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New species and additional records of *Geostiba* from the Eastern Mediterranean region and from Middle Asia (Coleoptera: Staphylinidae: Aleocharinae)

V. ASSING

A b s t r a c t : Two species of *Geostiba* THOMSON are described: *Geostiba (Sibiota) kirghisica* nov.sp., the first representative of the genus from Kyrgyzstan, and *G. sultanica* nov.sp. (Turkey: Konya: Sultan Dağları). Additional records of 13 species are reported.

K e y w o r d s : Coleoptera, Staphylinidae, Aleocharinae, *Geostiba*, Palaearctic region, Mediterranean region, Middle Asia, taxonomy, new species, new records.

1. Introduction

According to recent revisions, the *Geostiba* fauna of the Eastern Mediterranean east of Italy previously comprised 160 species (ASSING 2005a, 2005b, 2006, 2007, and references therein). Only one species was known from Middle Asia, *G. kazakistanensis* PACE from Kazakhstan (PACE 2002).

The present paper is based on material collected during two recent field trips, one conducted by Volker Brachat (Geretsried) and Heinrich Meybohm (Großhansdorf) to southern Turkey in spring 2008, and one by Michael Schülke (Berlin) and the author to north-eastern Turkey in summer 2008, as well as on additional material received from various other sources.

2. Material and methods

The material referred to in this study is deposited in the following public institutions and private collections:

NHMW Naturhistorisches Museum Wien (H. Schillhammer)
OÖLL..... Oberösterreichisches Landesmuseum/Biologiezentrum Linz (F. Gusenleitner)
SMNS..... Staatliches Museum für Naturkunde, Stuttgart (W. Schawaller)
cAss..... author's private collection
cGon..... private collection Andrej Gontarenko, Odessa

cPüt private collection Andreas Pütz, Eisenhüttenstadt
 cRou private collection G. de Rougemont, Londinières
 cSch private collection Michael Schülke, Berlin
 cSha private collection Alexey Shavrin, Irkutsk
 cVai private collection Dante Vailati, Brescia

The morphological studies were carried out using a Stemi SV 11 microscope (Zeiss Germany) and a Jenalab compound microscope (Carl Zeiss Jena). For the photographs a digital camera (Nikon Coolpix 995) was used.

Head length was measured from the anterior margin of the clypeus to the posterior margin; elytral length was measured along the suture from the apex of the scutellum to the posterior margin of the elytra.

3. Results

Geostiba (Geostiba) circellaris (GRAVENHORST 1806)

A d d i t i o n a l m a t e r i a l e x a m i n e d : Russia: 1 ex., Tulsckaja oblast, Jefremov, 53°09'N, 38°07'E, 27.IV.1986, leg. Pütz (cAss); 3 exs., Tambovskaja oblast, Rasskasovo, 52°40', 41°49'E, swamp, 5.VI.1997, leg. Pütz (cAss, cPüt); 2 exs., East Siberia, Khamar-Daban Mts., Kharlakhta river valley, 17.-18.VI.2006, leg. Shavrin (cAss, cSha); 1 ex., Khamar-Daban Mts., Bolshoj Mamaj river valley, 19.VIII.2006, leg. Shavrin (cAss); 1 ex., East Siberia, Khamar-Daban Mts., Snezhnaya river valley, 19.VIII.2006, leg. Shavrin (cAss, cSha); 4 exs., Buryatiya, Khamar-Daban Mts., Vidrinnaya river, 13.VIII.2006, leg. Shavrin (cSha); 3 exs., East Siberia, Irkutsk, Shelekhov, industrial zone, 15.IX.1906, leg. Shavrin (cSha).

Geostiba circellaris has a trans-Palaearctic distribution, is adventive also in North America, and is thus the most widespread species of the genus.

Geostiba (Sipalotricha) lucens (BENICK 1970)

A d d i t i o n a l m a t e r i a l e x a m i n e d : Ukraine: 1 ex., Odessa, Kubanca, grass turf, 16.III.2008, leg. Gontarenko (cGon). Turkey: 1 ex., Isparta, Davraz Tepe, ski resort, 37°47'N, 30°45'E, 1700-2000 m, 16.IV.2008, leg. Brachat & Meybohm (cAss).

