Koleopterologische Rundschau	70	79 – 85	Wien, Juni 2000

On some species of *Geostiba* THOMSON, 1858 from the eastern Alps (Coleoptera: Staphylinidae, Aleocharinae)

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Abstract

The types of *Homalota flava* KRAATZ, *Leptusa ganglbaueri* EPPELSHEIM, *Sipalia carnica* SCHEERPELTZ, and *Sipalia matajurensis* SCHEERPELTZ, and additional material of *Geostiba* from the eastern Alps are revised. The following synonymy is established: *Homalota flava* KRAATZ = *Sipalia carnica* SCHEERPELTZ, syn.n. The synonymy of *Leptusa ganglbaueri* EPPELSHEIM with *H. flava* KRAATZ is confirmed. Lectotypes are designated for *H. flava* KRAATZ and *S. carnica* SCHEERPELTZ. The redescriptions of *Geostiba flava* (KRAATZ) and *G. matajurensis* (SCHEERPELTZ) are complemented by illustrations of the genitalia, and by notes on intraspecific variation, bionomics, and distribution. *Geostiba matajurensis* is for the first time reported from Slovenia, which is at the same time the first record of the species since its description.

Key words: Coleoptera, Staphylinidae, Aleocharinae, *Geostiba*, new synonymy, lectotype designation, taxonomy, zoogeography, Central Europe, eastern Alps.

Introduction

While a multitude of *Geostiba* species is known to occur in southern Europe, only few species have become known from Central Europe (BENICK & LOHSE 1974, LOHSE 1989). In contrast to most species, which are incapable of flight and more or less endemic, some have been shown to be rather widespread. This particularly applies to the wing-dimorphic *G. circellaris* (GRAVENHORST, 1806) and *G. oertzeni* (EPPELSHEIM, 1888) (ASSING 1999). BENICK & LOHSE (1974) and LOHSE (1989) list 4 species of the subgenus *Lioglutosipalia* SCHEERPELTZ, which is now a synonym of *Sipalotricha* SCHEERPELTZ (ASSING 1999), from the southeast of Central Europe, among them *G. carnica* SCHEERPELTZ, 1958 from Kärnten, Austria. In addition, there is one record of the undescribed *Sipalia franzi* SCHEERPELTZ i.l. from the Steiermark, Austria, which had also been attributed to *Lioglutosipalia* (HORION 1967, SCHEERPELTZ 1951). No species of *Sipalotricha* has become known from Slovenia, though *G. matajurensis* (SCHEERPELTZ, 1957) was described from the Mt. Matajur, northeastern Italy, very close to the Slovenian border.

During a field trip to Bohinj (northwestern Slovenia) in summer 1999, a species of the subgenus *Sipalotricha* was discovered near Bohinjsko sedlo, southeast of Bohinjska Bistrica. In order to identify the species, the types and additional material of other *Geostiba* species described from adjacent regions were examined, which resulted in the discovery of a new synonymy for the Central European fauna.

Abbreviations and acknowledgements

Types and non-type material deposited in the following collections were examined:

DEI	Deutsches Entomologisches Institut, Eberswalde (L. Zerche)
NHMW	Naturhistorisches Museum Wien (H. Schillhammer)
MCSNT	Museo Civico di Storia Naturale Trieste (N. Bressi)
TLMFI	Tiroler Landesmuseum Ferninandeum, Innsbruck (M. Kahlen)
cAss	author's private collection
cKap	private collection A. Kapp, Rankweil

I am much indebted to the colleagues indicated above for the loan of the material which this study is based on. In addition, I am grateful to Lorenz Neuhäuser-Happe, Graz, for some important information pertaining to regional faunistic literature of southeastern Austria.

Geostiba flava (KRAATZ) (Figs. 1 - 7)

Homalota flava KRAATZ, 1856: 327f.
Leptusa ganglbaueri EPPELSHEIM, 1887: 230f.
Sipalia (*Lioglutosipalia*) *franzi* i. l.: SCHEERPELTZ, 1951: 176.
Sipalia (*Lioglutosipalia*) *carnica* i. l.: SCHEERPELTZ, 1951: 176.
Sipalia (*Lioglutosipalia*) *carnica* SCHEERPELTZ, 1958: 65f., **syn.n.**

