



## A review of the genus *Gyrophaena* Mannerheim 1830 (Coleoptera: Staphylinidae: Aleocharinae: Gyrophaenina) of the Caucasus and adjacent territories

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### Abstract

A review of the genus *Gyrophaena* Mannerheim 1830 of the Caucasus and adjacent territories, with faunistic data for twenty three species is provided. *G. (Phaenogyra) atropatena* Enushchenko, **sp. nov.** of Azerbaijan and Iran is described and illustrated. One new synonymy is established: *G. (s.str.) caucasica* A. Strand 1939 = *G. (s.str.) cultellata* Assing 2009, **syn. nov.** *G. (s.str.) orientalis* A. Strand 1938 and *G. (s.str.) poweri* Crotch 1867 are reported for Caucasus for the first time. Records of *G. (s.str.) congrua* Erichson 1837, *G. (s.str.) joyioides* Wüsthoff 1937, and *G. (s.str.) pulchella* Heer 1839 for

Caucasus are not confirmed by new material. *G.* (s.str.) *caucasica* is recorded for the Republic of Crimea and Rostov Area of Russia for the first time. Additional new Palaearctic records for some species are provided. An illustrated key for all studied species of Caucasus is given.

**Key words:** Coleoptera, Staphylinidae, Aleocharinae, *Gyrophana*, Caucasus, fauna, new species, new synonymy.

## Introduction

The genus *Gyrophana* Mannerheim 1830, with about 720 valid species in the fauna of the world (Leschen & Newton 2015) and 193 species in the Palaearctic Region (Smetana 2004), are obligate mycophages; larvae and adults inhabit only fresh fungi and are common among the first insects to appear on them (Ashe 1984). Members of the nominative subgenus prefer Agaricales and some perennial Polypores; species of *Agaricophaena* Reitter, 1909 and *Phaenogyra* Mulsant & Rey, 1872 are adapted for feeding on hard polypores (White 1977) whereas on gill fungi they are less common.

The first records of *Gyrophana* for Caucasus were published by Kolenati (1846), who recorded *G. lucidula* Erichson, 1839 and described *G. glacialis* from Kazbek as a new species (concerning the taxonomic problems with the latter name see below). Subsequently, several authors have advanced studies of the Caucasian fauna of the genus (Hochhuth 1849; Eppelsheim 1878; Leder 1879; Leder & al. 1886; Reitter 1888; Roubal 1911, 1913; Strand 1939; Boháč 1986; Nikitskiy *et al.* 2008).

In the present paper we provide an annotated list of all the known *Gyrophana* of the Caucasus, including revision of old material of some previous authors (J. Roubal, H. Leder, E. Reitter, V. Motschulsky, J. Boháč and others). The list contains 23 species, including new records for Caucasus and one new species from Azerbaijan and Iran; old records for three species are not confirmed by new material. Additional new Palaearctic records for some species are given. An illustrated key for all *Gyrophana* of the Caucasus (including species not confirmed by new material) is presented.

## Material and methods

The present study is based on the material (more than 7000 specimens) collected in different parts of the Caucasus and adjacent territories, which was collected by authors, as well as on the material from several private and institutional collections.

The material is deposited in the following collections:

cJB	collection of J. Boháč, České Budejovice, Czech Republic
cAP	collection of A. Pütz, Eisenhüttenstadt, Germany
cEKH	collection of E.A. Khachikov, Rostov-na-Donu, Russia
cVS	collection of V.B. Semenov, Moscow, Russia
cIE	collection of I.V. Enushchenko, Irkutsk, Russia
DUBC	Daugavpils University, Institute of Life Sciences and Technologies, Coleopterological Research Centre, Ilgas, Daugavpils District, Latvia (A.V. Shavrin)
HNHM	Hungarian Natural History Museum, Budapest, Hungary (G. Makranczy, O. Merkl)
MAKB	Museum Alexander Koenig, Bonn, Germany (D. Ahrens)
NMPC	National Museum, Prague, Czech Republic (M. Fikáček)
RCPQ	Russian Centre of Plant Quarantine, Bykovo, Moscow Area, Russia (S.A. Kurbatov)
ZIN	Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia (B.A. Korotyaev)
ZMM	Zoological Museum of Moscow University, Moscow, Russia (A.A. Gusakov)
ZMUC	Zoological Museum of Copenhagen University, København, Denmark (A.Yu. Solodovnikov)

All material has been identified by both authors.

The specimens collected from fungi were killed with ethyl acetate. Abdominal tergites and sternites VIII of

dissected specimens were glued on the same plate with the specimen, aedeagi were placed into a drop of Euparal on a celluloid microslide and pinned under the specimens from which they originated.

Morphological studies were carried out using MBS-9 and MicMed-6 microscopes with a digital camera DCM510 (USB2.0) 5M pixels. All the figures were enhanced using Corel Draw 14. All measurements are given in millimeters and taken with a microscope using an ocular micrometer. The fungi inhabited by *Gyrophæna* were preserved in the herbarium according to the standard method (Bondartsev & Singer 1950) and identified by A.N. Petrov (Irkutsk, Russia); the studied herbarium material is deposited in the collection of Dr. Petrov and in V.L. Komarov Botanical Institute RAS (St-Petersburg, Russia).

Labels are separated with a comma; both type and unique labels are cited in single quotes completely (the type and historic labels with vertical strokes to separate different lines of a label). All non-type labels are given in English without indicating the original language. The subgenera are listed in the order from less to more specialized; species are listed in alphabetical order. The species which were not confirmed by a new material are given in square brackets. The distributions are given after Schülke & Smetana (2015) with corrections and additions based on original data provided by various authors. Catalogues and compilations have been used mainly if they include any original data and/or interpretations.

## Results

### *Gyrophæna (Gyrophæna) affinis* Mannerheim, 1830

(Figs. 1–3)

*Gyrophæna affinis* Mannerheim, 1830: 74

*Gyrophæna amabilis* Lacordaire, 1835: 537

*Gyrophæna diversa* Mulsant & Rey, 1870: 153

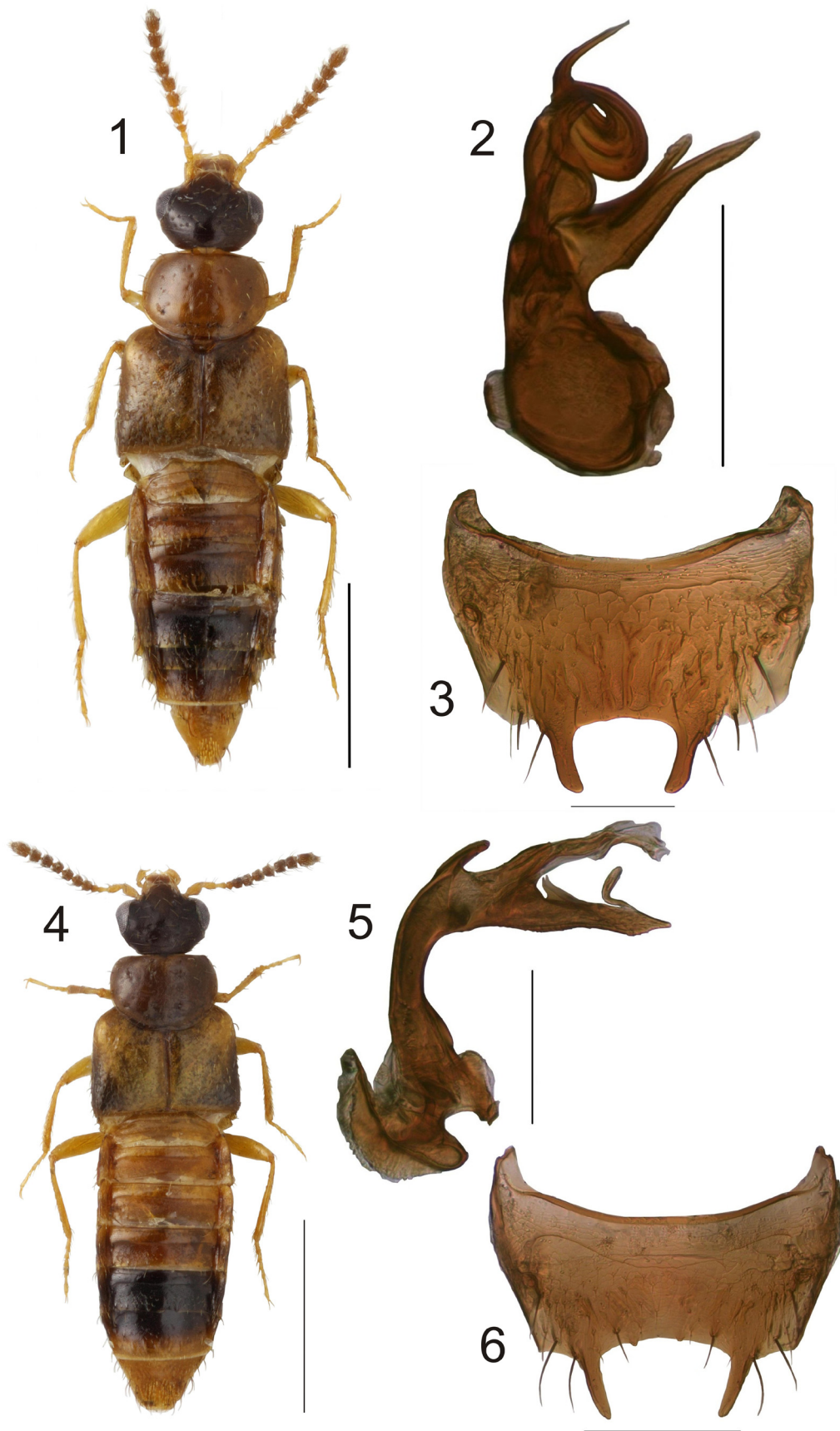
*Gyrophæna inconspicua* Casey, 1906: 299

*Gyrophæna lacustris* Casey, 1906: 299

*Gyrophæna subpunctata* Casey, 1906: 299

*Gyrophæna affinis*: Eppelsheim, 1878: 105; Reitter, 1888: 151; Jacobson, 1909: 533; Roubal, 1911: 13; Eichler, 1930a: 224; Seevers, 1951: 695; Nikitskiy & al., 2008: 111

**Material examined:** **RUSSIA: STAVROPOL TERRITORY:** Predgorniy District: 4 ♂, 3 ♀: Mineral'niye Vody, Beshtau Mountain, 4–17.VIII.1993, E.A. Khachikov leg. (cVS, ZMM); 4 ♀: *ibid.*, 10.VI.1994, E.A. Khachikov leg. (ZMM); **KRASnodAR TERRITORY:** Krymskiy District: 1 ♂, 2 ♀: Krymsk, right side of Adagum River, on *Fomes fomentarius*, 5.X.2011, I.V. Enushchenko leg. (ZMM); 8 ♂, 12 ♀: *ibid.*, on *Lentinus tigrinus*, 24.VII.2013, I.V. Enushchenko leg. (cIE, ZMM); Severskiy District: 3 spec.: Ubinskaya, 22.V.1986, I.A. Ushakov leg. (cVS, ZMM); 19 spec.: *ibid.*, Papai Mountain, 2.VI.1986, I.A. Ushakov leg. (cVS, ZMM); 10 spec.: *ibid.*, Derbiy Mountain, 31.VI.1986, I.A. Ushakov leg. (cVS, ZMM); Apsheronkiy District: 1 ♂: Mezmai, 19–25.VII.1996, E.A. Khachikov leg. (ZMM); Kushchevskiy District: 1 ♂: ca. 6 km NW of Krasnaya Polyana, SE slopes of Achishkho Mountain, N 43°42'23" E 40°09'41", h 1150 m, beech-rhododendron forest, sifting leaf litter, 19.VII.2011, A. Solodovnikov leg. (ZMUC); Adlerskiy District: 2 ♂, 2 ♀: 30 km NNO Adler, lower reaches of Chvizhepse River, 250–800 m, 29.IV.–08.V.2013, S. Kurbatova leg. (RCPQ); Anapskiy District: 1 ♀: Bol'shoi Utrish, 1–5.V.2008, E.A. Khachikov leg. (ZMM); Gelendzhikskiy District: 1 ♀: 7 km W Krinitsa, Tyomnaya Shchel' Gorge 19.IX.2012, E.A. Khachikov leg. (ZMM); Khostinskiy District: 2 ♂: Khosta, 13.VI.1988, V.B. Semenov leg. (cVS); **ADYGEA:** Krasnogvardeiskiy District: 3 spec.: environs of Shturbino, flood-lands of Laba River, 6.VI.2009, V.B. Semenov leg. (cVS); Maikopskiy District: 6 ♂, 2 ♀: 10 km N Guzeripl', Nikel', Sjuk River, 28.VI.1990, Degtyaryov, Beschyotnyi leg. (ZMM); **KARACHAY-CHEKKESSIA:** Karachay District: 15 ♂, 13 ♀: Teberdinskiy Nature Reserve, Teberda, VII.2011, E.A. Khachikov leg. (cEKh, cIE, ZMM); 20 spec.: *ibid.*, Khatipara Mountain, 17.VII.2012, E.A. Khachikov leg. (cIE, cEKh, cZMM); **DAGESTAN:** Gunibskiy District: 5 ♂, 1 ♀: Upper Gunib, 1500–1600 m, *Betula* & *Pinus* forest, 25.VI.1989, S.I. Golovatch leg. (ZMM); 1 ♂: 'Daghestan. Leder. Reitter.' (HNHM); **ABKHAZIA:** Gagra District: 55 spec.: Ritsa Lake, 16.IX.1985, I.A. Ushakov leg. (ZMM); Gudautskiy District: 91 spec.: Bzybskiy Ridge, ca. 2 km N Duripsh, general collecting, 09.IX.1985, I.A. Ushakov leg. (ZMM); Sukhum District: 1 spec.: Pskhu, 750 m, 19.VIII.1986, A.B. Ryvkin leg. (ZMM); 1 ♂: Kelasuri Canyon, 18.IX.1988, I.A. Ushakov leg. (ZMM); **GEORGIA: ZEMO-SVANETI:** 44 spec.: 40 km W Mestiya,



FIGURES 1–6.

Kherkhvashi, 1150 m, 25.VIII.1986, A.B. Ryvkin leg. (ZMM); **SAMTSKHE-JAVAKHETI: Adigenskiy District:** 2 ♂, 1 ♀: 'Caucasus. Abastuman. Leder (Reitter)' (HNHM); **AZERBAIJAN: Lenkoranskiy District:** 1 ♀: Alexeevka, 23.IV.1979, I.M. Vyshinskiy leg. (ZMM); 3 ♂, 2 ♀: Talysh, Girkansky Nature Reserve, 24.VI.1980, S.G. Korolev leg. (ZMM); 1 ♂: Astara Istisu, W Astara, 100 m, 2–6.VI.1996, S.I. Golovatch leg. (ZMM); 1 ♂: Bilyasyar, 800' on Vasharu-Chay River, 16.VII.1932, Znoiko leg. (ZIN); **Lerik District:** 1 ♀: 'Caspi.-M.-Gebiet. Hamarat. Leder (Reitter)' (HNHM); **REGION NOT LOCATED:** 1 ♂: 'Caucasus. Leder Reitter' (HNHM); 1 ♀: 'Kaukas. Leder' (HNHM); 2 ♀: 'Caucasus. Leder' (HNHM).

**Addition material examined: RUSSIA: REPUBLIC OF CRIMEA:** Balaklavskiy District: 1 ♂, 1 ♀: Baidary [Orlinoye], 18.V.1921, V. Kizeritskiy leg. (ZIN); **Alushta:** 9 ♂, 12 ♀: 'Turia, Kos'mo-Damianovskiy mon[astery], 23.6.[19]08, V. Pliginskiy leg. (ZIN)'; 1 ♀: *ibid.*, 20.6.[19]08, V. Pliginskiy leg. (ZIN); 1 ♀: *ibid.*, 18.6.[19]11, V. Pliginskiy leg. (ZIN); 1 ♂: *ibid.*, 17.6.[19]11, V. Pliginskiy, A.M. Djakonov leg. (ZIN); 2 ♂: *ibid.*, 18.6.[19]11, A.M. Djakonov leg. (ZIN); 2 ♂, 2 ♀: Alushta, south bank of Krym, on the road to Tuak [Rybinskoye], 12.VII.1911, A.M. Djakonov leg. (ZIN); 3 ♀: Krym, Tuak [Rybinskoye], 13.VII.1911, D.M. Djakonov leg. (ZIN); **Kirovskiy District:** 2 ♂, 7 ♀: near Agarmysh Mountain, 3.VI.1989, V.A. Kashcheev leg. (ZIN); 6 ♂, 7 ♀: Staryi Krym, mountain forest, 15–16.VIII.2005, R. Cibulskis leg. (DUBC); **VOLGOGRAD AREA:** 4 ♂, 7 ♀: Volgograd, Grigorova Balka, 11.V.1995, K.A. Grebennikov leg. (cVS); **ROSTOV AREA: Sholokhovskiy District:** 16 ♂, 15 ♀: Proval'skaya step' Biosphere Reserve, Gukovo, 30.V.2000, E.A. Khachikov leg. (cEKH, cIE, ZMM); Ust'-Donetskiy District: 1 ♂: Krymskiy, 85 km E Rostov-na-Donu, Savateyevskaya balka, 17.V.2008, V.N. Prasolov leg. (ZIN); **Krasnosulinskiy District:** 3 ♂, 7 ♀: Donleskhoz, 2–4.V.1999, E.A. Khachikov leg. (cEKH, ZMM); **Azovskiy District:** 1 ♀: Rostov-na-Donu, 26.III.1990, Arzanov leg. (ZMM); 2 ♂: *ibid.*, 17.VI.2013, E.A. Khachikov leg. (cEKH, ZMM); **MARITIME PROVINCE: Lazovskiy District:** 1 ♀: Lazo, 18.IX.2009, S.A. Shabalin leg. (cIE); **IRAN:** 1 ♀: 'Kishtybi, N Persia [apparently NW Iran in the vicinity of Talysh Mountains (Fedorenko, 1994)], 4.IV.1916, B. Iljin leg.' (ZIN).