Geostiba lucens is one of the most widespread species in the Eastern Mediterranean, its distribution ranging from Turkey to southeastern Central Europe (ASSING 2005a).

Geostiba (Sipalotricha) infirma (WEISE 1878)

A d d i t i o n a l m a t e r i a l e x a m i n e d : Romania: 10 exs., Moldavia, Ciomara pass, 1100 m, deciduous forest, leaves sifted, 29.V.2008, leg. Rougemont (cRou, cAss).

This species endemic to the Carpathians, where it is rather widespread and common (ASSING 2005a).

Geostiba (Sipalotricha) deubeli (BERNHAEUER 1909)

A d d i t i o n a l m a t e r i a l e x a m i n e d : Romania: 2 exs., Sighisoara, 26.V.2008, leg. Rougemont (cRou, cAss).

Like the preceding species, *G. deubeli* is endemic to the Carpathians, but much rarer and confined to southern Romania (ASSING 2005a).

***Geostiba (Sipalotricha) rhodiensis* PACE 1983**

A d d i t i o n a l m a t e r i a l e x a m i n e d : Turkey: 8 exs., Köprü valley, Çaltepe, 37°18'N, 31°11'E, 540 m, 13.IV.2008, leg. Brachat & Meybohm (cAss); 11 exs., Antalya, N Side, Yaylaalan, 36°57'N, 31°30'E, 460 m, 27.IV.2008, leg. Brachat & Meybohm (cAss); 2 exs., Antalya, Köşekbaşı, 36°08'N, 32°46'E, 150 m, 23.IV.2008, leg. Brachat & Meybohm (cAss); 2 exs., Antalya, 5 km NE Gazipaşa, 36°17'N, 32°22'E, 50 m, 24.IV.2008, leg. Brachat & Meybohm (cAss); 4 exs., Alanya-Taşkent, 30 km from Alanya, 36°32'N, 32°04'N, 1140 m, 24.IV.2008, leg. Brachat & Meybohm (cAss); 2 exs., Karaman, Ermenek-Gülnar, Moca Geç., 36°32'N, 33°00'E, 1420 m, 21.IV.2008, leg. Brachat & Meybohm (cAss).

This species is rather widespread and common in southern Anatolia and Rhodos. For a map illustrating its distribution see ASSING (2005b).

***Geostiba (Sipalotricha) orduica* ASSING 2006**

A d d i t i o n a l m a t e r i a l e x a m i n e d : Turkey: 3 exs., Ordu, 15 km S Gököy, Harçbeli Geç., 40°35'N, 37°38'E, 1610 m, *Fagus* forest with *Rhododendron*, litter and mushrooms sifted, 22.VII.2008, leg. Assing & Schülke (cAss, cSch).

This recently described species was previously known only from the type locality in Ordu.

***Geostiba (Tropogastrosipalia) sengleti* PACE 1983**

A d d i t i o n a l m a t e r i a l e x a m i n e d : Iran: 2 exs., Mazandaran, Elburs mts., road S Alamdeh, 1440 m, 31.V.1978, leg. Martens & Pieper (SMNS, cAss).

The above specimens represent the first record after the original description.

***Geostiba (Tropogastrosipalia) brachati* ASSING 2000**

A d d i t i o n a l m a t e r i a l e x a m i n e d : Turkey: 1 ex., Antalya, Olimpos, S Hisarcandır, 36°43'N, 30°26'E, 1240 m, 12.IV.2008, leg. Brachat & Meybohm (cAss).

This species is a local endemic of the Bey Dağları in Antalya, southwestern Anatolia (ASSING 2003).

***Geostiba (Tropogastrosipalia) arganthonia* PACE 1983**

A d d i t i o n a l m a t e r i a l e x a m i n e d : Turkey: 1 ♀, Istanbul, Yalova, V.1959, leg. Schubert (NHMW).

The above specimen was collected at or near the type locality.

