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On the Turkish species of *Sunius*. V. New species, additional records, a new synonymy, and an updated key to species

(Coleoptera: Staphylinidae, Paederinae)

With 21 figures and 3 maps

VOLKER ASSING

Summary

Three species of *Sunius* CURTIS, 1829 from southern Turkey are described, illustrated, and distinguished from similar congeners: *S. goektepensis* sp. n. (Mersin), *S. amanensis* sp. n. (Antakya), and *S. hatayanus* sp. n. (Antakya). All of them are micropterous and probably local endemics. *Sunius rastrifer* ASSING, 2001, syn. n. is synonymised with *S. dolabrifer* ASSING, 2001. Additional records are presented for four species. The distributions of seven species are mapped. 17 species of *Sunius* are now known from Turkey, including one name of doubtful identity. An updated key to the Turkish representatives of the genus is presented.

Keywords

Coleoptera - Staphylinidae - Paederinae - *Sunius* - Palaearctic region - Turkey - taxonomy - new species - new records - new synonym - distribution - endemism

Zusammenfassung

Drei ungeflügelte und wahrscheinlich lokalendemische Arten der Gattung *Sunius* CURTIS, 1829 werden aus der Südtürkei beschrieben, abgebildet und von ähnlichen Arten unterschieden: *S. goektepensis* sp. n. (Mersin), *S. amanensis* sp. n. (Antakya) und *S. hatayanus* sp. n. (Antakya). *Sunius rastrifer* ASSING, 2001, syn. n. wird mit *S. dolabrifer* ASSING, 2001 synonymisiert. Für vier Arten werden weitere Nachweise aus der Türkei gemeldet. Für sieben Arten werden Verbreitungskarten erstellt. 17 *Sunius*-Arten sind derzeit aus der Türkei bekannt, darunter ein bisher nicht zu deutender Name. Eine aktualisierte Bestimmungstabelle wird vorgelegt.

Introduction

Among the staphylinid genera including predominantly endemic species, *Sunius* CURTIS is among the most diverse, exceeded in number of Turkish endemics only by *Geostiba* THOMSON and *Leptusa* KRAATZ. In southern Anatolia, only *Geostiba* is represented by more endemic species (ASSING, 2004). The Turkish *Sunius* fauna has been revised in four steps (ASSING, 1995, 2001, 2003, in press). Previously, a total of 15 species had been recorded, including a name of doubtful identity, *Sunius adanensis* (LOKAY).

Since the last contribution on the Turkish *Sunius* fauna, more material has become available, most of which was collected during two field trips to southern Turkey in spring 2004, the first organised by M. Schülke (Berlin) and the author in the beginning of April and the second by C. Besuchet (Genève), V. Brachat (Geretsried), and H. Meybohm (Stelle) in late April and early May. An examination of this material yielded not only three new species, but also several additional records, and a new synonymy, which raises the number of species known from Turkey to 17.

Material

The material examined is deposited in the following collections:

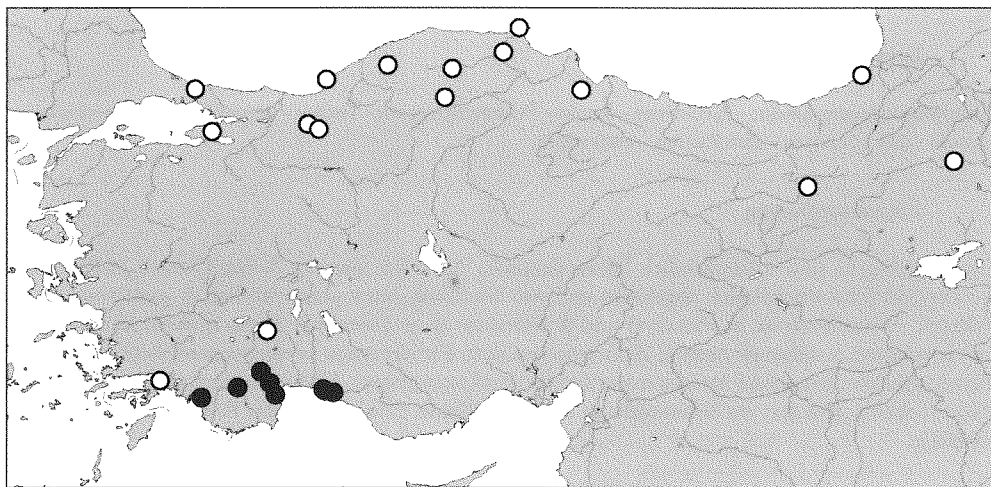
cAss	author's private collection
cEss	private collection Jens Esser, Berlin
cFel	private collection B. Feldmann, Münster
cSch	private collection Michael Schülke, Berlin

Species descriptions and additional records

Sunius anatolicus ASSING (Map 1)

Additional material examined: Antalya: 1 ex., Side, 13.III.2000, leg. Esser (cEss).