**Distribution.** Holarctic.

**Taxonomic notes.** Scheerpelz & Höfler (1948), based on a common character of long, filiform and slender antennae of some *Gyrophaena* species, erected the subgenus *Leptarthrophaena* including *G. affinis*, *G. nitidula* (Gyllenhal, 1810), *G. obsoleta* Ganglbauer 1895, *G. pulchella* Heer 1839, and *G. rosskotheni* Wüsthoff 1937. Blackwelder (1952) designated *G. affinis* as type species of this subgenus. Long before, Rey (1886) described the larva of *G. affinis*. According to his description it could be any species of *Gyrophaena sensu stricto* (White 1977, Ashe 1986). Seevers (1951) treated *Leptarthrophaena* as an unnatural subgenus. He noted that "...it is impossible to separate *Gyrophaena* into subgenera on the basis of antennal characters" (Seevers 1951: 671). Most subsequent authors did not use this name (Hansen 1954, Likovský 1964, Lohse 1974, White 1977, Burakowski & al. 1981, Campbell & Davies 1991, Gouix & Klimaszewski 2007, Klimaszewski & al. 2009, 2011). Smetana (2004) and Schülke & Smetana (2015) has cited this subgenus as a valid taxon, but without most originally included species by Scheerpelz & Höfler (1948).

We believe that there are enough arguments to not use the subgeneric name *Leptarthrophaena* in the present study.

**Remarks.** The first records of *G. affinis* for Caucasus were published by Eppelsheim (1878: Mt. Sarijal near Elisavetpol [now Ganja]) and Reitter (1888: "Circassien" [NW Caucasus]). Roubal (1911) recorded *G. affinis* for Krasnaya Polyana; Eichler (1930a) recorded it for Mtskheta (Georgia). Seevers (1951) mentioned *G. affinis* for Caucasus without specific data. Nikitskiy & al. (2008) cited *G. affinis* for the Caucasian Nature Reserve (Khosta and Guzeripl').

The species is here reported for the Russian Far East for the first time.

### ***Gyrophaena (Gyrophaena) bihamata* Thomson, 1867**

(Figs. 4–6)

*Gyrophaena bihamata* Thomson, 1867b: 46

*Gyrophaena bihamata*; Thomson, 1867a: 230

*Gyrophaena carpini* Baudi di Selve 1870: 380

*Gyrophaena bihamata*; Sahlberg 1976: 93

*Gyrophaena despecta* Mulsant & Rey 1870: 159

*Gyrophæna bihamata*; Sahlberg 1976: 93

*Gyrophæna ruficornis* Mulsant & Rey 1872: 65

*Gyrophæna bihamata*: Eppelsheim, 1878: 10; Leder & al. 1886: 113; Jacobson, 1909: 533; Seevers 1951: 724; Nikitskiy & al., 2008: 111

**Material examined:** **RUSSIA: STAVROPOL TERRITORY:** Predgorniy District: 5 ♂, 6 ♀: Mineral'niye Vody, Beshtau Mountain, 4–17.VIII.1993, E.A. Khachikov leg. (cVS, ZMM); **KRASnodAR TERRITORY:** Severskiy District: 14 spec.: Ubinskaya, VI.1986, I.A. Ushakov leg. (cVS, ZMM); 1 ♀: *ibid.*, Sober-Oashkh Mountain, 19.VI.1986, I.A. Ushakov leg. (cVS); Apsheronkiy District: 3 ♂, 2 ♀: valley of Kurdzhips River, Mezmai, 4–17.VII.1993, E.A. Khachikov leg. (cVS); Khostinskiy District: 1 ♂: Lazarevskoye, Maryino, 25.IX.1988, I.A. Ushakov leg. (cVS); 2 ♀: Khosta, 4.VI.1988, V.B. Semenov leg. (cVS); **ADYGEA:** Maikopskiy District: 9 ♂, 17 ♀: 10 km N Guzeripl', Nikel', Sjuk River, 28.VI.1990, Degtyaryov, Beschotynyi leg. (cEKh, cIE, ZMM); 1 ♂, 1 ♀: Caucasian Biosphere Reserve, vicinity of Guzeripl', 21.VI.1990, V.V. Grebennikov leg. (cEKh, ZMM); **KARACHAY-CHEKKESSIA:** Karachay District: 2 ♂, 5 ♀: Teberdinskiy Biosphere Reserve, Teberda, VII.2011, E.A. Khachikov leg. (cEKh, cIE); 2 ♂, 1 ♀: *ibid.*, Khatipara Mountain, 17.VII.2012, E.A. Khachikov leg. (cEKh, cIE); **ABKHAZIA:** Gudautskiye District: 8 spec.: Bzybskiy Ridge, ca. 2 km N Duripsh, general collecting, 09.IX.1985, I.A. Ushakov leg. (cVS, ZMM); **GEORGIA: SAMEGRELO ZEMO-SVANETI:** Zugdidskiy District: 1 ♂, 2 ♀: Zugdidi, 13.X.1981 (HNHM); **SANCKH-JAVAKHETI:** Adigenskiy District: 3 ♂, 4 ♀: 'Armenia | Abas-Tuman im | Spaler in der Erde | an Baumen und | Pilzen. Juli' / '*Gyrophæna | convallis* mihi [V. Motschulsky] | Armenia' (ZMM); **KVEMO-KARTLI:** 1 ♀: Kartli Ridge, Pass Sabaduri ca. 40 km NNE of Tbilisi, 1400 m, *Fagus*, forest, 6.V.1987, S.I. Golovatch & K.Yu. Eskov leg. (cVS); 1 ♂: Mukhura, ca. 15 km S of Tkibuli, 700–800 m, *Castanea*, *Fagus*, *Carpinus* etc. forest, 7–9.V.1987, S.I. Golovatch & K.Yu. Eskov leg. (cVS); **AZERBAIJAN:** Ganca: 3 ♂, 2 ♀: Ajikent, [?], Maljushenko leg. (ZIN); Ismailinskiy District: 1 ♂, 3 ♀: ca. 12 km E of Ismailly, Girdyman-Chay valley, 850–880 m, *Fagus*, *Quercus*, *Carpinus* etc. forest, 1.V.1987, S.I. Golovatch & K.Yu. Eskov leg. (cVS); **REGION NOT LOCATED:** 1 ♀: 'Kaukas. Leder' [*Gyroph. fasciata* Marsh. Coll. Reitter'] (HNHM).

**Additional material examined:** **RUSSIA: REPUBLIC OF CRIMEA:** Simferopol'skiy District: 1 ♂: 'Krim, Kizil'-Khoba, 24.VI.[19]07, W. Pliginskiy leg.' (ZIN); Bakhchisaraiskiy District: 5 ♀: 'Tauria, Kokoz [Sokolinoe], 9.5.[19]11, V. Pliginskiy leg.' (ZIN); Alushta: 1 ♂: Korbekli [Izobil'noe], 24.V.2007, M.B. Kiritschenko leg. (ZIN); 4 ♂, 4 ♀: 'Tauria, Kos'mo-Damianovski mon[astery], 23.6.[19]08, V. Pliginskiy leg.' (ZIN); 1 ♂: *ibid.*, 18.6.[19]11, V. Pliginskiy leg. (ZIN); 1 ♂, 3 ♀: 'Alushta, south bank of Krym, on the road to Tuak [Rybinskoye], 12.7.1911, A.M. Djakonov leg.' (ZIN); **ROSTOV AREA:** Tarasovskiye District: 1 ♀: Aleksandrovka, 1–15.VIII.1993, E.A. Khachikov leg. (ZMM).

**Distribution.** Transpalæarctic species. Europe, N Africa (Algeria, Tunisia) (Jacobson, 1909), Turkey (Assing 2011b), Siberia (Sahlberg 1880, Eppelsheim 1893, Babenko 1991, Enushchenko & Shavrin 2011, 2012b, Bukhhalo *et al.* 2012); N Korea (Pašnik, 2001). *G. bihamata* has been reported from the Russian Far East without providing label data (Smetana 2004, Schülke & Smetana 2015).

**Taxonomic notes.** The species has been described in different papers at the same time. Schülke & Smetana (2015) cited Thomson (1867b) under the species as having priority.

**Remarks.** The species has been recorded for Caucasus from "Katharinenfeld" [now Bolnisi] (Eppelsheim 1878), "Lenkoran, Lyrik [=Lerik], Hamarat" (Leder & al. 1886), "Daghestan", "Lenkoran" and "Transcaucasus" (Seevers 1951), Khosta (Nikitskiy & al. (2008).

### ***Gyrophæna (Gyrophæna) caucasica* A. Strand, 1939**

(Figs. 7–10)

*Gyrophæna caucasica* A. Strand, 1939: 110

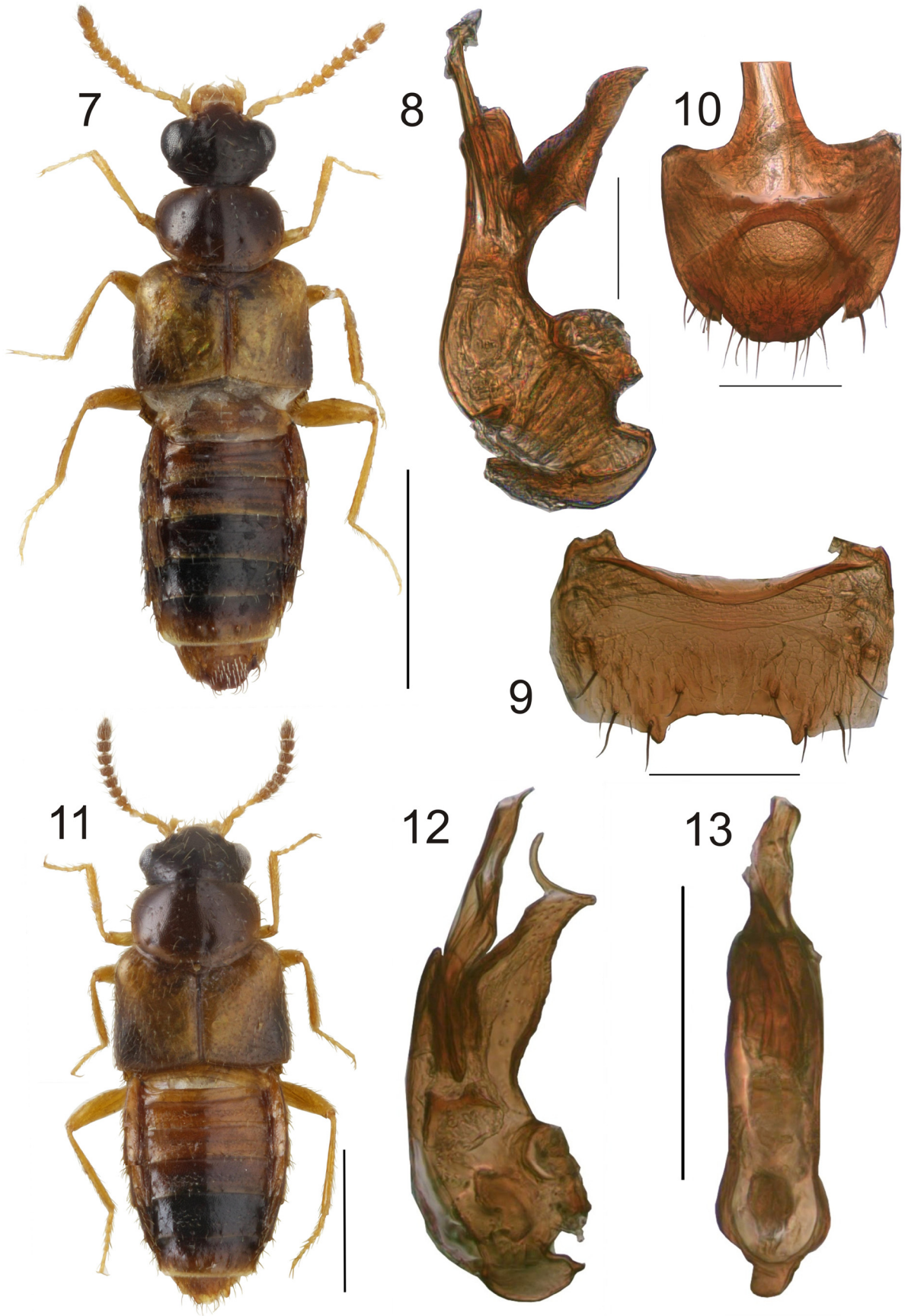
*Gyrophæna cultellata* Assing, 2009: 145, **syn. nov.**

*Gyrophæna caucasica*; Boháč, 1986: 190; Nikitskiy & al., 2008: 112

**Material examined:** **RUSSIA: STAVROPOL TERRITORY:** Krasnogvardeiskiye District: 1 ♂: 3 km E of Pregradnaya, 800 m, 3.VIII.1986, S.I. Golovatch leg. (cVS); Predgorniy District: 3 ♂, 9 ♀: Pyatigorsk, Beshtau

Mountain, fungi, 9.VI.1911, B. Iljin leg. [*Gyrophæna laevipennis* Kr. B. Iljin determ.] (ZIN); 147 ♂, 291 ♀: Mineral'niye Vody, Beshtau Mountain, 10.VI.1994, E.A. Khachikov leg. (cEKh, cIE, ZMM); 49 ♂, 107 ♀: ibid., 4–17.VIII.1993, E.A. Khachikov leg. (cEKh, ZMM); 9 spec.: Zheleznovodsk, 8.V.1985, A.B. Ryvkin leg. (ZMM); 1 ♂: Pyatigorsk, Mashuk Mountain, 31.V.1982, V.V. Yanushev leg. (cVS); 3 ♀: 20 km NW Kislovodsk, valley of Alikonovka River, Medoviye Vodopady, 15.VI.1994, E.A. Khachikov leg. (cEKh, ZMM); **KRASnodAR TERRITORY:** Krymskiy District: 68 ♂, 34 ♀: Krymsk, right side of Adagum River, 5.X.2011, I.V. Enushchenko leg. (cIE, ZMM); 5 ♂, 2 ♀: ibid., on *Fomes fomentarius*, 5.X.2011, I.V. Enushchenko leg. (cIE, ZMM); 2 ♂, 3 ♀: ibid., on *Psathyrella* sp., 5.X.2011, I.V. Enushchenko leg. (cIE, ZMM); 6 ♂, 5 ♀: ibid., on *Lentinus tigrinus*, 5.X.2011, I.V. Enushchenko leg. (cIE, ZMM); Severskiy District: 211 spec.: Ubinskaya, V–VI.1986, I.A. Ushakov leg. (cEKh, ZMM); 26 spec.: near Ubinskaya, Papai Mountain, 2–3.VI.1986, I.A. Ushakov leg. (ZMM); 121 spec.: ibid., Derby Mountain, 31.VI.1986, I.A. Ushakov leg. (cEKh, ZMM); Apsheronkiy District: 1 ♀: N slopes of Skalisty Mts rng., near Peredovaya River 1.st, Sukhaya balka, sift, pitfall traps, 901 m, N 44°02'46,1" E 41°26'04,2", 27.05.2014, A. Pütz leg. (cAP); 3 ♂, 3 ♀: S slopes of Chernogorie Mts rng., near Otdalyennyi, sift, pitfall traps, 781 m, N 44°04'52.3" E 39°44'14.9", 23.V.2014, A. Pütz leg. (cAP); 18 ♂, 43 ♀: valley of Kurdzhips River, Mezmai, 4–17.VII.1993, E.A. Khachikov leg. (cEKh, ZMM); 1 ♂: Mezmai, 19–25.VII.1996, E.A. Khachikov leg. (ZMM); Anapskiy District: 136 spec.: 3 km E Bol'shoi Utrish, 24–30.VIII.2003, D. Popov, A. Rudaikov, E. Khachikov leg. (cVS, ZMM); 4 ♂, 12 ♀: Bol'shoi Utrish, 1–5.V.2008, E.A. Khachikov leg. (cVS, ZMM); Gelendzhikiy District: 8 ♂, 3 ♀: 7 km W Krinitza, Tyomnaya Shchel' Gorge 19.IX.2012, E.A. Khachikov leg. (cIE, ZMM); 19 ♂, 28 ♀: ibid., 1–11.VIII.2013, E.A. Khachikov leg. (cEKh, ZMM); Maikopskiy District: 1 ♂: Caucasian Nature Reserve, vicinity of Guzeripl', 21.VI.1990, V.V. Grebennikov leg. (cEKh, ZMM); 59 ♂, 65 ♀: 10 km N Guzeripl', Nikel', Sjuk River, 28.VI.1990, Degtyaryov, Beschotynyi leg. (cEKh, cIE, ZMM); Kushchevskiy District: 3 ♂, 2 ♀: Krasnaya Polyana, VI.1973, R. Rous leg. (cJB); Adlerskiy District: 1 ♂: 30 km NNO Adler, lower reaches of Chvizhepse River, 220–550 m, 29.IV.–06.V.2013, S. Kurbatov leg. (RCPQ); Khostinsky District: 1 ♂, 1 ♀: Lazarevskoye, Maryino, 25.IX.1988, I.A. Ushakov leg. (cVS); 497 spec.: Khosta, 22.V–19.VI.1988, V.B. Semenov leg. (cVS); **ADYGEA:** Maikopskiy District: 1 ♂: Caucasian Nature Reserve, vicinity of Guzeripl', 21.VI.1990, V.V. Grebennikov leg. (ZMM); 59 ♂, 65 ♀: 10 km N Guzeripl', Nikel', Sjuk River, 28.VI.1990, Degtyaryov, Beschotynyi leg. (cIE, ZMM); **KARACHAY-CHEKKESSIA:** 2 ♀: 'Caucas. occ. Circassien. Leder. Reitter' [*Gyroph. fasciata* Marsh. Coll. Reitter] (HNHM); Karachay District: 1 ♀: 'Ca. b. Teberda, VI.1912, Roubal' [*G. manca*] (MAKB); 1 ♂, 2 ♀: Teberdinskiy Nature Reserve, Teberda, VII.2011, E.A. Khachikov leg. (cIE); **ABKHASIA:** Gagra District: 117 spec.: Gumistinsky Nature Reserve, Verkhny Tsumur, 24.IX.1985, I.A. Ushakov leg. (ZMM); 1 ♂, 3 ♀: Myusserskiy Nature Reserve, 18.IX.1988, I.A. Ushakov leg. (cVS); 2 ♂, 2 ♀: vicinity of Pitsunda, on *Armillaria* sp., 15.IX.1991, V.B. Semenov leg. (cVS); Gudautskiy District: 415 spec.: Bzybkiy Ridge, ca. 2 km N Duripsh, general collecting. 09.IX.1985, I.A. Ushakov leg. (cEKh, ZMM); 1 ♀: Othara, 8.IV.1956, Kurnakov leg. (ZIN); Sukhum District: 6 spec.: Pskhu, 750 m, 19.VIII.1986, A.B. Ryvkin leg. (ZMM); 1 ♀: vicinity of Sukhumi, 9.IX.1976, A.B. Ryvkin leg. (ZMM); 10 ♂, 9 ♀: Kelasuri Canyon, 18.IX.1988, I.A. Ushakov leg. (ZMM); **GEORGIA:** **SVANETI:** 1 ♀: 'Caucasus. Swanetien. Leder. Reitter.' [*Gyroph. fasciata* Marsh. Coll. Reitter] (HNHM); **SAMEGRELO ZEMO-SVANETI:** Zugdidskiy District: 1 ♀: Zugdidi, 13.X.1981 (cJB); Mestiyskiy District: 4 spec.: 40 km W Mestiya, Kherkhvashi, 1150 m, 25.VIII.1986, A.B. Ryvkin leg. (ZMM); **KAKHETI:** 2 ♂, 10 ♀: Lagodekhskiy valley of Shroma River, bracket fungi, 29.V.1977, Kireichjuk leg. (ZIN); 3 ♀: Lagodekhi, agaricales fungi, 27.X.1968, O.L. Kryzhanovskiy leg. (ZIN); 1 ♀: Mariamdjvari State Reserve, *Carpinus* forest, 13–14.V.1987, S.I. Golovatch & K.Yu. Eskov leg. (ZMM); **ARMENIA:** **TAVUSH AREA:** Idzhevanskiy District: 6 spec.: Dilizhan Reserve, valley Akhnabat near Salakh, 1400–1500 m, *Fagus*, *Taxus*, *Carpinus* etc. forest, 17.IV.1989, S.I. Golovatch leg. (ZMM); **AZERBAIJAN:** Ganca: 1 ♂: Ajikent, [?], Maljushenko leg. (ZIN); **REGION NOT LOCATED:** 1 ♀: 'Caucasus Reitter/1246' (MAKB); 1 ♂: 'Caucasus Reitter/1247' [*Gyrophæna bihamata* Thoms. 5804'] (MAKB); 1 ♂: 'Caucasus Reitter' [*Gyroph. fasciata* Marsh. Coll. Reitter] (HNHM); 1 ♂, 1 ♀: 'Kaukas. Leder' [*Gyroph. bihamata* Thoms. Coll. Reitter] (HNHM); 2 ♀: 'Caucasus. Leder' [*Gyroph. bihamata* Thoms. Coll. Reitter] (HNHM).

