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First Record of *Sericoderus brevicornis* Matthews, 1890 (Coleoptera: Corylophidae) from Russia

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Abstract. One species of adventive beetle *Sericoderus brevicornis* Matthews, 1890 (Corylophidae) has been recorded in the Volga Region and in Russia for the first time. The main differences from the closely related species Palearctic *Sericoderus lateralis* Gyllenhal, 1827 are illustrated.

Keywords: invasion, distribution, range, Volga Region, Saratov Region, Yaroslavl Region

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Первая находка *Sericoderus brevicornis* Matthews, 1890 (Coleoptera: Corylophidae) из России

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Аннотация. Адвентивный вид жесткокрылых, *Sericoderus brevicornis* Matthews, 1890 из семейства Corylophidae, впервые отмечен для Поволжья и России. Этот вид был описан из Австралии (нативный ареал), но в последние десятилетия распространился по Европе. В статье проиллюстрированы основные отличия от близкородственного вида *Sericoderus lateralis* Gyllenhal, 1827, обитающего в Палеарктике.

Ключевые слова: ареал, инвазия, распространение, Поволжье, Саратовская область, Ярославская область

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Introduction

During field studies in European Russia in 2024, the author collected one coleopteran species from the Corylophidae family (Coleoptera: Cucujiformia), which is adventive to Russia and had not been reported from the country before.

The Corylophidae family includes about 26 genera and at least 200 described species [Ślipiński et al., 2011] known as minute hooded beetles. Five species of the genus *Sericoderus* are known from the Palaearctic [Bowstead, 1999, 2007; Ślipiński et al., 2011]: *Sericoderus brevicornis* Matthews, 1890 (Australia, New Zealand, introduced to the Holarctic); *S. pecirkanus* Reitter, 1908 (southern Europe, the Middle East, North Africa); *S. castaneus* Reitter, 1877 and *S. pallidus* Reitter, 1878 (both from Japan), and cosmopolitan (except Australia) species *S. lateralis* Gyllenhal, 1827. The Russian fauna of Corylophidae has not been revised, but includes over 20 species [Bowstead, 2007; Kovalev, 2016], from the genus *Sericoderus* only one species *S. lateralis* is known.

Most Corylophidae, both larvae and adults, feed on the spores and hyphae of moulds and other microfungi (predominantly Ascomycota and Deuteromycota) and are therefore commonly found on and under bark and leaf surfaces and in various accumulations of decaying vegetation such as leaf litter, haystacks, cut grass heaps, root masses, and dead twigs and branches [Bowstead, 1999; Ślipiński et al., 2011].

Material and Methods

Two males of *Sericoderus brevicornis* Matthews, 1890 were collected in the summer of 2024 from Saratov and Yaroslavl Regions. All specimens were collected at light (fluorescent and ultraviolet (UV) lamps).

The genital samples were clarified in lactic acid for several days and, after removing excess membranes and tissues with dissecting needles, they were transferred to a clean portion of lactic acid for photography.

The photographs were made using a Leica MC170 HD digital camera mounted on a Leica M165C stereomicroscope and an Olympus DP23 6Mpx digital camera mounted on an Olympus CX43 compound microscope. The photos were processed and combined in Helicon Focus 7.7.4 and Zerene Stacker 1.04 software. The images were created with Inkscape software.

GPS coordinates are taken according to Google Maps.

All the captured specimens are deposited in the collection of Papanin Institute for Biology of Inland Waters, Russian Academy of Sciences, Borok, Yaroslavl Region, Russia (IBIW).