The currently known distribution of this species is illustrated in Map 1.



Map 1: Distributions of *Sunius melanocephalus* (FABRICIUS) (open circles) and *S. anatolicus* ASSING (filled circles) in Turkey, based on examined records.

Sunius phasianus (BORDONI) (Map 2)

Additional material examined: Gaziantep: 3 exs., 33 km E Osmaniye, NE Nurdağı Geç., 37°08'19N, 36°07'09E, 1520 m, NW-slope with oak and beech, under stones and sifted roots, 8.IV.2004, leg. Assing (cAss). Kahramanmaraş: 22 exs., 50 km NW Kahramanmaraş, Pass N Tekir, S Göksun, 37°56'23N,

36°34'30E, 1380 m, N-slope with snow, under stones, roots, gravel, 10.IV.2001, leg. Assing, Schülke (cAss, cSch); 7 exs., same data, but 37°56'48N, 36°34'05E, 1360 m, NW-slope with old cedar (cAss, cSch); 24 exs., same data, but 37°56'56N, 36°34E, 1400-1550 m, 26.IV.2004, leg. Besuchet, Brachat & Meybohm (cAss, cFel); 1 ex., 30km W Baskonus Yaylasi, 37°33'58N, 36°34'10E, 1270 m, 28.IV.2004, leg. Brachat & Meybohm (cAss); 1 ex., same data, but 37°33'30N, 36°35'12E, 1500 m (cAss).

The distribution of this species is illustrated in Map 2.

Sunius dolabrifer ASSING (Map 2)

Sunius dolabrifer ASSING, 2001: 198 f.

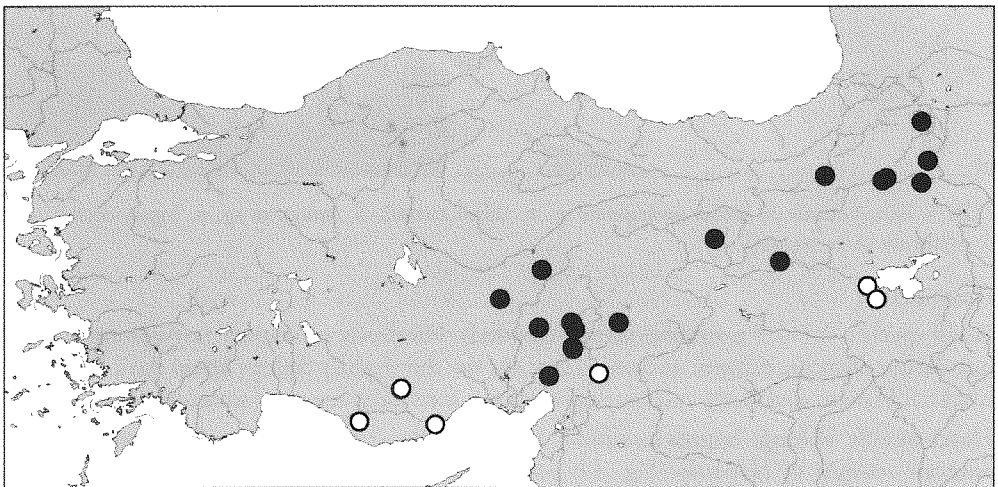
Sunius rastrifer ASSING, 2001: 200 f.; **syn. n.**

Additional material examined: **Antalya:** 1 ex., Alanya, Sügözü, 15.III.2000, leg. Esser (cAss). **Mersin:** 1 ex., road Mut - Karaman, Sertavul Geç., 36°55'28N, 33°16'26E, 1570 m, 5.V.2004, leg. Brachat & Meybohm (cAss).

Gaziantep: 5 exs., Kartal Dağı, W Yamacoba, 37°10N, 37°05E, 1200 m, 25.IV.2004, leg. Besuchet (cAss).

S. dolabrifer and *S. rastrifer* were described based on two males from Mersin and Konya (*S. dolabrifer*) and on a few specimens from Tatvan, the type localities being separated by a distance of almost 1000 km (ASSING, 2001). An examination of the new material now available revealed transitional character states, suggesting that the previously observed distinguishing external characters and differences in the shape of the aedeagus are an expression of intra- rather than interspecific, possibly clinal variation; hence the synonymy indicated above.

The species is apparently widespread, but rather rare (Map 2).



Map 2: Distributions of *Sunius phasianus* (BORDONI) (filled circles) and *S. dolabrifer* ASSING (open circles) in Turkey, based on examined records.

