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**On *Quedius coloratus* FAUVEL, 1875 and allied species,
with an appendix on *Quedius* species collected in Greece with
subterranean pitfall traps, and a new synonymy
(Coleoptera: Staphylinidae: Staphylininae)**

Volker ASSING

A b s t r a c t : A revision of material previously identified as *Quedius coloratus* FAUVEL, 1875 revealed that it is composed of at least five species: *Q. (Raphirus) coloratus* (Middle East); *Q. (R.) hellenicus* nov.sp. (Greece); *Q. (R.) hebes* nov.sp. (South Anatolia); *Q. (R.) spiculatus* nov.sp. (North Anatolia); *Q. (R.) carpathius* nov.sp. (Karpathos). These species, as well as one male possibly representing a sixth species (Greece: Thessalía) are described and illustrated. Available evidence suggests that their habitats are subterranean and their distributions are allo- or parapatric. All the named species are presumably capable of flight. A key to species is provided. In an appendix, additional records of three *Quedius* species collected in Greece with subterranean pitfall traps are reported. One of these species is reported from Greece for the first time. The distributions of the species allied to *Q. coloratus*, of *Q. (Microsaurus) bernhaueri* RAMBOUSEK, 1915, and of *Q. (Raphirus) endogeus* ASSING, 2007 are mapped. *Quedius endogeus*, a species previously known only from two localities, is widespread in Greece and evidently a true inhabitant of the "Superficial Subterranean Habitat" (MSS stratum). *Quedius crnagoricus* COIFFAIT, 1980, nov.syn., is placed in synonymy with *Q. paradisianus* (HEER, 1839).

K e y w o r d s : Coleoptera, Staphylinidae, Staphylininae, Quediina, *Quedius coloratus*, East Mediterranean, taxonomy, new species, new synonymy, new records, distribution maps, superficial subterranean habitat, MSS.

Introduction

Quedius coloratus was described by FAUVEL (1875) based on material from the environs of Nablus (today in West Bank) and from Mount Hermon (border region of Lebanon, Syria, and Israel) in the Middle East. COIFFAIT (1978) assigned the species to the *Quedius picipes* group, which, aside from *Q. picipes* (MANNERHEIM, 1830) and *Q. coloratus*, also included *Q. caelebs* ROTTENBERG, 1870 (Sicily), *Q. alentejensis* COIFFAIT, 1963 (South Portugal), *Q. coxalis* KRAATZ, 1858 (East Mediterranean), *Q. obliteratus* ERICHSON, 1840 (today a junior synonym of *Q. humeralis* STEPHENS, 1832) (southern West Palaearctic), *Q. ramiroi* SCHEERPELTZ, 1951 (Iberian Peninsula), and *Q. sturanyi* GANGLBAUER, 1895 (eastern Alps). According to HERMAN (2001) and SCHÜLKE & SMETANA (2015), *Q. coloratus* has no junior synonyms and has been reported from Albania, Greece, Israel, Lebanon, Syria, and Turkey.

Material identified as *Q. coloratus* is remarkably scarce in the collections. For instance,

not a single specimen was found in the natural history museum in Vienna (H. Schillhammer, e-mail 10 January, 2017), which probably houses the largest collection of West Palaearctic Staphylinidae worldwide.

Material examined in the course of a revision of the *Q. obliquieseriatum* group (ASSING 2016) also included North Anatolian specimens from the Schülke collection which had been preliminarily identified as *Q. coloratus*. A subsequent comparison with material from Greece, South Turkey, and the Middle East revealed conspicuous differences in the shape of the aedeagus, suggesting that what had been treated as *Q. coloratus* in fact represented a group of closely related species and eventually initiating the present study.

Material and methods

The material treated in this study is deposited in the following collections:

MNB Museum für Naturkunde, Berlin (J. Frisch, B. Jaeger, M. Schülke)
 MNHNP Muséum National d'Histoire Naturelle, Paris (A. Taghavian)
 NMP National Museum of Natural History, Praha (J. Hájek)
 ZMC Zoological Museum, Natural History Museum of Denmark, Copenhagen (A. Solodovnikov)
 cAss author's private collection
 cFel private collection Benedikt Feldmann, Münster
 cWun private collection Paul Wunderle, Mönchengladbach

The morphological studies were conducted using a Stemi SV 11 microscope (Zeiss Germany) and a Jenalab compound microscope (Carl Zeiss Jena). The images were created using a photographing device constructed by Arved Lompe (Nienburg) and CombineZ software, as well as a digital camera (Nikon Coolpix 995). The maps were created using MapCreator 2.0 (primap) software.

The measurements in the descriptions are given in mm and abbreviated as follows: EL: length of elytra from apex of scutellum to elytral hind margin; HL: head length from anterior sclerotized margin of frons to posterior constriction; HW: maximal head width (across and including eyes); ML: length of median lobe of aedeagus; PL: length of pronotum along median line; PW: maximal width of pronotum; TaL: length of metatarsus (claws not included); TiL: length of metatibia (lateral aspect); TL: body length from apex of mandibles to posterior margin of tergite VIII.

The "parameral" side of the aedeagus (i.e., the side where the sperm duct enters) is referred to as the ventral, the opposite side as the dorsal aspect. The terminology of the punctures on the head and the pronotum follows SMETANA (1971).

Results

A revision of material from various localities in the East Mediterranean region revealed that what had been treated as *Quedius coloratus* in fact represents a complex of at least five closely related species distinguished not only by constant differences in the shape of the aedeagus, but partly also by external characters, particularly the punctuation pattern of the dorsal surface of the head. Based on external characters, these species form two

lineages, one of them with a discontinuous distribution (southern Balkans; Middle East) and comprising *Q. coloratus* and *Q. hellenicus*, the other distributed in Greece, Turkey, and Karpathos, and including *Q. hebes*, *Q. spiculatus*, and *Q. carpathius*. While the species of the former lineage only have a pair of posterior frontal and a pair of vertical punctures in the posterior portion of the head, there are usually one or more additional punctures near the posterior frontal punctures (at the postero-dorsal margins of the eyes, similar to the condition in the widespread *Q. picipes* (MANNERHEIM, 1830)) in the species of the latter lineage. Moreover, protarsomeres I-IV are less distinctly dilated and the female tergite X is more slender in *Q. coloratus* and *Q. hellenicus* than in *Q. hebes*, *Q. spiculatus*, and *Q. carpathius*. Species of the same lineage, however, may reliably be distinguished only based on the shape of the aedeagus, partly also based on the shape of the female tergite X.

The vast majority of the examined specimens was collected with subterranean pitfall traps (nearly all the material of *Q. hellenicus*), epigeic pitfall traps, and flight traps. Most of the remainder was apparently found under stones, as can be inferred from personal observations, information indicated on the labels, or from the fact that the collectors are carabidologists. Only few specimens were sifted from leaf litter, in most cases as singletons. These observations indicate that the true habitat of these species is subterranean, as has been shown or suggested also for several other species of *Raphirus* STEPHENS, 1829, such as *Q. nivicola* KIESENWETTER, 1858 (East Mediterranean) and *Q. endogeus* ASSING, 2007 (Greece) (ASSING 2007, 2016b).

The distribution patterns of *Q. coloratus* and allied species, all of them regionally endemic in the East Mediterranean, appears to be strictly para- or allopatric. At present, there is no evidence of overlapping distributions (Map 1).

Key to species

- 1 Head in posterior dorsal portion only with a pair of posterior frontal punctures and with a pair of vertical punctures (Figs 2-3, 6-7). Protarsomeres I-IV less dilated (Fig. 4). Aedeagus more slender in ventral view (Figs 23-24). 2
- Head with 1-3 additional (smaller) punctures near posterior frontal puncture and postero-dorsal margin of eye on either side (Figs 9, 11-12, 14-15). Protarsomeres I-IV more dilated (Fig. 13). Aedeagus less slender in ventral view (Figs 25-27). 3
- 2 Aedeagus (Figs 23, 28-29, 41-42) longer (1.28-1.37 mm); apical portion of median lobe longer and more slender; subapical tooth more distant from base of apex; paramere longer and more slender (Figs 30, 52). Female sternite X with deep and more or less U-shaped posterior excision (Fig. 16). Distribution: Middle East. *Q. coloratus* FAUVEL
- Aedeagus (Figs 24, 31-32, 43-45) shorter (1.16-1.23 mm); apical portion of median lobe shorter and less slender; subapical tooth closer to base of apex; paramere shorter and less slender (Figs 33, 53). Female sternite X (Fig. 17) with small posterior excision. Distribution: Greece. *Q. hellenicus* nov.sp.
- 3 Elytra short, only approximately half as long as pronotum at suture (Fig. 8). Hind wings of reduced length. Aedeagus (Figs 50-51, 57) smaller, less than 1.20 mm long. Distribution: Greece: Pelion. sp. 1
- Elytra longer, at least approximately 0.6 times as long as pronotum at suture (Fig. 10). Hind wings fully developed. Unknown from the Greek mainland. 4
- 4 Body smaller on average. Aedeagus < 1.30 mm long and shaped as in Figs 27, 40, 49. Paramere constricted in the middle (Fig. 56). Posterior excision of female tergite X very small (Fig. 20). Distribution: Karpathos. *Q. carpathius* nov.sp.

