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New data on the fauna of Coleoptera (Insecta: Coleoptera) of the Voroninsky Nature Reserve

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Abstract. Beetles form an important insect group in terrestrial ecosystems throughout the world. The paper presents new data on the beetle fauna of the Voroninsky Nature Reserve (Tambov Oblast, Russia). The data were obtained from the materials of 2021–2023 expeditions. The specimens were collected with an insect sweep net and an interception trap. In total, 73 species of Coleoptera from 25 families were recorded for the Voroninsky Nature Reserve for the first time, including the alien species *Oryzaephilus surinamensis* (Linnaeus, 1758). The results of the study are hugely important for inventory as well as monitoring of biodiversity at the Voroninsky Nature Reserve.

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Keywords: beetles, new finds, Voroninsky Nature Reserve, protected natural areas, Tambov Region, European part of Russia

Новые данные по фауне жесткокрылых (Insecta: Coleoptera) заповедника «Воронинский»

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Аннотация. Жуки являются важной группой насекомых в наземных экосистемах по всему миру. В статье приведены новые данные по фауне жесткокрылых природного заповедника «Воронинский» (Россия, Тамбовская область). Данные для работы получены в ходе обработки материалов экспедиций 2021–2023 гг. Жуков собирали кошением энтомологическим сачком и перехватывающими ловушками. Впервые для заповедника указывается 73 вида жесткокрылых из 25 семейств, включая чужеродный вид *Oryzaephilus surinamensis* (Linnaeus, 1758). Результаты исследования имеют большое значение для инвентаризации и мониторинга биоразнообразия Воронинского заповедника.

Ключевые слова: жуки, новые находки, природный заповедник «Воронинский», охраняемые природные территории, Тамбовская область, европейская часть России

Introduction

The Voroninsky Nature Reserve is located in the southeast of the Tambov Oblast, Russia. In 1994, it obtained the status of a protected area for biodiversity conservation and wildlife restoration. The reserve consists of two large clusters and several small sites. The main part of the reserve are forests and wetland landscapes confined to the valley of the Vorona River.

Coleoptera are the largest order of insects. They participate in a variety of ecological processes in ecosystems. Studying the beetle diversity and their ecological associations makes a significant contribution to understanding overall habitat conservation and species diversity.

This paper continues the work on the inventory of the beetle fauna in the Voroninsky Nature Reserve carried out both with the participation

of the authors (Kol'dyushova et al. 2018; Volodchenko et al. 2018; 2021; Sazhnev et al. 2019; Volodchenko 2019; 2020; Sergadeeva, Ignatenko 2022; Volodchenko, Seleznev 2022; Sergeeva 2022; 2023a; 2023b) and other researchers (Petrova 2015; Vasilchenko 2016a; 2016b; Sazhnev, Aksenenko 2018).

Material and methods

The article is based on the materials collected during field work in 2021–2023. The beetles were mainly collected on isolated clusters of the reserve, which were poorly covered by earlier studies. An entomological net and interception traps were used as the two major methods of collection (Volodchenko, Seleznev 2022; Volodchenko, Sazhnev 2023). Below are the geographical coordinates of the collection points:

Balykley — Inzhavinsky district, 1.5 west village Balykley, 52°18'59"N, 42°31'50"E;

Karay-Saltykovo — Inzhavinsky district, village Karay-Saltykovo, 52°21'57"N, 42°36'16"E;

Inzhavino — 1 km east urban village Inzhavino, 52°19'46"N, 42°30'30"E;

Nikitino — Inzhavinsky district, village Nikitino, 52°26'1"N, 42°27'16"E;

Ol'khovka — Inzhavinsky district, village Ol'khovka, 52°26'60"N, 42°32'31"E;

Parevka — Inzhavinsky district, 1 km northeast village Parevka, 52°26'57"N, 42°35'15"E;

Derben' — 4 km southwest village Derben', 52°30'43"N, 42°38'55"E.

Most of Curculionidae were identified by the second author, the rest of the material was identified by the first author. The determination of individual species of Eucnemidae was confirmed by A. V. Kovalev of the All-Russian Institute of Plant Protection, Saint Petersburg.

The taxonomy used in the work is given according to The Catalogue of Palaearctic Coleoptera (Löbl, Smetana 2007; 2010; 2020; Löbl, Löbl 2015; 2016; Alonso-Zarazaga et al. 2023).

Results

Histeridae

Teretrius (Teretrius) fabricii (Mazur, 1972)

Material. Derben', deciduous forest, interception trap on *Quercus robur* L., 18.06.2021 — 1 ex.