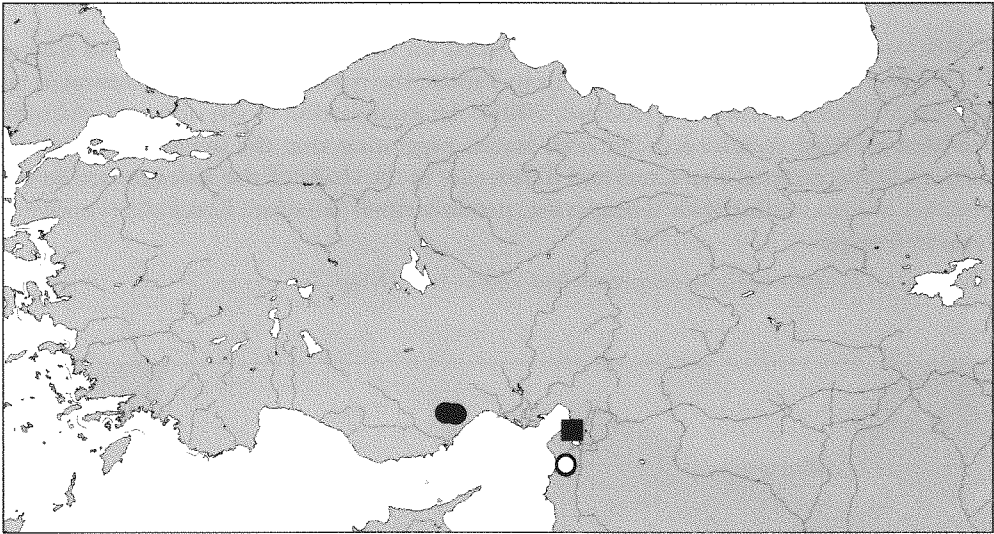
***Sunius tuberiventris* ASSING**

Additional material examined: Mersin: 2 exs., road Mut - Karaman, Sertavul Geç., 36°55'28N, 33°16'26E, 1570 m, 5.V.2004, leg. Brachat & Meybohm (cAss).

Previously, only the holotype of the species was known. The above specimens were collected near the type locality.

Sunius goektepenensis* sp. n. (Figs. 1-5, Map 3)*Type material:**

Holotype ♂: TR Mersin (45), Kirobasi-Güzeloluk, E Sanaydin, 1500 m / 36°45'33N, 33°56'36E (45), 7.5.2004, leg. Brachat & Meybohm / Holotypus ♂ *Sunius goektepenensis* sp. n. det. V. Assing 2004 (cAss). Paratype: 1 ♂: TR Mersin (38), road to Güzeloluk, S Aydınlar, 1380 m / 36°44'34N, 34°8E (38), 4.5.2004, leg. Brachat & Meybohm (cAss).

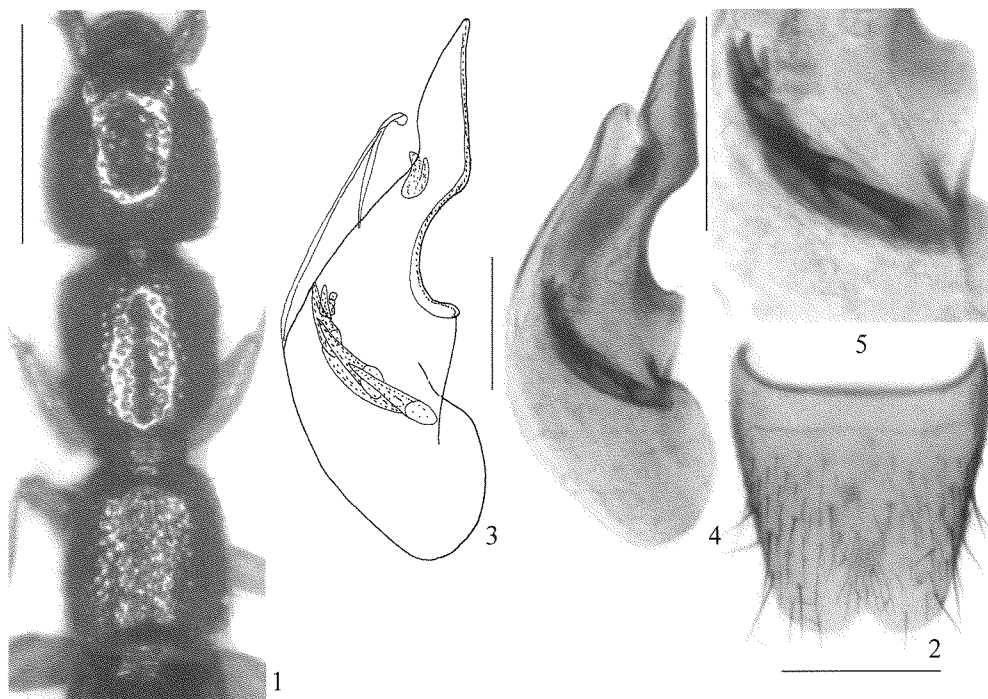


Map 3: Distributions of *Sunius goektepenensis* sp. n. (filled circles), *S. hatayanus* sp. n. (open circles), and *S. amanensis* sp. n. (square).

