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On the Turkish species of *Sunius* CURTIS 1829 (Coleoptera: Staphylinidae, Paederinae)

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A b s t r a c t : Based on an examination of the available types and additional material, ten *Sunius* species are recorded from Turkey and attributed to three species groups. Six species are described, figured, and distinguished from similar congeners: *S. dolabrifer* sp. n., *S. nurdaghensis* sp. n., *S. rastrifer* sp. n., *S. wunderlei* sp. n., *S. tuberiventris* sp. n., and *S. balkarensis* sp. n. The identity of *S. adanensis* (LOKAY) remains doubtful. The distributions of all the species, except *S. adanensis*, are mapped. At least three of the species are wing-dimorphic. A diagnostic key to the Turkish representatives of *Sunius* is presented.

K e y w o r d s : Coleoptera, Staphylinidae, Paederinae, *Sunius*, Palaearctic region, Turkey, taxonomy, revision, new species, distribution, wing dimorphism, key to species.

1. Introduction

In the Western Palaearctic region, the genus *Sunius* CURTIS is represented by approximately 50 species, only four of which have been reported from Turkey (ASSING 1994, COIFFAIT 1984): *S. adanensis* (LOKAY), *S. melanocephalus* (FABRICIUS), *S. phasianus* (BORDONI), and *S. anatolicus* ASSING. Recent revisions of the Turkish representatives of other genera (e. g. ASSING 2001, in press) have shown that the staphylinid fauna of Turkey is poorly known. This is apparently also true of *Sunius*: during a five-day field trip in central southern Anatolia, no less than three undescribed species were discovered by P. Wunderle (Mönchengladbach) and the author. An examination of Turkish *Sunius* from other collections, particularly material collected by C. Besuchet, I. Löbl (Muséum d'histoire naturelle Genève), H. Schillhammer, and F. Schubert (Naturhistorisches Museum Wien) not only yielded yet another three new species, but also numerous data of biogeographical interest. Previously, the distributions of almost all *Sunius* species in Turkey were largely unknown.

Two additional new *Sunius* species were seen from southwestern Anatolia. However, since both were represented only by females (one of them also by a teratological male), they are not described here.

2. Material and measurements

The material examined is deposited in the following collections:

MHNG Muséum d'histoire naturelle, Genève (G. Cuccodoro, I. Löbl)

NHMW Naturhistorisches Museum Wien (H. Schillhammer)

NMP Národní Muzeum v Praze (J. Jelínek)

OLML Oberösterreichisches Landesmuseum Linz

cAss author's private collection

cSch private collection Michael Schülke, Berlin

cWun private collection Paul Wunderle, Mönchengladbach

Head length was measured from the anterior margin of the clypeus to the posterior margin of the head.

3. The *Sunius* species of Turkey

3.1. *Sunius melanocephalus* (FABRICIUS 1792) (Figs. 1-2, Map 1)

Material examined: **Istanbul:** 2 exs., Yalova-Orhangazi, 11.V.1976, leg. Besuchet (MHNG); 6 exs., Forêt de Belgrade, 4.VI.1967, leg. Besuchet (MHNG, cAss). **Bolu:** 1 ex., Abant, 1500-1600m, 22.V.1976, leg. Besuchet & Löbl (MHNG); 3 exs., Abant Gölü, 20.V.1987, leg. Schönmann & Schillhammer (NHMW). **Zonguldak:** 1 ex., Ereğli-Baliköy, 15.V.1976, leg. Besuchet & Löbl (MHNG); 1 ex., Apdipaşa, 16.V.1976, leg. Besuchet & Löbl (MHNG). **Erzincan:** 12 exs., Tercan, Euphrate, 1400m, 6.VI.1986, leg. Besuchet, Löbl & Burckhardt (MHNG, cAss). **Kastamonu:** 1 ex., Ilgaz Dağ, near peak, 1700-1800m, 17.V.1976, leg. Besuchet & Löbl; 2 exs., N Kastamonu, 25.V.1989, leg. Schillhammer (NHMW). **Sinop:** 1 ex., ca. 60 km SW Sinop, Çangalli Dağ, 8.-16.VII.1961, leg. Schubert (NHMW). **Kars:** 2 exs., Kağızman, Aras river, 1200m, 18.VI.1986, leg. Besuchet, Löbl & Burckhardt (MHNG). **Muğla:** 1 ex. [submacropterous], Getibeli/Marmaris, 1.V.1975, leg. Besuchet & Löbl (MHNG). **Burdur:** 2 exs. [submacropterous], Burdur Gölü, Çerçin, 870m, 6.V.1975, leg. Besuchet & Löbl (MHNG, cAss).

S. melanocephalus is one of the most widespread species of the genus. Its range of distribution includes the south of Northern Europe and all of Central and Southern Europe (COIFFAIT 1984, HORION 1965). In Turkey, it is apparently confined to the north and west (Map 1), where it was collected at intermediate altitudes up to 1800m. While all the specimens examined from northern Turkey were brachypterous, the beetles from Muğla and Burdur were submacropterous, with the hind wings more than twice as long as the elytra and the elytra at suture almost as long as the pronotum (in brachypterous specimens only 0.7 - 0.8 times as long as pronotum). In view of the wide range of distribution it seems most likely that a macropterous morph exists, too, although it is apparently very rare. In southern Antalya, *S. melanocephalus* is replaced by the highly similar *S. anatolicus* ASSING.

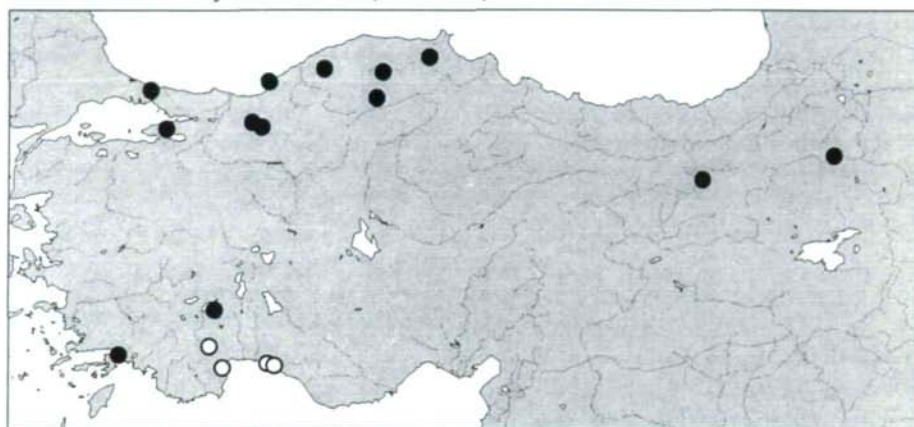
3.2. *Sunius anatolicus* ASSING 1994 (Figs. 3-4, Map 1)

Types examined: see ASSING (1994).

