7.04–8.05.2023, 1 ex.; Kirsanov Dist., Derben, 8.05–17.06.2023, 2 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 22 ex.; 20.06–19.07.2023, 5 ex.; Kirsanov Dist., Ramza, 19.04–19.05.2023, 1 ex.

93. *Pterostichus (Pseudomaseus) nigrita* (Paykull, 1790)

Literature data: Kasandrova 2002; Shalamova and Sharova 2002; Popova and Potapova 2005; Romankina and Frolova 2005; Shalamova and Shalamov 2005; Kasandrova et al. 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Romankina 2010a, 2014a, 2017, 2019; Shalamova et al. 2012; Kolesnikov and Boldyrev 2014a; Bilomar et al. 2015; Kolesnikov et al. 2018.

Material. Inzhavino Dist., Bobrovo, 23.04–17.05.2019, 1 ex.; Tambov Dist., Tambov, 3.06–7.07.2022, 1 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 2 ex.; 18.05–20.06.2023, 2 ex.; Inzhavino Dist., Olkhovka, 17.04–18.05.2023, 1 ex.; Kirsanov Dist., Ramza, 22.08–27.09.2023, 1 ex.

94. *Pterostichus (Pseudomaseus) rhaeticus* Heer, 1837

Literature data: Kasandrova et al. 2007; Romankina 2019.

Material. Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 25 ex.; 19.05–20.06.2023, 5 ex.; 20.06–19.07.2023, 17 ex.; 19.07–22.08.2023, 2 ex.; 22.08–27.09.2023, 2 ex.

95. *Pterostichus (Phonias) diligens* (Sturm, 1824)

Literature data: Kasandrova et al. 2007; Kolesnikov 2009; Kolesnikov and Boldyrev 2014a, 2014b; Romankina 2019; Kolesnikov et al. 2023.

Material. Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 1 ex.

96. *Pterostichus (Phonias) strenuus* (Panzer, 1796)

Literature data: Sharova and Denisova 1997a, 1997b; Shalamova and Sharova 2002; Romankina and Frolova 2005; Shalamova and Shalamov 2005; Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Romankina 2009b, 2010c, 2013, 2014a, 2017, 2019; Romankina and Sharova 2011; Shalamova et al. 2012; Kolesnikov and Boldyrev 2014a, 2014b; Bilomar et al. 2015; Kolesnikov et al. 2023.

Material. Rasskazovo Dist., Rasskazovo, 3.06–7.07.2022, 2 ex.; Petrovskoye Dist., Tynkovo, 27.05–20.06.2023, 2 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 8 ex.; 18.05–20.06.2023, 1 ex.; Inzhavino Dist., Alekseyevka, 17.04–18.05.2023, 3 ex.; Inzhavino Dist., Olkhovka, 17.04–18.05.2023, 3 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 5 ex.; 19.05–20.06.2023, 1 ex.; 19.07–22.08.2023, 1 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 143 ex.; 20.06–19.07.2023, 19 ex.; 19.07–22.08.2023, 3 ex.; 22.08–27.09.2023, 6 ex.

97. *Pterostichus (Melanius) aterrimus* (Herbst, 1784)

Literature data: Bilomar et al. 2015.

98. *Pterostichus (Eosteropus) aethiops* (Panzer, 1796)

Literature data: Shalamova and Sharova 2002; Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2023.

99. *Pterostichus (Eosteropus) mannerheimii* (Dejean, 1831)

Literature data: Bilomar et al. 2015.

100. *Pterostichus (Bothriopterus) quadrifoveolatus* Letzner, 1852

Literature data: Kasandrova et al. 2007; Romankina 2010c.

101. *Pterostichus (Bothriopterus) oblongopunctatus* (Fabricius, 1787)

Literature data: Sharova and Denisova 1997a, 1997b; Kasandrova et al. 2002a, 2002b, 2007; Shalamova and Sharova 2002; Popova and Potapova 2005; Romankina and Frolova 2005; Shalamova and Shalamov 2005; Romankina 2007, 2009a, 2009b, 2013, 2014a, 2019; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Samokhin 2010; Romankina and Sharova 2011; Shalamova et al. 2012; Kolesnikov and Boldyrev 2014a, 2014b; Bilomar et al. 2015; Kolesnikov et al. 2018, 2023.

Material. Kirsanov Dist., Derben, 17.06–10.08.2023, 1 ex.; Muchkapsky Dist., Nizhneye Chuevo, 13.05–8.07.2024, 2 ex.; Rasskazovo Dist., Rasskazovo, 3.06–7.07.2022, 56 ex.; 7.07–12.08.2022, 2 ex.; Tambov Dist., Tambov, 3.06–7.07.2022, 2 ex.; Petrovskoye Dist., Tynkovo, 27.05–20.06.2023, 83 ex.; Tambov Dist., Tulinovka, 27.05–20.06.2023, 1 ex.; Tambov Dist., Danilovka, 20.06–20.07.2023, 2 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 67 ex.; 18.05–20.06.2023, 64 ex.; 20.06–19.07.2023, 18 ex.; 19.07–21.08.2023, 2 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 75 ex.; 19.05–20.06.2023, 102 ex.; 20.06–19.07.2023, 29 ex.; 19.07–22.08.2023, 30 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 56 ex.; 19.05–20.06.2023, 59 ex.; 20.06–19.07.2023, 61 ex.; 19.07–22.08.2023, 14 ex.; 22.08–27.09.2023, 18 ex.; Kirsanov Dist., Ramza, 19.04–19.05.2023, 15 ex.; 19.05–20.06.2023, 50 ex.; 20.06–19.07.2023, 83 ex.; 19.07–22.08.2023, 22 ex.; 22.08–27.09.2023, 2 ex.

102. *Pterostichus (Morphnosoma) melanarius* (Illiger, 1798)

Literature data: Kasandrova 1996; Popova and Kozlova 1996; Sharova and Denisova 1997a, 1997b; Romankina 2000, 2007, 2009a, 2009b, 2010a, 2010b, 2010c, 2013, 2014a, 2017, 2019; Kasandrova 2002; Kasandrova et al. 2002a, 2002b, 2007; Popova and Starikova 2002; Romankina and Akhmadulina 2002; Shalamova and Sharova 2002; Popova and Potapova 2005; Romankina and Frolova 2005; Romankina and Simakova 2004; Shalamova and Shalamov 2005; Romankina et al. 2007; Samokhin and Kasandrova 2007; Shalamova and Popova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Samokhin 2010; Romankina and Sharova 2011; Shalamova et al. 2012; Romankina and Shalamova 2013; Kolesnikov and Boldyrev 2014a, 2014b; Bilomar et al. 2015; Kolesnikov et al. 2018, 2023.

Material. Inzhavino Dist., Chernavka, 3.06–7.07.2022, 1 ex.; Inzhavino Dist., Inzhavino, 3.06–7.07.2022, 2 ex.; Rasskazovo Dist., Rasskazovo, 3.06–7.07.2022, 7 ex.; Tambov Dist., Tambov, 3.06–7.07.2022, 1 ex.; Tambov Dist., Tambov, 7.07–12.08.2022, 8 ex.; Petrovskoye Dist., Tynkovo, 27.05–20.06.2023, 57 ex.; Tambov Dist.,

Danilovka, 20.06–20.07.2023, 8 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 34 ex.; 18.05–20.06.2023, 51 ex.; 20.06–19.07.2023, 64 ex.; 19.07–21.08.2023, 150 ex.; 21.08–26.09.2023, 9 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 4 ex.; 19.05–20.06.2023, 29 ex.; 20.06–19.07.2023, 7 ex.; 19.07–22.08.2023, 36 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 43 ex.; 19.05–20.06.2023, 68 ex.; 20.06–19.07.2023, 84 ex.; 19.07–22.08.2023, 111 ex.; 22.08–27.09.2023, 31 ex.; Kirsanov Dist., Ramza, 19.04–19.05.2023, 19 ex.; 19.05–20.06.2023, 53 ex.; 20.06–19.07.2023, 97 ex.; 19.07–22.08.2023, 59 ex.; 22.08–27.09.2023, 6 ex.

Tribe Sphodrini Laporte, 1834

103. *Calathus (Calathus) fuscipes* (Goeze, 1777)

Literature data: Kasandrova et al. 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Kolesnikov and Boldyrev 2014a, 2014b; Romankina 2019; Kolesnikov et al. 2023.

Material. Inzhavino Dist., Horoshavka, 3.06–7.07.2022, 4 ex.; Uvarovo Dist., Lebyazh'ye, 7.07–12.08.2022, 12 ex.; Inzhavino Dist., Karai-Saltykovo, 19.07–22.08.2023, 1 ex.; Inzhavino Dist., Karai-Pushchino, 19.07–22.08.2023, 1 ex.; Kirsanov Dist., Ramza, 19.07–22.08.2023, 5 ex.; 22.08–27.09.2023, 7 ex.

104. *Calathus (Neocalathus) ambiguus* (Paykull, 1790)

Literature data: Kasandrova et al. 2002b, 2007; Romankina and Akhmadulina 2002; Romankina and Frolova 2005; Shalamova and Shalamov 2005; Romankina 2007, 2009b, 2010a, 2010c, 2014a; Beskokotov and Samokhin 2009; Kolesnikov 2009; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2018, 2023.

105. *Calathus (Neocalathus) erratus* (C.R. Sahlberg, 1827)

Literature data: Sharova and Denisova 1996; Shalamova and Sharova 2002; Shalamova and Shalamov 2005; Kasandrova et al. 2007; Romankina 2009b, 2014a; Romankina and Sharova 2011; Shalamova et al. 2012; Kolesnikov et al. 2018.

Material. Inzhavino Dist., Chernavka, 3.06–7.07.2022, 7 ex.; Uvarovo Dist., Lebyazh'ye, 3.06–7.07.2022, 8 ex.; 7.07–12.08.2022, 61 ex.

106. *Calathus (Neocalathus) melanocephalus* (Linnaeus, 1758)

Literature data: Romankina 2000, 2007, 2009b, 2010a, 2010c, 2014a, 2019; Kasandrova et al. 2002b, 2007; Romankina and Akhmadulina 2002; Shalamova and Sharova 2002; Romankina and Frolova 2005; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Shalamova et al. 2012; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2018, 2023.

Material. Inzhavino Dist., Chernavka, 6.05–3.06.2022, 1 ex.; Inzhavino Dist., Yakutino, 17.05.2019, 1 ex.; Uvarovo Dist., Lebyazh'ye, 3.06–7.07.2022, 2 ex.; 7.07–12.08.2022, 7 ex.; Inzhavino Dist., Karai-Saltykovo, 19.07–22.08.2023, 1 ex.

107. *Calathus (Neocalathus) micropterus* (Duftschmid, 1812)

Literature data: Sharova and Denisova 1996; Shalamova and Sharova 2002; Shalamova and Shalamov 2005; Kasandrova et al. 2007; Kolesnikov 2009; Romankina 2009b, 2014a; Romankina and Sharova 2011; Shalamova et al. 2012; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2018.

Material. Rasskazovo Dist., Rasskazovo, 7.07–12.08.2022, 12 ex.

108. *Dolichus halensis* (Schaller, 1783)

Literature data: Popova and Kozlova 1996; Romankina 2000, 2009b, 2010a, 2010c, 2014a, 2019; Kasandrova 2002; Popova and Starikova 2002; Romankina and Akhmadulina 2002; Popova and Potapova 2005; Romankina and Simakova 2004; Romankina and Frolova 2005; Kasandrova et al. 2007; Shalamova and Popova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Romankina and Shalamova 2013; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2018, 2023.

Material. Uvarovo Dist., Lebyazh'ye, 7.07–12.08.2022, 2 ex.; Inzhavino Dist., Karai-Pushchino, 19.07–22.08.2023, 1 ex.

109. *Synuchus (Synuchus) vivalis* (Illiger, 1798)

Literature data: Romankina 2000, 2007, 2010a, 2014a, 2019; Kasandrova 2002; Romankina and Frolova 2005; Kasandrova et al. 2007; Kolesnikov and Boldyrev 2014b; Kolesnikov et al. 2018, 2023.

Material. Rasskazovo Dist., Rasskazovo, 7.07–12.08.2022, 1 ex.; Tambov Dist., Orlovka, 7.07–12.08.2022, 1 ex.; Tambov Dist., Tulinovka, 20.06–20.07.2023, 1 ex.; Inzhavino Dist., Nikitino, 20.06–19.07.2023, 1 ex.

Tribe Platynini Bonelli, 1810

110. *Sericoda quadripunctata* (De Geer, 1774)

Literature data: Kasandrova et al. 2007; Romankina 2009b.

111. *Agonum (Agonum) marginatum* (Linnaeus, 1758)

Literature data: Romankina and Frolova 2005; Kasandrova et al. 2007; Romankina 2007, 2019.

112. *Agonum (Agonum) muelleri* (Herbst, 1784)

Literature data: Kasandrova et al. 2007; Kolesnikov 2009; Kolesnikov and Boldyrev 2014a; Romankina 2017, 2019; Kolesnikov et al. 2018.

113. *Agonum (Agonum) gracilipes* (Duftschmid, 1812)

Literature data: Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Romankina 2009b, 2010a, 2019; Bilomar 2011.

Material. Kirsanov Dist., Derben, 7.04–8.05.2023, 1 ex.; Tambov Dist., Tambov, 20.06–20.07.2023, 1 ex.; Inzhavino Dist., Olkhovka, 19.07–21.08.2023, 1 ex.;

Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 1 ex.; Kirsanov Dist., Ramza, 19.04–19.05.2023, 1 ex.; 19.07–22.08.2023, 1 ex.

114. *Agonum (Olisares) lugens* (Duftschmid, 1812)

Literature data: Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Bilomar 2011.

Material. Inzhavino Dist., Inzhavino, 28.06.2019, 2 ex.; Kirsanov Dist., Derben, 7.04–8.05.2023, 1 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 1 ex.

115. *Agonum (Olisares) duftschmidi* J. Schmidt, 1994

Literature data: Kasandrova et al. 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Romankina 2014a, 2017; Bilomar et al. 2015.

Material. Inzhavino Dist., Yakutino, 23.04–17.05.2019, 1 ex.

116. *Agonum (Olisares) viduum* (Panzer, 1796)

Literature data: Romankina and Frolova 2005; Kasandrova et al. 2007; Samokhin and Kasandrova 2007; Romankina 2010a, 2017, 2019; Bilomar et al. 2015; Volodchenko et al. 2021.

Material. Inzhavino Dist., Nikitino, 17.04–18.05.2023, 3 ex.; 20.06–19.07.2023, 2 ex.; 19.07–21.08.2023, 1 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 58 ex.; 19.05–20.06.2023, 19 ex.; 20.06–19.07.2023, 37 ex.; 19.07–22.08.2023, 14 ex.; 22.08–27.09.2023, 3 ex.

117. *Agonum (Olisares) versutum* Sturm, 1824

Literature data: Romankina and Frolova 2005; Kasandrova et al. 2007; Romankina 2014a, 2017; Sazhnev et al. 2019.

Material. Inzhavino Dist., Bobrovo, 23.04–17.05.2019, 3 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 3 ex.

118. *Agonum (Olisares) dolens* (C.R. Sahlberg, 1827)

Literature data: Kasandrova et al. 2007.

119. *Agonum (Olisares) impressum* (Panzer, 1796)

Literature data: Kasandrova et al. 2007.

120. *Agonum (Olisares) sexpunctatum* (Linnaeus, 1758)

Literature data: Kasandrova 1999; Kasandrova et al. 2002a, 2002b, 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Romankina 2010a, 2010c, 2017, 2019; Kolesnikov and Boldyrev 2014a.

121. *Agonum (Europhilus) micans* (Nicolai, 1822)

Literature data: Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Romankina 2019.