Description:

Small species, 2.5-2.9 mm (abdomen extended). Forebody uniformly ferrugineous, head not darker than pronotum; abdomen (except for the slightly lighter apex) dark brown to blackish brown, distinctly contrasting with the forebody; legs and antennae testaceous.

Head weakly oblong, approximately 1.1 times as long as wide (length measured from anterior margin of clypeus) (Fig. 1); puncturation coarse and well-defined, in central dorsal area sparse, with the interstices usually about 1.5-2.5 times as wide as punctures; in lateral areas rather dense (Fig. 1); microsculpture absent; eyes small, weakly projecting from lateral outline of head, postocular region in dorsal view approximately 2.5-3.0 times as long as eyes (Fig. 1).



Figs. 1-5: *Sunius goektepensis* sp. n.: forebody (1); ♂ sternite VIII (2); aedeagus in lateral view (3, 4); internal structures of aedeagus in lateral view (5). Scale bars: 1: 0.5 mm; 2: 0.2 mm; 3-5: 0.1 mm.

Pronotum approximately 0.9 times as wide as head and 1.1 times as long as wide; microsculpture absent; puncturation variable, usually somewhat denser than that of head (Fig. 1).

Elytra approximately as wide and at suture about 0.75 times as long as pronotum; puncturation somewhat ill-defined (Fig. 1); microsculpture indistinct. Hind wings reduced.

Abdomen about 1.1 times as wide as elytra, widest at segment VI; puncturation very fine and moderately dense; microsculpture very shallow on tergites III-VI, and somewhat more distinct on posterior tergites; posterior margin of tergite VII without palisade fringe.

♂: sternite VII unmodified; sternite VIII with patch of dense pubescence near posterior incision (Fig. 2); aedeagus of similar general morphology as in other species of the *S. tuberiventris* group, internal sac with a row of semitransparent spines (Figs. 3-5).

Etymology: The name (adj.) is derived from Göktepe Dağı, the name of the mountain range where the type locality is situated.

Comparative notes and systematics:

As can be inferred from the morphology of the male sternite VIII and the general morphology of the aedeagus, *S. goektepensis* doubtlessly belongs to the *S. tuberiventris* species group, which, in Turkey, is distributed in the Taurus range from Muğla in the west to Mersin in the east and previously comprised five described species, all of them apparently

local endemics (from west to east): *S. aculeatus* ASSING, *S. brachati* ASSING, *S. tuberiventris* ASSING, *S. wunderlei* ASSING, and *S. balkarensis* ASSING; for a distribution map see ASSING (in press). A reliable identification of species belonging to this group is possible only based on the male sexual characters. Regarding the shape of the aedeagus, *S. goektepenensis* is most similar to *S. balkarensis* (type locality: Çamlıyayla), but distinguished from that species by the broader and ventrally straight apex (lateral view) and by the larger spines in the internal sac. From *S. tuberiventris* and *S. wunderlei*, it is readily separated by the much shorter and stouter apex of the aedeagus, and from *S. brachati* and *S. aculeatus* by the different shape of the aedeagal apex and by the presence of sclerotised spines in the internal sac, from *S. aculeatus* also by the completely different modifications of the male sternite VIII.

Distribution and bionomics:

The type localities are situated in the Göktepe Dağı, to the northwest of Erdemli in Mersin (Map 3), where the types were found at altitudes of 1380 and 1500 m.

Sunius amanensis sp. n. (Figs. 6-13, Map 3)

Type material:

Holotype ♂: Turkey (Antakya), Nur Dağı, 9 km SE Iskenderun, ca. 6 km NE Belen, N slope, snowfield edge, under stones, sifted, 1480 m, 36°31'39''N, 36°15'27''E, 4.IV.2004, leg. M. Schülke [T04-10] / Holotypus ♂ *Sunius amanensis* sp. n. det. V. Assing 2004 (cAss). Paratype: 1 ♂: same data as holotype (cSch).

Description:

Small species, 2.6-2.9 mm (abdomen extended). Facies and forebody as in Figs. 6-7. External appearance (coloration, shape, proportions, puncturation, microsculpture) as in *S. goektepenensis* (see description above).

♂: sternite VII with very weakly concave posterior margin, pubescence weakly modified (Fig. 8); sternite VIII with relatively small posterior emargination, otherwise unmodified (Fig. 9); aedeagus very distinctive, with row of large curved sclerotised spines in internal sac (Figs. 10-12).