- Body larger on average. Aedeagus > 1.30 mm long and of different shape. Posterior excision of female tergite X less small. Distribution: Anatolia5
- 5 Apex of median lobe of aedeagus bent dorsad and apically convex in lateral view (Figs 34-35, 46). Distribution: South Anatolia *Q. hebes* nov.sp.
- Apex of median lobe of aedeagus not bent dorsad and apically acute in lateral view (Figs 37-38, 48). Distribution: North Anatolia *Q. spiculatus* nov.sp.

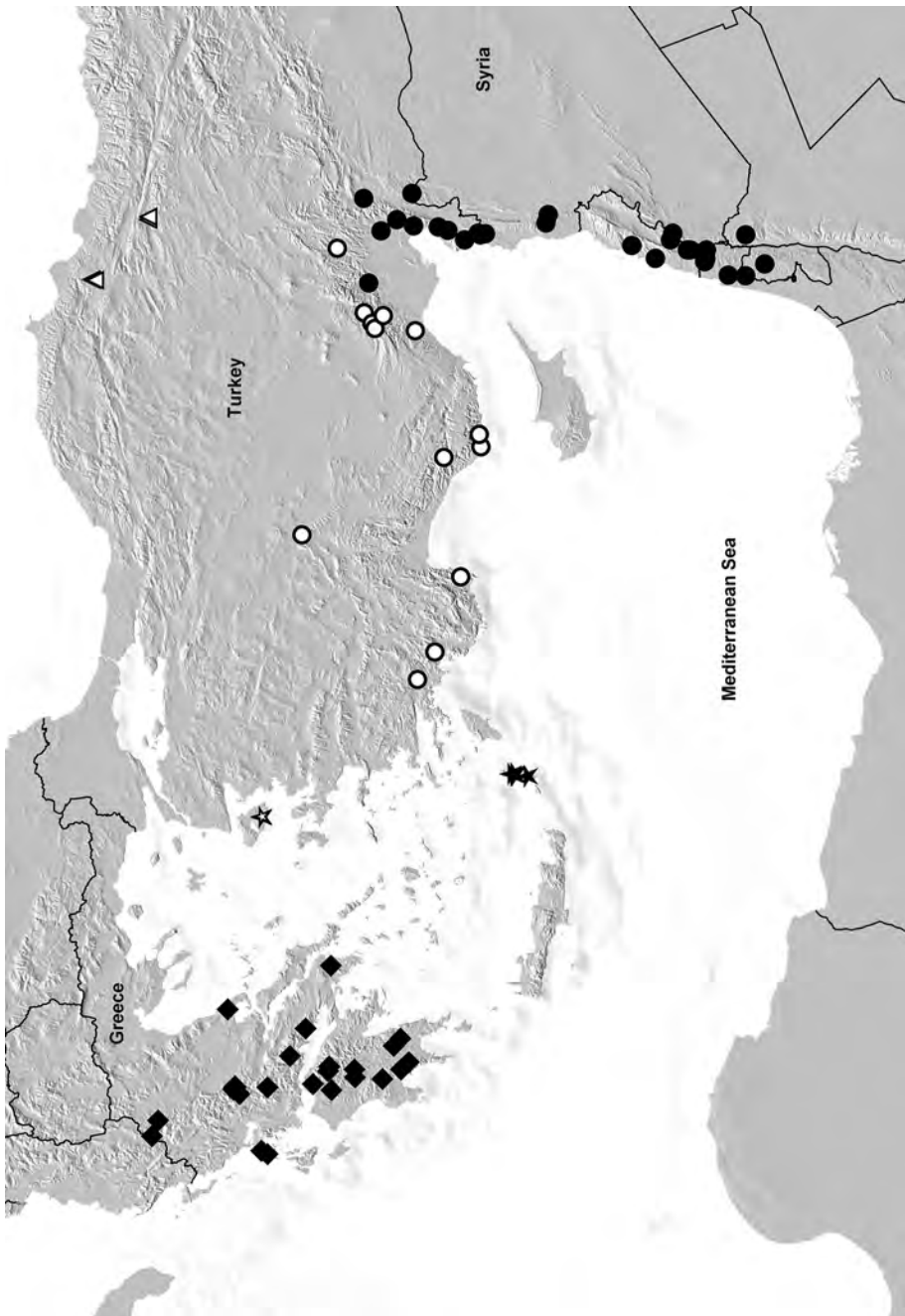
***Quedius (Raphirus) coloratus* FAUVEL, 1875** (Figs 1-4, 15, 21, 23, 28-30, 41-42, 52, 58, Map 1)

Quedius coloratus FAUVEL, 1875: xxxiii.

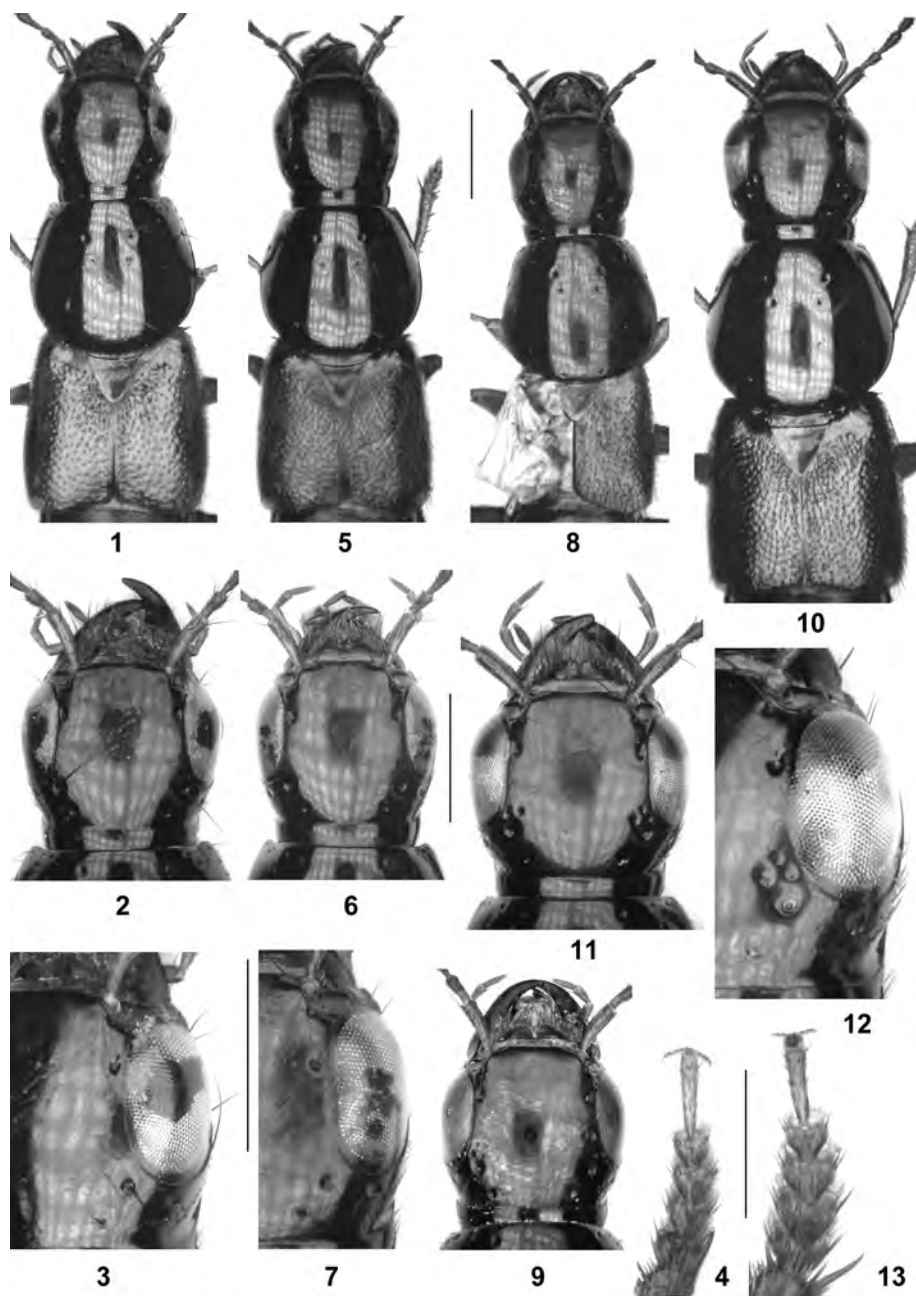
M a t e r i a l e x a m i n e d : Israel: 4♂♂, 1♀, Har Meron, 33°00'N, 35°25'E, 1110 m, forest, pitfall, 11.V.2010, leg. Drees (cAss); 1♂, Upper Galilee, Meron Mts., Nakhar (Wadi) Moran, 1 km W Meron field school, ca 900 m, leaf litter sifted, 11.III.2008, leg. Wrase (MNB); 5♂♂, 3♀♀, Upper Galilee, Meron env., "Appleplot", 33°01'N, 35°24'E, flight trap, 15.V.-5.VI.2007, leg. Buse (cFel, cAss, ZMC); 2♀♀, Upper Galilee, Tel Hay, 200-400 m, 5.IV.1985, leg. Heinz (MNB); 1♀, Lower Galilee, Qiryat Tiv'on, 3.V.2007, leg. Orbach (ZMC); 1♀ [teneral], Tel Hay env. near Kiryat Shmona, 200-400 m, 8.IV.1985, leg. Heinz (MNB); 1♂, 4♀♀, Upper Galilee, 3 km N Rosh Pinna, Hazor, 300-400 m, 2.IV.1985, leg. Heinz (MNB); 1♂, Megiddo env., Menashe Forest, 200-300 m, 7.IV.1987, leg. Heinz (MNB); 1♀ [teneral], Shomeron, SW Megiddo, Qazir, 400-500 m, 25.IV.1987, leg. Heinz (MNB); 1♀, Shomeron: Irit near Aqaba, 500-600 m, 24.IV.1987, leg. Heinz (MNB). Jordan: 1♂, Irbid, Zubia, 32°27'N, 35°45'E, 670 m, 22.II.2014, leg. Starke (cFel). Syria: 1♀, "Umg. Btar", W Masyaf, 700-900 m, 8.IV.1988, leg. Heinz (MNB); 1♀, Qadmous env., 700-1000 m, 11.IV.1978, leg. Heinz (MNB). Lebanon: 1♂, Rayfoun, ca 33°58'N, 35°42'E, 990 m, mixed oak forest, pitfall trap, 22.IV.-10.V.2016, leg. Reuter (cFel); 1♀, Nahr es Safa [33°40'N, 35°28'E], 12.X.1951, leg. Coiffait (MNHNP). Turkey: H a t a y : 1♂ [teneral], Nur Dağı, E Dörtöyl, 36°51'N, 36°17'E, 300 m, 20.IV.2009, leg. Brachat & Meybohm (cAss); 1♂ [teneral], Nur Dağı, N Belen Geçidi, 36°31'N, 36°14'E, 1010 m, leg. Brachat & Meybohm (ZMC); 1♂, Ziyaret Dağı, Leylekli, 35°58'N, 36°03'E, 510 m, leg. Besuchet (cAss); 1♀, Ziyaret Dağı, W Sungur, 36°00'N, 36°05'E, 760 m, 21.IV.2004, leg. Besuchet (cAss); 1♂ [slightly teneral], 1♀ [teneral], Seriyol ["Bedirge"] - Çerkesköy, 400 m, 7.IV.1980, leg. Heinz (MNB); 1♀ [slightly teneral], same data, but 20.IV.1981, leg. Heinz (MNB); 1♀, Yayladağı env., 600-900 m, 13.IV.1992, leg. Heinz (MNB); 1♀, Kızıldağ, NW Teknepinar, 36°11'N, 35°59'E, 380 m, sifted, 28.IV.2002, leg. Meybohm (ZMC). O s m a n i y e : 1♀, Yarpuz, 37°04'N, 36°24'E, 920 m, 30.IV.2004, leg. Besuchet (cAss). G a z i a n t e p : 1♀ [teneral], 32 km NW Kilis, Martavan [36°50'N, 36°49'E], 600 m, 15.IV.1981, leg. Heinz (MNB). K a h r a m a n m a r a ş : 1♀, 20 km SW Hopurlu, 37°29'N, 36°48'E, 520 m, 27.IV.2004, leg. Besuchet" (cAss). A d a n a : 1♀, SW Hasandede Geçidi, NE Kayadibi, 37°30'N, 35°23'E, 1230 m, 26.IV.2007, leg. Brachat & Meybohm (cAss); 1♂, Karatepe, 37°17'N, 36°14'E, 200 m, laurel forest, 1.V.2002, leg. Meybohm (cAss); 1♀, Karatepe, 37°17'N, 36°14'E, 200 m, laurel forest, 24.IV.-1.V.2002, leg. Brachat & Meybohm (ZMC).