***Geostiba (Sibiota) oertzeni* (EPPELSHEIM 1888)**

A d d i t i o n a l m a t e r i a l e x a m i n e d : Greece: 7 exs., Pelopónnisos, Panahaiko, above Paraskevi, 1350 m, 3.VI.1994, leg. Giachino & Vailati (cVai, cAss); 1 ex., Voiotia, Parnassós, 1660 m, 8.VI.1994-7.VI.1995, leg. Giachino & Vailati (cVai). Turkey: 15 exs., Karaman, Ermenek-Gülnar, Moca Geç., 36°32'N, 33°00'E, 1420 m, 21.IV.2008, leg. Brachat & Meybohm (cAss).

Geostiba oertzeni is one of the most widespread and common species of the genus in the Eastern Mediterranean, its distribution ranging from eastern and southern Turkey to Ukraine and the Balkans. For a distribution map see ASSING (2006).

***Geostiba (Sibiota) zoufali* (RAMBOUSEK)**

A d d i t i o n a l m a t e r i a l e x a m i n e d : Croatia: 1 ex., Biokovo planina, road to Sveti Jure, 1500 m, beech litter sifted, 9.VI.2006, leg. Schuh (cAss).

Geostiba zoufali has been recorded from Croatia and Bosnia-Herzegovina. The species is apparently very rare; only few specimens have become known (ASSING 2005a).

***Geostiba (Sibiota) kirghisica* nov.sp. (Figs 1-9)**

Holotype ♂ [right elytron missing]: Kirghizia: Chatkalskij Alatau, Sary-Celek, 27.-31.5.1993, 1400-1600 m, leg. Schawaller / **Holotypus** ♂ *Geostiba kirghisica* sp. n. det. V. Assing 2007 (SMNS). **Paratype** ♀: same data as holotype (cAss).

D e s c r i p t i o n : Body length 2.7-2.8 mm. Coloration: body uniformly yellowish; abdominal segment VI and anterior half of segment VII of holotype weakly infuscate.

Head approximately as wide as long (Fig. 1); punctation extremely fine, barely noticeable; surface with shallow to distinct microreticulation. Eyes small and not protruding from lateral contours of head, approximately as large as antennomere V in cross section (Fig. 2). Antennae moderately incrassate apically; antennomere X approximately twice as wide as long.

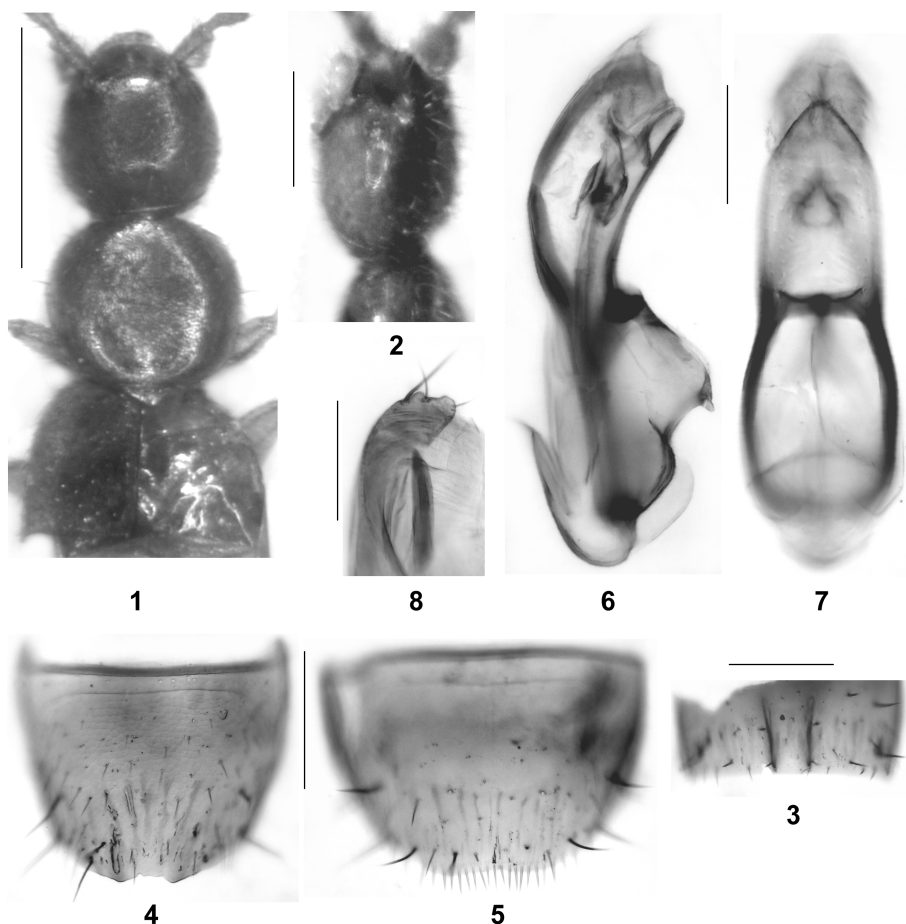
Pronotum 1.15-1.20 times as wide as head and approximately 1.15 times as wide as long (Fig. 1); punctation extremely fine, barely noticeable; microreticulation similar to that of head.

