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Review of the genus *Laccobius* ERICHSON, 1837 from Armenia, Azerbaijan, and Georgia, with description of a new species (Coleoptera: Hydrophilidae)

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Abstract

The genus *Laccobius* ERICHSON, 1837 (Coleoptera: Hydrophilidae) from the southern Caucasus (Armenia, Azerbaijan, and Georgia) is reviewed based on literature study and examination of numerous specimens. The occurrence of 15 species is confirmed for the southern Caucasus. The occurrence of four additional species, recorded from the southern Caucasus by earlier authors, remains unconfirmed. *Laccobius* (s.str.) *albipes* KUWERT, 1890 is excluded from the list of Caucasian species due to an obvious mistake in the interpretation of its distribution. *Laccobius* (*Dimorpholaccobius*) *azerus* GENTILI **sp.n.** from Azerbaijan is described. *Laccobius* (*D.*) *meridionalis* GENTILI, 1974 and *L.* (*D.*) *aegaeus* GENTILI, 1974 are treated as discrete species, and the former is reported for the first time from Azerbaijan. *Laccobius* (*D.*) *obscuratus orchymonti* GENTILI, 1976 (**syn.n.**) is synonymized with *L.* (*D.*) *obscuratus obscuratus* ROTTENBERG, 1874. *Laccobius* (*Microlaccobius*) *gracilis sardeus* BAUDI, 1864 (**syn.n.**) is synonymized with *L.* (*M.*) *gracilis gracilis* MOTSCHULSKY, 1855. A key to the subgenera and species, as well as distributions maps are provided.

Key words: Coleoptera, Hydrophilidae, *Laccobius*, new species, new synonymies, key, faunistics, Armenia, Azerbaijan, Georgia, Caucasus.

Introduction

Laccobius ERICHSON, 1837 is a large cosmopolitan genus with 130 Palaearctic species and nine subspecies (FIKÁČEK et al. 2015). First faunistic data on *Laccobius* from the Caucasus were already published more than 160 years ago. MOTSCHULSKY (1853, 1855) reported four species from the Caucasus: *L. bipunctatus* (F., 1775) from Armenia, *L. gracilis* MOTSCHULSKY (1855) from Georgia, and two species, which now are considered as nomina nuda: *L. maculatus* and *L. infuscatus* (in the Motschulsky collection, specimens identified as "*infuscatus*" belong to *L. obscuratus* ROTTENBERG, 1874 (ZAITZEV 1938)). MOTSCHULSKY (1855) described three new species presently known from the Caucasus: *L. alternus*, *L. gracilis*, and *L. scutellaris*. Two other species of the same author, *L. sinuatus* MOTSCHULSKY, 1849 and *L. cinereus* MOTSCHULSKY, 1860, were erroneously recorded from the Caucasus by subsequent authors (e.g., KUWERT 1890, HEYDEN 1891, ZAITZEV 1908, 1938, JAKOBSON 1913), see Tab. 1.

SCHNEIDER & LEDER (1878) reported *L. bipunctatus* (as *L. alutaceus* THOMSON, 1868) from Tiflis [Tbilisi], Akhalkalaki, Echmiadzin [Vagarshapat], and Tarstschai [= Tarsachay, Getik Village, Gegharkunik Province], *L. gracilis* (as *L. viridiceps* ROTTENBERG, 1870) from Tbilisi, Lankaran, Vagarshapat, Tarstschai, and Borshomi [Borjomi], and as *L. subtilis* KIESENWETTER, 1870 from Lankaran), and *L. striatulus* (F., 1801) (as *L. nigriceps* THOMSON, 1853) from Lenkoran' [Lankaran], Akhalkalaki, Alagoes [Aragats], Vagarshapat, Azkhur [Atskuri], Borshomi [Borjomi], Elisabethtal [Asureti], and Letschgum [Lechkhumi]. From Lankaran, LEDER (1886) noted again *L. striatulus* (as "*nigriceps* Thoms. et var.") and *L. gracilis* (as "*sardeus* Baudi ... (*subtilis* Kiesw.)" and "var. *viridiceps* Rottb.") and added *L. bipunctatus* (as *L. alutaceus*).

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KUWERT (1890) reported from the Caucasus *L. obscuratus* (as "*scutellaris* Mots. var. *minor* Rott."), *L. simulatrix* ORCHYMONT, 1932 (as "*cinereus* Mots."), and *L. striatulus* (as "*sinuatus* Mots. var. *signiceps* Kuw."). He also listed *L. atratus* ROTTENBERG, 1874 (as "*scutellaris* Mots. var. *atratus* Rott.") and *L. striatulus albescens* ROTTENBERG, 1874 (as "*scutellaris* Mots. var. *albescens* Rott."), which later were recognized as western European taxa erroneously attributed to the Caucasian fauna (GENTILI & CHIESA 1976), as well as "*obscurus* Rott. var. *albescens* Rott.", which is not recognizable. Most of these records were repeated by HEYDEN (1891).

In his report about the collections of the Caucasus Natural History Museum in Tbilisi, RADDE (1899) listed *L. gracilis* and *L. striatulus* (as *L. nigriceps*) from Lankaran and *L. bipunctatus* (as *L. alutaceus*) from Lankaran, Tbilisi, and Vagarshapat.

The general knowledge of the Caucasian species of *Laccobius* increased swiftly during the last century. ZAITZEV (1908) recorded only one species from the Caucasus: *L. simulatrix* (as *L. cinereus*), but we assume that his report of *L. bipunctatus* (also as *L. alutaceus*) and *L. striatulus* (as *L. nigriceps*) from "Europa" also included the previous records of these species from the Caucasus. JAKOBSON (1913) reported *L. bipunctatus* (including also *L. alutaceus*) from Tbilisi, Yerevan, Talysh, and Asureti, *L. striatulus* (as *L. nigriceps*) from Tbilisi, Yerevan, Talysh, and *L. gracilis* from Tbilisi, Yerevan, Talysh, and Asureti.

An essential step forward was made by ZAITZEV (1938, 1947, 1953) and by KASYMOV (1972), providing data about collecting localities, and contributing to the clarification of taxonomic problems.

ZAITZEV (1938) provided a revision of the species described by Motschulsky, mainly *L. cinereus* and *L. scutellaris*. He wrote that *L. cinereus* was misinterpreted by KUWERT (1890), renamed "*cinereus*" sensu KUWERT (1890) *L. kuwerti* (now junior synonym of *L. simulatrix*), and excluded the occurrence of *L. cinereus* in the Caucasus. He considered *L. scutellaris* as a synonym of *L. sinuatus*, and noted that the majority of entomologists erroneously attributed the name *L. scutellaris* to beetles which actually belong to *L. obscuratus*. In the collection of Motschulsky these insects were identified as *L. infuscatus* (nomen nudum). ZAITZEV (1938) reported the following nine species from the Caucasus: *L. alternus*, *L. decorus* (GYLLENHAL, 1827), *L. gracilis* (also as subspecies *sardeus* BAUDI, 1864), *L. minutus* (L., 1758), *L. obscuratus*, *L. simulatrix* (as *L. kuwerti*), *L. striatulus*, *L. sulcatulus* REITTER, 1909, and *L. syriacus* GUILLEBEAU, 1896 (as *L. bipunctatus laevicollis* GANGLBAUER, 1904). Finally, he provided a key to the *Laccobius* species in the USSR and established a new subgenus, *Dimorpholaccobius*, based on *L. sulcatulus*.

ZAITZEV (1947) examined the Zanga [Hrazdan] River basin (Armenia), from where he recorded *L. obscuratus*, *L. sulcatulus*, and *L. syriacus* (as *L. bipunctatus laevicollis*). From Georgia, ZAITZEV (1953) reported seven species: *L. decorus* (also as *L. pallidissimus* REITTER, 1899), *L. gracilis*, *L. obscuratus*, *L. simulatrix* (as *L. kuwerti*), *L. striatulus*, *L. sulcatulus*, and *L. syriacus* (as *L. bipunctatus laevicollis*).

HOCH (1967) reported eight species of *Laccobius* from the Caucasus, one of them erroneously: *L. littoralis* SAHLBERG, 1900, now a synonym of *L. cinereus*.

KASYMOV (1972) listed seven species: *L. sulcatulus*, *L. decorus* (as *L. pallidissimus*), *L. gracilis*, *L. striatulus*, *L. simulatrix* (as *L. kuwerti*), *L. obscuratus*, and *L. syriacus* (as *L. bipunctatus laevicollis*), from the Caucasus referring to the localities of ZAITZEV (1953), and included also some other collecting stations.

GENTILI & CHIESA (1976) published a revision of the Palaearctic species of *Laccobius*, based largely on ORCHYMONT (1930, 1932, 1933, 1937, 1939). Systematic and geographic data as well as drawings of all known Palaearctic species were provided. The collections of the Armenian

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Museum of Natural History (AMNH) were studied. Some nomenclatorial changes were made: *L. kuwerti* was synonymized with *L. simulatrix*; *L. scutellaris* was separated from *L. sinuatus*; and *L. bipunctatus* var. *laevicollis* was found to be a junior synonym of *L. syriacus*. They indicated also that the previous records of *L. pallidissimus* from the Caucasus (ORCHYMONT 1933, ZAITZEV 1953) should refer to *L. decorus*. The following species were recognized as Caucasic: *L. albipes*, *L. alternus*, *L. decorus*, *L. exilis* GENTILI, 1974 (as *L. gracilis orientalis* KNISCH, 1924), *L. hindukuschi* CHIESA, 1966 (as *L. farsicus* GENTILI, 1975), *L. obscuratus*, *L. scutellaris*, *L. simulatrix* (as *L. simulator* ORCHYMONT, 1932, unjustified emendation), *L. sipylus* ORCHYMONT, 1939, *L. striatulus* (also as *L. bucciarellii* GENTILI, 1974), *L. sulcatulus*, and *L. syriacus*.

SHATROVSKIY (1984) published a revision of the *Laccobius* of the Soviet Union based on the material housed in the Zoological Museum of Russian Academy of Sciences (ZMSP) and other Russian collections not examined by GENTILI & CHIESA (1976). He synonymized *L. bucciarellii* with *L. striatulus*, and *L. farsicus* with *L. hindukuschi*, and re-established the name *L. simulatrix*, which had been changed to *L. simulator* by GENTILI & CHIESA (1976). Unfortunately, in this work, which was based on Shatrovskiy's thesis at the Khar'kov State University (Ukraine), the author frequently used the geographic name "Caucasus" instead of presenting localities in detail.

HANSEN (1999) listed the following 14 species for Armenia, Azerbaijan, and Georgia: *L. albipes* ("Caucasus"), *L. bipunctatus* (Armenia), *L. decorus* (Georgia), *L. gracilis* (Georgia), *L. gracilis* ssp. *persicus* GENTILI, 1974 (Azerbaijan), *L. hindukuschi* (Armenia, Azerbaijan, Georgia), *L. hoberlandti* GENTILI, 1982 (Azerbaijan), *L. obscuratus* (Armenia, Azerbaijan, Georgia), *L. scutellaris* (Azerbaijan), *L. simulatrix* (Azerbaijan, Georgia), *L. sipylus* (Armenia, Azerbaijan), *L. striatulus* (Armenia, Georgia), *L. sulcatulus* (Armenia, Azerbaijan, Georgia), and *L. syriacus* (Azerbaijan, Georgia).

General distribution data on 13 species were presented in the text and on the maps by GENTILI (2000), see Tab. 1.

The data in HANSEN (2004) were based mainly on HANSEN (1999) but included also *L. alternus* ("Caucasus"). FIKÁČEK et al. (2015) made few changes to these catalogues by listing *L. alternus* for Armenia and by attributing specific rank to *L. gracilis persicus*.

The purpose of the present paper to present an annotated checklist of the species from Armenia, Azerbaijan, and Georgia based on faunistic data from the literature and unpublished material. One new species is described. Notes on morphology and taxonomy, and a key to the subgenera and species occurring in the southern Caucasus are provided.

Material and methods

Our study is based on the papers quoted above, and includes new data based on material collected by V. Dolin (†) in Azerbaijan, 1999–2000, and by the junior author and H. Schillhammer in Armenia, 2001. All specimens collected by Dolin, Shaverdo and Schillhammer are deposited in the NMW. A few additional specimens from other museums are also included.

A slash "/" in the label data means new line, a double slash "//" means new label.

