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RESEARCH ARTICLE

On the genus *Xantholinus* Dejean of Turkey: three new species, new and additional records, with distributional checklist (Coleoptera: Staphylinidae: Staphylininae: Xantholinini)

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Abstract: In this study, twenty four *Xantholinus* species are reported from Turkey. Amongst them, *X.* (*Calolinus*) *bayrami* **sp. nov.** from Konya province, *X.* (*Helicophallus*) *ceviki* **sp. nov.** from Ardahan and Erzurum provinces, and *X.* (*H.*) *khachikovi* **sp. nov.** from Muş province are described, and their diagnostic characters are illustrated. In addition, *X.* (*Heterolius*) *fortepunctatus* Motschulsky, 1860 is redescribed and illustrated. Numerous new and additional records of *Xantholinus* species from Turkey are presented. A distributional checklist of the thirty eight species of *Xantholinus* represented in Turkey is provided. The distributions of Turkish *Helicophallus* species are mapped.

Key words: Coleoptera, Staphylinidae, Staphylininae, Xantholinini, *Xantholinus*, Turkey, new species, taxonomy, fauna, distributional checklist.

Introduction

Turkey is an important centre of insect endemism and an area with interesting and complicated biogeography. Restricted distribution ranges and the strong link to specific geological substrates are important characteristics of the endemic fauna of this region (Çıplak *et al.* 1992; Demirsoy 2007). Faunistic, systematic and taxonomic studies on the *Xantholinus* Dejean, 1821 of Turkey have been conducted by many authors (see references). However, compared to most other areas of the Western Palaearctic region, the current knowledge of the staphylinid fauna of Turkey should be considered incomplete. Although *Xantholinus* of

Turkey has received substantial attention, especially by Volker Assing, the fact that ten of the thirty four known species were described only in the last seven years (Assing 2006, 2007b, 2011b), suggests that the diversity is greater than presently known.

In the Palaearctic region, the genus *Xantholinus* is represented by 108 species, 34 of which occur in Turkey, and 19 of them occur only in Turkey (Herman 2001; Smetana 2004; Assing 2005, 2006, 2007b, 2008, 2009, 2010, 2011a, b; Anlaş 2009).

In this study, three new species and one additional described species are reported from Turkey, so that a total of 38 species are now known from this country.

Material and methods

The present paper is based on material collected during recent field studies in Turkey, conducted mainly by the author and Ersen Aydın Yağmur. The material referred to in this study is deposited in Alaşehir Zoological Museum (AZM), Manisa, Turkey.

Primary and secondary sexual characters of the species described herein are termed following Coiffait (1972) and Assing (2007b). The limits of the zoogeographic regions are in accordance with those in Smetana (2004).

The morphological studies were conducted using a Stemi 2000-C microscope (Zeiss Germany). For the photographs a digital camera (Zeiss Axiocam ERC5s) was used. The images were made with the following magnifications: aedeagus, sclerites: 50×; specimen: 10-50×. Specimens were measured magnified 20-50× using the stereoscopic microscope with an eye-piece linear micrometer.

The following abbreviations are used for the measurements, which are given in mm:

AL: length of antenna; AW: maximal width of abdomen; EL: length of elytra from apex of scutellum to posterior margin at suture; EW: width of elytra; HL: head length from anterior margin of clypeus to posterior margin of head; HW: head width (including eyes); ML: length of aedeagus from apex of ventral process to base; PL: length of pronotum along median line; PW: maximal width of pronotum; TaL: length of metatarsus; TiL: length of metatibia; TL: total body length.

Results

Genus *Xantholinus* Dejean, 1821

Subgenus *Heterolius* Coiffait, 1983

***Xantholinus fortepunctatus* Motschulsky, 1860** (Figs. 1–5)

Material examined: GEORGIA: 1♂, 4–10.V.2012, Batumi 10 km SE, leg. Kaynak. **TURKEY: Artvin:** 2♂♂, 04.VII.2012, Kafkasör Yaylası, 1213 m, 41°09'52"N, 41°47'45"E, leg. Yağmur; **Gümüşhane:** 2♂♂ 1♀, 15.V.2011, Manastır 3 km N, Cehennem valley, 1867 m, 40°31'56"N, 39°36'16"E, leg. Anlaş, Özgen & Khachikov. **RUSSIA:** 2♂♂ 1♀, Rostov region, Sholokhovsky distr., Kalininsky village, 28.VIII.2000, leg. Khachikov.

Redescription

Measurements (in mm) and ratios (range, arithmetic mean; n=9): AL: 2.08–2.14, 2.11; HL: 1.62–1.78, 1.72; HW: 1.32–1.49, 1.43; PW: 1.26–1.39, 1.32; PL: 1.78–1.90, 1.85; EL: 1.34–1.39, 1.36; EW: 1.45–1.58, 1.52; AW: 1.42–1.57, 1.50; TiL: 0.98–1.07, 1.04; TaL:

0.77–0.87, 0.83; ML: 1.02–1.08, 1.05 (n=7); TL:11.3–12.1, 11.8; HL/HW: 1.23–1.19, 1.20; PW/HW: 0.95–0.93, 0.92; PW/PL: 0.71–0.73, 0.71; EL/PL: 0.75–0.73, 0.74; EW/PW: 1.15–1.14, 1.15; AW/EW: 0.98–0.99, 0.99; TiL/TaL: 1.27–1.23, 1.25.

Body length 11.3–12.1 mm. Relatively large species. Habitus as in Fig. 1. Coloration: head black, pronotum reddish brown; elytra yellowish brown, abdomen blackish brown, legs yellowish brown; antennae reddish brown.

Head strongly oblong (see ratio HL/HW and Fig. 1); eyes small and not distinctly projecting from lateral outline of head; punctation moderately coarse and sparse, punctation in central dorsal region slightly sparser; microsculpture present; antenna with preapical antennomeres weakly transverse.

Pronotum narrower than head (see ratio PW/HW and Fig. 1) and distinctly oblong (see ratio PW/PL); pronotum with dorsal series of 9–11 punctures and lateral series of 4–5 punctures.

Elytra wider and shorter than pronotum (see ratio EW/PW, EL/PL and Fig. 1); punctation mostly well-defined, interstices on average slightly wider than diameter of punctures. Hind wings present.

Abdomen slightly narrower than elytra (see ratio AW/EW); punctation very dense and very fine, all tergites with distinct transverse microsculpture; posterior margin of tergite VII with palisade fringe.

♂: posterior margins of tergite and sternite VIII weakly convex; aedeagus small (Fig. 2), with distinctive internal structures (Figs. 3–5).

Distribution: *Xantholinus fortepunctatus* is known from Eastern Europe to the Caucasus, Turkey, Iran and Middle Asia (Assing 2007b, 2011a; Anlaş & Newton 2010).

Comments: This species was orginally described from "the plains adjacent to the Caucasus" by Motschulsky (1860). Later, Coiffait (1972) and Korge (1973) mentioned and illustured characters of this species. However, according to Bordoni (1975), the identification and illustrations of *X. fortepunctatus* by Coiffait (1972) and Korge (1973) are not correct. Thus, Bordoni (1999) designated the lectotype for *X. fortepunctatus*, the specimen from Georgia (without more detailed locality information), while the specimen from Piatigorsk (now in Stavropol Terr., Russia) became a paralectotype. Bordoni referred Coiffait´s (1972) and Korge´s (1973) interpretations of *X. fortepunctatus* to a new species, *X. motschulskyi* Bordoni, 1999, without fixing the holotype of the latter species. According to Assing (2007b), *X. motschulskyi* Bordoni, 1999 is a synonym of *X. reitteri* Coiffait, 1966a. Further, because of the confusion in the true identity of *X. fortepunctatus* some of the published records of *X. fortepunctatus* may refer to *X. reitteri*. To eliminate all possible confusion, a redescription of *X. fortepunctatus* is provided in this study.

***Xantholinus caucasicus* Bordoni, 1975** (Fig. 6)

Material examined: TURKEY: Artvin: 1♂ 1♀, 06.VII.2012, Hatila Valley National Park, Maşgot road, near a small stream, leg. Yağmur.

Distribution: The distribution of *X. caucasicus* includes Turkey (Artvin province) and the Caucasus (Bordoni 1975, 2011; Herman 2001; Smetana 2004; Assing 2007b).

Figures 1–5. Details of *X. fortepunctatus* Motschulsky. **1,** forebody; **2,** aedeagus in dorsal view; **3–4,** internal structures of aedeagus is squeeze preparation; **5,** median and distal part of internal structures of aedeagus in squeeze preparation. Scale bars: 1.0 mm (Fig. 1); 0.5 mm (Fig. 2).

