

РОССИЙСКАЯ АКАДЕМИЯ НАУК
Южный научный центр

RUSSIAN ACADEMY OF SCIENCES
Southern Scientific Centre



Кавказский Энтомологический Бюллетень

CAUCASIAN ENTOMOLOGICAL BULLETIN

Том 20. Вып. 2

Vol. 20. Iss. 2



Ростов-на-Дону
2024

The first record of *Biblopectus spinosus* Raffray, 1914 (Coleoptera: Staphylinidae: Pselaphinae) in Russia

© A.S. Sazhnev^{1, 2, 3}, A.N. Volodchenko⁴

¹Papanin Institute for Biology of Inland Waters of the Russian Academy of Sciences, Borok village, Nekouzskiy District, Yaroslavl Region 152742 Russia. E-mail: sazh@list.ru

²Cherepovets State University, Lunacharskiy av., 5, Cherepovets, Vologda Region 162600 Russia

³Joint Directorate of the Mordovia State Nature Reserve and National Park Smolny, Krasnaya str., 30, Saransk, Republic of Mordovia 430005 Russia

⁴Balashov Institute (branch) of the Saratov National Research State University named after N.G. Chernyshevskiy, Karl Marks str., 29, Balashov, Saratov Region 412309 Russia. E-mail: kimixla@mail.ru

Abstract. A reliable record of the species *Biblopectus spinosus* Raffray, 1914 (Coleoptera: Staphylinidae: Pselaphinae) is presented for the territory of Russia for the first time. Thus, records of *B. spinosus* in Saratov Region of Russia are the easternmost in the species range. A photo of the aedeagus is provided. With this new finding, the genus *Biblopectus* Reitter, 1881 is now represented in the fauna of Russia by five species, for all of which drawings of the aedeagi are presented for an express identification.

Key words: rove beetles, Pselaphinae, European part of Russia, Saratov Region.

Первая находка *Biblopectus spinosus* Raffray, 1914 (Coleoptera: Staphylinidae: Pselaphinae) в России

© А.С. Сажнев^{1, 2, 3}, А.Н. Володченко⁴

¹Институт биологии внутренних вод им. И.Д. Папанина Российской академии наук, пос. Борок, Некоузский район, Ярославская область 152742 Россия. E-mail: sazh@list.ru

²Череповецкий государственный университет, пр. Луначарского, 5, Череповец, Вологодская область 162600 Россия

³Объединенная дирекция Мордовского государственного природного заповедника и национального парка «Смольный», ул. Красная, 30, Саранск, Республика Мордовия 430005 Россия

⁴Балашовский институт (филиал) Саратовского национального исследовательского государственного университета им. Н.Г. Чернышевского, ул. Карла Маркса, 29, Балашов, Саратовская область 412309 Россия

Резюме. Впервые на территории России сделана достоверная находка *Biblopectus spinosus* Raffray, 1914 (Coleoptera: Staphylinidae: Pselaphinae). Таким образом, в Саратовской области проходит восточная граница ареала вида. Приведена фотография эдеагуса. Род *Biblopectus* Reitter, 1881 в фауне России теперь включает пять видов. Представлены рисунки эдеагусов этих видов для их экспресс-идентификации.

Ключевые слова: коротконадкрылые жуки, ощупники, европейская часть России, Саратовская область.