Material. Kirsanov Dist., Derben, 8.05–17.06.2023, 1 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 1 ex.

122. *Agonum (Europhilus) gracile* Sturm, 1824

Literature data: Kasandrova et al. 2007; Romankina 2014a, 2019; Sazhnev et al. 2019; Sergadeeva and Ignatenko 2022.

123. *Agonum (Europhilus) piceum* (Linnaeus, 1758)

Literature data: Kasandrova et al. 2007; Bilomar 2011; Bilomar et al. 2015; Romankina 2019.

124. *Agonum (Europhilus) fuliginosum* (Panzer, 1809)

Literature data: Kasandrova et al. 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Kolesnikov and Boldyrev 2014a; Romankina 2019.

Material. Kirsanov Dist., Derben, 17.06–10.08.2023, 1 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 1 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 2 ex.; 20.06–19.07.2023, 4 ex.; 19.07–22.08.2023, 2 ex.; 22.08–27.09.2023, 1 ex.

125. *Agonum (Europhilus) thoreyi* Dejean, 1828

Literature data: Volodchenko et al. 2018.

Material. Kirsanov Dist., Derben, 7.04–8.05.2023, 1 ex.

126. *Limodromus assimilis* (Paykull, 1790)

Literature data: Shalamova and Sharova 2002; Popova and Potapova 2005; Romankina and Frolova 2005; Shalamova and Shalamov 2005; Kasandrova et al. 2007; Romankina 2007, 2009b, 2010a, 2010c, 2014a, 2017, 2019; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Romankina and Sharova 2011; Shalamova et al. 2012; Kolesnikov and Boldyrev 2014a; Bilomar et al. 2015.

Material. Kirsanov Dist., Derben, 7.04–8.05.2023, 2 ex.; 17.06–10.08.2023, 1 ex.; Muchkapsky Dist., Nizhneye Chuevo, 13.05–8.07.2024, 2 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 151 ex.; 18.05–20.06.2023, 93 ex.; 20.06–19.07.2023, 14 ex.; 19.07–21.08.2023, 1 ex.; 21.08–26.09.2023, 5 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 6 ex.; 19.05–20.06.2023, 1 ex.; 19.07–22.08.2023, 1 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 40 ex.; 19.05–20.06.2023, 10 ex.; 20.06–19.07.2023, 10 ex.

127. *Limodromus krynickii* (Sperk, 1835)

Literature data: Kasandrova et al. 2007; Beskokotov and Samokhin 2009.

Material. Inzhavino Dist., Nikitino, 17.04–18.05.2023, 1 ex.; Inzhavino Dist., Karai-Saltykovo, 19.05–20.06.2023, 2 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 151 ex.; 19.05–20.06.2023, 72 ex.; 20.06–19.07.2023, 153 ex.;

19.07–22.08.2023, 52 ex.; 22.08–27.09.2023, 4 ex.; Kirsanov Dist., Ramza, 19.04–19.05.2023, 1 ex.; 20.06–19.07.2023, 1 ex.

128. *Platynus livens* (Gyllenhal, 1810)

Literature data: Kasandrova et al. 2007; Romankina 2019.

129. *Oxypselaphus obscurus* (Herbst, 1784)

Literature data: Kasandrova 2002; Shalamova and Sharova 2002; Romankina and Frolova 2005; Shalamova and Shalamov 2005; Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Samokhin 2010; Romankina and Sharova 2011; Romankina 2014a, 2017, 2019.

Material. Inzhavino Dist., Inzhavino, 3.06–7.07.2022, 2 ex.; Rasskazovo Dist., Rasskazovo, 7.07–12.08.2022, 1 ex.; Rasskazovo Dist., Kotovsk, 20.06–20.07.2023, 1 ex.; Tambov Dist., Tulinovka, 27.05–20.06.2023, 25 ex.; 20.06–20.07.2023, 2 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 1 ex.; 20.06–19.07.2023, 24 ex.; 19.07–21.08.2023, 19 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 1 ex.; 20.06–19.07.2023, 2 ex.

130. *Anchomenus dorsalis* (Pontoppidan, 1763)

Literature data: Kasandrova 2002; Popova and Starikova 2002; Popova and Potapova 2005; Romankina and Frolova 2005; Kasandrova et al. 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Romankina 2009b, 2010a, 2014a, 2019; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2023.

Tribe Zabrini Bonelli, 1810

131. *Amara (Zezea) chaudierei* Schaum, 1858

Literature data: Beskokotov and Samokhin 2009.

132. *Amara (Zezea) plebeja* (Gyllenhal, 1810)

Literature data: Kasandrova et al. 2007; Kolesnikov 2009; Romankina 2010a; Kolesnikov and Boldyrev 2014a; Kolesnikov et al. 2018.

Material. Inzhavino Dist., Inzhavino, 7.07–12.08.2022, 1 ex.; Tambov Dist., Tambov, 3.06–7.07.2022, 1 ex.

133. *Amara (Amara) aenea* (De Geer, 1774)

Literature data: Kasandrova 1996; Romankina 2000, 2007, 2009b, 2010a, 2010c, 2013, 2014a, 2017, 2019; Kasandrova 2002; Popova and Starikova 2002; Popova and Potapova 2005; Romankina and Frolova 2005; Shalamova and Shalamov 2005; Romankina and Akhmadulina 2002; Kasandrova et al. 2007; Samokhin and Kasandrova 2007; Shalamova and Popova 2007; Kolesnikov 2009; Romankina and Shalamova 2013; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2018.

Material. Inzhavino Dist., Chernavka, 6.05–3.06.2022, 2 ex.; 3.06–7.07.2022, 1 ex.; Inzhavino Dist., Inzhavino, 3.06–7.07.2022, 1 ex.; Tambov Dist., Tambov, 27.05–20.06.2023, 5 ex., 20.06–20.07.2023, 4 ex.

134. *Amara (Amara) communis* (Panzer, 1797)

Literature data: Kasandrova 1996; Romankina and Akhmadulina 2002; Shalamova and Sharova 2002; Popova and Potapova 2005; Romankina and Frolova 2005; Kasandrova et al. 2007; Shalamova and Popova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Romankina 2009b, 2010a, 2010c, 2013, 2014a, 2017, 2019; Romankina and Sharova 2011; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al., 2018, 2023.

Material. Inzhavino Dist., Chernavka, 6.05–3.06.2022, 4 ex.; Inzhavino Dist., Inzhavino, 3.06–7.07.2022, 6 ex.; Tambov Dist., Tambov, 3.06–7.07.2022, 2 ex.; Uvarovo Dist., Lebyazh'ye, 3.06–7.07.2022, 3 ex.; 7.07–12.08.2022, 20 ex.; Tambov Dist., Tulinovka, 20.06–20.07.2023, 1 ex.; 27.05–20.06.2023, 1 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 1 ex.; Inzhavino Dist., Alekseyevka, 17.04–18.05.2023, 3 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 1 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 5 ex.

135. *Amara (Amara) convexior* Stephens, 1828*

Material. Petrovskoye Dist., Tynkovo, 27.05–20.06.2023, 1 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 1 ex.; 19.05–20.06.2023, 3 ex.

136. *Amara (Amara) eurynota* (Panzer, 1796)

Literature data: Kasandrova 2002; Romankina and Akhmadulina 2002; Shalamova and Sharova 2002; Romankina and Frolova 2005; Kasandrova et al. 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Romankina 2009b, 2010a, 2010c, 2013, 2014a, 2017, 2019; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2023.

Material. Inzhavino Dist., Horoshavka, 6.05–3.06.2022, 2 ex.; Rasskazovo Dist., Rasskazovo, 7.07–12.08.2022, 1 ex.; Tambov Dist., Tambov, 3.06–7.07.2022, 1 ex.; Inzhavino Dist., Alekseyevka, 17.04–18.05.2023, 1 ex.; 18.05–20.06.2023, 2 ex., 21.08–26.09.2023, 2 ex.; Inzhavino Dist., Karai-Saltykovo, 19.05–20.06.2023, 1 ex.; Kirsanov Dist., Ramza, 22.08–27.09.2023, 1 ex.

137. *Amara (Amara) famelica* Zimmermann, 1832

Literature data: Romankina and Frolova 2005; Kasandrova et al. 2007; Romankina 2009b, 2017, 2019.

138. *Amara (Amara) familiaris* (Duftschmid, 1812)

Literature data: Kasandrova et al. 2007; Romankina 2010c, 2017; Kolesnikov and Boldyrev 2014a; Kolesnikov et al. 2018.

Material. Inzhavino Dist., Chernavka, 6.05–3.06.2022, 1 ex.; Tambov Dist., Tambov, 3.06–7.07.2022, 1 ex.

139. *Amara (Amara) littorea* C.G. Thomson, 1857*

Material. Inzhavino Dist., Chernavka, 6.05–3.06.2022, 2 ex.

140. *Amara (Amara) lunicollis* Schiodte, 1837*

Material. Inzhavino Dist., Horoshavka, 6.05–3.06.2022, 1 ex.

141. *Amara (Amara) montivaga* Sturm, 1825*

Material. Inzhavino Dist., Inokovka 1, 16.07.2009, 1 ex.

142. *Amara (Amara) nitida* Sturm, 1825

Literature data: Romankina and Frolova 2005; Kasandrova et al. 2007; Kolesnikov 2009; Romankina 2010a, 2014a; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2023.

143. *Amara (Amara) ovata* (Fabricius, 1792)

Literature data: Kasandrova 1996; Romankina and Akhmadulina 2002; Popova and Potapova 2005; Kasandrova et al. 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Romankina 2009b, 2010a, 2010c, 2014a, 2017; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2018, 2023.

Material. Inzhavino Dist., Alekseyevka, 17.04–18.05.2023, 1 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 13 ex.; 19.05–20.06.2023, 13 ex.; 20.06–19.07.2023, 4 ex.

144. *Amara (Amara) similata* (Gyllenhal, 1810)

Literature data: Kasandrova 2002; Kasandrova et al. 2002b, 2007; Popova and Starikova 2002; Romankina and Akhmadulina 2002; Shalamova and Sharova 2002; Popova and Potapova 2005; Kasandrova 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Romankina 2009b, 2010a, 2010c, 2013, 2014a, 2017, 2019; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2018, 2023.

Material. Inzhavino Dist., Inzhavino, 3.06–7.07.2022, 2 ex.; Rasskazovo Dist., Rasskazovo, 3.06–7.07.2022, 1 ex.; Inzhavino Dist., Alekseyevka, 17.04–18.05.2023, 2 ex.

145. *Amara (Amara) spreta* Dejean, 1831

Literature data: Romankina and Frolova 2005; Kasandrova et al. 2007; Romankina 2010c.

146. *Amara (Amara) tibialis* (Paykull, 1798)

Literature data: Kasandrova et al. 2007.

Material. Inzhavino Dist., Chernavka, 3.06–7.07.2022, 3 ex.; Uvarovo Dist., Lebyazh'ye, 3.06–7.07.2022, 1 ex.

147. *Amara (Celia) bifrons* (Gyllenhal, 1810)

Literature data: Kasandrova et al. 2007; Kolesnikov 2009; Romankina 2009b, 2010a, 2010c, 2017; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2018, 2023.

Material. Tambov Dist., Orlovka, 7.07–12.08.2022, 1 ex.

148. *Amara (Celia) brunnea* (Gyllenhal, 1810)

Literature data: Romankina 2000, 2009b, 2010a, 2010c, 2017; Shalamova and Sharova 2002; Romankina and Frolova 2005; Kasandrova et al. 2007; Romankina and Sharova 2011.

149. *Amara (Celia) infima* (Duftschmid, 1812)*

Material. Inzhavino Dist., Inokovka, 11.06.2009, 1 ex.

150. *Amara (Celia) praetermissa* (C.R. Sahlberg, 1827)*

Material. Uvarovo Dist., Lebyazh'ye, 3.06–7.07.2022, 3 ex.

151. *Amara (Xenocelia) ingenua* (Duftschmid, 1812)

Literature data: Kasandrova 2002; Kasandrova et al. 2007; Kolesnikov 2009; Romankina 2009b, 2010a, 2010c, 2017; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2018, 2023.

Material. Tambov Dist., Tambov, 7.07–12.08.2022, 2 ex.

152. *Amara (Xenocelia) municipalis* (Duftschmid, 1812)

Literature data: Kasandrova et al. 2007; Kolesnikov 2009; Kolesnikov and Boldyrev 2014a; Kolesnikov et al. 2018.

153. *Amara (Paracelia) quenseli* (Schönherr, 1806)

Literature data: Kasandrova et al. 2007.

154. *Amara (Bradytus) apricaria* (Paykull, 1790)

Literature data: Popova and Potapova 2005; Romankina and Frolova 2005; Kasandrova et al. 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Romankina 2009b; Bilomar 2011; Kolesnikov and Boldyrev 2014a; Kolesnikov et al. 2018.

155. *Amara (Bradytus) consularis* (Duftschmid, 1812)

Literature data: Shalamova and Sharova 2002; Romankina and Frolova 2005; Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Ro-

mankina 2009b, 2010a; Bilomar 2011; Romankina and Shalamova 2013; Kolesnikov and Boldyrev 2014a.

Material. Tambov Dist., Tambov, 3.06–7.07.2022, 1 ex.; Tambov Dist., Tambov, 20.06–20.07.2023, 2 ex.

156. *Amara (Bradytus) fulva* (O. F. Müller, 1776)

Literature data: Popova and Potapova 2005; Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Romankina 2009b, 2010a; Kolesnikov et al. 2018, 2023.

157. *Amara (Bradytus) majuscula* (Chaudoir, 1850)

Literature data: Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Kolesnikov and Boldyrev 2014a.

158. *Amara (Percosia) equestris* (Duftschmid, 1812)

Literature data: Kasandrova et al. 2002b, 2007; Romankina and Frolova 2005; Shalamova and Shalamov 2005; Shalamova and Popova 2007; Beskokotov and Samokhin 2009; Romankina 2009b, 2010a, 2010c, 2013, 2014a.

159. *Amara (Curtonotus) aulica* (Panzer, 1796)

Literature data: Romankina 2000, 2007, 2009b, 2010a, 2010c, 2013, 2014a, 2017, 2019; Kasandrova 2002; Romankina and Akhmadulina 2002; Popova and Potapova 2005; Romankina and Frolova 2005; Kasandrova et al. 2007; Shalamova and Popova 2007; Kolesnikov 2009; Bilomar 2011; Kolesnikov and Boldyrev 2014a.

Material. Rasskazovo Dist., Rasskazovo, 7.07–12.08.2022, 2 ex.; Inzhavino Dist., Karai-Pushchino, 19.05–20.06.2023, 1 ex.

160. *Amara (Curtonotus) convexiuscula* (Marsham, 1802)

Literature data: Kasandrova et al. 2007; Romankina 2014a.

161. *Zabrus (Zabrus) tenebrioides* (Goeze, 1777)

Literature data: Kasandrova et al. 2007; Romankina 2014a.

Tribe Harpalini Bonelli, 1810

162. *Anisodactylus (Anisodactylus) binotatus* (Fabricius, 1787)

Literature data: Romankina and Frolova 2005; Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Samokhin 2010; Kolesnikov and Boldyrev 2014a; Romankina 2014a, 2017, 2019; Kolesnikov et al. 2018.

Material. Tambov Dist., Tambov, 3.06–7.07.2022, 2 ex.; Inzhavino Dist., Nikitino, 20.06–19.07.2023, 1 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 1 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 1 ex.; 19.05–20.06.2023, 1 ex.

