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On the taxonomy and zoogeography of the Caucasian genus *Pseudotyphlopasilia* (Coleoptera: Staphylinidae: Aleocharinae)

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ASSING V. 2021: On the taxonomy and zoogeography of the Caucasian genus *Pseudotyphlopasilia* (Coleoptera: Staphylinidae: Aleocharinae). *Acta Musei Moraviae, Scientiae biologicae* **106(2):** 279–302. – A study of recently collected material of *Pseudotyphlopasilia* Pace, 1983 revealed that the genus is confined to the Caucasus region (West Georgia; Russian part of West Caucasus) and includes ten species, all of them anophthalmous, micropterous, and locally endemic. *Typhlusa* Pace, 1983, previously a subgenus of *Pseudotyphlopasilia* and including only a single species from Montenegro, is attributed generic rank. Primarily based on the structure of the median lobe of the aedeagus and the shape and chaetotaxy of the paramere, *Pseudotyphlopasilia* is removed from the Athetini and tentatively placed in the Meoticina of the Oxypodini. Eight of the *Pseudotyphlopasilia* species are described for the first time: *P. acris* sp. nov. (North Georgia: Svaneti); *P. angulata* sp. nov. (Southwest Georgia: estreme west of Meskheti range); *P. baculata* sp. nov. (Southwest Georgia: western Meskheti and Shavsheti ranges); *P. carolae* sp. nov. (Southwest Georgia: western Shavsheti range); *P. depressa* sp. nov. (North Georgia: Mtskheta-Mtianeti); *P. kakhetica* sp. nov. (North Georgia: Kakheti region); *P. kociani* sp. nov. (North Georgia: Tusheti region); *P. vespertina* sp. nov. (Russia: Krasnodar region). *Pseudotyphlopasilia cavernicola* (Assing, 2007), previously a synonym of *P. coeca* (Eppelsheim, 1878), is revalidated. A lectotype is designated for *Leptusa coeca* Eppelsheim, 1878. The currently known distributions of the species are mapped. The morphological adaptations, the methods with which they were collected, and the habitats where they were found suggest that *Pseudotyphlopasilia* species inhabit deep litter layers and the mineral soil of moist, mostly deciduous forests.

Keywords. Coleoptera, Staphylinidae, Aleocharinae, Athetini, Oxypodini, Meoticina, *Pseudotyphlopasilia*, *Typhlusa*, taxonomy, new species, revalidation, new combination, new tribal assignment, lectotype designation, West Palaearctic, Caucasus, subterranean habitat, endemism, distribution map

Introduction

In the course of a revision of *Leptusa* Kraatz, 1856 from the collections of the Naturhistorisches Museum Wien, PACE (1983) assigned the anophthalmous *Leptusa coeca* Eppelsheim, 1878 from the Caucasus region to the newly described genus *Pseudotyphlopasilia* Pace, 1983 as the type species. In the same article, he described *Typhlusa* Pace, 1983 as a subgenus of *Pseudotyphlopasilia* to accommodate *Leptusa anophthalma* Bernhauer 1903 (type species) from Croatia. ASSING (2007) subsequently described *Speleogona cavernicola* based on two type specimens from a Georgian cave. Shortly afterwards, ASSING (2008) synonymized *Speleogona* Assing, 2007 with *Pseudotyphlopasilia* and *S. cavernicola* with *P. coeca*. In addition, *Pseudotyphlopasilia* was moved from the Homalotini to the Athetini, primarily based on the tarsal formula (4, 5, 5). Thus, prior to the present study, *Pseudotyphlopasilia* included two valid species in two subgenera.

In recent years, additional material of *Pseudotyphlopasilia* has been collected on a number of field trips conducted to the Caucasus region by several coleopterists,

especially Volker Brachat, Geretsried, and Heinrich Meybohm, Großhansdorf (six field trips to Georgia during the period from 2015 to 2019) and additionally by Matúš Kocian, Prague (two field trips to Georgia in 2013 and 2019), Andreas Pütz, Eisenhüttenstadt (one field trip to Georgia in 2015), Michael Schülke, Berlin, and the author (one joint field trip to Georgia in 2019 and one conducted by the author to the Krasnodar region in 2011). Considering that the specimens are completely anophthalmous, without so much as even traces of eyes left, and that they were collected across a vast range in the Greater Caucasus (from the Krasnodar region in the west to the Kakheti region in the east) and in the Lesser Caucasus (from the environs of Batumi in the west to the Khashuri area in the east), it seemed rather unlikely that they should all be conspecific. An examination of the genitalia eventually confirmed this suspicion.

Material and methods

The material treated in this study is deposited in the following collections:

MNB . . . . . Museum für Naturkunde, Berlin (coll. Schülke; M. Schülke)
NHMW . . . . . Naturhistorisches Museum Wien (H. Schillhammer)
cAss . . . . . author´s private collection
cHla . . . . . private collection Peter Hlaváč, Prague
cKoc . . . . . private collection Matúš Kocian, Prague

The morphological studies were conducted using Stemi SV 11 (Zeiss) and Discovery V12 (Zeiss) microscopes, and a Jenalab compound microscope (Carl Zeiss Jena). The images were created using digital cameras (Axiocam ERc 5s, Nikon Coolpix 995), as well as Labscope and Picolay software. The map was created using MapCreator 2.0 (primap) software.

Body length was measured from the anterior margin of the labrum to the posterior margin of tergite VIII, the length of the forebody from the anterior margin of the labrum to the posterior margin of the elytra, head length from the anterior margin of the clypeus to the posterior constriction of the head, elytral length at the suture from the apex of the scutellum to the posterior margin of the elytra, and the length of the aedeagus from the apex of the ventral process to the base of the aedeagal capsule. The “parameral” side (i.e., the side where the sperm duct enters) is referred to as the ventral, the opposite side as the dorsal aspect.

Results

Genus *Typhlusa* Pace, 1983, stat. nov.

Typhlusa Pace, 1983: 67.

Typhlusa was originally described as a subgenus of *Pseudotyphlopasilia* with *Leptusa anophthalma* Bernhauer, 1903 as the type species by monotypy. The original description is based on a unique female holotype collected in Radostak, a mountain near Herceg Novi (Montenegro), and deposited in NHMW. The holotype was examined and illustrated by

Pace (1983). The specimen has been out on loan to a colleague for more than two decades. Numerous requests (over a period of approximately one year) for a return of the holotype by both the curator at NHMW and the author have been unsuccessful.

As can be inferred from the completely different shape of the spermatheca, the type species of *Typhlusa* is most unlikely to be congeneric with *Pseudotyphlopasilia*, a conclusion also supported by zoogeographic evidence. The distributions of all the species of *Pseudotyphlopasilia* are confined to the Caucasus region, whereas *Typhlusa* is known only from one locality in Montenegro. In consequence, *Typhlusa* should be regarded as a distinct genus for the time being and the new combination *Typhlusa anophthalma* (Bernhauer, 1903) is proposed.

Genus *Pseudotyphlopasilia* Pace, 1983

Pseudotyphlopasilia Pace, 1983: 66 f.
Speleogona Assing, 2007: 34 f.

Diagnosis. This genus is characterized as follows: body (Figs 1–9) of similar size and habitus as *Leptusa*; colouration usually reddish to reddish-brown, more rarely yellowish or dark-brown; eyes completely reduced (no eye rudiments visible); tarsal formula 4, 5, 5; ligula slender and deeply bifid (Assing 2007: figure 6); tarsi long, with distinctly elongate metatarsomere I (at least as long as the combined length of metatarsomeres II and III); antennae distinctly incrassate, with antennomeres IV oblong to weakly transverse at most, V strongly transverse, VI–X of gradually increasing width and increasingly transverse); median lobe of the aedeagus of rather uniform shape, without an "athetal bridge", with a flagellum of variable length, but without sclerotized internal structures; paramere (Fig. 53) with a rather long and slender apical lobe with two very long subapical and with two short apical setae; spermatheca with a slender distal portion and a long to extremely long proximal portion forming numerous helical coils. For illustrations of the mouthparts and the sexual characters see Pace (1983), Assing (2007), and the present paper.

Systematic position. Primarily based on the tarsal formula, the genus was transferred to the Athetini by Assing (2008). However, the median lobe of the aedeagus lacks the athetal bridge, a constituting synapomorphy of the Athetini, so that the tribal assignment is probably incorrect. *Pseudotyphlopasilia* does not fit into any of the other tribes with the tarsal formula 4, 5, 5 and recorded from the West Palaearctic region (Pronomaeini, Geostibini, Lomechusini, Falagriini, Tachyusini) either. Instead, the median lobe of the aedeagus is of similar morphology as that of genera of Oxypodini. The latter are usually characterized by the tarsal formula 5, 5, 5, but there are exceptions, e.g., *Franzidota* Pace, 1982 of the Meoticina with the tarsal formula 4, 5, 5 (Assing 2020). *Pseudotyphlopasilia* additionally resembles Meoticina in the shape and chaetotaxy of the paramere, the presence of a flagellum in the internal sac of the aedeagus, and the long and coiled proximal portion of the spermatheca. In consequence, the genus is tentatively placed in the Meoticina (tribe Oxypodini). A molecular study would be helpful in ascertaining the phylogenetic affiliations of *Pseudotyphlopasilia* and its systematic position.

Distribution, diversity, and natural history. The known distribution of *Pseudotyphlopasilia* is confined to the Caucasus region (southern slopes of the western and central Greater Caucasus; western Lesser Caucasus). At present, ten locally or regionally endemic species are known, six of them distributed in the Greater Caucasus and its southern foothills and four in the Lesser Caucasus. The general distribution pattern is quite similar to that of the Caucasian representatives of the *Ischnosoma spelaea* species group (Assing & Schülke 2017, Assing 2019a) and of the *Othius crassus* group (Assing 2019c), as well as to those of some species groups of *Leptusa* and *Geostiba* Thomson, 1858 (Assing 2017a, b, 2018, 2019b).