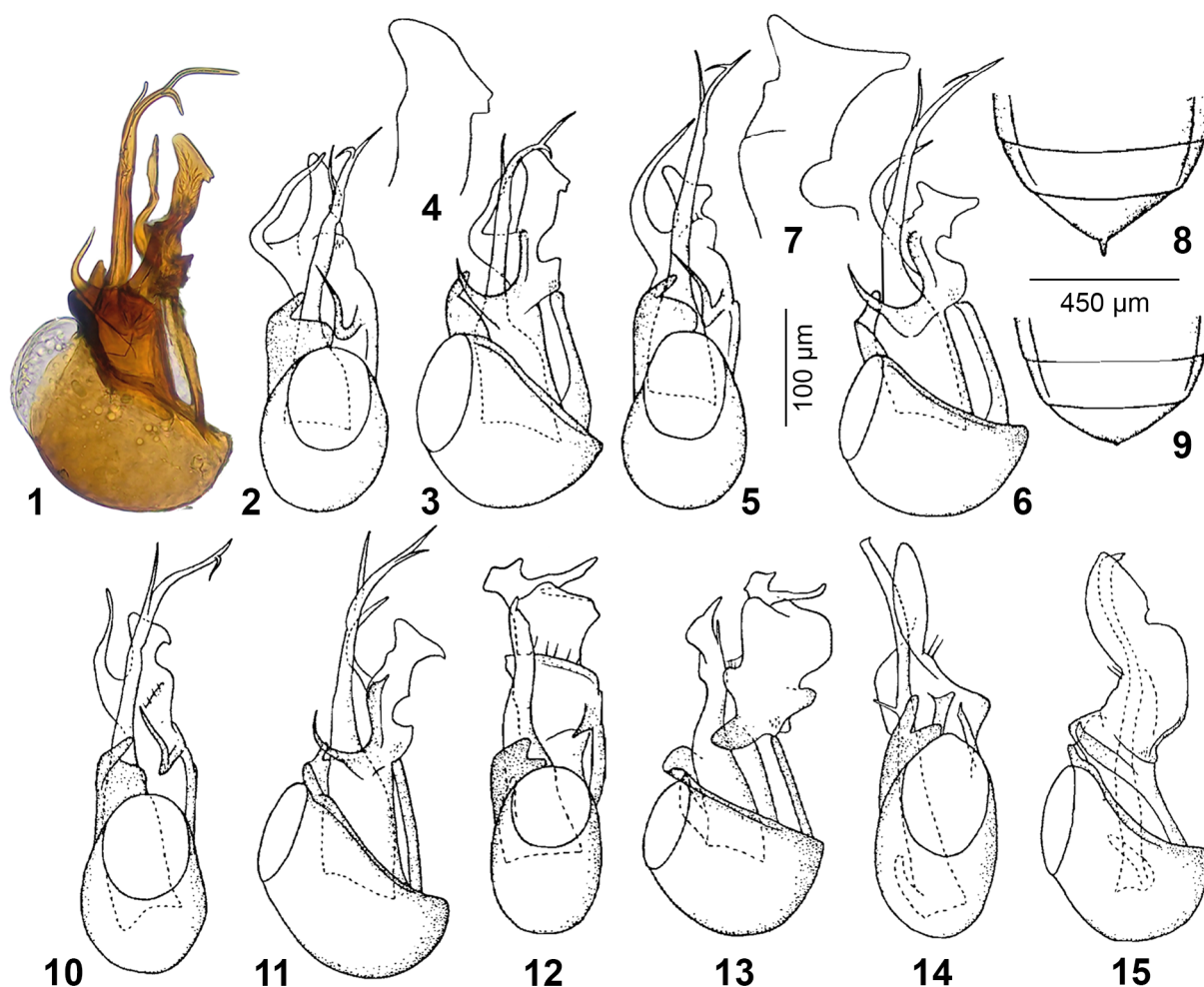
The subfamily Pselaphinae Latreille, 1802 (Coleoptera: Staphylinidae) comprises over 9000 species [Gusarov, 2018] and it is distributed everywhere except Antarctica and some Pacific islands [Thayer, 2016]. These beetles are usually small (body length 0.5–6 mm) and are found in damp habitats, e.g., edges of water bodies and mires, in moss, rotten wood and leaf litter, under bark of dead trees etc., where they prey on oribatid mites, nematodes, collembolans and similar organisms or, in rare cases, feed on dead arthropods. Some species of Pselaphinae are inquilines of ants (the myrmecophilous behavior) that feed on host brood (including direct predation and trophallaxis) and/or are fed by hosts [Thayer, 2016].