163. *Anisodactylus (Pseudanisodactylus) signatus* (Panzer, 1796)

Literature data: Popova and Kozlova 1996; Kasandrova 2002; Popova and Starikova 2002; Romankina and Akhmadulina 2002; Shalamova and Sharova 2002; Popova and Potapova 2005; Romankina and Frolova 2005; Kasandrova et al. 2007; Romankina 2007, 2009b, 2010a, 2010c, 2013, 2014a, 2017, 2019; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Samokhin 2010; Romankina and Shalamova 2013; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2018, 2023.

Material. Tambov Dist., Tambov, 27.05–20.06.2023, 1 ex.; Inzhavino Dist., Alekseyevka, 17.04–18.06.2023; Kirsanov Dist., Ramza, 20.06–19.07.2023, 1 ex.

164. *Diachromus germanus* (Linnaeus, 1758)

Literature data: Kasandrova 1999; Kasandrova et al. 2007; Romankina 2014a.

165. *Stenolophus (Stenolophus) teutonius* (Schrank, 1781)

Literature data: Kasandrova et al. 2007; Romankina 2019.

166. *Stenolophus (Stenolophus) mixtus* (Herbst, 1784)

Literature data: Shalamova and Sharova 2002; Kasandrova et al. 2007; Kolesnikov 2009; Bilomar 2011; Kolesnikov and Boldyrev 2014a; Romankina 2019.

Material. Uvarovo Dist., Lebyazh'ye, 3.06–7.07.2022, 1 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 1 ex.; Inzhavino Dist., Alekseyevka, 17.04–18.05.2023, 18 ex.; 18.05–20.06.2023, 1 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 4 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 13 ex.

167. *Stenolophus (Stenolophus) proximus* Dejean, 1829

Literature data: Kasandrova et al. 2007.

168. *Acupalpus (Acupalpus) meridianus* (Linnaeus, 1760)

Literature data: Kasandrova 2002; Kasandrova et al. 2007; Romankina 2017, 2019.

Material. Uvarovo Dist., Lebyazh'ye, 3.06–7.07.2022, 2 ex.; Inzhavino Dist., Alekseyevka, 17.04–18.05.2023, 1 ex.

169. *Acupalpus (Acupalpus) parvulus* (Sturm, 1825)

Literature data: Kasandrova et al. 2007; Bilomar 2011; Romankina 2014a, 2019.

170. *Acupalpus (Acupalpus) maculatus* (Schaum, 1860)

Literature data: Kasandrova et al. 2007; Romankina 2014a, 2019.

171. *Acupalpus (Acupalpus) exiguus* Dejean, 1829

Literature data: Volodchenko et al. 2021.

172. *Anthracus consputus* (Duftschmid, 1812)

Literature data: Kasandrova et al. 2007; Romankina 2014a, 2019.

173. *Harpalus (Pseudoophonus) griseus* (Panzer, 1796)

Literature data: Romankina 2000, 2009b, 2010a, 2010c, 2017, 2019; Kasandrova 2002; Romankina and Akhmadulina 2002; Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2018, 2023.

Material. Inzhavino Dist., Horoshavka, 3.06–7.07.2022, 1 ex.; Inzhavino Dist., Inzhavino, 7.07–12.08.2022, 2 ex.; Kirsanov Dist., Derben, 8.05–17.06.2023, 1 ex.; Tambov Dist., Tambov, 7.07–12.08.2022, 8 ex.; Uvarovo Dist., Lebyazh'ye, 3.06–7.07.2022, 3 ex.; 7.07–12.08.2022, 13 ex.

174. *Harpalus (Pseudoophonus) rufipes* (De Geer, 1774)

Literature data: Kasandrova 1996, 2002; Popova and Kozlova 1996; Romankina 1996, 2000, 2007, 2009a, 2009b, 2010a, 2010b, 2010c, 2013, 2014a, 2014b, 2017, 2019; Popova and Starikova 2002; Romankina and Akhmadulina 2002; Romankina and Simakova 2004; Popova and Potapova 2005; Romankina and Frolova 2005; Shalamova and Shalamov 2005; Kasandrova et al. 2007; Romankina et al. 2007; Samokhin and Kasandrova 2007; Shalamova and Popova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Samokhin 2010; Bilomar 2011; Romankina and Shalamova 2013; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2018, 2023.

Material. Inzhavino Dist., Inzhavino, 7.07–12.08.2022, 9 ex.; Muchkapsky Dist., Nizhneye Chuevo, 13.05–8.07.2024, 2 ex.; Rasskazovo Dist., Rasskazovo, 7.07–12.08.2022, 5 ex.; Tambov Dist., Orlovka, 7.07–12.08.2022, 7 ex.; Tambov Dist., Tambov, 3.06–7.07.2022, 16 ex.; 7.07–12.08.2022, 128 ex.; Uvarovo Dist., Lebyazh'ye, 3.06–7.07.2022, 8 ex.; Uvarovo Dist., Lebyazh'ye, 7.07–12.08.2022, 470 ex.; Petrovskoye Dist., Tynkovo, 27.05–20.06.2023, 3 ex.; Tambov Dist., Tambov, 20.06–20.07.2023, 5 ex.; Tambov Dist., Danilovka, 20.06–20.07.2023, 1 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 2 ex.; 18.05–20.06.2023, 31 ex.; 20.06–19.07.2023, 12 ex.; 19.07–21.08.2023, 4 ex.; Inzhavino Dist., Alekseyevka, 20.06–19.07.2023, 1 ex.; 19.07–21.08.2023, 1 ex.; Inzhavino Dist., Olkhovka, 20.06–19.07.2023, 1 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 1 ex.; 19.05–20.06.2023, 5 ex.; 20.06–19.07.2023, 3 ex.; 19.07–22.08.2023, 6 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 1 ex.; 19.05–20.06.2023, 2 ex.; 20.06–19.07.2023, 1 ex.; Kirsanov Dist., Ramza, 19.04–19.05.2023, 2 ex.; 19.05–20.06.2023, 96 ex.; 20.06–19.07.2023, 217 ex.; 19.07–22.08.2023, 107 ex.; 22.08–27.09.2023, 1 ex.

175. *Harpalus (Platus) calceatus* (Duftschmid, 1812)

Literature data: Kasandrova 2002; Kasandrova et al. 2007; Kolesnikov and Boldyrev 2014a; Kolesnikov et al. 2018.

Material. Uvarovo Dist., Lebyazh'ye, 7.07–12.08.2022, 4 ex.; Kirsanov Dist., Ramza, 19.07–22.08.2023, 2 ex.

176. *Harpalus (Semiophonus) signaticornis* (Duftschmid, 1812)

Literature data: Romankina 2000; Kasandrova et al. 2007; Beskokotov and Samokhin 2009.

Material. Inzhavino Dist., Horoshavka, 6.05–3.06.2022, 1 ex.; Inzhavino Dist., Alekseyevka, 18.05–20.06.2023, 1 ex.; Kirsanov Dist., Ramza, 19.04–19.05.2023, 1 ex.; 19.05–20.06.2023, 1 ex.

177. *Harpalus (Hyloharpalus) laevipes* Zetterstedt, 1828

Literature data: Kasandrova et al. 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Kolesnikov and Boldyrev 2014a; Romankina 2014a.

Material. Inzhavino Dist., Inzhavino, 7.07–12.08.2022, 2 ex.; Rasskazovo Dist., Rasskazovo, 3.06–7.07.2022, 5 ex.; Tambov Dist., Orlovka, 7.07–12.08.2022, 1 ex.; Petrovskoye Dist., Tynkovo, 27.05–20.06.2023, 1 ex.; Tambov Dist., Danilovka, 20.06–20.07.2023, 9 ex.; Inzhavino Dist., Nikitino, 20.06–19.07.2023, 1 ex.; Inzhavino Dist., Alekseyevka, 17.04–18.05.2023, 1 ex.; 18.05–20.06.2023, 3 ex.; Inzhavino Dist., Olkhovka, 17.04–18.05.2023, 8 ex.; 18.05–20.06.2023, 3 ex.; 20.06–19.07.2023, 1 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 105 ex.; 19.05–20.06.2023, 119 ex.; 20.06–19.07.2023, 50 ex.; 19.07–22.08.2023, 115 ex.; Kirsanov Dist., Ramza, 19.05–20.06.2023, 2 ex.; 20.06–19.07.2023, 3 ex.; 19.07–22.08.2023, 3 ex.

178. *Harpalus (Amblystus) rubripes* (Duftschmid, 1812)

Literature data: Kasandrova 2002; Kasandrova et al. 2002b, 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Samokhin 2010; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2023.

Material. Inzhavino Dist., Chernavka, 6.05–3.06.2022, 5 ex.; 3.06–7.07.2022, 10 ex.; Inzhavino Dist., Horoshavka, 6.05–3.06.2022, 1 ex.; 3.06–7.07.2022, 3 ex.; Uvarovo Dist., Lebyazh'ye, 3.06–7.07.2022, 5 ex.; 7.07–12.08.2022, 2 ex.; Petrovskoye Dist., Tynkovo, 27.05–20.06.2023, 1 ex.; Tambov Dist., Tambov, 27.05–20.06.2023, 5 ex.; 20.06–20.07.2023, 10 ex.; Inzhavino Dist., Alekseyevka, 17.04–18.05.2023, 2 ex.

179. *Harpalus (Isoharpalus) serripes* (Quensel, 1806)

Literature data: Kasandrova et al. 2007; Romankina 2014a.

180. *Harpalus (Actephilus) pumilus* Sturm, 1818

Literature data: Kasandrova et al. 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Romankina 2010c, 2017.

Material. Inzhavino Dist., Horoshavka, 6.05–3.06.2022, 4 ex.; 3.06–7.07.2022, 61 ex.; Uvarovo Dist., Lebyazh'ye, 7.07–12.08.2022, 4 ex.; Tambov Dist., Tambov, 27.05–20.06.2023, 1 ex.

181. *Harpalus (Haploharpalus) hirtipes* (Panzer, 1796)

Literature data: Kasandrova et al. 2007; Romankina 2010c, 2017.

Material. Kirsanov Dist., Ramza, 19.04–19.05.2023, 1 ex.; Tambov Dist., Tambov, 27.05–20.06.2023, 1 ex.

182. *Harpalus (Haploharpalus) zabroides* Dejean, 1829

Literature data: Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Romankina 2009b, 2010a; Bilomar 2011.

183. *Harpalus (Haploharpalus) froelichi* Sturm, 1818

Literature data: Kasandrova et al. 2007; Romankina 2014a.

184. *Harpalus (Acardystus) flavescens* (Piller & Mitterpacher, 1783)

Literature data: Kasandrova et al. 2007; Romankina 2014a.

185. *Harpalus (Ooistus) anxius* (Duftschmid, 1812)

Literature data: Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Romankina 2014a.

Material. Inzhavino Dist., Chernavka, 6.05–3.06.2022, 4 ex.; 3.06–7.07.2022, 9 ex.; Tambov Dist., Orlovka, 3.06–7.07.2022, 1 ex.; Uvarovo Dist., Lebyazh'ye, 3.06–7.07.2022, 58 ex.; 7.07–12.08.2022, 3 ex.

186. *Harpalus (Ooistus) calathoides* Motschulsky, 1844*

Material. Uvarovo Dist., Lebyazh'ye, 7.07–12.08.2022, 5 ex.

187. *Harpalus (Ooistus) servus* (Duftschmid, 1812)

Literature data: Kasandrova et al. 2007; Romankina 2014a.

Material. Tambov Dist., Danilovka, 20.06–20.07.2023, 1 ex.

188. *Harpalus (Anamblystus) latus* (Linnaeus, 1758)

Literature data: Kasandrova 2002; Shalamova and Sharova 2002; Romankina and Frolova 2005; Shalamova and Shalamov 2005; Kasandrova et al. 2007; Shalamova and Popova 2007; Kolesnikov 2009; Romankina and Sharova 2011; Kolesnikov and Boldyrev 2014a, 2014b; Romankina 2014a, 2017, 2019; Kolesnikov et al. 2018, 2023.

Material. Inzhavino Dist., Inzhavino, 3.06–7.07.2022, 5 ex.; 7.07–12.08.2022, 3 ex.; Rasskazovo Dist., Rasskazovo, 3.06–7.07.2022, 5 ex.; 7.07–12.08.2022, 1 ex.; Tambov Dist., Orlovka, 3.06–7.07.2022, 1 ex.; Petrovskoye Dist., Tynkovo, 27.05–20.06.2023, 1 ex.; Tambov Dist., Tulinovka, 20.06–20.07.2023, 3 ex.; 27.05–20.06.2023, 6 ex.; Tambov Dist., Danilovka, 20.06–20.07.2023, 2 ex.; Inzhavino Dist., Alekseyevka, 18.05–20.06.2023, 1 ex.; 20.06–19.07.2023, 3 ex.; 19.07–21.08.2023, 1 ex.; Inzhavino Dist., Olkhovka, 17.04–18.05.2023, 1 ex.; 18.05–20.06.2023, 2 ex.; 20.06–19.07.2023, 4 ex.; Inzhavino Dist., Karai-Saltykovo, 19.07–22.08.2023, 1 ex.; Inzhavino Dist., Karai-Pushchino, 19.05–20.06.2023, 7 ex.; 20.06–19.07.2023, 5 ex.; 19.07–22.08.2023, 4 ex.

189. *Harpalus (Anamblystus) progrediens* Schauberger, 1922

Literature data: Volodchenko et al. 2018.

Material. Inzhavino Dist., Horoshavka, 6.05–3.06.2022, 2 ex.; Tambov Dist., Tambov, 20.06–20.07.2023, 1 ex.; Tambov Dist., Danilovka, 20.06–20.07.2023, 15 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 1 ex.; 20.06–19.07.2023, 1 ex.; Inzhavino Dist., Olkhovka, 18.05–20.06.2023, 3 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 11 ex.; 19.05–20.06.2023, 18 ex.; 20.06–19.07.2023, 9 ex.; 19.07–22.08.2023, 3 ex.

190. *Harpalus (Anamblystus) xanthopus winkleri* Schauberger, 1923

Literature data: Kasandrova et al. 2002b; Shalamova and Sharova 2002; Kasandrova et al. 2007; Beskokotov and Samokhin 2009.

Material. Inzhavino Dist., Inzhavino, 3.06–7.07.2022, 2 ex.; Rasskazovo Dist., Rasskazovo, 3.06–7.07.2022, 2 ex.; Tambov Dist., Danilovka, 20.06–20.07.2023, 3 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 8 ex., 19.05–20.06.2023, 11 ex.; 19.07–22.08.2023, 15 ex.; Kirsanov Dist., Ramza, 19.05–20.06.2023, 6 ex.; 20.06–19.07.2023, 9 ex.; 19.07–22.08.2023, 7 ex.

191. *Harpalus (Anamblystus) solitarius* Dejean, 1829

Literature data: Kasandrova et al. 2007; Romankina 2014a.

Material. Muchkapsky Dist., Nizhneye Chuevo, 13.05–8.07.2024, 1 ex.

192. *Harpalus (Anamblystus) luteicornis* (Duftschmid, 1812)

Literature data: Kasandrova et al. 2007; Kolesnikov 2009; Kolesnikov and Boldyrev 2014a; Romankina 2014a.

Material. Tambov Dist., Orlovka, 7.07–12.08.2022, 1 ex.

193. *Harpalus (Homaloharpalus) tardus* (Panzer, 1796)

Literature data: Romankina and Frolova 2005; Kasandrova et al. 2007; Kolesnikov 2009; Bilomar 2011; Kolesnikov and Boldyrev 2014a, 2014b; Romankina 2014a; Kolesnikov et al. 2023.