Studied specimens are in the following collections:

AMNH	Armenian Museum of Natural History, Yerevan, Armenia
CSHG	Collection A. Skale, Hof, Germany
HNMB	Hungarian Natural History Museum, Budapest, Hungary
IPKE	Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany [formerly: Institut für Pflanzenschutzforschung Kleinmachnow (DEI), Eberswalde-Finow]
ISNB	Institut National des Sciences Naturelles de Belgique, Bruxelles, Belgium
MHNL	Muséum d'Histoire Naturelle de Lyon, France

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MSNG	Museo Civico di Storia Naturale Giacomo Doria, Genova, Italy
MSNM	Museo di Storia Naturale di Milano, Italia
MZUT	Museo Zoologico dell'Università, Torino, Italia
NHMD	Natural History Museum of Denmark, University of Copenhagen, Denmark
NHMP	Národní museum, Praha, Czechia
NHRS	Entomological Collections, Swedish Museum of Natural History, Stockholm, Sweden
NMW	Naturhistorisches Museum Wien, Vienna, Austria
ZIUL	Zoological Institute, University of Lund, Sweden
ZMSP	Zoological Museum of Russian Academy of Sciences, St. Petersburg, Russia
ZMUM	Zoological Museum of Moscow University, Moscow, Russia
ZSM	Zoologische Staatssammlung München, Munich, Germany

Regarding the subgeneric division we follow SHATROVSKIY (1984): *Laccobius* s.str. ERICHSON, 1837, *Compsolaccobius* GANGLBAUER, 1904, *Dimorpholaccobius* ZAITZEV, 1936, and *Microlaccobius* GENTILI, 1974.

The distribution of the species of *Laccobius* in the southern Caucasus is presented in three maps. *Laccobius aegaeus*, *L. bipunctatus*, and *L. persicus* are not included, because their occurrence in the southern Caucasus is doubtful. For some species, which are reported from a certain country without exact locality data, the name of the respective country is added in parentheses to the map legend. These maps were downloaded from https://eurocaucasusnews.wordpress.com/2011/09/ and modified.

For more data on distribution and habitats of the species collected by H. Shaverdo and H. Schillhammer in Armenia see SHAVERDO (2003), JÄCH & SKALE (2011), and KLAUSNITZER (2013).

Description of the study area

Armenia, Azerbaijan, and (the major part of) Georgia belong to the South Caucasus or Transcaucasia, a geopolitical region located on the border between eastern Europe and western Asia. The South Caucasus spans the southern portion of the Caucasus Mountains and its lowlands. It extends southwards from the southern part of the Greater Caucasus mountain range in southwestern Russia to the Turkish and Iranian borders and from the Black Sea in the west to the Caspian Sea in the east. The area includes the southern part of the Greater Caucasus mountain range, the entire Lesser Caucasus mountain range, the Colchis Lowlands, the Kura-Aras Lowlands, the Talysh Mountains, the Lankaran Lowlands, Javakheti and the eastern portion of the Armenian Highland. Together with Ciscaucasia (North Caucasus), Transcaucasia is a part of the larger Caucasus geographical region (https://en.wikipedia.org/wiki/Transcaucasia).

Results

Based on the literature data and specimens studied, we confirm the occurrence of 15 species in Armenia (10 species), Azerbaijan (11 species), and Georgia (10 species). The occurrence of four additional species recorded from these countries by earlier authors, remains unconfirmed. One new species, *L. azerus* GENTILI sp.n., is described from Azerbaijan. *Laccobius aegaeus* GENTILI, 1974 and *L. meridionalis* GENTILI, 1974, which were formerly regarded as subspecies of *L. obscuratus* are treated as discrete species; *L. meridionalis* is recorded from the South Caucasus (Azerbaijan) for the first time. *Laccobius obscuratus orchymonti* GENTILI, 1976 is synonymized with *L. obscuratus* s.str., and *Laccobius gracilis sardeus* BAUDI, 1864 is regarded as a melanistic form of *L. gracilis* MOTSCHULSKY, 1855. Specimens of *Laccobius gracilis orientalis*, reported from Armenia and Azerbaijan by GENTILI & CHIESA (1976) and questioned by GENTILI (1988: 44), are now confirmed to be *L. exilis*. Study of specimens collected by the junior author confirms the occurrence of *L. gracilis* and *L. simulatrix* in Armenia. *Laccobius albipes* is removed from the list of species occurring in the Caucasus.

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Tab. 1: Distribution of the species of *Laccobius* in the southern Caucasus, Armenia (AR), Azerbaijan (AB), and Georgia (GG), based on literature. Records not included in HANSEN (1999, 2004) and FIKÁČEK et al. (2015) are in bold. Unconfirmed records are highlighted in grey. Species names in brackets refer to synonyms or misidentifications. Abbreviations of authors: C (Chiesa), G (Gentili), H (Hoch), HB (Hebauer), HE (Heyden), J (Jakobson), K (Kasymov), KU (Kuwert), L (Leder), M (Motschulsky), O (Orchymont), R (Radde), RY (Ryndevich), S (Shatrovskiy), SC (Schneider), Z (Zaitzev).

	Species	Distribution in the southern Caucasus	References
1	*L. aegaeus* GENTILI, 1974	GG: "Black Sea belt"	HB & RY (2005)
2	*L. alternus* MOTSCHULSKY, 1855	AR: Yerevan **AB** (without details) GG: Gagra, Gudauta, Cherepash'e Lake (near Tbilisi), Tbilisi	Z (1938); H (1967); G & C (1976), G (2000) map; S (1984)
3	*L. bipunctatus* (F., 1775) (*L. alutaceus*)	AR: Echmiadzin [Vagarshapat], Tarstschai [Getik], Yerevan **AB**: Elis. [= Elisavethpol, now Ganja], Talysh, Lenkoran [Lankaran] **GG**: Akhalkalaki, Tiflis [Tbilisi]	M (1853); S & L (1878); L (1886); R (1899); J (1913); H (1967); G (2000) map
4	*L. decorus* (GYLLENHAL, 1827) (*L. pallidissimus*)	GG: Karayazi Steppe (near Tbilisi)	Z (1938), Z (1953); H (1967); K (1972); G & C (1976); S (1984)
5	*L. exilis* GENTILI, 1974	**AR**: Yerevan **AB**: Lenkoran [Lankaran]	G (1974); G & C (1976) as *L. gracilis orientalis*
6	*L. gracilis* MOTSCHULSKY, 1855 (*L. sardeus*, *L. subtilis*, *L. viridiceps*)	**AR**: Echmiadzin [Vagarshapat], Tarstschai [Getik] **AB**: Elis. [= Elisavethpol, now Ganja], Prishib, Arus, Talysh, Lenkoran [Lankaran] GG: Gagra, Mleti [Zemo Mleta], Surami, Borshomi [Borjomi], Saguramo, Baraleti, Batumi, Manglisi,Tiflis [Tbilisi], Karayazi [Gardabani], Uch-dere [not found]	M (1853, 1855); S & L (1878); L (1886); R (1899); J (1913); Z (1953, 1938); K (1972); G (2000); S (1984)
7	*L. hindukuschi* CHIESA, 1966	AR: Yerevan (Sovetashen), Zanga [Hrazdan] River AB (without details) GG: Borshomi [Borjomi]	G & C (1976) as *L. farsicus*; G (2000) map; S (1984)
8	*L. hoberlandti* GENTILI, 1982	AB: Lerik, Bilyasar and Divigach on Vasharu-Chai River, Alekseyevka (Lankaran rayon), Parakand (SW Lankaran), 20 km SW Lankaran	S (1984) as *L. znojkoi*
9	*L. minutus* (L., 1758)	**AR** (without details) **AB** (without details) **GG** (without details)	G (2000) map
10	*L. obscuratus* ROTTENBERG, 1874	AR: Mt. Aragats, Ankavan, Meghradzor, Darachichag [Tsakhkadzor], Zanga [Hrazdan] River (near Bzhni Village), Sevan Lake, Echmiadzin [Vagarshapat], Marmarik, Novamniysk [not found], Piragon [not found] AB: Ktsiya [Ktsiya-Khrami], Kirovabad [Ganja], Nakhchivan, Ordubad GG: Mleti [Zemo Mleta], Surami, Gori, Bakuriani, Manglisi, Tbilisi (Dabakhana River), Karayazi, Gurdzhiani [Gurdzhaani], Tba-Dzveli [not found]	KU (1890) and HE (1891) as "*scutellaris* Mots. var. *minor* Rott."; Z (1938, 1947, 1953); H (1967); K (1972); G & C (1976); G (2000) map; S (1984)
11	*L. persicus* GENTILI, 1974	AB (without details)	HANSEN (1999, 2004); FIKÁČEK et al. (2015)

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12	*L. scutellaris* MOTSCHULSKI, 1855	**AR** (without details) AB: Kirovabad [Ganja] **GG** (without details)	Z (1908) and J (1913) as *L. sinuatus*; G & C (1976); G (2000) map; S (1984)
13	*L. simulatrix* ORCHYMONT, 1932	**AR**: Mt. Aragats (2600 m), Aparan, Parakar, Ankavan, Meghradzor, Darachichag [Tsakhkadzor], Sevan Lake, Gegharot, Koutshak [= Alikoutshak, Kuchak], Echmiadzin [Vagarshapat], Yerevan, Araks River AB: Kirovabad [Ganja], Agrichay River (near Sheki), Aresh [Arash], Lerik, Lenkoranchay River, Pensar, Shuva, Archivan, Mashkhanskiy istil' [Mashkhan], Dzhangamiran Village, Lenkoran [Lankaran], Nizhne–Nyugedniskiy (near Lenkoran), Astara, Shakhchinar [not found], Razi [not found] GG: Gori, Tuman-gel' [Saghamo] Lake, Manglisi, Katerinenfeld [Bolnisi], Sadakhlo, Tbilisi, Karayazi, Lagodekhi	KU (1890) and HE (1891) as *L. cinereus*; Z (1938, 1953) and K (1972) as *L. kuwerti*; G & C (1976) as *L. simulator*; G (2000) map; S (1984)
14	*L. sipylus* ORCHYMONT, 1939	AR: Yerevan (Arabkir) AB: Kirovabad [Ganja] **GG**: Tbilisi	H (1967); G & C (1976); G (2000) map; S (1984)
15	*L. striatulus* (F., 1801) (*L. bucciarellii*, *L. nigriceps*)	AR: Dzhelal-ogly [Stepanavan], Aparan, Meghradzor, Ankavan, Alagoes [Mt. Aragats] (2500 m), Echmiadzin [Vagarshapat], Yerevan **AB**: Agrichay River (on road Sheki-Zakataly), Talysh, Lenkoran [Lankaran] GG: Becho, Lechkhumi, Mleti [Zemo Mleta], Passanauri, Batumi, Atskuri, Bakuriani, Borshomi [Borjomi], Akhalkalaki, Elisabethtal [Asureti], Tiflis [Tbilisi]	KU (1890) as "*sinuatus* Mots. var. *signiceps* Kuw."; HE (1891) as *L. sinuatus*; SC & L (1878), L (1886) as "*L. nigriceps* et var."; R (1899); J (1913); Z (1938, 1953); K (1972); G (1974); G & C (1976); G (2000) map; S (1984)
16	*L. sulcatulus* REITTER, 1909	AR: Aparan, Darachichag [Tsakhkadzor], Sukhoy Fontan, Elenovka [Sevan], Sevan Village, Kara-su River near Ayger-gel' Lake, Koutshak [= Alikoutshak, Kuchak], Arabkir (in Yerevan) AB (without details) GG: Baraleti (Akhalkalakskiy rayon)	Z (1938, 1947, 1953); H (1967); K (1972); G & C (1976); G (2000) map; S (1984)
17	*L. syriacus* GUILLEBEAU, 1896	**AR**: Aparan, Ankavan, Dzrvez, Darachichag [Tsakhkadzor], Zanga [Hrazdan] River (near Bzhni Village), Echmiadzin [Vagarshapat], Fontan, Koutshak [= Alikoutshak, Kuchak], Sovetashen (in Yerevan), Kasantshi [not found] AB: Kirovabad [Ganja], Aresh [Arash], Zeiva, Geok-Tapa, Lenkoran [Lankaran] GG: Mleti [Zemo Mleta], Surami, Gori, Bakuriani, Baraleti, Manglisi, Akhalkalaki, Tbilisi, Sighnaghi, Telavi	Z (1938, 1947, 1953) and K (1972) as *L. bipunctatus laevicollis*; H (1967); G & C (1976); G (2000) map; S (1984)