The genus *Biblopectus* Reitter, 1881 currently holds 66 species worldwide [Newton, 2021]. Thirty-five species of the genus are known from the Palearctic [Löbl, Besuchet, 2015], of which four species have been reported for Russia [Besuchet, 1955; Kurbatov, 2008; Shavrin, 2014; Löbl, Besuchet, 2015]: *B. ambiguus* (Reichenbach, 1816) (European Russia, southeastern Siberia), *B. obtusus* Guillebeau, 1888 (south of the European Russia), *B. perroti* Besuchet, 1955 (the North Caucasus) and *B. pusillus* Denny, 1825 (southwestern Russia).

Biblopectus spinosus Raffray, 1914 is widespread all over Europe, where it was recorded from more than twenty countries, and it is known from Turkey [Löbl, Besuchet, 2015; Krivosheyev, 2020]. It was also recorded from Iran, but that record [Samin et al., 2011] needs clarification.

It was very likely that *B. spinosus* occurs in Russia. Moreover, there were records of females with a characteristic spicule on the apex of the last tergite from Smolensk and Rostov regions (personal communication of S.A. Kurbatov), but in the absence of males it was not possible to be certain that these specimens belonged to *B. spinosus* (personal communication of S.A. Kurbatov). Here we present the first evidence for the occurrence of *B. spinosus* in Russia, bringing the total number of species of the genus *Biblopectus* that occur in Russia to five.

The photograph of the aedeagus was taken by A.S. Sazhnev using an Olympus DP23 6Mpx digital camera mounted on an Olympus CX43 compound microscope. The pictures were processed in Helicon Focus 7.7.4 and Sketchbook programs. The material examined is deposited in the Papanin Institute for Biology of Inland Waters of the Russian Academy of Sciences (Borok, Yaroslavl Region, Russia).



Figs 1–15. Male genitalia, aedeagi and female abdominal apex of *Biblopectus* spp. (2–15 – after Besuchet [1955] with changes).

1–4, 8 – *B. spinosus*: 1 – genitalia of male from Saratov Region (Russia); 2 – aedeagus, dorsal view, 3 – aedeagus, lateral view, 4 – apex of left lateral process, 8 – female abdominal apex; 5–7, 9 – *B. ambiguus*: 5 – aedeagus, dorsal view, 6 – aedeagus, lateral view, 7 – apex of left lateral process, 9 – female abdominal apex; 10–11 – *B. perroti*: 10 – aedeagus, dorsal view, 11 – aedeagus, lateral view; 12–13 – *B. obtusus*: 12 – aedeagus, dorsal view, 13 – aedeagus, lateral view; 14–15 – *B. pusillus*: 14 – aedeagus, dorsal view, 15 – aedeagus, lateral view. Scale bar 100 µm for all figures except Figs 8–9.

Рис. 1–15. Гениталии самца, эдеагусы и вершины брюшка самок видов рода *Biblopectus* (2–15 – по [Besuchet, 1955] с изменениями).

1–4, 8 – *B. spinosus*: 1 – гениталии самца из Саратовской области; 2 – эдеагус, вид сверху, 3 – эдеагус, вид сбоку, 4 – вершина левого латерального отростка, 8 – вершина брюшка самки; 5–7, 9 – *B. ambiguus*: 5 – эдеагус, вид сверху, 6 – эдеагус, вид сбоку, 7 – вершина левого латерального отростка, 9 – вершина брюшка самки; 10–11 – *B. perroti*: 10 – эдеагус, вид сверху, 11 – эдеагус, вид сбоку; 12–13 – *B. obtusus*: 12 – эдеагус, вид сверху, 13 – эдеагус, вид сбоку; 14–15 – *B. pusillus*: 14 – эдеагус, вид сверху, 15 – эдеагус, вид сбоку. Масштабная линейка 100 µm для всех рисунков, кроме 8–9.

Biblopectus (Biblopectus) spinosus Raffray, 1914
(Figs 1–4, 8)

Material. 1♂, Russia, Saratov Region, Novye Burasy Distr., Burasy settlement, Mokhovoe mire, 52°10'57.2"N / 46°09'50.8"E, in Sphagnum sp., ecollector, 12.09.2020 (A.S. Sazhnev); 1♂, Russia, Saratov Region, Balashov Distr., 1.5 km N of Balashov, 51°34'19.5"N / 43°08'53.9"E, floodplain forest, 14.07.2023 (A.N. Volodchenko).