Material. Inzhavino Dist., Chernavka, 6.05–3.06.2022, 2 ex.; Inzhavino Dist., Horoshavka, 3.06–7.07.2022, 1 ex.; Inzhavino Dist., Inzhavino, 3.06–7.07.2022, 47 ex.; 7.07–12.08.2022, 6 ex.; Rasskazovo Dist., Rasskazovo, 3.06–7.07.2022, 3 ex.; 7.07–12.08.2022, 1 ex.; Tambov Dist., Orlovka, 3.06–7.07.2022, 1 ex.; Uvarovo Dist., Lebyazh'ye, 3.06–7.07.2022, 4 ex.; Tambov Dist., Tulinovka, 20.06–20.07.2023, 1 ex.; Tambov Dist., Danilovka, 20.06–20.07.2023, 2 ex.; Kirsanov Dist., Ramza, 19.05–20.06.2023, 1 ex.

194. *Harpalus (Harpalobius) fuscipalpis* Sturm, 1818

Literature data: Kasandrova et al. 2007; Romankina 2014a.

Material. Inzhavino Dist., Olkhovka, 17.04–18.05.2023, 1 ex.

195. *Harpalus (Nephoharpalus) smaragdinus* (Duftschmid, 1812)

Literature data: Kasandrova 2002; Kasandrova et al. 2002b, 2007; Popova and Potapova 2005; Romankina and Frolova 2005; Romankina, 2007, 2009b, 2010a, 2010c, 2017; Beskokotov and Samokhin 2009; Kolesnikov 2009; Bilomar 2011; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2023.

Material. Inzhavino Dist., Horoshavka, 6.05–3.06.2022, 5 ex.; 3.06–7.07.2022, 1 ex.; Uvarovo Dist., Lebyazh'ye, 7.07–12.08.2022, 3 ex.; Tambov Dist., Tambov, 27.05–20.06.2023, 2 ex.

196. *Harpalus (Brachyharpalus) autumnalis* (Duftschmid, 1812)

Literature data: Beskokotov and Samokhin 2009; Romankina 2014a.

197. *Harpalus (Artabas) pygmaeus* Dejean 1829*

Material. Uvarovo Dist., Lebyazh'ye, 7.07–12.08.2022, 2 ex.

198. *Harpalus (Harpalophonus) stevenii* Dejean, 1829

Literature data: Kasandrova et al. 2007.

199. *Harpalus (Harpalus) affinis* (Schrank, 1781)

Literature data: Popova and Kozlova 1996; Romankina 2000, 2007, 2009b, 2010a, 2010c, 2014a, 2017, 2019; Kasandrova 2002; Kasandrova et al. 2002b, 2007; Popova and Potapova 2005; Romankina and Frolova 2005; Kasandrova 2007; Shalamova and Popova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Romankina and Shalamova 2013; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2018, 2023.

Material. Tambov Dist., Tambov, 3.06–7.07.2022, 1 ex.; 7.07–12.08.2022, 1 ex.; Uvarovo Dist., Lebyazh'ye, 7.07–12.08.2022, 3 ex.; Tambov Dist., Tambov, 27.05–20.06.2023, 11 ex.; 20.06–20.07.2023, 20 ex.

200. *Harpalus (Proteonus) distinguendus* (Duftschmid, 1812)

Literature data: Romankina 2000, 2007, 2009b, 2010a, 2010c, 2014a, 2017, 2019; Kasandrova 2002, 2007; Romankina and Akhmadulina 2002; Popova and Potapova 2005; Romankina and Frolova 2005; Kasandrova et al. 2007; Shalamova and Popova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Romankina and Shalamova 2013; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2018, 2023.

Material. Inzhavino Dist., Chernavka, 6.05–3.06.2022, 2 ex.; Inzhavino Dist., Horoshavka, 6.05–3.06.2022, 3 ex.; Muchkapsky Dist., Nizhneye Chuevo, 13.05–8.07.2024, 1 ex.; Rasskazovo Dist., Rasskazovo, 3.06–7.07.2022, 2 ex.; Tambov Dist., Tambov, 3.06–7.07.2022, 1 ex.; Uvarovo Dist., Lebyazh'ye, 3.06–7.07.2022, 4 ex.; 7.07–12.08.2022, 1 ex.; Tambov Dist., Tambov, 20.06–20.07.2023, 2 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 1 ex.; Inzhavino Dist., Alekseyevka, 17.04–18.05.2023, 1 ex.; Inzhavino Dist., Olkhovka, 17.04–18.05.2023, 3 ex.; Kirsanov Dist., Ramza, 19.04–19.05.2023, 3 ex.

201. *Harpalus (Paraharpalus) oblitus* Dejean, 1829

Literature data: Kasandrova et al. 2007.

202. *Ophonus (Metophonus) laticollis* Mannerheim, 1825

Literature data: Kasandrova et al. 2007.

203. *Ophonus (Metophonus) cordatus* (Duftschmid, 1812)

Literature data: Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009.

204. *Ophonus (Metophonus) puncticollis* (Paykull, 1798)

Literature data: Popova and Potapova 2005; Kasandrova et al. 2007; Bilomar 2011; Romankina 2014a.

205. *Ophonus (Metophonus) puncticeps* Stephens, 1828

Literature data: Beskokotov and Samokhin 2009; Bilomar 2011.

206. *Ophonus (Metophonus) rufibarbis* (Fabricius, 1792)

Literature data: Kasandrova et al. 2007; Beskokotov and Samokhin 2009.

207. *Ophonus (Hesperophonus) azureus* (Fabricius, 1775)

Literature data: Romankina and Frolova 2005; Kasandrova et al. 2007; Bilomar 2011; Romankina 2014a, 2017; Volodchenko et al. 2018.

Material. Muchkapsky Dist., Nizhneye Chuevo, 13.05–8.07.2024, 3 ex.; Tambov Dist., Orlovka, 3.06–7.07.2022, 1 ex.; 7.07–12.08.2022, 2 ex.; Tambov Dist., Tambov, 3.06–7.07.2022, 2 ex.; 7.07–12.08.2022, 3 ex.; Inzhavino Dist., Alekseyevka, 18.05–20.06.2023, 1 ex.; 20.06–19.07.2023, 1 ex.

208. *Ophonus (Ophonus) stictus* Stephens, 1828

Literature data: Popova and Kozlova 1996; Romankina 2000, 2009b, 2010a, 2010c, 2017; Popova and Starikova 2002; Romankina and Frolova 2005; Kasandrova et al. 2007.

Material. Tambov Dist., Orlovka, 7.07–12.08.2022, 2 ex.

209. *Ophonus (Ophonus) diffinis* (Dejean, 1829)

Literature data: Kasandrova et al. 2007.

Tribe Panagaeini Bonelli, 1810

210. *Panagaeus (Panagaeus) cruxmajor* (Linnaeus, 1758)

Literature data: Kasandrova 1999; Kasandrova et al. 2007; Romankina 2009b, 2019; Red Book of Tambov Region: Animals 2012; Bilomar et al. 2015; Volodchenko et al. 2015; Volodchenko 2020.

Material. Inzhavino Dist., Nikitino, 17.04–18.05.2023, 1 ex.

211. *Panagaeus (Panagaeus) bipustulatus* (Fabricius, 1775)

Literature data: Kasandrova et al. 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Bilomar et al. 2015.

Material. Inzhavino Dist., Inzhavino, 3.06–7.07.2022, 1 ex.; Rasskazovo Dist., Rasskazovo, 3.06–7.07.2022, 5 ex.; 7.07–12.08.2022, 2 ex.; Tambov Dist., Tambov, 3.06–7.07.2022, 1 ex.; Petrovskoye Dist., Tynkovo, 27.05–20.06.2023, 10 ex.; Tambov Dist., Tulinovka, 27.05–20.06.2023, 4 ex.; Tambov Dist., Danilovka, 20.06–20.07.2023, 5 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 1 ex.; 18.05–20.06.2023, 4 ex.; 20.06–19.07.2023, 2 ex.; 19.07–21.08.2023, 1 ex.; Inzhavino Dist., Alekseyevka, 18.05–20.06.2023, 1 ex.; 20.06–19.07.2023, 2 ex.; Inzhavino Dist., Karai-Saltykovo, 19.05–20.06.2023, 2 ex.; 19.07–22.08.2023, 1 ex.; Kirsanov Dist., Ramza, 19.05–20.06.2023, 1 ex.

Tribe Chlaeniini Brullé, 1834

212. *Callistus lunatus* (Fabricius, 1775)

Literature data: Kasandrova et al. 2007; Romankina et al. 2007; Romankina 2014a.

213. *Chlaenius (Chlaenites) spoliatus* (P. Rossi, 1792)

Literature data: Kasandrova 1999; Kasandrova et al. 2007; Red Book of Tambov Region: Animals 2012.

214. *Chlaenius (Chlaeniellus) nitidulus* (Schrank, 1781)

Literature data: Kasandrova et al. 2007; Romankina 2014a; Bilomar et al. 2015.

215. *Chlaenius (Chlaeniellus) nigricornis* (Fabricius, 1787)

Literature data: Popova and Starikova 2002; Kasandrova et al. 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Romankina 2017.

216. *Chlaenius (Chlaeniellus) vestitus* (Paykull, 1790)

Literature data: Popova and Starikova 2002; Kasandrova et al. 2007; Romankina 2014a, 2019.

217. *Chlaenius (Chlaeniellus) tristis* (Schaller, 1783)

Literature data: Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Bilomar 2011.

Material. Inzhavino Dist., Innokovka 1, 16.07.2019, 1 ex.; Muchkapsky Dist., Nizhneye Chuevo, 13.05–8.07.2024, 1 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 2 ex.

Tribe Oodini LaFerté-Sénéctère, 1851

218. *Oodes helopioides* (Fabricius, 1792)

Literature data: Romankina and Frolova 2005; Kasandrova et al. 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Bilomar et al. 2015; Romankina 2017.

Material. Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 2 ex.; 19.05–20.06.2023, 1 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 76 ex.; 19.05–20.06.2023, 28 ex.; 20.06–19.07.2023, 39 ex.; 19.07–22.08.2023, 4 ex.; 22.08–27.09.2023, 2 ex.

219. *Oodes gracilis* A. Villa et G.B. Villa, 1833

Literature data: Kasandrova et al. 2007; Sazhnev et al. 2019.

Material. Kirsanov Dist., Derben, 7.04–8.05.2023, 1 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 1 ex.

Tribe Licinini Bonelli, 1810

220. *Licinus (Licinus) depressus* (Paykull, 1790)

Literature data: Kasandrova et al. 2002b, 2007; Popova and Starikova 2002; Beskokotov and Samokhin 2009; Kolesnikov 2009; Romankina 2009b, 2019, 2010a; Kolesnikov and Boldyrev 2014a; Bilomar et al. 2015.

Material. Inzhavino Dist., Inzhavino, 7.07–12.08.2022, 1 ex.; Tambov Dist., Orlovka, 7.07–12.08.2022, 1 ex.; Tambov Dist., Tulinovka, 27.05–20.06.2023, 1 ex.; Tambov Dist., Danilovka, 20.06–20.07.2023, 1 ex.; Inzhavino Dist., Nikitino, 19.07–21.08.2023, 1 ex.; 21.08–26.09.2023, 1 ex.; Inzhavino Dist., Alekseyevka, 18.05–20.06.2023, 1 ex.; 19.07–21.08.2023, 3 ex.; 21.08–26.09.2023, 6 ex.; Inzhavino Dist., Karai-Saltykovo, 19.05–20.06.2023, 1 ex.; 19.07–22.08.2023, 1 ex.; Inzhavino Dist., Karai-Pushchino, 22.08–27.09.2023, 1 ex.; Kirsanov Dist., Ramza, 19.04–19.05.2023, 1 ex.; 19.05–20.06.2023, 2 ex.; 19.07–22.08.2023, 1 ex.; 22.08–27.09.2023, 3 ex.

221. *Badister (Badister) bullatus* (Schrank, 1798)

Literature data: Romankina and Frolova 2005; Kasandrova et al. 2007; Samokhin and Kasandrova 2007; Beskokotov and Samokhin 2009; Kolesnikov 2009; Romankina 2009b, 2014a, 2017, 2019; Bilomar 2011; Kolesnikov and Boldyrev 2014a; Kolesnikov and Boldyrev 2014b; Bilomar et al. 2015; Kolesnikov et al. 2023.

Material. Rasskazovo Dist., Rasskazovo, 3.06–7.07.2022, 2 ex.; 7.07–12.08.2022, 2 ex.; Tambov Dist., Orlovka, 7.07–12.08.2022, 1 ex.; 3.06–7.07.2022, 1 ex.; Petrovskoye Dist., Tynkovo, 27.05–20.06.2023, 1 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 2 ex.; Inzhavino Dist., Alekseyevka, 17.04–18.05.2023, 1 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 2 ex.; 19.05–20.06.2023, 2 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 1 ex.; Kirsanov Dist., Ramza, 20.06–19.07.2023, 1 ex.

222. *Badister (Badister) lacertosus* Sturm, 1815

Literature data: Kolesnikov 2009; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2023.

Material. Rasskazovo Dist., Rasskazovo, 3.06–7.07.2022, 6 ex.; Tambov Dist., Tambov, 3.06–7.07.2022, 1 ex.; Petrovskoye Dist., Tynkovo, 27.05–20.06.2023, 8 ex.; Tambov Dist., Tulinovka, 27.05–20.06.2023, 4 ex.; 20.06–20.07.2023, 1 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 6 ex.; 18.05–20.06.2023, 4 ex.; 20.06–19.07.2023, 2 ex.; 19.07–21.08.2023, 1 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 9 ex.; Kirsanov Dist., Ramza, 19.04–19.05.2023, 1 ex.; 19.05–20.06.2023, 1 ex.

223. *Badister (Badister) unipustulatus* Bonelli, 1813

Literature data: Romankina and Frolova 2005; Kasandrova et al. 2007; Beskokotov and Samokhin 2009; Bilomar 2011; Romankina 2017, 2019.

Material. Kirsanov Dist., Derben, 7.04–8.05.2023, 1 ex.; Inzhavino Dist., Karai-Saltykovo, 19.04–19.05.2023, 1 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 1 ex.

224. *Badister (Trimorphus) sodalis* (Duftschmid, 1812)*

Material. Inzhavino Dist., Nikitino, 17.04–18.05.2023, 2 ex.; 19.07–21.08.2023, 1 ex.; Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 2 ex.; 20.06–19.07.2023, 1 ex.

225. *Badister (Baudia) dilatatus* Chaudoir, 1837

Literature data: Kasandrova et al. 2007; Romankina 2014a, 2019.

Material. Inzhavino Dist., Karai-Pushchino, 19.04–19.05.2023, 1 ex.

226. *Badister (Baudia) collaris* Motschulsky, 1844

Literature data: Sazhnev et al. 2019.

227. *Badister (Baudia) peltatus* (Panzer, 1796)

Literature data: Kasandrova et al. 2007; Bilomar 2011; Romankina 2014a, 2019.

Tribe Odacanthini Laporte, 1834**228. *Odacantha (Odacantha) melanura* (Linnaeus, 1767)**

Literature data: Kasandrova 1999; Kasandrova et al. 2007; Red Book of Tambov Region: Animals 2012; Romankina 2014a, 2019; Volodchenko et al. 2015; Volodchenko 2020; Sergadeeva and Ignatenko 2022.

Tribe Lebiini Bonelli, 1810**229. *Lebia (Lamprias) chlorocephala* (J.J. Hoffmann, 1803)**

Literature data: Kasandrova 1999; Kasandrova et al. 2007; Red Book of Tambov Region: Animals 2012; Romankina 2014a.

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

Literature data: Kasandrova et al. 2007; Romankina, 2014a, 2019.

Material. Inzhavino Dist., Chernavka, 6.05–3.06.2022, 4 ex.; Inzhavino Dist., Horoshavka, 6.05–3.06.2022, 1 ex.