The species live in moist, usually deciduous forests, mostly with rhododendron and/or fern undergrowth, where they appear to inhabit deep leaf litter layers and the mineral soil, as can be inferred from the complete absence of eyes, weak pigmentation, and the observation that specimens are only rarely collected by sifting, but more regularly by soil washing. One species was collected in a cave. The altitudes range from 170 to 2000 m.

The species of *Pseudotyphlopasilia*

Owing to the external uniformity of *Pseudotyphlopasilia* species (little interspecific variation) combined with pronounced intraspecific variation, a reliable identification based on external characters alone is usually not possible. Therefore, a detailed description of external characters is provided only for one species, and the remaining descriptions focus on diagnostic characters.

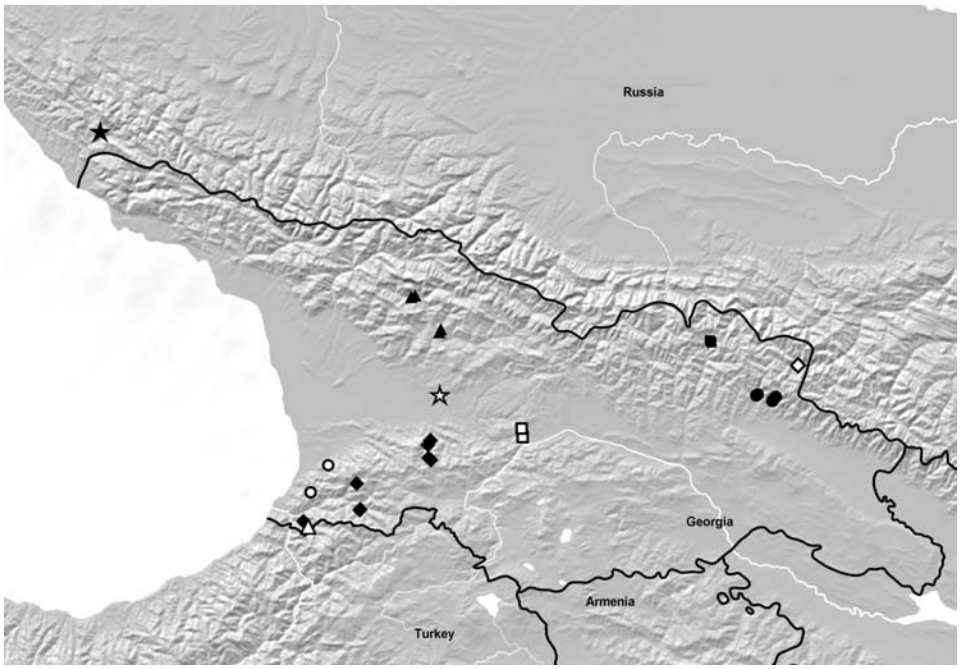
Pseudotyphlopasilia coeca (Eppelsheim, 1878) (Fig. 41, Map 1)

Leptusa coeca Eppelsheim, 1878: 92 f.

Material examined. 1♀ [identification uncertain], Georgia, Shida Kartli, SE Rikoti pass, 42°02′53″N, 43°29′40″E, 1010 m, 14.V.2016, leg. Brachat & Meybohm (cAss).

The original description is based on two syntypes ("in zwei Exemplaren erbeutet"), one of them collected "in der Landschaft Letschgum", the other "bei Michailowo am Suramgebirge" (Eppelsheim 1878). Pace (1983) examined "tre [sic] esemplari ♂♂ della seri tipica, due del Naturhistorisches Museum e uno della Coll. Reitter del Museo Ungherese di Storia Naturale". In addition, he attributed a female from Krasnaya Polyana (Krasnodar region) to this species. He illustrated the aedeagus of one of the three males, without specifying where the male was collected, and the spermatheca of the female from Krasnaya Polyana.

According to Schneider & Leder (1878), "Landschaft Letschgum" is the area around Lailashi (42°36′N, 42°50′E; Svaneti region), the historical administrative seat of the region. Michailowo is an old synonym of Khashuri (41°59′N, 43°35′E) in the Shida Kartli region to the southeast of the Suram pass. As can be inferred from the locality data, the two syntypes (probably the two males from the Eppelsheim collection in NHMW) undoubtedly belong to two species, and the female from Krasnodar to a third species.



Map 1. Distributions of *Pseudotyphlopasilia* spp.: *P. vespertina* sp. nov. (black star), *P. acris* sp. nov. (black triangles), *P. cavernicola* (Assing) (white star), *P. coeca* (Eppelsheim) (white squares), *P. baculata* sp. nov. (black diamonds), *P. angulata* sp. nov. (white circles), *P. carolae* sp. nov. (white triangle), *P. depressa* sp. nov. (black squares), *P. kakhetica* sp. nov. (black circles), and *P. kociani* sp. nov. (white diamond).

The type material of *P. coeca* has been out on loan to a colleague for more than two decades. Numerous requests (over a period of more than one year) for a return of the loan both by the curator in charge at NHMW and by the author have unfortunately been unsuccessful. At present, it is unknown when (or if) the type material will be accessible again. Therefore, in the interest of stability of nomenclature, the syntype from Michailowo is here designated as the lectotype. Based on the locality where it was collected, the examined female listed above is conspecific with the lectotype. It is distinguished from other *Pseudotyphlopasilia* species by remarkably pronounced microsculpture of the forebody, longer elytra, and the shape of the spermatheca, and it is additionally characterized by an oblong antennomere IV (shared only with *P. angulata*) and dark-brown colouration. The currently known distribution is illustrated in Map 1.

***Pseudotyphlopasilia cavernicola* (Assing, 2007), revalidated** (Map 1)

Speleogona cavernicola Assing, 2007: 36 f.

The original description is based on a male and a female from Navenahevi Cave in the hills to the west of Kutaisi, Imereti region, Georgia (Map 1). The present study revealed that the previously established synonymy with *P. coeca* (see Assing 2008) was unjustified.

For a detailed description and illustrations of external characters, the mouthparts, and the sexual characters see Assing (2007).

***Pseudotyphlopasilia angulata* sp. nov.**
(Figs 1, 10, 19–22, 42–43, Map 1)

Type material examined. Holotype ♂: "GEORGIA [41] – Adjara, NE Batumi, Mtirala National Park, 41°40′35″N, 41°52′29″E, 330 m, 18.VII.2019, V. Assing / Holotypus ♂ *Pseudotyphlopasilia angulata* sp. n., det. V. Assing 2020" (cAss). Paratypes: 2♂♂, 3♀♀: same data as holotype (cAss); 2♂♂, 1♀: same data as holotype, but "[41a]" (cAss); 1♀: "GEORGIA [40] – Adjara, NE Batumi, Mtirala National Park, 41°40′36″N, 41°52′23″E, 300 m, 18.VII.2019, V. Assing" (cAss); 1♂: "N41°49′52″ E42°00′25″, GG Adjara Achi, 330 m, 21.5.2019, Brachat & Meybohm (28)" (cAss).

Description. Body length 2.3–3.3 mm; length of forebody 1.0–1.3 mm. Habitus as in Fig. 1. Colouration: body pale-reddish to reddish-brown, with the abdomen usually somewhat darker than the forebody; legs dark-yellow; antennae reddish; maxillary palpi dark-yellow.

Head (Fig. 10) somewhat wedge-shaped; punctation extremely fine, visible in the distinct microreticulation only at high magnification (100×). Antennae 0.7–0.9 mm long; antennomeres III oblong, approximately 1.5 times as long as broad, IV transverse, approximately 1.5 times as broad as long, V–X of gradually increasing width and increasingly transverse, X approximately twice as broad as long, and XI more or less distinctly longer than the combined length of IX and X.

Pronotum (Fig. 10) approximately 1.4 times as broad as long and 1.3 times as broad as head; lateral margins distinctly sinuate in posterior half, posterior angles sharply marked; near posterior angles with a usually distinct impression on either side; punctation moderately dense and fine, but more distinct than that of head; pubescence directed posteriad along midline; interstices with distinct microreticulation.

Elytra (Fig. 10) 0.65–0.70 times as long as pronotum, more or less distinctly impressed near postero-lateral angles; posterior margin strongly sinuate near postero-lateral angles; punctation moderately dense and rather coarse and somewhat asperate or granulose; interstices with shallow microsculpture. Hind wings completely reduced. Legs slender; metatarsomere I approximately as long as the combined length of metatarsomeres II and III.

Abdomen: tergites III–V with anterior impressions; punctation fine and moderately dense on anterior tergites, decreasing in density towards posterior tergites, sparse on tergite VII; interstices with microreticulation composed of transverse meshes; posterior margin of tergite VII without palisade fringe; tergite VIII without sexual dimorphism, posterior margin weakly convex.

♂: sternite VIII with strongly convex posterior margin; median lobe of aedeagus (Figs 19–22) 0.30–0.32 mm long; ventral process slender and distinctly sinuate in lateral view; internal sac with short flagellum.

♀: posterior margin of sternite VIII broadly convex; spermatheca (Figs 42–43) with slender distal portion and moderately long proximal portion; distal coils of proximal portion stout; coils in proximal two-thirds of proximal portion much finer.

Comparative notes. This species is distinguished from other *Pseudotyphlopasilia* species primarily by the shape of the pronotum, the morphology of the median lobe of the aedeagus, and by the shape of the spermatheca, from most species also by a distinctly oblong antennomere IV.

Distribution and natural history. The known distribution is confined to the extreme west of the Meskheti range, Southwest Georgia (Map 1). The specimens were collected by sifting deep leaf litter and by soil washing in moist deciduous forests with predominant alder, chestnut, and rhododendron at altitudes of 300–330 m.

Etymology. The specific epithet (Latin, adjective) alludes to the sharply marked posterior angles of the pronotum.

Pseudotyphlopasilia baculata sp. nov.