Subgenus *Idiolinus* Casey, 1906

***Xantholinus ciliciae* Bordoni, 1971** (Figs. 7–8)

Material examined: TURKEY: Adana: 1♂ 1♀, 10.V.2007, Feke 8 km NW, leg. Kerem; **Adıyaman:** 1♂, 11.III.2007, Gölbaşı, Yumaklıcerit road 1 km S, leg. Yağmur; **Hatay:** 1♂, 14.XI.2010, Samandağ, Tekepınar 5 km N, 340 m, 36°12'17"N, 35°57'45"E, leg. Anlaş; **Kahramanmaraş:** 1♂, 09.III.2008, Pazarcık, Kızıleniş 3 km SW, 37°22'11"N, 36°48’54’’E, leg. Yağmur.

Distribution: The species is known from southern and southeastern Turkey, and also Cyprus (Bordoni 1971; Assing 2007b, 2013; Anlaş 2009).

***Xantholinus crassicornis* Hochhuth, 1851** (Fig. 9)

Material examined: TURKEY: Ardahan: 2♂♂, 12.VII.2012, Posof, Ilgar pass, 2453 m, 41˚26'11"N, 42˚44'07"E, leg. Yağmur.

Distribution: The distribution of this species includes Azerbaijan, Georgia, southern European Russia, Iran and Turkey (Herman 2001, Smetana 2004, Assing 2007b; Anlaş & Newton 2010). Previously, the species has been recorded from Turkey only once, from Artvin province (Korge 1973). The specimens from Ardahan represent a new province record.

Subgenus *Calolinus* Coiffait, 1956

***Xantholinus penicillatus* Assing, 2007** (Fig. 10)

Material examined: TURKEY: Antalya: 1♂, 05.II.2009, Korkuteli, Ulucar, leg. Nabozhenko; 1♂ 1♀, 13.IV.2012, Elmalı road, Kalkan 20 km N, leg. Yağmur; 2♂♂ 3♀♀, Finike, 44 m, 36°16'53"N, 30°08'17"E, leg. Yağmur; **Muğla:** 2♂♂, 27.IV.2012, Fethiye, Patlangıç, olive garden, leg. Kesdek; 1♂, 20.IV–20.V.2012, Fethiye, Babadağ, 471 m, pitfall traps; 1♂, 15.V. 2012, Fethiye, Taşyaka, leg. Kesdek; 1♂, 01.11.2012, Fethiye, Seki Yaylası, 1483 m, leg. Kesdek; 1♂, 16.VI.2012, Köyceğiz 2 km NE, 80 m, leg. Kesdek; 1♂, 04.IV.2013, Datça, 115 m, 36°47'58"N, 28°05'13"E, leg. Örgel.

Distribution: The recently described species was known only from Muğla and Konya (Akşehir) provinces of Turkey (Assing 2007b). The specimens from Antalya represent a new province record.

***Xantholinus marasicus* Assing, 2007** (Fig. 11)

Material examined: TURKEY: Adıyaman: 1♂, 04.V.2008, Tut 5 km E, 37°47'52"N, 37°56'27"E, leg. Yağmur; **Gaziantep:** 1♂, 12.XI.2006, Şahinbey, Sarısalkım 1 km S, leg. Yağmur; 2♂♂, 20.I.2008, Nizip, Türkyurdu 1 km E, 700 m, 37˚00'33"N, 37˚37'42"E, leg. Yağmur; 1♂, 15.XI.2010, Şehitkamil, Kartal 1 km S, leg. Anlaş; 5♂♂ 2♀♀, 18.XI.2010, Islahiye, Kabaklar, 775 m, 37°02'08"N, 36°34'03"E, leg. Anlaş & Yağmur; **Kahramanmaraş:** 2♂♂, Türkoğlu, near Uzunsöğüt village, leg. Yağmur; 1♂, 17.V.2008, Türkoğlu, Aşağı İmalı 2 km W, 37°21'32"N, 36°44'32"E, leg. Yağmur; 3♂♂ 1♀, 15.XI.2010, Türkoğlu, Kızıleniş 2 km SW, 37°21'34"N, 36°47'53"E, leg. Anlaş; **Osmaniye:** 2♂♂,

15.XI.2010, Bahçe, İnderesi 5 km NW, 1200 m 37°15'50"N, 36°40'02''E, leg. Anlaş; **Şanlıurfa:** 1♂, 18.III.2007, Birecik 10 km E, Arat Dağı, leg. Yağmur; **Siirt:** 1♂, 17.XI.2010, Baykan 4 km NE, ca. 770 m, 38˚11'42"N, 41˚49'03"E, leg. Anlaş & Yağmur.

Figures 6–11. Aedeagi of *Xantholinus* in dorsal view. **6,** *X. caucasicus* Bordoni; **7–8,** *X. ciliciae* Bordoni; **9,** *X. crassicornis* Hochhuth; **10,** *X. penicillatus* Assing; **11,** *X. marasicus* Assing. Scale bars: 0.5 mm.

Distribution: *Xantholinus marasicus* was originally described from Kahramanmaraş province in the central southern Anatolia by Assing (2007b). Later, some additional records were reported from Gaziantep and Hatay provinces in southeastern Turkey (Assing 2009; Anlaş & Rose 2009). Specimens from Adıyaman, Osmaniye, Şanlıurfa and Siirt represent new province record.

***Xantholinus* (*Calolinus*) *bayrami* sp. nov.** (Figs. 12–18)

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Type material: Holotype: TURKEY: ♂, "TR. Konya, Emirgazi, Gölören village environs, Karacadağ, 1534 m, 37°49'59"N, 33°51'45"E, 25.VIII–28.X.2012, pitfall traps, leg. E. A. Yağmur / Holotypus ♂, *Xantholinus bayrami* **sp. n.** det. S. Anlaş 2013" (AZM). **Paratype: TURKEY:** 1♂, same data as holotype (AZM).

Description

Measurements (in mm) and ratios (range, n=2): AL: 1.94–2.01; HL: 1.36–1.47; HW: 1.16–1.26; PW: 0.97–1.09; PL: 1.42–1.55; EL: 1.18–1.30; EW: 1.10–1.20; AW: 1.27–1.33; TiL: 0.82–0.90; TaL: 0.66–0.70; ML: 1.49–1.56 (n=2); TL: 8.9–9.4; HL/HW: 1.16–1.17; PW/HW: 0.84–0.87; PW/PL: 0.68–0.70; EL/PL: 0.83–0.84; EW/PW: 1.10–1.13; AW/EW: 1.11–1.15; TiL/TaL: 1.24–1.29.

Habitus as in Fig. 12. Coloration: head black, pronotum blackish brown, head always somewhat darker than pronotum, elytra bright reddish brown, abdomen (except for reddish brown posterior margins of segments VII and VIII) black; legs dark yellowish, antennae reddish to reddish brown.

Head oblong (see ratio HL/HW and Figs. 12-13); eyes small, not distinctly projecting from lateral outline of head, approximately 1/5 the length of postocular region in dorsal view; punctation sparse and relatively fine, central dorsal region almost without punctures, microsculpture absent. Antenna not slender, with 9-10 antennomeres transverse, at most 1.5 times as wide as long (Fig. 14).

Pronotum narrower than head and oblong (see ratio PW/HW, PW/PL and Figs. 12-13); distinctly round posteriad; lateral margins almost straight in dorsal view; dorsal series composed of 10–14 punctures; microsculpture absent.

Elytra wider than pronotum, at suture distinctly shorter than pronotum (see ratios EL/PL, EW/PW and Figs. 12-13), punctation coarse, dense, and well-defined. Hind wings fully developed.

Abdomen approximately as wide as elytra, widest at segments VI–VII; punctation fine and well-defined; all tergites with shallow, but distinct transverse microsculpture; posterior margin of tergite VII without palisade fringe.

♂: Posterior margin of tergite VIII truncate and narrowly semi-transparent; posterior margin of sterniteVIII weakly convex and narrowly semi-transparent. Aedeagus long, with distinctive internal structures that include a series of long spines and 10–15 shorter spines (Figs. 15–18).

Comparative notes: The species is distinguished from all its congeners by distinctly longer aedeagus and the internal structures of the aedeagus. In additional, it differs from the other *Calolinus* species occurring in Turkey as follows: from *X. ibex* Assing, 2007b and *X. marasicus* Assing, 2007b (Figs. 8–9) by the longer elytra; from *X. penicillatus* and *X. puthzi* Bordoni, 1979 by the different coloration of elytra (in the latter two elytra dark yellowish to

brownish yellow); and from *X. rufipennis* (Fig. 19) by the longer head. For illustrations of the habitus and genitalia of these species see Assing (2007b).