Additional material examined: **Antalya:** 6 exs., ca. 30 km SW Antalya, W Beldibi, Sarıçınar Dağ, 300m, 6.-18.VI.1994, leg. Pütz (cAss).

S. anaticus is extremely similar to the preceding species and distinguished only by the apically more strongly bent ventral process of the aedeagus (Figs. 3-4). In addition, the majority of specimens collected so far are macropterous, with fully developed hind wings and the elytra distinctly wider and at suture clearly longer than the pronotum. In the submacropterous morph, wings are present, but of reduced length, and the elytra are slightly shorter at suture than the pronotum (similar to the submacropterous morph of *S. melanocephalus*). *S. anaticus* possibly represents a subspecies of *S. melanocephalus*, but more material from southwestern Anatolia is necessary to clarify the status of this taxon.

S. anaticus is currently known only from Antalya province (Map 1), where it has been collected at relatively low altitudes (0 - 1000m).



Map 1: Distribution of *Sunius melanocephalus* (FABRICIUS) (filled circles) and *S. anaticus* ASSING (open circles) in Turkey.

3.3. *Sunius phasianus* (BORDONI 1980) (Figs. 5-7, Map 2)

Hypomedon phasianus BORDONI 1980: 77f.

Type examined: Holotype ♂: Turquie Erzurum, Erzurum-Tortum, 2000m, 12.V.1967, Cl. Besuchet / HOLOTYPE / *Hypomedon phasianus* n. sp. Det. A. Bordon 1975 (MHNG).

Additional material examined: **Tunceli:** 4 exs., Tunceli, Tunceli-Ovacik, 1100m, 5.VI.1986, leg. Besuchet, Löbl & Burckhardt (MHNG). **Kars:** 2 exs., road to Cumaçay, 1600m, 18.VI.1986, leg. Besuchet, Löbl & Burckhardt (MHNG); 2 exs., S Karakurt, 1900m, 17.VI.1986, leg. Besuchet, Löbl & Burckhardt (MHNG); 4 exs., Digor, 1650m, 15.VI.1986, leg. Besuchet, Löbl & Burckhardt (MHNG, cAss, cSch); 1 ex., Karakurt-Horasan, 1550m, 19.VI.1986, leg. Besuchet, Löbl & Burckhardt (MHNG); 1 ex., Doğruyol, Cildir Gölü, 2000m, 14.VI.1986, leg. Besuchet, Löbl & Burckhardt (MHNG). **Kayseri:** 2 exs., Pazarören-Bünyan, 1400m, 5.V.1978, leg. Besuchet & Löbl (MHNG); 3 exs., Sultansazlığı, 1000m, 6.V.1978, leg. Besuchet & Löbl (MHNG). **Kahraman Maras:** 3 exs., S Tekir, 900-1400m, 5.V.1978, leg. Besuchet & Löbl (MHNG); 2 exs., Elbistan, Nurhak, 2000m, 5.VI.1965, leg. Schubert (NHMW); 3 exs., same data, but 29.V.1966 (NHMW, cAss). **Adana:** 1 ♂ [macropterous], Feke, 21.-24.VII.2000, leg. Smatana (cAss). **Bingöl:** 2 exs., E Bingöl, V.-VI.1976, leg. Schubert (NHMW, cAss).

S. phasianus is widespread in the eastern and northeastern parts of Anatolia (Map 2). It has been observed at altitudes of approximately 1000m up to 2200m. The species is wing-dimorphic; the macropterous morph is evidently much rarer than the brachypterous morph. In the material examined only the male from Adana province had fully developed wings. *S. phasianus* is distinguished from the similar *S. nurdaghensis* and *S. rastrifer*

particularly by the lateral projections of the ventral process of the aedeagus (Figs. 5-6). For additional characters see the key in section 5 and Fig. 7.

3.4. *Sunius adanensis* (LOKAY 1919)

Medon (Hypomedon) adanensis LOKAY 1919: 23.

Type examined: Syntype ♀: Aleppo Syria / *Medon adanensis* / *Cotypus* (NMP).

The original description is based on four females from the surroundings of Adana and from Syria. Only one of the Syrian specimens was found in the collections of the NMP (JELÍNEK pers. comm.). For several reasons an interpretation of this species proves difficult. It belongs to a group of species (including *S. phasianus* and the three following species) in which an identification based on females alone is problematic or impossible. Judging from its external characters (punctuation, size, coloration of elytra), it may be conspecific with a *Sunius* species I have seen from Israel, but the distribution of that species is unknown and the possibility that *S. adanensis* and the species from Israel represent two distinct species cannot be excluded. Until males from the vicinity of the localities where the types were collected become available, the identity of *S. adanensis* must remain doubtful.

3.5. *Sunius dolabrifer* sp. n. (Figs. 8-12, Map 2)

Holotype ♂: südl. Tatvan, Asm. or, 1700 - 2000m / 21.5.-18.6.73, leg. F. Schubert / Holotypus ♂ *Sunius dolabrifer* sp. n. det. V. Assing 2001 (NHMW).

Paratypes: 1 ♂: Tatvan, 1800m, 1.-13.6.70, Asm., leg. F. Schubert (NHMW); 2 ♂♂, 5 ♀♀: Tatvan, Asm, V/76, 1800m, leg. F. Schubert (NHMW, cAss); 2 ♀♀: Tatvan, Asm. or., 1900m, 20.5.69, leg. F. Schubert (NHMW, cAss); 1 ♀: Tatvan, 1800m, 6.71, leg. F. Schubert (NHMW).

Description: 2.8 - 3.4 mm. In external appearance highly similar to *S. phasianus*. Usual coloration: head dark brown to blackish; pronotum ferrugineous; elytra near lateral and posterior margins of similar colour as pronotum, but central and anterior area infuscate; abdomen blackish; legs and antennae testaceous.

Head as long as wide to weakly (ca. 1.05 x) oblong; punctuation relatively coarse, sparse in central dorsal area and denser in lateral areas of head; microsculpture absent; eyes in dorsal view approximately half the length of postgenae or slightly longer.

Pronotum as long as wide to weakly oblong, approximately as wide as head; punctuation as coarse as that of head and slightly sparser than in average *S. phasianus*, median line impunctate; microsculpture absent; shape as in *S. phasianus*.

Elytra as in *S. phasianus*, as wide as or slightly wider than pronotum and at suture 0.80 - 0.85 times as long as pronotum; slightly narrower than abdomen; punctuation distinctly finer and denser than that of pronotum and weakly granulose; hind wings reduced.

Abdomen with very fine and dense punctuation and with shallow microsculpture; maximal width at segment VI; tergum VII at posterior margin without palisade fringe.