TYPES EXAMINED: *Homalota flava* KRAATZ: **Lectotype** ♂, here designated (remounted): "Graetz [= Graz] / Syntypus / flava mihi / Coll. Kraatz / Lectotypus ♂, *Homalota flava* Kraatz, desig. V. Assing 1999 / Geostiba flava (Kraatz), det. V. Assing 1999" (DEI). **Paralectotypes:** 1 ♀: "Tyrol / Syntypus / Coll. Kraatz / Paralectotypus ♀, *Homalota flava* Kraatz, desig. V. Assing 1999" / Geostiba flava (Kraatz), det. V. Assing 1999 (DEI); 1 ♀, 1 sex? (abdomen missing): same labels, but "Tirol" (DEI); 1 ♂: "Kahr / Paralectotypus ♂, *Homalota flava* Kraatz, desig. V. Assing 1999 / Geostiba flava (Kraatz), det. V. Assing 1999" (DEI).

Leptusa ganglbaueri EPPELSHEIM: **Syntype** ♂: "Gglb. 1884 Wechsel / Type / Syntypus / Coll. Stierlin / L. Ganglbaueri Eppelsh. Ganglb. / Geostiba flava (Kraatz), det. V. Assing 1999" (DEI).

Sipalia carnica SCHEERPELTZ: **Lectotype** ♀, here designated: "♂ [sic] / Karnische Alpen Doberbachtal / Buchenlaublagen Süd-Seite 18.6.1948. L. Strupi / TYPUS Sipalia carnica O. Scheerpeltz / ex coll. Scheerpeltz / Lectotypus ♀, *Sipalia carnica* Scheerpeltz, desig. V. Assing 1999 / Geostiba flava ♀ (Kraatz), det. V. Assing 1999" (NHMW). **Paralectotypes:** 1 ♀: same labels as lectotype, but "♀" and "Paralectotypus ..." (NHMW); 6 ♀♀: "Doberbachtal Karn. Alp. leg. Strupi / COTYPUS Sipalia strupiana [sic] O. Scheerpeltz / Coll. Strupi Acqu. Nr. 3-63 / Paralectotypus ♀, *Sipalia carnica* Scheerpeltz, desig. V. Assing 1999 / Geostiba flava ♀ (Kraatz), det. V. Assing 1999" (NHMW); 1 ♀: "Doberbachtal Karn. Alp. leg. Strupi / COTYPUS Sipalia carnica O. Scheerpeltz / Paralectotypus ♀, *Sipalia carnica* Scheerpeltz, desig. V. Assing 1999 / Geostiba flava ♀ (Kraatz), det. V. Assing 1999" (NHMW).

ADDITIONAL MATERIAL EXAMINED: **Austria: Steiermark:** 1 ♂: "♂ / Ingeringtal, Styr. bor. leg. H. Franz / Typus Sipalia franzi O. Scheerpeltz / ex coll. Scheerpeltz" (NHMW); 3 ♂♂, 2 ♀♀, Pleschkogel near Rein, 590 m, forest litter, 20.VI.1996, leg. Zerche & Behne (cAss); 3 ♂♂, 4 ♀♀, surroundings of Graz (DEI, TLMFI); 1 ♂, Grazer Bergland, Rein, Hörgasgraben, 600 m, under rotten trunk, 22.III.1992, leg. Kahlen (TLMFI); 1 ♀, Grazer Bergland, Pagganer Wand, 450 m, beech litter, 24.X.1992, leg. Kahlen (TLMFI); 2 ♂♂, Stradnerkogel near Bad Gleichenberg, Waltrafelsen, 500 m, 30.V.1992, leg. Neuhäuser (TLMFI); 1 ♂, Hochschwabgebiet, Thörl Ruine Schachenstein, 660 m, sifted near castle walls, 26.VII.1994, leg. Kapp (cKap); 2 ♂♂, 2 ♀♀, same data, but 500 m, 16.VIII.1999 (cKap); 1 ♀, Untersoboth, Freistritz, 540 m, sifted from rotting wood, 7.VIII.1998, leg. Kap (cKap); 1 ♀, Spielfeld Schiesskogel, Ostfuss, Mur-Altarm, 260 m, sifted litter, 7.VIII.1998, leg. Kapp (cKap); 1 ♀, Berghausen near Ehrenhausen, 500 m, beech litter, 7.VIII.1998, leg. Kapp (cKap). **Kärnten:** 4 ♂♂, 1 ♀, Koralpe, Hühnerkogel near Soboth/Laaken, 1520 m, sedges, 6.VI.1992, leg. Kahlen (TLMFI, cAss). **Niederösterreich:** 3 ♂♂, 3 ♀♀, Kranichberg, 1887, leg. Ganglbauer (DEI). **Slovenia:** 1 ♀, "Krain, Müllr.", coll. Kraatz (DEI).