Plegaderus (Plegaderus) caesus (Herbst, 1791)

Material. Derben', deciduous forest, interception trap on *Quercus robur*, 18.06.2021 — 2 ex.

Atholus bimaculatus (Linnaeus, 1758)

Material. Derben', floodplain meadow, sweeping, 18.06.2021 — 1 ex.

Leiodidae

Sciodrepoides watsoni (Spence, 1813)

Material. Ol'khovka, deciduous forest, interception trap on *Populus tremula* L., 18.06.2021 — 1 ex.

Agathidium seminulum (Linnaeus, 1758)

Material. Nikitino, deciduous forest, interception trap on *Quercus robur*, 18.06.2021 — 1 ex.

Buprestidae

Chalcophora mariana (Linnaeus, 1758)

Material. Inzhavino, pine forest, interception trap on *Pinus sylvestris* L., 18.06.2021 — 1 ex.

Anthaxia (Anthaxia) senicula (Schrank, 1789)

Material. Nikitino, edge of deciduous forest, sweeping, 20.07.2021 — 1 ex.

Trachypteris picta (Pallas, 1773)

Material. Inzhavino, deciduous forest, interception trap on *Populus tremula*, 18.06.2021 — 1 ex.

Agrilus (Convexagrilus) convexicollis L. Redtenbacher, 1847

Material. Ol'khovka, deciduous forest, interception trap on *Fraxinus excelsior* L., 20.07.2021 — 1 ex.

Trachys fragariae Brisout de Barneville, 1874

Material. Derben', meadow, sweeping, 25.05.2021 — 1 ex.

Eucnemidae

Dirrhagofarsus attenuatus (Mäklin, 1845)

Material. Inzhavino, deciduous forest, interception trap on *Populus tremula*, 18.06.2021 — 3 ex.

Nematodes filum (Fabricius, 1801)

Material. Ol'khovka, oak forest, interception trap on *Quercus robur*, 20.07.2021 — 2 ex.

Elateridae

Synaptus filiformis (Fabricius, 1781)

Material. Nikitino, edge of deciduous forest, sweeping, 25.05.2021 — 1 ex.

Ampedus (Ampedus) pomonae (Stephens, 1830)

Material. Inzhavino, deciduous forest, interception trap on *Populus tremula*, 18.06.2021 — 1 ex.

Hemicrepidius (Hemicrepidius) hirtus (Herbst, 1784)

Material. Inzhavino, edge of deciduous forest, sweeping, 18.06.2021 — 1 ex.

Lycidae

Dictyoptera aurora (Herbst, 1784)

Material. Derben', deciduous forest, interception trap on *Acer platanoides* L., 8.05–17.06.2023 — 1 ex.

Cantharidae

Cantharis (Cyrptomoptila) lateralis Linnaeus, 1758

Material. Nikitino, meadow, sweeping, 25.05.2021 — 1 ex.

Dermestidae

Anthrenus (Nathrenus) verbasci (Linnaeus, 1767)

Material. Inzhavino, meadow, sweeping, 18.06.2021 — 1 ex.

Globicornis (Hadrotoma) emarginata (Gyllenhal, 1808)

Material. Derben', deciduous forest, interception trap on *Quercus robur*, 07.04–8.05.2023 — 1 ex.; 8.05–17.06.2023 — 2 ex.

Megatoma (Megatoma) undata (Linnaeus, 1758)

Material. Derben', meadow, sweeping, 25.05.2021 — 1 ex.

Ptinidae

Dorcatoma (Dorcatoma) robusta A. Strand, 1938

Material. Inzhavino, deciduous forest, interception trap on *Populus tremula*, 18.06.2021 — 1 ex.

Dorcatoma (Pilosodorcatoma) chrysomelina Sturm, 1837

Material. Porevka, deciduous forest, interception trap on *Populus tremula*, 18.06.2021 — 1 ex.

Trogossitidae

Peltis grossa (Linnaeus, 1758)

Material. Nikitino, oak forest, interception trap on *Quercus robur*, 25.05.2021 — 1 ex.

Cleridae

Thanasimus femoralis (Zetterstedt, 1828)

Material. Derben', deciduous forest, interception trap on *Pinus sylvestris*, 07.04–8.05.2023 — 1 ex.

Necrobia violacea (Linnaeus, 1758)

Material. Inzhavino, deciduous forest, interception trap on *Populus tremula*, 18.06.2021 — 1 ex.

Korynetes caeruleus (De Geer, 1775)

Material. Inzhavino, deciduous forest, interception trap on *Populus tremula*, 20.07.2021 — 1 ex.