**Additional material examined:** **RUSSIA: REPUBLIC OF CRIMEA:** Simferopol'skiy District: 2 ♀: 'Krym, Yaltinskiy distr., Taushan-Bazar [Privol'noye], 11.7.1911, V. Pliginskiy leg.' [*Gyrophæna laevipennis*] (ZIN); 2 ♂, 1 ♀: ibid., 4.VI.2007, M.B. Kiritschenko (ZIN); 2 ♂, 2 ♀: Angarskiy Pass (Angar-Bogaz), 15.VIII.1976, V.V. Belov leg. (cVS); Bakhchisaraiskiy District: 7 ♂, 14 ♀: 'Tauria, Kokoz [Sokolinoe], 9.5.[19]11, V. Pliginskiy leg.' (ZIN); Yalta: 1 ♂: Ai-Danil' [Danilovka] village, on *Coprinus* sp., 30.V.1999, D.S. Shchigel' (cVS); 1 ♀: 6 km



FIGURES 7–13.



NE Nikita, Nikitskiy Botanical Garden, 23.VIII.1976, V.V. Belov leg. (cVS); Kirovskiy District: 6 ♂: Stary Crym, mountain forest, 15–16.VIII.2005, R. Cibulskis leg. (cIE, ZMM); Leninskiy District: 1 ♂: Vinogradny, S slope of Uragay Ridge, 500 m, oak-forest, on *Fomes fomentarius*, 28.V.1999, D.S. Shchigel' leg. (cVS); **ROSTOV AREA**: Azovskiy District: 13 ♂, 25 ♀: Rostov-na-Donu, 17.VI.2013, E.A. Khachikov leg. (ZMM); 1 ♂, 2 ♀: *ibid.*, 21.VI.2009, E.A. Khachikov leg. (ZMM); Millerovskiy District: 3 ♂, 3 ♀: Ivanovka, 6–18.VII.2013, E.A. Khachikov leg. (cIE).

**Distribution.** N & W Caucasus, Azerbaijan, south of European part of Russia, Turkey.

**Taxonomic notes.** Strand (1939), based on the shape of the male secondary sexual characters, compared *G. caucasica* with *G. joyioides* Wüsthoff 1937 and *G. korbi* and provided figures of apical portion of the aedeagus. Similarity in the male primary and secondary sexual characters (shape of tergite VIII, apically bifid tergite X, general morphology of the median lobe of the aedeagus and structure of endophallus) as well as in external morphology shows that *G. caucasica* is closely related to *G. joyioides* and *G. korbi*.

Assing (2009) described *G. cultellata* based on two males from Turkey ("41 km W Samsun, 27 km S Bafra, 41°18'55"N, 35°50'51"E, 220 m") and compared it with *G. anatolica* Assing 2004 and *G. ciliciana* Assing 2009, but did not compare this new species with *G. caucasica* Strand 1939. Glotov (2014) recorded *G. cultellata* Assing 2009 for Crimea (Chatyrdagh Mountain). As the male genitalia and terminalia of *G. cultellata* (see Assing 2009: Figs. 54–57) are quite identical to those of *G. caucasica*, including the material from the type locality, I considered *G. cultellata* here as a junior synonym of *G. caucasica*.

**Remarks.** The original description of *G. caucasica* is based on several specimens from Teberda (Strand 1939). Boháč (1986) recorded species from Sochi and Krasnaya Polyana. Nikitskiy *et al.* (2008) cited it from Khosta. It is here reported from Adygea, Stavropol Territory, Abkhazia, Azerbaijan, Rostov Area, Georgia and Armenia for the first time.

### [*Gyrophæna (Gyrophæna) congrua* Erichson 1837]

(Figs. 11–14)

*Gyrophæna congrua* Erichson, 1837: 368

*Gyrophæna congrua*; Hochhuth, 1849: 73

**Distribution.** Europe (Joy 1912, Hansen & al. 1939, Hansen 1954, Likovský 1964, Dvořák 1966, Kangas 1991, Roosileht 2003, Stan 2006, Merkl 2008, Glotov & al. 2011, Enushchenko & Shavrin 2012a, etc.), European part of Russia (Nikitskiy & al. 1996, Starodubtseva 2008, Semenov 2007, 2009, etc.), Siberia (Solsky 1871, Enushchenko & Shavrin 2011, 2012b, Bukhkalov & al., 2012) and Russian Far East (Maritime Province) (Enushchenko & Shavrin 2011).

**Remarks.** It was recorded for Caucasus by Hochhuth (1849) from Tiflis. The presence of this species in Caucasus is not confirmed by a new material.

Brüge (2005) wrote about confusion concerning identities of *G. congrua*, *G. fasciata* and *G. laevipennis*. It is possible that the previous record of *G. congrua* by Hochhuth represents misinterpreted *G. fasciata*.

### *Gyrophæna (Gyrophæna) fasciata* (Marsham 1802)

(Figs. 15–17)

*Staphylinus fasciatus* Marsham, 1802: 514

*Aleochara pallicornis* Stephens, 1832: 152

*Gyrophæna laevipennis*; Blair, 1938: 84

*Gyrophæna laevipennis* Kraatz, 1856: 358

*Gyrophæna fasciata*; Strand, 1946: 173

*Gyrophæna fasciata*; Eppelsheim, 1878: 105; Reitter, 1888: 19; Jacobson, 1909: 533; Roubal, 1911: 13; Boháč, 1986: 190

**Material examined: GEORGIA: MTSKHETA-MTIANETI:** 1 ♂: Pasaauri, VII.1978, R. Rous leg. (cJB).

**Additional material examined: REPUBLIC OF CRIMEA: Balaklavskiy District:** 1 ♀: Baidary [Orlinoye], 18.V.1921, V. Kizeritskiy leg. (ZIN); **RUSSIA: ROSTOV AREA: Sholokhovskiy District:** 1 ♂, 2 ♂: Veshenskaya,

17.VI.2002, E.A. Khachikov leg. (ZMM); 2 ♂, 3 ♀: Proval'skaya step' Biosphere Reserve, Gukovo, 30.V.2000, E.A. Khachikov leg. (ZMM).

**Distribution.** C & N Europe, European part of Russia (Nikitskiy & al. 1996, Dedyukhin & al. 2005, Semenov 2007, 2009, Voitenkova 2009, Goreslavets 2010), Caucasus, European Turkey (Apfelbeck 1901); SE Kazakhstan (Kashcheev 2001); Siberia (Sahlberg 1880, Enushchenko & Shavrin 2011, 2012b, Bukhhalo & al. 2012).

**Taxonomic notes.** We excluded *G. rhodeana* Casey, 1906 from the synonyms as *G. fasciata* belongs to a different species group (Seevers 1951).

**Remarks.** Eppelsheim (1878) cited *G. fasciata* for Caucasus (Borshom and Mamudly) with remark "*G. congrua*" in round brackets. Reitter (1888) based on the material collected by H. Leder in 1887, recorded *G. fasciata* for "Circassien" without citing of exact locations. Under "Circassien" he understood Western Caucasus from Black Sea coast (Tuapse-Sochi) to Karachay-Cherchessia in the modern comprehension of it. Jacobson (1909) combined previous records and cited misinterpreted *G. fasciata* (actually it was a species closely relative to *G. congrua*) for the Caucasus. Roubal (1911) recorded *G. fasciata* for Krasnaya Polyana; Boháč (1986) recorded it for Kentrish Biosphere Reserve (Georgia, Adzharia). Amongst Reitter's material on Caucasian *Gyrophana* (HNHM, NMPC, MAKB) we have not found *G. fasciata*. All specimens with determination label "*G. fasciata*" belong to other species, such as *G. bihamata*, *G. caucasica*, *G. gentilis*, *G. joyi*, *G. korbi* and *G. poweri*.

### ***Gyrophana (Gyrophana) gentilis* Erichson, 1839**

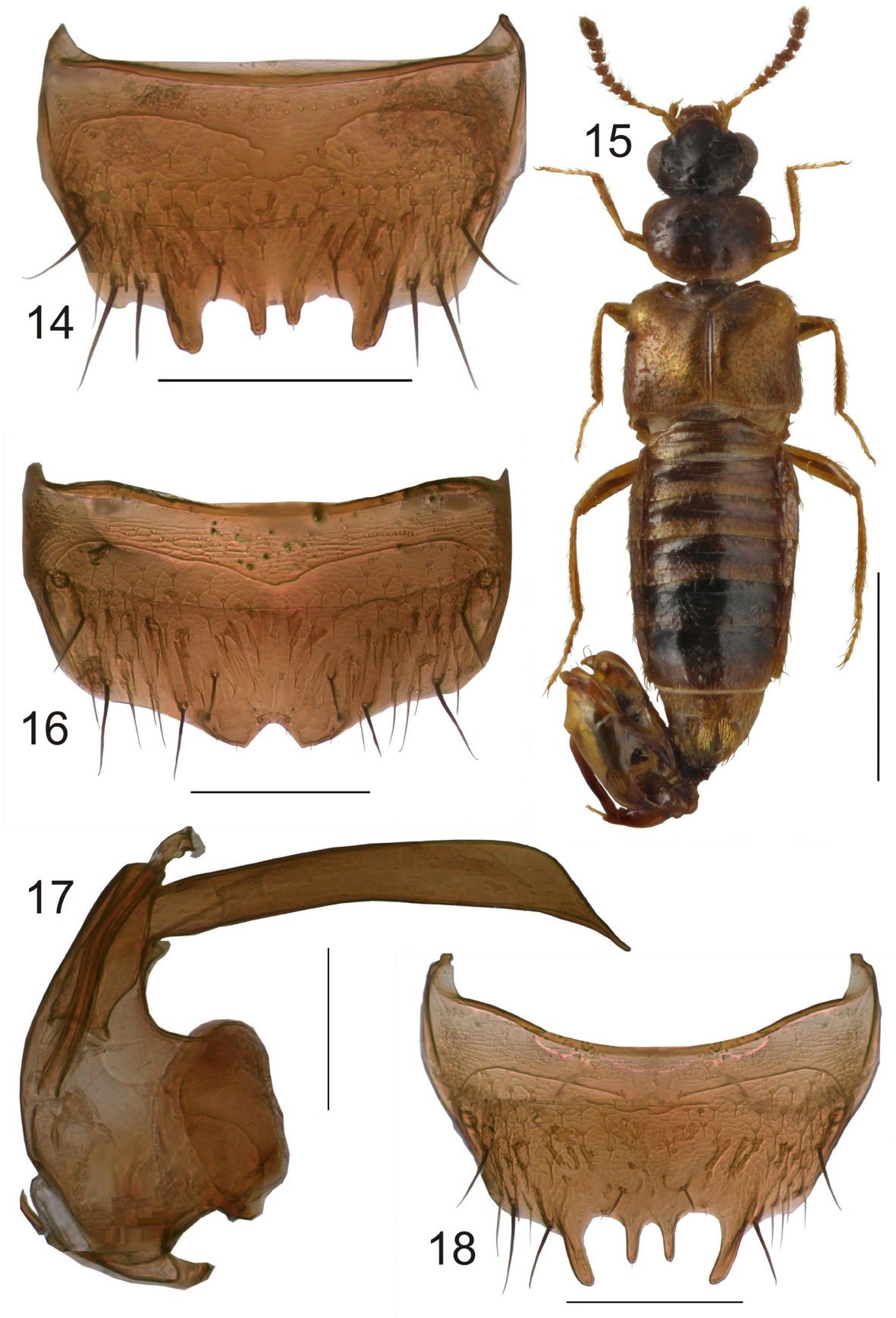
(Figs. 18–20)

*Gyrophana gentilis* Erichson, 1839: 185

*Gyrophana gentilis*; Eppelsheim, 1878: 105; Reitter, 1888: 147; Jacobson, 1909: 533; Roubal, 1911: 13, 1913: 484; Seevers, 1951: 679; Boháč, 1986: 190; Nikitskiy & al., 2008: 112

**Material examined: RUSSIA: STAVROPOL TERRITORY: Predgorniy District:** 1 ♀: Pyatigorsk, Beshtau Mountain, fungi, 9.VI.1911, B. Iljin leg. (ZIN); 29 ♂, 30 ♀: Mineral'niye Vody, Beshtau Mountain, 4–17.VIII.1993, E.A. Khachikov leg. (cEKh, ZMM); 2 ♂, 3 ♀: set. Inozemtsevo, Beshtau Mountain, 15.VI.1995, E.A. Khachikov leg. (ZMM); **KRASNODAR TERRITORY:** 1 ♀: 'Caucas. occ. Gouv. Kuban. Leder. Reitter' (HNHM); **Temryukskiy District:** 1 ♂: 1 km NW Ilyich, sift, pitfall traps, 812 m, N 44°04'1,1" E 41°21'33,0", 28.05.2014, A. Pütz leg. (cAP); **Severskiy District:** 7 spec.: Ubinskaya, 22.VI.1976, V.V. Belov leg. (cVS); 17 spec.: near Ubinskaya, Derbiy Mountain, 31.V.1986, I.A. Ushakov leg. (cVS); 1 spec.: ibid., Sober-Oashkh Mountain, 19.VI.1986, I.A. Ushakov leg. (cVS); 1 spec.: ibid., Papai Mountain, 2.VI.1986, I.A. Ushakov leg. (cVS); **Apsheronkiy District:** 1 ♂: N slopes of Skalisty Mts. rng., near Peredovaya River 1.st, Sukhaya balka, sift, pitfall traps, 901 m, N 44°02'46,1" E 41°26'04,2", 27.05.2014, A. Pütz leg. (cAP); 8 ♂, 5 ♀: S slopes of Chernogorie Mts. rng., near Otdalyennyi, sift, pitfall traps, 781 m, N 44°04'52,3" E 39°44'14,9", 23.05.2014, A. Pütz leg. (cAP); 4 ♂: Lagonakskiy Mts. rng., Matazyk Mountain, 6 km S Guamka, pitfall traps, sift, 997 m, N 44°19'51,1" E 39°54'33,3", 20.05.2014, A. Pütz leg. (cAP); 7 ♂, 1 ♀: ibid., 9 km S Guamka, pitfall traps, sift, 1082 m, N 44°09'05,0" E 39°54'33,3", 21.05.2014, A. Pütz leg. (cAP); 1 ♂: Mezmai, 19–25.VII.1996, E.A. Khachikov leg. (ZMM); **Anapskiy District:** 3 ♀: 3 km E Bol'shoi Utrish, 24–30.VIII.2003, D. Popov, A. Rudaikov, E. Khachikov leg. (ZMM); **Lazorevskiy Distict:** 1 ♀: Kirova (Tkhagapsh), under *Castanea* bark, 29.IX.1985, A. Kireichuk leg. (ZIN); **Khostinskiy District:** 26 spec.: Khosta, 4.VI.1988, V.B. Semenov leg. (cVS); 38 spec.: Maryino, 25.IX.1988, I.A. Ushakov leg. (cVS); **Kushchevskiy District:** 2 ♂: Krasnaya Polyana, [?], Lgocki [Cauc. Occ. | Krasna Polana | Dr. Lgocki VIII. / *laevipennis* / V. Pliginski coll.] (ZIN); 1 ♀: Krasnaya Polyana, VI.1973, R. Rous leg. (cJB); 26 spec.: Krasnaya Polyana, VIII.1986, S.I. Golovatch leg. (cVS); 1 ♂: ca. 4 km NW of Krasnaya Polyana, SE slopes of Achishkho Mountain, N 43°42'516" E 40°10'534", h=1000 m, chestnut-beech forest, sifting leaf litter, 19.VII.2011, A. Solodovnikov, M. Kaae leg. (ZMUC); 6 ♂, 3 ♀: ca. 6 km NW of Krasnaya Polyana, SE slopes of Achishkho Mountain, N 43°42'23" E 40°09'41", h=1150 m, beech-rhododendron forest, sifting leaf litter, 19.VII.2011, A. Solodovnikov leg. (ZMUC); 6 spec.: Caucasian Biosphere Reserve, Pslukh ca. 20 km E of Krasnaya Polyana, 1000 m, *Abies*, *Quercus* etc. forest, 12.VIII.1989, S.I. Golovatch leg. (cVS); 3 ♂, 6 ♀: ca. 20 km NE of Krasnaya Polyana, S slopes of Pseashkha Range, N 43°43'062" E 40°23'675", h=2050 m, sifting leaf litter in subalpine shrub, 17.VII.2011, A. Solodovnikov leg. (ZMUC); **Adlerskiy District:** 1 ♂: 23 km NE Adler, lower course of Chvizhepse River, 43° 38' 25" N; 40° 04' 33" E, window trap, 28.IV–4.V.2013, K. Makarov leg.