COMMENTS: In order to fix a name-bearing type and the present interpretation of *G. flava*, the ♂ syntype with the most pronounced secondary sexual characters and with Kraatz's original identification label is designated as lectotype.

The previously established synonymy of *Leptusa ganglbaueri* EPPELSHEIM with *Homalota flava* KRAATZ (GANGLBAUER 1895) is here confirmed.

The original description of *S. carnica* is based on two "Typen" and an unspecified number of "Cotypen", so all the types must be considered syntypes. Since there may be further unexamined syntypes, a lectotype designation securing the present interpretation of the species was deemed appropriate. Six of the types were labelled "*Sipalia strupiana*", apparently a working name Scheerpeltz originally intended to use, but there is no doubt that they are in fact syntypes of *S. carnica*. They were collected at the type locality and according to the original description all the "Cotypen" were deposited in Strupi´s collection.

Believing - without dissection - that at least one of the types was a male (see labels above), SCHEERPELTZ (1958) attributed *S. carnica* to the subgenus *Lioglutosipalia*. An examination of all nine syntypes available, however, revealed that they are in fact females. They were compared with the types and additional material of *Geostiba flava* (KRAATZ), but no constant distinguishing characters were found suggesting that they represent distinct species. Since *Sipalia carnica* is the junior name, the following synonymy is established: *Homalota flava* KRAATZ = *Sipalia carnica* SCHEERPELTZ, syn.n.

After dissection of the genitalia, the "type" of *Sipalia franzi* i.l., which lacks the characteristic modification of the male abdominal tergum VII and whose elytral suture is only weakly elevated, was found to be a small male of *Geostiba flava*. Many species of *Geostiba* are highly variable particularly in the male secondary sexual characters (ASSING 1999). The same is true for *G. flava*.

REDESCRIPTION: 1.8 - 2.5 mm. Body colour testaceous, abdominal segment VI not or only indistinctly infuscate. Head (length measured from anterior margin of clypeus to neck) weakly oblong or as long as wide; with very fine and rather sparse punctation and without or with barely noticeable microsculpture; dorsally mostly without median impression; eyes in dorsal view shorter than antennomere III. Pronotum ca. 1.1x as wide as long and 1.1 - 1.2x as wide as head; microsculpture very weak, but usually more distinct than on head; punctation extremely fine, barely noticeable. Elytra at suture 0.58 - 0.65x the length of pronotum; in both sexes usually ± diagonally or triangularly impressed (on average more strongly so in ♂ than in ♀); inner margins in ♂ elevated, together forming a carina, which is usually more pronounced posteriorly than anteriorly; in ♀ without such carina; punctation relatively dense and ± granulose. Abdomen with sparse and very fine punctation; microsculpture indistinct.

♂: tergum VII usually with very long and dorsally somewhat flattened median elevation of variable width and height, which may be reduced to various degrees (in small specimens this elevation may even be completely absent); posterior margin of tergum VIII weakly convex, that of sternum VIII weakly convex to indistinctly pointed in the middle (Fig. 6); aedeagus with several spines in the internal sac, shape of median lobe as in Figs. 1 - 2; apical lobe of paramere broad and short, apically obliquely truncate (Fig. 3).

♀: posterior margin of tergum VIII smoothly convex, sometimes weakly concave in the middle; posterior margin of sternum VIII weakly convex (Fig. 7); spermatheca as in Figs. 4 - 5.

INTRASPECIFIC VARIATION: Considerable intraspecific variation was observed especially for the relative width of the pronotum, the depth and extension of the elytral impressions, the elevation of the sutural carina on the elytra, and particularly for the width and height of the oblong median elevation on the ♂ tergum VII.

DISTRIBUTION: *Geostiba flava* is rather widespread in the eastern Alps and has been recorded from Niederösterreich, several localities in the Steiermark and in Kärnten, and from northern Slovenia (HORION 1967, and material examined). In the Karawanken, *G. flava* has apparently

only once been recorded from the Hochobir (PROSSEN 1910). The observation that the types of *Sipalia carnica* are conspecific with *G. flava* extends the range westwards to the Karnische Alpen. In view of the relatively extensive and patchy distribution it would not be surprising if the species were wing-dimorphic. Remarkably, all nine type specimens of *S. carnica* are females; future records will have to show if this is merely a coincidence or if the population in the Karnische Alpen is parthenogenetic.