Figures 12–18. Details of *Xantholinus* (*Calolinus*) *bayrami* **sp. nov. 12,** habitus; **13,** forebody; **14,** antenna; **15–18,** aedeagus in lateral view. Scale bars: 1.0 mm (Figs. 12–13); 0.2 mm (Fig. 14); 0.5 mm (Figs. 15–18).

Etymology: The species is dedicated to Prof. Dr. Abdullah Bayram, Istanbul, who has carried out important zoological research in Turkey.

Distribution: The species was collected only in one locality in Beyşehir district, Konya province of central southwestern Anatolia. Due to fully developed metathoracic wings, this new species is probably widespread in central and central southwestern Anatolia.

***Xantholinus rufipennis* Erichson, 1839** (Fig. 19)

Material examined: TURKEY: Adıyaman: 1♂, 19.IV.2008, Gerger, Açma 2 km NE, 37°59'35"N, 38°57'51"E, leg. Yağmur; 2♂♂, 04.V.2008, Tut, Yaylakonak 4 km S, 37°49'09"N, 38°06'08"E leg. Yağmur; **Afyonkarahisar:** 1♂ 1♀, 11.VIII.2010, Şuhut, Dadak 2 km N, 1320 m, 38°36'18"N, 30°26'59"E, leg. Anlaş; **Aydın:** 1♂, 08.XII.2012, Çine, 115 m, 37°41'24"N, 28°01'12"E, leg. Anlaş; **Balıkesir:** 2♂♂ 5♀♀, 30.X.2009, Altınoluk, Adatepe, 300 m, 29°34'24"N, 26°37'18"E, leg. Anlaş; 1♂, 30.X.2009, Havran, Çakırdere, 270 m, 39°30'09"N, 27°09'43"E, leg. Anlaş; **Gaziantep:** 1♂ 2♀♀, 23.IV.2007, Şahinbey, Kazıklı 2 km N, leg. Yağmur; 3♂♂ 2♀♀, 02.III.2008, Islahiye 16 km S, 36°54'39"N, 36°34'10"E, leg. Anlaş; 3♂♂ 1♀, 20.V.2011, Şahinbey, şifalısu kaynağı, Sofalıcı village, 1333 m, 37°07'37"N, 37°07'01"E, leg. Yağmur; 1♂, 20.V.2011, Central province 20 km W, 1000 m, 37°10'21"N, 37°11'31"E, leg. Yağmur; **Hatay:** 2♂♂ 1♀, 29.IV.2007, Yayladağı, Güveççi 3 km N, leg. Yağmur & Yalçın; 2♂♂, 23.IV.2008, Hassa, Akbez, Koruhöyük 5 km E, 415 m, 36°48'13"N, 36°38'01"E, leg. Yağmur; 3♂♂, 17.V.2008, Yayladağı, Leylekli 3 km N, 620 m, 35˚58'34"N, 36˚03'01"E, leg. Yağmur; **Izmir:** 1♂ 4♀♀, 21.V.2006, Ödemiş, Bozdağlar, road to ski resort, ca. 1600 m, 38°21'N, 28°06'E, leg. Anlaş; 2♂♂ 1♀, 19.XII.2008, Karaburun road, 10 m, 38°21'02"N, 26°38'20"E, leg. Anlaş; 1♂, 19.IV.2009, Menemen, Emiralem road 4 km S, 38°37'04"N, 27°11'36"E, leg. Yağmur; 3♂♂ 2♀♀, 28.V.2010, Buca, Kaynaklar, pitfall traps; 1♂ 1♀, 02–28 VI.2012, Bozdağlar, near Gölcük lake, 1211 m, 38°18'11"N, 28°02'06"E, pitfall traps; **Kahramanmaraş:** 2♂♂ 1♀, 09.VII.2006, Nurhak Dağları, Kullartatlar 2 km N, leg. Anlaş; 1♂, 08.V.2008, Pazarcık, Aşağımülk, ca. 37°26'N, 37°30'E, leg. Yağmur; **Kilis:** 1♂ 2♀♀, 29.IV.2006, Central province, Küplüce, leg. Yağmur; 1♂, 16.III.2008, Ömerli 1 km SE, 1200 m, 36°52'01"N, 37°12'02"E, leg. Yağmur; **Malatya:** 2♂♂, 02.V.2008, Doğanşehir, Boruk Dağı, 1100 m., 37˚53'08"N, 37˚43'04"E, leg. Yağmur; **Manisa:** 2♂♂ 1♀, 24.VI.2006, 30.IX.2009, Central province, Spil Dağı, 1100 m, 38˚33'44"N, 27˚23'10"E, leg. Anlaş; 1♂, 21.X.2006, Alaşehir, Azıtepe, leg. Anlaş; 3♂♂, 26.XI.2006, Kula, Sarnıçköy 2 km SW, leg. Anlaş; 2♂♂, 08.I.2007, Turgutlu, Çıkrıkçı, ca. 300 m, 38˚28'N, 27˚49'E, with *Messor* sp. leg. Anlaş; **Muğla:** 2♂♂, 04.IV.2013, Fethiye, Babadağ, leg. Yağmur & Örgel; **Osmaniye:** 1♂ 3♀♀, 15.XI.2010, Bahçe, Inderesi 2 km NW, 980 m 37°15'55"N, 36°37'04"E leg. Anlaş; **Siirt:** 2♂♂ 2♀♀, 21.V.2010, Baykan 4 km NE, ca. 770 m, 38˚11'42"N, 41˚49'03"E, leg. Yağmur; **Sinop:** 1♂, 14.III.2010, Central province, Ada, 42˚02'50"N, 35˚11'16"1E, leg. Koç; 2♂♂, 19.XII.2010, pitfall traps, Central province, Hamsili Piknik alanı 1,5 km W, 42˚03'44"N, 35˚01'55"1E, leg. Koç; **Şırnak:** 2♂♂, 20.V.2010, Silopi, Görümlü, 1010 m, 37˚20'10"N, 42˚34'30"E, leg. Yağmur; 1♂, 12.IV.2011, Idil 40 km NW, 828 m, 37˚18'57"N, 41˚42'48"E, leg. Yağmur; **Tunceli:** 1♂, 19.V.2011, Hozat, Sarısaltık 2 km E, 39°07'27"N, 39°14'51"E, 1594 m, leg. Anlaş; **Uşak:** 1♂ 1♀, 23.IV.2010, Eşme, Kısık 2 km NE, Gediz river bank, 470 m., 38˚38'06"N, 28˚57'19"E, leg. Anlaş.

Distribution: *Xantholinus rufipennis* is known from the Eastern Mediterranean region (Herman 2001; Smetana 2004; Assing 2007b). This species is widespread and common in Turkey.

Subgenus *Purrolinus* Coiffait, 1956

***Xantholinus tricolor* (Fabricius, 1787)** (Fig. 20)

Material examined: TURKEY: Artvin: 1♂, 06.VII.2012, Hatila Valley National Park, leg. Yağmur.

Distribution: *Xantholinus tricolor* was known from Europe, including South European territory of Russia, and Tajikistan, eastern and western Siberia (Smetana 2004). This species is reported from Turkey for the first time.

Subgenus *Typhlolinus* Reitter, 1908

***Xantholinus graecus* Kraatz, 1858** (Fig. 21)

Material examined: TURKEY: Adana: 1♂ 1♀, 10.V.2007, Feke 10 km NW, leg. Kerem; **Diyarbakır:** 1♂ 1♀, 05.VI.2010, Dicle valley, environs of University, leg. Özgen; 1♂, 25.IX.2010, Ergani, Çakmak, Çamaltı, leg. Özgen; **Gaziantep:** 2♂♂ 1♀, 02.III.2008, Islahiye 1 km S, 560 m, 37°00'28"N, 36°36'47"E, leg. Yağmur; **Hatay:** 2♂♂, 04.V.2007, Kırıkhan, Narlıhopur 2 km W, leg. Yağmur; 1♂ 1♀, 10.V.2008, Iskenderun, Arsuz, Pirinçlik, 36°29'49"N, 36°03'17"E, leg. Yağmur; **Isparta:** 1♂, 10.VIII.2010, Aksu 10 km NE, Çayıryayla road, 1458 m, 37°48'06"N, 31°09'34"E, leg. Anlaş; **Izmir:** 1♂, 21.V.2006, Ödemiş, Bozdağlar, road to ski resort, ca. 1600 m, 38°21'N, 28°06'E, leg. Anlaş; 2♂♂ 1♀, 10.XII.2008, Bayındır, Yakapınar, leg. Anlaş; 2♂♂, 28.V.2010, Buca, Kaynaklar, leg. Anlaş; 3♂♂ 1♀, 20.III.2013, Ödemiş, Bozdağlar, Horzum 3 km SE, 795 m, 38°22'58"N, 27°54'15"E, leg. Anlaş, Yağmur & Örgel; **Kahramanmaraş:** 1♂, 09.VII.2006, Nurhak Dağları, Kullartatlar, leg. Anlaş; **Kastamonu:** 1♂, 16.V.2010, Pınarbaşı, Vallakanyonu, 350 m, 41˚42'54"N, 33˚03'25"E, leg. Kunt; **Kırklareli:** 1♂, 01.X.2009, entrance of Dupnisa cave, leg. Kunt; **Manisa:** 1♂, 18.III.2005, Spil Dağı, 1100 m, 38˚33'44"N, 27˚23'10"E, leg. Anlaş; 1♂ 1♀, 20.III.2013, Turgutlu, Baktırlı 2 km W, 780 m, 38°25'38"N, 27°52'44"E, leg. Anlaş, Yağmur & Örgel; **Osmaniye:** 2♂♂, 19.V.2008, Bahçe, Aşağıarıcaklı, 726 m, 37°11'29"N, 36°36'54"E, leg. Yağmur; **Sinop:** 1♂, 19.XII.2010, pitfall traps, Central province, Hamsili Piknik alanı 1,5 km W, 50 m, 42˚03'44"N, 35˚01'55"E, leg. Koç.