Elytra 0.70-0.75 times as long as pronotum (Fig. 1); punctation with sexual dimorphism; microreticulation very shallow to almost obsolete. Hind wings reduced.

Abdomen slightly wider than elytra; punctation very fine and sparse; microreticulation shallow to distinct everywhere; posterior margin of tergite VII without palisade fringe.

♂: pronotum in holotype with deep, extensive, and somewhat irregular impression (artifact?); elytra with sparse and distinctly granulose punctation (Fig. 1); tergite VII with pair of long, sharply elevated, and subparallel carinae in posterior half (Fig. 3); posterior margin of tergite VIII produced, in the middle with small concavity (Fig. 4); posterior margin of sternite VIII obtusely pointed in the middle; median lobe of aedeagus with slender ventral process, with very narrow crista apicalis, with pronounced crista proximalis, and without internal spines in internal sac (Figs 6-7); apical lobe of paramere short and stout (Fig. 8).

♀: elytra with fine, non-granulose punctation; tergite VIII with almost straight posterior margin; sternite VIII weakly concave in the middle (Fig. 5); spermatheca simply S-shaped, duct not twisted (Fig. 9).



Figs 1-8: *Geostiba kirghisica* nov.sp.: (1) forebody (holotype); (2) head in lateral view; (3) posterior portion of male tergite VII; (4) male tergite VIII; (5) female sternite VIII; (6-7) median lobe of aedeagus in lateral and in ventral view; (8) apical lobe of paramere. Scale bars: 1: 0.5 mm; 2-5: 0.2 mm; 6-8: 0.1 mm.

E t y m o l o g y : The name (adjective) is derived from the ancient name of the region where the species was discovered.

C o m p a r a t i v e n o t e s : *Geostiba kirghisica* is the first *Geostiba* species from Kyrgyzstan and the first representative of the subgenus to become known from Middle Asia. It is distinguished from other *Sibiota* species especially by the primary and secondary sexual characters.

D i s t r i b u t i o n a n d b i o n o m i c s : The type locality is situated near Arkit [41°48'N, 71°57'E], northwestern Kyrgyzstan, where the type specimens were collected at an altitude of 1400-1600 m.

***Geostiba (Typhlusida) flava* (KRAATZ 1856)**

Additional type material examined: Paralectotypes of *Sipalia carnica*: 2 ♀♀: "Doberbachtal, Karn. Alp., leg. Strupi / Cotypus *Sipalia carnica* O. Scheerpeltz / Coll. Strupi Acqu. Nr. 3-63" (NHMW).

The lectotype of *Sipalia carnica* SCHEERPELTZ 1958, now a synonym of *G. flava* (KRAATZ), was designated by ASSING (2000).

***Geostiba sultanica* nov.sp. (Figs 10-21)**

Holotype ♂: N38°29'47" E31°11'37" (23), TR Konya, Sultan Dağ[ları] SW Sultandağı, 1730 m, Brachat & Meybohm 19.4.2008 / Holotypus ♂ *Geostiba sultanica* sp. n. det. V. Assing 2008 (cAss). **Paratypes**: 10 ♂♂, 26 ♀♀: same data as holotype (cAss, OÖLL).