Key to subgenera and species of *Laccobius* from the southern Caucasus

1 Greatest width of pronotum in middle, its hind angles broadly rounded. Carina of mesoventrite decreasing anteriorly, forming obtuse angle, before slope with minute denticle. Claws long and straight. Head darkened only on occiput and sometimes with small cuneate spot on frons. Aedeagus as in Figs. 1–2. (***Compsolaccobius*** GANGLBAUER, 1904)... ***decorus*** (GYLLENHAL, 1827)

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– Greatest width of pronotum at base, its hind angles rounded only at apices. Carina of mesoventrite decreasing anteriorly, forming right angle, before slope with large tooth. Claws usually evenly curved. Head dark, often with pale preocular spots..... **2**

2 All elytral punctures alike (not intermingled with pale-colored spots), large, in almost equally sized intervals. Rows straight, more rarely slightly confused behind scutellum and apically; occasional dots in some cases out of line. Anterior top of carina of mesoventrite simple. Aedeagus as in Figs. 5–6. (***Laccobius*** s.str. ERICHSON, 1837) ..... ***minutus*** (L., 1758)

– Elytra with two kinds of punctures, large and small; if their size difference weakly expressed, some punctures distinctly interseriate. Rows interrupted or alternate between rows of small or large punctures..... **3**

3 On average larger: 2.8–4.6 mm. Large punctures scattered between rows of small punctures and never forming regular rows, in some cases not differing much in size. Specula often present in males. Anterior top of carina of mesoventrite with two lateral spurs. (***Dimorpholaccobius*** ZAITZEV, 1938) **4**

– On average smaller: 1.9–3.2 mm. Rows of elytral punctures alternating between small and large punctures. Specula always lacking in males. Anterior top of carina of mesoventrite simple. (***Microlaccobius*** GENTILI, 1974) **16**

4 Mentum coarsely rugosely punctate; surface appearing granulate because of closely spaced punctures..... **5**

– Mentum moderately or weakly punctate (see Fig. 51), often shagreened. Surface never appearing granulate because of widely spaced punctures or, if punctures closely spaced, as in some individuals of *L. hindukuschi*, with surface strongly shagreened..... **7**

5 Preocular spots distinct (see Fig. 48). Body usually broader. Male mesofemur with well developed bristles. Body length 2.9–4.3 mm **6**

– Preocular spots hardly distinguishable or lacking. Body usually narrower. Male mesofemur with weakly developed bristles. Aedeagus as in Figs. 25–26. Body length 2.8–3.7 mm ..... ***scutellaris*** MOTSCHULSKY, 1855

6 Elytral rows of punctures more irregular, punctures of fifth row not in straight line. Male mesofemur with less dense bristles. Aedeagus as in Figs. 31–32. Body length 2.9–4.3 m. ..... ***striatulus*** (F., 1801)

– Elytral rows of punctures more regular, punctures of fifth row in straight line. Male mesofemur with denser bristles. Aedeagus as in Figs. 16–17. Body length 3.3–4.3 mm….. ..... ***hoberlandti*** GENTILI, 1982

7 Pronotum shagreened **8**

– Pronotum not shagreened **10**

8 Body broadly rounded, approximately 1.5 times as long as wide. Male without specula. Parameres more than twice as long as phallobase. Aedeagus as in Figs. 12–13. Body length 2.8–3.6 mm..... ***bipunctatus*** (F., 1775)

– Body elongate, approximately 1.7 times as long as wide. Male with specula. Parameres nearly as long as phallobase **9**

9 Elytral rows of punctures more irregular, punctures of fifth row not in straight line (Fig. 9A); specula large, each speculum nearly 0.5 times as wide as entire labrum (Fig. 9F). Aedeagus as in Figs. 7–9. Body length 3.1–4.1 mm ..... ***azerus*** GENTILI sp.n.

– Elytral rows of punctures more regular, fifth row straight; specula less than 1/3 as wide as labrum. Aedeagus as in Figs. 27–28. Body length 3.0–4.0 mm ..... ***simulatrix*** ORCHYMONT, 1932

10 Specula very large, causing deep notch in labrum. Female elytra with deep striae, notch of labrum smaller than in male. Aedeagus as in Figs. 33–34. Body length 3.1–4.6 mm, body large, elongate, 1.8–1.9 times as long as wide..... ***sulcatulus*** REITTER, 1909

– Labrum without or with insignificant notch; specula smaller or lacking. Female elytra without deep striae..... **11**

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11 Preocular spots large. Parameres more than twice as long as phallobase (Figs. 35–36). Body length 3.1–4.3 mm ..... ***syriacus*** GUILLEBEAU, 1896

– Preocular spots hardly distinguishable or absent. Parameres nearly as long as phallobase..... **12**

12 Mentum convex, strongly shagreened. Preocular spots hardly distinguishable. Pronotum bright, yellowish behind eyes. Aedeagus as in Figs. 14–15. Body length 2.7–3.8 mm…… ..... ***hindukuschi*** CHIESA, 1966

– Mentum flat or weakly concave, shagreened or not. Preocular spots lacking. Black coloration of anterior border of pronotum reaching lateral margin of eyes **13**

13 Clypeus anterior to eyes narrower, width between eyes 1.2 times median length of clypeus. Elytra always with small and paler, distinctly separated spots. Male with specula. Mentum shagreened. Aedeagus as in Figs. 29–30. Body length 3.3–3.9 mm..... ***sipylus*** ORCHYMONT, 1939

– Clypeus anterior to eyes wider, width between eyes approximately 1.3 times length of clypeus. Elytral spots often fused, covering background color. Male without specula. Mentum not or slightly shagreened. Body length 2.8–3.7 mm **14**

14 Punctures of dorsal part and mentum coarser; ventral margins of parameres progressively divergent from apex to middle (Figs. 18–20) ..... ***meridionalis*** GENTILI, 1974

– Punctures of dorsal part and mentum finer; ventral margins of the parameres progressively approaching each other from apex to basal part **15**

15 Apex of paramere without a spur (Figs. 21–22) ..... ***obscuratus*** ROTTENBERG, 1874

– Apex of paramere with a spur (Figs. 23–24) ..... ***aegaeus*** GENTILI, 1974

16 Pronotum shagreened; parameres about half as long as entire aedeagus (Figs. 37–38). Body length 2.4–3.0 mm ..... ***alternus*** MOTSCHULSKY, 1855

– Pronotum not shagreened; parameres half as long or more than half as long as entire aedeagus ... **17**

17 Parameres about half as long as entire aedeagus. Median lobe regularly conical from basal third to apex (Fig. 43–44). Body length 2.2–2.7 mm ..... ***exilis*** GENTILI, 1974

– Parameres about 2/3 as long as entire aedeagus. Median lobe cylindrical. Body length 1.9–2.8 mm **18**

18 Apical third of median lobe nearly conical (Figs. 39–42) ..... ***gracilis*** MOTSCHULSKY, 1855

– Apex of median lobe enlarged in dorsal view (Figs. 45–46)..... ***persicus*** GENTILI, 1974

Genus *Laccobius* ERICHSON, 1837

Laccobius ERICHSON 1837: 202; ZAITZEV 1908: 391; ZAITZEV 1938: 109; GENTILI & CHIESA 1976: 5; SHATROVSKIY 1984: 301; HANSEN 1999: 130. – Type species: *Chrysomela minuta* L., 1758.

Subgenus *Compsolaccobius* GANGLBAUER, 1904

Laccobius (*Compsolaccobius*) *decorus* (GYLLENHAL, 1827)

decorus GYLLENHAL 1827: 275 (*Hydrophilus*, Sweden, lectotype, NHRS, by GENTILI & CHIESA 1976); ZAITZEV 1938: 113; ZAITZEV 1953: 107 (as *L. pallidissimus*); KASYMOV 1972: 123 (as *L. pallidissimus*); GENTILI & CHIESA 1976: 31; SHATROVSKIY 1984: 304; HANSEN 1999: 143; FIKÁČEK et al. 2015: 41.

ZAITZEV (1938) reported a single specimen from a small saline puddle (Karayazi Steppe) not far from Tbilisi. ZAITZEV (1953) determined this specimen as *L. pallidissimus*, but SHATROVSKIY (1984) confirmed the correctness of the identification by ZAITZEV (1938). Aedeagus as in Figs. 1–2.

DISTRIBUTION: South Caucasus (Fig. 55): **Georgia**; Europe: Estonia, Finland, Latvija, Russia (South European Territory), Sweden, Ukraine; Asia: Afghanistan, China (Qinghai), Kazakhstan,

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Kyrgystan, Mongolia, Russia (East and West Siberia), Tajikistan, Turkmenistan, Turkey, Uzbekistan (HANSEN 1999, 2004, FIKÁČEK et al. 2015).

Subgenus *Laccobius* ERICHSON, 1837

Laccobius (*Laccobius*) *albipes* KUWERT, 1890

albipes KUWERT 1890: 83 (Bosnia-Herzegovina, types incompletely studied by ORCHYMONT 1930: 34); ZAITZEV 1908: 392 (as synonym of *L. bipunctatus* F., 1775); ORCHYMONT 1930: 36–37 (as *L. bipunctatus* THOMSON, 1868 interpreted by ROTTENBERG 1874: 315); GENTILI & CHIESA 1976: 49; SHATROVSKIY (1984); GENTILI 2000: 178; HANSEN 1999: 143; FIKÁČEK et al. 2015: 44.

The first record for the Caucasus was published by GENTILI & CHIESA (1976) referring to ROTTENBERG (1874), who listed this species as "*L. bipunctatus* THOMSON, 1868", which was interpreted by ORCHYMONT (1930) as *L. albipes*. SHATROVSKIY (1984) mentioned *L. albipes* from the Caucasus referring to HOCH (1967), but there is no Caucasian record of this species in HOCH (1967). Obviously, all further quotations of this species from the Caucasus, including the map in GENTILI (2000) with the known distribution of *L. albipes* reaching the southern Caucasus (northwestern Georgia) at its southeastern limit, are based on these mistakes. Therefore, the occurrence of *L. albipes* in the Caucasus is not confirmed. Aedeagus as in Figs. 3–4.

DISTRIBUTION: Europe: Albania, Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Czechia, France, Germany, Greece, Hungary, Italy, Latvia, Montenegro, Netherlands, Poland, Romania, Russia (Central and South European Territories), Serbia, Slovakia; Asia: Kazakhstan, Turkey (HANSEN 1999, 2004, FIKÁČEK et al. 2015).

Laccobius (*Laccobius*) *minutus* (L., 1758)

minutus L. 1758: 372 (*Chrysomela*, "Europe", neotype, MSNV, by GENTILI 1979); ZAITZEV 1938: 110, 115; SHATROVSKIY 1984: 307; GENTILI 2000: 190.

Till now, there are no confirmed records of this species from the Caucasus. ZAITZEV (1938) reported this species from southern Russia (Rostov-na-Donu and Astrakhan') and from "oz. Chaldyr" (Lake Çıldır), northeastern Turkey, very close to the boundary of Georgia and Armenia. Following SHATROVSKIY (1984), it occurs "in the south to the northern Caucasus". GENTILI (2000) confirmed the occurrence of this species at Lake Çıldır based on material collected by M.A. Jäch and S. Schödl in 1989 (NMW).

This boreal species is considered as a glacial relict in the southern part of its distribution. It is highly possible that *L. minutus* does occur in Georgia and Armenia. Aedeagus as in Figs. 5–6.

DISTRIBUTION: South Caucasus (Fig. 55): ?**Armenia**, ?**Georgia**; Europe: Austria, Belarus, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Czechia, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, Macedonia, Montenegro, Netherlands, Norway, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom; Asia: China (Heilongjiang, Nei Mongol, Shaanxi, Xinjiang), Kazakhstan, Kyrgystan, Mongolia, Russia (Siberia, Far East), Turkey (HANSEN 1999, 2004, FIKÁČEK et al. 2015).

Subgenus *Dimorpholaccobius* ZAITZEV, 1938

Laccobius (*Dimorpholaccobius*) *aegaeus* GENTILI, 1974

obscuratus ssp. *aegaeus* GENTILI 1974: 558 (Greece, Rhodos, holotype, ♂, MSNG); 2000: 191; GENTILI & CHIESA 1976: 139; HANSEN 1999: 140; HEBAUER & RYNDEVICH 2005: 45; FIKÁČEK et al. 2015: 42.