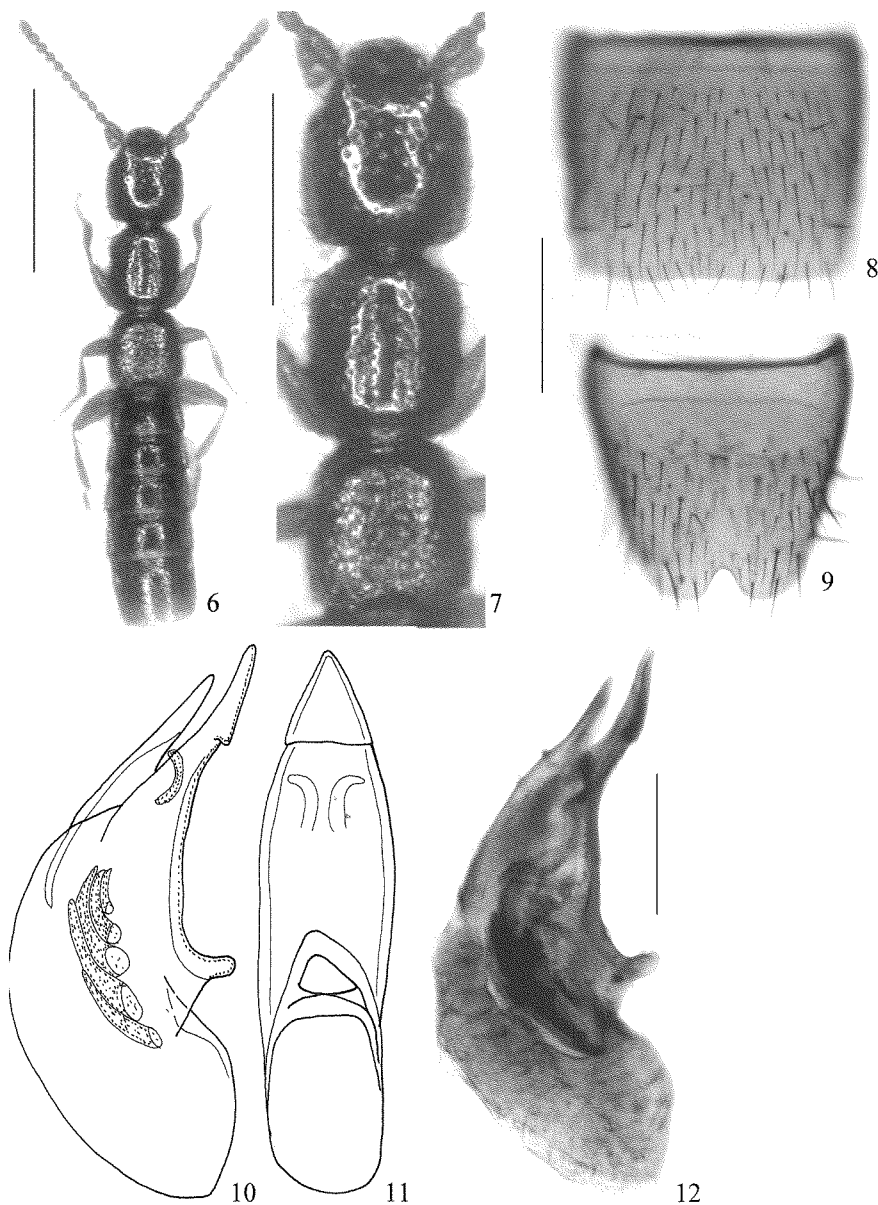
Etymology: The name (adj.) is derived from Amanus (or Amanos), the alternative name of the mountain range where the type locality is situated, also referred to as Nur Dağları.

Comparative notes and systematics:

Sunius amanensis is distinguished from all its congeners by the distinctive morphology of the aedeagus. Like the preceding species, *S. amanensis* belongs to the *S. tuberiventris* group. It is distinguished from other Turkish representatives of this group, except the following species, by the unmodified male sternite VIII. From the closely related *S. hypogaeus* (FAUVEL) (Anti-Lebanon) and *S. renouardi* (COIFFAIT) (Lebanon), which have a similar general morphology of the aedeagus and which, too, have an unmodified male sternite VIII, it is distinguished by the infuscate abdomen, the slightly larger eyes (in the other two species less than one third the length of temples in dorsal view), the less oblong head, shallower microsculpture of the abdomen (*S. hypogaeus*), deeper emargination of the male sternite VIII (*S. renouardi*), and by the shape of the aedeagus. For illustrations of the aedeagi of *S. hypogaeus* and *S. renouardi* see COIFFAIT (1984).

Distribution and bionomics:

The restricted distributions of the closely related species suggest that *S. amanensis* may be locally endemic in the southern Nur Dağları (Map 3). The two types were collected at the edge of a snowfield on a north slope with scattered pine trees (Fig. 13) by turning stones and sifting roots and litter at an altitude of approximately 1500 m, together with numerous specimens of *Geostiba hamata* ASSING and *G. helvetiorum* PACE.