(Figs 2, 11, 23–27, 44–45, 54, Map 1)

Type material examined. Holotype ♂: "GEORGIA [45] – Imereti, N Sairme, 41°58′54″N, 42°47′21″E, 370 m, stream valley, sifted, 21.VII.2019, V. Assing / Holotypus ♂ *Pseudotyphlopasilia baculata* sp. n., det. V. Assing 2020" (cAss). Paratypes: 1♀: same data as holotype (cAss); 1♂: "GEORGIA [46a] – Imereti, N Sairme, 41°57′24″N, 42°46′10″E, 650 m, moist deciduous forest, 21.VII.2019, V. Assing" (cAss); 1♂: "GEORGIA [47] – Imereti, S Sairme, 41°52′46″N, 42°46′22″E, 1510 m, moist deciduous forest, 22.VII.2019, V. Assing" (cAss); 2♂♂: same data, but "[47a]" (cAss); 1♀: "GEORGIA [48a] – Imereti, S Sairme, 41°52′10″N, 42°47′41″E, 1670 m, stream valley, soil wash., 23.VII.2019, V. Assing" (cAss); 1♂: "N41°43′51 E42°13′31, Georgien Adjara (65), Naghvarevi 1020 m 25.5.2018, Brachat & Meybohm" (cAss); 1♂, 1♀: "GEORGIA [36a] – Adjara, SE Batumi, Machakhela Nat. Park, 41°30′34″N, 41°49′04″E, 170 m, 17.VII.2019, V. Assing" (cAss); 1♀: "GEORGIA [22] – Adjara, SW Khulo, 41°34′38″N, 42°14′59″E, 1110 m, forest margin, sifted, 13.VII.2019, V. Assing" (cAss); 3♂♂, 2♀♀: "GEORGIA: Adjara, Shavsheti range, SW Khulo, 41°35′04″N, 42°15′08″E, 610 m, mixed forest with rhododendron and fern, sifted, 13.VII.2019, leg. Schülke [GE19-21]" (MNB, cAss).

Description. Body length 2.0–3.0 mm; length of forebody 0.9–1.1 mm. Habitus as in Fig. 2. External characters as in *P. angulata*, except as follows:

Colouration of body uniformly pale-reddish to reddish (abdomen not darker than forebody). Antennomere III approximately as long as broad. Pronotum (Fig. 11) with lateral margins not distinctly sinuate posteriorly; posterior angles obtusely marked.

♂: posterior sternite VIII obtusely pointed in the middle; median lobe of aedeagus (Figs 23–27) 0.3 mm long; ventral process moderately slender and distinctly sinuate in lateral view, basally with parallel lateral margins in ventral view; internal sac with long and rod-shaped flagellum.

♀: posterior margin of sternite VIII broadly convex; spermatheca (Figs 44–45) with extremely long proximal portion; coils of proximal portion fine, except close to the distal end.

Comparative notes. This species is characterized by the shape of the median lobe of the aedeagus and by the shape of the spermatheca. For characters distinguishing it from the geographically close *P. angulata* and *P. carolae* see the description above and the following section, respectively.

Distribution and natural history. *Pseudotyphlopasilia baculata* has been recorded from several localities in the western Meskheti and Shavsheti ranges, Southwest Georgia (Map 1), at altitudes of 170–1670 m. The specimens were collected by sifting deep leaf litter and by soil washing in moist deciduous forest (alder, chestnut, ash, walnut, hazelnut, etc.) with rhododendron, fern, and/or *Tussilago* undergrowth. The locality in Machakhela National Park is illustrated in Fig. 54.

Etymology. The specific epithet is an adjective derived from the Latin noun baculum (rod) and alludes to the long rod-shaped flagellum in the internal sac of the aedeagus.

Pseudotyphlopasilia carolae sp. nov. (Figs 3, 12, 28–29, Map 1)

Type material examined. Holotype ♂: "GEORGIA [33a] – Adjara, SE Batumi, Machakhela Nat. Park, 41°28′55″N, 41°51′29″E, 680 m, 16.VII.2019, V. Assing / Holotypus ♂ *Pseudotyphlopasilia carolae* sp. n., det. V. Assing 2020" (cAss).

Description. Body length 3.0 mm; length of forebody 1.2 mm. Habitus as in Fig. 3. External characters (Figs 3, 12) as in *P. baculata*, except for slightly coarser punctation of the elytra.

♂: posterior sternite VIII strongly produced in the middle; median lobe of aedeagus (Figs 28–29) 0.30 mm long; ventral process slender and straight in lateral view, weakly curved only at apex, basally with parallel lateral margins in ventral view; internal sac with moderately long flagellum.

♀: unknown.

Comparative notes. This species is distinguished from both *P. angulata* and *P. baculata* by the posteriorly strongly produced male sternite VIII and the straight ventral process (lateral view) of the aedeagus. It additionally differs from *P. angulata* by a shorter antennomere III, the shape of the pronotum (lateral margins not sinuate posteriorly; posterior angles obtusely marked) and by a slightly longer flagellum in the internal sac of the aedeagus, and from *P. baculata* by slightly larger size, coarser punctation of the elytra, and a significantly shorter flagellum in the internal sac of the aedeagus. Regarding the morphology of the aedeagus (shapes of ventral process in lateral view and of internal flagellum), *P. carolae* resembles *P. cavernicola* from the region to the west of Kutaisi. It differs from this species by a smaller and more slender body (width of pronotum 0.51 mm in *P. carolae* and 0.57 mm in *P. cavernicola*), less massive antennae, an apically more strongly narrowed ventral process of the aedeagus in ventral view, and a shorter apex of the ventral process in lateral view. For illustrations of *P. cavernicola* see Assing (2007).

Distribution and natural history. The type locality is situated in Machakhela National Park in the western Shavsheti range, Southwest Georgia (Map 1). The holotype was

collected by washing soil from a stream valley with alder, hazelnut, chestnut, and rhododendron at an altitude of 680 m.

Etymology. This species is dedicated to my sister Carola Herweg (Hannover), in appreciation of her continuous, tireless, and reliable support. For decades, she has designed, constructed, and repaired my equipment for entomological field work, such as sifters, extractors, and soil-washing gear, and thus considerably contributed to my collecting results.

***Pseudotyphlopasilia vespertina* sp. nov.** (Figs 4, 13, 30–31, Map 1)

Type material examined. Holotype ♂: "RU [14] – W-Caucasus, 4 km NNE Krasnaya Polyana, 1130 m, 43°42′23″N, 40°09′41″E, 19.VII.2011, V. Assing / Holotypus ♂ *Pseudotyphlopasilia vespertina* sp. n., det. V. Assing 2020" (cAss). Paratype ♂: same data as holotype (cAss).

Comment. The female recorded by PACE (1983) as *P. coeca* from Krasnaya Polyana most likely belongs to this species.

Description. Body length 2.9–3.1 mm; length of forebody 1.2–1.3 mm. Habitus as in Fig. 4. Externally (Figs 4, 13) as in *P. baculata*, but body slightly larger and of broader habitus (width of pronotum 0.55–0.57 mm).

♂: posterior sternite VIII strongly produced in the middle; median lobe of aedeagus (Figs 30–31) 0.33 mm long; ventral process slender and straight in lateral view, weakly curved only at apex, basally with parallel lateral margins in ventral view; internal sac with short flagellum.

♀: spermatheca as illustrated by PACE (1983: figure 23), proximal portion relatively short and with stout coils.

Comparative notes. Regarding the shapes of the median aedeagus and of the male sternite VIII, *P. vespertina* is most similar to *P. carolae* and *P. cavernicola*. It is distinguished from both by a shorter internal flagellum of the aedeagus and additionally as follows:

- from *P. carolae* by a larger and broader body, and by a more slender and slightly more strongly curved apex of the ventral process of the larger aedeagus (lateral view);
- from *P. cavernicola* by less massive antennae, the shape of the ventral process of the aedeagus (apically shorter in laleral view and more strongly and abruptly narrowed in ventral view), and by a shorter proximal portion of the spermatheca with stouter coils.

Distribution and natural history. The currently known distribution is confined to the environs of Krasnaya Polyana, Krasnodar region, West Caucasus. The type specimens were collected by sifting leaf litter in a beech forest with rhododendron at an altitude of 1130 m in Mount Atchishkho.

Etymology. The specific epithet (Latin, adjective: western) alludes to the distribution. At present, this species is the westernmost representative of the genus.

***Pseudotyphlopasilia acris* sp. nov.**
(Figs 5–6, 14–15, 32–35, 46–47, 53, Map 1)

Type material examined. Holotype ♂: "N42°47′53 E42°38′01 (17), GEORGIA: Ratscha, Lentheki 10 km W, 1100 m, Brachat & Meybohm, 20.V.2016 / Holotypus ♂ *Pseudotyphlopasilia acris* sp. n., det. V. Assing 2020" (cAss). Paratypes: 1♀: "N42°36′50 E42°52′02 (16), GEORGIA: Ratscha, Lailashi, 1015 m, Brachat & Meybohm, 19.V.2016" (cAss); 1♀: "N42°35′50 E42°51′17 (20), GEORGIA: Ratscha, S Lailashi, 520 m, Brachat & Meybohm, 21.V.2016" (cAss); 1♂, 1♀: "GEORGIA, Caucasus, [4] (Kvemo-Svanetia), N slopes of Svaneti Mts. rng., nr., NW of Tsanashi vill., pitfall traps, sift, 1356 m, 42°48′26.2″N, 42°39′55.9″E, 04.VII.2015, leg. A. Pütz" (cAss).

Comment. This species is probably conspecific with the paralectotype of *P. coeca* from "Landschaft Letschgum".

Description. Highly variable species; body length 2.2–3.2 mm; length of forebody 1.0–1.3 mm; width of pronotum 0.42–0.55 mm. Habitus as in Figs 5–6. Colouration of body ranging from reddish to dark-brown. Microsculpture of head distinct to nearly obsolete. Pronotum (Figs 14–15) 1.38–1.40 times as broad as long and 1.26–1.37 times as broad as head, relatively broader in larger than in smaller specimens; lateral margins not sinuate posteriorly; posterior angles obtusely marked. Other external characters not distinctive.