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This species has distinctive aedeagal characters (Figs. 23–24) and a distinct distribution, and therefore it is here regarded as a distinct species, not a subspecies of *L. obscuratus*.

According to GENTILI (2000) this species is distributed nearly all over Turkey reaching the boundary of Georgia; HEBAUER & RYNDEVICH (2005) noted that *L. o. aegaeus* occurs also in the Ukraine (incl. Crimea), suggesting that it is distributed along the "Black Sea belt", including the coast of Georgia.

DISTRIBUTION: South Caucasus: ?**Georgia**; Europe: Greece, Turkey, Ukraine; Asia: Turkey (HANSEN 1999, 2004, FIKÁČEK et al. 2015).

Laccobius (*Dimorpholaccobius*) *azerus* GENTILI sp.n.

TYPE LOCALITY: Azerbaijan, Astara rayon, environments of Astara, Hirkan forest.

TYPE MATERIAL: **Holotype**: ♂ "AZERBAJDZHAN Talysch / Astara env. / Hirkan for. 22.V.2000 / leg. Dolin (AT 3)", "*Laccobius azerus* sp. n. / E. Gentili det. 2002" [red label], "*Laccobius azerus* n. sp. Holotypus / E. Gentili 2002" (NMW). **Paratypes**: 2 ♂♂, same label data as the holotype (MSNV, NMW). 6 ♀♀: "AZERBAJDZHAN: Talysch / Masally Dist., Isty-Su / 400 m, 22.5.2000 / leg. Dolin (AT 9)", "Paratypus // Laccobius azerus sp. n. / E. Gentili det. 2002" [red labels] (MSNV, NMW). 4 ♂♂, 1 ♀: "N Iran, Prov. Mazandaran / N-Elburz, Koljak, 36°28'38"N / 51°39'88"E, 1628 m, 04.06 / 2008 leg. A. Skale (24)", "Paratypus / E. Gentili det. 2009", [red labels] "Laccobius azerus sp. n. / E. Gentili det. 2009" [red labels] (CSHG, MSNV, NMPC).

DIFFERENTIAL DIAGNOSIS: *Laccobius azerus* sp.n. is externally similar to *L. bipunctatus* because of the conspicuous pale spots anterior to the eyes, head and pronotum are evidently shagreened, the fifth elytral row and some other elytral rows irregular, especially in the basal part. The new species differs from *L. bipunctatus* in the presence of specula on the ventral face of the labrum and in having a much shorter median lobe (Figs. 7–9, 12–13). From *L. simulans* ORCHYMONT, 1923, the new species differs in having head and pronotum shagreened, apex of aedeagal median lobe acute, parameral apex not flattened dorsoventrally (see Figs. 10–11). From *L. simulatrix*, the new species differs in having larger specula (1/2 as wide as labrum; specula of *L. simulatrix* 1/3 as wide as labrum), fifth elytral puncture row neither straight nor regular, aedeagal median lobe with apical swelling (Figs. 9, 27).

DESCRIPTION: **Size and shape:** Length 3.1–4.1 mm (holotype 3.1 mm); width 1.8–2.1 mm (holotype 1.8 mm); males smaller than females. Body widely oval: ratio maximum length / maximum width 1.8; elytral index 2.5 (Fig. 47).

Head and head appendages: Head dark, alutaceous (strongly shagreened), densely punctate; conspicuous preocular patches anterior to lateral branches of the Y-suture; width of eye nearly 1/4 of interocular width (Fig. 48). Male labrum provided with two large specula nearly contacting each other in centre (Fig. 50). Mentum smooth and shining, with sparse setiferous punctures (Fig. 51). Gula anteriorly smooth, posteriorly granulose. Antennae with eight antennomeres, scape cylindroid, nearly as long as pedicel, longer than intermediate antennomeres together, antennomeres 3–4 conical, cupule ring-shaped, club loose and densely setiferous. Palpomere 3 of labial palpi as long as penultimate, strongly asymmetrical, anterior side straight, posterior side convex (Fig. 52). Maxillary palpi nearly as long as antennae, palpomere 4 longer than other palpomeres, palpomere 3 resembling palpomere 2.

Body: Pronotum transverse, 2.5 times as wide as long, alutaceous, dark in centre, yellowish laterally; black anteriorly with a yellow stripe posterior to eyes; black color of disc projecting laterad with two tips into yellow border, posteriorly crescent-shaped, reaching base of pronotum medially (Fig. 48).

Scutellum black. Elytral surface yellowish, with numerous black spots, elytral periphery yellow without black spots. Elytra with strong punctures, unordered near scutellar shield, elsewhere

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forming longitudinal rows alternately more or less regular and more or less straight. Elytral epipleura dark, pseudepipleura yellowish, line of demarcation crenulate. Prosternum tectiform, with longitudinal keel. Mesoventrite bearing a longitudinal keel on posterior 3/4, central tubercle setose at tip, two lateral juts anteriorly. Metaventrite covered with non-erect setae, glabrous on postero-mesal surface (Fig. 54). Abdominal ventrites smooth, ventrites 5 and 6 rugose, pubescent.

Basal part of profemur pubescent; mesofemur with sparse and very short setae (Fig. 54); metafemur glabrous. Tibiae covered with longitudinal rows of spurs; metatibiae arcuate. Male protarsomere 2 bearing a brush of 16 lamellae (Fig. 53).

Aedeagus trilobate, phallobase nearly as long as parameres, apex of parameres curved inwards, median lobe evidently shorter than parameres, apical part swollen, tip ogival (Fig. 49).

HABITAT: The type locality is situated in wet hyrcanian subtropical forest; some specimens were captured together with *L. hoberlandti*.

DISTRIBUTION: **Azerbaijan** (Fig. 55) and Iran. It is known from the mountains along the southern coast of the Caspian Sea in southernmost Azerbaijan and northern Iran (Mazandaran Province).

ETYMOLOGY: The name refers to the Azeri (or Azerbaijani people) and the Azeri language prevailing in Azerbaijan. The species name is an adjective in the nominative singular.

Laccobius (*Dimorpholaccobius*) *bipunctatus* (F., 1775)

bipunctatus F. 1775: 229 (*Hydrophilus*, Sweden, Upsala, lectotype, NHMD, by GENTILI & CHIESA 1976); ZAITZEV 1938: 118; 1953: 108; GENTILI & CHIESA 1976: 120; SHATROVSKIY 1984: 142; HANSEN 1999: 138; FIKÁČEK et al. 2015: 42.

alutaceus THOMSON 1868: 311 ("Skandinavien, Pal. Lap." [?Sweden]), lectotype, ♀, ZIUL, by GENTILI & CHIESA 1976); SCHNEIDER & LEDER 1878: 87; LEDER 1886: 109.

Laccobius bipunctatus and/or *L. alutaceus* were recorded from the southern Caucasus by MOTSCHULSKY (1853), SCHNEIDER & LEDER (1878), LEDER (1886), RADDE (1899), and JAKOBSON (1913) (Tab. 1). ZAITZEV (1938, 1947, 1953) advanced the opinion that the specimens assigned to *L. bipunctatus/alutaceus* which occurred in the Caucasus might represent *L. bipunctatus laevicollis* GANGLBAUER, 1904 (= *L. syriacus*) and/or *L. cinereus*. The former is characterized by a smooth pronotum in contrast to *L. cinereus* with chagreened pronotum. *Laccobius cinereus* from Caucasus was renamed as *L. kuwerti* by ZAITZEV (1938) and as *L. simulatrix* by ORCHYMONT (1932). Therefore, all previous records might belong to these two species and, as suspected by ZAITZEV (1938), the true *L. bipunctatus* may not occur in the southern Caucasus at all. In fact, GENTILI & CHIESA (1976) did not find specimens of *L. bipunctatus* in the AMNH, and no specimens were collected by Shaverdo & Schillhammer in 2001. SHATROVSKIY (1984) did not see any specimens from the southern Caucasus in the collection of the ZMSP: "Records for Armenia ... need confirmation". Nevertheless, HANSEN (1999) and FIKÁČEK et al. (2015) quoted *L. bipunctatus* from Armenia. We suggest to regard this record as questionable; previous records might be based on confusion with other species of the subgenus *Dimorpholaccobius*. Aedeagus as in Figs. 12–13.

DISTRIBUTION: South Caucasus: ?**Armenia**, ?**Azerbaijan**, ?**Georgia**; Europe: Albania, Austria, Belgium, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Macedonia, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Russia (North European Territory), Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United

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Kingdom; North Africa: Morocco, Tunisia; Asia: China (Xinjiang), Kazakhstan, Russia (West Siberia), Turkey, Turkmenistan (HANSEN 1999, 2004, FIKÁČEK et al. 2015).

Laccobius (*Dimorpholaccobius*) *hindukuschi* CHIESA, 1966

hindukuschi CHIESA 1966: 302 (Afghanistan, Ejan, Salangtal, Hindukusch, holotype, ♂, HNMB, by GENTILI & CHIESA 1976); GENTILI & CHIESA 1976: 97; GENTILI 1980: 33; SHATROVSKIY 1984: 316; HANSEN 1999: 139; FIKÁČEK et al. 2015: 42.

farsicus GENTILI 1975: 128 (Iran, Shiraz, holotype, ♂, NHMP); SHATROVSKIY 1984: 316 (syn.); GENTILI & CHIESA 1976: 98; GENTILI 1980: 33, 1981: 93.

SHATROVSKIY (1984) synonymized *L. farsicus* with *L. hindukuschi.* We confirm this synonymization, considering that *L. farsicus* was based on immature specimens with the parameral apices bending downwards. Aedeagus as in Figs. 14–15.

DISTRIBUTION: South Caucasus (Fig. 55): **Armenia**, **Azerbaijan**, **Georgia**; Europe: Russia; Asia: Afghanistan, India (Himachal Pradesh, Uttarakhand), Iran, Iraq, Kyrgystan, Nepal, Pakistan, Tajikistan, Turkey, Turkmenistan, Uzbekistan (HANSEN 1999, 2004, FIKÁČEK et al. 2015).

Laccobius (*Dimorpholaccobius*) *hoberlandti* GENTILI, 1982

hoberlandti GENTILI 1982: 35 (Iran, Gilan, Sheykh Mahalleh, near Asalem, holotype, ♂, NHMP); 1988: 42; HANSEN 1999: 139; FIKÁČEK et al. 2015: 42.

znojkoi SHATROVSKIY 1984: 320 (Azerbaijan, Lankaran Region, Lerik rayon, Talysh, holotype, ♂, ZMSP); GENTILI 1988: 42 (syn.).

The record of this species from Azerbaijan is based on *L. znojkoi* described from Lankaran rayon and synonymized by GENTILI (1988). Aedeagus as in Figs. 16–17.

DISTRIBUTION: South Caucasus: **Azerbaijan** (Fig. 55); Asia: Iran, Turkey (HANSEN 1999, 2004, FIKÁČEK et al. 2015).

Laccobius (*Dimorpholaccobius*) *meridionalis* GENTILI, 1974

obscuratus meridionalis GENTILI 1974: 560 (Afghanistan, "Nuristan 1200 m, Bashgultal, 20.IV / NO Afghan. 1953 J. Klapperich // ♂ / *L. obscuratus meridionalis* m. E. Gentili 1973 / Holotypus E. Gentili 1973", HNMB); GENTILI & CHIESA 1976: 139; GENTILI & RIBERA 1998: 196; HANSEN 1999: 140; FIKÁČEK et al. 2015: 42.

MATERIAL EXAMINED: AZERBAIJAN: 1 ♂, Astara rayon, Astara env., Hirkan Forest, 22.V.2000, Dolin leg.

Laccobius meridionalis is here considered as distinct species based on the constant external and aedeagal characters. Aedeagus as in Figs. 18–20.

DISTRIBUTION: Palaearctic: South Caucasus: **Azerbaijan** (**first record**, Fig. 55); Asia: Afghanistan, Tajikistan; Oriental: India (Bihar) (HANSEN 1999, 2004, FIKÁČEK et al. 2015).

Laccobius (*Dimorpholaccobius*) *obscuratus* ROTTENBERG, 1874

obscuratus ROTTENBERG, 1874: 308 (*L. nigriceps* var., Poland, Slask, Ustron SW of Krakow, lectotype, IPEF, by GENTILI & CHIESA 1976: 139); ZAITZEV 1938: 118; 1947: 89; 1953: 108; KASYMOV 1972: 123; GENTILI & CHIESA 1976: 139; SHATROVSKIY 1984: 322; HANSEN 1999: 140; FIKÁČEK et al. 2015: 42.