C o m m e n t : The original description is based on an unspecified number of syntypes from "Syrie, Naplouse [today Nablus in West Bank; 32°13'N, 35°16'E], Djebel-ech-Cheik [= Mount Hermon]" (FAUVEL 1875). SMETANA (1978) designated the sole syntype in the Fauvel collection (labelled "Naplouse") as the lectotype and provided figures of its aedeagus.

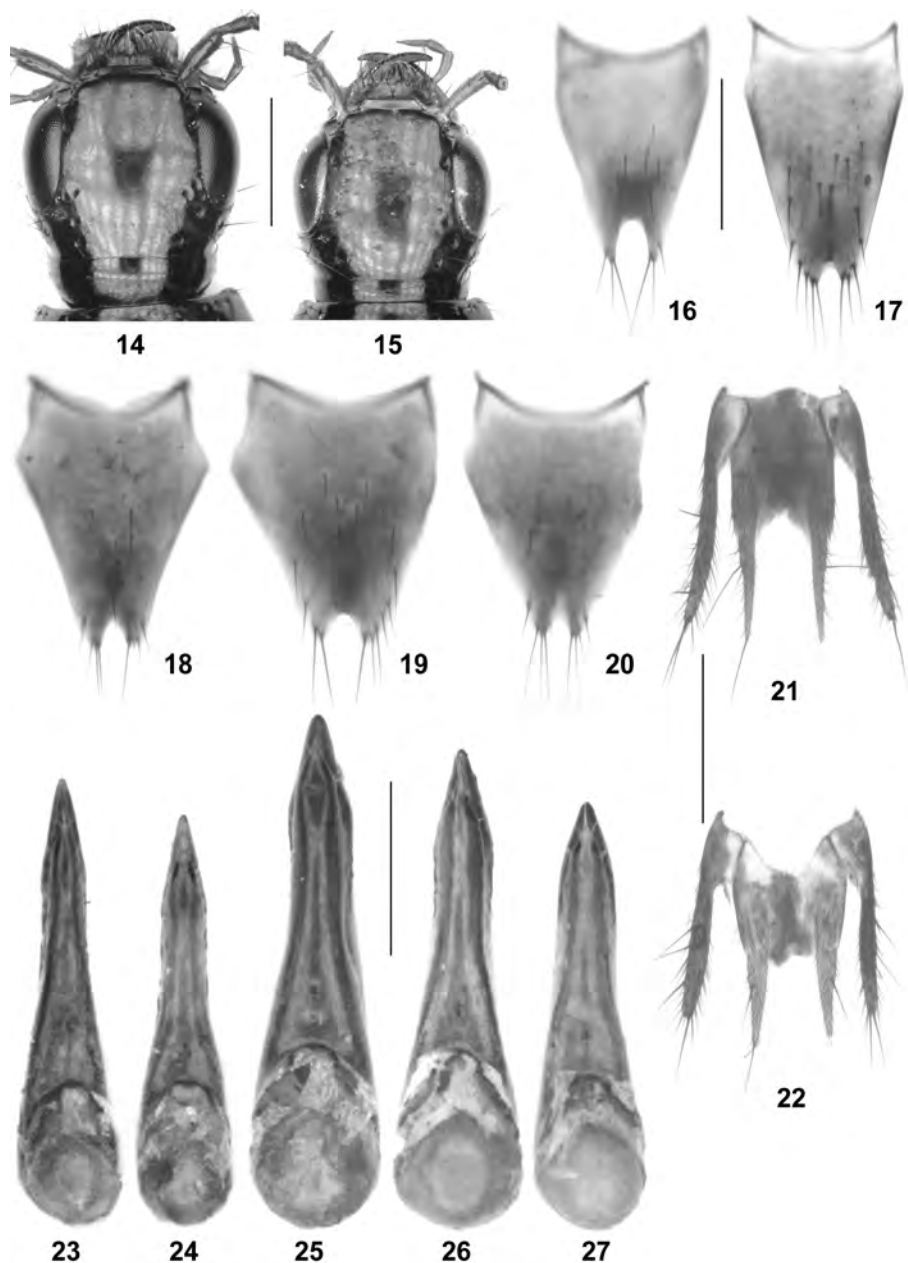
The figures of the aedeagus in COIFFAIT (1978) are based on a male from Greece and consequently do not refer to *Q. coloratus*, but probably to *Q. hellenicus*.