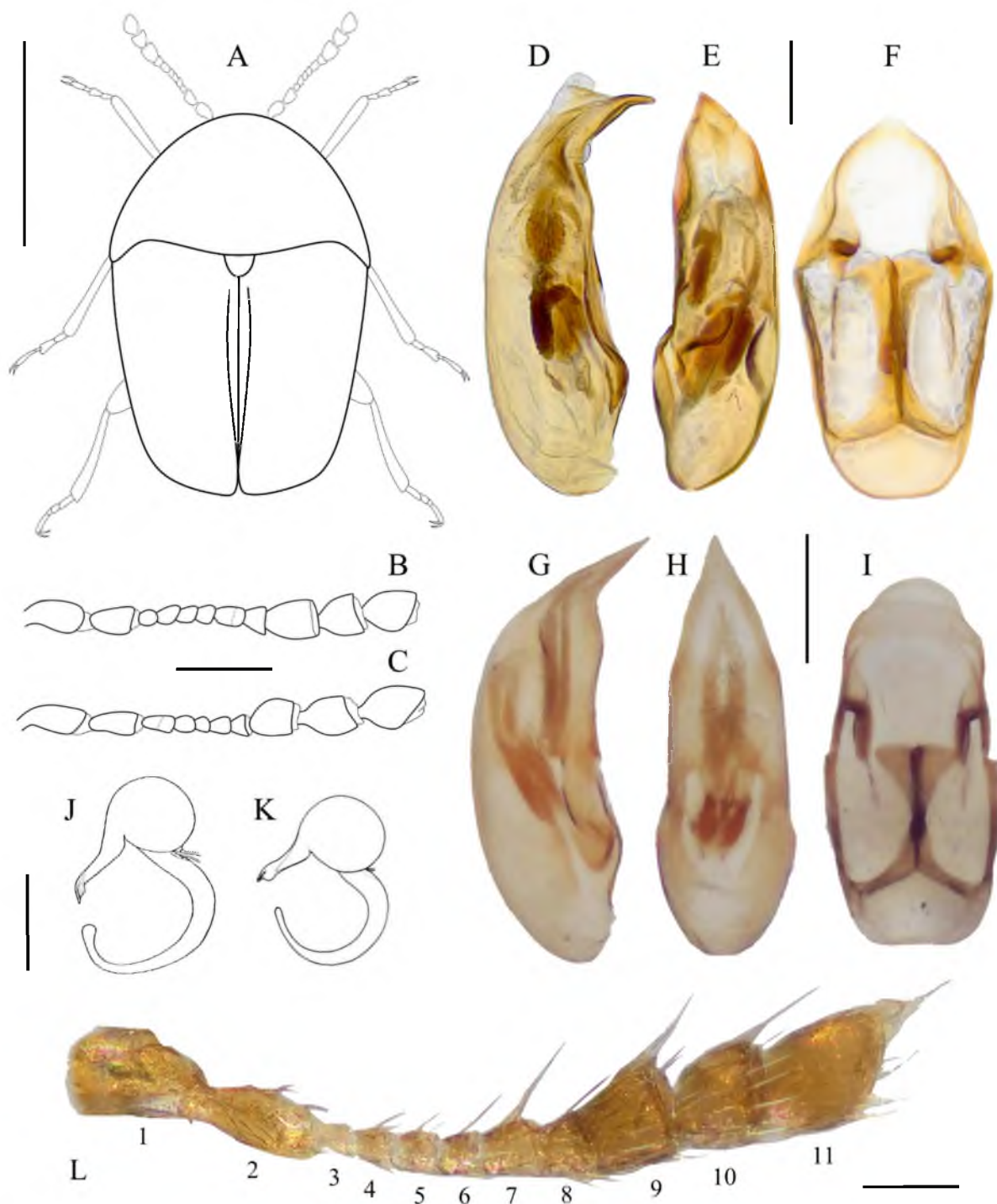
Results and Discussion

Family CORYLOPHIDAE LeConte, 1852

Sericoderus brevicornis Matthews, 1890 (see Figure A–B, D–F, J).

Material examined. Russia: Saratov Region, Saratov, 51°33'40.4"N 45°59'52.5"E, at light, 04.06.2024, 1♂, A.S. Sazhnev leg. (IBIW); Yaroslavl Region, Borok vicinity, 58°03'42.7"N 38°13'52.6"E, at UV-light, 19.06.2024–20.06.2024, 1♂, A.S. Sazhnev leg. (IBIW).