Description: Body length 2.0-2.5 mm. Habitus as in Fig. 10. Coloration: body uniformly yellowish; abdominal segment VI occasionally weakly infuscate.

Head approximately as wide as long or weakly oblong (Fig. 11); punctuation extremely fine, barely noticeable; surface with shallow microreticulation. Eyes reduced to minute rudiments, without ommatidia and pigmentation (Fig. 12). Antennae distinctly incrassate apically; antennomere X approximately twice as wide as long.

Pronotum approximately 1.15 times as wide as head and 1.1 times as wide as long (Fig. 11); punctuation extremely fine, barely noticeable; microreticulation similar to that of head or slightly more pronounced.

Elytra with pronounced sexual dimorphism, 0.55-0.65 times as long as pronotum (Fig. 11); microsculpture very shallow, less pronounced than that of head and pronotum. Hind wings reduced.

Abdomen approximately 1.3 times as wide as elytra; punctuation very fine and moderately sparse; microreticulation distinct everywhere; posterior margin of tergite VII without palisade fringe; tergite VII with sexual dimorphism; posterior margin of tergite VIII convex in both sexes.

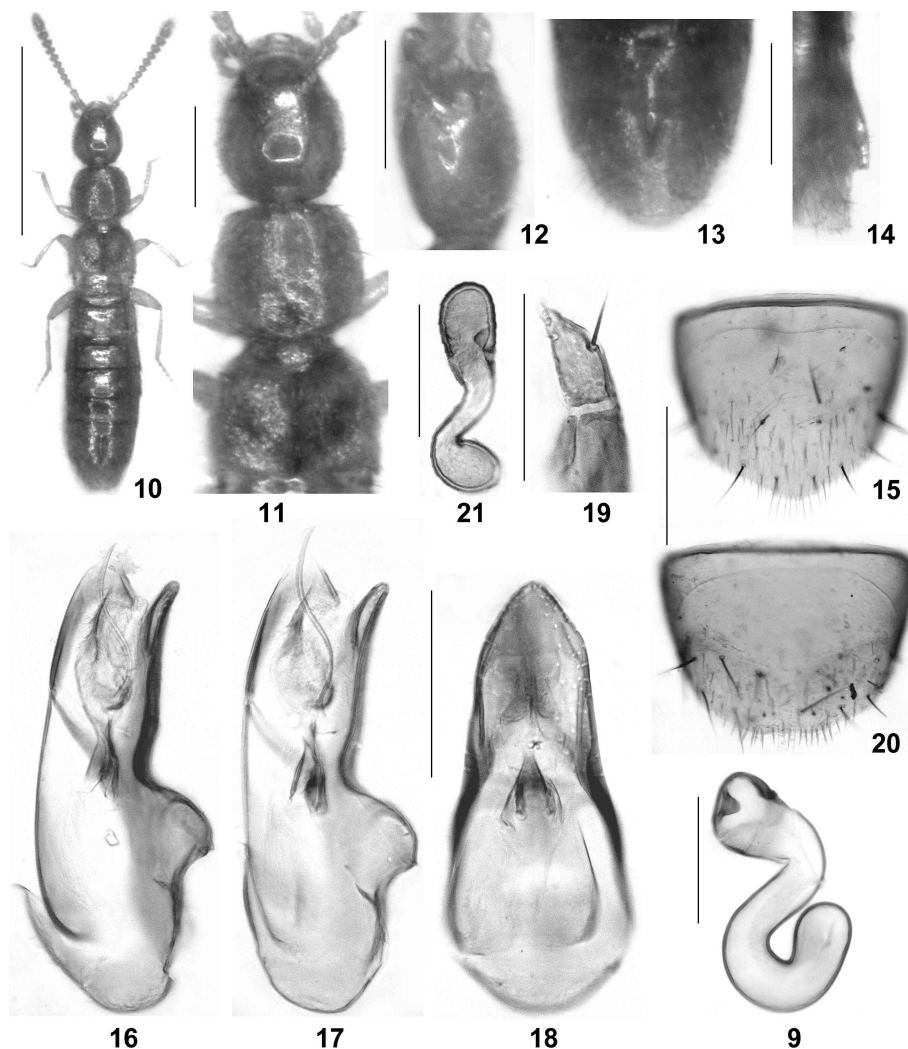
♂: elytra with weakly granulose punctuation, at suture strongly elevated, forming pronounced and sharp sutural carinae extending over full length of suture, these carinae highest and broadest anteriorly, and decreasing in height and width posteriad (Fig. 11); tergite VII with pronounced long median tubercle, in large males extending approximately from anterior 1/4 of tergite to posterior margin, this tubercle smooth, glossy, and tapering in posterior 1/4 of tergite (Figs 13-14); posterior margin of sternite VIII obtusely pointed in the middle (Fig. 15); median lobe of aedeagus with long flagellum in internal sac (Figs 16-18); apical lobe of paramere moderately stout, with one stout long median seta and three fine short subapical setae (Fig. 19).