♂: sternum VII in posterior median area slightly depressed and with dark setae directed diagonally medio-caudad (Fig. 10); posterior margin of sternum VIII with deep emargination of triangular shape, deeper than in average *S. phasianus*, pubescence unmodified (Figs. 11-12); aedeagus similar to that of *S. phasianus*, but larger, ventral process apically with smaller and more apical lateral projections, and rod-like structure basally with longer and more acute process (Figs. 8-9).

Derivatio nominis: The name (Lat.: dolabrum = pick-axe) refers to the shape of the rod-like structure of the internal sac of the aedeagus.

Comparative notes: From *S. phasianus*, which also occurs in eastern Anatolia, the new species is distinguished by the (on average) sparser puncturation of the pronotum, the usually infusate elytra, the larger aedeagus, the size and position of the lateral projections of the ventral process, and the much longer basal process of the rod-like structure of the internal sac. *S. khnzoriani* (COIFFAIT) from Armenia and Georgia, in which the ventral process of the aedeagus has lateral projections of similar size and position, is slightly larger, and has a more coarsely punctate pronotum, longer and ferrugineous elytra, and a larger aedeagus with a longer and more massive rod-like structure. In other Turkish congeners, the ventral process of the aedeagus lacks the lateral projections. For additional distinguishing characters see the key in section 5.

Distribution and bionomics: The species is known only from the surroundings of Tatvan in eastern Anatolia (Bitlis) (Map 2), where it was collected at altitudes between 1700 and 2000m.

3.5. *Sunius nurdaghensis* sp. n. (Figs. 13-16, Map 2)

Holotype ♂: TR. - Antakya, Nur Dağl., WSW Yeşilkent, 990m, 36°54'59N, 36°18'54E, mixed decid. forest, N. 14, 28.12.2000, V. Assing / Holotypus ♂ *Sunius nurdaghensis* sp. n. det. V. Assing 2001 (cAss).

Paratypes: 37♂♂, 48♀♀: same data as holotype, leg. Assing, Wunderle (MHNG, NHMW, ÖLML, cAss, cWun); 11♂♂, 15♀♀: TR. - Antakya, Nur Dağl., WSW Yeşilkent, 1010m, 36°54'50N, 36°18'33E, mixed decid. forest, N. 15, 28.12.2000, V. Assing /P. Wunderle (Ass, cWun); 2♀♀: ostw. Osmaniye/A, 12-1700m, Asm., leg. F. Schubert (NHMW).

Description: 2.9 - 3.7 mm. In external appearance similar to *S. phasianus*. Forebody usually uniformly ferrugineous, with the head rarely slightly darker; abdomen dark brown to blackish brown; antennae ferrugineous, often with the apical antennomere somewhat lighter; legs testaceous.

Head 1.10 - 1.15 times as long as wide; puncturation relatively coarse, sparse in the central dorsal area and denser in the lateral areas of head; microsculpture absent; eyes nearly half the length of postgenae in dorsal view.

Pronotum 1.05 - 1.10 times as long as wide and approximately as wide as or slightly wider than head; puncturation as coarse as that of head and slightly sparser than in *S. phasianus*, median line impunctate; microsculpture absent; shape as in *S. phasianus*.

Elytra slender and short, approximately as wide as or slightly wider than pronotum and at suture 0.70 - 0.75 times as long as pronotum; slightly narrower than abdomen; puncturation distinctly finer and denser than that of pronotum; hind wings reduced.

Abdomen with very fine and dense puncturation and with microsculpture composed of more or less isodiametric meshes; maximal width at segment VI; tergum VII at posterior margin without palisade fringe.

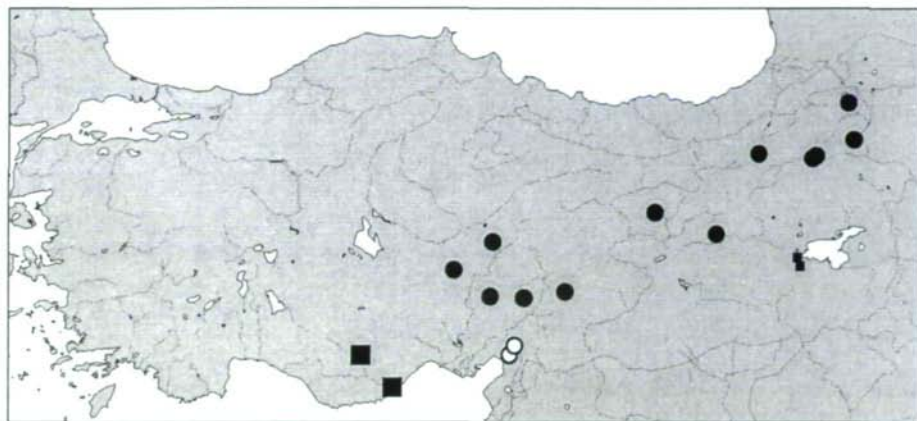
♂: sternum VII in posterior median area slightly depressed and with dark setae directed diagonally medio-caudad (Fig. 15); posterior margin of sternum VIII with deep emargination of triangular shape, pubescence unmodified (Fig. 16); aedeagus similar to that of *S. phasianus*, but ventral process apically without lateral projections (Figs. 13-14).

Derivatio nominis: The name is derived from the Nur Dağları, the mountain range where the types were collected.

Comparative notes: From its most closely related Turkish congeners (*S. phasianus*, *S. dolabrifer*, and *S. rastrifer*), *S. nurdaghensis* is distinguished by the different morphology of the aedeagus, by the shorter and more slender elytra, the smaller eyes,

and by the lighter colour of the head, which is usually not darker than the head. In addition, it is separated from *S. phasianus* by the sparser puncturation of the pronotum and from *S. rastrifer* by the absence of a palisade fringe at the posterior margin of the abdominal tergum VII. For distinction from other Turkish congeners see the key in section 5.

Distribution and bionomics: The species is known only from the Nur Dağları, where it is probably endemic (Map 2). The recently collected types were found in large numbers in a mixed deciduous forest (beech, oak, etc.) on calcareous soil at an altitude of approximately 1000m.



Map 2: Distribution of *Sunius phasianus* (BORDONI) (filled circles), *S. nurdaghensis* sp. n. (open circles), *S. dolabrifer* sp. n. (small squares), and *S. rastrifer* sp. n. (large squares) in Turkey.

3.6. *Sunius rastrifer* sp. n. (Figs. 17-21, Map 2)

Holotype ♂ [macropterous]: Selifke, Anat.m. 7.-9.6.63, leg. F. Schubert / Holotypus ♂ *Sunius rastrifer* sp. n. det. V. Assing 2001 (NHMW).