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

Literature data: Beskokotov and Samokhin 2009; Romankina 2014a.

232. *Demetrias (Demetrias) monostigma* Samouelle, 1819

Literature data: Beskokotov and Samokhin 2009; Romankina 2014a.

233. *Demetrias (Aetophorus) imperialis* (Germar, 1823)*

Material. Inzhavino Dist., Semenovka, 14.06.2009, 8 ex.

234. *Dromius (Dromius) quadraticollis* (A. Morawitz, 1862)

Material. Inzhavino Dist., Inzhavino, 7.06–11.07.2009, 1 ex.

235. *Dromius (Dromius) quadrimaculatus* (Linnaeus, 1758)

Material. Inzhavino Dist., Inzhavino, 7.06–11.07.2009, 1 ex.

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

Literature data: Kasandrova et al. 2007; Romankina 2014a.

237. *Syntomus obscuroguttatus* (Duftschmid, 1812)

Literature data: Kasandrova et al. 2007; Romankina 2019; Volodchenko et al. 2021.

Material. Tambov Dist., Tambov, 3.06–7.07.2022, 1 ex.; 7.07–12.08.2022, 1 ex.; Uvarovo Dist., Lebyazh'ye, 3.06–7.07.2022, 2 ex.

238. *Syntomus truncatellus* (Linnaeus, 1760)

Literature data: Kasandrova et al. 2007; Romankina 2014a.

Material. Uvarovo Dist., Lebyazh'ye, 3.06–7.07.2022, 1 ex.; Inzhavino Dist., Nikitino, 17.04–18.05.2023, 1 ex.; 21.08–26.09.2023, 1 ex.

239. *Microlestes maurus* (Sturm, 1827)

Literature data: Sazhnev et al. 2019.

Material. Inzhavino Dist., Chernavka, 3.06–7.07.2022, 1 ex.; Tambov Dist., Tambov, 20.06–20.07.2023, 1 ex.

240. *Microlestes minutulus* (Goeze, 1777)

Literature data: Kasandrova 2002; Popova and Potapova 2005; Kasandrova et al. 2007; Romankina 2010a, 2010c, 2014b, 2017, 2019; Kolesnikov and Boldyrev 2014a, 2014b; Kolesnikov et al. 2018, 2023; Volodchenko et al. 2021.

Material. Inzhavino Dist., Chernavka, 6.05–3.06.2022, 32 ex.; 3.06–7.07.2022, 29 ex.; Inzhavino Dist., Horoshavka, 6.05–3.06.2022, 1 ex.; 3.06–7.07.2022, 4 ex.; Inzhavino Dist., Inzhavino, 3.06–7.07.2022, 2 ex. Tambov Dist., Orlovka, 3.06–7.07.2022, 4 ex.; Uvarovo Dist., Lebyazh'ye, 3.06–7.07.2022, 11 ex.; 7.07–12.08.2022, 2 ex.; Tambov Dist., Tambov, 27.05–20.06.2023, 1 ex.; Inzhavino Dist., Alekseyevka, 17.04–18.05.2023, 2 ex.

241. *Microlestes plagiatus* (Duftschmid, 1812)

Literature data: Kasandrova 1999, 2000; Kasandrova et al. 2007; Romankina 2014a.

242. *Cymindis (Arrhostus) picta* (Pallas, 1771)

Literature data: Kasandrova 1999, 2000; Kasandrova et al. 2007.

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

Literature data: Romankina and Frolova 2005; Kasandrova et al. 2007; Romankina 2014a, 2014b, 2017.

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

Literature data: Kasandrova et al. 2007.

245. *Cymindis (Menas) miliaris* (Fabricius, 1801)

Literature data: Kasandrova et al. 2007; Romankina 2014a.

246. *Cymindis (Tarsostinus) macularis* Fischer von Waldheim, 1824

Literature data: Romankina and Akhmadulina 2002; Kasandrova et al. 2007; Romankina 2009b, 2014a.

247. *Cymindis (Tarulus) vaporariorum* (Linnaeus, 1758)

Literature data: Kasandrova et al. 2007; Romankina 2014a.

Tribe Dryptini Bonelli, 1810

248. *Drypta (Drypta) dentata* (P. Rossi, 1790)

Literature data: Red Book of Tambov Region: Animals 2012; Volodchenko 2018, 2020.

Tribe Zuphiini Bonelli, 1810

249. *Polistichus connexus* (Geoffroy, 1785)

Literature data: Red Book of Tambov Region: Animals 2012

Subfamily BRACHININAE Bonelli, 1810

Tribe Brachinini Bonelli, 1810

250. *Brachinus (Brachinus) crepitans* (Linnaeus, 1758)

Literature data: Red Book of Tambov Region: Animals 2012

Material. Tambov Dist., Orlovka, 3.06–7.07.2022, 3 ex; 7.07–12.08.2022, 2 ex.

Discussion

Based on both published and original data, an annotated checklist of ground beetles of the Tambov Region was compiled, comprising 250 species from 57 genera. Of these, 132 species are recorded from the authors' collections; 119 species are known only from literature sources; and 15 species are reported from the region for the first time.

As a result of the revision of the species composition, two species – *Leistus (Leistus) piceus* Frölich, 1799 (Kasandrova et al. 2007) and *Bembidion (Philochthus) aeneum* Germar, 1823 (Kasandrova et al. 2007; Shalamova and Shalamov 2005) – were excluded from the new checklist. These species inhabit dark coniferous and mixed broadleaf-coniferous forests of Estonia, Latvia, and the Murmansk, Arkhangelsk, Leningrad, Novgorod, Pskov, Yaroslavl, Kostroma, and Vologda regions, as well as the Komi Republic and the Nenets Autonomous Okrug. Their southern distribution limit runs along the valleys of the Kama, Volga, Oka, and Western Dvina rivers (Kryzhanovskij et al. 1995). It should be noted that in the Ryazan, Moscow, and Vladimir regions, which are located north of the Tambov Region, both species have also not been recorded (Fedorenko 1988; Semin 2004; Semenov 2009; Trushitsyna 2020; Egorov et al. 2024).

Thus, the identified carabid fauna of the Tambov Region represents 12.7% of the known ground beetle fauna of Russia (Makarov et al. 2020), and the size of the fauna is comparable to the species diversity of regions located in the central part of European Russia (Table 1).

The highest species richness in the fauna of the Tambov Region is observed in the genera *Amara* (30 species), *Harpalus* (29), *Bembidion* (25), *Pterostichus* (16), *Agonum* (15), *Carabus* (14), and *Ophonus* (8). Changes in the ground beetle fauna from north to south across natural zones were analyzed using five regions as examples: Moscow Region (southern taiga, mixed coniferous-broadleaf forests, broadleaf forests, forest-steppe), Ryazan Region (mixed coniferous-broadleaf forests, broadleaf forests, forest-steppe), Lipetsk Region (forest-steppe), Voronezh Region (steppe and forest-steppe), and Saratov Region (forest-steppe, steppe, semi-desert). The selection of regions for analysis was based not only on their geographic location and proximity to the Tambov Region, but also on the extent to which the carabid fauna had been studied in each region.

Table 1. Comparison of the ground beetle fauna of the Tambov Region with regional faunas of the central part of European Russia*

Compared parameters	Central Region		Central Black Earth (CentralChernozem) Region		
	Moscow Region	Ryazan Region	Lipetsk Region	Voronezh Region	Saratov Region
Number of species	260	280	236	211	119
Number of shared species	198	216	192	170	99
Percentage of shared species (%)	76.2	77.1	81.4	80.6	83.2
Jaccard index	0.636656	0.690096	0.65529	0.586207	0.36803

Note: * Literature sources used for the characterization of regional faunas: Moscow Region – Fedorenko 1988; Ryazan Region – Semin 2004; Trushitsyna 2018, 2020; Egorov et al. 2024; Ananyeva et al. 2008; Lipetsk Region – Tsurikov 2009; Saratov Region – Sazhnev 2008, 2020; Voronezh Region – Cadastre of Invertebrate Animals of the Voronezh Region 2005.

The ground beetle fauna of the Tambov Region is typical of the central part of European Russia, and most of the recorded species are also found in neighboring regions (Table 1). The proportion of species shared with the Tambov fauna in regional faunas increases from north to south, ranging from 76.2% to 83.2%. A high degree of similarity is observed for the Voronezh and Saratov Regions, which border the Tambov Region to the south, as well as for the Lipetsk Region, which lies at the same latitude as the study area. In regions located further north, the proportion of shared species gradually decreases (Table 1). The calculation of the Jaccard similarity index proved to be of limited effectiveness, as it was largely influenced by the extent of faunal study in the compared regions.

Thus, despite a high degree of similarity, the ground beetle fauna of the Central Black Earth Region of Russia differs from that of the Central Region by the presence of species with southern forest-steppe and steppe ranges (8.4%), which either do not occur north of the Tambov Region or are recorded there only sporadically and locally. These are mainly species from the genera *Amara*, *Harpalus*, and *Ophonus*, many of which are mesophilous or xerophilous species of open habitats. For some of these species (*Harpalus zabroides*, *H. pygmaeus*, *H. stevenii*, *H. oblitus*, *Ophonus cordatus*, *O. puncticeps*, *O. diffinis*), the northern boundary of their distribution passes through the Tambov Region.

In contrast, in the Ryazan and Moscow Regions, several circumboreal and Holarctic species occur that do not extend into the Tambov Region, for example, *Miscodera arctica* (Paykull, 1798). The Tambov Region also hosts fewer hygrophilous species from riparian, swamp, and meadow-swamp ecological groups. Genera such

as *Bembidion* and *Agonum* are most widely represented in the floodplains of major rivers in the Ryazan and Moscow Regions (Fig. 2).

Despite certain characteristics related to the geographic location of the Tambov Region, the distribution of species among genera is consistent with published data for other regions of the central part of European Russia (Fedorenko 1988; Semin 2004; Cadastre of Invertebrate Animals of the Voronezh Region 2005; Tsurikov 2009; Trushitsyna 2018, 2020; Sazhnev 2020; Egorov et al. 2024).

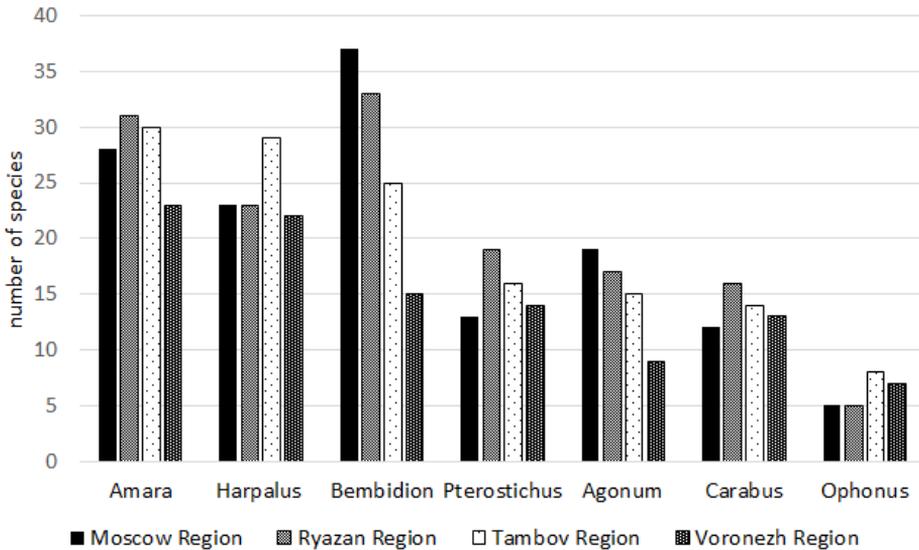


Figure 2. Distribution of species among genera in the faunas of regions of the Central part of European Russia.

The abundance and occurrence of species in the surveyed habitats were analyzed (Table 2). An increase in species abundance corresponded to an increase in the number of sites where the species was recorded (Fig. 3). The Spearman correlation coefficient (r_s) was 0.78 and statistically significant ($p < 0.001$).

Four species were identified as dominant in the ground beetle fauna of the Tambov Region: *Carabus granulatus*, *Harpalus rufipes*, *Pterostichus melanarius*, and *Pterostichus oblongopunctatus*; eight species were classified as subdominants (Table 2).

The composition of dominant species is largely explained by their biological and ecological characteristics. The dominant species *Carabus granulatus*, *Harpalus rufipes*, and *Pterostichus melanarius* are eurybionts, with wide distributions and high ecological tolerance, occurring in a broad range of habitats. *Carabus granulatus* is common in floodplain meadows, along the banks of water bodies, and in various

forest types, preferring moist mixed and broadleaf forests, and is also found in agrocenoses (Sharova 1982; Grunthal 1983, 2008; Inyeva 1983; Orlov 1983; Sharova et al. 1983; Fedorenko 1988; Lindroth 1992; Gryuntal and Orlov 1994; Turin et al. 2003; Trushitsyna 2009).

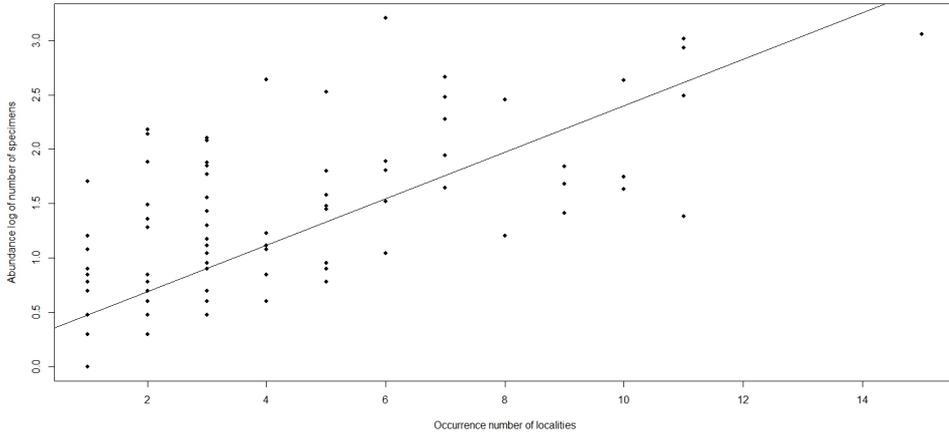


Figure 3. Occurrence–abundance distribution of ground beetle species in the Tambov Region.

Table 2. Abundance and occurrence of dominant and subdominant ground beetle species in the fauna of the Tambov Region

Species	Abundance (individuals)	Relative abundance (%)	Number of records	Occurrence (%)
<i>Carabus cancellatus</i>	461	4.8	7	28
<i>Carabus granulatus</i>	1614	16.9	6	24
<i>Poecilus versicolor</i>	309	3.2	11	44
<i>Pterostichus niger</i>	303	3.2	7	28
<i>Pterostichus anthracinus</i>	286	3.0	8	32
<i>Pterostichus strenuus</i>	189	2.0	7	28
<i>Pterostichus oblongopunctatus</i>	860	9.0	11	44
<i>Pterostichus melanarius</i>	1039	10.9	11	44
<i>Limodromus assimilis</i>	337	3.5	5	20
<i>Limodromus krynickii</i>	437	4.6	4	16
<i>Harpalus rufipes</i>	1148	12.0	15	60
<i>Harpalus laevipes</i>	432	4.5	10	40

Note: Dominant species are indicated in bold.

Harpalus rufipes occurs from the steppe zone to the southern taiga, predominantly inhabiting agrocenoses, but it can also reach high abundances in floodplain and dry meadows as well as in forest communities (Utrobina 1964; Kabacik-Wasylik 1970; Arnoldi et al. 1972; Wallin 1987; Karpova 1990; Lindroth 1992; Bulokhova 1995; Matalin 1997; Grunthal 2008; Makarov and Matalin 2009; Trushitsyna and Ananyeva 2011; Trushitsyna and Piryugin 2012).