Distribution: *Xantholinus graecus* is known from Lebanon, Israel, Italy, Albania, Macedonia, Greece, Cyprus and Turkey (Herman 2001; Smetana 2004; Assing 2007b). This species is widespread in Turkey.

***Xantholinus varnensis* Coiffait, 1972** (Fig. 22)

Material examined:TURKEY: Izmir: 3♂♂, 08.V.2010, Menemen, Emiralem road 4 km S, 38°37'04"N, 27°11'36"E, leg. Yağmur; 1♂ 2♀♀, 28.V.2010, Buca, Kaynaklar, leg. Anlaş; 1♂ 1♀, 27.IV.2013, Karaburun 5 km W, 415 m, 38°38'17"N, 26°24'13"E, leg. Anlaş & Yağmur; **Kütahya:** 2♂♂, 24.IV.2010, Şaphane, Ilıcasu 1 km N, 720 m, 38˚56'58"N, 29˚17'29"E, leg. Anlaş; **Manisa:** 1♂, 17.V.2009, Saruhanlı, Süleymanlı, 450 m, 39˚00'54"N, 27˚33'38"E, leg. Anlaş.

Distribution: According to Assing (2008), this species is distributed in Turkey, Bulgaria and Greece.

Figures 19–23. Aedeagi of *Xantholinus* in dorsal view. **19,** *X. rufipennis* Erichson; **20,** *X. tricolor* (Fabricius); **21,** *X. graecus* Kraatz; **22,** *X. varnensis* Coiffait; **23,** *X. osellai* Bordoni. Scale bars: 0.5 mm.

***Xantholinus laevigatus* Jacobsen, 1849**

Material examined: TURKEY: Gaziantep: 1♂, 12.XI.2006, Şahinbey, Sarısalkım 1 km N, leg. Yağmur; **Manisa:** 1♂, 18.III.2005, Central province, Spil Dağı, 1100 m, 38˚33'44"N, 27˚23'10"E, leg. Anlaş.

Distribution: This species is widespread in Turkey and Europe, including southern European Russia (Smetana 2004; Assing 2007b; Anlaş 2009).

***Xantholinus osellai* Bordoni, 1976** (Fig. 23)

Material examined: TURKEY: Sinop: 1♂, 10.IV.2009, Nisi Lake environs, Karakum, leg. Koç.

Distribution: This species is known only from Turkey (Bordoni 1976b; Assing 2007b, 2010, 2011b; Anlaş 2009).

***Xantholinus reitteri* Coiffait, 1966** (Figs. 24–25)

Material examined: TURKEY: Artvin: 1♂, 04.VII.2012, Kafkasör Yaylası, 1213 m, 41°09'52"N, 41°47'45"E, leg. Yağmur; **Kahramanmaraş:** 1♂ 1♀, 08.V.2008, Pazarcık, Aşağımülk, ca. 37°26'N, 37°30'E, leg. Yağmur.

Distribution: *Xantholinus reitteri* was previously known from Georgia, Azerbaijan, Turkey and Iran (Bordoni 1975; Coiffait 1966, 1972; Herman 2001; Smetana 2004; Assing 2007b, 2011a; Anlaş 2009; Anlaş & Newton 2010), and was recently reported also from south European Russia (Bordoni 2011). The specimens from Kahramanmaraş represent a new province record for Turkey.

Subgenus *Xantholinus* Dejean, 1821

***Xantholinus audrasi* Coiffait, 1956** (Figs. 26–27)

Material examined: TURKEY: Afyonkarahisar: 2♂♂, 13.XI.2011, Sandıklı, Komalar Dağı, pitfall traps; 1♂ 2♀♀, 12.IV.2013, Düzağaç 2 km N, near a small lake, 1172 m, 38°48'31"N, 30°09'03"E, leg. Anlaş, Örgel & Yağmur; 1♂ 1♀, 12.IV.2013, Sinanpaşa, Çiğlitepe, 1369 m, 38°40'38"N, 30°17'05"E, leg. Anlaş, Örgel & Yağmur; **Ankara:** 1♂, 01.VI.2012, Yenimahalle, Türkkonut, leg. Kunt; **Edirne:** 1♂ 3♀♀, 23.XII.2009, Ipsala, bank of Meriç river, leg. Koç; **Gaziantep:** 1♂, 13.XI.2010, Nurdağı, Sakçagözü 2 km NE, 1010 m, 37°10'53"N, 36°57'20"E, leg. Anlaş; **Izmir:** 1♂, IV–V.2009, Menemen, Emiralem road 4 km S, 38°37'04"N, 27°11'36"E, pitfall traps; **Kahramanmaraş:** 1♂, 09.VII.2006, Nurhak, Nurhak Dağları, Kullartatlar 2 km NE, leg. Anlaş; **Kayseri:** 2♂♂, 27.X.2012, Erciyes Mts., Hisarcık, 1829 m, 38°36'29"N, 35°30'49"E, pitfall traps; **Konya:** 11♂♂ 16♀♀, 27.VI.2010, Beyşehir, Kurucuova 3 km SW, 1200 m, 37˚40'27"N, 31˚22'38"E, pitfall traps; **Manisa:** 2♂♂, 14.III.2005, Turgutlu, Çıkrıkçı, ca. 300 m, 38˚28'N, 27˚49'E, leg. Anlaş; 1♂, 21.X.2006, Alaşehir, Azıtepe, leg. Anlaş; 1♂ 1♀, 11.III.2007, Turgutlu, Ovacık Yaylası, leg. Anlaş; **Şırnak:** 1♂ 1♀, 20.V.2010, Silopi, Görümlü, 1010 m, 37˚20'10"N, 42˚34'30"E, leg. Yağmur.

Distribution: This species is widespread in the western Palaearctic region (Herman 2001; Smetana 2004; Assing 2007b, 2009, 2011a,b).

***Xantholinus dvoraki* Coiffait, 1956** (Figs. 28–29)

Material examined: TURKEY: Tunceli: 1♂ 1♀, 19.V.2011, Pülümür, Kangallı, 1310 m, 38°25'37"N, 39°50'16"E, leg. Anlaş.

Distribution: The species was known from Europe, Caucasus region, Turkey and Central Asia (Coiffait 1956b, 1972; Herman 2001; Smetana 2004; Assing 2007b; Bordoni 2011). Previously, this species has been recorded from from Bolu and Kastamonu provinces in Turkey (Anlaş 2009; Assign 2011b). The specimens from Tunceli represent a new province record.

***Xantholinus longiventris* Heer, 1839**

Material examined: TURKEY: Afyonkarahisar: 1♂ 1♀, 11.VIII.2010, Şuhut, Dadak 2 km N, 1320 m, 38°36'18"N, 30°26'59"E, leg. Anlaş.

Distribution: The species is widespread in the Palaearctic region and has been recorded from Turkey (Smetana 2004). However the precise locality and even province for the Turkish record were unknown (Assing 2007b; Anlaş 2009). Thus, the two specimens listed above represent the first precise locality for *X. longiventris* in Turkey.

Subgenus *Helicophallus* Coiffait, 1956

***Xantholinus bitlisicus* Assing, 2007** (Figs. 30, 50)

Material examined: TURKEY: Bitlis: 2♂♂ 3♀♀, 24–26.IV.2009, Tatvan 3 km N, leg. Nabozhenko; 1♂, 07.VI.2010, Tatvan 10 km SW, ca. 2000 m, leg. Anlaş.