♂: posterior sternite VIII obtusely produced in the middle; median lobe of aedeagus (Figs 32–35) 0.25–0.29 mm long; ventral process weakly sinuate and apically acute in lateral view, and with subparallel lateral margins in basal two-thirds in ventral view; internal sac with short flagellum; apical lobe of paramere with an extremely long median seta (Fig. 53).

♀: posterior margin of sternite VIII moderately convex; spermatheca (Figs 46–47) small, with relatively short basal portion, coils moderately stout distally and gradually becoming finer towards the proximal end.

Intraspecific variation. The specimens from Tsanashi env. are distinguished from the remaining material by larger size, a more robust body, darker colouration, a larger aedeagus, and a distal portion of the spermatheca of somewhat different shape. The proximal portion of the spermatheca was not found in the abdomen of the female from Tsanashi. Regarding the shape of the median lobe of the aedeagus, however, the males from Tsanashi and Lentheki are highly similar, so that the observed differences are attributed to intra- rather than interspecific variation.

Comparative notes. This remarkably variable species is reliably distinguished from its congeners only by an apical lobe of paramere with an extremely long median seta, as well as by the shapes of the median lobe of the aedeagus and of the spermatheca.

Distribution and natural history. *Pseudotyphlopasilia acris* has been recorded from several localities in Svaneti, Northwest Georgia (Map 1). The altitudes range from 520 to approximately 1350 m.

Etymology. The specific epithet (Latin, adjective: sharp) alludes to the apically acute ventral process of the aedeagus.

***Pseudotyphlopasilia kakhetica* sp. nov.** (Figs 7, 16, 38–40, 48)

Type material examined. Holotype ♂: "N42°12′19 E45°27′45, GG Kakheti Lechuri N, 830 m, 9.5.2019, Brachat & Meybohm (2) / Holotypus ♂ *Pseudotyphlopasilia kakhetica* sp. n., det. V. Assing 2020" (cAss). Paratypes: 6♂♂, 7♀♀: same data as holotype (cAss); 1♀: "N42°13′24 E45°19′15, GG Kakheti Birkiani N 760 m 11.5.2019, leg. Meybohm & Brachat (5)" (cAss); 2♂♂: "N42°13′07 E45°18′40, GG Kakheti Birkiani N 750 m 11.5.2019, Brachat & Meybohm (6)" (cAss); 4♀♀: "GEORGIA n., Kaketi, above Lechuri, Svianiskhevi River, 700 m, sifting in forest, 42.185229N, 45.432081E, 5.VI.2019, M. Kocian lgt." (cHla, cKoc, cAss).

Description. Size variable; body length 2.3–3.3 mm; length of forebody 1.0–1.3 mm; width of pronotum 0.50–0.59 mm. Habitus as in Fig. 7. Colouration of body ranging from reddish to dark-brown. Head (Fig. 16) large in relation to pronotum; pronotum (Fig. 16) 1.27–1.34 times as broad as head. Antennomere IV as long as broad or weakly oblong. Other external characters not distinctive.

♂: posterior sternite VIII angularly pointed in the middle; median lobe of aedeagus (Figs 38–40) large, of robust shape, and 0.35–0.36 mm long; ventral process distinctly sinuate, with short apex in lateral view, and with subparallel lateral margins in basal two-thirds in ventral view; internal sac with moderately long flagellum.

♀: posterior margin of sternite VIII strongly convex; spermatheca (Fig. 48) small, with relatively short basal portion, coils conspicuously stout distally and moderately stout proximally.

Comparative notes. This species is characterized particularly by its large (larger than in other species of the genus) and distinctively shaped aedeagus and by the shape of the spermatheca, additionally also by a relatively large head.

Distribution and natural history. The specimens were collected in four close localities in the Kakheti range, Northeast Georgia (Map 1), at altitudes of 700–830 m.

Etymology. The specific epithet is an adjective derived from Kakheti, the name of the region where the species was discovered.

***Pseudotyphlopasilia depressa* sp. nov.** (Figs 8, 17, 36–37, 49, 51, Map 1)

Type material examined. Holotype ♂: "N42°31′47 E44°58′01 (18), GG Zentral-Kaukasus, Gudani 1620 m, Meybohm & Brachat 18.7.2015 / Holotypus ♂ *Pseudotyphlopasilia depressa* sp. n., det. V. Assing 2020" (cAss). Paratype ♀: "N42°32′20 E44°57′30 (32), GG Zentral-Kaukasus, Gudani 1900 m, 17.7.2015, l. Brachat & Meybohm" (cAss).

Description. Size rather variable; body length 2.9–3.6 mm; length of forebody 1.2–1.4 mm. Habitus as in Fig. 8. Externally as in *P. baculata*, except as follows:

Colouration dark-reddish to reddish brown. Pronotum and especially elytra flattened (Fig. 17). Pronotum (Fig. 17) of variable relative width, 1.29–1.37 times as broad as long and 1.19–1.23 times as broad as head, broadest in anterior half and rather strongly narrowed posteriorly; lateral margins posteriorly weakly sinuate at most; posterior angles obtusely marked. Abdomen as in Fig. 51.

♂: posterior sternite VIII sharply pointed in the middle; median lobe of aedeagus (Figs 36–37) 0.25 mm long; ventral process strongly sinuate in lateral view, broadest at

apical three-fifths in ventral view (i.e., distinctly tapering basad in basal portion); internal sac with short flagellum.

♀: posterior margin of sternite VIII strongly convex; spermatheca (Fig. 49) small, with weakly curved and relatively long distal portion and relatively short basal portion, coils not distinctly stouter distally than proximally.

Comparative notes. *Pseudotyphlopasilia depressa* is distinguished from all the preceding species by depressed elytra, a sharply pointed male sternite VIII, a smaller median lobe of the aedeagus with a basally distinctly tapering ventral process (ventral view), a posteriorly strongly convex female sternite VIII, and by the shape of the spermatheca.

Distribution and natural history. The specimens were collected in two close localities near Gudani in the Pshav-Khevsureti range, Mtskheta-Mtianeti, North Georgia (Map 1), at altitudes of 1620 and 1900 m.

Etymology. The specific epithet (Latin, adjective) alludes to the depressed pronotum and elytra.

Pseudotyphlopasilia kociani sp. nov. (Figs 9, 18, 50, 52, Map 1)

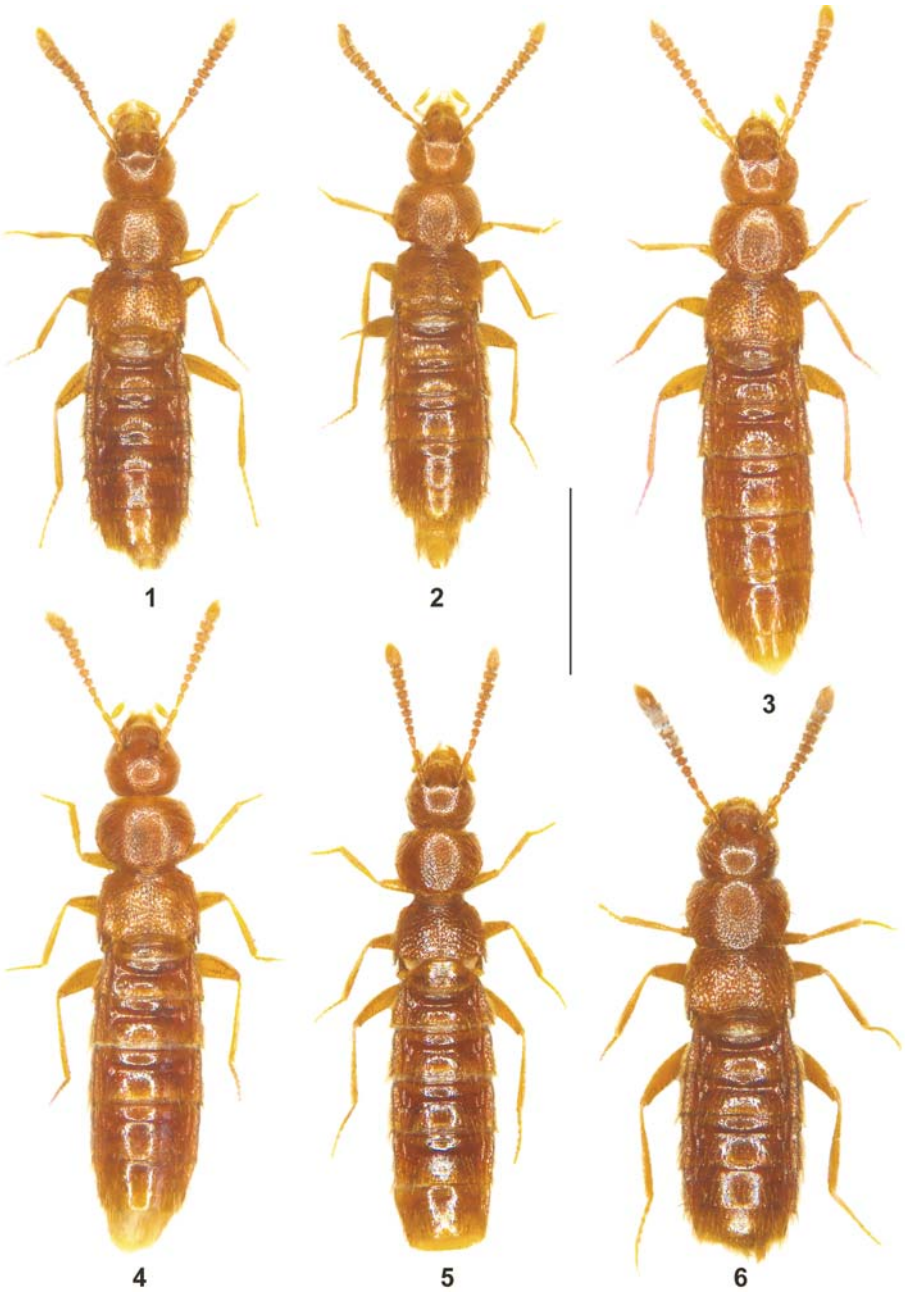
Type material examined. Holotype ♀: "Georgia, Tusheti, Omalo env., 2000 m, prosev mechu a listí [moss and leaves sifted], 1.7.2013, 42°23.13528′N, 45°38.46396′E, M. Kocian lgt. / Holotypus ♀ *Pseudotyphlopasilia kociani* sp. n., det. V. Assing 2020" (cAss).