MATERIAL EXAMINED: ARMENIA: Tavush Province: 1 ♂, 1 ♀, NE Dilizhan 40°47.99'N, 44°54.35'E below Hagartsin monastery, 21.V.2001, ca. 1300 m, Shaverdo & Schillhammer leg. (60); Aragatsotn Province: 1 ♀, Mt. Aragats, 40°24.34'N, 44°13.65'E, NW Byurakan, 6.V.2001, ca. 2100 m, Shaverdo & Schillhammer leg. (18); 2 ♂♂, Mt. Aragats, 40°21.60'N, 44°15.06'E, above Byurakan, 6.V.2001, ca. 1580 m, Shaverdo & Schillhammer leg. (20); 1 ♀, Mt. Aragats, 40°21.60'N, 44°15.06'E, above Byurakan, 10.V.2001, ca. 1580 m, Shaverdo & Schillhammer leg.

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(30); 1 ♀, Mt. Aragats, 40°24.34'N, 44°13.65'E, NW Byurakan, 28.V.2001, ca. 2100 m, Shaverdo leg. (68); Vayots Dzor Province: 1 ♀, E Yeghegnadzor, 39°50.27'N, 45°40.60'E, Yermuk, Arpa River, 12.V.2001, ca. 2000 m, Shaverdo & Schillhammer leg. (38); 2 ♂♂, E Yeghegnadzor, 39°49.71'N, 45°30.88'E, 2 km W Karmrashen Village, 13.V.2001, ca. 2050 m, Shaverdo & Schillhammer leg. (39); 1 ♂, 1 ♀, NE Yeghegnadzor, 39°53.29'N, 45°28.97'E, 3–4 km E Gyullidus Village, 13.V.2001, ca. 1850 m, Shaverdo & Schillhammer leg. (40); Syunik Province: 2 ♂♂, 3 ♀♀, 25 km N Kapan, near Norarachadzor Village, Kashuni River, 30.V.2001, ca. 1400 m, Shaverdo leg. (71a); 1 ♂, Kapan – Kadzharan, Darmanadzor Gorge, 30.V.2001, ca. 1700 m, Shaverdo leg. (74); 1 ♂, Kapan – Kadzharan, Darmanadzor Gorge, 30.V.2001, ca. 1700 m, Shaverdo leg. (75); 1 ♂, 2 ♀♀, 9 km S Kadzharan, Megri Pass, 31.V.2001, ca. 2500 m, Shaverdo leg. (77A). AZERBAIJAN: Lerik rayon: 2 ♂♂, 1 ♀, Talysch Suwant (Plateau), 25.V.1999, 1760 m, Dolin leg.; 1 ♂, 2 ♀, Talysch Suwant (Plateau), Gosmoljan environs, 29.V.1999, 1650 m, Dolin leg.; 13 ♂♂, 25 ♀♀, Talysch Suwant (Plateau), Gosmoljan environs, 1500 m, 27.V.1999, Dolin leg. GEORGIA: 1 ♀, Svaneti Region: Svanetia, Veselý leg., NHMP).

MORPHOLOGICAL AND TAXONOMIC NOTES: *Laccobius obscuratus* was subdivided by GENTILI & CHIESA (1976) into four subspecies: 1) *L. obscuratus aegaeus* GENTILI, 1974; 2) *L. obscuratus meridionalis* GENTILI, 1974; 3) *L. obscuratus obscuratus* ROTTENBERG, 1874; 4) *L. obscuratus orchymonti* GENTILI, 1976. Now, among these taxa, we consider 1) and 2) as distinct species, and 4) as synonym (variety) of 3). In fact, specimens of *L. o. orchymonti* are very variable in external and aedeagal characters, suggesting that they represent only a variety, while *L. o. aegeus* and *L. o. meridionalis* have constant character states suggesting a specific status. Aedeagus as in Figs. 21-22.

DISTRIBUTION: Palaearctic: South Caucasus (Fig. 56): **Armenia**, **Azerbaijan**, **Georgia**; Europe: Albania, Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Czechia, France, Germany, Greece, Hungary, Italy, Macedonia, Montenegro, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Switzerland, Ukraine, United Kingdom; Asia: Iran, Israel, Tajikistan, Turkey, Turkmenistan; Afrotropical: Tanzania (HANSEN 1999, 2004, FIKÁČEK et al. 2015).

Laccobius (*Dimorpholaccobius*) *scutellaris* MOTSCHULSKY, 1855

scutellaris MOTSCHULSKY 1855: 84 (Turkey, Izmir, lectotype, ♀, ZMUM, by GENTILI & CHIESA 1976); GENTILI & CHIESA 1976: 94; SHATROVSKIY 1984: 316; HANSEN 1999: 140; GENTILI 2000: 199; FIKÁČEK et al. 2015: 42.

Laccobius scutellaris was synonymized with *L. sinuatus* by ZAITZEV (1908). GENTILI & CHIESA (1976) detected the consistency of the specific difference. GENTILI (2000) shows in his map a circum-Aegean distribution reaching the Caucasus in the extreme northeast. The only known record in the southern Caucasus is from Kirovabad [Ganja] by GENTILI & CHIESA (1976) based on specimens deposited in the AMNH. Aedeagus as in Figs. 25–26.

DISTRIBUTION: South Caucasus (Fig. 55): **Azerbaijan**; Europe: Bosnia-Herzegovina, Bulgaria, Croatia, Greece, Macedonia, Montenegro, Slovenia, Turkey; Asia: Cyprus, Israel, Lebanon, Turkey; North Africa: Egypt, Tunisia (HANSEN 1999, 2004, FIKÁČEK et al. 2015).

Laccobius (*Dimorpholaccobius*) *simulatrix* ORCHYMONT, 1932

simulatrix ORCHYMONT 1932: 398 (Turkey, Ankara, holotype, ♂, ISNB, by GENTILI & CHIESA 1976; not lectotype as in SHATROVSKIY 1984); SHATROVSKIY 1984: 321; GENTILI 2006: 185 (re-examination of types, aedeagus drawing); HANSEN 1999: 141; FIKÁČEK et al. 2015: 41.

kuwerti ZAITZEV 1938: 117 (Azerbaijan, Lankaran, lectotype, ZMSP, by SHATROVSKIY 1984); 1953: 107; KASYMOV 1972: 123.

simulator GENTILI & CHIESA 1976: 116 (wrong emendation of *simulatrix*, as noted by SHATROVSKIY 1984. In Latin "simulatrix" means "witch").

MATERIAL EXAMINED: ARMENIA: Kotayk Province: 1 ♂, near Garni, Gekhard River, small tributary, 29.IV.2001, ca. 1200 m, Shaverdo leg. (2); 1 ♀, below Atsavan, springfed rivulets, ca. 1300 m, ca. halfway between Yerevan and Garni, 1.V.2001, Shaverdo leg. (9); 1 ♂, below Atsavan, stream clay, ca. 1300 m, Yerevan – Garni,

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1.V.2001, Shaverdo leg. (10); 2 ♂♂, below Atsavan, ca. 1300 m, Yerevan – Garni, 1.V.2001, Shaverdo leg. (12); 1 ♂, 21 km NW Hrazdan, 40°37.72'N, 44°33.20'E, 9.V.2001, ca. 1850 m, Shaverdo & Schillhammer leg. (26); Armavir Province: 8 ♂♂, 8 ♀♀, Meghradzor, Araxes Valley, Echmiadzin, S Echmiadzin railway-station, 40°03.63'N, 44°15.75'E, 15.V.2001, ca. 850 m, Shaverdo & Schillhammer leg. (49); Vayots Dzor Province: 1 ♂, 2 ♀♀, NE Areni, 39°56.27'N, 44°52.01'E, ca. 15 km N Urtsadzor, 14.V.2001, ca. 1150 m, Shaverdo & Schillhammer leg. (46). AZERBAIJAN: 1 ♀, Lankaran rayon: Talysh, Lankaran, leg. Leder (coll. Reitter) (NHMP).

In the literature, this species is reported from many different localities in Armenia, Azerbaijan, and Georgia (Tab. 1). ZAITZEV (1953) wrote that this species is widely distributed in Transcaucasia. Aedeagus as in Figs. 27–28.

DISTRIBUTION: South Caucasus (Fig. 56): **Armenia**, **Azerbaijan**, **Georgia**; Europe: Albania, Austria, Bosnia-Herzegovina, Bulgaria, Croatia, Czechia, France, Greece, Hungary, Italy, Macedonia, Montenegro, Poland, Romania, Russia (Central European Territory), Serbia, Slovakia, Turkey, Ukraine, United Kingdom; Asia: Afghanistan, Iran, Kazakhstan, Turkey, Turkmenistan (HANSEN 1999, 2004, FIKÁČEK et al. 2015).

Laccobius (*Dimorpholaccobius*) *sipylus* ORCHYMONT, 1939

sipylus ORCHYMONT 1939: 81 (Lebanon, Zahle, holotype, ♂, ISNB); GENTILI & CHIESA 1976: 157; SHATROVSKIY 1984: 322; HANSEN 1999: 141; FIKÁČEK et al. 2015: 43; GENTILI 1986: 186.

MATERIAL EXAMINED: AZERBAIJAN: 1 ♂, Lankaran rayon, Talysch Suwant (Plateau), 25.5.1999, 1760 m, Dolin leg.

GENTILI & CHIESA (1976) and SHATROVSKIY (1984) reported this species from Yerevan (Armenia) and Ganja (Azerbaijan), and it was recorded from Tbilisi (Georgia) by SHATROVSKIY (1984) (Tab. 1). Aedeagus as in Figs. 29–30.

DISTRIBUTION: South Caucasus: **Armenia**, **Azerbaijan**, **Georgia** (Fig. 55); Asia: Iran, Iraq, Lebanon, Turkey (HANSEN 1999, 2004, FIKÁČEK et al. 2015, SHATROVSKIY 1984).

Laccobius (*Dimorpholaccobius*) *striatulus* (F., 1801)

striatulus F. 1801: 254 (*Hydrophilus*, "Germania", holotype, ♀, NHMD); GENTILI & CHIESA 1976: 107; ZAITZEV 1938: 116; 1953: 157.

nigriceps THOMSON 1853: 50 (Finland, Enontekiö ("Sverige: Enontekis i Lappland")); GENTILI & CHIESA 1976 (lectotype); GANGLBAUER 1904: 253 (syn.); ORCHYMONT 1930: 39.

bucciarellii GENTILI 1974: 550 (Georgia, Betscho [Becho], holotype, ♂, MSNM); GENTILI & CHIESA 1976: 105; SHATROVSKIY 1984: 319 (syn.).

MATERIAL EXAMINED: ARMENIA: Aragatsotn Province: 2 ♂♂, 3 ♀♀, Mt. Aragats 40°21.60'N, 44°15.06'E, above Byurakan, 6.V.2001, ca. 1580 m, Shaverdo & Schillhammer leg. (20); 2 ♂♂, Mt. Aragats, 40°21.60'N, 44°15.06'E, above Byurakan, 10.V.2001, ca. 1580 m, Shaverdo & Schillhammer leg. (30); Kotayk Province: 7 ♂♂, 2 ♀♀, near Garni, Gekhard River, small tributary, 29.IV.2001, ca. 1200 m, Shaverdo leg. (1, 2); 7 ♂♂, 6 ♀♀, below Atsavan, ca. 1300 m, Yerevan – Garni, 1.V.2001, Shaverdo leg. (12); 5 ♂♂, 16 ♀♀, SW Carencavan, SE Lusakert, Hrazdan River, 30.IV.2001, ca. 1280 m, Shaverdo leg. (4, 5, 8); 2 ♂♂, 24 km NW Hrazdan, 40°38.22'N, 44°32.34'E, 9.V.2001, ca. 1970 m, Shaverdo & Schillhammer leg. (25); 1 ♂, 2 ♀♀, 21 km NW Hrazdan, 40°37.72'N, 44°33.20'E, 9.V.2001, ca. 1850 m, Shaverdo & Schillhammer leg. (26); 1 ♀, 24 km NW Hrazdan, 40°36.22'N, 44°32.34'E, 22.V.2001, ca. 1970 m, Shaverdo leg. (65); Vayots Dzor Province: 2 ♂♂, E Yeghegnadzor, 39°41.80'N, 45°33.62'E, 5 km SW Gndevaz, Arpa River, 11.V.2001, ca. 1400 m, Shaverdo & Schillhammer (31); 1 ♀, E Yeghegnadzor, 39°41.10'N, 45°46.64'E, 57 km E Bazarchay, 12.V.2001, ca. 2050 m, Shaverdo & Schillhammer leg. (33); 1 ♀, E Yeghegnadzor, 39°41.10'N, 45°46.64'E, pass on E-slope, above Sisian, 1.VI.2001, ca. 2050 m, Shaverdo leg. (85); 6 ♂♂, 1 ♀, E Yeghegnadzor 39°50.27'N, 45°40.60'E, Yermuk, Arpa River, 12.V.2001, ca. 2000 m, Shaverdo & Schillhammer leg. (38); 10 ♀♀, NE Yeghegnadzor, 39°53.29'N, 45°28.97'E, 3–4 km E Gyullidus Village, 13.V.2001, ca. 1850 m, Shaverdo & Schillhammer leg. (40, 41).