(cVS); 6 ♂, 5 ♀: vicinities of Chvizhepse, N 43°38'32" E 40°04'45", h=300 m, 17.VII.2014, A.V. Kovalyev leg. (cEKh, ZIN, ZMM); 22 ♂, 7 ♀: 30 km NNO Adler, lower reaches of Chvizhepse River, 250–800 m, 29.IV.–08.V.2013, Sv. Kurbatova leg. (RCPQ); Labinskiy District: 1 ♀: right bank of Malaya Laba River, near Chernorechie, sift, pitfall traps, 772 m, 43°58'57,8" E 40°42'53,3", 21.05.2014, A. Pütz leg. (cAP); **ADYGEA: Maikopskiy District**: 86 ♂, 106 ♀: 10 km N Guzeripl', Nikel', Sjuk River, 28.VI.1990, Degtyaryov, Beschyotnyi leg. (cEKh, cIE, ZMM); 65 spec.: descent from a pasture Abago in Guzeripl', 1300 m, 26.V.1985, A.B. Ryvkin leg. (cVS); 11 spec.: Caucasian Biosphere Reserve, Guzeripl', 22.VI.1986, I.A. Ushakov leg. (cVS); 28 ♂, 93 ♀: ibid., 21.VI.1990, V.V. Grebennikov leg. (cEKh, ZMM); 6 ♂, 8 ♀: ca. 5 km SW of Fisht Mountain, N 43°55'242" E 39°51'436", h=1600 m, beech-fir forest, flight intercept trap, 12–14.VII.2011, A. Solodovnikov leg. (ZMUC); **KARACHAY-CHERKESSIA**: 1 ♂, 2 ♀: 'Caucas. occ. Circassien. Leder. Reitter' (HNHM); Urup District: 3 spec.: 3 km E of Pregradnaya, 800 m, 3.VIII.1986, S.I. Golovatch leg. (cVS); 1 ♂, 1 ♀: Bol'shaya Laba River, Pkhiya, 14.VIII.1998, E.A. Khachikov leg. (cVS); Karachay District: 1 ♀: ca. 3–4 km NE of Dombai, SW slopes of Musat-Cheri Range, N 43°17'446" E 41°38'628", h=2200 m, timber line (berch, maple, pine), sifting leaf litter, 23.VI.2011, A. Solodovnikov leg. (ZMUC); 10 ♀: ca. 12 km SW of Teberda, Baduk Lakes at E slopes of Teberdinskiy Range, N 43°22'591" E 41°39'644", h=2000 m, spruce-fir-beech forest with rhododendron, sifting leaf litter, 26, 27. VII.2011, A. Solodovnikov leg. (ZMUC); 3 ♂, 7 ♀: ca. 15 km SW of Teberda, near mouth of Gonachkhir River, N 43°19'854" E 41°39'926", h=1500 m, beech-spruce forest, Malaise trap, 24–28.VII.2011, A. Solodovnikov, S. Tarasov leg. (ZMUC); 22 ♂, 7 ♀: Teberdinskiy Biosphere Reserve, Teberda, VII.2011, E.A. Khachikov leg. (cEKh, cIE, ZMM); 9 spec.: ibid., Khatipara Mountain, 17.VII.2012, E.A. Khachikov leg. (cVS, ZMM); **KABARDINO-BALKARIA**: 1 ♂: Nal'chik, Belaya Rechka, left side of the river, flood-lands forest, 9.X.2011, A. Aiydov leg. (ZMM); Checherskiy District: 1 spec.: Karasu VIII, bank of Tsherek Khulamsky River, 900 m, 15.VIII.2003, A.G. Koval, O.G. Guseva leg. (ZIN); **NORTH OSSETIA: Alagirskiy District**: 1 ♂, 1 ♀: Nizhniy Unal, 2.VII.1997, E.A. Khachikov leg. (ZMM); 10 spec.: North-Ossetian Biosphere Reserve, Tseiskoye gorge, *Alnus*-brushwoods, 20.VII.1982, S.K. Alexeev leg. (cVS); 13 spec.: ibid., *Pinus*-forest, 23.VII.1982, S.K. Alexeev leg. (cVS); 25 spec.: ibid., *Pinus*-forest, with *Salix* sp., 15.VIII.1982, S.K. Alexeev leg. (cVS); **SOUTH OSSETIA: Dzauskiy District**: 1 ♂: Zemo-Roka, 6.VI.1987, J. Kačenka leg. (cJB); **ABKHAZIA: Gagskiy District**: 1 ♂, 4 ♀: Gega River, 5 km above junction at Bzyb' River, 700 m, 4–6.V.2012, S. Kurbatov leg. (RCPQ); Gagra District: 36 spec.: environs of Ritsa Lake, 14.IX.1986, A.B. Ryvkin leg. (cVS); 4 ♂: Avadkhara, 24.V.2004, E.A. Khachikov leg. (cVS); 57 spec.: Gumistinsky Biosphere Reserve, cordon Verkhniy Tsumur, 24.IX.1985, I.A. Ushakov leg. (cVS); 18 spec.: ibid., 19.VIII.1986, A.B. Ryvkin leg. (cVS, ZMM); 10 ♂, 4 ♀: Mjusserskiy Biosphere Reserve, 18.IX.1988, I.A. Ushakov leg. (cVS); 1 ♀: environs of Pitsunda, 18.IX.1991, V.B. Semenov leg. (cVS); 1 ♂: ibid., on *Armillaria* sp., 15.IX.1991, V.B. Semenov leg. (cVS); Gudautskiy District: 426 spec.: Duripsh, 16.IX.1985, I.A. Ushakov leg. (cVS); Sukhum District: 17 spec.: Pskhu, 750 m, 16.VIII.1986, A.B. Ryvkin leg. (cVS); 15 ♂, 8 ♀: Kelasuri Canyon, 18.IX.1988, I.A. Ushakov leg. (cVS); Gulrypskiy District: 2 ♂: Amtkel, pr. Sukhumi (400 m), 15.VI.1981, J. Strejček leg. (cJB); **GEORGIA: SAMEGRELO ZEMO-SVANETI: Zugdidskiy District**: 2 ♂, 8 ♀: Zugdidi, 13.X.1981 (cJB); Mestia District: 1 ♂: 2 km S Dizi, near waterfall, 19.IX.1986, A.B. Ryvkin leg. (cVS); **RACHA-LECHKHUMI: Oni District**: 1 ♂: Shovi, *Fagus*, *Ulmus* and *Abies*, litter and under stones, at a spring, 21.X.1981, S.I. Golovatch leg. (cJB); **SHIDA KARTLI: Khevsureti District**: 1 ♀: 'Caucasus. Tbatani 79. Leder (Reitter)' (HNHM); **KAKHETI: Kvareli District**: 4 spec.: N of Kvareli, 700–750 m, *Fagus*, *Carpinus*, *Quercus* etc. forest, 4.V.1987, S.I. Golovatch & K.Yu. Eskov leg. (cVS); 8 ♀: Lagodekhi, agaricales fungi, 27.X.1968, O.L. Kryzhanovskiy leg. (ZIN); **ADJARIA: Kobuletskiy District**: 1 ♂: Meskhetskiy Mountain, Kintrish Biosphere Reserve, gorge of Kintrish River, 23.VI.2000, M.V. Nabozhenko leg. (ZMM); 1 ♀: Kintrish Biosphere Reserve, *Rhododendron* thickets, 600–800 m, Zeraboseli, 2.VI.1981, S.I. Golovatch, Martens leg. (cJB); **ARMENIA: LORI AREA: Tumanyanskiy District**: 2 spec.: Odzun W of Alaverdi, 1500–1550 m, *Quercus*, *Fagus*, *Carpinus* etc. forest, 23–24.V.1987, S.I. Golovatch & K.Yu. Eskov leg. (cVS); 2 spec.: Stepanovan, 1600–1650 m, *Quercus*, *Fagus*, *Carpinus* etc. forest, 21–22.V.1987, S.I. Golovatch & K.Yu. Eskov leg. (cVS); **TAVUSH AREA: Shamshadyn District**: 5 spec.: W of Shamshadyn halfway betw. Idjevan & Berd, 1500–1600 m, *Fagus*, *Carpinus*, *Acer* etc. forest, 26–27.V.1987, S.I. Golovatch & K.Yu. Eskov leg. (cVS); 1 ♀: Dilizhan Biosphere Reserve, Agartsyn, 1250–1300 m, *Fagus* forest, litter, 17.IV.1989, S.I. Golovatch leg. (cVS); **AZERBAIJAN: Kel'badjar District**: 4 spec.: Chilisa ca. 7 km S of Kelbodjar, 1450–1500 m, *Quercus*, *Carpinus*, *Acer* etc. forest, litter, 31.V.1987, S.I. Golovatch & K.Yu. Eskov leg. (cVS); **REGION NOT LOCATED**: 1 ♂: 'Caucasus. Leder' [*Gyroph. fasciata* Marsh. Coll. Reitter'] (HNHM); 2 ♀: 'Caucasus. Leder. Reitter' (HNHM); 1 ♂, 1 ♀: 'Kaukas. Leder' (HNHM).



FIGURES 14–18.



FIGURES 19–23.

**Additional material examined. UKRAINE: ZAKARPATTIA AREA:** Rahiv District: 1 ♂: Karpatskiy Biosphere Reserve, Chernogora Mountain, 29.VIII.1999, Jan Růžička leg. (ZMM); **RUSSIA: ROSTOV AREA:** Tarasovskiy District 3 ♂: Aleksandrovka, 1–15.VIII.1993, E.A. Khachikov leg. (ZMM).

**Distribution.** C & N Europe, Caucasus, Turkey (Assing 2007, 2011b), SE Kazakhstan (Kashcheev 2001); Siberia (Eppelsheim 1893, Babenko 1982, Enushchenko & Shavrin 2011).

**Remarks.** The first record of *G. gentilis* for Caucasus was published by Eppelsheim (1878) from Mt. Sarijal near Elisavetpol (now Ganja). Reitter (1888) recorded this species for "Circassien" (NW Caucasus). Roubal (1911) recorded species for Krasnaya Polyana and Karachay-Cherkessia – Teberda River (Roubal 1913). Seevers (1951) recorded it for "Daghestan", "Kuban District of the Caucasus". Boháč (1986) recorded this species for Amtkel Lake. Nikitskiy & al. (2008) recorded *G. gentilis* for Caucasian Biosphere Reserve and Krasnaya Polyana.

### ***Gyrophæna (Gyrophæna) hanseni* A. Strand, 1946**

(Figs. 21–24)

*Gyrophæna hanseni* A. Strand, 1946: 173

*Gyrophæna hanseni*; Stan, 2007: 212; Assing, 2011b: 196

*Gyrophæna spoliata* Assing, 2009: 146

**Material examined: RUSSIA: KRASNODAR TERRITORY:** Severskiy District: 2 ♂: Ubinskaya, 19.VI.1986, I.A. Ushakov leg. (cVS); **ABKHAZIA:** Gagra District: 1 ♂: Gumistinsky Biosphere Reserve, cordon Verkhny Tsumur, 24.IX.1985, I.A. Ushakov leg. (cVS); Sukhum District: 3 ♂, 4 ♀: Kelasuri Canyon, 18.IX.1988, I.A. Ushakov leg. (cVS); 3 ♂, 6 ♀: vicinity of Pitsunda, on *Armillaria* sp., 15.IX.1991, V.B. Semenov leg. (cVS); **DAGESTAN:** 2 ♂, 1 ♀: 'Daghestan. Leder. Reitter.' [*Gyrophæna bihamata* Thoms. Coll. Reitter'] (HNHM); **AZERBAIJAN:** Talysh: 2 ♂, 3 ♀: Alexyevka, 20.VII.1936 (cIE, ZIN).

**Additional material examined: RUSSIA: REPUBLIC OF CRIMEA:** Yalta: 1 ♂, 1 ♀: Ai-Danil' [Danilovka], on *Coprinus* sp., 30.V.1999, D.S. Shchigel' leg. (cIE).

**Distribution.** This species, which is rare in collections, was previously unknown from Caucasus. It has been recorded mostly from several localities of Great Britain (Welch 1968, Easton, 1969, *et al.*), Denmark (Strand 1946, Hansen 1954), Romania (Stan, 2007), Bulgaria (Likovský, 1964) and Turkey (Assing 2009).

### ***Gyrophæna (Gyrophæna) joyi* Wendeler, 1924**

(Figs. 25–27)

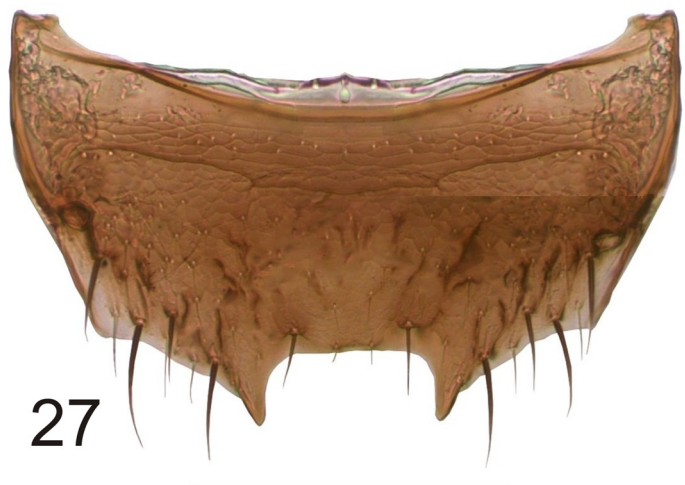
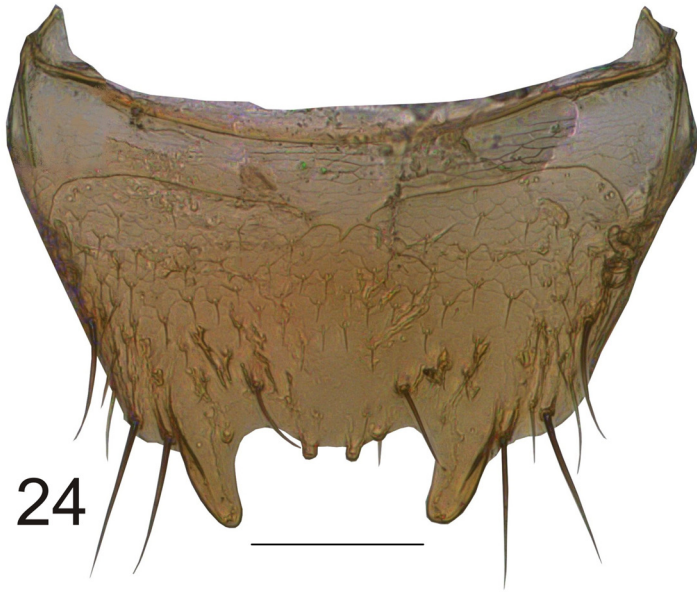
*Gyrophæna joyi* Wendeler, 1924: 344; Enushchenko & Shavrin, 2011: 1204

*Gyrophæna convexicollis* Joy, 1912: 148

*Gyrophæna joyi asiatica* Wüsthoff, 1937: 143

*Gyrophæna joyi*; Nikitskiy & al., 2008: 112

**Material examined. RUSSIA: STAVROPOL TERRITORY:** Predgorniy District: 3 ♂, 4 ♀: Mineral'niye Vody, Beshtau Mountain, 4–17.VIII.1993, E.A. Khachikov leg. (ZMM); **KRASNODAR TERRITORY:** Krymskiy District: 8 ♂, 7 ♀: Krymsk, right side of Adagum River, 5.X.2011, I.V. Enushchenko leg. (cIE, ZMM); 3 ♂, 6 ♀: *ibid.*, on *Fomes fomentarius*, 5.X.2011, I.V. Enushchenko leg. (cIE, ZMM); Severskiy District: 1 ♂, 1 ♀: Ubinskaya, 21.VI.1975, V.V. Belov leg. (ZMM); 7 spec.: *ibid.*, VI.1986, I.A. Ushakov leg. (cVS); 7 spec.: environs of Ubinskaya, Papai Mountain, 2.VI.1986, I.A. Ushakov leg. (cVS); 9 spec.: *ibid.*, Derbiy Mountain, 3.VI.1986, I.A. Ushakov leg. (cVS); Apsheonskiy District: 1 ♂: N slopes of Skalisty Mts. rng., near Peredovaya River 1.st, Sukhaya balka, sift, pitfall traps, 901 m, N 44°02'46,1" E 41°26'04,2", 27.05.2014, A. Pütz leg. (cAP); 1 ♂, 2 ♀: valley of Kurdzhips River, Mezmai, 4–17.VII.1993, E.A. Khachikov leg. (ZMM); Anapskiy District: 4 ♂, 6 ♀: 3 km E Bol'shoi Utrish, 24–30.VIII.2003, D. Popov, A. Rudaikov, E. Khachikov leg. (ZMM); Khostinskiy District: 1 ♂: Maryino, 25.IX.1988, I.A. Ushakov leg. (cVS); 48 spec.: Khosta, 1–19.VI.1988, V.B. Semenov leg. (cVS); Adlerskiy District: 1 ♂, 2 ♀: 23 km NE Adler, lower course of Chvizhepse River, 43° 38' 25" N; 40° 04' 33" E, window trap, 28.IV–4.V.2013, K. Makarov leg. (cVS); **KARACHAY-CHEKKESSIA:** Karachay District: 10 ♂, 14 ♀:



FIGURES 24–27.