The species *S. brevicornis* was described from Australia [Matthews, 1890, 1899]. It is reported to have spread in recent decades. It was recorded on kiwi fruit (*Actinidia chinensis*) in New Zealand in 1995, and was redescribed [Bowstead, 2002]. Now this adventive species is also known from the USA (California) and Europe [Telfer, 2012 et al.].



Morphological features of two similar species of the genus *Sericoderus*:

S. brevicornis (A – habitus, orig.; B, L – male antenna, orig.; D–E – penis, lateral and ventral view, orig.; F – tegmen, dorsal view, orig.; J – spermatheca [by: Bowstead, 1999]; *S. lateralis* (C – male antenna, orig.; G–H – penis, lateral and ventral view [by: Lompe, 2021]; I – tegmen, dorsal view [by: Lompe, 2021]; K – spermatheca [by: Bowstead, 2002]); scale bars – 0.5 mm (for A), 0.05 mm (for L) and 0.1 mm (for all other pictures)

Морфологические признаки двух близких видов рода *Sericoderus*:

S. brevicornis (A – габитус, ориг.; B, L – антенна самца, ориг.; D–E – пенис, сбоку и снизу, ориг.; F – тегмен сверху, ориг.; J – сперматека [по: Bowstead, 1999]) и *S. lateralis* (C – антенна самца, ориг.; G–H – пенис, сбоку и снизу [по: Lompe, 2021]; I – тегмен сверху [по: Lompe, 2021]; K – сперматека [по: Bowstead, 2002]); шкала – 0,5 мм (для A), 0,05 мм (для L) и 0,1 мм (для других изображений)

Apparently, in 2004 *S. brevicornis* was recorded for the first time in Europe (in England [Telfer, 2012]), where it is now known from the Czech Republic, Finland, France, Germany, Great Britain, Lithuania, and Monaco [Ponel et al., 2011; Telfer, 2012; Alexander, 2013; Ponel, Perez, 2014; Chayhills, 2020]. This species is listed among "Alien terrestrial arthropods of Europe" [Roques et al., 2010; Háva, 2022].

This is the first record of this species in Russia and the Volga Region.

Previously, only one invasive species of Corylophidae was known for Russia – *Arthrolips fasciata* (Erichson, 1842) [Kovalev, 2016].

The *Sericoderus brevicornis* differs from the closely related species *Sericoderus lateralis* in several morphological features and structure of the aedeagus and the spermatheca.

The key to two similar species of *Sericoderus* (by M.G. Telfer [2012] with modifications):

- 1 Antennae 11-segmented (see Figure B, L). With a small tubercle on the midline of the metasternum. Aedeagus (see Figure D–F)..... *S. brevicornis*
- Antennae 10-segmented (see Figure C), 3 and 4 segments fused. No tubercle on the midline of the metasternum..... 2
- 2 Aedeagus (see Figure H–J)..... *S. lateralis*
- Spermatheca (see Figure J–K)..... 3
- 3 Gland duct lobe much longer, more horseshoe-shaped, encircling an area greater than the bulb (see Figure J). Gland duct lobe often with a marked preapical constriction. Sperm duct just visible at $\times 25$ *S. brevicornis*
- Gland duct lobe much shorter, more circular, encircling an area more equal to the bulb (see Figure K). Gland duct lobe without a marked preapical constriction. Sperm duct very fine, barely visible at $\times 75$ *S. lateralis*

The species *Sericoderus* records with *Mucor* (Zygomycota) and *Penicillium* (Ascomycota) [Hinton 1945; Peyerimhoff, 1921]. The species *Sericoderus brevicornis* is associated with various decaying plant and fungal matter, and, most probably, could be imported with planting material. Although it does not cause significant economic damage, its potential to invade native ecosystems may warrant further study. For example, the native species *Sericoderus lateralis* now appears to be greatly outnumbered, if not completely replaced, by *S. brevicornis*, at least in southeastern England [Telfer, 2012].

The species *S. brevicornis* is probably more widespread in the European Russia, and any recent faunistic records of *S. lateralis* need to be carefully verified.

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