Geostiba matajurensis (SCHEERPELTZ) (Figs. 8 - 14)

Sipalia (*Lioglutosipalia*) *matajurensis* SCHEERPELTZ, 1957: 57f.

TYPE EXAMINED: **Holotype** ♂ [teneral]: "♂ / MATAJUR Vetta, Müller 9.1945 / Sipalia ? sp. TYPUS Sipalia Lioglutosipalia matajurensis O. Scheerpeltz / Sipalia (Lioglutosipalia) matajurensis nov. spec. / 1 defektes ♂ für ein Mikropräparat verwendet / Geostiba matajurensis (Scheerpeltz) det. V. Assing 1999" (MCSNT).

ADDITIONAL MATERIAL EXAMINED: **Slovenia:** 5 ♂♂, 4 ♀♀, SE Bohinjska Bistrica, SW Bohinjsko sedlo, Latnik, 1450 - 1600 m, beech litter, 30.VII.1999, leg. Assing (cAss).

REDESCRIPTION: 2.0 - 2.8 mm. Body colour ferrugineous, with abdominal segment VI weakly infuscate; legs and usually antennomeres I, II, and XI testaceous. Head approximately as wide as long, with very fine and rather sparse punctation and with weak microsculpture; in ♂ dorsally with longitudinal median impression of variable shape and depth; eyes in dorsal view shorter than antennomere III. Pronotum 1.1 - 1.2x as wide as long; punctation and microsculpture similar to that on head. Elytra at suture 0.52 - 0.60x the length of pronotum; in ♂ with ± diagonal impression of variable depth and extension, near suture and scutellum with dense and granulose punctures, on remainder of dorsal surface with sparser and less distinctly granulose punctation; in ♀ with weaker punctation and without or with very weak impression. Abdomen with sparse and very fine punctation.

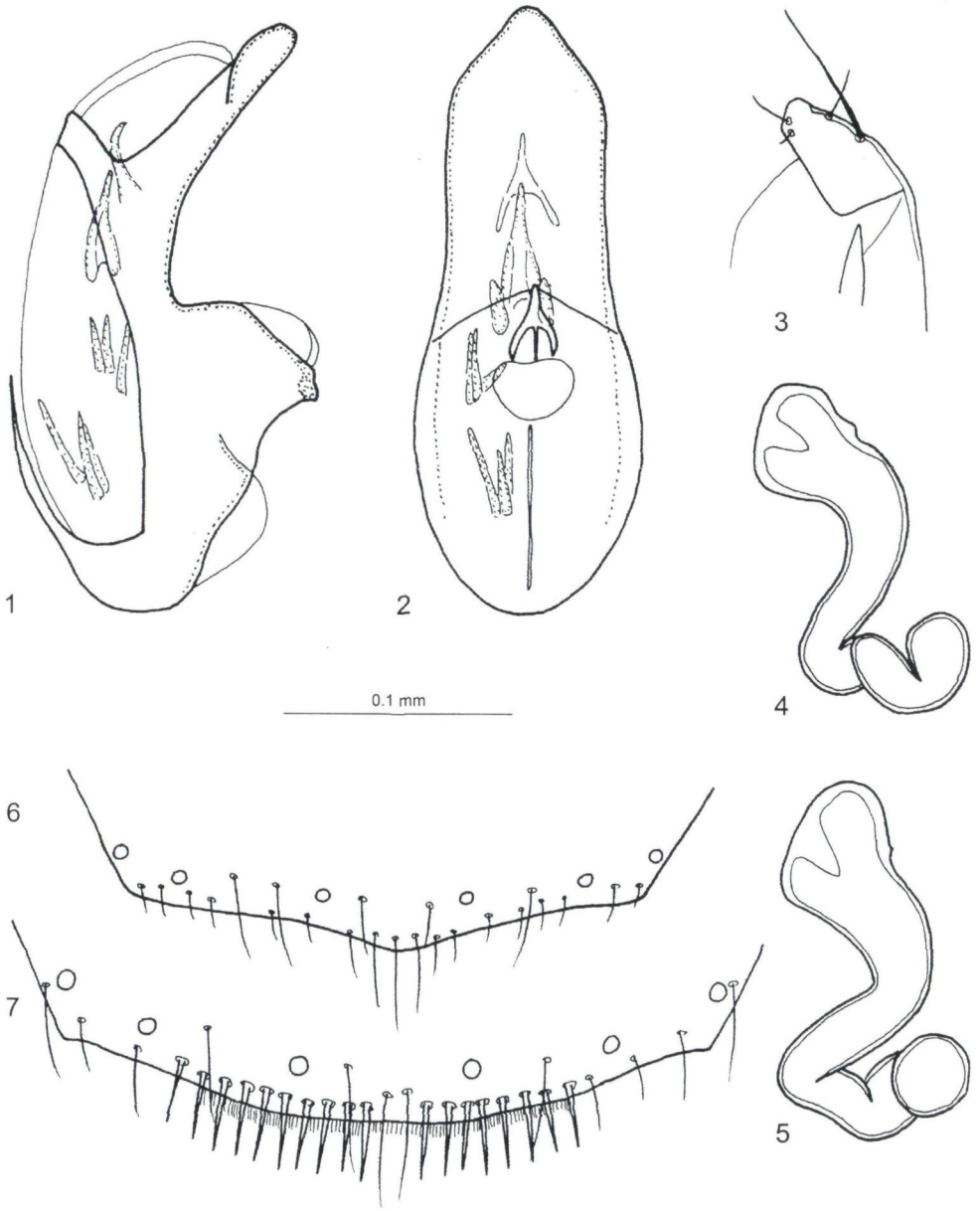
♂: hind margin of tergum VIII with weak central concavity (Fig. 13); hind margin of sternum VIII convex, centrally with long thin setae and laterally with shorter setae; aedeagus with median lobe as in Figs. 8 - 9; apical lobe of paramere short and broad (Fig. 10).