Teberdinskiy Biosphere Reserve, Teberda, VII.2011, E.A. Khachikov leg. (cEKh, cIE, ZMM); 1 ♂, 1 ♀: *ibid.*, Khatipara Mountain, 17.VII.2012, E.A. Khachikov leg. (ZMM); **NORTH OSSETIA: Alagirskiy District**: 1 ♂: North-Ossetian Biosphere Reserve, Tseiskoye Gorge, *Alnus*-brushwoods, 20.VII.1982, S.K. Alexeev leg. (cVS); **ABKHAZIA: Gagra District**: 1 ♂: Avadkhara, 24.V.2004, E.A. Khachikov leg. (ZMM); 2 ♂, 1 ♀: Mjusserskiy Biosphere Reserve, 18.IX.1988, I.A. Ushakov leg. (cVS); **Gudautskiy District**: 16 spec.: Duripsh, 10–16.IX.1985, I.A. Ushakov leg. (cVS); **Sukhum District**: 1 ♀: Gumistinskiy Biosphere Reserve, Tsumuri, 400–500 m, 4.VI.1982, Drabkin leg. (ZIN); 1 ♂, 1 ♀: Kelasuri Canyon, 18.IX.1988, I.A. Ushakov leg. (ZMM); **Ochamchirskiy District**: 7 ♂, 3 ♀: Dzhgerda, foothills of Kodorsky Ridge, 21.IX.1985, I.A. Ushakov leg. (cVS); **GEORGIA: SAMTSKHE-JAVAKHETI**: 1 ♀: ‘Borshom, Kaukasus’ [*Gyrophana fasciata*] (MAKB); **KAKHETI: Sagaredzhskiy District**: 1 ♀: Mariamdjvari Biosphere Reserve, *Carpinus* forest, 13–14.V.1987, S.I. Golovatch & K.Yu. Eskov leg. (cVS); **ARMENIA: TAVUSH AREA: Shamshadyn District**: 1 spec.: Dilizhan Biosphere Reserve, valley Akhnabat near Salakh, 1400–1500 m, *Carpinus* etc. forest, 17.IV.1989, S.I. Golovatch leg. (cVS); **AZERBAIJAN: Astarinskiy District**: 1 ♂, 1 ♀: Astara Istisu, W Astara, 100 m, 2–6.VI.1996, S.I. Golovatch leg. (ZMM); 4 ♂, 9 ♀: Bilyasyar, 800’ on Vasharu-Chay River, 16.VII.1932, Znoiko leg. (ZIN).

**Additional material examined: RUSSIA: REPUBLIC OF CRIMEA: Bakhchisaraiskiy District**: 1 ♂: Kokoz [Sokolinoe], 9.V.[19]11, V. Pliginskiy leg. (ZIN); **Yalta**: 1 spec.: Angarskiy Pass, 28.V.1911, V. Pliginskiy leg. (ZIN); 1 ♂: Taushan-Bazar, 26.VI.[19]07, V. Pliginskiy leg. [*Gyrophana bihamata*] (ZIN); 1 ♂: *ibid.*, 27.VI.[19]07, V. Pliginskiy leg. (ZIN); 1 ♂: *ibid.* 14.VII.[19]07, V. Pliginskiy (ZIN); **Alushta**: 2 ♀: Kos’mo-Damianovski Mon[astery], 23.VI.[19]08, V. Pliginskiy leg. (ZIN); 7 ♂, 4 ♀: *ibid.*, 18.VI.[19]11, V. Pliginskiy leg. (ZIN); **Kirovskiy District**: 2 ♂, 1 ♀: Stariy Crym, mountain forest, 15–16.VIII.2005, R. Cibulskis leg. (DUBC); **VOLGOGRAD AREA: Kalachevskiy District**: 1 ♂, 3 ♀: Kalach-na-Donu, 17–18. IX.1997, K.A. Grebennikov leg. (cIE); **ROSTOV AREA: Sholokhovskiy District**: 1 ♂, 3 ♀: Veshenskaya, 17.VI.2002, E.A. Khachikov leg. (ZMM); **Ust'-Donetskiy District**: 1 ♂: Krymskiy, 85 km E Rostov-na-Donu, Savateyevskaya balka, 17.V.2008, V.N. Prasolov leg. (ZIN); **Azovskiy District**: 52 spec.: Rostov-na-Donu, 21.VI.2009, E.A. Khachikov leg. (cEKh, ZMM).

**Distribution.** Europe, Caucasus, Turkey (Korge 1971), Iran (Assing 2011a), Siberia (Enushchenko & Shavrin 2011, 2012b).

**Remarks.** *G. joyi* has been recently recorded from the Caucasus (Khosta) by Nikitskiy & al. (2008).

### [*Gyrophana (Gyrophana) joyioides* Wüsthoff, 1937] (Figs. 28–30)

*Gyrophana joyioides* Wüsthoff, 1937: 146  
*Gyrophana joyioides*; Seevers, 1951: 732

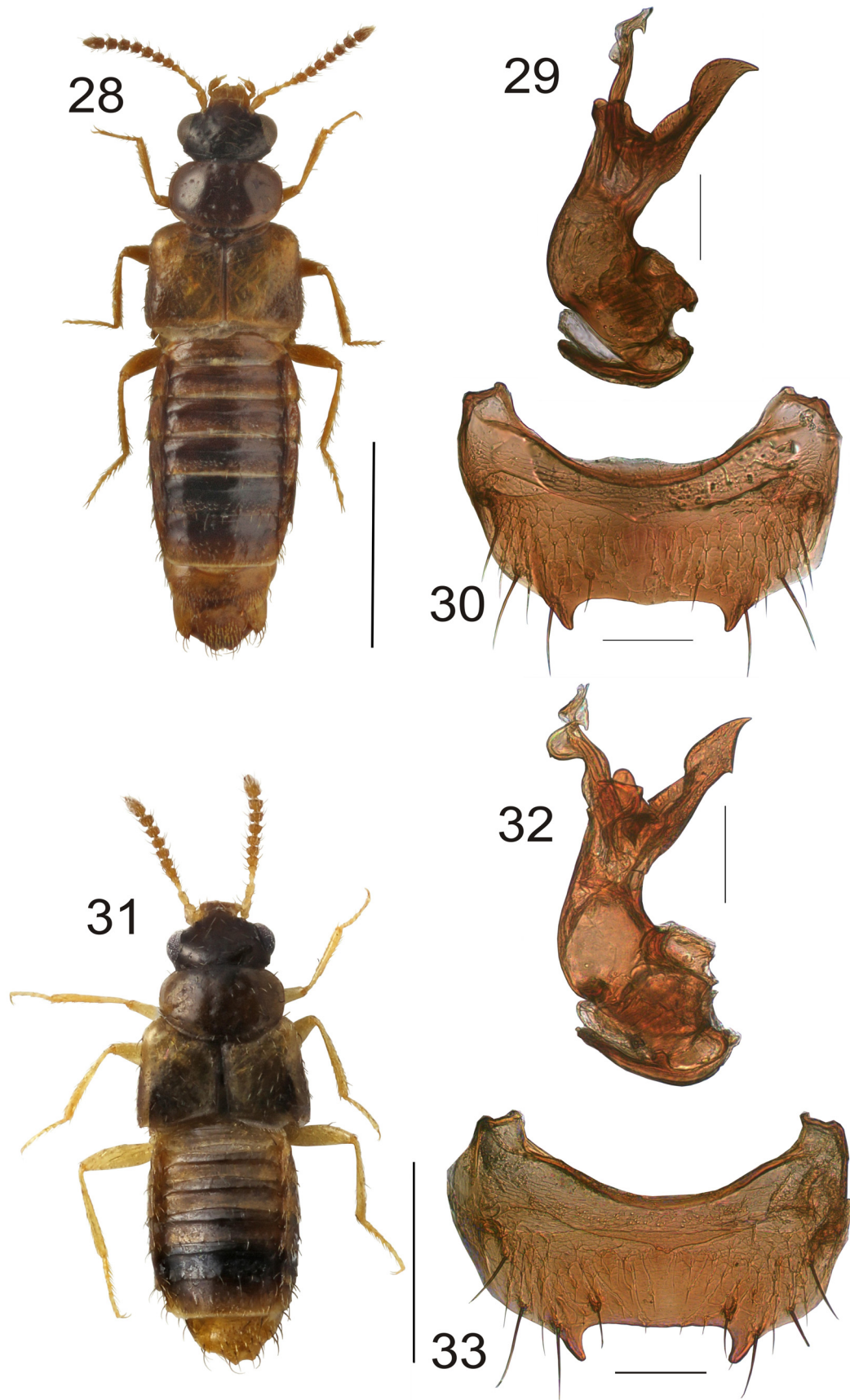
**Additional material examined: RUSSIA: VORONEZH AREA:** 2 ♂, 1 ♀: Voronezhskiy Biosphere Reserve, VIII.1962, K.V. Arnoldi leg. (cVS); **ROSTOV AREA: Millerovskiy District**: 3 ♂, 3 ♀: Ternovoi, Ivanovka, 6–18.VIII.2013, E.A. Khachikov leg. (cIE); **Sholokhovskiy District**: 1 ♂, 2 ♀: Veshnikovskaya, 17.VI.2002, E.A. Khachikov leg. (ZMM).

**Distribution.** Europe, Turkey (Assing 2006, 2014), W Siberia (Enushchenko & Shavrin 2012b, Bukhhalo & al. 2012).

**Remarks.** Seevers (1951) recorded five specimens of *G. joyioides* from Croatia and Caucasus; Tichomirova (1973) cited *G. joyioides* for Caucasus with a question-mark. Strand (1939) noted that *G. joyioides* is difficult to distinguish in habitus view (“...die nach äußeren Markmalen kaum von *joyioides* zu unterscheiden sind...”) from *G. caucasica*. Records of *G. joyioides* for Caucasus (Seevers 1951; Tichomirova 1973) are based on a misidentification of *G. caucasica*. Tichomirova (1973) cited *G. caucasica* as “*incertae sedis*”. The record of *G. joyioides* for Caucasus is not confirmed by new material.

It is herein recorded from Voronezh and Rostov Area for the first time.





FIGURES 28–33.

### ***Gyrophæna (Gyrophæna) korbi* A. Strand, 1939**

(Figs. 31–33)

*Gyrophæna korbi* A. Strand, 1939: 109

**Material examined:** **AZERBAIJAN:** Lenkoranskiy District: 1 ♂: ‘Lenkoran. Leder (Reitter)’ [*Gyroph. bihamata* Thoms. Coll. Reitter’] (HNHM); 1 ♂: ‘Lenkoran. Leder (Reitter)’ [*Gyroph. fasciata* Marsh. Coll. Reitter’] (HNHM); 15 ♂, 20 ♀: environs of Bilyasyar [Bilyasuvar], 22.VII.1978, V.V. Belov leg. (cIE, cVS); 1 ♂, 2 ♀: ibid., 28.IV.1980, S.G. Korolev leg. (cVS); 23 ♂, 15 ♀: Bilyasyar, 800' on Vasharu-Chay River, 16.VII.1932, Znoiko leg. (cAP, cIE, HNHM, ZIN, ZMM); 3 ♂, 1 ♀: Azrelkyl, 10.VI.2007, Kasatkin leg. (cEKH, ZMM); 2 ♂, 7 ♀: Masally Istisu, W Masall, 300 m, 18–19.VI.1996, S.I. Golovatch leg. (cIE, ZMM); 47 ♂, 58 ♀: Talysh, Girkansky Biosphere Reserve, 24.VI.1980, S.G. Korolev leg. (cVS); 8 ♂, 10 ♀: Astara Istisu, W Astara, 100 m, 2–6.VI.1996, S.I. Golovatch leg. (cIE, ZMM).

**Additional material examined:** **IRAN:** 1 ♀: Kishtybi, N Persia [apparently NW Iran in the vicinity of Talysh Mountains (Fedorenko, 1994)], 4.IV.[1]916, B. Iljin leg. (ZIN); **GUILAN:** 1 ♂, 2 ♀: Rasht, 37° 11' 36" N; 49° 38' 27" E, central part, 31m, on the mushroom, 16.XI.2012, J. Khormaly leg.; 1 ♂: ibid., under leaves (*Platanus* sp.) on the ground, 30.XI.2012, J. Khormaly leg. (cIE).

**Distribution.** Azerbaijan, N Iran (Assing 2011a).

**Remarks.** The species has been described from Lenkoran (Strand 1939). Tichomirova (1973) erroneously cited it as Middle-Asian species.

### ***Gyrophæna (Gyrophæna) lucidula* Erichson, 1837**

(Figs. 34–36)

*Gyrophæna lucidula* Erichson, 1837: 369

*Gyrophæna lucidula*; Kolenati, 1846: 10; Hochhuth, 1849: 73; Leder, 1886: 113; Jacobson, 1909: 533

**Material examined:** **RUSSIA: KRASNODAR TERRITORY: Krymskiy District:** 44 ♂, 59 ♀: Krymsk, right side of Adagum River, on *Lentinus tigrinus*, 5.X.2011, I.V. Enushchenko leg. (cIE, ZMM); 6 ♂, 9 ♀: ibid., on *Psathyrella* sp., 5.X.2011, I.V. Enushchenko leg. (ZMM); **AZERBAIJAN: Lenkoranskiy District:** 2 ♂: ‘Lenkoran | Leder | (Reitter)’ (NMPC); 8 spec.: ‘Lenkoran | Leder | (Reitter)’ (HNHM); 1 ♀: ‘Lenkoran | Leder | (Reitter)’ [*Gyroph. polita* Grav. Coll. Reitter’] (HNHM); 2 ♀: ‘Lenkoran | Leder | (Reitter)’ (ZIN); **Talysh:** 2 ♂, 2 ♀: ‘Talyshgedb. Transcaucas. Leder. Reitter.’ (MAKB); **REGION NOT LOCATED:** 2 ♀: ‘Caucasus. Reitter’ (HNHM).

**Additional material examined:** **RUSSIA: SARATOV AREA: Engel's District:** 1 ♂: Engel's, Lesnoy, on *Lentinus tigrinus*, 14.V.2011, I.A. Zabaluev leg.; **VOLGOGRAD AREA: Sredneakhtubinsky District:** 3 ♂, 3 ♀: Krasnoslobodsk, 20.VII.1997, K.A. Grebennikov leg. (cIE); **ROSTOV AREA: Azovskiyy District:** 15 spec.: Rostov-na-Donu, 21.VI.2009, E.A. Khachikov leg. (cIE, ZMM); **Millerovskiyy District:** 19 ♂, 38 ♀: Ivanovka, 6–18.VII.2013, E.A. Khachikov leg. (cIE, ZMM); **IRAN: GUILAN:** 1 ♀: Rasht, 37° 11' 36" N; 49° 38' 27" E, central part, 31m, under leaves (*Platanus* sp.) on the ground, 30.XI.2012, J. Khormaly leg. (ZMM); **REGION NOT LOCATED:** 3 ♂, 4 ♀: Persia 1 m Caspii, Hassankiadeh, 4.II.1915, B. Iljin' leg. (ZIN).

**Distribution.** Europe, Caucasus, [?] Algeria (Reiche 1872), N Iran.

**Remarks.** The species has been recorded from "provincia Elisabethopol et Karabagh" by Kolenati (1846). It was recorded from Lenkoran (Leder 1886). It is recorded here from Iran for the first time.

### ***Gyrophæna (Gyrophæna) manca* Erichson, 1839**

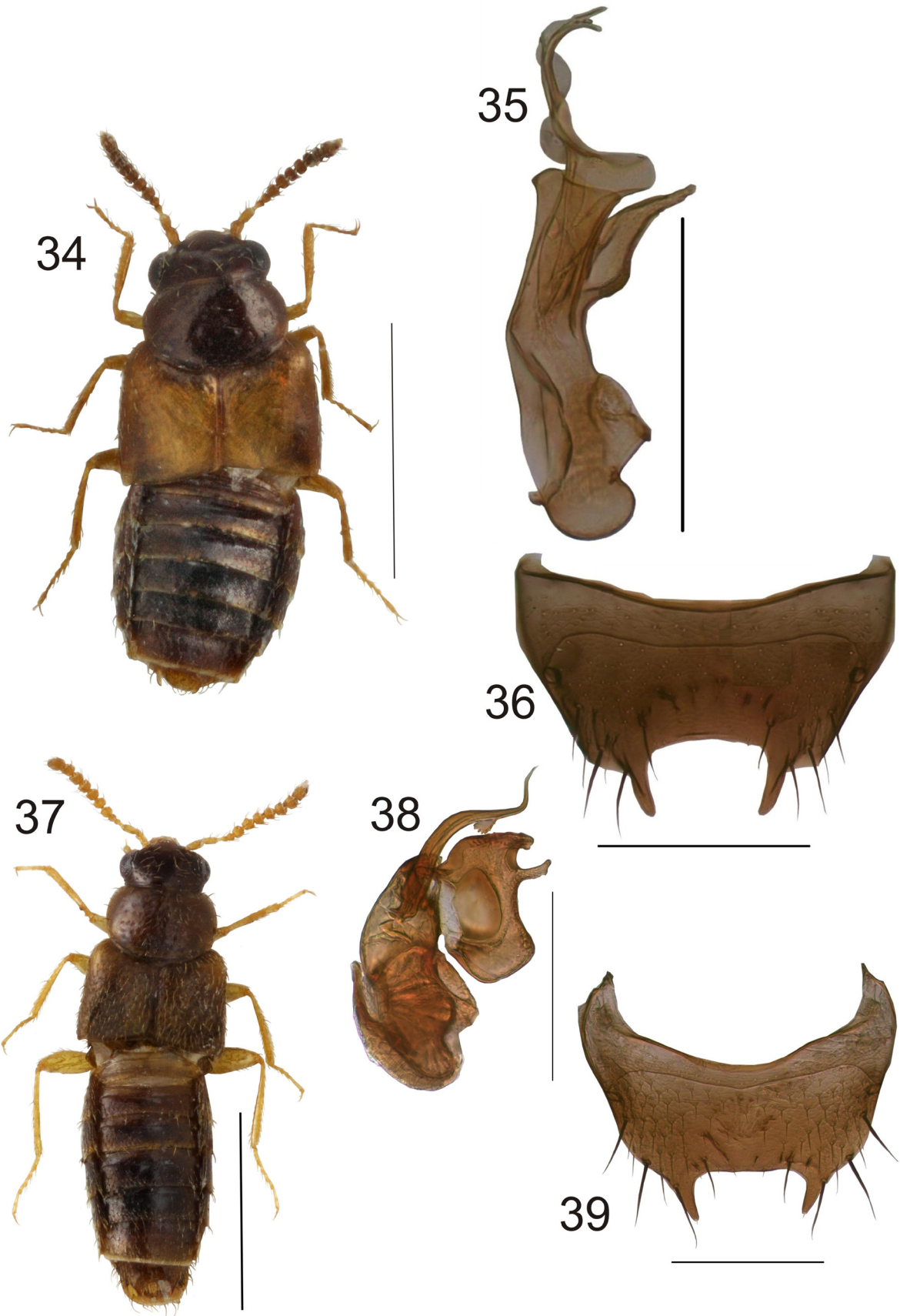
(Figs. 37–39)

*Gyrophæna manca* Erichson, 1839: 190; Nikitskiy & al., 1998: 12

*Aleochara angustata* Stephens, 1832: 152

*Gyrophæna puncticollis* Hochhuth, 1872: 121

*Gyrophæna manca*; Leder, 1879: 463, 1886: 113; Jacobson, 1909: 533; Roubal, 1913: 484; Nikitskiy & al., 2008: 113



FIGURES 34–39.