Description. Body length 2.7 mm; length of forebody 1.2 mm; width of pronotum 0.50 mm; length of antenna 0.8 mm. Habitus as in Fig. 9. Colouration: forebody pale reddish-brown; abdomen darker brown with paler apex. Antenna strongly incrassate; antennomeres IV weakly transverse, V nearly twice as broad as long, and VII–X more than twice as broad as long. Head (Fig. 18) large in relation to pronotum. Pronotum (Fig. 18) moderately transverse, 1.27 times as broad as long and 1.14 times as broad as head; punctation fine, but distinct, and conspicuously dense; lateral margins not sinuate posteriorly; posterior angles obtusely marked. Elytra (Fig. 18) with dense and finely granulose punctation. Tarsi short; metatarsus 0.28 mm long; metatarsomere I barely as long as the combined length of metatarsomeres II and III. Abdomen (Fig. 52): tergites III–V with fine, but distinct, and conspicuously dense punctation.

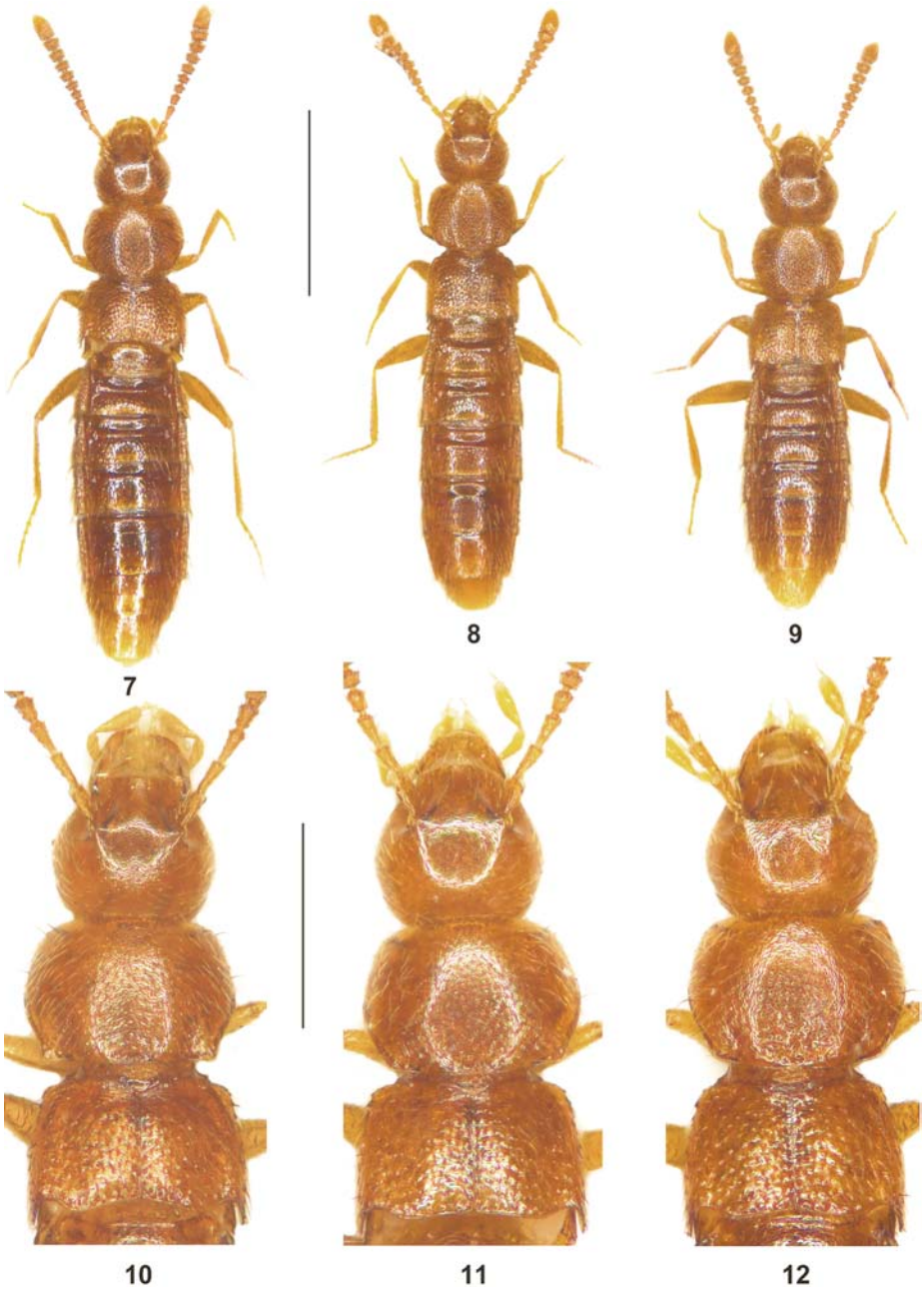
♂: unknown.

♀: posterior margin of sternite VIII strongly convex; spermatheca (Fig. 50) rather strongly sclerotized, with long distal portion and relatively short proximal portion composed of rather stout coils of similar width for its entire length.

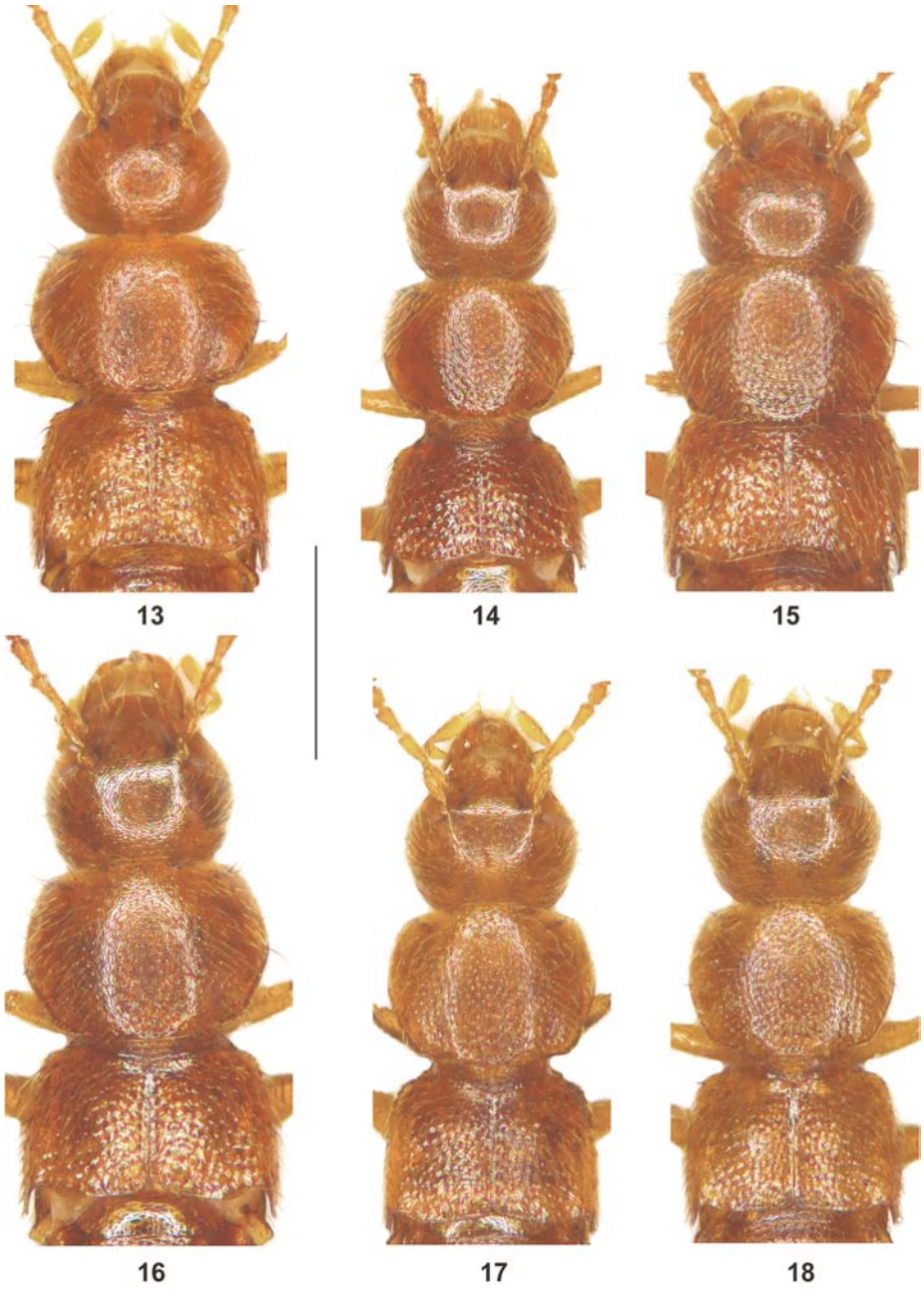
Comparative notes. This species is so distinctive that a description based on a single female seems justified. It differs from all other species of the genus especially by conspicuously dense punctation of the pronotum and the anterior tergites of the abdomen, short tarsi, the size and shape of the pronotum (only moderately transverse; small in relation to the head), and by a distinctive spermatheca (more strongly sclerotized; conspicuously stout coils in proximal portion), additionally also by more strongly