Pterostichus melanarius is common in both forest (Feoktistov 1979; Makarov and Chernyakhovskaya 1989; Gryuntal and Orlov 1994; Sharova and Denisova 1997a, 1997b) and meadow (Bulokhova 1995; Trushitsyna and Ananyeva 2011) phytocoenoses, shows a preference for anthropogenically disturbed areas (Desender et al. 1985; Dorofeev 1995; Sharova and Kiselev 1999; Turin 2000), and occurs in agrocenoses (Heydemann 1964; Dushenkov 1984; Karpova 1984; Popova 1984; Sharova 1984, 1990; Wallin 1987).

The high abundance of these species is largely explained by their broad ecological plasticity, as well as their ability to redistribute their numbers over relatively small areas within a mosaic of habitats, selectively occupying the most favorable microhabitats under changing weather and hydrological conditions (Trushitsyna 2009; Trushitsyna and Matalin 2016; Trushitsyna et al. 2016).

Pterostichus oblongopunctatus is the only stenobiont included among the dominant species and is characterized as a Trans-Palaeartic forest species (Larsson 1939; Sharova and Dushenkov 1979; Fedorenko 1988).

An important adaptation to environmental conditions is also the variability of certain life cycle parameters, which allows species to respond adequately to changing conditions, thereby maintaining their populations at a high and stable level (Matalin 2007). For species with an annual life cycle that overwinter in the adult stage, the type of life cycle is maintained, while the timing of activity of different life stages and reproduction usually shifts. Such species include *Carabus granulatus* and *Pterostichus oblongopunctatus*, whose activity in different parts of their range is recorded from April–June to August–October (Sturani 1962; Lapshin 1971; Vasilyeva 1972; Inyaeva 1983; Sharova and Kiselev 1999; Filippov 2006; Trushitsyna 2009).

The reproductive period also varies widely and can last from one to three months, with the onset of adult reproductive activity in April–June (Vasilyeva 1972; van Heerdt et al. 1976; Shilenkov 1978; Vasilyeva 1978; Sharova and Denisova 1997b; Sharova and Kiselev 1999; Filippov 2006; Trushitsyna 2009). In all cases, the oviposition period is shifted to the most favorable time, which allows local populations to maintain high abundance.

The stable state of populations of the dominant species *Harpalus rufipes* and *Pterostichus melanarius* is maintained due to the variability of their life cycle, which can, depending on environmental conditions, be an annual with overwintering larvae (Larsson 1939; Skuhřavý 1959; Louda 1968; Kabacik-Wasylik 1970; Tietze 1973; Hůřka 1975; Thiele 1977; Wallin 1987; Chernyakhovskaya 1990; Budilov 1992; Matalin 2006; Trushitsyna and Matalin 2016) or biennial (Larsson 1939; Briggs 1965; Arnoldi et al. 1972; Potapova 1972; Shilenkov and Voronov 1973; Luff 1978;

Shilenkov 1978; Vasilyeva 1978; Sharova and Dushenkov 1979; Dushenkov 1984; Popova 1984; Makarov and Chernyakhovskaya 1989; Karpova 1990; Karpova and Matalin 1990; Saipulaeva 1990; Sharova and Denisova 1997b; Sharova and Filippov 2003; Matalin 2006; Trushitsyna and Matalin 2016).

Thus, the life cycle plasticity of these two species is very high, which contributes to the survival of their populations under a wide range of conditions (Hanski 1999; Clobert et al. 2001; Matalin 2007). The transition from annual to biennial development apparently compensates for the influence of adverse environmental factors, as it significantly increases the age heterogeneity of local populations, thereby stabilizing their abundance (Weber and Klenner 1987; Matalin 2006; Trushitsyna and Matalin 2016). In addition, under unfavorable conditions, *Harpalus rufipes* is capable of large-scale migrations (den Boer 1977; Matalin 1992; Matalin 1997; Desender 2000; Matalin 2003; Makarov and Matalin 2009; Trushitsyna 2012).

Eight species are classified as subdominants (Table 2), which are characterized as stenobionts. Two species, *Carabus cancellatus* and *Poecilus versicolor*, belong to the meadow-field ecological group (Fedorenko 1988; Bulokhova 1995) and in the study area were also found in forest ecosystems. It is worth noting that *Poecilus versicolor* in the central part of European Russia is usually among the dominant species in meadow habitats (Bulokhova 1995; Trushitsyna and Ananyeva 2011).

The remaining six species belong to the forest group. *Pterostichus anthracinus*, *Pterostichus strenuus*, *Limodromus assimilis*, and *Limodromus krynickii* tend to inhabit moist floodplain forests and meadows, as well as swampy shores of water bodies (Fedorenko 1988; Anufriev and Sharygin 1990; Lindroth 1992; Bulokhova 1995; Hürka 1996; Turin 2000; Grunthal 2008), whereas *Harpalus laevipes* prefers coniferous forests (Fedorenko 1988; Grunthal 2008). A similar habitat distribution was observed in the study area.

Most species in the fauna of the Tambov Region are classified as rare. Typically, these species are known from single records, with population sizes ranging from one to a few individuals. The rarity of these species can be attributed to various factors. Single records of foliar species (genus *Lebia*) and stem-dwelling hortobionts (*Odacantha melanura*, species of the genus *Demetrias*) in the Tambov Region can be explained by the fact that these phytobionts are better sampled using mowing methods in the herbaceous layer to which they are restricted. Soil traps commonly used in ground beetle studies largely fail to capture them. Stratobionts such as *Dromius quadraticollis* and *Dromius quadrimaculatus* live under tree bark and are also practically undetected by traditional sampling methods.

Some rare species occur at the edge of their distribution range and, for this reason, also do not reach high abundances. For example, the forest species *Carabus arvensis* is among the dominant species in regions located further north (Grunthal 2008; Trushitsyna and Piryugin 2012), whereas in the Tambov Region it is recorded only sporadically. A similar pattern is observed for several steppe species that are at the northern limits of their ranges.

Some species are genuinely vulnerable and require conservation, for example, *Omophron limbatum*, *Carabus clathratus*, *Carabus coriaceus*, species of the genus *Calosoma*, and several others. The Red Data Book of the Tambov Region (2012) lists 22 species; however, this list needs to be revised in light of newly obtained data.

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References

- Abramova LA, Lipetskikh AA, Ryazanov AV (2022) Geography and ecology of the Tambov region: nature, population, state of the environment. Derzhavinsky Publishing House, Tambov, 280 pp. [In Russian]
- Aleksanov VV (2025) Distribution of Orthoptera across the river valley (Kaluga–Aleksin canyon, European Russia) and their dynamics under the overgrowing of meadows. Nature Conservation Research 10(3): 11–33. <https://dx.doi.org/10.24189/ncr.2025.015>
- Afonina EYu, Tashlykova NA (2025) Diversity of aquatic organisms in the lowland watercourses: a case study in transboundary rivers, Transbaikalia, Russia. Nature Conservation Research 10(2): 1–19. <https://dx.doi.org/10.24189/ncr.2025.007>
- Aleksanov VV, Alekseev SK, Ruchin AB, Esin MN (2024) Carabid Beetles under the Influence of Megafires in Pine and Secondary Forests of Central European Russia. Diversity 16(7): 370. <https://doi.org/10.3390/d16070370>
- Ananyeva SI, Babkina NG, Blinushov AE, Lobov IV, Marochkina EA, Rybchak RV, Trushitsyna OS, Cheltsov NV (2008) Cadastre of invertebrates of the Meshchersky National Park. Ryazan, 79 pp. [in Russian]
- Anoufrieu GA, Sharygin GA (1990) Fauna and populations of ground beetles (Coleoptera, Carabidae) in open ecosystems of the Gorky Area. In: Anoufrieu GA (Ed.) Terrestrial and aquatic ecosystems, Gorky, 52–61. [In Russian]
- Araújo WS, Silveira LT, Falcão LAD, Vieira TM, Martins WP, Nunes YRF, Grandez–Rios JM (2024) Impact of vereda dryness on the insect herbivore diversity in adjacent cerrado areas in Brazilian Protected Areas. Nature Conservation Research 9(2): 90–99. <https://dx.doi.org/10.24189/ncr.2024.016>
- Arnoldi KV, Sharova IH, Klyukanova GN, Buturina NN (1972) Ground beetles (Coleoptera, Carabidae) the Streletsky steppe near Kursk and their seasonal dynamics of activity. In: Fauna and ecology of animals. MGPI, Moscow, 215–230. [In Russian]
- Beskokotov YA, Samokhin DM (2009) Towards understanding the entomofauna of the Voroninsky Nature Reserve. In: Proceedings of the Voroninsky State Nature Reserve. Vol. 1. Pershin R.V. Publishing House, Tambov, 118–142. [In Russian]

- Bilomar EE (2011) On the fauna of ground beetles (Caraboidea) in the village of Ramza. In: Proceedings of the Voroninsky State Nature Reserve. Vol. 2. TSU Publishing House, Tambov, 139–143. [In Russian]
- Bilomarov EE, Glushkov VV, Telina EI (2015) Catalogue of the entomological collection of the Voroninsky Nature Reserve. Part 1. In: Proceedings of the Voroninsky State Nature Reserve. Vol. 3. Print Service, Tambov, 70–80. [In Russian]
- Bonacci T (2025) Unveiling the Defenses: A Current and Comprehensive Review of Coleoptera Carabidae Strategies. *Biology* 14(6): 709.
- Briggs JB (1965) Biology of some ground beetles (Coleoptera, Carabidae) injurious to strawberries. *Bulletin of Entomological Research* 56(1): 79–93. <https://doi.org/10.1017/S0007485300057060>
- Budilov VV (1992) Spatial and temporal distribution of ground beetles (Coleoptera, Carabidae) in the mosaic of the agricultural landscape. Abstract of the dissertation for the degree of the candidate of biological sciences. Moscow State University, Moscow, 16 pp. [In Russian]
- Bulokhova NA (1995) The distribution of ground beetles (Coleoptera, Carabidae) in the plant associations of flood-plain and upland meadows. In: Fauna and ecology of Carabidae of the meadows of south-western Russia. Bryansk University Press, Bryansk, 18–37. [In Russian]
- Busato E, Gallizia S, Angeli M, D'Amico ME, Ferracini C (2024) Diversity in the Herpetobiont Ground Beetle Assemblage (Coleoptera, Carabidae) in the Val Grande National Park, Italy. *Forests* 15(10): 1779. <https://doi.org/10.3390/f15101779>
- Cadastre of invertebrate animals of the Voronezh region (2005) Negrobov OP (Ed.) Voronezh State University, Voronezh, 825 pp. [In Russian]
- Chernyakhovskaya TA (1990) Life cycle and population structure of *Pseudophonus rufipes* Deg. in the conditions of central Russia. In: Materials of the scientific and methodological meeting of zoologists of pedagogical universities. Vol. 1. Makhachkala, 285. [In Russian]
- Clobert J, Wolff JO, Nichols JD, Danchin E, Dhondt AA (2001) Introduction. In: Clobert J, Danchin E, Dhondt AA, Nichols JD (Eds) *Dispersal*. Oxford University Press, 17–21.
- Clobert F (1973) Zur Ökologia, Soziologie und Phänologie der Laufkäfer (Col. – Car.) des Grünlandes im Süden der DDR. I. Tiel. Die Carabiden der untersuchten Lebensorte. *Hercynia* 10(1): 3–76. [In German]
- Dedyukhin SV (2024) Fauna and biotopic distribution of Chrysomelidae (Coleoptera) in the Shaitan–Tau State Nature Reserve, Russia. *Nature Conservation Research* 9(4): 47–65. <https://dx.doi.org/10.24189/ncr.2024.031>
- Den Boer PJ (1977) Dispersal power and survival. Carabids in a cultivated countryside (with a mathematical appendix by J. Reddingius). *Miscellaneous papers Landbouwhogeschool*. Wageningen 14: 1–190.
- Desender K (2000) Flight muscles development and dispersal in the life cycle of carabid beetles: patterns and processes. *Bulletin de L'Institut Royal des Sciences Naturelles de Belgique* 70: 13–31.

- Desender K, Broeck D, van den Maelfait J-P (1985) Population biology and reproduction in *Pterostichus melanarius* Ill. (Coleoptera, Carabidae) from a heavily grazed pasture ecosystem. Mededelingen van de Faculteit Landbouwwetenschappen van de Rijksuniversiteit Gent 50(2b): 567–575.
- Dorofeev YV (1995) Structure of the Ground Beetle Population in Recreational Forests near Shchekino. In: Fauna and Ecology of Ground Beetles (Coleoptera, Carabidae) in Urbanized Landscapes of Tula Province. Tula Pedagogical University, Tula, 13–29. [In Russian]
- Dushenkov VM (1984) Seasonal dynamics of ground beetle activity in agrocenoses. Fauna and ecology of invertebrates. Interuniversity collection of scientific papers. MGPI named after V.I. Lenin, Moscow, 69–76. [In Russian]
- Egorov LV, Aleksanov VV, Alekseev SK, Ruchin AB, Artaev ON, Esin MN, Lukiyarov SV, Lobachev EA, Semishin GB (2023) Dataset: Biodiversity of Ground Beetles (Coleoptera, Carabidae) of the Republic of Mordovia (Russia). Data 8(11): 161. <https://doi.org/10.3390/data8110161>
- Egorov LV, Dedyukhin SV, Alekseev SK, Trushitsyna OS, Ruchin AB, Sazhnev AS, Nikolaeva AM, Esin MN, Khapugin AA (2024) Regional Coleoptera Fauna: Applying Different Methods to Study Species Diversity in a Single Region. Insects 15(12): 917. <https://doi.org/10.3390/insects15120917>
- Fedorenko DN (1988) The fauna of ground beetles (Coleoptera, Carabidae) of the Moscow Area. In: Rasnitsyn AP (Ed.) Insects of the Moscow Area: problems of the cadastre and protection. Nauka Publisher, Moscow, 20–46. [In Russian]
- Feoktistov VF (1979) Communities of ground beetles in phytocenoses of the Mordovian Nature Reserve. In: Chernova NM (Ed.) Invertebrate fauna and ecology. Moscow State Pedagogical Institute Publisher, Moscow, 26–40. [In Russian]
- Figueiredo JCG, Negreiros D, Ramos L, Paiva DC, Oki Y, Justino WS, Santos RM, Aguilar R, Nunes YRF, Fernandes GW (2024) Reference sites of threatened riverine Atlantic forest in upper Rio Doce watershed. Nature Conservation Research 9(1): 58–71. <https://dx.doi.org/10.24189/ncr.2024.006>
- Filippov BY (2006) Seasonal Aspects of Life Cycles of *Carabus granulatus* L. and *C. glabratus* Payk. (Coleoptera, Carabidae) in the Northern Taiga. Zoological Journal 85(9): 1076–1084. [In Russian]
- Fiser CM, Haan NL, Landis DA (2025) Long-term agricultural management reduces abundance and alters community structure of ground beetles (Coleoptera: Carabidae). Agriculture, Ecosystems & Environment 379: 109337. <https://doi.org/10.1016/j.agee.2024.109337>
- Gruntal SY (1983) Complexes of ground beetles (Coleoptera, Carabidae) in the forests of the broadleaf-spruce forests subzone. In: Fauna and ecology of soil invertebrates of the Moscow region. Nauka, Moscow, 85–97. [In Russian]
- Gruntal SY (2008) Organization of communities of ground beetles (Coleoptera, Carabidae) of forests of the East European (Russian) plain. Halley-Print, Moscow, 484 pp. [In Russian]
- Gryuntal SY, Orlov VA (1994) Ground Beetles (Coleoptera, Carabidae) of the Forests of the Left Bank of the Oka. In: Specific Traits of the Soil Fauna of Moscow Province. Nauka, Moscow, 117–126 [In Russian]

