NEW DISCOVERIES OF DARKLING BEETLE (COLEOPTERA, TENEBRIONIDAE) SPECIES IN LITHUANIA

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Introduction

Darkling beetles (Coleoptera, Tenebrionidae) are represented by approximately 20,000 described worldwide species (Bousquet *et al*., 2018). The highest species composition of darkling beetles is in arid and semiarid ecosystems. Tenebrionidae are conspicuous component of desert fauna worldwide (Ragionieri *et al*., 2023). Most Darkling beetle species are thermophilic insects; therefore, in temperate climate regions, the species diversity of Darkling beetles is relatively poor.

Currently only 51 Darkling beetle species are known in Lithuania's fauna. However, about 20 species are still expected to be found in Lithuania; these species have been found in neighbouring countries: Poland, Latvia and Belarus, as well as in Denmark and Sweden (Tamutis *et al*., 2011, 2019; Ferenca *et al*., 2011, 2016, 2018).

This publication provides information on four species of darkling beetles, new for Lithuanian fauna.

Material and Methods

Specimens of *Cyaneus angustus* were collected by Romas Ferenca (R.F.) and Povilas Mulerčikas (P.M.) using pheromone trap baiting to *Ips typographus* and attracted by light using a 250 W mercury blended lamp. Specimens of *Gnathocerus cornutus* were found by Liutautras Grigaliūnas (L.G.) in a bread bakery. Two specimens of *Diaclina fagi* were photographed by Sigutis Obelevičius (S.O.) and uploaded to the iNaturalist (https://www.inaturalist.org/). Specimen of *Allecula morio* was collected and photographed by Gintautas Steiblys (G.S.) and uploaded to the Macrogamta (https://www.macrogamta.lt).

All the specimens except *Diaclina fagi* are deposited in the Kaunas Tadas Ivanauskas Museum of Zoology. Beetles were identified using keys (Burakowski, 1976; Kaszab, 1969; Novak *et al.*, 2011).

List of localities

Locality	Administrative district	Coordinates (LAT, LONG)
Balbieriškio miškas f.	Prienai district	54.51705, 23.82775
Marijampolė	Marijampolė district	54.56532, 23.37640
Mickūnų miškas f.	Vilnius district	54.68483, 25.57530
Tervydoniai	Šakiai district	55.02704, 23.44697
Traupis (1)	Anykščiai district	55.51365, 24.74785
Traupis (2)	Anykščiai district	55.51390, 24.74816

List of species

***Allecula morio* (Fabricius, 1787)** (Fig. 1)

Balbieriškio miškas f., 05 07 2020, 1 spec. (G.S.)

Comments. This species is distributed in Europe. The distribution range goes from France to Ukraine (Novák, 2020); its northern border reaches Sweden (Värmland) and southern Finland (Lundberg & Gustafsson, 1995; Rassi *et al*., 2015), to the South it goes to Italy, Croatia, Bosnia and Herzegovina, Macedonia, Greece (Novák, 2020; Vendl *et al*., 2021). The nearest discoveries of this species are from Latvia (Telnov, 2004), Belarus (Aleksandrowich *et al*., 2023) and Poland (Iwan *et al*., 2010). The development of this species takes place in the rotten wood of hollow deciduous trees, the adult appears in July-August (Burakowski, 1976).

***Cynaeus angustus* (LeConte, 1851)** (Fig. 2)

Mickūnų miškas f., 31 05 2023, coniferous forest, pheromone trap for *Ips typographus*, 1♂ (P.M.); Tervydoniai, 03 08 2024, attracted by light trap 1♀ (R.F.).

Comments. This is an American species, first introduced to Europe in 1964 in Ireland (Bousquet *et al.,* 2018; Pintilioaie & Teodorescu, 2021). Currently, in Europe, this species is known from Bulgaria, Czech Republic, Estonia, Finland, France, Germany, Hungary, Latvia, Romania, Sweden, Ukraine (Andersson & Ferrer, 1989; Löbl *et al*., 2008*;* Ruta *et al*., 2017; Pintilioaie & Teodorescu, 2021; Sivilov & Hristova, 2022). In its native habitats in North America, *C. angustus* feeds on decaying plant remains, especially *Agave* sp. and *Yucca* sp. However in Europe, this species was found to feed on stored products, especially corn also wheat, soybeans, oats and dried fruits, also is found under plant debris, in compost, and under the bark of various deciduous and coniferous trees: *Ulmus* sp., *Fagus* sp., *Populus* sp., *Pinus* sp. (Soldati & Godinat, 2013; Pintilioaie & Teodorescu, 2021).