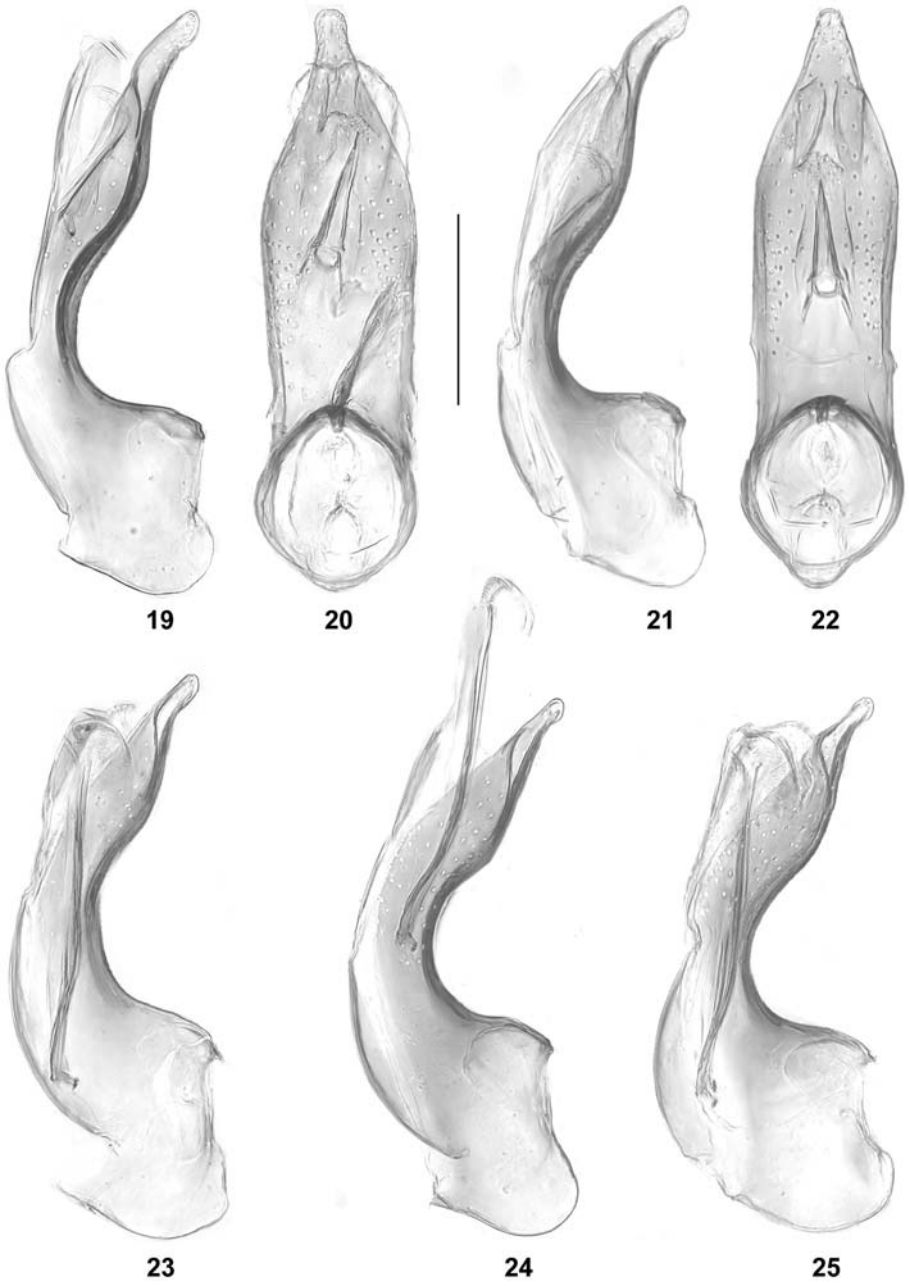
Figs 1–6. Habitus of *Pseudotyphlopasilia* spp.: 1 – *P. angulata* sp. nov.; 2 – *P. baculata* sp. nov.; 3 – *P. carolae* sp. nov.; 4 – *P. vespertina* sp. nov.; 5 – *P. acris* sp. nov. (Lentheki); 6 – *P. acris* sp. nov. (Tsanashi). Scale bar: 1.0 mm.



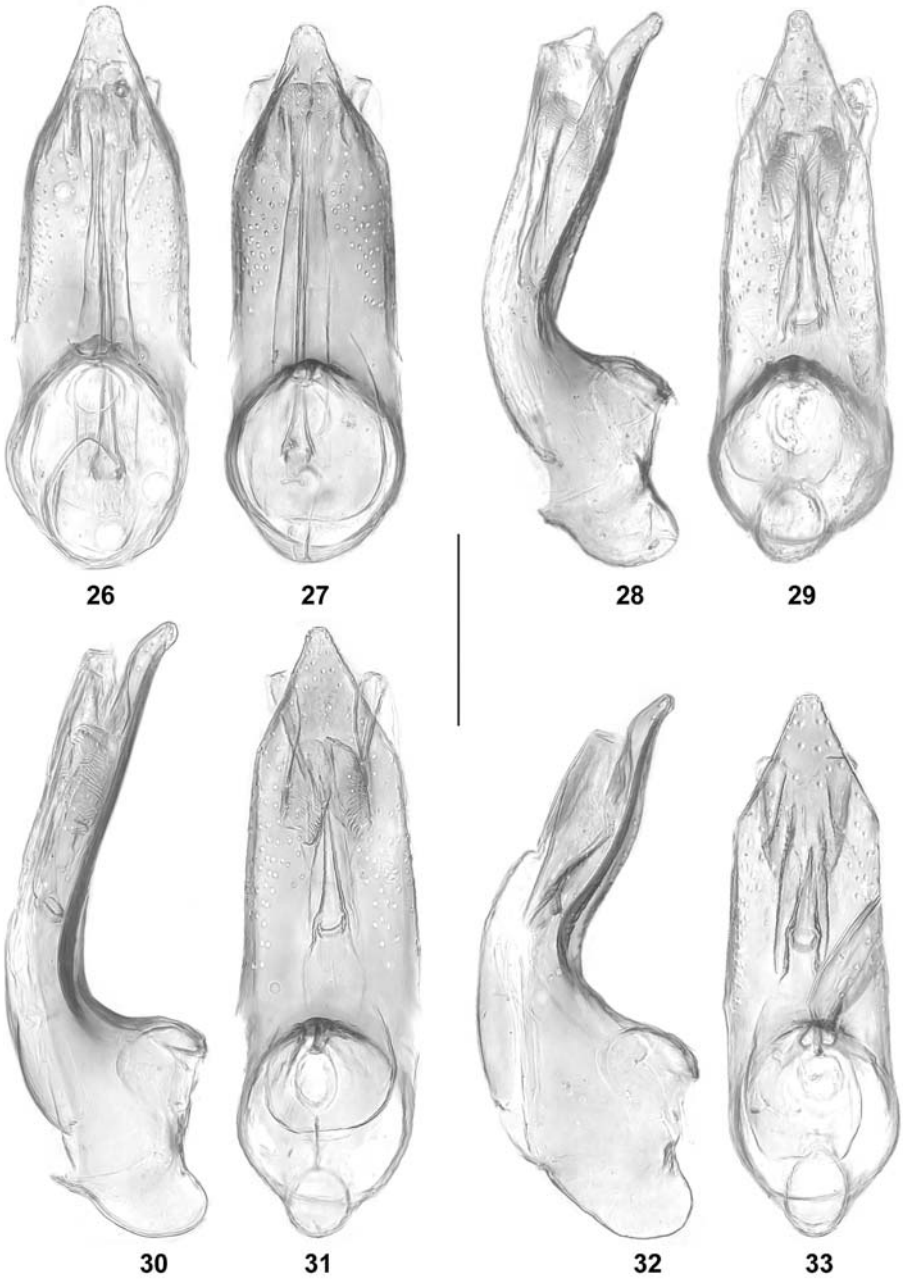
Figs 7–12. Habitus (7–9) and forebody (10–12) of *Pseudotyphlopasilia* spp.: 7 – *P. kakhetica* sp. nov.; 8 – *P. depressa* sp. nov.; 9 – *P. kociani* sp. nov.; 10 – *P. angulata* sp. nov.; 11 – *P. baculata* sp. nov.; 12 – *P. carolae* sp. nov. Scale bars: 7–9: 1.0 mm; 10–12: 0.5 mm.