Distribution: This recently described species is known only from Bitlis province of Turkey (Assing 2007b).

***Xantholinus korgei* Coiffait, 1965** (Figs. 31, 50)

Material examined: TURKEY: Gümüşhane: 1♂, 14.V.2011, Torul, Kadırga Yaylası road, 2037 m, 40°41'00"N, 39°24'30"E, leg. Anlaş.

Distribution. This species is known only from Gümüşhane, Rize, Sinop? and Trabzon provinces of Turkey (Assing 2007b).

***Xantholinus luteipennis* Coiffait, 1970** (Figs. 32–33, 50)

Material examined: TURKEY: Gaziantep: 2♂♂, 25.V.2007, Islahiye, Hanağzı, 37°03'33"N, 36°36'24"E, leg. Yağmur; 2♂♂ 3♀♀, 15.XI.2010 and 18.XI.2010, Islahiye, Kabaklar, 775 m, 37°02'08"N, 36°34'03"E, leg. Anlaş & Yağmur; **Kahramanmaraş:** 1♂, 17.VI.2006, Elbistan, Taşburan, leg. Yağmur; **Siirt:** 1♂, 21.V.2010, Baykan 4 km NE, ca. 770 m, 38˚11'42"N, 41˚49'03"E, leg. Yağmur; 3♂♂ 5♀♀, 17.XI.2010, Baykan 4 km NE, ca. 770 m, 38˚11'42"N, 41˚49'03"E, leg. Anlaş & Yağmur; 1♂, 11.IV.2011, Central province 10 km SE, 666 m, 37˚57'04"N, 41˚49'47"E, leg. Yağmur.

Distribution: This species is known only from Adıyaman, Gaziantep and Kayseri provinces of Turkey (Assing 2007b). The specimens from Kahramanmaraş and Siirt represent a new province record.

Figures 24–29. Aedeagi of *Xantholinus*. **24–25,** *X. reitteri* Coiffai: aedeagus in dorsal view and distal internal structures of aedeagus in lateral view; **26–27,** *X. audrasi* Coiffait, internal structures of aedeagus in dorsal view; **28–29,** *X. dvoraki* Coiffait, aedeagus in dorsal and lateral view. Scale bars: 0.5 mm (Figs. 24, 26–29); 0.2 mm (Fig. 25).

Figures 30–33. Aedeagi of *Xantholinus* in dorsal view. **30,** *X. bitlisicus* Assing; **31,** *X. korgei* Coiffait; **32–33,** *X. luteipennis* Coiffait. Scale bars: 0.5 mm.

***Xantholinus tauricus* Bordoni, 1972** (Figs. 34, 50)

Material examined: TURKEY: Konya: 1♂, 27.VI.2010, Beyşehir, Kurucuova, İnönü cave entrance, 1259 m, 37˚40'31"N, 31˚22'15"E, leg. Yağmur.

Distribution: This species is known from Isparta and Konya (Sultan Dağları) in Turkey (Bordoni 1972; Assing 2007b).

Figures 34–36. Aedeagi of *Xantholinus*. **34,** *X. tauricus* Bordoni, aedeagus in dorsal view; **35–36,** *X. multispinosus* Assing, internal structures of aedeagus in squeeze preparation. Scale bars: 0.5 mm (Fig. 34); 0.2 mm (Figs. 35–36).

***Xantholinus multispinosus* Assing, 2007** (Figs. 35–36, 50)

Material examined: TURKEY: Antalya: 1♂, 09.I.2010, Alanya, Taşatan Yaylası, 1057 m, 36°37'53"N, 32°03'53"E, leg. Yağmur; **Isparta:** 1♂, 11.VIII.2010, Barla 10 km NE, environs of Eğirdir lake, 995 m, 38˚06'12"N, 30˚50'00"E, leg Anlaş; **Konya:** 2♂♂ 1♀, 10.XI.2011, Bozkır, Belören village, 1030 m, leg. Kesdek; **Mersin:** 1♂ 1♀, IX–XII. 2010, Mut, Sertavul pass, ca. 1600 m, pitfall traps, leg. Kunt.

Distribution: This recently described species has been known only from Mersin and Isparta provinces of Turkey (Assing 2007b, 2010). The specimens from Antalya and Konya represent a new province record.

Comments: According to Assing (2007b), *X. multispinosus* was originally described based on two males from Mersin province in southern Anatolia. Also, Assing (2010) recorded this species from Isparta (Barla Dağı) province in south western Anatolia. *Xantholinus brevispinosus* Assing, 2007 was originally described based on a single male from Antalya province (Geyik Dağları) in the southwestern Anatolia (Assing 2007b). According to Assing (2007b), the latter species is distinguished by a smaller aedeagus, internally with less numerous and shorter spines, in comparison to *X. multispinosus*. However, a comparison of the aedeagus of *X. multispinosus* from the vicinity of its type locality and other localities with the illustrations provided by Assing (2007b), revealed no important differences by *X. brevispinosus*. The external morphology and the internal structures of the aedeagus of *X. multispinosus* are similar to those of *X. brevispinosus*. Additional material is needed to confirm the status of the two species.

***Xantholinus* (*Helicophallus*) *ceviki* sp. nov.** (Figs. 37–42, 50)

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Type material: Holotype: TURKEY: ♂, "TR. Erzurum, Oltu, Obayolu village, Kırdağ, 2015 m, 40˚29'40"N, 42˚04'50"E, 16.VII.2012, leg. Koç & Yağmur / Holotypus ♂, *Xantholinus ceviki* **sp. n.** det. S. Anlaş 2013" (AZM). **Paratypes: TURKEY:** 1♀, same data as holotype (AZM); **Erzurum:** 1♂, Oltu, near Obayolu village, 2332 m, 40˚30'20"N, 42˚05'09"E, 15.VII.2012, leg. Koç (AZM); 2♂♂, Oltu, Bahçecik–Obayolu road, 1920 m, 40˚30'27"N, 42˚04'12"E, 16.VII.2012, leg. Koç & Yağmur (AZM); 1♂, Palandöken, 23.V.2010, leg. Shokhin (AZM); **Ardahan:** 1♂, 3♀♀, Hanak, Yünbüken, 11.VII.2012, leg. Altın (AZM); 1♂, Hanak, Sulakçayır, Aşağı Göçüt environs, 13.VIII.2012, leg. Altın (AZM).

Description

Measurements (in mm) and ratios (range, arithmetic mean; n=11): AL: 1.71–1.90, 1.81; HL: 1.47–1.54, 1.50; HW: 1.22–1.30, 1.26; PW: 0.99–1.12, 1.04; PL: 1.39–1.55, 1.47; EL: 1.16–1.28, 1.23; EW: 1.24–1.33, 1.28; AW: 1.27–1.33, 1.30; TiL: 0.85–0.89, 0.87; TaL: 0.67–0.70, 0.69; ML: 1.24–1.31, 1.27 (n=7); TL: 9.2–9.9, 9.6; HL/HW: 1.18–1.20, 1.19; PW/HW: 0.81–0.86, 0.83; PW/PL: 0.71–0.72, 0.72; EL/PL: 0.83–0.84, 0.84; EW/PW: 1.19–1.25, 1.23; AW/EW: 1.00–1.02, 1.01; TiL/TaL: 1.27.

Habitus as in Fig. 37. Coloration: head reddish brown to dark brown, pronotum yellowish brown to reddish brown, head always somewhat darker than pronotum, elytra yellowish red to bright reddish, abdomen reddish brown to brown; legs dark yellowish, antennae reddish to brown.

Head oblong (see ratio HL/HW and Figs. 37, 38); eyes small, not distinctly projecting from lateral outline of head, approximately 1/5 the length of postocular region in dorsal view;

punctation sparse and relatively fine, central dorsal region almost without punctures, microsculpture present only in posterior and lateral areas of head; antenna not slender, with 8-10 antennomeres weakly transverse, at most 1.5 times as wide as long (Fig. 39).

Pronotum narrower than head (see ratio PW/HW and Figs. 37, 38), and oblong (see ratio PW/PL and Figs. 37, 38); distinctly tapering posteriad; lateral margins almost straight in dorsal view; dorsal series composed of 9–13 punctures; microsculpture absent.

Elytra wider than pronotum and of variable length, at suture distinctly shorter than pronotum (see ratio EL/PL, EW/PW and Figs. 37, 38), punctation rather coarse, dense, and well-defined. Hind wings reduced.

Abdomen approximately as wide as elytra (see ratio AW/EW and Fig. 37); punctation fine and sparse; all tergites with shallow transverse microsculpture and well-defined, pubescense blackish; posterior margin of tergite VII without palisade fringe.