- Hanski I (1999) *Metapopulation Ecology*. Oxford University Press., N.Y., 324 pp.
- Heerdt PF van, Blokhuis B, Haaften C van (1976) The reproductive cycle and age composition of a population of *Pterostichus oblongopunctatus* Fabricius in the Netherlands (Coleoptera, Carabidae). *Tijdschrift voor Entomologie* 119(1): 1–13.
- Heydemann B (1964) Die Carabiden der Kulturbiotope von Binnenland und Nordseeküste – ein ökologischer Vergleich (Coleopt., Carabidae). *Zoologischer Anzeiger* 172(1): 49–86. [In German]
- Hůrka K (1996) Carabidae Czech and Slovak Republics. Zlin, 565 pp. [In Czech and English]
- Hůrka K (1975) Laboratory studies on the life cycle of *Pterostichus melanarius* (Ill.) (Coleoptera, Carabidae). *Věstník Československé společnosti zoologické* 39(4): 265–274.
- Inyaeva ZI (1983) Species composition and distribution of ground beetles (Coleoptera, Carabidae) of fields. In: *Fauna and ecology of soil invertebrates of the Moscow region*. Nauka, Moscow, 98–105. [In Russian]
- Kabacik-Wasylik D (1970) Ökologische Analyse der Laufkäfer (Carabidae) einiger Agrarkulturen. *Ekologia Polska* 18(7): 137–209. [In German]
- Karpova VE (1984) Species Composition and Distribution of Ground Beetles in Agrocenoses of the South of Moldova. In: *Fauna and Ecology of Invertebrates: Collected Papers*, Moscow, 82–87. [In Russian]
- Karpova VE (1990) Seasonal Dynamics of Activity and Behavioral Strategy of Dominant Ground Beetle Species in the Agrocenoses of Different Cultivars. In: *Structure and Dynamics of Populations of Edaphic and Herpetobiotic Invertebrates. Part 1*. Moscow Pedagogical University, Moscow, 32–43. [In Russian]
- Karpova VE, Matalin AV (1990) Dynamics of the Flight Activity of Carabids (Coleoptera, Carabidae) in Southern Moldova. In: *Structure and Dynamics of Populations of Edaphic and Herpetobiotic Invertebrates. Part 1*. Moscow Pedagogical University, Moscow, 43–51. [In Russian]
- Kasandrova LI (1996) Ecological structure of the ground beetle population of a clover field. In: *Fauna of the Central Black Earth Region and the Formation of Ecological Culture. Proceedings of the First Regional Conference, October 23–25. Part 2*. Lipetsk, 16–18. [In Russian]
- Kasandrova LI (1999) List of beetle species (Coleoptera) proposed for the Red Book of Tambov Oblast. In: *Rare animal species of Tambov Oblast*. Michurinsk, 4–16. [In Russian]
- Kasandrova LI (2000) Rare species of beetles (Coleoptera) of the Tambov region and some aspects of their protection. In: *Ecological and faunistic studies in the Central Black Earth Region and adjacent territories: 2nd regional conference*. Lipetsk, 64–66. [In Russian]
- Kasandrova LI (2002) Comparative ecological and faunistic characteristics of ground beetles (Coleoptera, Carabidae) in the agrocenosis of perennial and annual grasses. In: *Plants and animals of the Tambov region: cadastre and monitoring*. Michurinsk, 41–57. [In Russian]
- Kasandrova LI (2007) Biodiversity of beetles (Coleoptera, Carabidae) in Tambov. In: *Biodiversity – from idea to implementation. Abstracts of the interregional conference*. Tambov, 99–102. [In Russian]
- Kasandrova LI, Romankina MY, Shchekochikhin AV (2002a) On the fauna of beetles (Coleoptera) of the Voroninsky Reserve, Tambov Region. In: *History and development of*

- P.P. Semenov-Tyan-Shansky's ideas in modern science and school education practice. Proceedings of the All-Russian scientific and practical conference dedicated to the 175th anniversary of Semenov-Tyan-Shansky's birthday, May 1618, Vol. II. Zoology. Botany. Ecology. Lipetsk, 49–51. [In Russian]
- Kasandrova LI, Romankina MY, Shchekochikhin AV (2002b) On the study of the entomofauna of the Voroninsky Reserve in the spring. In: Plants and animals of the Tambov region: cadastre and monitoring. Michurinsk, 33–40. [In Russian]
- Kasandrova LI, Popova AA, Romankina MY, Shalamova TV, Shishova MI (2007) Species composition of ground beetles (Coleoptera, Carabidae) of the Tambov region. MGPI, Michurinsk, 44 pp. [In Russian]
- Kataev BM (2023) Classification of the genus *Harpalus* (Coleoptera, Carabidae) of the world based on imaginal morphology. Diversity 15(9): 971. <https://doi.org/10.3390/d15090971>
- Koivula MJ (2011) Useful model organisms, indicators, or both? Ground beetles (Coleoptera, Carabidae) reflecting environmental conditions. ZooKeys 100: 287–317. <https://doi.org/10.3897/zookeys.100.1533>
- Kolesnikov SA (2009) Fauna of ground beetles (Carabidae) of the rose hip (*R. rosa* L.) biotope in Tambov Oblast. In: Biodiversity: research results and prospects. Proceedings of the All-Russian correspondence scientific conference. Tambov, 114–124. [In Russian]
- Kolesnikov SA, Boldyrev MI, Loginov MV (2018) Species composition of ground beetles (Carabidae) in biotopes and agrobiocenoses of mountain ash in the Tambov region. Bulletin of KrasSAU 3: 193–200. [In Russian]
- Kolesnikov SA, Boldyrev MI (2014a) Species composition, zoogeographic and ecological characteristics of ground beetles (Carabidae) in dog rose (*Rosa* L.) biotopes and agrobiocenoses in Tambov Oblast. Bulletin of KrasSAU 4: 173–182. [In Russian]
- Kolesnikov SA, Boldyrev MI (2014b) Fauna of ground beetles (Carabidae) of black currant (*Ribes nigrum* L.) agrobiocenosis in Tambov region. Bulletin of KrasSAU 5: 96–103. [In Russian]
- Kolesnikov SA, Boldyrev MI, Borovskikh NN (2023) On the fauna of ground beetles (Carabidae) of the black currant (*Ribes nigrum* L.) agrobiocenosis in the Tambov region. Michurinsky Agronomicheskyy Vestnik 1: 716. [In Russian]
- Kryzhanovskij OL, Belousov IA, Kabak II, Kataev BM, Makarov KV & Shilenkov VG (1995) A Checklist of the Ground-Beetles of Russia and Adjaicent Lands (Insecta, Coleoptera, Carabidae). Pensoft, Sofia–Moscow, 271 pp.
- Lapshin LV (1971) Seasonal activity of dominant species of ground beetles (Carabidae) in the forest-steppe of the Orenburg Trans–Urals. Zoological Journal 50(6): 825–833. [In Russian]
- Larsson S (1939) Entwicklungstypen und Entwicklungszeiten der dänischen Carabiden. Entomologiske Meddelelser 20: 277–560. [In German]
- Lindroth CH (1992) (posth.). Ground Beetles (Carabidae) of Fennoscandia. A zoogeographic study. Part I. Specific Knowledge Regarding the Species. Amerind Publishing Co. Pvt. Ltd., New Delhi, 630 pp.

- Louda J (1968) Über den Einfluss vom Bebauen und von der chemischen Zusammensetzung des Bodens auf das Erscheinen von Carabidae. Sborník Pedagogické Fakulty v Hradci Králové. 5: 219–236. [In German]
- Luff M (1978) Diel activity patterns of some field Carabidae. *Ecological Entomology* 3(1): 53–62.
- Makarov KV, Kryzhanovskiy OL, Belousov IA, Zamotajlov AS, Kabak II, Kataev BM, Shilenkov VG, Matalin AV, Fedorenko DN (2020) Taxonomical List of Ground Beetles (Carabidae) of Russia. Available online: http://www.zin.ru/Animalia/Coleoptera/rus/car_rus.htm (accessed on 25 May 2020). [In Russian]
- Makarov KV, Chernyakhovskaya TA (1989) Variability of the Seasonal Activity Dynamics of the Ground Beetle *Pterostichus melanarius* Ill. (Coleoptera, Carabidae) in Different Types of Forest. In: *Ecological Aspects of Proper Nature Management*. Institute of Biology of the Academy of Sciences of the Latvian SSR, Riga, 55–56. [In Russian]
- Makarov KV, Matalin AV (2009) Ground-beetle communities in the Lake Elton region, southern Russia: a case study of a local fauna (Coleoptera, Carabidae). In: *Species and Communities in Extreme Environments. Festschrift towards the 75th Anniversary and a Laudatio in Honour of Academician Yuri Ivanovich Chernov*. Pensoft Publishers & KMK, Sofia–Moscow, 357–384. [In Russian]
- Matalin AV (1992) The ratio of foot and flight migrations in populations of mass species of ground beetles (Insecta, Coleoptera, Carabidae) in the southwestern steppe zone. *Zoological Journal* 71(9): 57–68. [In Russian]
- Matalin AV (1997) Specific Features of the Life Cycle of *Pseudoophonus* (s. str.) *rufipes* Deg. (Coleoptera, Carabidae) in Southwestern Moldova. *Biology Bulletin [Izvestiya Rossiyskoy Akademii Nauk. Biological Series]* 4: 455–466. [In Russian]
- Matalin AV (2003) Variations in flight ability with sex and age in ground beetles (Coleoptera, Carabidae) of South-Western Moldova. *Pedobiologia*. 47(4): 311–319. <https://doi.org/10.1078/0031-4056-00195>
- Matalin AV (2006) Geographic Variability of the Life Cycle in *Pterostichus melanarius* (Coleoptera, Carabidae). *Entomological Review* 86(4): 409–422. <https://doi.org/10.1134/S0013873806040051>
- Matalin AV (2007) Typology of Life Cycles of Ground Beetles (Coleoptera, Carabidae) in Western Palaearctic. *Entomological Review* 87(8): 947–972. <https://doi.org/10.1134/S0013873807080027>
- Orlov VA (1983) Ground beetles of the genus *Carabus* L. in the Moscow region. In: *Fauna and ecology of soil invertebrates of the Moscow region*. Nauka, Moscow, 113–120. [In Russian]
- Popova AA (1984) Seasonal Dynamics of the Ground Beetle Abundance in Vegetable Crop Rotation in the Environs of Michurinsk. In: *Fauna and Ecology of Invertebrates: Collected Papers*. Moscow, 98–105 [In Russian]
- Popova AA, Kozlova LM (1996) Ground beetle complexes in the agrocenosis of strawberries and potatoes. In: *Fauna of the Central Black Earth Region and the Formation of Ecological Culture. Proceedings of the First Regional Conference, October 23–25, Part 2*. Lipetsk, 23–25. [In Russian]

- Popova AA, Potapova EV (2005) Structure of beetle complexes (Coleoptera, Carabidae) in a mixed agrocenosis (potato, cabbage). In: Ecology, cadastre, monitoring, protection. Issue 3. MGPI, Michurinsk, 123–142. [In Russian]
- Popova AA, Starikova ON (2002) Adaptation genesis in the family of ground beetles. In: Plants and animals of the Tambov region: cadastre and monitoring. Michurinsk, 64–68. [In Russian]
- Potapova NA (1972) Biotopic distribution of ground beetles (Coleoptera, Carabidae) in the semi-desert of Northwestern Kazakhstan. Zoological Journal 51(10): 1499–1506. [In Russian]
- Rainio J, Niemelä J (2003) Ground beetles (Coleoptera: Carabidae) as bioindicators. Biodiversity & Conservation 12(3): 487–506.
- Red Book of Tambov Region: Animals (2012) Yulis Publishing House, Tambov, 352 pp. [In Russian]
- Renkonen O (1938) Statistisch-okologische Unterguchungen uder die terrestrische kaferwelt der finnischen Bruchmoore. Annales Zoologici Societatis Zoologicae–Botanicae Fennicae "Vanamo" 6: 231. [In German]
- Romankina MY (1996) Comparative characteristics of the species composition and ecological structure of the ground beetle population of apple orchards. In: Fauna of the Central Black Earth Region and the Formation of Ecological Culture. Proceedings of the First Regional Conference, October 2325, 1996. Part 2. Lipetsk, 25–27. [In Russian]
- Romankina MY (2000) Seasonal dynamics of ground beetle activity in apple orchards. In: Ecological and faunistic studies in the Central Black Earth Region and adjacent territories. Proceedings of the 2nd regional conference. Lipetsk, 92–93. [In Russian]
- Romankina MY (2007) Species structure of the ground beetle population in grassed areas of the city of Michurinsk. In: Biodiversity – from idea to implementation: Abstract of the interregional conference. Pershin R.V. Publishing House, Tambov, 88–93. [In Russian]
- Romankina MY (2009a) Spatial distribution and seasonal dynamics of ground beetle (Coleoptera, Carabidae) activity in birch forests and pine plantations in forest-steppe conditions of the central Black Earth Region. Forest Bulletin 1: 183–191. [In Russian]
- Romankina MY (2009b) Structural organization of the ground beetle population (Coleoptera, Carabidae) of the forest belts of the Tambov region. Problems of regional ecology 5: 92–97. [In Russian]
- Romankina MY (2010a) Structure of the population of ground beetles (Coleoptera, Carabidae) of agrocaenosis in center of European part of Russia (on example of Tambov region). Bulletin of Tambov University. Natural and Technical Sciences Series 15(5): 1563–1569. [In Russian]
- Romankina MY (2010b) Fauna and population structure of ground beetles (Coleoptera, Carabidae) of industrial gardens in the northern forest-steppe of the Tambov region. Problems of regional ecology 4: 135–141. [In Russian]
- Romankina MY (2010c) Ecological-and-Faunistic Structure of Coleoptera, Carabidae's Population Living in Dry Meadows in the Center of the European Part of Russia and Their Role as Bioindicators of Soil-Vegetative Conditions. Bulletin of the Chelyabinsk State Pedagogical University 2: 298–312. [In Russian]