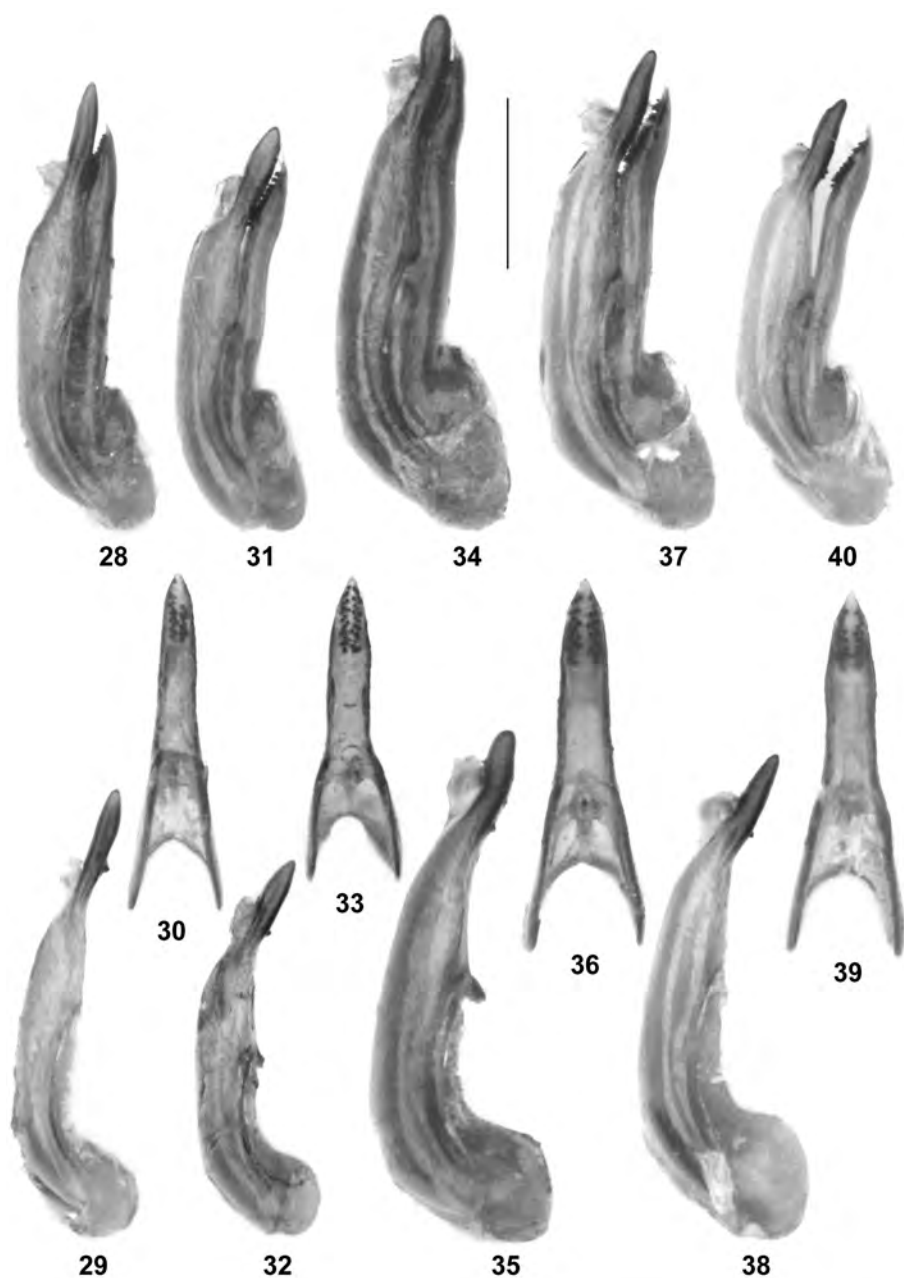
Map 1: Distributions of *Quedius hellenicus* (black diamonds), *Q. sp. 2* (white stars), *Q. carpathius* (black stars), *Q. spiculatus* (white triangles), *Q. hebes* (white circles), and *Q. coloratus* (black circles) in the East Mediterranean.



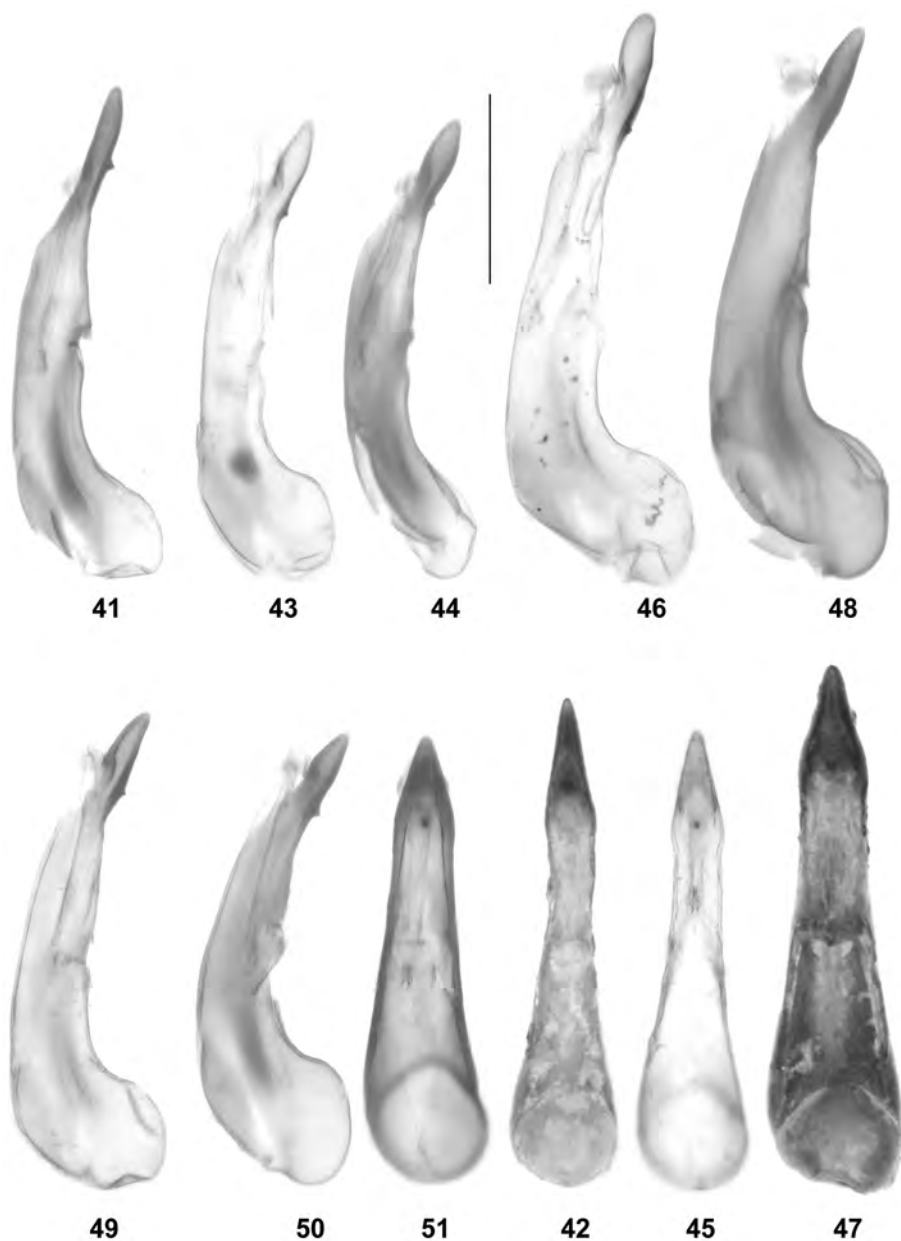
Figs 1-13: *Quedius coloratus* (1-4), *Q. hellenicus* (5-7), *Q. sp. 1* (8-9), and *Q. hebes* (10-13): (1, 5, 8, 10) forebody; (2, 6, 9, 11) head in dorsal view; (3, 7, 12) lateral portion of head in dorso-lateral view; (4, 13) male protarsus. Scale bars: 1-3, 5-12: 1.0 mm; 4, 13: 0.5 mm.



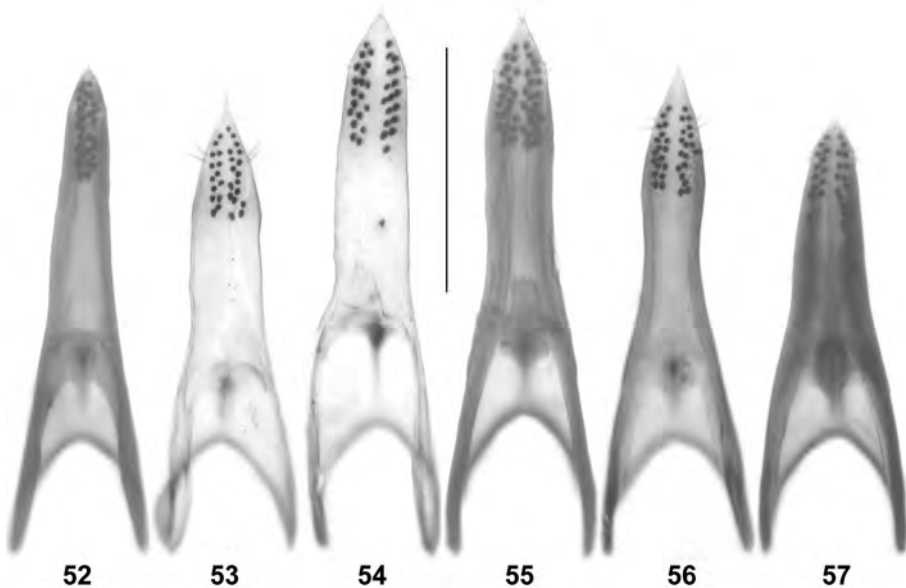
Figs 14-27: *Quedius spiculatus* (14, 19, 22, 26), *Q. carpathius* (15, 20, 27), *Q. coloratus* (16, 21, 23), *Q. hellenicus* (17, 24), and *Q. hebes* (18, 25): (14-15) head in dorsal view; (16-20) female tergite X; (21-22) female segments IX-X; (23-27) aedeagus in ventral view (dry preparation). Scale bars: 14-15, 21-22: 1.0 mm; 16-20, 23-27: 0.5 mm.