Paratype ♂ [brachypterous]: Turquie Konya, Sertavul Geçidi, 1500-1600m, 28.IV.78, Besuchet Löbl (MHNG).

Description: 3.4 - 3.9 mm. In external appearance similar to *S. phasianus*. Pronotum, elytra, and antennae ferrugineous; head and pronotum dark brown to blackish brown; legs testaceous.

Head approximately as long as wide or indistinctly oblong, widest across eyes (macropterous morph) or near hind margin of eyes (brachypterous morph); puncturation as in *S. nurdaghensis*; microsculpture absent; eyes in dorsal view distinctly more than half as long as postgenae, in macropterous morph strongly bulging.

Pronotum as long as wide or weakly oblong, approximately as wide as head; lateral margins in dorsal view almost straight and more weakly converging posteriad than in *S. nurdaghensis*; puncturation as in *S. nurdaghensis*, sparser than in *S. phasianus*; microsculpture absent.

Elytra longer and wider than in *S. nurdaghensis* and brachypterous *S. phasianus*, in macropterous morph 1.2 times as wide and at suture approximately 1.15 times as long as pronotum, in brachypterous morph 1.1 times as wide and at suture 0.85 times as long as pronotum; puncturation distinctly denser and finer than that of pronotum; microsculpture absent; hind wings dimorphic, either fully developed or of reduced length.

Abdomen with puncturation less fine and microsculpture less distinct than in *S. nurdaghensis*; tergum VII at posterior margin with palisade fringe in both morphs.

♂: sternum VII and VIII of similar shape and chaetotaxy as in *S. nurdaghensis*, but setae (especially of sternum VII) slightly longer, stouter, and darker (Figs. 20-21); aedeagus larger than in *S. phasianus* and *S. nurdaghensis*, ventral process apically without lateral projections, and internal sac with rod-like structure of distinctive shape (Figs. 17-19).

Derivatio nominis: The name refers to the rod-like structure of the internal sac of the aedeagus, which somewhat resembles a hoe or a mattock (Lat.: *rastrum*).

Comparative notes: From the similar *S. nurdaghensis*, *S. dolabrifer*, and *S. phasianus*, the species is distinguished especially by the morphology of the aedeagus, by the larger eyes, the chaetotaxy of the ♂ sternum VII, and by the presence of a palisade fringe at the posterior margin of tergum VII, which, except for the rare macropterous morph of *S. phasianus*, is absent in the other three species. For additional distinguishing characters see the description above, and for separation from other Turkish congeners see the key in section 5. In *S. khnzoriani* from Armenia and Georgia, in which the lateral aspect of the aedeagus and the shape of the rod-like structure of the internal sac are highly similar, the palisade fringe of the abdominal tergum VII is reduced, the eyes are smaller, and the ventral process of the aedeagus apically has small lateral projections.

Distribution: The species is known from two localities in Mersin and southern Konya in central southern Anatolia (Map 2).

3.7. *Sunius tuberiventris* sp. n. (Figs. 22-24, Map 3)

Holotype ♂: TR - Mersin, ca. 20 km NNW Mut, 1390m, No. 1, 36°50'00N, 33°19'01E, *Pinus* wood with *Q. ilex*, 25.12.2000, V. Assing / Holotypus ♂ *Sunius tuberiventris* sp. n. det. V. Assing 2001 (cAss).

Description: Distinctly smaller than the preceding Turkish congeners, 2.7 mm. Forebody and antennae ferruginous; abdomen dark brown; legs testaceous.

Head 1.1 times as long as wide; lateral margins in dorsal view almost straight and noticeably diverging posteriad; puncturation relatively coarse and rather sparse, interstices wider than diameter of punctures; microsculpture absent; eyes small, in dorsal view approximately 1/3 the length of postgenae.

Pronotum 1.12 times as long as wide and 0.9 times as wide as head; lateral margins in dorsal view almost straight and distinctly converging posteriad; puncturation denser than that of head; microsculpture absent.

Elytra indistinctly wider and at suture much shorter (0.75 x) than pronotum; puncturation finer and denser than that of head and pronotum.

Abdomen slightly wider than elytra; posterior margin of tergum VII without palisade fringe; puncturation very fine and dense; microsculpture shallow and barely noticeable.

♂: sternum VII unmodified; sternum VIII in posterior median area with subcircular tubercle covered with dense pubescence, posterior margin of sternum VIII with relatively broad and not very deep emargination (Fig. 24); aedeagus with apical part of ventral process very long and slender, internal sac with row of four relatively small spines (Figs. 22-23).

Derivatio nominis: The name refers to the densely pubescent tubercle on the male sternum VIII, a distinctive synapomorphy of the species group that *S. tuberiventris* belongs to.

Comparative notes: From all the preceding Turkish congeners, the new species is readily distinguished by its smaller size, the smaller eyes, the larger head (in relation to pronotum), and the completely different male primary and secondary sexual characters. For separation from the similar *S. wunderlei* sp. n. and *S. balkarensis* sp. n. see the descriptions and comparative notes below.

Distribution and bionomics: The holotype was found in the northwest of Mersin province near the Sertavul pass, NNW Mut (Map 3), where it was sifted from litter of *Pinus* and *Quercus ilex* at the edge of snow patches.

3.8. *Sunius wunderlei* sp. n. (Figs. 25-27, Map 3)

Holotype ♂: TR - Mersin, road Silifke → Gülnar, 1015m, No. 9, 36°20'38N, 33°35'06E, *Quercus* litter, 27.12.2000, V. Assing / Holotypus ♂ *Sunius wunderlei* sp. n. det. V. Assing 2001 (cAss).

Paratypes: 4♂♂, 1♀, same data as holotype, leg. Assing, Wunderle (cAss, cWun).

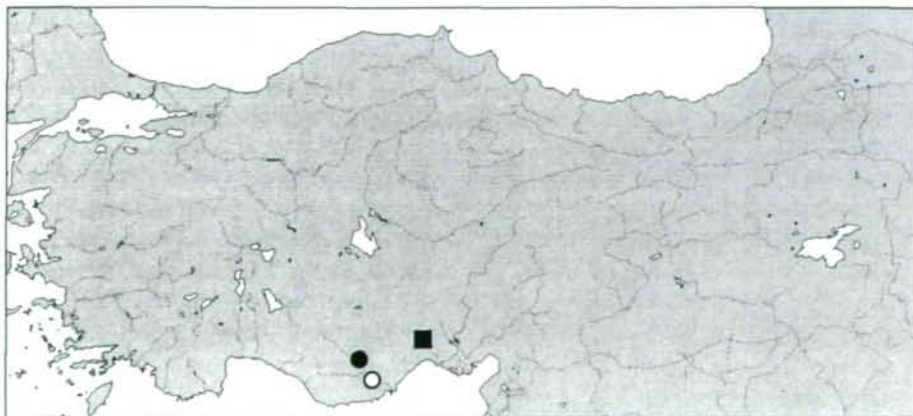
Description: 2.7 - 3.0 mm; extremely similar to *S. tuberiventris*, distinguished only by the ♂ sexual characters:

♂: sternum VIII with narrower posterior emargination and with longer pubescence on posterior median tubercle (Fig. 27); aedeagus slightly smaller, ventral process with shorter apical part and at base more strongly concave in lateral view, internal sac with larger spines (Figs. 25-26).