Dasytidae

Aplocnemus (Aplocnemus) impressus (Marsham, 1802)

Material. Inzhavino, deciduous forest, interception trap on *Populus tremula*, 20.07.2021 — 1 ex.

Malachiidae

Anthocomus (Anthocomus) rufus (Herbst, 1784)

Material. Karay-Saltykovo, floodplain meadow, sweeping, 18.06.2021 — 1 ex.; Derben', floodplain meadow, sweeping, 25.05.2021 — 1 ex.

Nitidulidae

Epuraea (Epuraea) biguttata (Thunberg, 1784)

Material. Nikitino, deciduous forest, interception trap on *Populus tremula*, 25.05.2021 — 1 ex.

Amphotis marginata (Fabricius, 1781)

Material. Nikitino, deciduous forest, interception trap on *Populus tremula*, 25.05.2021 — 1 ex.

Thalycra fervida (Olivier, 1790)

Material. Porevka, deciduous forest, interception trap on *Populus tremula*, 25.05.2021 — 1 ex.

Monotomidae

Monotoma conicicollis (Chevrolat, 1837)

Material. Derben', deciduous forest, interception trap on *Acer platanoides*, 8.05–17.06.2023 — 1 ex.

Silvanidae

Oryzaephilus surinamensis (Linnaeus, 1758)

Material. Nikitino, meadow, sweeping, 17.06.2023 — 1 ex.

Laemophloeidae

Placonotus testaceus (Fabricius, 1787)

Material. Porevka, deciduous forest, interception trap on *Populus tremula*, 20.07.2021 — 1 ex.

Phalacridae

Olibrus millefolii (Paykull, 1800)

Material. Balykley, meadow, sweeping, 18.06.2021 — 1 ex.

Phalacrus championi Guillebeau, 1892

Material. Karay-Saltykovo, meadow, sweeping, 18.06.2021 — 1 ex.

Endomychidae

Endomychus coccineus (Linnaeus, 1758)

Material. Nikitino, deciduous forest, interception trap on *Populus tremula*, 17.06.2021 — 1 ex.

Melandryidae

Orchesia (Clinocara) fasciata (Illiger, 1798)

Material. Nikitino, deciduous forest, interception trap on *Populus tremula*, 18.06.2021 — 1 ex.

Osphya bipunctata (Fabricius, 1775)

Material. Inzhavino, deciduous forest, interception trap on *Populus tremula*, 25.05.2021 — 1 ex.

Tenebrionidae

Diaclina testudinea (Piller & Mitterpacher, 1783)

Material. Inzhavino, deciduous forest, interception trap on *Populus tremula*, 20.07.2021 — 1 ex.

Neomida haemorrhoidalis (Fabricius, 1787)

Material. Nikitino, deciduous forest, interception trap on *Populus tremula*, 25.05.2021 — 1 ex.

Anthicidae

Anthicus flavipes (Panzer, 1796)

Material. Nikitino, meadow, sweeping, 18.06.2021 — 1 ex.

Cerambycidae

Asemum striatum (Linnaeus, 1758)

Material. Inzhavino, pine forest, interception trap on *Pinus sylvestris*, 20.07.2021 — 2 ex.

Phytoecia (Phytoecia) pustulata (Schrank, 1776)

Material. Nikitino, meadow, sweeping, 25.05.2021 — 2 ex.

Chrysomelidae

Oulema melanopus (Linnaeus, 1758)

Material. Nikitino, meadow, sweeping, 25.05.2021 — 6 ex.

Cassida nobilis Linnaeus, 1758

Material. Nikitino, meadow, sweeping, 25.05.2021 — 2 ex.

Derocrepis rufipes (Linnaeus, 1758)

Material. Nikitino, meadow, sweeping, 25.05.2021 — 11 ex.

Neocrepidodera femorata (Gyllenhal, 1813)

Material. Nikitino, meadow, sweeping, 18.06.2021 — 5 ex.

Smaragdina xanthaspis (Germar, 1823)

Material. Nikitino, meadow, sweeping, 25.05.2021 — 3 ex.

Attelabidae

Byctiscus populi (Linnaeus, 1758)

Material. Derben', floodplain meadow, sweeping, 24.05.2021 — 3 ex.

Rhynchites (Rhynchites) bacchus (Linnaeus, 1758)

Material. Balykley, meadow, sweeping, 18.06.2021 — 2 ex.; Nikitino, meadow, sweeping, 18.06.2021 — 1 ex.

Tatianaerhynchites aequatus (Linnaeus, 1767)

Material. Balykley, meadow, sweeping, 18.06.2021 — 2 ex.