Figs 28-40: *Quedius coloratus* (28-30), *Q. hellenicus* (31-33), *Q. hebes* (34-36), *Q. spiculatus* (37-39), and *Q. carpathius* (40): (28, 31, 34, 37, 40) aedeagus in lateral view (dry preparation); (29, 32, 35, 38) median lobe of aedeagus in lateral view (dry preparation); (30, 33, 36, 39) paramere (dry preparation). Scale bar: 0.5 mm.



Figs 41-51: *Quedius coloratus* (41-42), *Q. hellenicus* (43-45), *Q. hebes* (46-47), *Q. spiculatus* (48), *Q. carpathius* (49), and *Q. sp.* 1 (50-51): (41, 43-44, 46, 48-50) aedeagus in lateral view (transparent light); (42, 45, 47, 51) median lobe of aedeagus in lateral view (42, 47: dry preparation; 45, 51: transparent light). Scale bar: 0.5 mm.



Figs 52-57: *Quedius coloratus* (52), *Q. hellenicus* (53), *Q. hebes* (54), *Q. spiculatus* (55), *Q. carpathius* (56), and *Q. sp.* 1 (57): paramere (transparent light). Scale bar: 0.5 mm.

Redescription: Measurements (in mm) and ratios (range, arithmetic mean) ($n = 47$): TL: 8.1-11.7, 9.9; HL: 1.14-1.35, 1.27; HW: 1.39-1.72, 1.57; PL: 1.60-1.90, 1.77; PW: 1.74-2.11, 1.95; EL: 1.09-1.32, 1.20; HTiL: 1.46-1.74, 1.62; HTaL: 1.14-1.39, 1.28; ML: 1.28-1.37, 1.32; HW/HL: 1.17-1.29, 1.24; PW/HW: 1.19-1.30, 1.24; PL/PW: 0.88-0.96, 0.91; EL/PL: 0.63-0.71, 0.68; HTiL/HTaL: 1.18-1.35, 1.27. Female of slightly larger average size than male.

Coloration: head, pronotum, scutellum, and abdomen blackish; elytra reddish; legs reddish-yellow to reddish; antennae yellowish-brown to dark-brown, with the basal 3-4 antennomeres reddish-yellow.

Head (Figs 2-3) distinctly transverse (see ratio HW/HL); punctation pattern of dorsal surface: one setiferous puncture at anterior angle of frons, one approximately halfway between this puncture and anterior frontal puncture, one anterior frontal puncture situated close to dorsal margin of eye, one posterior frontal puncture separated from postero-dorsal margin of eye on average by approximately its diameter or less (position slightly variable), and one vertical puncture separated from posterior suture by approximately its diameter on either side; dorsal surface with transverse microsculpture and very scattered, indistinct interspersed micropunctuation. Eyes nearly three times as long as postocular region in dorsal view.

Pronotum (Fig. 1) distinctly transverse and much broader than head (see ratios PL/PW and PW/HW); dorsal series composed of three punctures; large lateral puncture situated approximately laterad of median dorsal puncture; setae inserting in dorsal punctures and in punctures at lateral and anterior margins black and moderately long, those inserting in sublateral punctures black and very long; microsculpture composed of transverse striae in median portion, oblique striae in lateral portions, and longitudinal striae near antero-lateral angles.

Elytra (Fig. 1) of moderate length (see ratio EL/PL); punctuation dense and distinct. Hind wings fully developed. Protarsi with indistinct sexual dimorphism.

Abdomen with punctuation dense on anterior tergites and somewhat less dense on posterior tergites; interstices with fine transverse microsculpture visible only at high magnification; posterior margin of tergite VII with palisade fringe.

♂: protarsomeres I-IV (Fig. 5) weakly dilated; posterior excision of sternite VIII broad, not very deep, and anteriorly not acute; aedeagus (Figs 23, 28-30, 41-42, 52): median lobe with very slender apex; apex basally with a distinct ventral tooth; paramere slender, far from reaching apex of median lobe, with approximately 30 peg-setae arranged in one median cluster or in a pair of indistinctly separated clusters.

♀: protarsomeres I-IV weakly dilated, of similar shape as in male; tergite X (Fig. 16) apically with deep U-shaped excision; styli of segments IX and X very long and slender (Fig. 21).

Comparative notes: *Quedius coloratus* is distinguished from the other species treated below particularly by the slender median lobe of the aedeagus, by the much larger and deeper posterior excision of the female tergite X, by the longer and more slender styli of the female abdominal segments IX and X, and, except *Q. hellenicus*, by the absence of additional punctures near the posterior frontal puncture of the head.

Distribution and natural history: The distribution is significantly more restricted than indicated in the literature. It ranges from central southern Anatolia (Kahramanmaraş, Adana, Gaziantep, Osmaniye, Hatay) across Syria and Lebanon to Israel and Jordan (Map 1). Many of specimens were collected with flight and pitfall traps. Several of the remaining specimens were most likely found under stones, since they were collected by carabidologists. The altitudes range from 200 to 1230 m. Several specimens collected in April are teneral. SMETANA (1978) reported four specimens from Mt. Meron (Israel) and two specimens from "Akbis Syrie", today possibly Meidan Ekbiş (36°49'N, 36°40'E) in Syria or Akbez (36°53'N, 36°28'E) in the Turkish province Hatay. Previous records of *Q. coloratus* from the Greek islands Corfu and Thasos (COIFFAIT 1976), from Albania (GRIDELLI 1924), the Pelopónnisos (SCHEERPELTZ 1931), and from the Turkish provinces Bolu (KORGE 1964) and Isparta (JAPSHVILI & ANLAŞ 2011) undoubtedly refer to other species, whereas that from Hatay (SCHEERPELTZ 1958) may have been identified correctly. The record from Adana by SMETANA (1967) is of uncertain identity, that from Mersin refers to *Q. hebes*.

***Quedius (Raphirus) hellenicus* nov.sp.** (Figs 5-7, 17, 24, 31-33, 43-45, 53, 58, Map 1)

Type material: Holotype ♂: "GRECIA nom. Lakonía, O. Taigetos Prof. Elías, m 1940 2.VI.1999-14.VI.2000, Giachino & Vailati leg. / Holotypus ♂ *Quedius hellenicus* sp. n. det. V. Assing 2017" (cAss). Paratypes: 3♂♂, 4♀♀: same data as holotype (cAss, MNB); 1♂, 4♀♀: "Greece (227), Peloponnes, Taygetos Mts, 2250 m, Profitis Ilias, ca. N36°57'E, E 021°21', 16.V.2007, leg. Aßmann" (cFel); 1♀: "GRECIA nom. Messinía, O. Taigetos Nord vers. W, Str. per colle per Neochori, canalino a m 1220, 5.VI.2002-28.V.2003, Giachino & Vailati" (cAss); 1♂: "GRECIA nom. Argolída, O. Paron Kosmás m 1160, 29.V.2003-13.VI.2004, Giachino & Vailati leg." (cAss); 1♀: "GRECIA nom. Argolída, O. Paron str. Kosmás Polidroso m 1170, 13.VI.2004, Giachino & Vailati leg." (cAss); 1♂: "GRECIA nomos Kardítsa, O. Trípsita, Karvasarás, N39°14'51.9" E21°40'27.3", 13.VI.2008-12.VI.2010, m 1035, Giachino & Vailati" (cAss); 1♀: "GRECIA, nomos Kardítsa, O. Katsandoni, Karítsa, bivio per Vraggiana, m 1055, N39°15'01.4" E21°41'51.4", 12.VI.2008-11.VI.2010, Giachino & Vailati leg." (cAss); 1♂, 2♀♀: "GRECIA nom.