Derivatio nominis: I dedicate this species to my dear friend and colleague Paul Wunderle, Mönchengladbach, who collected part of the type series.

Comparative notes: For distinction from the similar *S. tuberiventris* and *S. balkarensis* see the description above and that of *S. balkarensis*, respectively. For separation from other Turkish congeners see the comparative notes below *S. tuberiventris* and the key in section 5.

Distribution and bionomics: The types were found near Gülnar in the west of Mersin province (Map 3), where they were sifted from leaf litter in a scattered stand of a deciduous oak species between large rocks.



Map 3: Distribution of *Sunius tuberiventris* sp. n. (filled circle), *S. wunderlei* sp. n. (open circle), and *S. balkarensis* sp. n. (black square) in Turkey.

3.9. *Sunius balkarensis* sp. n. (Figs. 28-30, Map 3)

H o l o t y p e ♂: b. Namrun, Anat., 1800m, V/63, leg. F. Schubert / Holotypus ♂ *Sunius balkarensis* sp. n. det. V. Assing 2001 (NHMW).

P a r a t y p e s: 2♂♂, 2♀♀, same data as holotype (NHMW, cAss); 1♀: same data, but 15.V.1966 (NHMW).

D e s c r i p t i o n: 2.6 - 2.9 mm; extremely similar to *S. tuberiventris* and *S. wunderlei*, distinguished only by the ♂ sexual characters:

♂: sternum VIII with slightly smaller tubercle (Fig. 30); aedeagus with apical part of ventral process less slender and slightly shorter, at base of apical part more distinctly dentate (lateral view), base of ventral process in lateral view more broadly concave, and internal sac with larger spines (Figs. 28-29).

D e r i v a t i o n o m i n i s: The name is derived from Balkar Dağları, the mountain range north and northwest of the type locality.

C o m p a r a t i v e n o t e s: From *S. tuberiventris* and *S. wunderlei*, this species differs only in the ♂ sexual characters, especially the morphology of the ventral process and the internal structures of the aedeagus.

D i s t r i b u t i o n: *S. balkarensis* is known only from Namrun, today Çamlıyayla, some 30 km northwest of Tarsus, eastern Mersin province.

4. Remarks on the phylogenetics of Turkish *Sunius*

COIFFAIT (1984) attributes the Western Palearctic *Sunius* to four species groups, primarily based on the shape of ventral process of the aedeagus. According to this concept, such evidently rather closely related species as *S. melanocephalus* and *S. phasianus* are assigned to different species groups, and *S. phasianus* is included in the same species group as, for instance, the distantly related *S. tunisus* (COIFFAIT). However, based on a preliminary examination of various Western Palearctic *Sunius*, the structures of the internal sac of the aedeagus and certain male secondary sexual characters appear to be at least as significant in assessing phylogenetic relationships within the genus as the shape of the ventral process of the aedeagus.

The Turkish species can be subdivided into three distinct groups, two of which seem to be rather closely related. The monophylum *melanocephalus* + *anatolicus* is constituted by a strikingly similar morphology of the aedeagus, which is characterized especially by the synapomorphic shape of the apex of the ventral process (Figs. 1-4). (In fact, the similarities are so evident that both taxa may only be distinct on the subspecific level; for a further discussion see section 3.2.) The second group of species (*phasianus*, *dolabrifer*, *nurdaghensis*, *rastrifer*), which includes *S. khnzoriani* (COIFFAIT) and probably also *S. adanensis*, is characterized not only by high external similarity (size, proportions, coloration, puncturation, microsculpture), but especially by the modified chaetotaxy of the male sternum VII (Figs. 10, 15, 20), by the apically truncate ventral process (lateral view), and by the apical internal structures of the aedeagus (Figs. 5, 8, 13, 17). Both this group and the monophylum *melanocephalus* + *anatolicus* are very similar in external characters and in the general morphology of the aedeagus; in particular, they share a rod-like structure in the internal sac. The remaining three Turkish species (*S. tuberiventris*, *S. wunderlei*, *S. balkarensis*), on the other hand, share some obvious synapomorphies, i. e. a large head (in relation to pronotum), several reductions (body size, eye size, pigmentation), the presence of a conspicuous densely pubescent tubercle on the male sternum VIII (Figs. 24, 27, 30), the characteristic shape of the ventral process of the aedeagus, and the presence of several

sclerotized spines (not a rod-like structure!) in the internal sac of the aedeagus (Figs. 22, 25, 28). It seems remarkable that all these derived characters are found also in *S. tunisus* (COIFFAIT) from Tunisia, which suggests that this species group may have a circum-Mediterranean distribution and that it may represent a comparatively old taxon. In *S. hypogaeus* (FAUVEL) and *S. renouardi* (COIFFAIT) from the Middle East the internal sac of the aedeagus also contains spines, but the male sternum VIII lacks a pubescent tubercle. There are several other species in the western Mediterranean with a similar internal and external morphology of the aedeagus, which may be closely related to *S. tunisus* and the southern Anatolian species, but their male secondary sexual characters have not yet been examined.

5. Key to the Turkish species of *Sunius*

The following key includes all the known Turkish species of the genus except for *S. adanensis* (LOKAY), whose original description is based only on females from the surroundings of Adana and from Syria.