♀: hind margin of tergum VIII similar to ♂, but on the whole more convex and in the middle only indistinctly concave; hind margin of sternum VIII with long stout setae and with central concavity (Fig. 14); spermatheca as in Figs. 11 - 12.

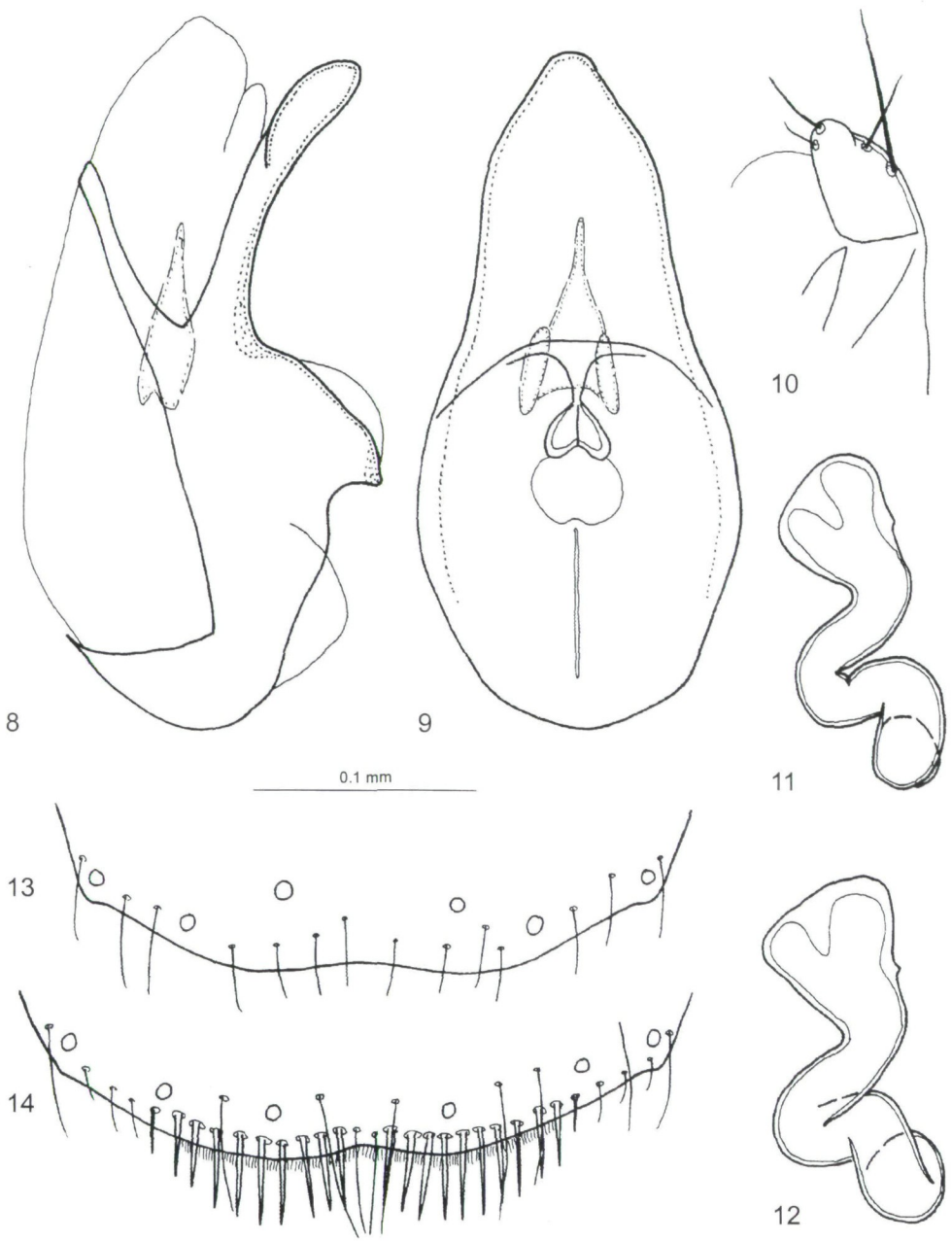
COMMENTS: The aedeagus of the completely teneral holotype, according to the original description the only type specimen, is compressed and deformed, so that it was impossible to assess its morphology. In addition, the dorsal impression of the head is larger and deeper, the punctation of the elytra slightly less dense and less distinctly granulose, and the preapical antennomeres are somewhat more transverse than in the material from Slovenia, differences which, however, can be attributed to the low degree of sclerotization of the cuticula of the holotype. Judging from other characters available, the Slovenian material is conspecific with the type specimen.