Viotía O. Elikón, Kiriáki, Grotta K2 m 1030, N 38°20'33.8" E 22°47'31.4", 9.VI.2014-5.IX.2015, Giachino & Vailati leg." (cAss); 1♂: "GRECIA, nomos Ahaía, Oros Aroánia, vers. WNW, N 38°00'13.7" E 22°10'37.7", m 1860, 9.VI.2008-31.V.2010, Giachino & Vailati leg." (cAss); 1♂: "GRECIA, nomos Ahaía, Oros Aroánia, vers. WNW, N 38°00'14.9" E 22°10'38.9", m 1850, 4.VI.2012-4.VI.2014, Giachino & Vailati leg." (cAss); 1♂: "GRECIA, nomos Kardítsa, Belokomíti, Kremasta valley, near Spilia Ghaki m 960, N 39°14'26.6" E 21°42'37.1", 1.VI.2011-13.VI.2014, Giachino & Vailati leg." (cAss); 1♀: "GRECIA, nomos Kardítsa, Belokomíti, O. Elatakos, sopra Zighoghianeika m 1115, N 39°14'27.5" E 21°43'41.6", 1.VI.2011-13.VI.2014, Giachino & Vailati leg." (cAss); 1♂: "GRECIA n. Evritanía m. 1030, Valle Agranotis, Tridendro, 13.VI.2005-11.VI.2006, Giachino & Vailati leg." (cAss); 2♂♂: "GRECIA nom. Evritanía, O. Kaliakouída m 960, strada Méga Horio-Psianá, 6.VI.2003-9.VI.2004, Giachino & Vailati leg." (cAss); 1♀: "GRECIA nomos Evritanía, O. Katsandoni, Elatos (Karítsa), N39°14'26.6" E21°42'27.1", 12.VI.2008-11.VI.2010, m 1280, Giachino & Vailati" (cAss); 1♀: "GRECIA, nom. Fokída, O. Gíona, Karoutes, Elatos, N 38°32'07.2" E 22°19'09.4", 1220 m, 10.VI.2014-5.IX.2015, Giachino & Vailati leg." (cAss); 2♀♀: "GRECIA, nomos Arkadía, Dimitsána, Artozinós, N 37°38'52.8" E 22°01'40.9", m 1100, 7.VI.2007-7.VI.2008, Giachino & Vailati leg." (cAss); 1♀: "GR, N-Peloponnes, Panakháiko-Gebirke, Nordflanke, *Q. coccifera*, 800 m, leg. U. Bense 7.X.2004" (cAss); 1♂, 1♀: "GREECE N, Plication E., 1400 m, 26.06.1997, C. Bayer" (MNB); 1♂: "Graecia: Peloponnes, Mainalon-Gebirge bei Vytina, 1.IV.1970, 1000-1400 m, Heinz leg." (MNB); 1♂: "Graecia: Thessalien, Berg Pelion, 1000-1500 m, 28.III.1970, Heinz leg." (MNB); 1♂ [teneral]: "Kalávryta, Morea, Holtz / *Quedius picipes* / ♂ / *Quedius* (Raph.) *coloratus* Fauv., det. P. Štourač 1999" (NMP); 1♀: "Kalamata, Pelopon., Mañan et Stěp., 1935 Coll. Baroñ" (NMP); 1♂: "GREECE: Attique, Mt. Pentelique, X.63, H. Coiffait" (MNHNP); 1♂: "East of Eptahóri, Pindos, 2.vii.1995 / Greece, P. Jørum leg." (ZMC); 1♀: "GR. Levkas, 600 m, südl. Exanthia, N-exp. Bachtal, Nr. 10. 27.IX.1993, Assing leg. (ZMC); 1♀: "GR. Levkas, 1050 m, Vouno-Gipfel, Streugesiebe, Nr. 12, 25.IX.1993 Assing leg." (cAss); 1♀: "GR. Levkas, 100 m, Felswand b. Apolpena, Streugesiebe, Nr. 15, 25.IX.1993 Assing leg." (ZMC); 1♀: "GR. Pelopónnisos, Erimanthos, Abies, oberh. Kalendzi, 1200 m, 37°57'02N, 21°46'34E, 1.IV.1997, V. Assing" (ZMC); 1♀: same data, but 27.III.1997 (cAss).

E t y m o l o g y : The specific epithet is an adjective derived from Hellenes, the ancient name of the Greek.

D e s c r i p t i o n : Measurements (in mm) and ratios (range, arithmetic mean) (n = 49): TL: 7.5-11.5, 9.7; HL: 1.16-1.44, 1.31; HW: 1.32-1.72, 1.55; PL: 1.51-1.97, 1.78; PW: 1.69-2.11, 1.92; EL: 1.00-1.28, 1.17; HTiL: 1.28-1.67, 1.54; HTaL: 1.07-1.32, 1.21; ML: 1.16-1.28, 1.21; HW/HL: 1.13-1.24, 1.18; PW/HW: 1.17-1.32, 1.24; PL/PW: 0.88-0.96, 0.93; EL/PL: 0.60-0.71, 0.66; HTiL/HTaL: 1.17-1.35, 1.27. Female of slightly larger average size than male.

External characters (Figs 5-7) as in *Q. coloratus*, except for on average shorter legs (see measurements HTiL and HTaL) and an on average less transverse head.

♂: protarsomeres I-IV and shape of sternite VIII similar to those of *Q. coloratus*; aedeagus (Figs 24, 31-33, 43-45, 53) smaller than in *Q. coloratus* (see measurements ML and Fig. 58; practically no overlap) and with distinctly shorter, less slender, and more curved apex of the ventral process; subapical tooth closer to base of apex; paramere shorter and less slender than in *Q. coloratus*, with usually between 30 and 40 peg-setae.

♀: protarsomeres I-IV weakly dilated, of similar shape as in male; posterior excision of tergite X (Fig. 17) much smaller and less deep than in *Q. coloratus*; styli of segments IX and X shorter and less slender.

C o m p a r a t i v e n o t e s : For characters distinguishing this species from *Q. coloratus* see the description above. From the species treated below, this species differs not only by the shape of the aedeagus, but also by the absence of additional punctures near the posterior frontal puncture of the head.

C o m m e n t : In contrast to the material from all other localities, the male from Oros

Pilion (Thessalía) has two additional punctures near one of the posterior frontal punctures. Unfortunately, the specimen had been dissected prior to the present study and the aedeagus is damaged, so that neither its original size nor its shape can be fully assessed. Other measurements and external characters are within the range of intraspecific variation of *Q. hellenicus*.

Distribution and natural history: The currently known distribution ranges from North Greece (Ioannina) to the south of the Pelopónnisos (Map 1). The records of *Q. coloratus* from Corfu, Thasos (COIFFAIT 1976), and Albania (GRIDELLI 1924) may refer to *Q. hellenicus*. Since there is no reference material in the museum in Vienna, the record of *Q. coloratus* from the Pelopónnisos by SCHEERPELTZ (1931) may be based on a misidentification.

The vast majority of specimens was collected with subterranean pitfall traps. For details on this method and the habitat see GIACHINO & VAILATI (2010). Some specimens were sifted from litter, all of them as singletons. The remainder was most likely found under (large) stones. These observations suggest a subterranean habitat, possibly the MSS stratum, which would also explain the low number of records of a rather large species in a relatively well-studied region. The altitudes range from 100 to 2250 m.

***Quedius (Raphirus) hebes* nov.sp.** (Figs 10-13, 18, 25, 34-36, 46-47, 54, 58, Map 1)

Type material: **Holotype** ♂: "N37°35'23 E034°53'05, TR Adana Kamisli, 1350 m, 18.4.2011, Brachat & Meybohm (15) / Holotypus ♂ *Quedius hebes* sp.n., det. V. Assing 2017" (cAss). **Paratypes:** 1 ♀ [slightly teneral]: "TR - Adana (21), ca. 11 km nö Feke, sw Cumhurlu, 710 m, 21.IV.2011, N37°53'11, E35°59'37", leg. Meybohm & Brachat" (cAss); 1 ♂ [slightly teneral]: "TR. - Mersin [51], road to Arslanköy, 5 km SE Aladag, 700 m, 36°54'45N, 34°31'44E, 10.V.2004, C. Besuchet" (cAss); 1 ♂: "TR - Niğde (9), Umg. Çiftehan, ö. Maden, 1200 m, 17.IV.2011, N37°28'52, E34°41'36, leg. Meybohm & Brachat" (cAss); 1 ♀: "TR - Niğde (11), Umg. Çiftehan, ö. Maden, 1870 m, 17.IV.2011, N37°27'08, E34°37'05, leg. Meybohm & Brachat" (cAss); 1 ♀: "N36°36'59 E32°24'36 (36), TR Antalya, Karapinar, Alanya → Taşkent, 1090 m, 25.IV.2008, leg. Meybohm & Brachat" (cAss); 1 ♀: "N36°07'16 E32°34'11 (33), TR Antalya Kalandere, Anamur - Gazipasa, 40 m, Brachat & Meybohm 24.4.2008" (cAss); 1 ♂: "N36°8', E32°46', Türkiye Umg. Anamur, Kösekbasi 150 m, Meybohm 18.5.2000" (ZMC); 1 ♂ [teneral]: "TR. - Antalya, Nr. 7, 60 km SSW Antalya, Çıralı, 220 m, 36°25'54N, 30°25'59E, 25.III.2002, V. Assing" (ZMC); 1 ♂: "TR [6] - Afyon, Sultan Dağları, 15 km SE Çay, 38°31'39"N, 31°11'07"E, 1430 m, oak forest, 18.IV.2011, P. Wunderle" (cWun); 1 ♂: "TR - Muğla, 19, 600 m, Gölgeli Dağları, 20 km NE Köyceğiz, below Ağla, 37°01'20N, 28°44'27E, 6.X.2002, V. Assing" (cAss); 1 ♂: "TR - Muğla, 20, 1000 m, 20 km NNE Fethiye, oak forest, N-slope, 36°47'27N, 29°11'29E, 8.X.2002, V. Assing" (cAss); 1 ♀: "Bürücek, Toros, 29-31.7.47, Exp. N Mus. ČSR / *Quedius (Raph.) coloratus* Fauv., det. P. Štourač 2000" (NMP).

