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THE FIRST RECORD OF *GYROPHAENA MUNSTERI* (COLEOPTERA, STAPHYLINIDAE, ALEOCHARINAE) IN UKRAINE

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Gyrophaena munsteri A. Strand, 1935 (Coleoptera, Staphylinidae, Aleocharinae, Homalotini Gyrophaenina) is a peculiar rove beetle eurytopic forest mycetophilous species found Europe, as well as south Russia, Georgia, Turkey, South Siberia, and Tajikistan. It occurs mainly in foothills and in mountainous areas. Larvae and adults are obligate mycobionts, occurring in carpophores of Chroogomphus rutilus and Inocybe geophylla, feeding on mature fungal spores. It was recently found to occur in Ukraine in the Carpathian National Nature Park, Yablunytsia Nature Conservation Research Department, Yablunytsia village, Nadvirna district, Ivano-Frankivsk region. Data on distribution and bionomics are summarized. The obtained results can be used for solving a number of theoretical issues of faunistics, as well as for the preparation of the fauna cadaster of Ukraine, analysis of species distribution, and prediction of the effects of human activity on natural ecosystems of the region.
Key words: *Coleoptera, Staphylinidae, Aleocharinae, Gyrophaena munsteri, Ukraine, fauna, first record.*
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Перша знахідка Gyrophaena munsteri (Coleoptera, Staphylinidae, Aleocharinae) в Україні
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Gyrophaena munsteri A. Strand, 1935 (Coleoptera, Staphylinidae, Aleocharinae, Homalotini Gyrophaenina) – це своєрідний евритопний лісовий міцетофільний вид, який поширений в Європі, на півдні Росії, в Грузії, Туреччині, Південному Сибіру і Таджикистані. Зустрічається переважно в передгір'ях та гірських районах. Личинки та імаго є облігатними мікобіонтами, що зустрічаються в карпофорах Chroogomphus rutilus та Inocybe geophylla, харчуючись зрілими спорами грибів. Нещодавно його було виявлено в Україні у Карпатському національному природному парку, в Яблуницькому ПНДВ, с. Яблуниця, Надвірнянський район, Івано-Франківська область. Узагальнено дані про поширення та біономію. Отримані результати можуть бути використані для вирішення низки теоретичних питань фауністики, для підготовки кадастру фауни України, аналізу поширення видів, та прогнозування впливу діяльності людини на природні екосистеми регіону.
Ключові слова: *жуки-стафілініди, Aleocharinae, Gyrophaena munsteri, фауна, перша знахідка.*

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Introduction

The rove beetle genus *Gyrophaena* Mannerheim, 1830, is a widespread genus, which in terms of the combination of morphological and biological features belongs to the tribe Homalotini Heer, 1839, of the subtribe Gyrophaenina Kraatz, 1856, of the subfamily Aleocharinae Fleming, 1821, of the family Staphylinidae Latreille, 1802 (Newton, 2022).

The genus *Gyrophaena* includes 720 described species and 2 subspecies in the world fauna (Newton, 2022). Of these, 193 species are known from the Palaearctic Region (Schülke, Smetana, 2015). An analysis of all available collection and literature information on the findings of species of the genus *Gyrophaena* (Glotov, et al., 2011; Enushchenko, Semenov, 2016; Glotov, 2022) has shown that 23 species were known in the fauna of Ukraine, including: *G. affinis* Mannerheim, 1830, *G. bihamata* Thomson, 1867, *G. caucasica* A. Strand, 1939, *G. congrua* Erichson, 1837, *G. fasciata* (Marsham, 1802), *G. gentilis* Erichson, 1839, *G. hanseni* A. Strand, 1946, *G. joyi* Wendeler, 1924, *G. joyioides* Wüsthoff, 1937, *G. lucidula* Erichson, 1837, *G. manca* Erichson, 1839, *G. minima* Erichson, 1837, *G. nana* (Paykull, 1800), *G. nitidula* (Gyllenhal, 1810), *G. orientalis* A. Strand, 1938, *G. poweri* Crotch, 1866, *G. pulchella* Heer, 1839, *G. pseudonana* Strand, 1939, *G. rugipennis* Mulsant et Rey, 1861, *G. williamsi* A. Strand, 1935, *G. boleti* (Linnaeus, 1758), *G. polita* (Gravenhorst, 1802), *G. strictula* Erichson, 1839.

Material and methods

The report is based on the results of observations and collections of Yu. Motruk, V. Diedus, and M. Chumak (CMCH) which were conducted in the coniferous forests of the Carpathian National Nature Park in 2023–2024. The types material is deposited in collection of the Natural History Museum, Oslo, Norway (NHMO) and was examined through the kindness of the curator of collection V. Gusarov. Collecting and processing of the material was carried out according to standard methods of entomological research by means of polytraps (Fig. 1.1).