♂: Posterior margins of tergite and sternite VIII weakly convex and narrowly semitransparent; aedeagus with internal structures composed of two long proximal series, one of them with 30–40 long and slender spines and the other with long and short wide-based spines, a distal series of approximately 15–20 long and slender spines, a second distal series of approximately 15 shorter spines, and a distal brush-like cluster of long and sclerotised spines (Figs. 40–42).

Comparative notes: The species is distinguished from all its congeners by the internal structures of the aedeagus. Particularly, it can be separated from other *Helicophallus* species occurring in the northeastern and eastern Turkey as follows: from *X. bitlisicus* (Fig. 30) by more numerous sclerotized spines of the distal brush-like cluster; from *X. korgei* (Fig. 31) by not separate additional distal series of spines (Figs. 31 and 41) and by more strongly sclerotized spines of the distal brush-like cluster; from both *X. bitlisicus* and *X. korgei* by different coloration (*X. bitlisicus*: head and pronotum reddish brown to dark brown, elytra bright reddish; abdomen brown to blackish brown; *X. korgei*: elytra dark brown). For illustrations of the habitus and genitalia of these species see Figs. 30–31 and Assing (2007b).

The type material was collected in two provinces bordering with Georgia and Armenia, from where several *Helicophallus* species have been recorded. The new species can be separated from other *Helicophallus* species occurring in Georgia and Armenia, as follows: from *X. maykopensis* Coiffait, 1966 (northwestern Caucasus region and Georgia) by different coloration and distally distinctly shorter and slender spines in the aedeagus; from *X. kirschenblatti* Bordoni, 1975 (Armenia) by different coloration and a larger aedeagus with distally longer and more slender spines; from *X. variabilis* Hochhuth, 1851 (Armenia and Georgia) by different coloration and the morphology of the series of spines in the aedeagus (In *X. ceviki* **sp. nov.** the short distal series is composed of stronger spines; the long distal series is composed of shorter and much more numerous spines).

The new species differs from the other *Helicophallus* species occurring in the Caucasus region (*X. coiffaitianus* Bordoni, 1975; *X. vinicolor* Ushakov, 1989; *X. biseriatus* Bordoni, 2011; *X. circassicus* Bordoni, 2011; *X. daghestanicus* Bordoni, 2011) by different coloration and denser and more numerous sclerotised spines of the distal brush-like cluster. For illustrations of the genitalia of *Helicophallus* species occurring in Caucasus see Coiffait (1966a, 1971, 1972), Bordoni (1975, 2011) and Ushakov (1989).

Comments: Korge (1973) recorded and identified this new species as *X. araxis* Reitter, 1898 from the northern Kars province of Turkey. The localities listed by Korge are now in Ardahan province (Kısır Mts., Çıldır and Dereyolu Village, Göle). The new species can be reliably distinguished from *X. araxis* by the morphology of the spine series in the aedeagus:

Figures 37–42. Details of *Xantholinus* (*Helicophallus*) *ceviki* **sp. nov. 37,** habitus; **38,** forebody; **39,** antenna; **40–42,** aedeagus in lateral and dorsal view. Scale bars: 1.0 mm (Figs. 37–38); 0.2 mm (Fig. 39); 0.5 mm (Figs. 40–42).

in *X. ceviki* **sp. nov.** the long distal series is composed of shorter and much more numerous spines, the distal brush-like cluster is composed of denser and more numerous spines. For illustrations of the genitalia of *X. araxis* see Coiffait (1972) and Bordoni (1975).

Etymology: The species is dedicated to Prof. Dr. İbrahim Ethem Çevik, Izmir, who has carried out important zoological research in Turkey.

Distribution: The species was collected in several localities in Erzurum and Ardahan provinces of Northeast Anatolia (Fig. 50).

***Xantholinus* (*Helicophallus*) *khachikovi* sp. nov.** (Figs. 43–48, 50)

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Type material. Holotype: TURKEY: ♂, "TR. Muş, Varto, 1790 m, 39˚10'21"N, 41˚27'15"E, 31.V.2011, leg. Khachikov / Holotypus ♂, *Xantholinus khachikovi* **sp. n.** det. S. Anlaş 2013" (AZM). **Paratypes: TURKEY:** 1♀, same data as holotype (AZM), **Muş:** 1♂, Hasköy, Yarkaya, 20.X.2012, leg. Gündüz (AZM).

Description

Measurements (in mm) and ratios (range, n=3): AL: 1.62–1.74; HL: 1.22–1.25; HW: 0.97–0.99; PW: 0.87–0.89; PL: 1.30–1.34; EL: 0.89–0.93; EW: 1.10–1.16; AW: 1.08–1.12; TiL: 0.75–0.78; TaL: 0.62–0.64; ML: 1.29–1.30 (n=2); TL: 8.3–8.6; HL/HW: 1.26; PW/HW: 0.90; PW/PL: 0.66–0.67; EL/PL: 0.68–0.69; EW/PW: 1.26–1.30; AW/EW: 0.97–0.98; TiL/TaL: 1.21–1.22.

Habitus as in Fig. 43. Coloration: head and pronotum dark brown, elytra yellowish red, abdomen blackish brown; legs dark yellowish, antennae reddish to brown.

Head oblong (see ratio HL/HW and Figs. 43, 44); eyes small, not distinctly projecting from lateral outline of head, little more than 1/4 the length of postocular region in dorsal view; punctation sparse and relatively fine, central dorsal region almost without punctures, microsculpture present only in posterior and lateral areas of head; Antenna not slender, with 9-10 antennomeres weakly transverse, less than 1.5 times as wide as long (Fig. 45).

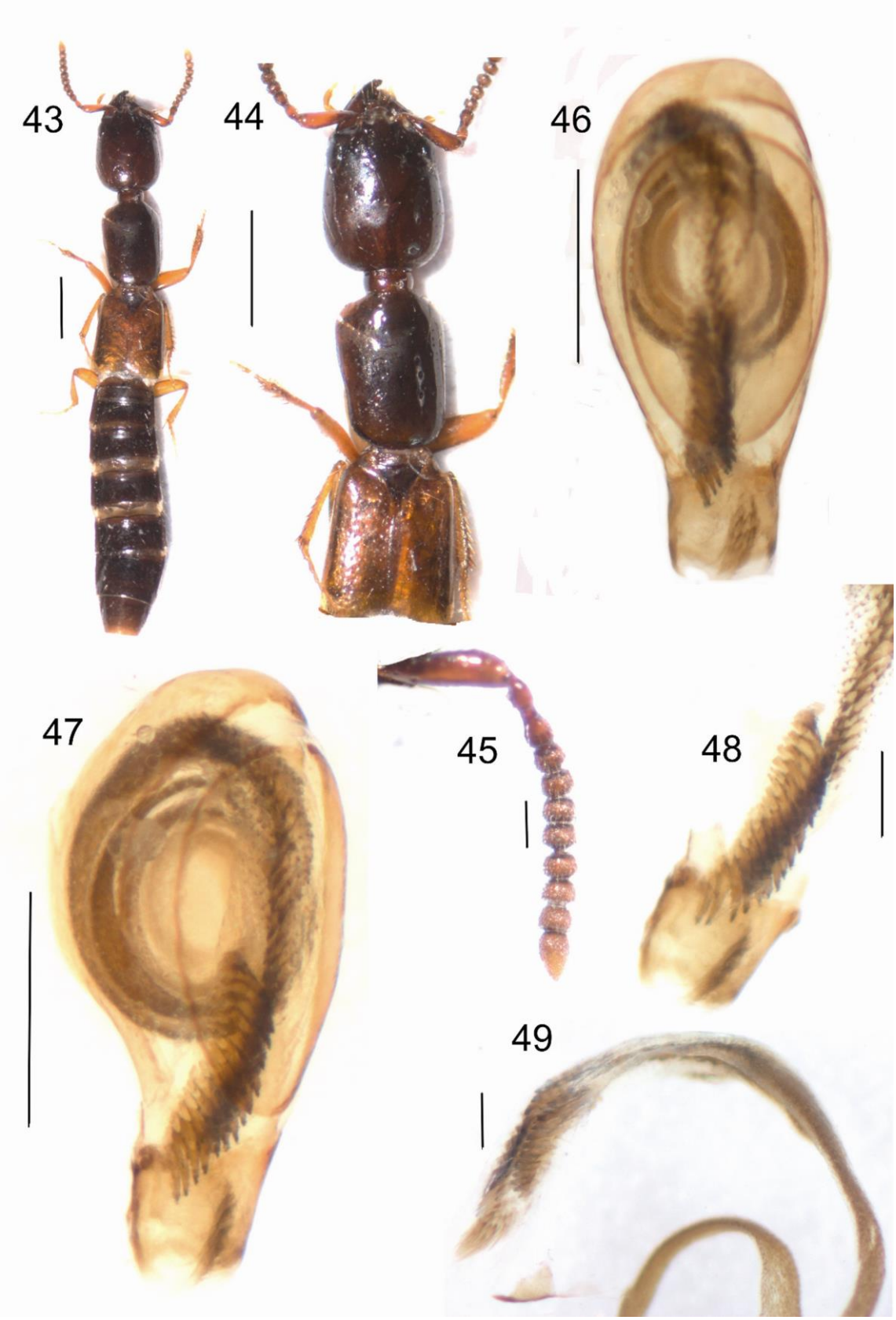
Pronotum narrower than head (see ratio PW/HW and Figs. 43, 44), and distinctly oblong (see ratio PW/PL and Figs. 43, 44); distinctly tapering posteriad; lateral margins almost straight in dorsal view; dorsal series composed of 10–11 punctures; microsculpture absent.