Notes. The most complete treatment of the genus *Biblopectus* within the Palaearctic Region is the paper of Besuchet [1955]. Since the exact determination of species of the genus is possible mainly based on aedeagi, below we present the images of the aedeagi (express key) of all five species known for Russia (Figs 2–15).

The species *B. spinosus* differs from all other species recorded in Russia by the shape of the aedeagus. From two of them, *B. ambiguus* and *B. perroti*, which belong to the same *ambiguus*-group, it differs mainly in the shape of the left

lateral (Figs 4, 7) and ventral processes of the aedeagus, and the structure of the median lobe. In females of *B. spinosus*, the pygidium is triangular, extended into a sharp long tooth at the end (Fig. 8), whereas in females of *B. ambiguus* (the most common species in European Russia), the pygidium is trapezoidal, with a slightly rounded apical margin, forming an angle in the middle, or with a small tooth (Fig. 9).

Acknowledgements

The authors are sincerely grateful to S.A. Kurbatov (All-Russian Plant Quarantine Centre, Bykovo, Moscow Region, Russia) for consultation and useful advice and reviewers for valuable comments and corrections.

The work of A.S. Sazhnev was funded by the Russian Science Foundation (project No. 22-14-00026).

References

- Besuchet C. 1955. Monographie des *Biblopectus* et *Pseudoplectus* paléarctiques (Col. Pselaphidae). *Mitteilungen der Schweizerischen Entomologischen Gesellschaft*. 28(2): 153–209.
- Gusarov V.I. 2018. Phylogeny of the family Staphylinidae based on molecular data: a review. *In: Biology of Rove Beetles (Staphylinidae). Life History, Evolution, Ecology and Distribution*. Springer: Cham: 7–25. DOI: 10.1007/978-3-319-70257-5_2
- Krivosheyev R.E. 2020. New records of the short-winged mold beetles (Coleoptera: Staphylinidae: Pselaphinae) from the Chornomorskiy Biosphere Reserve. *Ukrainska Entomofaunistyka*. 11(2): 3–5. DOI: 10.5281/zenodo.4008480
- Kurbatov S.A. 2008. List of pselaphid beetles (Pselaphidae) of Russia and countries of the former Soviet Union. *Beetles (Coleoptera) and coleopterists*. Available at: <https://www.zin.ru/animalia/coleoptera/eng/incops1.htm> (last updated 15 November 2008).
- Löbl I., Besuchet C. 2015. Subfamily Pselaphinae Latreille, 1802. *In: Catalogue of Palearctic Coleoptera*. Vol. 2/1. Revised and updated version. Hydrophiloidea – Staphyloidea. Leiden, Boston: Brill: 360–453.
- Newton A.F. 2021. StaphBase. *Catalogue of Life*. Available at: <https://www.catalogueoflife.org/data/dataset/1204> (accessed 10 June 2024). DOI: 10.48580/dg9ld-3gk
- Samin N., Zhou H., Imani S. 2011. Iranian rove beetles (Coleoptera: Staphylinidae). *Amurian Zoological Journal*. 3(2): 128–162.
- Shavrin A.V. 2014. List of Staphylinidae fauna of Russia. *Beetles (Coleoptera) and coleopterists*. Available at: https://www.zin.ru/animalia/coleoptera/eng/staph_ru.htm (last updated 28 August 2014).
- Thayer M.K. 2016. 14.7 Staphylinidae Latreille, 1802. *In: Handbook of Zoology. Arthropoda: Insecta. Coleoptera, Beetles*. Vol. 1: Morphology and Systematics. Berlin, Boston: De Gruyter: 393–442.

Received / Поступила: 17.05.2024

Accepted / Принята: 2.07.2024

Published online / Опубликована онлайн: 9.10.2024