Etymology: The specific epithet (Latin, adjective: obtuse) alludes to the apically convex median lobe of the aedeagus (lateral view).

Description: Measurements (in mm) and ratios (range, arithmetic mean) (n = 13): TL: 8.6-12.9, 10.7; HL: 1.21-1.48, 1.34; HW: 1.44-1.81, 1.63; PL: 1.67-2.04, 1.86; PW: 1.83-2.25, 2.03; EL: 1.09-1.32, 1.21; HTiL: 1.44-1.83, 1.63; HTaL: 1.16-1.37, 1.27; ML: 1.32-1.46, 1.39; HW/HL: 1.17-1.26, 1.21; PW/HW: 1.21-1.29, 1.25; PL/PW: 0.89-0.94, 0.92; EL/PL: 0.61-0.68, 0.65; HTiL/HTaL: 1.20-1.40, 1.29. Female of slightly larger average size than male.

External and sexual characters similar to those of *Q. coloratus*, except as follows:

Legs somewhat darker, dark-reddish to reddish-brown; antennae dark-brown with the basal three antennomeres reddish. Head (Figs 11-12) with additional 1-3 smaller punc-

tures near posterior frontal puncture and postero-dorsal margin of eye on either side (occasionally, these additional punctures may be completely absent on one side). Body on average larger (Fig. 58). Elytra (Fig. 10) on average slightly shorter (see ratio EL/PL). Protarsomeres more strongly dilated both in male and in female (Fig. 13).

♂: aedeagus (Figs 25, 34-36, 46-47, 54) larger than in *Q. coloratus* (see measurements ML and Fig. 58; little overlap); median lobe apically stouter, not acute but convex, and somewhat curved dorsad in lateral view, broader in ventral view; paramere (Figs 36, 54) broader and with approximately 35 peg-setae arranged in a pair of distinctly separated clusters.

♀: tergite X (Fig. 18) apically with much smaller and less deep posterior excision; styli of segments IX-X shorter and less slender (similar to Fig. 22).

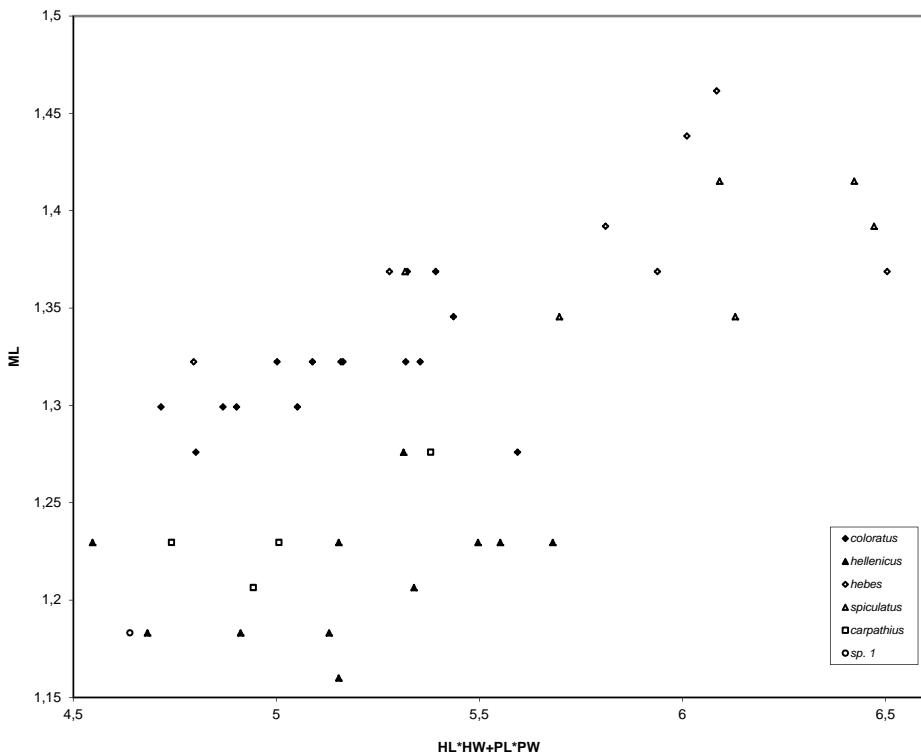


Fig. 58: Length of median lobe of aedeagus in relation to body size, given as an approximation of the combined area of head and pronotum, in *Quedius coloratus* and allied species.

Comparative notes: *Quedius hebes* is reliably distinguished from *Q. coloratus* particularly by the presence of additional punctures near the posterior frontal puncture on the head, by the different morphology of the aedeagus (see above), and by the much smaller posterior excision of the female tergite X. For characters separating it from the geographically close *Q. spiculatus* see the following section.

Distribution and natural history: The distribution ranges across southern Turkey from Muğla in the west to Adana in the east (Map 1), where it appears to parapatrically border on that of *Q. coloratus*. A previous record of *Q. coloratus* from Mersin (SMETANA 1967) refers to *Q. hebes* (see the paratype from "Bürücek"); the same probably applies to a record of *Q. coloratus* from Isparta (JAPOSHVILI & ANLAŞ 2011). The type specimens were found under stones or sifted from leaf litter at altitudes of 40-1870 m. All of them were collected as singletons, suggesting that the records are accidental and that this species is not an inhabitant of the leaf litter, but of a subterranean habitat. Three teneral specimens were collected in March, April, and May.

***Quedius (Raphirus) spiculatus* nov.sp.** (Figs 14, 19, 22, 26, 37-39, 48, 55, 58, Map 1)

Type material: Holotype ♂: "TR [24] - Samsun 26 km NNE Havza, 800 m, 41°11'16"N, 35°45'44"E, *Quercus-Carpinus* for., 19.VII.2008, V. Assing / Holotypus ♂ *Quedius spiculatus* sp. n., det. V. Assing 2017" (cAss). **Paratypes:** 1 ♂, 1 ♀: same data as holotype, but leg. Schülke (MNB); 1 ♀: "TR [23] - Samsun, 21 km NNE Havza, 950 m, 41°08'47"N, 35°45'15"E, *Quercus-Carpinus* for., 19.VII.2008, M. Schülke" (MNB); 3 ♂ ♂: "TR [15] - Tokat, 16 km ENE Tokat, 915 m, 40°21'45"N, 36°44'25"E, mixed deciduous forest, 16.VII.2008, M. Schülke" (MNB, cAss); 1 ♂: TR [13] - Tokat, 20 km ENE Tokat, 1000 m, 40°22'07"N, 36°46'42"E *Quercus-Carpinus* for., 16.VII.2008, M. Schülke" (cAss).

E t y m o l o g y: The specific epithet is the past participle of the Latin verb *spiculare* (to sharpen) and alludes to the apically acute median lobe of the aedeagus in lateral view.

Description: Measurements (in mm) and ratios (range, arithmetic mean) (n = 8): TL: 9.3-12.3, 10.2; HL: 1.25-1.39, 1.34; HW: 1.53-1.69, 1.62; PL: 1.76-1.95, 1.85; PW: 1.90-2.11, 2.03; EL: 1.09-1.25, 1.18; HTiL: 1.55-1.69, 1.62; HTaL: 1.28-1.37, 1.30; ML: 1.35-1.42, 1.38; HW/HL: 1.19-1.23, 1.21; PW/HW: 1.24-1.27, 1.25; PL/PW: 0.89 - 0.94, 0.91; EL/PL: 0.59-0.67, 0.64; HTiL/HTaL: 1.18-1.31, 1.25. Female of slightly larger average size than male.

External (Fig. 14) and sexual characters similar to those of *Q. hebes*, except as follows:

♂: median lobe of aedeagus (Figs 26, 37-38, 48) apically acute and not bent dorsad in lateral view, also more acute in ventral view; paramere (Figs 39, 55) with more than 40 peg-setae.

♀: tergite X (Fig. 19) of similar shape as in *Q. hebes*, but posterior excision slightly larger; segments IX and X as in Fig. 22.

Comparative notes: *Quedius spiculatus* is reliably distinguished from *Q. hebes* only by the shape of the median lobe of the aedeagus, especially in lateral view. It differs from *Q. coloratus* by the presence of additional punctures near the posterior frontal puncture on the head, by the different morphology of the larger aedeagus (little overlap; see measurements ML and Fig. 58), and by the much smaller posterior excision of the female tergite X.

Distribution and natural history: This species is currently known only from four localities in Samsun and Tokat provinces, North Turkey. All the specimens were sifted from leaf litter of mixed deciduous forests (mostly composed of *Quercus* and *Carpinus*) at altitudes of 800-1000 m.