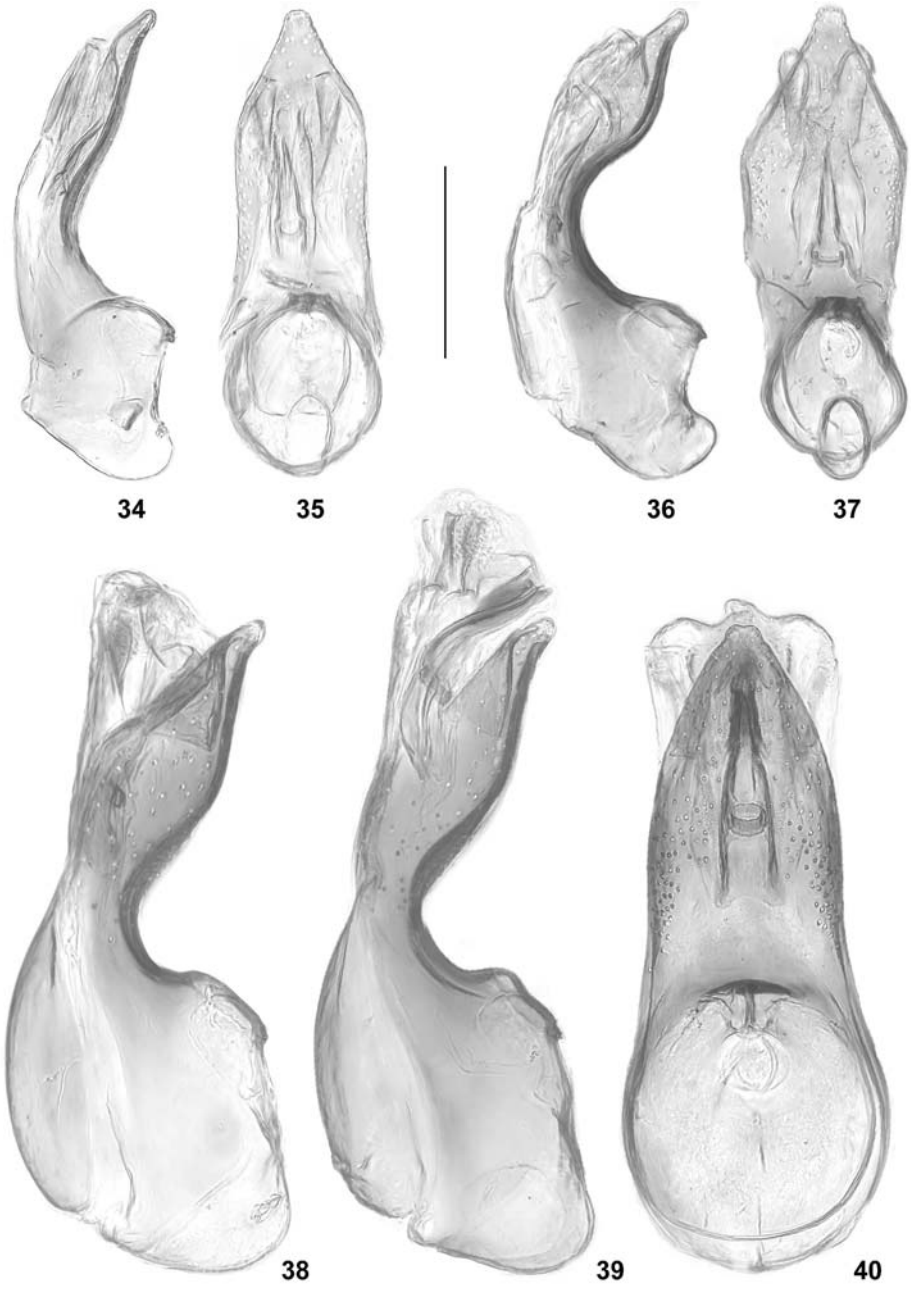
Figs 13–18. Forebody of *Pseudotyphlopasilia* spp.: 13 – *P. vespertina* sp. nov.; 14 – *P. acris* sp. nov. (Lentheki); 15 – *P. acris* sp. nov. (Tsanashi); 16 – *P. kakhetica* sp. nov.; 17 – *P. depressa* sp. nov.; 18 – *P. kociani* sp. nov. Scale bar: 0.5 mm.



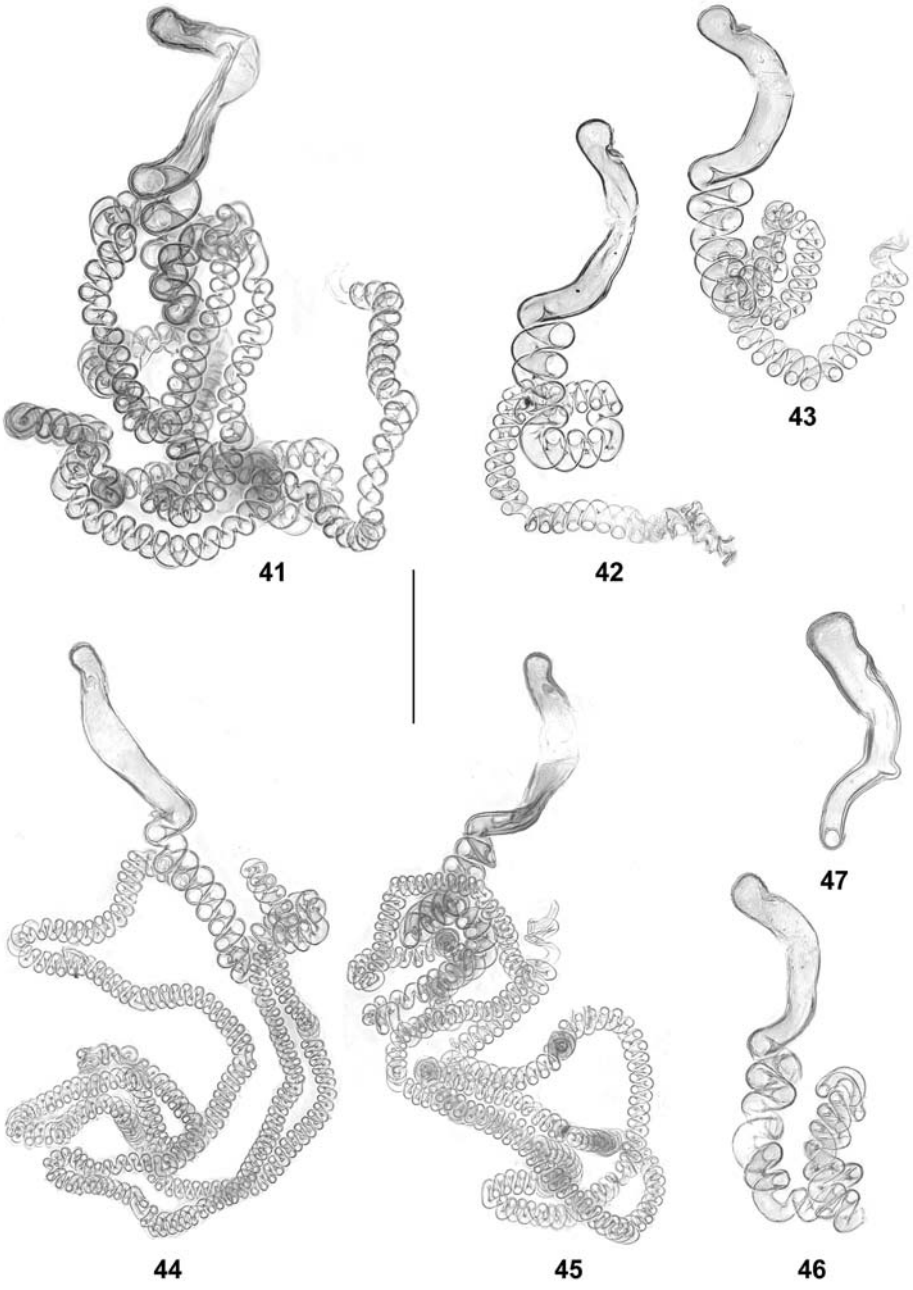
Figs 19–25. Median lobe of aedeagus in lateral and in ventral view of *Pseudotyphlopasilia* spp.: 19–22 – *P. angulata* sp. nov. from Mtirala National Park (19–20) and Achi (21–22); 23–25 – *P. baculata* sp. nov. from Khulo env. (23), Sairme env. (24), and Machakhela National Park (25). Scale bar: 0.1 mm.



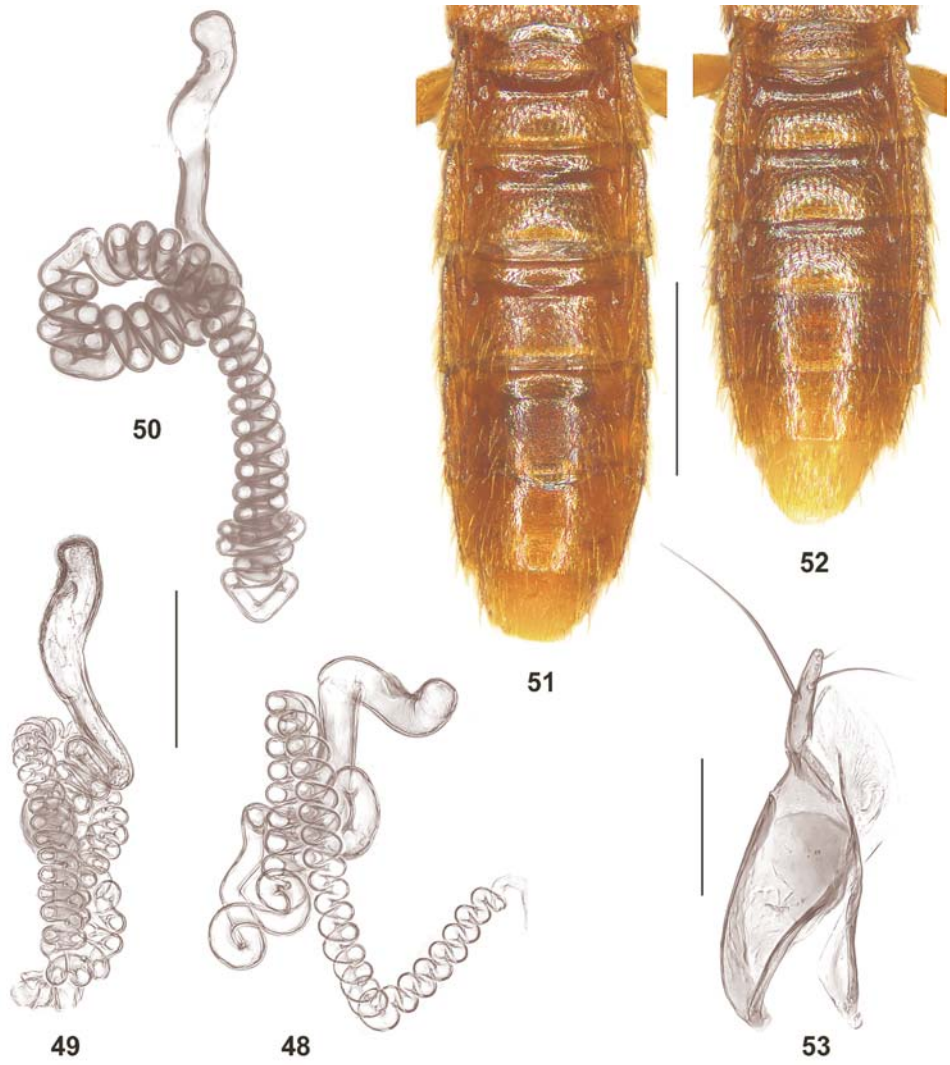
Figs 26–33. Median lobe of aedeagus in lateral and in ventral view of *Pseudotyphlopasilia* spp.: 26–27 – *P. baculata* sp. nov. from Khulo env. (26) and Machakhela National Park (27); 28–29 – *P. carolae* sp. nov.; 30–31 – *P. vespertina* sp. nov.; 32–33 – *P. acris* sp. nov. from Tsanashi. Scale bar: 0.1 mm.