1. Smaller species, size (normal preparation) <3.0 mm. Head noticeably wider than pronotum. Eyes approximately 1/3 the length of postgenae in dorsal view. Forebody uniformly ferrugineous. Abdominal tergum VII never with palisade fringe at posterior margin. ♂: sternum VII unmodified; sternum VIII in posterior median area with densely pubescent tubercle. Aedeagus with very slender ventral process of characteristic shape and with spines in internal sac. Central 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 nearly 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. ♂: sternum VII more or less depressed posteriorly, often with darker, stouter, and diagonal pubescence in posterior median area; sternum VIII without tubercle. Aedeagus with ventral process of different shape and with long rod-like structure in internal sac.....4
2. ♂: tubercle of abdominal sternum VIII with shorter pubescence (Fig. 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. 22-23). NW-Mersin (Map 3). *S. tuberiventris* sp. n.
- ♂: tubercle of abdominal sternum VIII with longer pubescence (Figs. 27, 30); aedeagus with shorter apical part and with strongly concave basal part (lateral view) of ventral process; spines in internal sac larger.3
3. ♂: 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. 25-26). W-Mersin. *S. wunderlei* sp. n.
- ♂: 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. 28-29). E-Mersin (Map 3). *S. balkarensis* sp. n.
4. Abdominal tergum VII with palisade fringe at posterior margin.5
- Abdominal tergum VII without palisade fringe.8
5. Elytra usually 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).6

- Elytra often ferrugineous, of similar colour as pronotum. ♂: sternum VII in posterior median area with diagonal pubescence; aedeagus stouter and with apically more or less truncate ventral process (lateral view). 7
- 6. 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. 3-4). Known only from Antalya province (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. 1-2). Widespread species, in Turkey recorded from the north and west (Map 1). *S. melanocephalus* (FABRICIUS)
- 7. Punctuation of pronotum denser. ♂: aedeagus smaller, ventral process in ventral view apically with lateral projections; rod-like structure smaller and with short basal process (Figs. 5-6). *S. phasianus* (BORDONI) (macropterous morph)
- Punctuation of pronotum sparser. ♂: aedeagus with ventral process in ventral view apically without lateral projections; rod-like structure in internal sac shaped like a hoe (Figs. 17-19). Central southern Anatolia (Map 2). *S. rastrifer* sp. n.
- 8. Head usually of darker colour than pronotum. ♂: ventral process of aedeagus in ventral view apically with lateral projections (Figs. 5-6). Eastern Anatolia. 9
- Head usually of the same colour as pronotum. ♂: ventral process of aedeagus in ventral view apically without lateral projections (Figs. 13-14). Central southern Anatolia: Nur Dağları (Map 2). *S. nurdaghensis* sp. n.
- 9. Punctuation 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. 5-6). Widespread in eastern Anatolia (Map 2). *S. phasianus* (BORDONI)
- Punctuation of pronotum slightly sparser. Elytra usually infusate in median and anterior area. ♂: ventral process of aedeagus apically with small projections nearer to apex (Figs. 8-9). Eastern Anatolia: Bitlis (Map 2). *S. dolabrifer* sp. n.

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Zusammenfassung

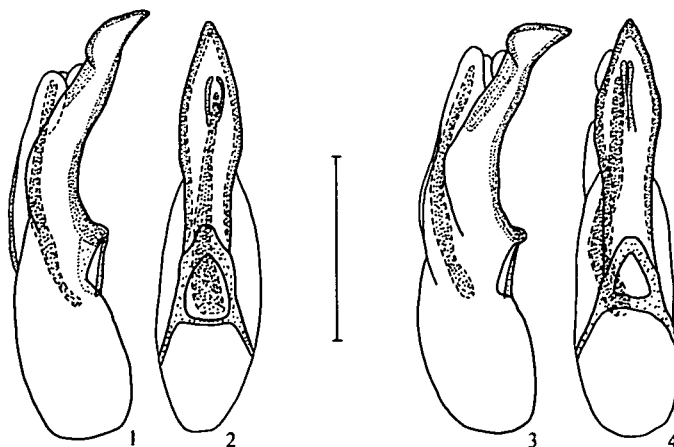
Die verfügbaren Typen und weiteres Material von *Sunius*-Arten aus der Türkei werden revidiert. Zehn Arten aus drei Artengruppen werden nachgewiesen. Sechs Arten werden beschrieben und von ähnlichen Arten unterschieden; ihre männlichen primären und sekundären Sexualmerkmale werden abgebildet: *S. dolabrifer* sp. n., *S. nurdaghensis* sp. n., *S. rastrifer* sp. n., *S. wunderlei* sp. n., *S. tuberiventris* sp. n. und *S. balkarensis* sp. n. Die Identität von *S. adanensis* (LOKAY) bleibt ungeklärt. Für alle Arten außer *S. adanensis* werden Verbreitungskarten vorgelegt. Mindestens drei Arten sind nachweislich flügeldimorph. Für die türkischen Arten der Gattung wird eine Bestimmungstabelle erstellt.