Elytra wider than pronotum, at suture distinctly shorter than pronotum (see ratios EL/PL, EW/PW and Figs. 43, 44), punctation rather coarse, dense, and well-defined. Hind wings reduced.

Abdomen slightly narrower than elytra (see ratio AW/EW and Fig. 43); punctation fine and sparse; all tergites with transverse microsculpture and well-defined, pubescense blackish; posterior margin of tergite VII without palisade fringe.

♂: Posterior margins of tergite and sternite VIII weakly convex; aedeagus relatively large, internally with relatively few short spines (Figs. 46–49).

Comparative notes: The new species is distinguished among all its congeners by the internal structures of the aedeagus. It differs from the other *Helicophallus* species occurring in the northeastern and eastern Turkey as follows: from *X. bitlisicus* (Fig. 30) by the morphology of the spine series (in *X. khachikovi* the distal series is composed of much larger and less numerous spines) and by the presence of a distal brush-like cluster of semitransparent spines;



Figures 43–49. Details of *Xantholinus* (*Helicophallus*) *khachikovi* **sp. nov. 43,** habitus; **44,** forebody; **45,** antenna; **46–47,** aedeagus in lateral and dorsal view; **48–49,** internal structures of aedeagus in squeeze preparation. Scale bars: 1.0 mm (Figs. 43–44); 0.2 mm (Fig. 45, 48–49); 0.5 mm (Figs. 46–47).

from *X. korgei* (Fig. 31) by not a separate additional distal series of spines; from *X. luteipennis* by less dense and less numerous sclerotised spines in the aedeagus; from *X. ceviki* by the distal series composed of much larger spines and by less dense and less numerous spines of the distal brush-like cluster. In addition, the new species differs from all four species, *X. bitlisicus*, *X. korgei*, *X. luteipennis* and *X. ceviki*, by a different coloration (in *X. bitlisicus* head and pronotum reddish brown to dark brown, elytra bright reddish and abdomen brown to blackish brown; in *X. korgei* elytra dark brown; in *X. luteipennis* head and pronotum blackish; in *X. ceviki* head reddish brown to dark brown and pronotum yellowish brown to reddish brown). For illustrations of the habitus and genitalia of the four species see Figs. 30–33, 37–42, and Assing (2007b).

The type material was collected in Muş province, not far from Iran, Nakhchivan (Azerbaijan) and Armenia, from where several *Helicophallus* species have been recorded. From other *Helicophallus* species occurring in the region, the new species can be separated as follows: from *X. kirschenblati* (Armenia) by a larger aedeagus with less dense and less numerous spines of the distal brush-like cluster; from *X. variabilis* (Armenia and Georgia) by different coloration and an aedeagus with distally larger and longer spines; from *X. araxis* (Iran and Azerbaijan) by different coloration and a larger aedeagus distally with longer and stronger spines; from *X. coiffaitianus* (Azerbaijan) by completely different internal structures of the aedeagus; from *X. maykopensis* (Northwestern Caucasus region and Georgia) by distally shorter and slender spines in the aedeagus.

Many species of *Helicophallus* are difficult to distinguish and in the Caucasus many of them have not been revised. In order to compare the two new species described here (*X. ceviki* and *X. khachikovi*), I examined numerous specimens of *Xantholinus* from the Caucasus and Iran (*X. araxis*, *X. maykopensis*, *X. vinicolor*, *X. biseriatus*, *X. circassicus*, *X. daghestanicus* and also some undescribed species). Unfortunately, for some species (*X. coiffaitianus*, *X. variabilis* and *X. kirschenblati*) no material was available to me and I compared them with the new species based on published papers.

Etymology: The species is dedicated to Edward A. Khachikov, Rostov, Russia, a specialist on Staphylininae, who collected the two of the type specimens from Muş province.

Distribution: The species was collected in only two localities, Varto and Hasköy, in Muş province of Eastern Anatolia (Fig. 50).

Checklist of *Xantholinus*

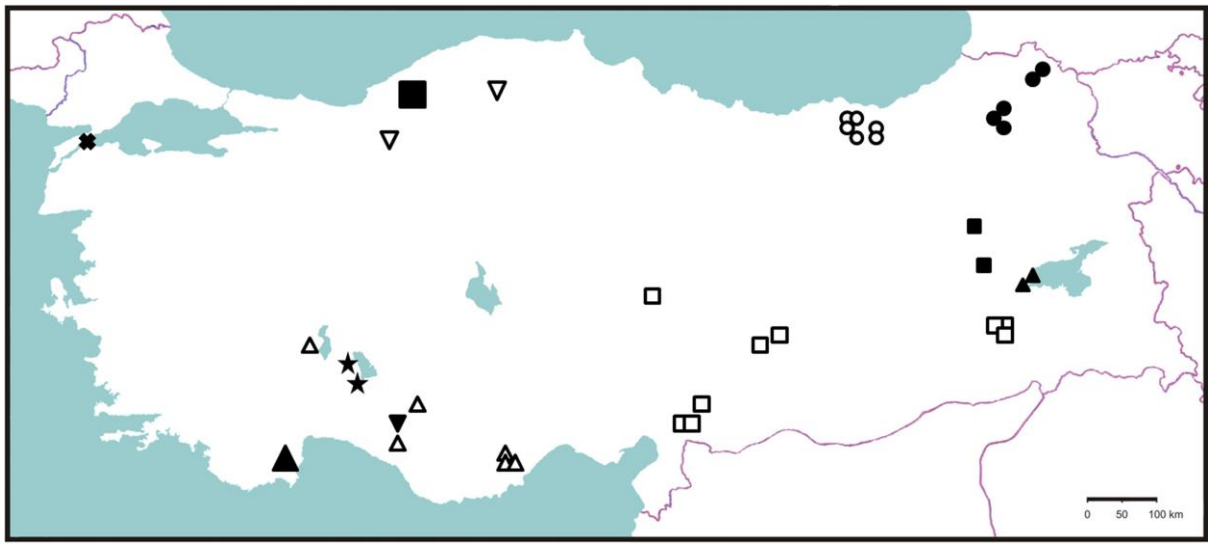
A distributional checklist of *Xantholinus* (Staphylinidae: Staphylininae: Xantholinini) of Turkey is presented as in Table 1.

Table 1. Distributional checklist of *Xantholinus* (Staphylinidae: Staphylininae: Xantholinini) of Turkey.

Species	**Provinces and/or localities**	**References**
X. (*s. str*) *audrasi* Coiffait, 1956	Afyonkarahisar, Amasya, Ankara, Antalya, Ardahan, Artvin, Bayburt, Bolu, Burdur, Çankırı, Edirne, Erzurum, Gaziantep, Giresun, Izmir, Kahramanmaraş, Kars, Kayseri, Konya, Manisa, Mersin, Muğla,	Bordoni (1971, 1973), Coiffait (1965, 1972, 1978), Herman (2001), Assing (2003, 2006e, 2007a, b, 2009), Smetana (2004), Anlaş (2009), Anlaş & Rose (2009), Kesdek *et al.* (2009), Anlaş (present paper)