All traps were set up and operated yearly during the vegetation season from early April to late September (Duelli et al. 1999). The current taxonomic status, nomenclature, and general distribution of the species follow Schülke, Smetana (2015) and Newton (2022). The geographical coordinates of localities and places of collecting are given according to www.google.com/maps/place. Identification to species was carried out using a binocular magnifier MBS-10. If necessary, the mandibles, genitalia, and other parts of the beetles' bodies were dissected and fixed using thin dissecting needles (Kryzhanovsky, Emets 1972). Sometimes the material was clarified by boiling or holding in a 10% NaOH solution. After that, the organs were placed in a fixing solution for long-term storage. Canadian balsam or Euparal was used as a fixative.

Results and discussion

***Gyrophaena munsteri* A. Strand, 1935 (Fig. 2. 1)**

Material examined. Types. Lectotype: Great Britain, Invinhoe England B. S. Williams, des. S. Glotov, 2011. Paralectotypes: Norway, Sundnes, Drangedal, Munster, 2 ex., des. S. Glotov, 2011 (all – NHMO). Non-type. Ukraine, Ivano-Frankivsk region, Nadvirna district, Yablunytsia, Yablunytsia Nature Conservation Research Department, forest blocks 22, forested stand 10, southwest-facing slope, up to h≈1000 m.a.s.l., Carpathian National Nature Park, 48.3533 N, 24.5135, in spruce (*Picea abies*), 80-years-old managed forest (Fig. 1.*1*, *2*), 10.06.2024, 1 ex., Yu. Motruk, V. Diedus, and M. Chumak (CMCH).

Diagnosis. Body length 2.3–2.5 mm. Head brown; pronotum pale brown; elytra yellow or pale brown, with slightly darkened posterior angles; abdomen pale brown, VI-VII abdominal tergites brown; mouthparts, antennae, and legs yellow.

Head strongly transverse, vertex with 6 or more sparse, small, round, distinct punctures on each side; microsculpture dense and distinct. Antennae length:

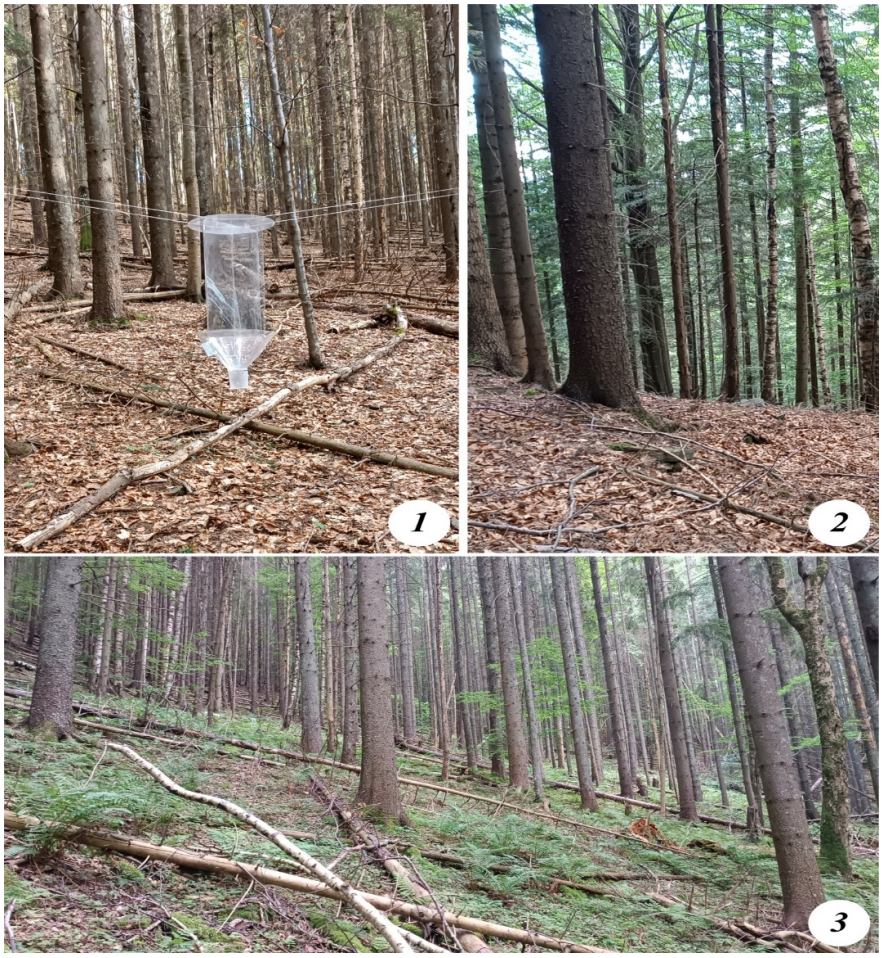

Fig. 1. Collecting method and habitat of *Gyrophaena munsteri* in spruce forest of the Carpathian National Nature Park, Yablunytsia, Ivano-Frankivsk region, Ukraine: *1* – general view of the polytrap; *2, 3* – habitat where the specimens were collected