This species was recorded from many different localities in the southern Caucasus (Tab. 1). It was listed from Azerbaijan under the name *L. nigriceps*: from Lankaran by SCHNEIDER & LEDER

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(1878), LEDER (1886), and RADDE (1899), and from Talysh by JAKOBSON (1913). KASYMOV (1972) recorded *L. striatulus* from Agrichay River on the road Sheki – Zakataly (Azerbaijan). Aedeagus as in Figs. 31–32.

DISTRIBUTION: South Caucasus (Fig. 57): **Armenia**, **Azerbaijan**, **Georgia**; Europe: Albania, Austria, Belarus, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Latvia, Luxembourg, Macedonia, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom; Asia: China (Xinjiang), Kazakhstan, Kyrgystan, Turkey, Uzbekistan (HANSEN 1999, 2004, FIKÁČEK et al. 2015).

Laccobius (*Dimorpholaccobius*) *sulcatulus* REITTER, 1909

sulcatulus REITTER 1909: 80 (SW Iran, Luristan, holotype, ♀, HNMB); ZAITZEV 1938: 114; 1947: 89; 1953: 10; KASYMOV 1972: 123; GENTILI & CHIESA 1976: 127; GENTILI 1980: 133; SHATROVSKIY 1984: 321; HANSEN 1999: 142; FIKÁČEK et al. 2015: 43.

MATERIAL EXAMINED: ARMENIA: 1 ♀, Kotayk Province: 1 ♀, near Garni, Gekhard River, small tributary, 29.04.2001, ca. 1200 m, Shaverdo leg. (2); 1 ♂, below Atsavan, ca. 1300 m, Yerevan – Garni, 1.V.2001, Shaverdo leg. (12); Vayots Dzor Province: 3 ♀♀, E Yeghegnadzor, 39°49.71'N, 45°30.88'E, 2 km W Karmrashen Village, 13.V.2001, ca. 2050 m, Shaverdo & Schillhammer leg. (39); 2 ♂♂, 3 ♀♀, NE Yeghegnadzor, 39°53.29'N, 45°28.97'E, 3–4 km E Gyullidus Village, 13.V.2001, ca. 1850 m, Shaverdo & Shillhammer leg. (40, 41).

Males and females of *Laccobius sulcatulus* are very characteristic and never were subject of misinterpretations. This species was reported from many localities in Armenia and one location (Baraleti) in Georgia (Tab. 1). The record for Azerbaijan in HANSEN (1999) and FIKÁČEK et al. (2015) was probably due to a misinterpretation of GENTILI (1980), who recorded this species from the Iranian province of Azarbaijan. Aedeagus as in Figs. 33–34.

DISTRIBUTION: South Caucasus (Fig. 57): **Armenia**, ?**Azerbaijan**, **Georgia**; Asia: Iran, Tajikistan, Turkey, Turkmenistan (HANSEN 1999, 2004, FIKÁČEK et al. 2015).

Laccobius (*Dimorpholaccobius*) *syriacus* GUILLEBEAU, 1896

syriacus GUILLEBEAU 1896: 228 (Israel, "Carmel, Syrie", Coll. Guillebeau, lectotype, ♀, MHNL, by GENTILI & CHIESA 1976); GENTILI & CHIESA 1976: 133; SHATROVSKIY 1984: 323; HANSEN 1999: 142; FIKÁČEK et al. 2015: 43.

alutaceus var. *laevicollis* GANGLBAUER 1904: 254 (Austria, "Neusiedler See", Ganglbauer, lectotype, ♂, NMW, by GENTILI & CHIESA 1976); ORCHYMONT 1937: 469 (syn.); ZAITZEV 1938: 118; 1947: 89; 1953: 108; KASYMOV 1972: 123.

MATERIAL EXAMINED: ARMENIA: Lori Province: 3 ♂♂, 1 ♀, 32 km SE Vanadzor, 40°42.52'N, 44°44.37'E, above Fioletovo Village, 19.V.2001, ca. 1730 m, Shaverdo & Schillhammer leg. (56); Aragatsotn Province: 3 ♂♂, 4 ♀♀, Mt. Aragats, 40°24.34'N, 44°13.65'E, NW Byurakan, 6.V.2001, ca. 2100 m, Shaverdo & Schillhammer leg. (18); 2 ♂♂, Mt. Aragats, 40°24.34'N, 44°13.65'E, NW Byurakan, 28.V.2001, ca. 2100 m, Shaverdo leg. (68); Kotayk Province: 2 ♂♂, 1 ♀, near Garni, Gekhard River, small tributary, 29.IV.2001, ca. 1200 m, Shaverdo leg. (1, 2); 3 ♂♂, 4 ♀♀, SW Carencavan, SE Lusakert, Hrazdan River, 30.IV.2001, ca. 1280 m, Shaverdo leg. (8); 2 ♀♀, below Atsavan, springfed rivulets, ca. 1300 m, ca. halfway between Yerevan and Garni, 1.V.2001, Shaverdo leg. (9); 1 ♂, 2 ♀♀, below Atsavan, stream clay, ca. 1300 m, Yerevan – Garni, 1.V.2001, Shaverdo leg. (10); 5 ♂♂, 9 ♀♀, below Atsavan, ca. 1300 m, Yerevan – Garni, 1.V.2001, Shaverdo leg. (12); 1 ♂, 24 km NW Hrazdan, 40°38.22'N, 44°32.34'E, 9.V.2001, ca. 1970 m, Shaverdo & Schillhammer leg. (25); 2 ♂♂, 1 ♀, 21 km NW Hrazdan, 40°37.72'N, 44°33.20'E, 9.V.2001, ca. 1850 m, Shaverdo & Schillhammer leg. (26); Armavir Province: 4 ♂♂, 1 ♀, SW Echmiadzin, 40°04.54'N, 44°12.49'E, 15.V.2001, ca. 850 m, Shaverdo & Schillhammer leg. (47); 1 ♂, 2 ♀♀, S Echmiadzin railway-station, 40°03.63'N, 44°14.96'E, 15.V.2001, ca. 850 m, Shaverdo & Schillhammer leg. (48); 5 ♀♀, S Echmiadzin railway-station, 40°03.63'N, 44°15.75'E, 15.V.2001, ca. 850 m, Shaverdo & Schillhammer leg. (49); Vayots Dzor Province: 9 ♂♂, 7 ♀♀, E Yeghegnadzor 39°41.80'N, 45°33.62'E, 5 km SW Gndevaz, Arpa River, 11.V.2001, ca. 1400 m, Shaverdo & Schillhammer (31, 32); 3 ♂♂, E

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Yeghegnadzor, 39°41.10'N, 45°46.64'E, pass on E-slope, above Sisian, 12.V.2001, ca. 2050 m, Shaverdo & Schillhammer leg. (34).

This species is very common in Armenia, from where it was recorded already by ZAITZEV (1938, 1947) and KASYMOV (1972) under the name *L. bipunctatus laevicollis* (Tab. 1). GENTILI & CHIESA (1976) reported *L. syriacus* also from several localities in Armenia. Aedeagus as in Figs. 35–36.

DISTRIBUTION: Palaearctic: South Caucasus (Fig. 57): **Armenia**, **Azerbaijan**, **Georgia**; Europe: Albania, Austria, Bosnia Herzegovina, Bulgaria, Czechia, Greece, Hungary, Macedonia, Montenegro, Romania, Slovakia, Serbia, Ukraine; Asia: Afghanistan, Cyprus, Iran, Iraq, Israel, Jordan, Kazakhstan, Kyrgystan, Lebanon, Syria, Tajikistan, Turkmenistan, Turkey; North Africa: Algeria, Egypt; Oriental: India (Meghalaya) (HANSEN 1999, 2004, FIKÁČEK et al. 2015).

Subgenus *Microlaccobius* GENTILI, 1974

Laccobius (*Microlaccobius*) *alternus* MOTSCHULSKY, 1855

alternus MOTSCHULSKY 1855: 84 (Switzerland, Canton Schwyz, lectotype, ♀, ZMUM, by ZAITZEV 1938: 113); HOCH 1967: 267; GENTILI & CHIESA 1976: 57; SHATROVSKIY 1984: 309; GENTILI 2000: 179; FIKÁČEK et al. 2015: 45.

For this species, exact localities in the southern Caucasus are known only from Armenia and Georgia so far (Tab. 1). GENTILI (2000) reported the melanistic form from Tbilisi and Yerevan and wrote that this glacial relict might occur also in nearby countries. Therefore, we include Azerbaijan into the range of *L. alternus* as unconfirmed. Aedeagus as in Figs. 37–38.

DISTRIBUTION: South Caucasus (Fig. 55): **Armenia**, ?**Azerbaijan**, **Georgia**; Europe: Albania, Austria, Bosnia-Herzegovina, Croatia, Czechia, France, Germany, Greece, Hungary, Italy, Macedonia, Montenegro, Poland, Romania, Russia (South European Territory), Serbia, Slovakia, Slovenia, Spain, Switzerland, Ukraine; Asia: Turkey (HANSEN 1999, 2004, FIKÁČEK et al. 2015).

Laccobius (*Microlaccobius*) *gracilis* MOTSCHULSKY, 1855

gracilis MOTSCHULSKY 1855: 84 (Russia, Stavropol Krai, Pyatigorsk, lectotype, ♀, ZMUM, by GENTILI & CHIESA 1976); ZAITZEV 1938: 114; GENTILI & CHIESA 1976: 69; SHATROVSKIY 1984: 311.

sardeus BAUDI 1864: 222 (Italy, Sardinia, lectotype, MZUT, by GENTILI & CHIESA 1976); SCHNEIDER & LEDER 1878: 87; LEDER 1886: 109.

subtilis KIESENWETTER 1870: 69 (Italy, Sicily, lectotype, ♂, ZSM, by GENTILI & CHIESA 1976); SCHNEIDER & LEDER 1878: 87.

viridiceps ROTTENBERG 1870: 23 (Italy, Sicily, Palermo, lectotype, IPKE, by GENTILI & CHIESA 1976); SCHNEIDER & LEDER 1878: 87.

MATERIAL EXAMINED: ARMENIA: Aragatsotn Province: 1 ♂, Mt. Aragats, 40°21.60'N, 44°15.06'E, above Byurakan, 6.V.2001, ca. 1580 m, Shaverdo & Schillhammer leg. (20); Kotayk Province: 4 ♂♂, 6 ♀♀, Ankavan, near Garni, Gekhard River, small tributary, 29.IV.2001, ca. 1200 m, Shaverdo leg. (1, 2); 1 ♂, 21 km NW Hrazdan, 40°37.72'N, 44°33.20'E, 27.V.2001, ca. 1850 m, Shaverdo leg. (66); Armavir Province: 1 ♂, 2 ♀♀, SW Echmiadzin, 40°04.54'N, 44°12.49'E, 15.V.2001, ca. 850 m, Shaverdo & Schillhammer leg. (47); 1 ♀, S Echmiadzin railway-station, 40°03.63'N, 44°14.96'E, 15.V.2001, ca. 850 m, Shaverdo & Schillhammer leg. (48); 9 ♂♂, 11 ♀♀, S Echmiadzin, railway-station, 40°03.63'N, 44°15.75'E, 15.V.2001, ca. 850 m, Shaverdo & Schillhammer leg. (49); Ararat Province: 1 ♀, Khosrov Nature Reserve, 39°58.75'N, 44°52.75'E, 16.–17.V.2001, 1300–1500 m, Shaverdo & Schillhammer leg. (50); Vayots Dzor Province: 1 ♀, E Yeghegnadzor, 39°41.80'N, 45°33.62'E, 5 km SW Gndevaz, Arpa River, 11.V.2001, ca. 1400 m, Shaverdo & Schillhammer leg. (31); 2 ♂♂, 2 ♀♀, NE Areni, 39°56.27'N, 44°52.01'E, ca. 15 km N Urtsadzor, 14.V.2001, ca. 1150 m, Shaverdo & Schillhammer leg. (46).