**Material examined:** **RUSSIA: STAVROPOL TERRITORY:** Predgorniy District: 1 ♂: Pyatigorsk, Beshtau Mountain, fungi, 9.VI.1911, B. Iljin leg. (ZIN); 2 ♂, 5 ♀: Mineral'niye Vody, Beshtau Mountain, 10.VI.1994, E.A. Khachikov leg. (cEKh, ZMM); **KRASnodAR TERRITORY:** Temryukskiy District: 3 ♂, 3 ♀: 1 km NW Ilyich, sift, pitfall traps, 812 m, N 44°04'1,1" E 41°21'33,0", 28.05.2014, A. Pütz leg. (cAP); Severskiy District: 1 ♀: Ubinskaya, 19.V.1975, V.V. Belov leg. (cVS); 16 spec.: ibid., 22.VI.1976, V.V. Belov leg. (VS); 7 spec.: ibid., 18.VI.1986, I.A. Ushakov leg. (ZMM); 2 spec.: near Ubinskaya, Papai Mountain, 2.VI.1986, I.A. Ushakov leg. (cVS); 16 spec.: ibid., Sober-Oashkh Mountain, 19.VI.1986, I.A. Ushakov leg. (cVS); 5 spec.: ibid., Derbiy Mountain, 31.VI.1986, I.A. Ushakov leg. (cVS); Otradninskiy District: 3 ♂, 5 ♀: N slopes of Skalisty Mts. rng., near Peredovaya, river 1.st Sukhaya balka, sift, pitfall traps, 901 m, N 44°02'46.1" E 41°26'04.2", 27.V.2014, A. Pütz leg. (cAP); Apsheronkiy District: 1 ♂: N slopes of Skalisty Mts. rng., near Peredovaya River 1.st, Sukhaya balka, sift, pitfall traps, 901 m, N 44°02'46.1" E 41°26'04.2", 27.V.2014, A. Pütz leg. (cAP); 4 ♂, 9 ♀: S slopes of Chernogorie Mts. rng., near Otdalyennyi, sift, pitfall traps, 781 m, N 44°04'52.3" E 39°44'14.9", 23.V.2014, A. Pütz leg. (cAP); 1 ♀: Lagonakskiy Mts. rng., Matazyk Mountain, 6 km S Guamka, pitfall traps, sift, 997 m, N 44°19'51.1" E 39°54'33.3", 20.V.2014, A. Pütz leg. (cAP); 1 ♀: ibid., 9 km S Guamka, pitfall traps, sift, 1082 m, N 44°09'05.0" E 39°54'33.3", 21.V.2014, A. Pütz leg. (cAP); 3 ♂, 4 ♀: Mezmai, 19–25.VII.1996, E.A. Khachikov leg. (ZMM); Anapskiy District: 1 ♀: Bol'shoi Utrish, 1–5.V.2008, E.A. Khachikov leg. (ZMM); Gelendzhikskiy District: 500 spec.: 7 km W Krinitsa, Tyomnaya Shchel' Gorge 19.IX.2012, E.A. Khachikov leg. (cEKh, ZMM); 2 ♂, 1 ♀: ibid., 1–11.VIII.2013, E.A. Khachikov leg. (ZMM); Khostinskiy District: 19 spec.: Khosta, 4–10.VI.1988, V.B. Semenov leg. (cVS); Adlerskiy District: 1 ♀: Adl[er], 18.VI.[19]09 / Caucasus / *Gyrophaena laevicollis* (ZIN); 1 ♀: Adler, 13.VI.1909, G. Sumakov leg. (ZIN); 1 ♂: 23 km NE Adler, lower course of Chvizhepse River, 43° 38' 25" N; 40° 04' 33" E, window trap, 28.IV–4.V.2013, K. Makarov leg. (ZMM); 2 ♂, 2 ♀: vicinity of Chvizhepse, N 43°38'32" E 40°04'45", h=300 m, 17.VII.2014, A.V. Kovalyev leg. (ZIN); 1 ♀: 30 km NNO Adler, lower reaches of Chvizhepse River, 250–800 m, 29.IV.–08.V.2013, S. Kurbatova leg. (RCPQ); **ADYGEA:** Maikopskiy District: 2 ♀: Caucasian Biosphere Reserve, Guzeripl', 21.VI.1990, V.V. Grebennikov leg. (ZMM); 4 spec.: ibid., 22.VI.–14.VII.2000, A.R. Bibin leg. (cVS); 28 ♂, 30 ♀: ibid., 10 km N Guzeripl', Nikel', Sjuk River, 28.VI.1990, Degtyaryov, Beschyotnyi leg. (ZMM); **KARACHAY-CHEKKESSIA:** Karachay District: 12 ♂, 7 ♀: Teberdinskiy Biosphere Reserve, Teberda, VII.2011, E.A. Khachikov leg. (cEKh, cIE, ZMM); 300 spec.: ibid., Khatipara Mountain, 17.VII.2012, E.A. Khachikov leg. (cEKh, cIE, ZMM); **KABARDINO-BALKARIA:** 2 ♂: Nal'chik, Belaya Rechka, left side of the river, flood-lands forest, 9.X.2011, A. Aiydov leg. (ZMM); **ABKHAZIA:** Gagra District: 27 spec.: Gumistinsky Biosphere Reserve, cordon Verkhniy Tsumur, 24.IX.1985, I.A. Ushakov leg. (cVS); Gudautskiy District: 14 spec.: environs of Ritsa Lake, near the mouth of the river which flows into the lake, 16.IX.1985, I.A. Ushakov leg. (ZMM); 2 spec.: Bzybskiy Mountain Ridge, ca. 2 km N Duripsh, general collecting. 09.IX.1985. I.A. Ushakov leg. (cVS); **GEORGIA: KAKHETI:** 1 spec.: Latodekhskiy Biosphere Reserve, valley of Aktsalor River, 2 km from station, on woody fungi and under bark of the *Fagus* stump. 24.X.1954, L. Arnoldi leg. (ZIN); Telavskiy District: 2 ♂, 2 ♀: 'Ljaliskuri | unter Baumpfriemen' / '*Gyrophaena* | *puella* mihi [V. Motschulsky] | Georgia' (ZMM); **ADJARIA:** 1 ♀: Batum / coll. Kenig (ZIN); **AZERBAIJAN:** Lenkoranskiy District: 1 ♂: 'Lenkoran | Leder | (Reitter)' (HNHM); 1 ♂: 'Lenkoran | Leder | (Reitter)' (ZIN); 2 ♂, 4 ♀: environs of Bilyasyar [Bilyasuvar], 22.VII.1978, V.V. Belov leg. (ZMM); 1 ♂: Bilyasyar, 800' on Vasharu-Chay River, 16.VII.1932, Znoiko leg. (ZIN); Talysh: 1 ♂: Girkansky Biosphere Reserve, 24.VI.1980, S.G. Korolev leg. (ZMM); **REGION NOT LOCATED:** 1 ♂, 1 ♀: 'Caucasus. Leder' (HNHM); 1 ♀: 'Kaukas Leder' (HNHM).

**Additional material examined:** **UKRAINE: DONETSK AREA:** Slavyanskiy District: 1 ♀: Svyatogorskaya, [?].VII.1936, K.V. Arnoldi leg. (ZMM); **RUSSIA: ROSTOV AREA:** Verkhnedonskoy District: 6 ♂, 15 ♀: mouth of Peskovatka River, 13–15.VII.2007, E.A. Khachikov leg. (ZMM); Sholokhovskiy District: 10 ♂, 4 ♀: Veshenskaya, 17.VI.2002, E.A. Khachikov leg. (ZMM); 88 ♂, 65 ♀: Proval'skaya step' Biosphere Reserve, Gukovo, 30.V.2000, E.A. Khachikov leg. (cIE, ZMM); Millerovskiy District: 1 ♀: Ivanovka, 6–18.VII.2013, E.A. Khachikov leg. (ZMM); Krasnosulinskiy District: 2 ♂, 1 ♀: Donleskhoz, 2–4.V.1999, E.A. Khachikov leg. (ZMM); Azovskiy District: 1 ♂: Rostov-na-Donu, on *Ganoderma applanatum*, 9.VIII.2013, I.V. Enushchenko, E.A. Khachikov leg. (ZMM); 144 ♂, 132 ♀: ibid., 17.VI.2013, E.A. Khachikov leg. (cIE, ZMM); **MARITIME PROVINCE:** Lazovskiy District: 1 ♀: Lazovskiy Nature Reserve, cordon Prosyolochniy (Ta-Chingouza), 1–3.VII.2007, A.V. Shavrin leg. (cIE).

**Distribution.** Europe, Caucasus, SE Kazakhstan (Kashcheev 2001), Siberia.

**Remarks.** The first record of *G. manca* for the Caucasus (Surami, Georgia) was published by Leder (1879).

Later, the same author (Leder 1886) recorded this species from Lenkoran. Roubal (1913) cited the species from Karachay-Cherkessia, Teberda River. Nikitskiy & al. (2008) recorded it from Khosta and Guzeripl', the Caucasian Biosphere Reserve.

### ***Gyropaena (Gyropaena) minima* Erichson, 1837**

(Figs. 40–42)

*Gyropaena minima* Erichson, 1837: 370

*Gyropaena minima*; Roubal, 1911: 13; Nikitskiy & al., 2008: 113

**Material examined:** **RUSSIA: KRASNODAR TERRITORY:** Severskiy District: 3 spec.: Ubinskaya, Derbiy Mountain, 31.V.1986, I.A. Ushakov leg. (cVS); Adlerskiy District: 1 ♂: 23 km NE Adler, lower course of Chvizhepse River, N 43°38'25"; E 40°04'33", window trap, 28.IV–4.V.2013, K. Makarov leg. (cVS); 4 ♂, 4 ♀: 30 km NNO Adler, lower reaches of Chvizhepse River, 250–800 m, 29.IV.–08.V.2013, S. Kurbatova leg. (cAP, RCPQ); Khostinskiy District: 22 spec.: Khosta, 4–10.VI.1988, V.B. Semenov leg. (cVS); **KABARDINO-BALKARIA:** 1 ♀: Nal'chik, Belaya Rechka, left side of the river, flood-lands forest, 9.X.2011, A. Aiydov leg. (cVS); **ABKHAZIA:** Gagra District: 137 spec.: Gumistinsky Biosphere Reserve, cordon Verkhny Tsumur, 24.IX.1985, I.A. Ushakov leg. (cVS); 2 ♂: Myusserskiy Biosphere Reserve, 18.IX.1988, I.A. Ushakov leg. (cVS); Sukhum District: 1 spec.: Pskhu, 750 m, 19.VIII.1986, A.B. Ryvkin leg. (cVS); 9 ♂: Kelasuri Canyon, 18.IX.1988, I.A. Ushakov leg. (cVS); **GEORGIA: KAKHETI:** 1 ♀: Lagodekhi, on gilled fungi, 25.IX.1986, O.L. Kryzhanovskiy leg. (ZIN); 1 ♂: Lagodekhi valley of Shroma River, bracket fungi, 29.V.1977, Kireichjuk leg. (ZIN); **AZERBAIJAN:** Lenkoranskiy District: 1 ♀: 'Lenkoran | Leder | (Reitter) / 387' (ZIN); 1 ♂: Bilyasyar, 800' on Vasharu-Chay River, 16.VII.1932, Znoiko leg. (ZIN).

**Additional material examined:** **IRAN: MAZANDARAN:** 5 ♀: Chalus County, Elburz Mts., N-Slope, 10 km SE Abbasabad, small stream, N 36°38'95.9" E 51°12'22.5", 149 m, 4.VI.2008, A. Pütz leg. (cAP, ZMM).

**Distribution.** C & N Europe; European part of Russia (Dedyukhin & al. 2005, Semenov 2007, Merkl 2008, Glotov & al. 2011), Caucasus, Turkey (Assing 2009), Iran, Siberia (Sahlberg 1880: "In territorio silvoso prope oppidum Jenisseisk").

**Remarks.** For Caucasus it was recorded by Roubal (1911) from Krasnaya Polyana. Nikitskiy & al. (2008) recorded it from Caucasian Biosphere Reserve (Laura cordon and Khosta).

### ***Gyropaena (Gyropaena) munsteri* A. Strand, 1935**

(Figs. 43–45)

*Gyropaena munsteri* A. Strand, 1935: 399

*Gyropaena munsteri*; Nikitskiy & al., 2008: 113

**Material examined:** **RUSSIA: KRASNODAR TERRITORY:** Khostinskiy District: 1 ♂: Lazarevskoye, Maryino, 25.IX.1988, I.A. Ushakov leg. (cVS); **ADYGEA:** Maikopskiy District: 3 ♂, 1 ♀: descent from a pasture Abago Mountain, Guzeripl', 1300 m, 26.V.1985, A.B. Ryvkin leg. (cIE, cVS); 1 ♂: Guzeripl', 1.VI.2000, A.R. Bibin leg. (ZMM); **GEORGIA: SVANETI:** 1 ♂: 'Caucasus. Meskisch. [Meskisches Gebirge] Co. Leder. Reitter'. [*Gyroph. affinis* Sahlb. Coll. Reitter'] (HNHM).

**Distribution.** Europe, Caucasus, Turkey (Assing 2011b), S Siberia (Babenko 1991).

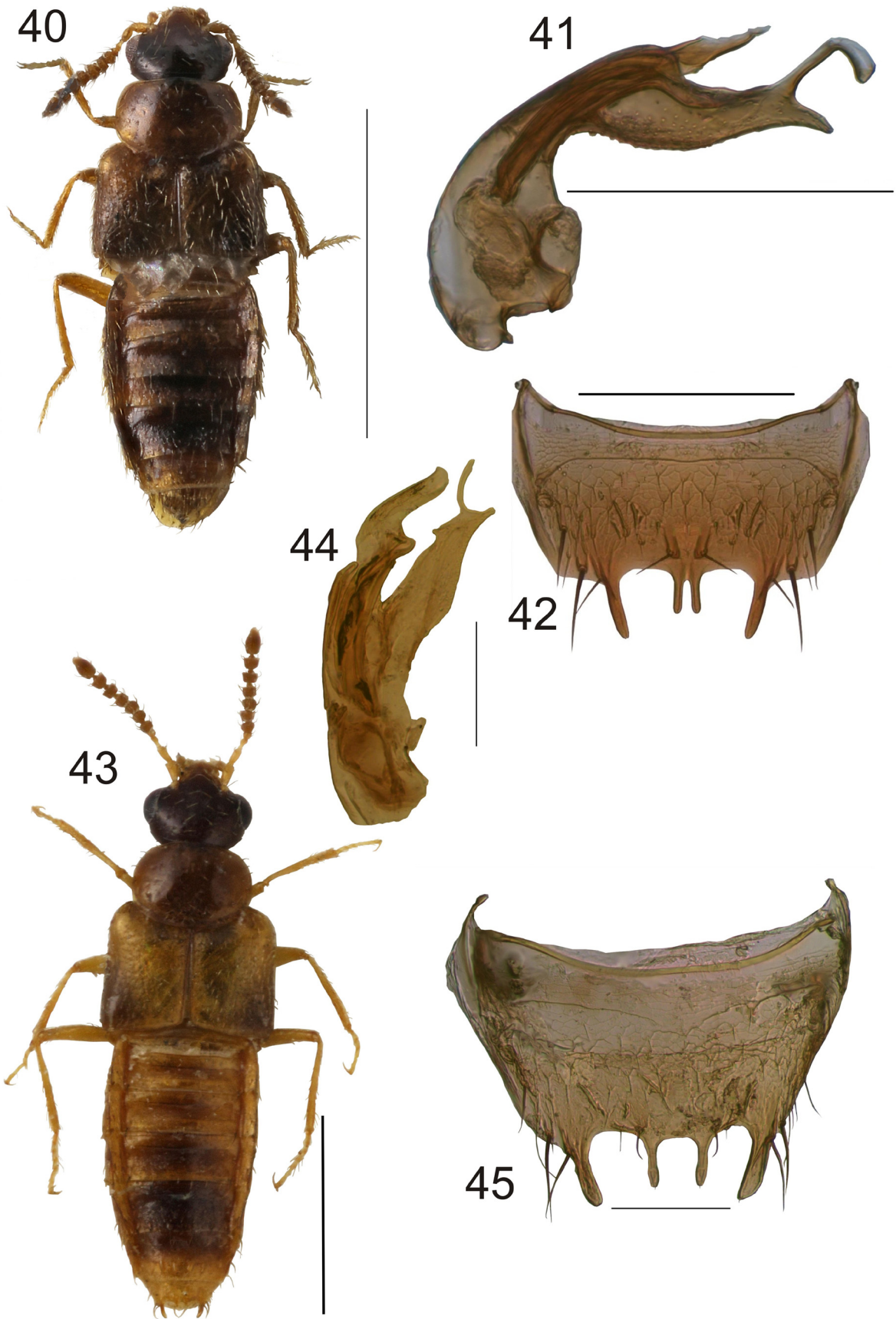
**Remarks.** Nikitskiy & al. (2008) recorded it for the Caucasus (Guzeripl').

### ***Gyropaena (Gyropaena) nana* (Paykull, 1800)**

(Figs. 46–48)

*Staphylinus nanus* Paykull, 1800: 408

*Aleochara marginata* Stephens, 1832: 153



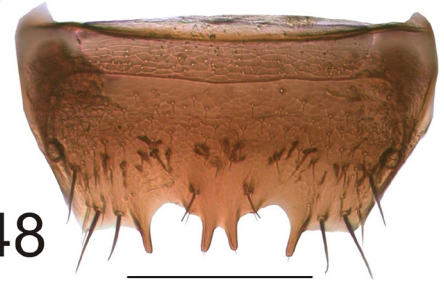
FIGURES 40–45.