antennal segment I long, strongly widened towards apex; segment II long, narrower and shorter than segment I; segment III narrower and shorter than segment II; segments IV-X transverse, 1.5–2.0 times as wide as long, segments each, almost parallel-sided.

Pronotum strongly transverse, posterior angles and posterior margin of pronotal disc rounded; in middle and lateral sides of pronotal disc with sparse, scattered, small, rounded punctures, microsculpture dense and distinct.

Elytra with dense and small punctuation; microsculpture dense and distinct; with sparsely distributed fine setae, microsculpture hardly distinct or absent.

Abdomen: abdominal tergites, each, with relatively hardly distinct or absent, small punctuation. Male: posterior margin of tergite VIII with wide incision bordered by 2 short, wide, apically weakly pointed, curved inwards appendages and medially with 2 short and thin appendages (Fig. 2. 2). Aedeagus (Fig. 2. 4). Female: posterior margin of tergite VIII even, distinctly tapering posteriorly (Fig. 2. 3). Spermatheca unknown.

Bionomics. A eurytopic forest mycetophilous species. It occurs mainly in foothills and in mountainous areas. Larvae and adults are obligate mycobionts (Ashe 1984; Newton 1984), occurring in carpophores of *Chroogomphus rutilus* and *Inocybe geophylla* (Horion 1965; Koch 1989), feeding on mature fungal spores (White 1977).

Distribution. Austria, Belgium, Czech Republic, Denmark, Finland, France, Great Britain, Germany, Ireland, Italy, Latvia, Lithuania, Netherlands, Norway, Sweden, Switzerland, Ukraine **(first record)**, as well as south Russia, Georgia, Turkey, South Siberia, and Tajikistan (Strand 1935; Babenko 1991; Assing 2011; Enushchenko, Semenov 2016).

Remarks. It has been recorded from Ukraine on the basis of specimens collected in Huta (Ivano-Frankivsk region) in the first half of the 20th century but its identification needs to be confirmed (Horion 1965). Research into the repository collections in

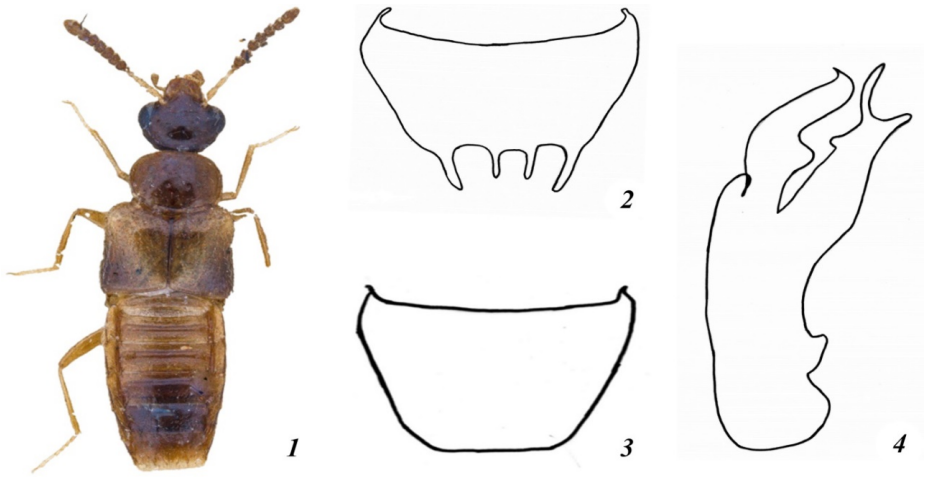

Fig. 2. *Gyrophaena munsteri: 1* – habitus*; 2* – abdominal tergites VIII of the male; *3* – abdominal tergites VIII of the female; *4* – aedeagus

Ivano-Frankivsk, Kharkiv, Lviv, Uzhhorod, and Kyiv did not reveal any specimens from Ukraine (Glotov et al. 2011; Glotov 2022). This is the first confirmed record of *G. munsteri* in the mainland Ukraine since Horion (1965). The latter record was considered unconfirmed (Schülke, Smetana 2015; Newton 2022) and doubtful for almost 60 years.

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