MORPHOLOGICAL AND TAXONOMIC NOTES: (1) *Laccobius gracilis* was recorded from Georgia and Armenia by ZAITZEV (1938). SHATROVSKIY (1984) recorded four paralectotypes (aedeagus as in Figs. 39–40) from Tbilisi. (2) *Laccobius sardeus*, described by BAUDI (1864) and

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reported from Lankaran by LEDER (1886), was treated as a variety by ZAITZEV (1908) and as a subspecies by KNISCH (1924) and ZAITZEV (1938). It is characterized by black dorsal color, with yellow peripheral band and two apical spots; primary and secondary elytral rows markedly different from each other. We consider it only as a melanistic variety of *L. gracilis*, in the Caucasus occurs together with specimens having a normal yellow or mixed yellow/black coloration. Aedeagus as in Figs. 41–42.

In the literature, this species is reported from different localities in Armenia, Azerbaijan, and Georgia (Tab. 1). HANSEN (1999) and FIKÁČEK et al. (2015) did not list *L. gracilis* for Armenia, although it was recorded from Echmiadzin [Vagarshapat] by JAKOBSON (1913) and ZAITZEV (1938), and as *L. viridiceps* by SCHNEIDER & LEDER (1878) from Echmiadzin and Tarstschai. The present records also confirm its occurrence in Armenia.

DISTRIBUTION: South Caucasus (Fig. 56): **Armenia**, **Azerbaijan**, **Georgia**; Europe: Albania, Austria, Belarus, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Czechia, France, Germany, Greece, Hungary, Italy, Macedonia, Montenegro, Poland, Portugal, Romania, Russia (South European Territory), Slovakia, Slovenia, Spain, Switzerland, Turkey, Ukraine; Asia: Iran, Israel, Turkey; North Africa: Algeria, Canary Islands, Libya, Morocco, Tunisia (HANSEN 1999, 2004, GENTILI 2000, FIKÁČEK et al. 2015).

Laccobius (*Microlaccobius*) *exilis* GENTILI, 1974

exilis GENTILI 1974: 560 (Afghanistan, Nuristan, Bashgul Valley, holotype, ♂, MSNV); 1988: 44; GENTILI & CHIESA 1976: 75 (as *L. gracilis orientalis*).

MORPHOLOGICAL AND TAXONOMIC NOTES: The specimens from Armenia and Azerbaijan identified by GENTILI & CHIESA (1976) as *L. gracilis orientalis* belong to *L. exilis*. Aedeagus as in Figs. 43–44.

DISTRIBUTION: Palaearctic: Europe: **Armenia**, **Azerbaijan** (Fig. 55); Asia: Afghanistan, Bhutan, China (Sichuan), Cyprus, India (Darjeeling, Sikkim, Uttarakhand), Iran, Nepal, Pakistan, Tajikistan, Turkey, Turkmenistan, Uzbekistan; Oriental: Burma (HANSEN 1999, 2004, FIKÁČEK et al. 2015).

Laccobius (*Microlaccobius*) *persicus* GENTILI, 1974

persicus GENTILI 1974: 562 (Iran, Teheran, holotype, ♂, MSNG); GENTILI & CHIESA 1976: 70, 74; DARILMAZ & KIYAK 2010: 66.

Laccobius persicus was described by GENTILI (1974) from Iran (Tehran), based on an apical swelling of the aedeagal median lobe. GENTILI & CHIESA (1976) regarded *L. persicus* as a subspecies of *L. gracilis*, which HANSEN (1999, 2004) reported from Azerbaijan. DARILMAZ & KIYAK (2010) and FIKÁČEK et al. (2015) re-established the specific status of *L. persicus* and repeated the Azerbaijan record. However, this record is most doubtful, because it seems to be based on a misinterpretation of the record from Azarbaijan Province (Iran) (GENTILI 1980) by HANSEN (1999). The taxonomic position of *L. persicus* must be evaluated when more material is available for study. Aedeagus as in Figs. 45–46.

DISTRIBUTION: Europe: ?**Azerbaijan**; Asia: Iran, Turkey.

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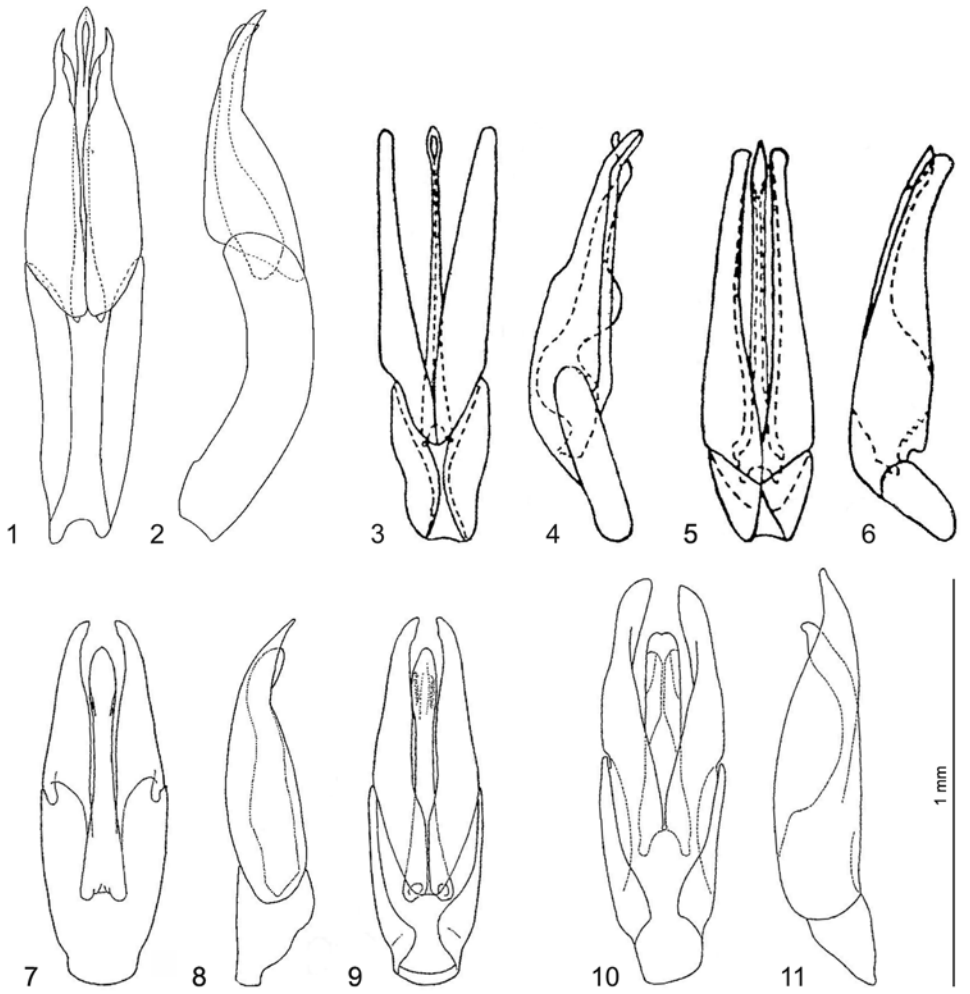

Figs. 1–11: Aedeagus in dorsal [and/or ventral], and lateral view, 1–2) *Laccobius decorus*; 3–4) *L. albipes*, 5–6) *L. minutus*, 7–9) *L. azerus*, 10–11) *L. simulans*.

Conclusions

The occurrence of 15 species of *Laccobius* is confirmed for the southern Caucasus.

1) For eight of these species the Caucasus Region forms the limit of their geographical distribution: *L. aegaeus*, *L. alternus*, *L. exilis*, *L. hindukuschi*, *L. meridionalis*, *L. scutellaris*, *L. sipylus*, and *L. sulcatulus*.
2) Two species appear more or less confined to the Caucasus Region: *L. azerus*, *L. hoberlandti.*
3) Only five species have a distributional area completely including the Caucasus: *L. gracilis*, *L. obscuratus*, *L. simulatrix*, *L. striatulus*, and *L. syriacus.*

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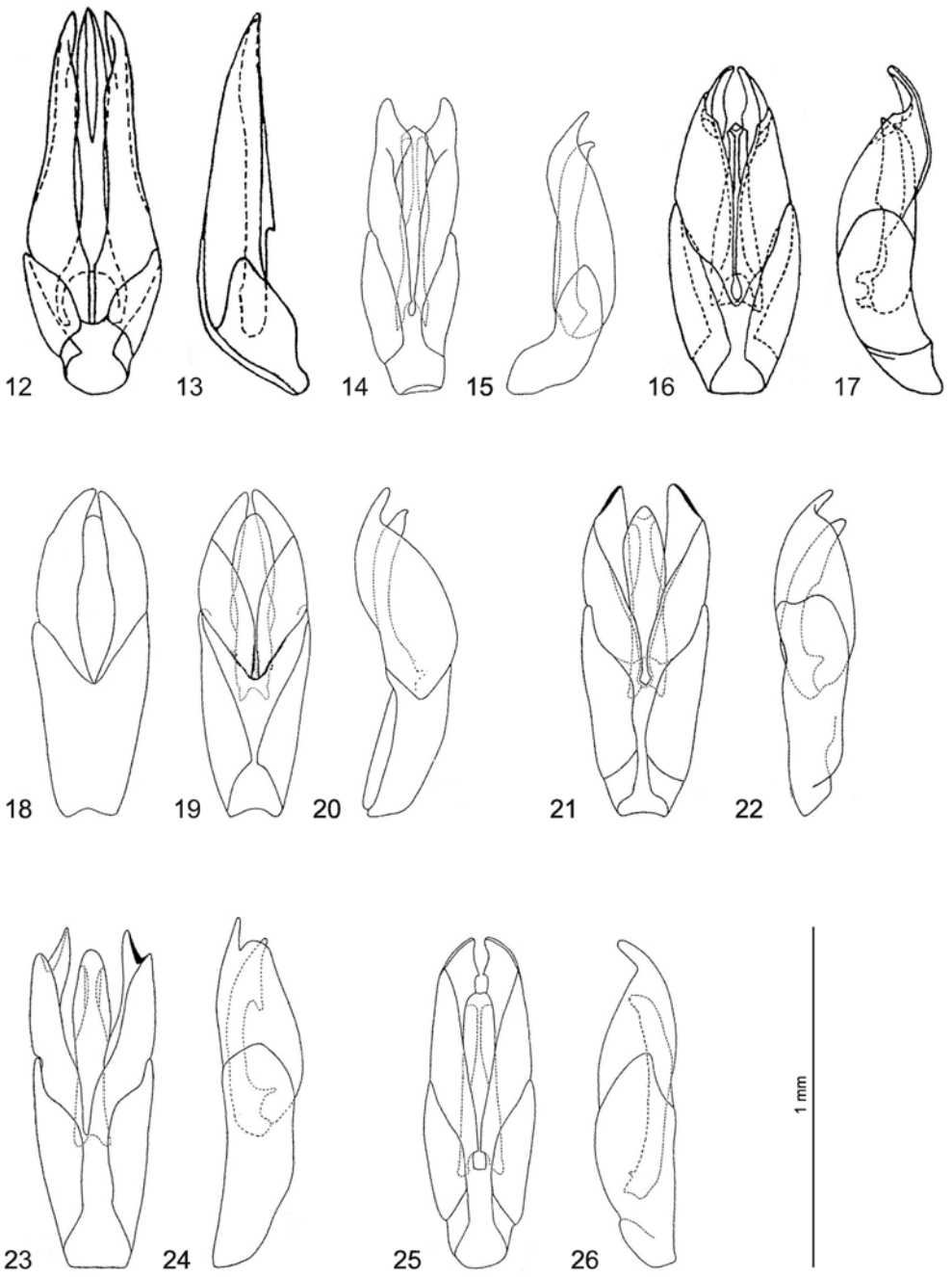

Figs. 12–26: Aedeagus in dorsal [and/or ventral], and lateral view, 12–13) *Laccobius bipunctatus*; 14–15) *L. hindukuschi*; 16–17) *L. hoberlandti*, 18–20) *L. meridionalis* (after GENTILI & RIBERA (1998), modified), 21–22) *L. obscuratus*, 23–24) *L. aegaeus*, 25–26) *L. scutellaris*.