Figs. 6-12: *Sunius amanensis* sp. n.: facies (6); forebody (7); ♂ sternite VII (8); ♂ sternite VIII (9); aedeagus in lateral and in ventral view (10-12). Scale bars: 6: 1.0 mm; 7: 0.5 mm; 8-9: 0.2 mm; 10-12: 0.1 mm.



Fig. 13: Type locality of *Sunius amanensis* sp. n. (photo by M. SCHÜLKE).

***Sunius hatayanus* sp. n.** (Figs. 14-21, Map 3)

Type material:

Holotype ♂: TR. - Antakya [12], 880 m, 19 km S Antakya, SW Şenköy, N-exp. pasture, 36°02'09N, 36°07'23E, 5.IV.2004, leg. V. Assing (cAss) / Holotypus ♂ *Sunius hatayanus* sp. n. det. V. Assing 2004 (cAss). Paratypes: 10 ♂♂, 20 ♀♀: same data as holotype (cAss); 19 exs.: same data, but leg. Schülke (cSch); 5 ♂♂, 3 ♀♀: TR. - Antakya [2a], 940 m, 22 km S Antakya, SW Şenköy, grass sited, 36°00'32N, 36°07'13E, 2.IV.2004, leg. V. Assing (cAss); 1 ♀: TR - Antakya, 4, 25 km S Senköy. 900-930 m, 26.-27.IV.2002, 36°01N, 36°07E, Meybohm & Brachat (cAss).

Description:

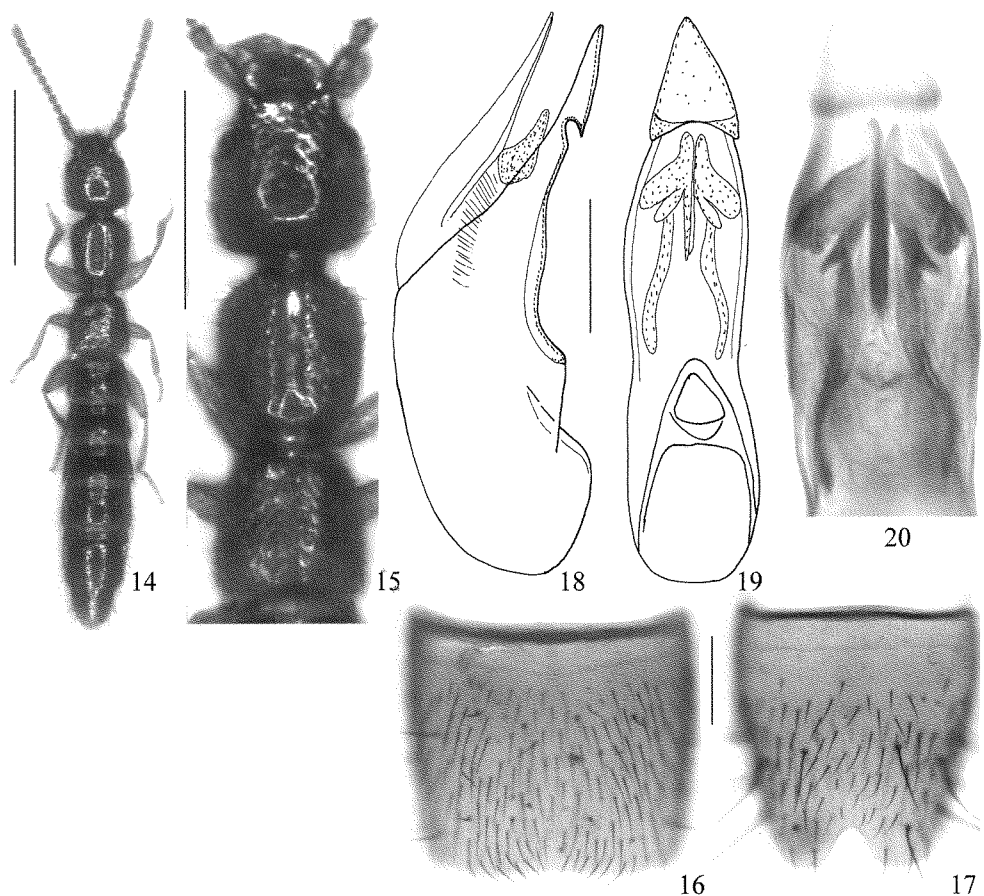
Small species, 2.5-3.0 mm (abdomen extended). Facies and forebody as in Figs. 14-15. External appearance (coloration, shape, proportions, puncturation, microsculpture), except for the slightly shorter elytra and the slightly smaller eyes, as in *S. goektepensis*.

♂: posterior margin of sternite VII in the middle weakly concave and with the dark pubescence directed diagonally postero-mediad (Fig. 16); sternite VIII with moderately deep posterior emargination, otherwise unmodified (Fig. 17); aedeagus very distinctive, with characteristic subapical structures, but without basal row of large sclerotised spines in internal sac (Figs. 18-20).