COMPARATIVE NOTES: In *G.* (*Sipalotricha*) *cuneiformis* (KRAATZ) from Slovakia, the ♂ pronotum has a distinct longitudinal impression, the punctation of the elytra is fine and not granulose, the ventral process of the median lobe of the aedeagus is (relatively) distinctly longer, and the apical lobe of the paramere is more slender.

DISTRIBUTION AND BIONOMICS: *Geostiba matajurensis*, of which only the holotype from the Mt. Matajur in northeastern Italy was previously known, is here for the first time recorded from Slovenia. It was collected near the Bohinjsko sedlo by sifting litter of beech and *Alnus viridis* at altitudes of 1450 and 1600 m, respectively.



Figs. 1 - 7: *Geostiba flava*. 1) median lobe of aedeagus in lateral view; 2) median lobe of aedeagus in ventral view; 3) apical lobe of paramere; 4 - 5) spermathecae of two ♀♀; 6) posterior margin of ♂ sternum VIII, long setae omitted; 7) posterior margin of ♀ sternum VIII, long setae omitted.



Figs. 8 - 14: *Geostiba matajurensis*. 1) median lobe of aedeagus in lateral view; 2) median lobe of aedeagus in ventral view; 3) apical lobe of paramere; 4 - 5) spermathecae of two ♀♀; 6) posterior margin of ♂ tergum VIII, long setae omitted; 7) posterior margin of ♀ sternum VIII, long setae omitted.

Zusammenfassung

Die Typen von *Homalota flava* KRAATZ, *Leptusa ganglbaueri* EPPELSHEIM, *Sipalia carnica* SCHEERPELTZ und *Sipalia matajurensis* SCHEERPELTZ sowie weiteres *Geostiba*-Material aus den Ostalpen werden revidiert. *Sipalia carnica* SCHEERPELTZ wird mit *Homalota flava* KRAATZ synonymisiert. *Leptusa ganglbaueri* EPPELSHEIM wird als Synonym von *H. flava* KRAATZ bestätigt. Für *H. flava* KRAATZ und *S. carnica* SCHEERPELTZ werden Lectotypen designiert. Die Redeskriptionen von *Geostiba flava* (KRAATZ) und *G. matajurensis* (SCHEERPELTZ) werden durch Genitalabbildungen sowie durch Angaben zur intraspezifischen Variabilität, zur Bionomie und zur Verbreitung ergänzt. *Geostiba matajurensis* wird erstmals aus Slowenien nachgewiesen; gleichzeitig handelt es sich um den ersten Nachweis dieser Art seit ihrer Beschreibung.

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