Figs 34–40. Median lobe of aedeagus in lateral and in ventral view of *Pseudotyphlopasilia* spp.: 34–35 – *P. acris* sp. nov. from Lentheki; 36–37 – *P. depressa* sp. nov.; 38–40 – *P. kakhetica* sp. nov. from Lechuri (38, 40) and Birkiani (39). Scale bar: 0.1 mm.



Figs 41–47. Spermatheca (41–46) and distal portion of spermatheca (47) of *Pseudotyphlopasilia* spp.: 41 – *P. coeca* (Eppelsheim); 42–43 – *P. angulata* sp. nov.; 44–45 – *P. baculata* sp. nov.; 46–47 – *P. acris* sp. nov. from Lailashi (46) and Tsanashi (47). Scale bar: 0.1 mm.



Figs 48–53. Spermatheca (48–50), abdomen (51–52), and paramere (53) of *Pseudotyphlopasilia* spp.: 48 – *P. kakhetica* sp. nov.; 49, 51 – *P. depressa* sp. nov.; 50, 52 – *P. kociani* sp. nov.; 53 – *P. acris* sp. nov. Scale bars: 51–52: 0.5 mm; 48–50, 53: 0.1 mm.

Fig 54. Locality in Machakhela National Park (Southwest Georgia), where two specimens of *P. baculata* sp. nov. were collected.

incrassate antennae and the colouration. Based on both external characters and the shape of the spermatheca, *P. kociani* is most similar and most closely allied to *P. depressa*.

Distribution and natural history. The type locality is situated in Tusheti National Park in Northeast Georgia (Map 1). The holotype was sifted from leaves and moss at an altitude of 2000 m.

Etymology. This species is dedicated to Matúš Kocian, Prague, who collected the type material, also in appreciation of the generous gift of the holotype.

Key to the species of *Pseudotyphlopasilia*

1 Pronotum and abdominal tergites III–V with conspicuously dense and distinct punctation (Figs 18, 52). Pronotum (Fig. 18) moderately transverse and small in relation to head, approximately 1.15 times as broad as long and < 1.3 times as broad as head. Antennae strongly incrassate; antennomeres IV weakly transverse and X more than twice as broad as long. Spermatheca Fig. 50) relatively large, strongly sclerotized, and proximal portion with conspicuously

stout coils for entire length. Northeast Georgia: Tusheti region (Map 1). .... ***kociani***

– Pronotum and abdominal tergites III–V with less dense and less distinct punctation. Pronotum usually at least 1.20 times as broad as long and 1.3 times as broad as head. Antennae less strongly incrassate; antennomeres IV oblong or as long as broad and X approximately twice as broad as long. Spermatheca less strongly sclerotized and at least partly with thin less stout coils. **2**

2 Pronotum with sharply marked posterior angles; lateral margins distinctly sinuate posteriorly (Fig. 10). Antennomere IV distinctly oblong. Median lobe of aedeagus and spermatheca as in Figs 19–22, 42–43. Southwest Georgia: extreme west of Meskheti range (Map 1). ..... ***angulata***

– Pronotum with obtusely marked posterior angles; lateral margins not sinuate posteriorly. Antennomere IV approximately as broad as long (exception: *P. coeca*). **3**

3 Forebody depressed (Figs 8, 17). Ventral process of aedeagus (Figs 36–37) in ventral view broadest at apical three fifths, distinctly tapering basad. Spermatheca as in Fig. 49. North Georgia (Map 1). ..... ***depressa***

– Forebody not depressed. Ventral process of aedeagus in ventral view basally with subparallel lateral margins. **4**

4 Median portion of ventral process of aedeagus in lateral view straight (Figs 28, 36). **5**

– Median portion of ventral process of aedeagus in lateral view more or less distinctly sinuate. **7**

5 Species distributed in the Krasnodar region (west of Greater Caucasus) (Map 1). Median lobe of aedeagus with shorter flagellum (Figs 30–31). Spermatheca as illustrated by Pace (1983: figure 23). ..... ***vespertina***

– Species distributed in West Georgia. Median lobe of aedeagus with longer flagellum. **6**

6 Larger species of more robust habitus (Assing 2007: figure 1). Median lobe of aedeagus smoothly tapering and less acute apically in ventral view (Assing 2007: figures 10–11). Spermatheca as illustrated in Assing (2007: figures 15–16). Region to the west of Kutaisi (Map 1). ..... ***cavernicola***

– Species of more slender habitus (Figs 3, 12). Median lobe of aedeagus abruptly tapering and more acute apically in ventral view (Figs 28–29). Spermatheca unknown. Southwest Georgia: western Shavsheti range (Map 1). ..... ***carolae***

7 Species distributed in the Greater Caucasus. Spermatheca with much shorter proximal portion forming less numerous and stouter coils. **8**

– Species distributed in the Lesser Caucasus. Spermatheca with extremely long proximal portion forming conspicuously numerous fine coils. **9**

8 Median lobe of aedeagus large (approximately 0.35 mm long) and of robust shape, with short apex in lateral view (Figs 38–40). Spermatheca as in Fig. 48. Northeast Georgia: Kakheti region (Map 1). ..... ***kakhetica***

– Median lobe of aedeagus significantly smaller (0.25–0.29 mm long), more slender, and with longer and acute apex (Figs 32–35). Spermatheca as in Figs 46–47. Northwest Georgia: Svaneti (Map 1). ..... ***acris***

9 Aedeagus with strongly sinuate ventral process (lateral view) and with conspicuously long flagellum in internal sac (Figs 23–27). Proximal portion of spermatheca with conspicuously fine coils (Figs 44–45). Southwest Georgia: Meskheti and Shavsheti ranges (Map 1). ..... ***baculata***

– Aedeagus with weakly sinuate ventral process (lateral view) and with shorter flagellum in internal sac (Pace 1983: figures 21–22). Spermatheca with proximal portion forming less fine coils (Fig. 41). West Georgia: eastern Meskheti range (Map 1). ..... ***coeca***

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References

Assing V. 2007: A new genus and species of Aleocharinae from a cave in Georgia (Coleoptera: Staphylinidae). *Linzer Biologische Beiträge* **39 (1):** 33–38.

Assing V. 2008: On the genus *Pseudotyphlopasilia* Pace (Coleoptera: Staphylinidae: Aleocharinae). *Linzer Biologische Beiträge* **40 (1):** 245.

Assing V. 2017a: On the *Leptusa* fauna of the Caucasus region (Coleoptera: Staphylinidae: Aleocharinae). *Linzer Biologische Beiträge* **49 (2):** 1049–1074.

Assing V. 2017b: A revision of *Geostiba* of the West Palaearctic region. XXV. New species from Georgia and Greece, and additional records (Coleoptera: Staphylinidae: Aleocharinae). *Linzer Biologische Beiträge* **49 (2):** 1093–1106.

Assing V. 2018: A revision of *Geostiba* of the West Palaearctic region. XXVI. New species and additional records, primarily from the Caucasus region (Coleoptera: Staphylinidae: Aleocharinae). *Linzer Biologische Beiträge* **50 (2):** 1033–1054.

Assing V. 2019a: New species and additional records of *Ischnosoma* from Georgia (Coleoptera, Staphylinidae, Tachyporinae). *Linzer Biologische Beiträge* **51 (2):** 773–788.

Assing V. 2019b: On the *Leptusa* fauna of the Caucasus region II. A new species and additional records from Georgia, and three new synonymies (Coleoptera: Staphylinidae: Aleocharinae). *Acta Musei Moraviae, Scientiae Biologicae* **104 (1):** 35–44.

Assing V. 2019c: A revision of Othiini. XXI. Seven new species, a new synonymy, and additional records, with a review of the *Othius* fauna of Georgia (Coleoptera: Staphylinidae: Staphylininae). *Acta Musei Moraviae, Scientiae Biologicae* **104 (1):** 45–73.

Assing V. 2020: Revision of the *Apimela* species of the Palaearctic Region with a focus on the West Palaearctic fauna, and with additional notes on the genus *Franzidota* (Coleoptera: Staphylinidae: Aleocharinae: Oxypodini). *Acta Musei Moraviae, Scientiae Biologicae* (Brno) **105 (1):** 27–90.

Assing V. & Schülke M. (2017): On the *Ischnosoma* fauna of Georgia (Coleoptera: Staphylinidae: Tachyporinae). *Contributions to Entomology* **67 (2):** 195–206.

Eppelsheim E. 1878: Staphylinidae. In: Schneider O. & Leder H.: Beiträge zur Kenntniss der Kaukasischen Käferfauna. *Verhandlungen des Naturforschenden Vereines in Brünn* **16** [1877]: 90–131.

Pace R. 1983: Risultati dello studio delle specie del genere *Leptusa* Kraatz della collezione Scheerpeltz al Naturhistorisches Museum di Vienna (Coleoptera, Staphylinidae). *Annalen des Naturhistorischen Museum in Wien (B)* **85:** 53–102.

Schneider O. & Leder H.: Beiträge zur Kenntniss der Kaukasischen Käferfauna. *Verhandlungen des Naturforschenden Vereines in Brünn* **16** [1877]: 1–258.