Etymology: The name (adj.) is derived from Hatay, the alternative name of the province where the type locality is situated, also referred to as Antakya.

Comparative notes and systematics:

Sunius hatayanus is distinguished from all other species of the genus especially by the distinctive morphology of the aedeagus. As can be inferred from the male primary and secondary sexual characters, *S. hatayanus* belongs to the *S. tuberiventris* group. It is distinguished from other Turkish representatives of this group, except *S. amanensis*, by the unmodified male sternite VIII. From the similar *S. hypogaeus* and *S. renouardi* from the Middle East (see notes below *S. amanensis*), it is distinguished by slightly larger eyes, a less oblong head, slightly shorter elytra, the absence of a basal row of sclerotised structures in the internal sac of the aedeagus, and a different shape of the aedeagus, both in lateral and in ventral view.



Figs. 14-20: *Sunius hatayanus* sp. n.: facies (14); forebody (15); ♂ sternite VII (16); ♂ sternite VIII (17); aedeagus in lateral and in ventral view (18-19); internal structures of aedeagus in lateral view (20). Scale bars: 14: 1.0 mm; 15: 0.5 mm; 16-20: 0.1 mm.



Fig. 21: Type locality of *Sunius hatayanus* sp. n. (photo by M. SCHÜLKE).

Distribution and bionomics:

The species is probably endemic in the south of Antakya (Map 3). The type material was collected in pastures (Fig. 21) by sifting the roots of grass and herbs in soil with a high proportion of gravel or stones at an altitude of approximately 900 m.

Updated key to the Turkish species of *Sunius*

The following key includes all the species known from Turkish territory, except for *S. adanensis* (LOKAY), whose original description is based only on females from the surroundings of Adana and from Syria and whose identity still remains doubtful. The references to figures in previously published articles are abbreviated as follows: A95 = ASSING (1995); A01 = ASSING (2001); A03 = ASSING (2003); AIP = ASSING (in press).

1. Smaller species, size (normal preparation) usually <3.0 mm, only in *S. dumanlianus* up to 3.3 mm. Head noticeably wider than pronotum. Eyes less than half the length of postgenae in dorsal view. Forebody uniformly ferrugineous. Abdominal tergum VII never with palisade fringe at posterior margin. ♂: sternite VII not or only weakly modified; sternite VIII in posterior median area with densely pubescent tubercle, with conspicuous process, or without such modifications. Aedeagus with very slender ventral process of characteristic shape and often with spines, but without rod, in internal sac. Southern Anatolia. 2

- Larger species, body size in normal preparation at least 3.0 mm. Head relatively smaller, approximately as wide as or narrower than pronotum. Eyes at least half the length of postgenae in dorsal view, in most species much larger. Forebody in most species bicoloured, with the head darker than the pronotum. Abdominal tergum VII with or without palisade fringe. ♂: sternite VII more or less depressed posteriorly, often with darker, stouter, and diagonal pubescence in posterior median area; sternite VIII without tubercle. Aedeagus with ventral process of different shape and with long rod-like structure in internal sac. 9
- 2. ♂: sternite VIII without conspicuous modifications. 3
- ♂: sternite VIII either with distinct spine or with patch of tomentose or dense pubescence near posterior emargination. 5
- 3. ♂: aedeagus subapically not dentate and with relatively short ventral process; internal sac without spines (Figs. AIP: 23-25). Southwest of Antalya province: Dumanlı Dağı.....
..... *S. dumanlianus* ASSING
- ♂: aedeagus subapically dentate and with longer ventral process; internal sac with or without sclerotised spines. Species from central southern Anatolia. 4
- 4. ♂: aedeagus with basal row of large sclerotised spines in internal sac and shaped as in Figs. 10-12. Southern Nur Dağları (Map 3). *S. amanensis* sp. n.
- ♂: aedeagus shaped as in Figs. 18-20, without basal row of large sclerotised spines, but with characteristic subapical structures in internal sac. Southern Antakya (Map 3).
..... *S. hatayanus* sp. n.
- 5. Abdomen darker, distinctly contrasting with the rufous forebody. Species from the western Taurus (Antalya, Muğla). 6
- Abdomen more weakly infusate, less distinctly contrasting with rufous forebody. Species from the eastern Taurus (Mersin and eastwards). 7
- 6. ♂: sternite VII with densely pubescent median tubercle (Fig. A03: 21). Aedeagus shaped as in A03: 19-20, without sclerotized spines in internal sac. Southwestern Antalya: Ak Dağlar.
..... *S. brachati* ASSING
- ♂: sternite VII with conspicuous median process (Figs. AIP: 12-15). Aedeagus shaped as in Figs. AIP: 16-19, with two semitransparent spines in internal sac. Muğla: Boncuk Dağı.....
..... *S. aculeatus* ASSING
- 7. ♂: apical part of ventral process of aedeagus shorter and stouter, ventral outline in lateral aspect not distinctly concave (Figs. 3-5). Mersin (Map 3). *S. goektepenensis* sp. n.
- ♂: apical part of ventral process of aedeagus longer and more slender, ventral outline in lateral view concave. 8
- 8. ♂: tubercle of abdominal sternum VIII with shorter pubescence (Fig. A01: 24); aedeagus with very long and slender apical part and with more weakly concave basal part (lateral view) of ventral process; spines in internal sac smaller (Figs. A01: 22-23). NW-Mersin.....
..... *S. tuberiventris* ASSING
- ♂: tubercle of abdominal sternum VIII with longer pubescence (Figs. A01: 27, 30); aedeagus with shorter apical part and with strongly concave basal part (lateral view) of ventral process; spines in internal sac larger. 9