46



47



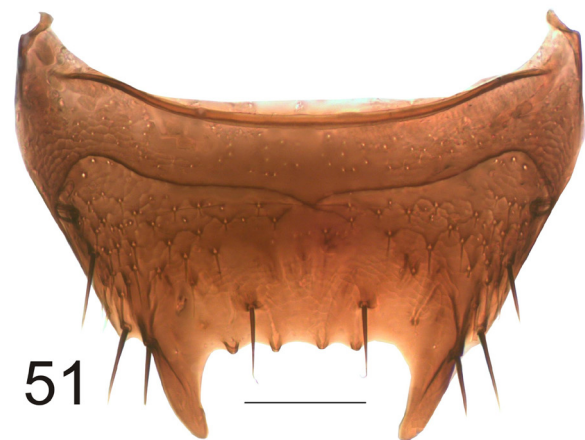
48



49



50



51

FIGURES 46–51.

*Gyrophæna nigriventris* A. Fleischer, 1909: 332  
*Gyrophæna perpolita* Casey, 1906: 301  
*Gyrophæna nana*; Roubal, 1913: 484; Nikitskiy & al., 2008: 113

**Material examined:** **RUSSIA: ADYGEA: Maikopskiy District:** 1 ♂, 2 ♀: Caucasian Biosphere Reserve, Guzeripl', 21.VI.1990, V.V. Grebennikov leg. (cVS, ZMM); 1 ♂: Guzeripl', Abago Mountain, 1800 m, window trap, 1–22.VI.2000, A.R. Bibin leg. (cVS); 1 ♂, 2 ♀: ibid., window trap, 22.VI–14.VII.2000, A.R. Bibin leg. (cVS, ZMM); 1 ♀: ibid., 1400 m, window trap, 9–26.VI.2001, A.R. Bibin leg. (cVS); **GEORGIA: SVANETI:** 1 ♂: 'Caucasus Swantien Leder Reitter' (HNHM).

**Distribution.** Europe, Caucasus, Far East, N America (Seevers 1951), Turkey (Korge 1971).

**Remarks.** The first record of *G. nana* for Caucasus (Karachay-Cherkessia, Teberda River) was published by Roubal (1913). It has also been recorded from Abago Mountain by Nikitskiy & al. (2008).

### ***Gyrophæna (Gyrophæna) nitidula* (Gyllenhal, 1810)**

(Figs. 49–51)

*Aleochara nitidula* Gyllenhal, 1810: 413  
*Gyrophæna signatipennis* Gredler, 1863: 93  
*Gyrophæna nitidula*; Nikitskiy & al., 2008: 114

**Material examined:** **RUSSIA: KRASNODAR TERRITORY: Khostinskiy District:** 1 ♀: Khosta, 17.VI.1988, V.B. Semenov leg. (cVS); **ADYGEA: Maikopskiy District:** 1 ♂: Guzeripl', window trap, 8–26.VI.2001, A.R. Bibin leg. (cVS); **KARACHAY-CHERKESSIA: Karachay District:** 1 ♂, 1 ♀: Teberdinskiy Biosphere Reserve, Teberda, VII.2011, E.A. Khachikov leg. (cIE).

**Additional material examined:** **RUSSIA: REPUBLIC OF CRIMEA: Yalta:** 6 ♂, 6 ♀: Vinogradniy, S slope of Uragai Ridge, 500 m, beech forest, 28.V.1999, D.S. Shchigel' leg. (cVS); 1 ♀: ibid., on *Fomes fomentarius* on the *Ulmus* sp., 28.V.1999, D.S. Shchigel' leg. (cVS); 1 ♂, 1 ♀: Gurzuf, 29.IV.1947, K.V. Arnoldi leg. (cVS); **Alushta:** 11 ♂, 16 ♀: Kos'mo-Damianovskiy Mon[astery], 23.VI.[19]08, V. Pliginskiy leg. (ZIN); 1 ♂: ibid., 18.VI.[19]11, V. Pliginskiy leg. (ZIN); 1 ♂: ibid., 28.V.[1]920, V. Pliginskiy leg. (ZIN).

**Distribution.** C & N Europe, European part of Russia (Goreslavets 2010), Caucasus, Turkey (Jacobson 1909, Öncüer 1991), SE Kazakhstan (Kashcheev 2001). Records of *G. nitidula* from Siberia (Jacobson 1909, Tichomirova 1973) are probably doubtful.

**Taxonomic notes.** After two descriptions of *Encephalus kraatzi* made independently by Hochhuth (1872) from Ukraine and Solsky (1875) from E Siberia there has been much confusion regarding their synonymy with *G. nitidula* (Enushchenko & Shavrin 2011). The descriptions are quite different and do not contain characters of the species of the genus *Gyrophæna*. Shilov (1977) studied the type of *E. kraatzi* Hochhuth and proposed a new combination: *Brachida kraatzi* (Hochhuth, 1872). The type material of Solsky has not been studied, thus the taxonomic status of *E. kraatzi* Solsky, 1875 still is unclear.

**Remarks.** *G. nitidula* was recorded for Caucasus (Khosta) by Nikitskiy & al. (2008).

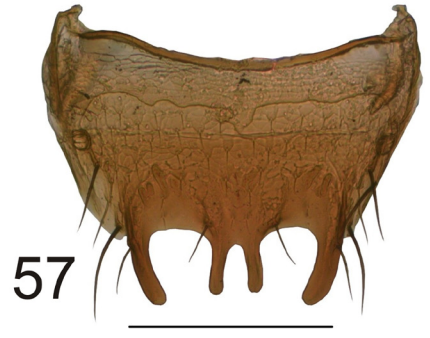
### ***Gyrophæna (Gyrophæna) orientalis* A. Strand, 1938**

(Figs. 52–54)

*Gyrophæna orientalis* A. Strand, 1938: 39  
*Gyrophæna transsylvanica* Ádám, 2008: 164  
*Gyrophæna orientalis*; Glotov, 2014: 181

**Material examined:** **RUSSIA: KRASNODAR TERRITORY: Severskiy District:** 2 ♂: Ubinskaya, 21.VI.1975, V.V. Belov leg. (ZMM); **Apsheronkiy District:** 3 ♂, 1 ♀: S slopes of Chernogorie Mts. rng., near Otdalyennyi, sift, pitfall traps, 781 m, N 44°04'52,3" E 39°44'14,9", 23.05.2014, A. Pütz leg. (cAP); **ADYGEA: Maikopskiy District:** 3 ♂: 10 km N Guzeripl', Nikel', Sjuk Riv., 28.VI.1990, Degtyaryov, Beschyotnyi leg. (ZMM).





FIGURES 52–57.

**Distribution.** C & N Europe, Caucasus, Siberia (Strand 1938, Enushchenko & Shavrin 2011, 2012b).

**Remarks.** It is here recorded for Caucasus for the first time.

***Gyropaena (Gyropaena) poweri* Crotch, 1867**

(Figs. 55–57)

*Gyropaena poweri* Crotch, 1867: 439

*Gyropaena puncticollis* Thomson, 1867a: 232

*Gyropaena punctulata* Mulsant & Rey, 1870: 156

**Material examined:** 1 ♂: ‘Caucasus Reitter’ [*G. fasciata* Hlisnikowski 1919’] (NMPC).

**Distribution.** Europe, Caucasus, Siberia (Enushchenko & Shavrin 2011, 2012b, Bukhkalov *et al.* 2012), Russian Far East (Enushchenko & Shavrin 2011).

**Remarks.** It is here recorded for Caucasus for the first time.

**[*Gyropaena (Gyropaena) pulchella* Heer, 1839]**

(Figs. 58–60)

*Gyropaena pulchella* Heer, 1839: 310

*Gyropaena glabrella* Motschulsky, 1858: 229

*Gyropaena pulchella*; Nikitskiy & al., 1998: 11

*Gyropaena pulchella*; Roubal, 1913: 484; Seevers, 1951: 710

**Distribution.** Europe, ? Caucasus, Siberia.

**Remarks.** It was recorded by Roubal (1913) from “N Caucasus, Kubanskiy region, Mountains on the Teberda River” and by Seevers (1951) from Dagestan.

***Gyropaena (Gyropaena) rugipennis* Mulsant et Rey, 1861**

(Figs. 61–63)

*Gyropaena rugipennis* Mulsant et Rey, 1861: 116

**Material examined:** **RUSSIA: KRASNODAR TERRITORY: Apsheeronskiy District:** 1 ♀: S slopes of Chernogorie Mts. rng., near Otdalyennyi, sift, pitfall traps, 781 m, N 44°04'52,3" E 39°44'14,9", 23.05.2014, A. Pütz leg. (cAP).

**Addition material examined:** **RUSSIA: REPUBLIC OF CRIMEA: Alushta:** 1 ♀: Kos'mo-Damianovskiy Mon[astery], 18.VI.1911, A.M. Djakonov leg. (ZIN).

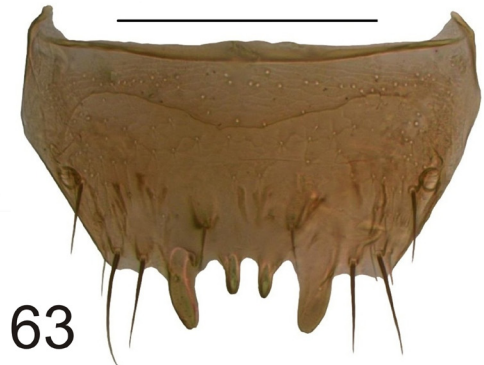
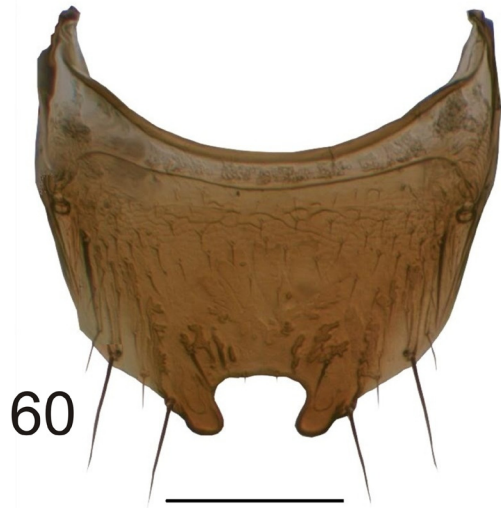
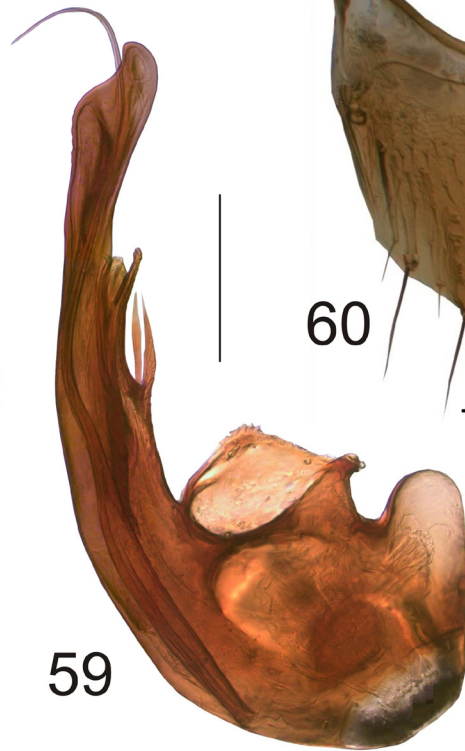
**Distribution.** Europe, Caucasus, Siberia (Enushchenko & Shavrin 2011, Enushchenko & Shavrin 2012b), Russian Far East (Eppelsheim 1887).

***Gyropaena (Phaenogyra) atropatena* Enushchenko, sp. n.**

(Figs. 64–66)

**Type material examined:** Holotype of *Gyropaena (Phaenogyra) atropatena* Enushchenko, sp. n., 1 ♂: **AZERBAIJAN:** ‘ЮВ Азерб[айджан]., Талыш [SE Azerb[aijan]., Talysh] | Алексеевка [Aleksееvka]. 23 | бл. Ленкорань [near Lenkoran] IV | Вышинский [Vyshinskiy] 1979’, ‘*Gyropaena | strictula* Er. | V.B. Semenov det. 1985’, ‘Holotype | *Gyropaena | atropatena* sp.n. | Enushchenko I.V. | 2015 det.’ <red label> (ZMM).

Paratype 1 spec.: **IRAN:** ‘Kishtiabi | N Persia [apparently NW Iran in the vicinity of Talysh Mountains (Fedorenko, 1994)], 4.IV.[1]916, B. Iljin’, ‘*Gyropaena | strictula* Er. | Enushchenko I.V. | 2015 det.’ (ZIN); 1 ♂: ‘**IRAN**, Prov. Mazandaran | [IR08-20] Chalus County, | Elburz Mts., N-Slope, 10 km | SE Abbasabad, small stream, | 36°38'95,9"N, 51°12'22,5"E, | 149m, 04.VI.2008, leg. A. Pütz’, ‘*Gyropaena | strictula* | Erichson | det. V. Assing, 2010’, ‘Paratype | *Gyropaena | atropatena* sp.n. | Enushchenko I.V. | 2015 det.’ <red label> (cAP).



FIGURES 58–63.

**Description.** Body subparallel, length 1.8 mm. Head and pronotum pitchy-brown to black; disc of elytra dark red-brown to pitchy-brown, postero-lateral margins of elytra darker; abdomen dark red-brown; legs, antennae and mouthparts yellow. Body with dense and distinct reticulate microsculpture, weaker on abdomen. Head as long as wide, vertex with sparse, shallow, indistinct punctures; median area impunctate. Antennomeres I–III elongate, twice longer than width; antennomeres IV–VII as wide as long; antennomeres VIII–X twice wider than long; apical antennomere conical, 1.25 times longer than width. Pronotum 1.4 times as wide as long and head; maximal width in median part, posterior angles rounded, microsculpture as that on head, with two median rows of small weakly defined punctures, very indistinct at base. Elytra 1.4 times longer than pronotum, 1.5 times as wide as long; disc and posterior angles of elytra with sparse small tubercles.

Male. Posterior margin of abdominal tergite VIII (Fig. 66) with two large lateral teeth and two small teeth between them, apical margin slightly emarginated. Median lobe of aedeagus narrow, elongate and straight; apical projection of internal sac short and irregularly shaped (Fig. 65).

Female unknown.

**Comparative notes.** Based on the arrangement of pronotal punctures and character of microsculpture of the elytra, the new species is similar to *G. strictula*, from which it differs by the subparallel abdomen (not sphenoid, as in *G. strictula*), narrower elytra (elytra of *G. strictula* 1.3 times as wide as long), by the coloration of antennae (antennomeres of *G. strictula* yellow-brown or brown) and by the shape of antennal segments (antennomeres IV and X of *G. strictula* as wide as long, antennomeres V–IX 1.3 times wider than long). Besides that, the aedeagus (Fig. 65) of new species is slightly smaller and more slender than that of *G. strictula* (Fig. 68); ventral plate is narrow, elongate and straight (not lanceolate and slightly convolute, as in *G. strictula*).

**Etymology:** The species name is derived from the Greek Atropatene, the name of the ancient province of the north-east of Iran; it roughly corresponds with territories of Iranian Azerbaijan and southern regions of Azerbaijan.

**Remarks.** Assing (2011a) recorded this species from Iran (Mazandaran, Chalus county) as *G. (Phaenogyra) strictula*.

### ***Gyrophæna (Phaenogyra) strictula* Erichson, 1839** (Figs. 67–69)

*Gyrophæna strictula* Erichson, 1839: 191

*Gyrophæna glacialis* Hochhuth, 1849: 74

*Gyrophæna laevigata* Heer, 1839: 310

*Gyrophæna strictula*; Eppelsheim, 1878: 105; Leder, 1886: 113; Jacobson, 1909: 533; Nikitskiy & al., 2008: 114

**Material examined:** **RUSSIA: ADYGEA: Maikopskiy District:** 1 ♂: Caucasian Biosphere Reserve, vicinity of Guzeripl', window trap on fir, 22.VI–14.VII.2000, A.R. Bibin leg. (ZMM); **KARACHAY-CHEKKESSIA: Karachay District:** 1 ♂: Teberdinskiy Biosphere Reserve, Teberda, VII.2011, E.A. Khachikov leg. (ZMM); **REGION NOT LOCATED:** 2 ♂, 5 ♀: 'Caucasus. Leder.' ['*Gyroph. polita* Grav. Coll. Reitter'] (HNHM); 1 ♀: 'Kaukas Leder' ['*Gyroph. polita* Grav. Coll. Reitter'] (HNHM).

**Additional material examined:** **RUSSIA: REPUBLIC OF CRIMEA: Simferopol'skiy District:** 1 ♂, 2 ♀: Chatyrdag, 7.VIII.1908, V. Pliginskiy leg. (ZIN); 1 ♀: Taushan-Bazar [Privol'noye], 31.X.1911, V. Pliginskiy leg. (ZIN); **Alushta:** 1 ♀: Kos'mo-Damianovskiy Monastery, 18.VI.1911, V. Pliginskiy leg. ['*strictula*'] (ZIN).

**Distribution.** Holarctic.

**Taxonomic notes.** Kolenati (1846) described *G. glacialis* from Kazbek ("montis Kasbek Caucasi centralis"). Erichson (1846) synonymized this species with *Oligota subtilis* Erichson 1837; in 1849 he synonymised *Microcera inflata* Mannerheim 1830 with *O. subtilis* too. Kraatz (1856) found *Microcera inflata* to be *Oligota*. Following the priority rule, *O. subtilis* is regarded as a junior synonym of *O. inflata* (Mannerheim 1830), and *G. glacialis* was removed in synonyms of the last one (Schülke & Smetana 2015).

Hochhuth (1849), based on his own material, provided a redescription of *G. glacialis* Kolenati 1846 and noticed that if his material does not belong to *G. glacialis*, it must to a new species. Later, *G. glacialis* Hochhuth 1849 (nec Kolenati, 1846) was synonymized with *G. strictula* Erichson 1839 by Reitter (Heyden & al. 1883).