- Romankina MY (2013) Ground beetles (Coleoptera, Carabidae) in the center of the Russian Plain. *Bulletin of Tambov University. Natural and Technical Sciences Series* 18(6): 3212–3215. [In Russian]
- Romankina MY (2014a) Species composition and zoogeographic characteristics of population of ground beetle (Coleoptera, Carabidae) of Tambov region. *Bulletin of Tambov University. Natural and Technical Sciences Series* 19(5): 1340–1343. [In Russian]
- Romankina MY (2014b) Structural organization of population of floodplain and upland meadows and ground beetles of Tambov region as indicator of environmental quality. *Bulletin of Tambov University. Natural and Technical Sciences Series* 19(5): 1344–1346. [In Russian]
- Romankina MY (2014b) Structural organization of the ground beetle population in floodplain and dry meadows of the Tambov region as an indicator of the quality of the natural environment *Bulletin of Tambov University. Natural and Technical Sciences Series* 19(5): 1344–1346. <https://doi.org/10.18411/lj-30-09-2017-18> [In Russian]
- Romankina MY (2019) Structural organization of the population of ground beetles (Coleoptera, Carabidae) of natural landscapes of the Tambov region. *Science and Education* 2(4): 42. [In Russian]
- Romankina MY, Akhmadulina NR (2002) Ground beetles of birch forest belts of Tambov region. In: *Plants and animals of Tambov region: cadastre and monitoring*. Michurinsk, 58–63. [In Russian]
- Romankina MY, Frolova EI (2005) Population structure of ground beetles (Coleoptera, Carabidae) in grassed urban landscapes of Michurinsk. In: *Plants and animals of the Tambov region: cadastre and monitoring*. Issue 3. MGPI, Michurinsk, 99–113. [In Russian]
- Romankina MY, Simakova EV (2004) Bioindication value of ground beetles of birch shelterbelts of the Tambov region. In: *Plants and animals of the Tambov region: cadastre and monitoring*. Issue 2. MGPI, Michurinsk, 138–143. [In Russian]
- Romankina MY, Shalamova TV (2013) Bioindication Value of Ground Beetles (Coleoptera, Carabidae) of birch forest belts of Tambov Oblast. *Bulletin of Tambov University. Natural and Technical Sciences Series* 18(6): 3216–3219. [In Russian]
- Romankina MY, Sharova IH (2011) Ground Beetle Complexes of Forest Phytocenoses of the Northern Forest-Steppe. *Bulletin of Tambov University. Natural and Technical Sciences Series* 16(3): 948–952. [in Russian]
- Romankina MY, Popova AA, Shalamova TV (2007) Ecological and faunistic structure of the ground beetle (Coleoptera, Carabidae) population in the forest belt near the city dump. *Bulletin of Tambov University. Natural and Technical Sciences Series* 12(1): 183–185. [In Russian]
- Ruchin AB, Alekseev SK, Artaev ON, Khapugin AA, Lobachev EA, Lukiyonov SV, Semishin GB (2022) Dataset: fauna of adult ground beetles (Coleoptera, Carabidae) of the National Park “Smolny” (Russia). *Data* 7: 84. <https://doi.org/10.3390/data7070084>
- Saipulaeva BN (1990) Comparative ecology of dominant ground beetle species in Dagestan gardens. In: *Structure and dynamics of populations of soil invertebrates and terrestrial invertebrates*. Part 1. MGPI, Moscow, 57–62. [In Russian]

- Samokhin DM (2009) Current status of red-listed insect species on the territory of the Voroninsky Nature Reserve. In: Works of the Voroninsky State Nature Reserve. Vol. 1. Tambov, 142–157. [In Russian]
- Samokhin DM (2010) Preliminary data on rove beetles (Coleoptera, Staphylinidae) of the Voroninsky Nature Reserve. In: Scientific works of the Prisursky State Nature Reserve. Vol. 24. Cheboksary–Atrat, 123–125. [In Russian]
- Samokhin DM, Kasandrova LI (2007) Ground beetles (Coleoptera, Carabidae) of the Voroninsky Reserve. In: Biodiversity – from idea to implementation: Abstract of the interregional conference. Pershin R.V. Publishing House, Tambov, 114–117. [In Russian]
- Sazhnev AS (2008) Carabidae fauna of the genus *Carabus* Linnaeus, 1758 (Coleoptera, Carabidae) of Saratov Province. In: Entomological and parasitological research in the Volga region. Collection of scientific papers. Vol. 6. Saratov, 67–70. [In Russian]
- Sazhnev AS (2020) Notes on the fauna of ground beetles (Coleoptera: Carabidae) of the National park “Khvalynsky”. In: Scientific papers of Khvalynsky national park: Compilation of scientific papers. Vol. 12. Amirit, Saratov–Khvalynsk, 37–43. [In Russian]
- Sazhnev AS, Volodchenko AN, Trushov DA (2019) Additions to the fauna of beetles (Coleoptera) of the State Nature Reserve “Voroninskiy” (Tambov Province). Report 2. *Evermannia* 5960: 40–45. [In Russian]
- Schat JK, Kavanaugh DH, Whisenant J, Anderegg G, Xiao H, Schoville SD (2024) Functional traits and habitat use: Investigating community assembly in a montane community (Carabidae: *Nebria*). *Ecosphere* 15(8): e4975. <https://doi.org/10.1002/ecs2.4975>
- Semenov VB (2009) An annotated checklist of beetles (Insecta, Coleoptera) of Central Meshchera. KMK Scientific Press Ltd., Moscow, 168 pp. [In Russian]
- Semin AV (2004) Ground beetles (Insecta, Coleoptera, Carabidae) Ryazan Region: an annotated list. In: Proceedings of the Oka Nature Reserve. Vol. 23. Uzorochoye, Ryazan, 291–304. [In Russian]
- Sergadeeva OA, Ignatenko KA (2022) On the study of Coleoptera floodplain meadows of the Voroninsky Reserve. In: Scientific works of the Khvalynsky National Park: collection of scientific articles. Issue 15. Amirit, Saratov–Khvalynsk, 223–227. [In Russian]
- Shalamova TV, Sharova IH, Rodimtsev AS (2012) Fauna and structure of population of ground beetles (Carabidae) of natural pine forests of Tambov region. *Bulletin of Tambov University. Natural and Technical Sciences Series* 17(4): 1193–1200. [In Russian]
- Shalamova TV, Popova OY (2007) Ground beetle population of the collection garden of Michurinsk State Agrarian University. In: Biodiversity – from idea to implementation. Abstracts of the interregional conference. Tambov, 105–109. [In Russian]
- Shalamova TV, Shalamov VM (2005) Ecological and faunistic characteristics of the ground beetle population of the meadow-forb birch forest. In: Plants and animals of the Tambov region: cadastre and monitoring. Issue 3. MGPI, Michurinsk, 129–133. [In Russian]
- Shalamova TV, Sharova IH (2002) Ecological and faunistic characteristics of the ground beetle population of pine forests of the northern forest-steppe of Russia. In: Plants and animals of the Tambov region: cadastre and monitoring. Michurinsk, 69–77. [In Russian]

- Sharova IH (1981) Life forms of ground beetles (Coleoptera, Carabidae). Nauka, Moscow, 360 pp. [In Russian]
- Sharova IH (1982) The fauna of ground beetles (Coleoptera, Carabidae) of the Moscow Area and the level of its study. In: Gilyarov MS (Ed.) Soil invertebrates of the Moscow Area. Nauka Publisher, Moscow, 223–236. [In Russian]
- Sharova IH (1984) Zonal patterns of ecological and faunal distribution of ground beetles (Coleoptera, Carabidae) in field agrocenoses, In: Chernova NM (Ed.) Fauna and ecology of invertebrates. MGPI, Moscow, 62–69. [In Russian]
- Sharova IH (1990) Factors determining the seasonal dynamics of ground beetle activity (Coleoptera, Carabidae) in agrocenoses. In: Structure and dynamics of populations of soil and terrestrial invertebrates. Interuniversity collection of works. Part 1. Moscow, 1–12. [In Russian]
- Sharova IH, Denisova MI (1996) The Polyvariant Nature of Seasonal Development in Two Species of the Genus *Calathus* Bonelli (Coleoptera, Carabidae) in the Forest-Steppe of Central Russia. Doklady Akademii Nauk 348(1): 140–142. [In Russian]
- Sharova IH, Denisova MI (1997a) Ecological Differentiation of Some Forest Ground Beetles of the Genus *Pterostichus* Bonelli (Coleoptera, Carabidae) in the Forest-Steppe of Central Russia. Doklady Akademii Nauk 356(4): 572–574. [In Russian]
- Sharova IH, Denisova MI (1997b) Seasonal Dynamics of Forest Populations of the Genus *Pterostichus* (Coleoptera, Carabidae). Entomological Review 77(8): 1026–1036.
- Sharova IH, Dushenkov VM (1979) Types of Development and Types of Seasonal Activity in Ground Beetles. In: Fauna and Ecology of Invertebrates. MGPI, Moscow, 5–25. [In Russian]
- Sharova IH, Filippov BY (2003) Specific Features of the Life Cycles of Ground Beetles (Coleoptera, Carabidae) in Northern Taiga. Entomological Review 83(8): 982–992.
- Sharova IH, Kiselev IE (1999) Dynamics of the population structure of ground beetles (Coleoptera, Carabidae) in urbanized landscapes of Saransk. Saransk, 213 pp. [In Russian]
- Sharova IH, Matveeva VG, Kuperman RG, Haryukov NL (1983) Distribution of ground beetles (Coleoptera, Carabidae) in pine forests of the Moscow region. In: Fauna and ecology of soil invertebrates of the Moscow region. Nauka, Moscow, 107–110. [In Russian]
- Shilenkov VG, Voronov GA (1973) Ecological and faunal characteristics of the population of ground beetles of the southern taiga of the Kama Urals. In: Issues of ecology and theriology. Perm, 88–115. [In Russian]
- Shilenkov VT (1978) Specific Biological Features of the Common Ground Beetle Species (Coleoptera, Carabidae) in the Fauna of the Southern Baikal Area. Entomologicheskoye obozreniye 57(2): 290–301. [In Russian]
- Skuhravý V (1959) Příspěvek k bionomii polních střelíkovitých (Col. Carabidae). Rozpravy Československé akademie věd řada matematických a přírodních věd 69(2): 3–64. [In Czech]
- Štípková Z, Tsiftsis S, Kindlmann P (2024) Is the GBIF appropriate for use as input in models of predicting species distributions? Study from the Czech Republic. Nature Conservation Research 9(1): 84–95. <https://dx.doi.org/10.24189/ncr.2024.008> [In Czech]

- Sturani M (1962) Osservazioni e ricerche biologiche sul genere *Carabus* Linnaeus (sensu lato) (Coleoptera, Carabidae). Memorie della Società entomologica italiana 41: 85–202. [In Italian]
- Sushko GG (2025) Ground beetle (Coleoptera, Carabidae) diversity assessment in the peat bog of the State Hydrological Sanctuary “Boloto Mokh” (Belarus). Nature Conservation Research 10(2): 31–42. <https://dx.doi.org/10.24189/ncr.2025.009>
- Thiele H&U (1977) Carabid beetles in their environments. A study on habitat selection by adaptations in physiology and behaviour. Springer-Verlag, Berlin, Heidelberg, New-York, 369 pp.
- Trushitsyna OS, Matalin AV, Makarov KV (2016) Long-term dynamics and spatial distribution of stable and labile components in ground beetle communities (Coleoptera: Carabidae) in a mosaic of floodplain meadows. Periodicum Biologorum 118(3): 255–272. <https://doi.org/10.18054/pb.2016.118.3.3928>
- Trushitsyna OS (2009) The demographic features of local populations of ground beetles of the genus *Carabus* L. (Coleoptera, Carabidae) in a mosaic of flood-plain meadows in the south of the Meschera Lowland. Euroasian Entomological Journal 8(4): 399–410 [In Russian]
- Trushitsyna OS (2012) Spatial distribution of *Harpalus rufipes* (DeGeer) (Coleoptera, Carabidae) in the mosaic of floodplain meadows of the southern Meshchersk lowland. In: Materials of the XIV Congress of the Russian Entomological Society. St. Petersburg, 428. [In Russian]
- Trushitsyna OS (2018) Preliminary results of the inventory of the fauna of ground beetles (Coleoptera, Carabidae) of the Meshchersky National Park. In: Specially protected natural territories: status, problems and prospects of development: All-Russian Scientific and Practical Conference (with international participation). Filigran, Yaroslavl, 74–78. [In Russian]
- Trushitsyna OS (2020) Species composition of ground beetles (Coleoptera, Carabidae) of the Oka Reserve. In: Proceedings of the Oka State Natural Biosphere Reserve. Vol. 39. Ryazan regional typography, Ryazan, 194–206. [In Russian]
- Trushitsyna OS, Ananyeva SI (2011) The ecological structure of ground beetles population (Coleoptera, Carabidae) of floodplain meadows of the Oka Nature Reserve. In: Konstantinov VM (Ed.) Behavior, ecology and evolution of animals: research papers, articles, reports Vol. 2. NP “Golos gubernii”, Ryazan, 301–311. [In Russian]
- Trushitsyna OS, Matalin AV (2016) Specific features of the life cycle of *Pterostichus melanarius* (Coleoptera, Carabidae) in a mosaic flood-plain meadows. Zoological Journal 95(1): 28–44. <https://doi.org/10.7868/S0044513416010128> [In Russian]
- Trushitsyna OS, Piryugin VS (2012) The fauna of ground beetles (Coleoptera, Carabidae) of the forest ecosystems of the Oka Nature Reserve. In: Proceedings of the Oka State Natural Biosphere Reserve. Vol. 27. NP “Golos gubernii”, Ryazan, 156–172. [In Russian]
- Tsurikov MN (2009) The beetles of the Lipetsk Area. Voronezh University Publisher, Voronezh, 332 pp. [In Russian]

- Turin H (2000) De Nederlandse loopkevers: verspreiding en oecologie (Coleoptera: Carabidae). Nederlandse fauna. Vol. 3. Nat. Natuurhistorisch Mus. Natur.: KNNV Uitgeverij, 666 pp. [In Dutch]
- Turin H, Penev L, Casale A (Eds) (2003) The Genus *Carabus* in Europe. A synthesis. Pensoft, Sofia–Moscow, 511 pp.
- Utrobina NM (1964) Overview of ground beetles of the Middle Volga region. In: The soil fauna of the Middle Volga region. Moscow, 93–119. [In Russian]
- Vasilyeva RM (1972) Seasonal dynamics of activity of dominant ground beetle species (Carabidae) in the conditions of forest and forest-steppe contact in the Bryansk region. In: Fauna and ecology of animals. Moscow, 53–64. [In Russian]
- Vasilyeva PM (1978) Specific Features of Development of Some Species of Ground Beetles in Bryansk Province. In: Fauna and Ecology of Invertebrates. MGPI, Moscow, 40–52 [In Russian].
- Vdovina ON, Tropina EF, Makarycheva AYu, Yerunova MG (2025) Patterns of macroinvertebrate distribution in watercourses of the Krasnoyarsk Stolby National Park (East Siberia). Nature Conservation Research 10(1): 50–65. <https://dx.doi.org/10.24189/ncr.2025.004>
- Volodchenko AN (2020) Protected insects of “Voroninsky” State Nature Reserve (Tambov region, Russia. Ecosystems 22: 105–113. [In Russian]
- Volodchenko AN, Sazhnev AS, Udodenko YG (2018) Additions to the fauna of beetles (Coleoptera) of the Voroninsky State Nature Reserve (Tambov Region). Eversmannia 53: 10–15. [In Russian]
- Volodchenko AN, Sazhnev AS, Zabaluev IA (2021) Supplement to the fauna of beetles (Coleoptera) of the Voroninsky Nature Reserve, Tambov Region. Message 3. Eurasian Entomological Journal 20(2): 106–112. <https://doi.org/10.15298/eurosentj.20.2.07> [In Russian]
- Volodchenko AN, Seleznev DG (2022) Communities of saproxylic beetles of silver birch (*Betula pendula* Roth.) in the Voroninsky Nature Reserve. Siberian Ecological Journal 29(1): 87–99. <https://doi.org/10.15372/SEJ20220108> [In Russian]
- Volodchenko AN, Vasilchenko TV, Trushov DA, Petrova VS (2015) New data on the Red Book species of insects in the Voroninsky Nature Reserve. In: Proceedings of the Voroninsky State Nature Reserve. Vol. 3. Print–Service, Tambov, 17–22. [In Russian]
- Wallin H (1987) Distribution, movements and reproduction of Carabid beetles (Coleoptera, Carabidae) inhabiting cereal fields. Plant Protection Reports and Dissertations of the Swedish University of Agricultural Sciences, Uppsala, 134 pp.
- Weber F, Klenner M (1987) Life history phenomena and risk of extinction in a subpopulation of *Carabus auronitens*. Acta Phytopathologica et Entomologica Hungarica 22: 321–328.
- Zheltove PE, Sokolov AS (2003) Beauties of the Tambov Region. In: Flora and Fauna of the Chernozem Region. Issue 6. TSU Publishing House, Tambov, 60–63. [In Russian]