Brentidae

Ceratapion (Acanephodus) onopordi (Kirby, 1808)

Material. Balykley, meadow, sweeping, 18.06.2021 — 3 ex.

Exapion elongatulum (Desbrochers des Loges, 1891)

Material. Balykley, meadow, sweeping, 18.06.2021 — 2 ex.

Eutrichapion (Eutrichapion) viciae (Paykull, 1800)

Material. Balykley, meadow, sweeping, 18.06.2021 — 2 ex.

Oxystoma cerdo (Gerstaecker, 1854)

Material. Derben', meadow, sweeping, 8.05.2023 — 1 ex.

Curculionidae

Tanysphyrus lemnae (Paykull, 1792)

Material. Derben', floodplain meadow, sweeping, 24.05.2021 — 1 ex. Det. I. A. Zabaluev.

Labiaticola atricolor (Boheman, 1844)

Material. Derben', floodplain meadow, sweeping, 24.05.2021 — 1 ex.

Amalus scortillum (Herbst, 1795)

Material. Nikitino, meadow, sweeping, 25.05.2021 — 2 ex. Det. I. A. Zabaluev.

Glocianus punctiger (C.R. Sahlberg, 1835)

Material. Nikitino, meadow, sweeping, 25.05.2021 — 2 ex.; Derben', floodplain meadow, sweeping, 26.05.2021 — 1 ex. Det. I. A. Zabaluev.

Microplontus edentulus (Schultze, 1897)

Material. Nikitino, meadow, sweeping, 25.05.2021 — 1 ex.

Microplontus triangulum (Boheman, 1845)

Material. Derben', floodplain meadow, sweeping, 24.05.2021 — 1 ex. Det. I. A. Zabaluev.

Nedyus quadrimaculatus (Linnaeus, 1758)

Material. Derben', floodplain meadow, sweeping, 24.05.2021 — 1 ex. Det. I. A. Zabaluev.

Thamiocolus virgatus (Gyllenhal, 1837)

Material. Nikitino, meadow, sweeping, 25.05.2021 — 3 ex. Det. I. A. Zabaluev.

Pelenomus waltoni (Boheman, 1843)

Material. Nikitino, meadow, sweeping, 25.05.2021 — 1 ex.

Rhinoncus leucostigma (Marsham, 1802)

Material. Nikitino, meadow, sweeping, 25.05.2021 — 2 ex. Det. I. A. Zabaluev.

Tychius (Tychius) crassirostris Kirsch, 1871

Material. Nikitino, meadow, sweeping, 25.05.2021 — 3 ex. Det. I. A. Zabaluev.

Phyllobius (Metaphyllobius) jacobsoni Smirnov, 1913

Material. Derben', floodplain meadow, sweeping, 24.05.2021 — 1 ex.

Sciaphilus asperatus (Bonsdorff, 1785)

Material. Derben', floodplain meadow, sweeping, 24.05.2021 — 4 ex. Det. I. A. Zabaluev.

Sciaphobus (Neosciaphobus) ningnidus (Germar, 1823)

Material. Derben', floodplain meadow, sweeping, 24.05.2021 — 7 ex. Det. I. A. Zabaluev.

Hypera (Kippenbergia) arator (Linnaeus, 1758)

Material. Balykley, floodplain meadow, sweeping, 18.06.2021 — 1 ex.; Nikitino, meadow, sweeping, 18.06.2021 — 1 ex. Det. I. A. Zabaluev.

Larinus (Phyllonomeus) iaceae (Fabricius, 1775)

Material. Derben', floodplain meadow, sweeping, 24.05.2021 — 1 ex.

Larinus (Phyllonomeus) planus (Fabricius, 1792)

Material. Nikitino, meadow, sweeping, 18.06.2021 — 1 ex.

Magdalis (Edo) ruficornis (Linnaeus, 1758)

Material. Inzhavino, edge of deciduous forest, sweeping, 25.05.2021 — 1 ex.

Magdalis (Magdalis) duplicata (Germar, 1819)

Material. Inzhavino, pine forest, interception trap on *Pinus sylvestris*, 18.06.2021 — 1 ex.

Discussion

Thus, the beetle fauna of the Voroninsky Nature Reserve has been supplemented with 73 species. Taking into account the new data, the Coleoptera fauna of the Voroninsky Nature Reserve boasts 1,046 species. Widespread in the European part of Russia (Orlova-Bienkowskaja 2019), *Oryzaephilus surinamensis* (Linnaeus, 1758), an alien species from the family Silvanidae, was recorded in the reserve for the first time. This is the ninth alien species recorded here (Sergeeva 2023b).

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