**Remarks.** The first record of *G. strictula* for the Caucasian Region ("Helenendorf") was published by Eppelsheim (1878). Leder (1886) recorded this species from Lenkoran. Jacobson (1909) combined these records in

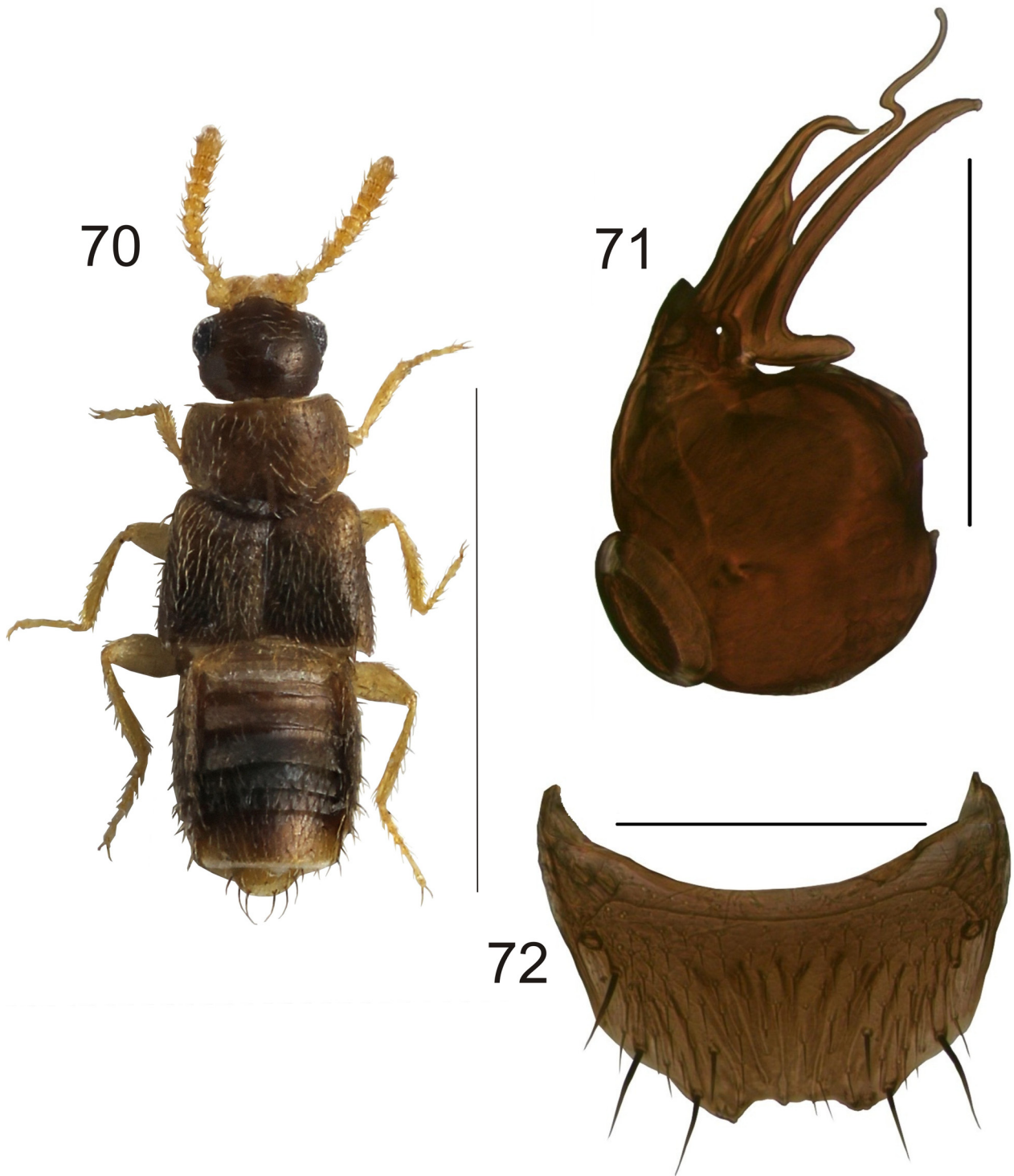


FIGURES 64–69.

his catalogue and recorded *G. strictula* for Elisbethopol and Talysh. Nikitskiy & al. (2008) recorded it for Guzeripl' village.

***Gyrophæna (Agaricophæna) boleti* (Linnaeus 1758)**

(Figs. 70–72)



FIGURES 70–72.

*Staphylinus boleti* Linnaeus, 1758: 423

*Gyrophana fungicola* Motschulsky, 1860: 559

*Gyrophana punctipennis* Thomson, 1860: 269

*Gyrophana boleti*; Sahlberg, 1876: 95

*Gyrophana punctipennis* Kraatz, 1862: 298

*Gyrophana boleti*; Eppelsheim, 1878: 105; Jacobson, 1909: 533; Roubal, 1911: 13; Eichler, 1930a: 224; Eichler, 1930b: 152; Nikitskiy & al., 2008: 112

**Material examined: RUSSIA: KRASNODAR TERRITORY: Krymskiy District:** 1 ♀: Krymsk, right side of Adagum River, on *Ganoderma applanatum*, 24.VII.2013, I.V. Enushchenko leg. (cIE, ZMM); **Apsheronkiy District:** 16 spec.: Mezmai, 15.VI.1991, E.A. Khachikov leg. (ZMM); 1 ♀: *ibid.*, 19–25.VII.1996, E.A. Khachikov leg. (ZMM); **Kushchevskiy District:** 8 spec.: Krasnaya Polyana, near Medvezhji Vorota, [?].VI.1967, B.M. Mamayev leg. (ZMM); **Adlerskiy District:** 1 ♂, 1 ♀: 23 km NE Adler, lower course of Chvizhepse River (right tributary of Mzymta River), N 43° 38' 25"; E 40° 04' 33", window trap, 28.IV–4.V.2013, K. Makarov leg. (ZMM); **ADYGEA: Maikopskiy District:** 17 ♂, 36 ♀: Azishsky Ridge (Azish-Tau), N 44°06'; E 44°00', h=1650–1700 m, 13.VI.2012, V.M. Zinchenko leg. (cIE, ZMM); 20 spec.: Lagonaki, 15–20.VII.2014, E.A. Khachikov leg. (cAP, cEKh, ZIN); 9 spec.: Caucasian Biosphere Reserve, vicinity of Guzeripl', window trap on fir, 22.VI–14.VII.2000, A.R. Bibin leg. (cEKh, ZMM); 17 spec.: Guzeripl', 14.VI.2014, E.A. Khachikov leg. (cAP, cEKh, ZIN); 8 ♂, 10 ♀: the road Guzeripl' - Abago, 6 km, 16.VI.2014, E.A. Khachikov leg. (cAP, cEKh, ZIN); **KARACHAY-CHEKKESSIA: Karachay District:** 8 ♂, 7 ♀: Teberdinskiy Biosphere Reserve, Teberda, [?].VII.2011, E.A. Khachikov leg. (cEKh, cIE, ZMM); 12 spec.: *ibid.*, Khatipara Mountain, 17.VII.2012, E.A. Khachikov leg. (ZMM); **ABKHAZIA: Gagra District:** 6 spec.: Avadkhara, 25.VII.1965, V.V. Yanushev leg. (ZMM); 6 spec.: Ritsa Lake, 17.IX.1985, I.A. Ushakov leg. (ZMM); **GEORGIA: SVANETI:** 3 spec.: 'Caucasus. Meskisches Geb. [Meskisches Gebirge] Leder (Reitter)' (HNHM); **REGION NOT LOCATED:** 1 ♀: 'Caucasus. Leder' (HNHM).

**Additional material examined: RUSSIA: ROSTOV AREA: Azovski District:** 2 ♀: Rostov-na-Donu, on *Ganoderma applanatum*, 9.VIII.2013, I.V. Enushchenko, E.A. Khachikov leg. (ZMM).

**Distribution.** Palaearctic.

**Remarks.** The first record of *G. boleti* for Caucasus ("Suram") was published by Eppelsheim (1878). Roubal (1911) recorded this species from Krasnaya Polyana; Eichler recorded it for Georgia (1930a: Mikhailovo) and for Armenia (1930b: Ekhmiadzin). Nikitskiy & al. (2008) cited it from Sochi (Krasnaya Polyana) and some localities in Caucasian Biosphere Reserve (Laura cordon, Guzeripl', Abago Mountain). A record of *G. boleti* from the environs of Stavropol' was published by Pushkin & Maximova (2014).

## A key to adults of *Gyrophana* of the Caucasus

1. Head elongated or moderately square, with weakly convex eyes ..... 2
- Head strongly transverse, with large strongly convex eyes. ***Gyrophana s. str.*** ..... 4
2. Head moderately square (lateral line under eyes as length of head); pronotum with dense and fine regular punctation. Abdominal tergite VIII as in Fig. 72. Aedeagus as in Fig. 71. Body length 0.7–1.3 mm (Fig. 70) .....  
..... ***G. (Agaricophaena) boleti*** (Linnaeus 1758)
- Head elongat (lateral line under eyes shorter than length of head); pronotum with two longitudinal rows of coarse punctures. Body length 1.3–2.0 mm ..... 3
3. Body oval; elytra about twice as wide as long; pronotum 1.5 times as wide as long; dark brown to pitchy black, antennae and legs brown. Abdominal tergite VIII as in Fig. 69. Aedeagus as in Fig. 68. Body length 1.3–2.0 mm (Fig. 67) .....  
..... ***G. (Phaenogyra) strictula*** Erichson 1839
- Body semi-parallel; elytra 1.5 times as wide as long; pronotum 1.3 times as wide as long; dark pitchy-brown to reddish-brown, legs, antennae and mouthparts yellow. Abdominal tergite VIII as in Fig. 66. Aedeagus as in Fig. 65. Body length 1.8 mm (Fig. 64) ..... ***G. (Phaenogyra) atropatena sp. n.***
4. Antennae with elongate antennomeres; antennomere VI longer than wide ..... 5
- Antennae with transverse antennomeres; antennomere VI wider than length ..... 7
5. Pronotum with well defined lateral edge; strongly rounded at base and on posterior angles. Glossy black, elytra reddish yellow or brown yellow (basis and posterior lateral parts of elytra black), abdomen black, apical margins of abdominal tergites yellow brown; antennomeres IV–XI reddish-brown, antennomeres I–III yellow or yellow brown. Abdominal tergite VIII as in Fig. 51. Aedeagus as in Fig. 50. Body length 2.5–3.0 mm (Fig. 49) ..... ***G. nitidula*** (Gyllenhal 1810)
- Pronotum with weakly defined lateral edge; body paler ..... 6
6. Punctuation of elytra dense and coarse; temples short, less than half length of antennomere II; head black, pronotum, elytra and

- abdomen dark brown to brown, abdominal tergites V–VI black. Abdominal tergite VIII as in Fig. 3. Aedeagus as in Fig. 2. Body length 1.5–2.5 mm (Fig. 1) ..... *G. affinis* Mannerheim 1830
- Punctuation of elytra finer; temples larger, as long as antennomere II; head, posterior angles of elytra and abdominal tergites V–VI dark brown to black, pronotum, elytra and abdomen reddish yellow. Abdominal tergite VIII as in Fig. 60. Aedeagus as in Fig. 59. Body length 2.2–2.7 mm (Fig. 58) ..... *G. pulchella* Heer 1839
7. Punctuation of elytra dense and coarse ..... 8
- Punctuation of elytra sparse and small ..... 10
8. Longitudinal rows of punctures of pronotum interrupted in middle, with 2–4 anterior and 1–3 posterior punctures. Head black, pronotum dark brown to black, elytra and abdomen yellow brown, abdominal tergite VI and anterior half of abdominal tergite VII rather dark brown. Abdominal tergite VIII as in Fig. 48. Aedeagus as in Fig. 47. Body length 1.8–2.3 mm (Fig. 46) ..... *G. nana* (Paykull 1800)
- Longitudinal rows of punctures of pronotum not interrupted in middle. .... 9
9. Pronotum flat with dense and distinct reticulate microsculpture; at base with dense, small punctuation. Head black, pronotum brown to dark brown, elytra and abdomen yellow brown, abdominal tergite VI dark brown. Abdominal tergite VIII as in Fig. 18. Aedeagus as in Fig. 20. Body length 2.2–2.4 mm (Fig. 19) ..... *G. gentilis* Erichson 1839
- Pronotum more or less convex, glossy, with very indistinct microsculpture; at base with coarse, distinct punctuation. Elytra distinctly longer than pronotum, with thick, rough and large punctuation. Head, pronotum, posterior angles of elytra and abdominal tergites V–VII dark brown to black, elytra and abdomen reddish brown; legs, antennomere I–IV reddish yellow. Abdominal tergite VIII as in Fig. 63. Aedeagus as in Fig. 62. Body length 1.5–2 mm (Fig. 61) ..... *G. rugipennis* Mulsant et Rey, 1861
10. Pronotum with two longitudinal rows of punctures ..... 11
- Pronotum with numerous, small, scattered punctures, not forming longitudinal rows. .... 21
11. Microsculpture of pronotum very indistinct, visible at high magnification (x100). Elytra with several scattered punctures. Head dark brown to black, pronotum brown to black, elytra yellow-brown to dark brown with darkened posterior angles, abdominal tergites I–III yellow-brown to red brown or brown, abdominal tergites V–VII brown to dark brown or black. Abdominal tergite VIII as in Fig. 54. Aedeagus as in Fig. 53. Body length 1.7–2.0 mm (Fig. 52) ..... *G. orientalis* Strand 1938
- Microsculpture of pronotum more defined, visible at lower magnification (x35) ..... 12
12. Elytra with dense, small, scattered punctuation, with very indistinct microsculpture. Head dark brown to black, pronotum reddish-brown to brown, elytra brown with darkened posterior margins, abdomen yellowish-brown (abdominal tergites VI and VII darker). Abdominal tergite VIII as in Fig. 45. Aedeagus as in Fig. 44. Body length 2.0–2.4 mm (Fig. 43) ..... *G. munsteri* Strand 1935
- Elytra without punctuation, with well defined, coarse microsculpture ..... 13
13. Head and pronotum black, glossy; elytra yellowish-brown, slightly darkened on apical margins and posterior angles; abdomen uniformly black; legs yellow; antennomeres I–III yellow; antennomeres IV–XI dark brown. Abdominal tergite VIII as in Fig. 36. Aedeagus as in Fig. 35. Body length 1.0–1.5 mm (Fig. 34) ..... *G. lucidula* Erichson 1937
- Paler, yellow to reddish-brown, brown or dark brown. Abdomen often bicoloured. Body larger, 1.5–2.2 mm. .... 14
14. Antennae slender, antennomere V indistinct transverse. Head black; pronotum dark brown; elytra and abdomen reddish-yellow or reddish-brown; posterior margins of elytra and abdominal tergites IV–VII dark brown to black. Abdominal tergite VIII as in Fig. 16. Aedeagus as in Fig. 17. Body length 1.8–2.4 mm (Fig. 15) ..... *G. fasciata* (Marsham 1802)
- Antennae wider, antennomere V distinct transverse. .... 15
15. Antennomere V twice wider than length. .... 16
- Antennomere V 1.5 times wider than length ..... 17
16. Antennomere IV distinctly wider than length; pronotum with 2 longitudinal median rows of large distinct punctures. Head black, pronotum dark brown, elytra yellowish-brown to reddish-brown with slightly darkened posterior angles; abdomen yellowish-brown, abdominal tergite VI slightly darkened. Abdominal tergite VIII as in Fig. 24. Aedeagus as in Figs. 22, 23. Body length 1.5–2.5 mm (Fig. 21) ..... *G. hanseni* Strand 1946
- Antennomere IV slightly longer than width; pronotum with two large anterior and posterior punctures and 2 longitudinal median rows of fine distinct punctures. Head black, pronotum dark brown, elytra yellowish-brown or dark brown with darkened posterior angles; abdominal tergites V–VII darker. Abdominal tergite VIII as in Fig. 14. Aedeagus as in Figs. 12, 13. Body length 1.5–2.0 mm (Fig. 11) ..... *G. congrua* Erichson 1837
17. Abdomen bicoloured. Head black; pronotum reddish-brown to brown; elytra reddish-brown or brownish-red with slightly darkened posterior angles. Abdomen reddish-brown, abdominal tergite VI dark brown to black. Abdominal tergite VIII as in Fig. 6. Aedeagus as in Fig. 5. Body length 1.7–2.2 mm (Fig. 4) ..... *G. bihamata* Thomson 1867
- Abdomen uniformly brown, dark brown to black. .... 18
18. Elytra with dense, distinct punctuation near posterior angles. Head black, pronotum black or dark brown; elytra yellow brown with slightly darkened posterior angles; abdominal tergite III yellow brown, abdominal tergites IV–VIII dark brown to black-brown. Abdominal tergite VIII as in Fig. 27. Aedeagus as in Fig. 26. Body length 1.7–2.1 mm (Fig. 25) ..... *G. joyi* Wendeler 1924
- Elytra with poorly defined fine punctures or without them. Middle of apical margin of abdominal tergite IX apically with deep triangular cut (Fig. 10) ..... 19
19. Punctuation and microsculpture of elytra very fine and poorly defined. Head and pronotum black, elytra and abdomen black. Abdominal tergite VIII as in Fig. 33. Aedeagus as in Fig. 32. Body length 1.6–1.9 mm (Fig. 31) ..... *G. korbi* Strand 1939
- Elytra not punctated or with poorly defined punctuation, with dense and coarse microsculpture ..... 20
20. Punctuation of elytra poorly defined. Abdominal tergite VIII as in Fig. 30. Aedeagus as in Fig. 29. Body length 1.6–2.2 mm



- (Fig. 28). . . . . *G. joyioides* Wüsthoff 1937
- Elytra without punctuation. Abdominal tergite VIII as in Fig. 9. Aedeagus as in Fig. 8. Body length 1.7–2.1 mm (Fig. 7). . . . .
21. Body uniformly dark brown or black; antennae and legs yellow. Elytra with coarse small punctuation. Abdominal tergite VIII as in Fig. 39. Aedeagus as in Fig. 38. Body length 1.3–1.6 mm (Fig. 37) . . . . . *G. caucasica* Strand 1839
- Body paler . . . . . 22
22. Smaller, body length 1.0–1.4 mm. Base of pronotum without punctuation; elytra with sparse small tubercles, with dense and coarse microsculpture between tubercles. Head dark brown, pronotum yellow to yellow brown, elytra and abdomen yellowish brown, abdominal tergites VI–VII dark brown, antennae and legs yellow. Abdominal tergite VIII as in Fig. 42. Aedeagus as in Fig. 41. Habitus as in Fig. 40 . . . . . *G. minima* Erichson 1837
- Larger, body length 1.5–2.0 mm. Base of pronotum with punctuation; elytra with dense, coarse punctuation, with weak microsculpture between punctures. Head dark brown, pronotum brown, elytra and abdomen reddish brown, abdominal tergite VI dark brown, antennae and legs yellow. Abdominal tergite VIII as in Fig. 57. Aedeagus as in Fig. 56. Habitus as in Fig. 55 . . . . . *G. poweri* Crotch 1867

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