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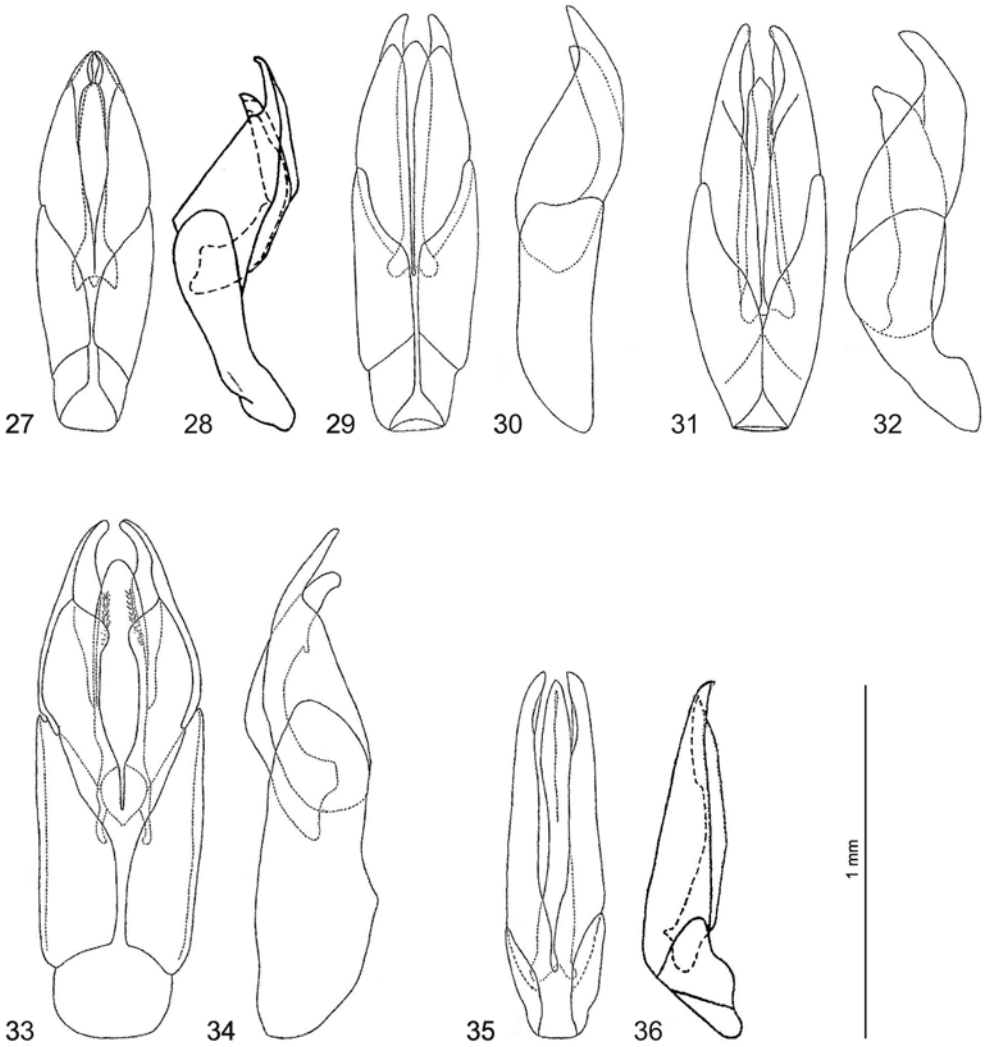

Figs. 27–36: Aedeagus in dorsal [and/or ventral], and lateral view, 27–28) *Laccobius simulatrix*, 29–30) *L. sipylus*, 31–32) *L. striatulus*, 33–34) *L. sulcatulus*, 35–36) *L. syriacus*.

According to the Swedish geographer STRAHLENBERG (1730) and approved by the Russian Empress Anna Ioannovna, the Kuma-Manych Depression (north of the Caucasus) was declared as the boundary between Europe and Asia, and consequently, Armenia, Azerbaijan, and Georgia are to be regarded as Asian countries. In 1958, the Geographic Society of the Soviet Union confirmed the concept of STRAHLENBERG (1730).

In the "Fauna Europaea" (http://www.faunaeur.org/) the Caucasus is not regarded as European territory. However, in the "Catalogue of Palaearctic Coleoptera" (see HANSEN 2004, FIKÁČEK et al. 2015) the Caucasus, including Armenia, Azerbaijan, and Georgia, are considered as part of Europe. We conclude that in case of *Laccobius*, the fauna of the southern Caucasus is predominantly Asian. At least seven species occur more or less exclusively in Asia, while only one, *L. alternus*, has a predominantly European distribution.

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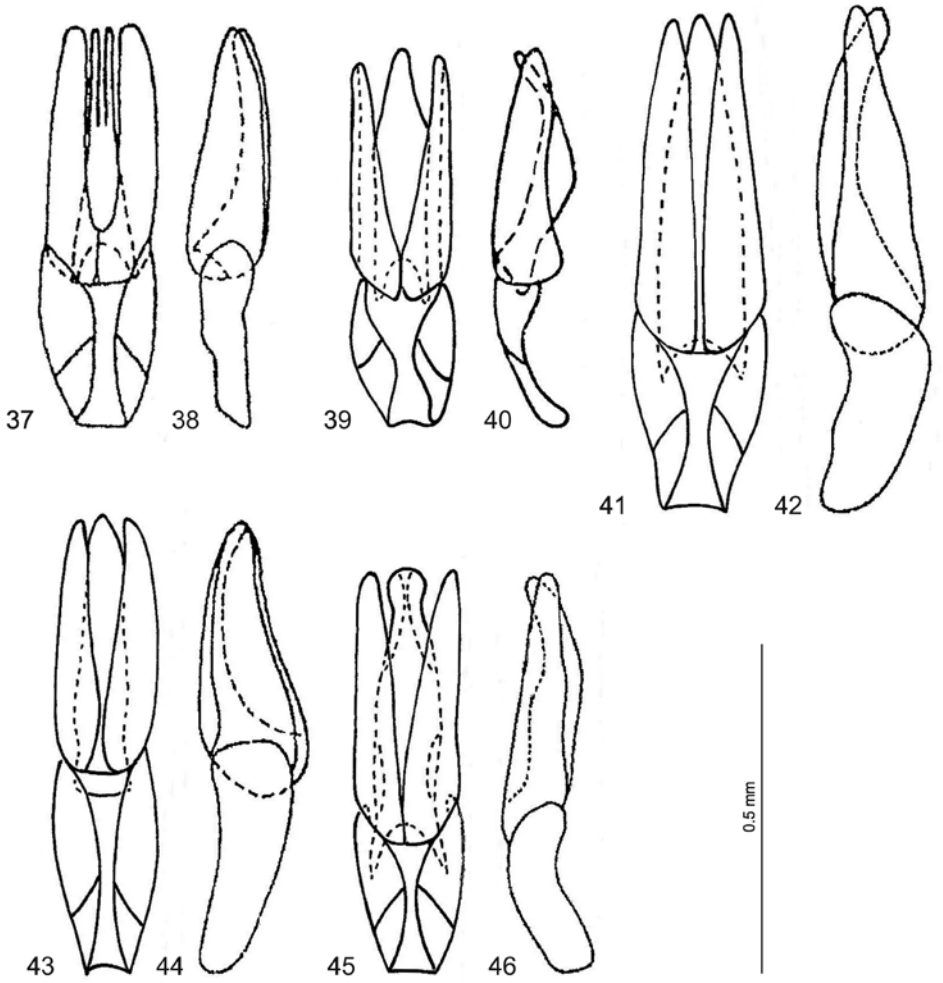

Figs. 37–46: Aedeagus in dorsal [and/or ventral], and lateral view, 37–38) *Laccobius alternus*, 39–40) *L. gracilis* (after SHATROVSKIY (1984), modified), 41–42) *L. gracilis*, holotype of *L. sardeus*, 43–44) *L. exilis*, 45–46) *L. persicus*.

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47

48

49

Figs. 47–49: *Laccobius azerus*, 47) habitus, 48) head and pronotum, 49) aedeagus in ventral, lateral, and dorsal view. Photographs by M. Fikáček.

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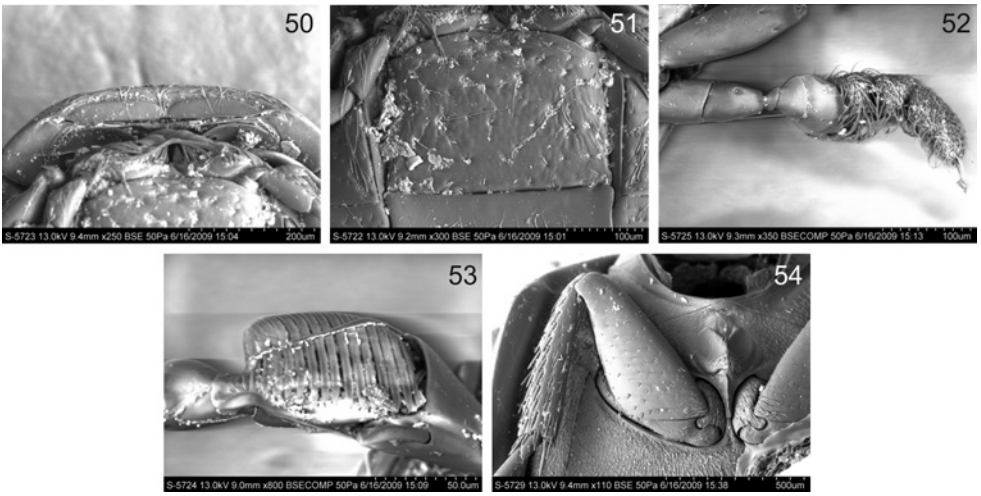

Figs. 50–54: *Laccobius azerus*, 50) labrum with specula, 51) mentum, 52) antenna, 53) protarsus with lamellae, 54) mesoventrite. Photographs by M. Fikáček.

Fig. 55: Geographical distribution of *Laccobius* spp. in the southern Caucasus.

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Fig. 56–57: Geographical distribution of *Laccobius* spp. in the southern Caucasus.

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Zusammenfassung

15 Arten der Gattung *Laccobius* ERICHSON, 1837 werden hier nachweislich für den Südkaukasus (Armenien, Aserbaidschan und Georgien) gemeldet. Das Vorkommen von vier weiteren Arten, die aus den drei genannten Ländern von früheren Autoren gemeldet wurden, konnte im Zuge dieser Studie nicht bestätigt werden. *Laccobius albipes* KUWERT, 1890 wird aus der Liste der nachgewiesenen kaukasischen Arten aufgrund eines offensichtlichen Fehlers in der Auslegung ihrer Verbreitung gestrichen. *Laccobius* (*Dimorpholaccobius*) *azerus* GENTILI **sp.n.**, eine neue Art aus Azerbaijan, wird beschrieben. Sie Art unterscheidet sich von *L. bipunctatus* (F., 1775), *L. simulans* ORCHYMONT, 1923, und *L. simulatrix* ORCHYMONT, 1932 durch die Struktur des Labrums und des Aedeagus sowie durch die Mikroretikulierung und Punktierung des Dorsums. *Laccobius obscuratus aegeus* GENTILI, 1974 und *L. o. meridionalis* GENTILI, 1974 werden als gültige Arten betrachtet; letztere wird zum ersten Mal aus dem Südkaukasus (Aserbaidschan) gemeldet. *Laccobius obscuratus orchymonti* GENTILI, 1976 (**syn.n.**) wird mit *L. obscuratus obscuratus* ROTTENBERG, 1874 synonymisiert, und *L. gracilis sardeus* BAUDI, 1864 (**syn.n.**) wird mit *L. gracilis gracilis* MOTSCHULSKY, 1855 synonymisiert. Ein Bestimmungsschlüssel für die Untergattungen und Arten der Gattung *Laccobius* aus dem Südkaukasus, sowie Verbreitungskarten werden bereitgestellt. Die Taxonomie und Verbreitung der einzelnen Arten werden diskutiert.

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