♀: elytra with fine, non-granulose punctuation and without sutural carinae; tergite VII unmodified; sternite VIII weakly concave in the middle (Fig. 20); spermatheca minute, only 0.08 mm long, with conspicuously short and proximally simply curved duct (Fig. 21).

Etymology: The name (adjective) is derived from the Sultan Dağları, where the type locality is situated.

Comparative notes: *Geostiba sultanica* is readily distinguished from all other known congeners recorded from Turkey based on external characters alone, particularly by the presence of a long median tubercle on the male abdominal tergite VII.

In addition, it is separated from its congeners by the morphology of the aedeagus, especially the presence and shape of the flagellum in the internal sac, as well as by the shape and minute size of the spermatheca.



Figs 9-21: *Geostiba kirghisica* nov.sp. (9) and *G. sultanica* nov.sp. (10-21): (9, 21) spermatheca; (10) male habitus; (11) male forebody; (12) head in lateral view; (13-14) male tergites VII-VIII in dorsal and in lateral view; (15) male sternite VIII; (16-18) median lobe of aedeagus in lateral and in ventral view; (19) apical lobe of paramere; (20) female sternite VIII. Scale bars: 10: 1.0 mm; 11: 0.5 mm; 12-15, 20: 0.2 mm; 9, 16-19: 0.1 mm; 21: 0.05 mm.

The subgeneric affiliations of the species are unclear. Based on the modifications of the male abdominal tergite VII, *G. sultanica* would have to be assigned to the subgenus *Typhlusida* CASEY 1906. The geographically closest representatives of this subgenus are *G. rhilensis* (RAMBOUSEK 1924) from Bulgaria and *G. flava* (KRAATZ 1856) from south-

eastern Austria and Slovenia. The new species is readily separated from both of them by the modifications of the male elytra, the shape of the tubercle on the male tergite VII, and particularly by the morphology of the genitalia. For illustrations of the male secondary sexual characters and the genitalia of *G. flava* and *G. rhilensis* see ASSING (2000) and PACE (1983b, 1984) (under the synonym *G. bulgarica* PACE), respectively.

The only Turkish representative of the genus with a long flagellum in the internal sac is *G. uhligi* PACE 1983, which is currently attributed to the subgenus *Sibiota* CASEY 1906, but which, based on the synapomorphically derived morphology of the internal structures of the aedeagus, may be the closest relative of *G. sultanica*. It is readily distinguished from the new species by the larger eyes with ommatidia and pigmentation, by the presence of a pair of carinae on the male tergite VII, as well as by the different morphology of the genitalia. For illustrations of the genitalia of *G. uhligi* see PACE (1983a).

Distribution and bionomics: As can be inferred from the adaptive reductions of the eyes, pigmentation, and wings, as well as from the absence of records from other localities, the species is probably endemic to the Sultan Dağları in southwestern Anatolia. The type specimens were collected in an oak forest by sifting moist leaf litter and moss at an altitude of 1730 m (MEYBOHM pers. comm.).

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Zusammenfassung

Zwei Arten der Gattung *Geostiba* THOMSON werden beschrieben und abgebildet: *Geostiba (Sibiota) kirghisica* nov.sp., die erste Art der Gattung aus Kirgyzstan, und *G. sultanica* nov.sp. (Türkei: Konya: Sultan Dağları). Weitere Nachweise von 13 Arten werden gemeldet.

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