9. ♂: aedeagus with apical part of ventral process longer and more slender, and with basal part of ventral process less broadly concave; spines in internal sac smaller (Figs. A01: 25-26). W-Mersin. *S. wunderlei* ASSING
- ♂: aedeagus with apical part of ventral process shorter and stouter, and with basal part of ventral process more broadly concave; spines in internal sac larger (Figs. A01: 28-29). E-Mersin.
..... *S. balkarensis* ASSING
10. Abdominal tergum VII with palisade fringe at posterior margin. 11
- Abdominal tergum VII without palisade fringe. 15
11. ♂: sternite VIII with conspicuous cluster of modified, stout black setae arranged in characteristic pattern (Fig. A95: 2). Aedeagus of characteristic morphology (Fig. A95: 1). In Turkey known only from the northwest (Istanbul). *S. fallax* (LOKAY)
- ♂: sternite VIII without such clusters of modified setae. Aedeagus of completely different morphology. 12
12. Elytra in most specimens at least partly darker than pronotum. ♂: sternum VII in posterior median area without distinctly diagonal pubescence; aedeagus more slender and with apically acute ventral process (best seen in lateral view). 13
- Elytra in most specimens ferrugineous, of similar colour as the pronotum. ♂: sternum VII in posterior median area with diagonal pubescence; aedeagus stouter and with apically more or less truncate ventral process (lateral view). 14
13. Predominantly macropterous species; elytra at suture approximately as long as (submacropterous morph) or distinctly longer than pronotum (macropterous morph). ♂: aedeagus with ventral process apically more strongly bent in lateral view (Figs. A01: 3-4). Known only from Antalya and Muğla provinces (Map 1). *S. anatolicus* ASSING
- Usually brachypterous species; elytra at suture distinctly shorter (brachypterous morph) or approximately as long as pronotum (submacropterous morph). ♂: aedeagus with ventral process apically less strongly bent in lateral view (Figs. A01: 1-2). Widespread species, in Turkey recorded from the north and west (Map 1). *S. melanocephalus* (FABRICIUS)
14. Puncturation of pronotum denser. ♂: aedeagus smaller, ventral process in ventral view apically with lateral projections; rod-like structure in internal sac shaped as in Figs. A01: 5-6. Widespread from central southern to eastern Anatolia (Map 2).....
..... *S. phasianus* (BORDONI) (macropterous morph)
- Puncturation of pronotum sparser. ♂: aedeagus with ventral process in ventral view apically without or with very weak lateral projections; rod-like structure in internal sac shaped like a hoe (Figs. A01: 17-19). Widespread from central southern to eastern Anatolia (Map 2).
..... *S. dolabrifer* ASSING
15. Head usually of the same colour as pronotum. Endemic species of Ak Dağlar and Nur Dağları. 16
- Head usually of darker colour than pronotum. More widespread species. 17
16. ♂: ventral process of aedeagus in ventral view apically with lateral projections (Figs. A03: 5-9). Southwestern Anatolia (Muğla: Ak Dağlar) (Map 2). *S. akianus* ASSING

- ♂: ventral process of aedeagus in ventral view apically without lateral projections (Figs. A01: 13-14). Central southern Anatolia: Nur Dağları. *S. nurdaghensis* ASSING
- 17. Puncturation of pronotum denser. Elytra usually not infusate. ♂: ventral process of aedeagus apically with larger (wing-like) lateral projections at a greater distance from apex (Figs. A01: 5-6). Distribution as in Map 2. *S. phasianus* (BORDONI) (brachypterous morph)
- Puncturation of pronotum slightly sparser. Elytra usually infusate in median and anterior area. ♂: ventral process of aedeagus apically with small projections nearer to apex (Figs. A01: 8-9). Distribution as in Map 2. *S. dolabrifer* ASSING

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Author's address:

Dr. VOLKER ASSING
 Gabelsbergerstrasse 2
 D-30163 Hannover
 Germany
 e-mail: vassing.hann@t-online.de