	Ordu, Samsun, Şırnak, Tokat, Tunceli	
X. (*Calolinus*) *bayrami* **sp. nov.**	Konya	Anlaş (present paper); Endemic
X. (*Helicophallus*) *bitlisicus* Assing, 2007	Bitlis	Assing (2007b), Anlaş (present paper); Endemic
X. (*Helicophallus*) *brevispinosus* Assing, 2007	Antalya	Assing (2007b); Endemic
X. (*Helicophallus*) *ceviki* **sp. nov.**	Ardahan, Erzurum	Anlaş (present paper); Endemic
X. (*Helicophallus*) *chersonesicus* Assing, 2007	Çanakkale [Gelibolu (=Gallipoli)]	Assing (2007b); Endemic
X. (*Heterolius*) *caucasicus* Bordoni, 1975	Artvin	Bordoni (1975), Smetana (2004), Assing (2007b), Anlaş (present paper)
X. (*Idiolinus*) *ciliciae* Bordoni, 1971	Adana, Adıyaman, Antalya, Hatay, Kahramanmaraş, Mersin, Niğde, Osmaniye	Bordoni (1971, 1976a, 1994), Öncüer (1991), Herman (2001), Assing (2004, 2007b, 2013), Smetana (2004), Anlaş (present paper)
X. (*s. str*) *coiffaiti* Franz, 1966	Istanbul, Samsun	Assing (2007b, 2009)
X. (*Idiolinus*) *crassicornis* Hochhuth, 1851	Ardahan, Artvin	Bordoni (1971, 1975), Coiffait (1972), Korge (1973), Herman (2001), Smetana (2004), Assing (2007b), Anlaş (present paper)
X. (*s. str*) *dvoraki* Coiffait, 1956	Bolu, Tunceli	Coiffait (1966b, 1972), Bordoni (1971, 2007a), Gusarov (2002), Smetana (2004), Assing (2007b, 2008), Anlaş (present paper)
X. (*Helicophallus*) *faginus* Assing, 2011	Zonguldak (Devrek)	Assing (2011b); Endemic
X. (*Heterolius*) *fortepunctatus* Motschulsky, 1860	Artvin, Bitlis, Gümüşhane, Tunceli	Assing (2007b), Anlaş (present paper)
X. (*Typhlolinus*) *graecus* Kraatz, 1858	Adana, Antalya, Bursa,Diyarbakır, Gaziantep, Hatay, Isparta, Izmir, Kahramanmaraş, Kastamonu, Kırklareli, Kütahya, Manisa, Mersin, Muğla, Osmaniye, Sinop, Central Anatolia?	Bordoni (1971, 1976a, 1999, 2007b), Coiffait (1956a, 1972), Öncüer (1991), Herman (2001), Smetana (2004), Assing (2006, 2007a, b), Anlaş & Rose (2009), Anlaş (present paper)
X. (*Typhlolinus*) *grandespinosus* Assing, 2006	Amasya, Ordu, Samsun	Assing (2006, 2007a, b, 2009); Endemic
X. (*Typhlolinus*) *gridelli* Coiffait, 1956	Gaziantep	Assing (2007b)
X. (*Toxophallus*) *heinzi* Coiffait, 1970	Rize	Coiffait (1970, 1972), Bordoni (1971), Öncüer (1991), Smetana (2004), Assing (2007b); Endemic
X. (*Calolinus*) *ibex* Assing, 2007	Antalya, Muğla	Assing (2007b); Endemic
X. (*Helicophallus*) *ilgazensis* Coiffait, 1966	Bolu, Kastamonu	Coiffait (1966b, 1972), Bordoni (1971, 1975), Öncüer (1991), Herman (2001), Smetana (2004), Assing (2007b, 2011b); Endemic
X. (*Helicophallus*) *khachikovi* **sp. nov.**	Muş	Anlaş (present paper); Endemic
X. (*Helicophallus*) *korgei* Coiffait, 1965	Gümüşhane, Rize, Sinop?, Trabzon	Coiffait (1965, 1972, 1978), Bordoni (1971, 1972, 1975, 1976b), Herman (2001), Assing (2007b), Anlaş (present

		paper); Endemic
X. (*Typhlolinus*) *laevigatus* Jacobsen, 1849	Bolu, Bursa, Düzce, Gaziantep, Izmir, Kastamonu, Manisa, Mersin	Bordoni (1971, 1975, 1976a,b, 2007b), Coiffait (1965, 1972), Öncüer (1991), Herman (2001), Tezcan & Amiryan (2003), Smetana (2004), Assing (2006, 2007b, 2013), Anlaş (present paper)
X. (*Helicophallus*) *lividipennis* Coiffait, 1972	Antalya	Coiffait (1972), Herman (2001), Smetana (2004), Assing (2007b); Endemic
X. (*s. str*) *longiventris* Heer, 1839	Afyonkarahisar	Coiffait (1972), Bordoni (1976a), Smetana (2004), Assing (2007b), Anlaş (present paper)
X. (*Helicophallus*) *luteipennis* Coiffait, 1970	Adıyaman, Gaziantep, Kahramanmaraş, Kayseri, Siirt	Coiffait (1970, 1972, 1975), Bordoni (1971), Öncüer (1991), Herman (2001), Smetana (2004), Assing (2007b), Anlaş (present paper); Endemic
X. (*Calolinus*) *marasicus* Assing, 2007	Adıyaman, Gaziantep, Hatay, Kahramanmaraş, Osmaniye, Siirt, Şanlıurfa	Assing (2007b, 2009), Anlaş & Rose (2009), Anlaş (present paper); Endemic
X. (*Milichilinus*) *meybohmi* Assing, 2006	Kahramanmaraş, Osmaniye?	Assing (2006, 2007b), Bordoni (2007a); Endemic
X. (*Helicophallus*) *multispinosus* Assing, 2007	Antalya, Isparta, Konya, Mersin	Assing (2007b, 2010), Anlaş (present paper); Endemic
X. (*Typhlolinus*) *osellai* Bordoni, 1976	Bolu, Karabük, Kastamonu, Sinop	Bordoni (1976b), Herman (2001), Smetana (2004), Assing (2007a,b, 2010, 2011b), Anlaş (present paper); Endemic
X. (*Calolinus*) *penicillatus* Assing, 2007	Antalya, Konya, Muğla	Assing (2007b), Anlaş (present paper); Endemic
X. (*Paracyclinus*) *procerus* Erichson, 1839	Ankara–Çankırı (southern Çerkeş, Işık Dağı), Bolu	Assing (2007b)
X. (*Calolinus*) *puthzi* Bordoni, 1979	Antalya, Kahramanmaraş, Mersin–Karaman border (Sertavul Geçidi)	Bordoni (1979, 1983), Herman (2001), Smetana (2004), Assing (2007b); Endemic
X. (*Typhlolinus*) *reitteri* Coiffait, 1966	Artvin, Kahramanmaraş, Rize	Assing (2007b), Anlaş (present paper)
X. (*Calolinus*) *rufipennis* Erichson, 1839	Adıyaman, Afyonkarahisar, Antalya, Aydın, Balıkesir, Bilecik, Bursa, Çanakkale, Diyarbakır, Gaziantep, Hatay, Istanbul, Izmir, Kahramanmaraş, Kilis, Malatya, Mardin, Manisa, Mersin, Muğla, Osmaniye, Siirt, Sinop, Şırnak, Tunceli, Uşak, Zonguldak	Apfelbeck (1901), Bernhauer (1910), J. Sahlberg (1913), Bordoni (1971, 1976a, 1979, 1994, 2003, 2007a), Coiffait (1966b, 1972), Öncüer (1991), Herman (2001), Assing (2003, 2006, 2007b), Smetana (2004), Anlaş (2009), Tezcan & Anlaş (2009), Anlaş (present paper)
X. (*Helicophallus*) *tauricus* Bordoni, 1972	Isparta, Konya	Bordoni (1972, 1975, 1976a), Herman (2001), Smetana (2004), Assing (2007b), Anlaş (present paper); Endemic
X. (*Purrolinus*) *tricolor* (Fabricius, 1787)	Artvin	Anlaş (present paper)
X. (*Typhlolinus*) *varnensis* Coiffait, 1972	Bursa, Izmir, Kırklareli, Kütahya, Manisa, Muğla, Lyciae Taurus?	Bordoni (1976a, 1999, 2003), Assing (2008)
X. (*Typhlolinus*) *wunderlei* Bordoni, 1994	Antalya (Manavgat)	Bordoni (1994), Herman (2001), Smetana (2004), Assing (2007b); Endemic



Figures 50. Distributions of the Turkish *Helicophallus* species: *Xantholinus bitlisicus* Assing (small filled triangles), *X. brevispinosus* Assing (filled upside down triangle), *X. ceviki* **sp. nov.** (filled circles), *X. chersonesicus* Assing (crosier), *X. faginus* Assing (large filled square), *X. ilgazensis* Coiffait (open upside down triangles), *X. khachikovi* **sp. nov.** (small filled squares), *X. korgei* Coiffait (open circles), *X. lividipennis* Coiffait (large filled triangle), *X. luteipennis* Coiffait (small open squares), *X. multispinosus* Assing (small open triangles) and *X. tauricus* Bordoni (stars). The dubious record of *X. korgei* in Sinop province is omitted.

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