***Diaclina fagi* (Panzer, 1799)** (Fig. 3)

Traupis (1), 11 06 2020, 1 spec.; Traupis (2), 08 06 2021, 1 spec. (S.O.).

Comments. This species is widespread in Europe. The distribution range goes from France to European Russia (Löbl *et al*., 2008; Egorov *et al*., 2020); its northern border reaches southern Finland (FinBIF, 2024), and to the South, it goes to Italy and Greece. It is also known in Cyprus, Georgia, Israel and Turkey (Löbl *et al*., 2008). The nearest discoveries of this species are from Belarus (Aleksandrowich *et al*., 2023) and Poland (Klejdysz, 2011). *D. fagi* lives on fungi that grow on dead wood but also has other food sources and is, therefore, a so-called facultative xylomycetophile species. This species is commonly found on wood and is affected by white rot. It occurs on various deciduous trees: *Fagus* sp*., Populus* sp*., Quercus* sp*., Ulmus* sp*., Pyrus* sp*., Tilia* sp*.,*

Fraxinus sp., *Aesculus* sp. *D. fagi* not only lives on dead trees and in fungi on trees, but has also been found on all kinds of dead, mouldy or rotting plant material: rotting vegetables or agricultural products (rapeseed, maize, wheat, mouldy straw), rotting leaves, manure (Heijerman, 2020).

Fig. 1. *Allecula morio,* Photo by R. Ferenca

A B

Fig. 2. *Cynaeus angustus*: A. habitus, B. ovipositor dorsal view. Photos by K. Martinaitis

***Gnatocerus cornutus* (Fabricius, 1798)** (Fig. 4)

Marijampolė, 27 03 2014, 1♂; 20 06 2014, 1♂ (L.G.).

Comments. This is a first actual faunistic data of this species in Lithuania, though it was noted for Lithuania in some previous catalogues of Coleoptera (Lundberg & Gustafsson, 1995; Löbl *et al*., 2008). This cosmopolitan species is widely distributed in the world, found throughout Europe, also known in North Africa, Asia (Löbl *et al*., 2008; Kimura *et al*., 2016), and North America (Demuth *et al.*, 2012). The nearest discoveries of this species are from Latvia (Telnov *et al.*, 2020), Belarus (Aleksandrowich *et al*., 2023) and Poland (Sienkiewicz, 1996). This species is a stored product pest, distributed worldwide. *G. cornutus* likely has a tropical origin and it is commonly found in warmer parts of the world. In warm, tropical regions this species

is often found in cassava root and cotton. In the colder temperate climate regions it mainly prefers grains, yeasts and flours. In total, *G. cornutus* is adapted to feed on more than 60 various stored agricultural products (Vendl *et al*., 2018).

Fig. 3. *Diaclina fagi,* Photo by S. Obelevičius

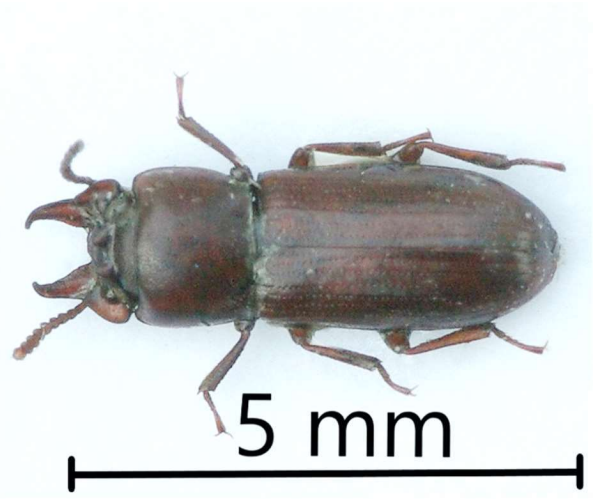

Fig. 4. *Gnatocerus cornutus,* Photo by R. Ferenca

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Naujos Lietuvos faunai juodvabalių (Coleoptera: Tenebrionidae) rūšys

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Santrauka

Publikacijoje pateikiami duomenys apie 4 juodvabalių (Coleoptera: Tenebrionidae) rūšis: *Allecula morio, Cynaeus angustus, Diaclina fagi* ir *Gnatocerus cornutus.* Rūšys *A. morio*, *C. angustus* ir *D. fagi* – naujos Lietuvos faunai, o rūšis *G. cornutus* Lietuvai nurodoma užsienio autorių publikacijose, tačiau nepateikiant tikslesnių radimo duomenų. Šioje publikacijoje pirmą kartą nurodomi tikslūs *G. cornutus* radimo Lietuvoje duomenys.

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