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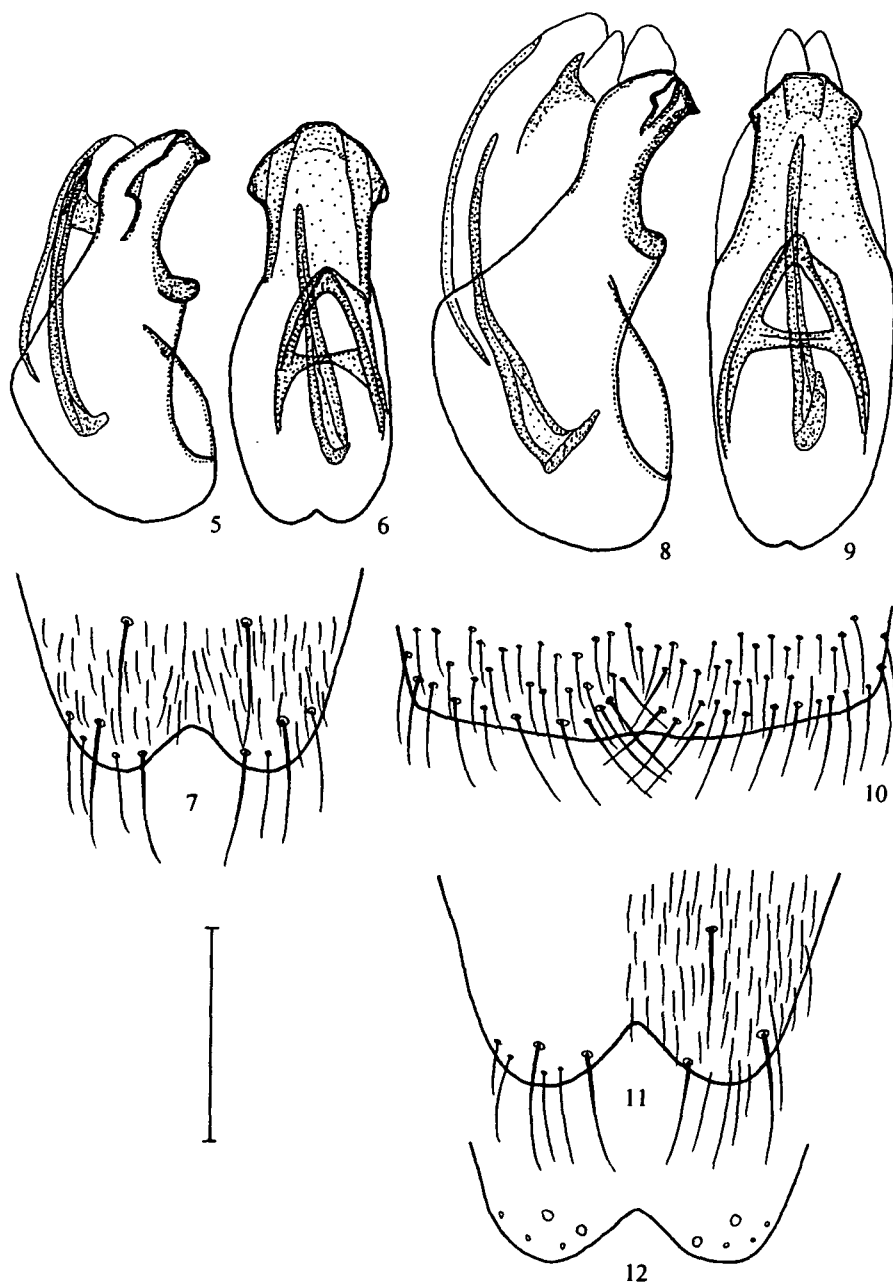
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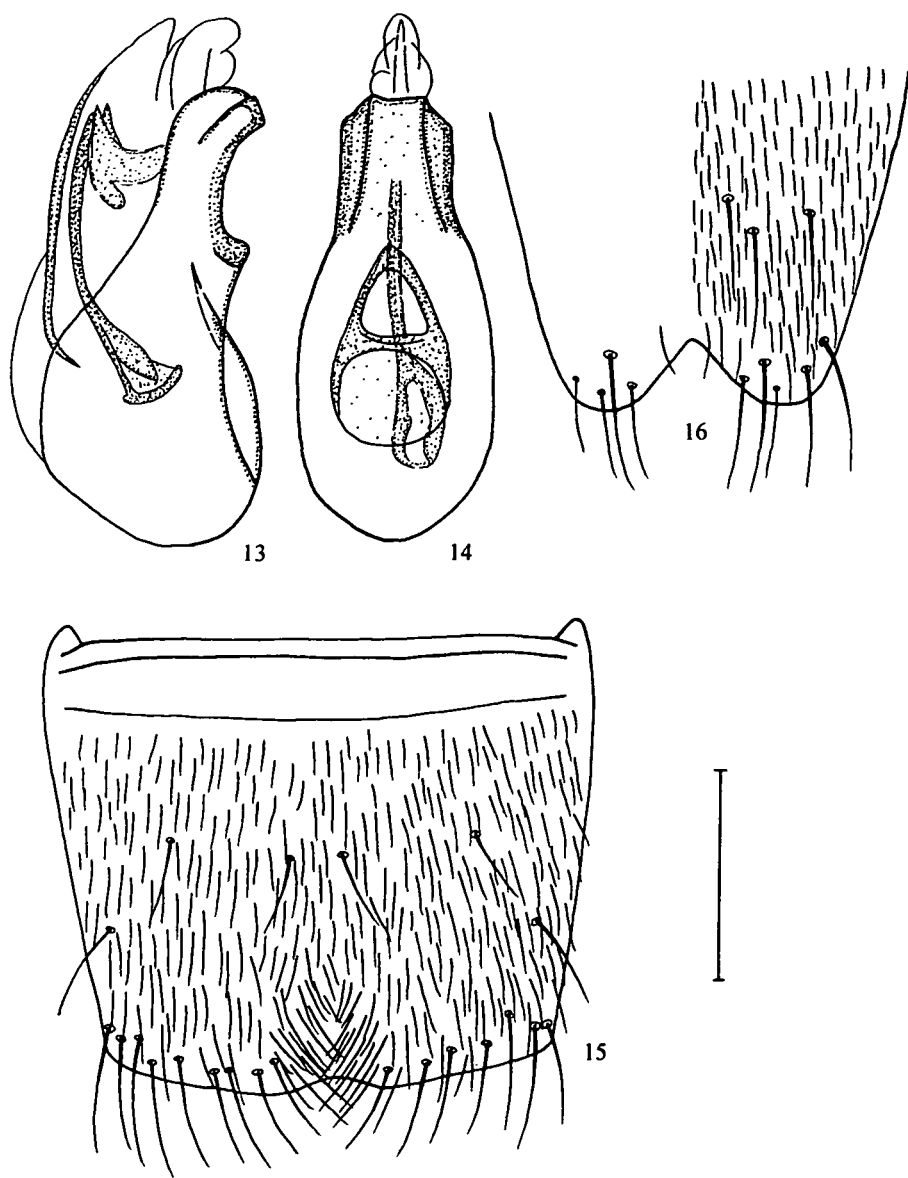
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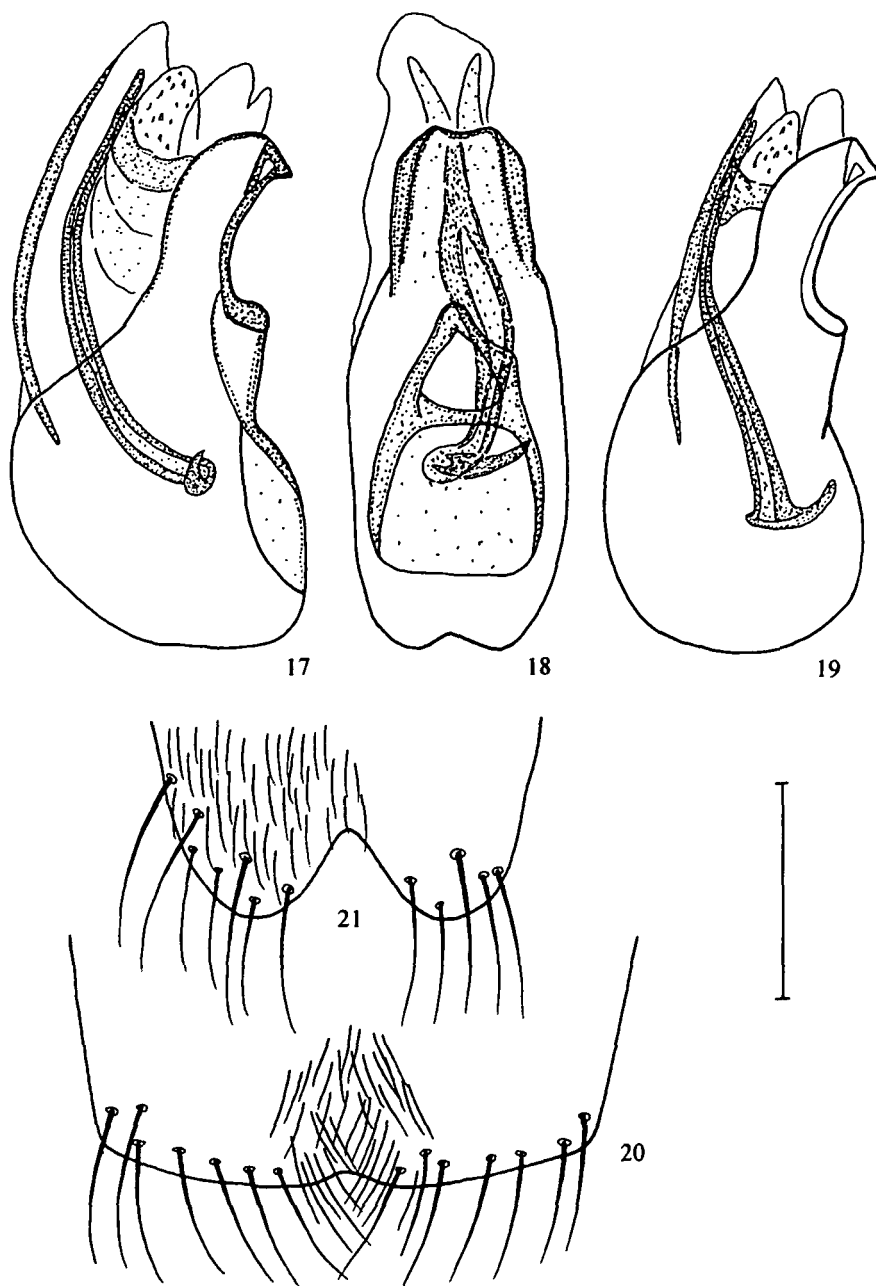
Figs. 1-4: *Sunius melanocephalus* (FABRICIUS) (1, 2) and *S. anatolicus* ASSING (3, 4): aedeagus in lateral and in ventral view. Scale: 0.25 mm.



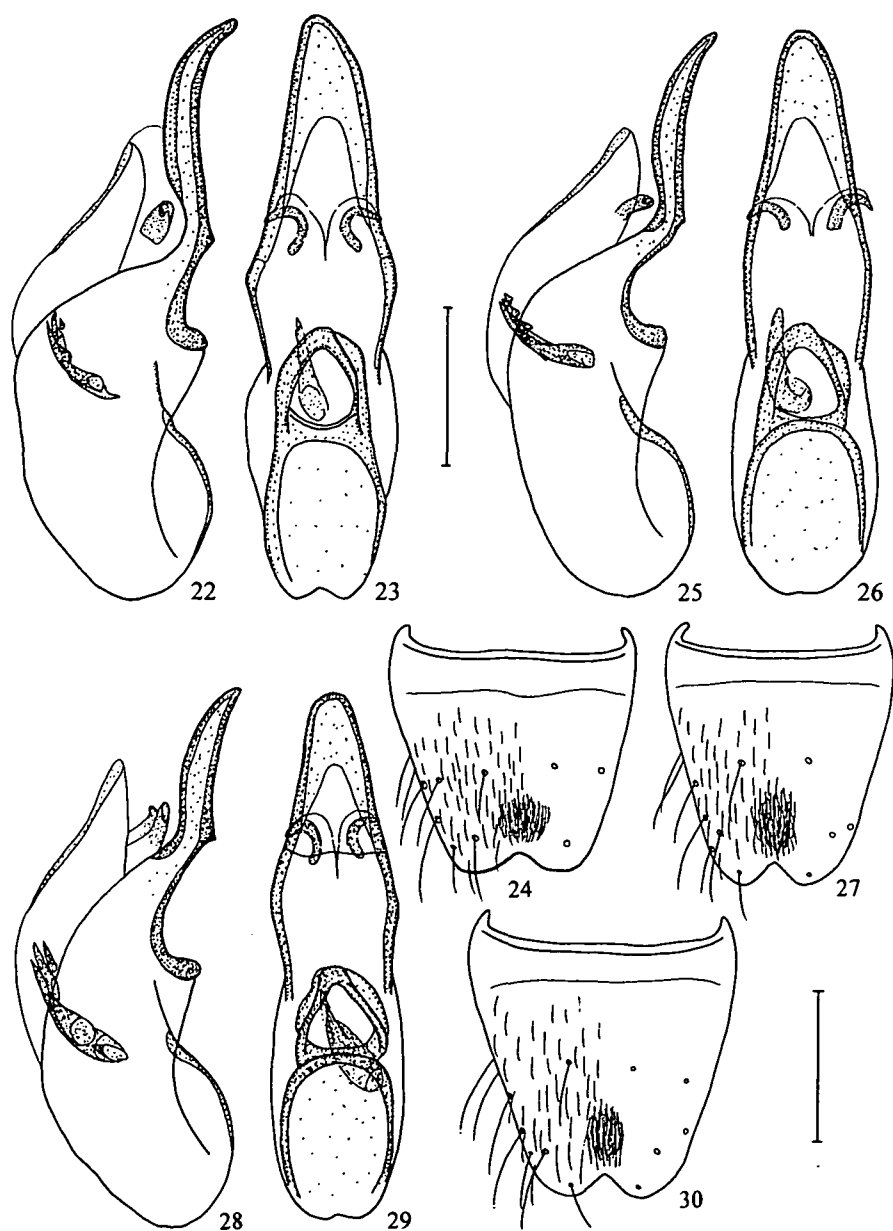
Figs. 5-12: *Sunius phasianus* (BORDONI) (5-7) and *S. dolabrifer* sp. n. (8-12): 5, 6, 8, 9 – aedeagus in lateral and in ventral view; 10 – posterior part of ♂ sternum VII; 7, 11, 12 – posterior part of ♂ sternum VIII (pubescence partly or completely omitted). Scale: 0.2 mm.



Figs. 13-16: *Sunius nurdaghensis* sp. n.: 13, 14 – aedeagus in lateral and in ventral view; 15 – ♂ sternum VII; 16 – ♂ sternum VIII. Scale: 0.2 mm.



Figs. 17-21: *Sunius rastrifer* sp. n. (17-18, 20-21: holotype; 19: paratype): 17-19 – aedeagus in lateral and in ventral view; 20 – posterior part of ♂ sternum VII; 21 – posterior part of ♂ sternum VIII; pubescence partly omitted in 20 and 21. Scale: 0.2 mm.



Figs. 19-27: *Sunius tuberiventris* sp. n. (22-24), *S. wunderlei* sp. n. (25-27), and *S. balkarensis* sp. n. (28-30): 22, 23, 25, 26, 28, 29 – aedeagus in lateral and in ventral view; 24, 27, 30 – ♂ sternum VIII. Scales: 22, 23, 25, 26, 28, 29: 0.1 mm; 24, 27, 30: 0.2 mm.

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