***Quedius (Raphirus) carpathius* nov.sp.** (Figs 15, 20, 27, 40, 49, 56, 58, Map 1)

Type material: Holotype ♂: "GR Karpathos, Olympos 250 m, Meybohm 27.4.2000 /

Holotypus ♂ *Quedius carpathius* sp. n., det. V. Assing 2017" (cAss). Paratypes: 1♂: "GR Karpathos, Olympos Prof. Ilias, 450-700 m, Meybohm 27.4.2000" (cAss); 1♂ [teneral]: "GR Karpathos, Umg. Olympos, 350 m, Meybohm 30.4.2000" (cAss); 1♂: "GR Karpathos 440 m, Othos [35°33'N, 27°09'E], Meybohm 20.4.1999" (cAss); 1♀: "Greece: Karpathos [13], N Olympos, E Avlona, 35°46'09"N, 27°11'13"E, 260 m, under stones, 26.XII.2015, V. Assing" (cAss).

C o m m e n t : The female paratype was recorded as *Q. coloratus* by ASSING (2016a).

E t y m o l o g y : The specific epithet is an adjective derived from Carpathus, the Latin name for Karpathos.

D e s c r i p t i o n : Measurements (in mm) and ratios (range, arithmetic mean) (n = 5): TL: 9.1-10.0, 9.6; HL: 1.23-1.32, 1.27; HW: 1.46-1.58, 1.50; PL: 1.67-1.79, 1.73; PW: 1.76-1.95, 1.86; EL: 1.07-1.28, 1.15; HTiL: 1.37-1.53, 1.47; HTaL: 1.16-1.23, 1.19; ML: 1.21-1.28, 1.24; HW/HL: 1.18-1.19, 1.19; PW/HW: 1.21-1.27, 1.24; PL/PW: 0.89-0.95, 0.93; EL/PL: 0.64-0.71, 0.67; HTiL/HTaL: 1.10-1.32, 1.27.

External (Fig. 15) and sexual characters similar to those of *Q. hebes*, except as follows:

Body on average smaller (see measurements; little overlap).

♂: aedeagus (Figs 27, 40, 49, 56) distinctly smaller than in *Q. hebes* (see measurements ML and Fig. 58; no overlap); median lobe apically more acute and not curved dorsad in lateral view; paramere constricted medially.

♀: tergite X (Fig. 20) apically with conspicuously small posterior excision.

C o m p a r a t i v e n o t e s : Among the species with additional punctures near the posterior frontal puncture on the head and with more strongly dilated protarsomeres I-IV, *Quedius carpathius* is characterized by relatively small body size, a small pronotum, short tibiae, and particularly by the shape of the aedeagus (paramere constricted medially) and by the smaller posterior excision of the female tergite X.

D i s t r i b u t i o n a n d n a t u r a l h i s t o r y : Currently available evidence suggests that *Q. carpathius* is endemic to Karpathos (Map 1). Previously, ten endemic species of Staphylinidae (three of them undescribed) belonging to eight genera were known to occur in this island (ASSING 2016a). The type specimens were collected in five localities, four of them in the north of Karpathos, at altitudes between 250 and at least 450 m. The female paratype was found under a stone in a dry ruderal habitat. The remaining specimens may have been collected from under stones, too. One specimen taken at the end of April is teneral.

***Quedius (Raphirus) sp. 1* (Figs 8-9, 50-51, 57-58, Map 1)**

M a t e r i a l e x a m i n e d : 1♂: "Greece: Zagora, Pelion Mts., 400 m, 15.V.1997, leg. I. Wolf" (MNB).

C o m m e n t : The above male may represent a distinct species. However, with only one male in somewhat poor condition available and since a male (in even worse condition) without additional punctures and longer elytra was found in Oros Pelion, too, the status of this material requires clarification based on more material, to rule out the possibility that the above male represents an aberrant specimen of *Q. hellenicus*. It is distinguished from the material of the described species treated in the present paper by shorter elytra, hind wings of reduced length, and by the morphology of the aedeagus, additionally also by smaller body size (Fig. 58) and shorter tarsi. The locality is situated in Oros Pelion [39°24'N, 23°02'E] (Greece: Thessalia) (Map 1) at an altitude of 400 m.

Description: Measurements (in mm) and ratios: TL: 10.2; HL: 1.21; HW: 1.44; PL: 1.65; PW: 1.76; EL: 0.86; HTiL: 1.39; HTaL: 1.00; ML: 1.18; HW/HL: 1.19; PW/HW: 1.23; PL/PW: 0.93; EL/PL: 0.52; HTiL/HTaL: 1.40.

External (Figs 8-9) and sexual characters similar to those of *Q. hebes*, *Q. spiculatus*, and *Q. carpathius*, except as follows:

Body smaller (practically no overlap) (see measurements) and with very short tarsi (see measurement HTaL and ratio HTiL/HTaL). Elytra (Fig. 8) very short (see measurement EL and ratio EL/PL). Hind wings present, but of reduced length.

♂: aedeagus (Figs 60-61, 57) smaller than in other species; median lobe somewhat resembling that of *Q. hellenicus* in lateral view, but broader in ventral view; paramere (Fig. 57) broad and rather short, with approximately 30 peg-setae arranged in a pair of distinctly separated clusters.

Quedius (Raphirus) sp. 2

Material examined: Greece: Lesbos: 1 ♀, Olympos, 39°04'N, 26°21'E, 930 m, N-slope near peak, small stand of *Quercus*, *Juniperus*, and other deciduous trees, litter and moss sifted, 20.III.2016, leg. Assing (cAss); 1 ♀, Olympos-Agiasos, 39°04'N, 26°22'E, 680 m, chestnut forest, litter sifted, 20.III.2016, leg. Assing & Hetzel (cAss).

Comment: The above females are clearly not conspecific with *Q. coloratus*, as which they were recorded by ASSING (2016c). They are distinguished from *Q. coloratus* by a small posterior excision of the female tergite X and from the geographically close *Q. hebes* and *Q. spiculatus* by the absence of additional punctures near the posterior frontal puncture on the head. Males would be needed to clarify their specific identity.

Appendix

I. *Quedius* species recorded from Greece with subterranean pitfall traps¹

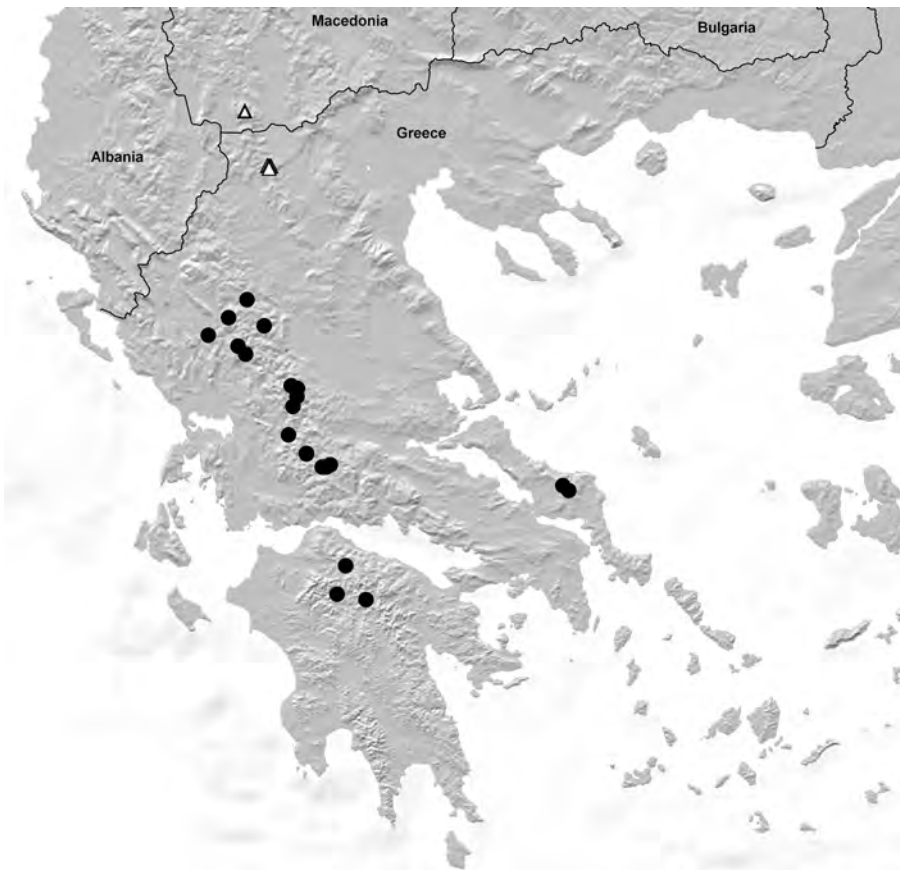
Aside from *Q. hellenicus*, 20 other *Quedius* species were collected in Greece using subterranean pitfall traps placed in the MSS stratum, i.e., the "Superficial Subterranean Habitat" (GIACHINO & VAILATI 2010). For details regarding the habitat and the method see GIACHINO & VAILATI (2010). The most common species in these traps were *Q. endogeus* ASSING, 2007 (131 specimens), followed by *Q. lateralis* (GRAVENHORST, 1802) (64), *Q. mesomelinus* (MARSHAM, 1802) (37), *Q. nemoralis* BAUDI, 1848 (22), *Q. nivicola* KIESENWETTER, 1858 (15), *Q. bernhaueri* RAMBOUSEK, 1915 (10), *Q. umbrinus* ERICHSON, 1839 (10), *Q. semiaeneus* (STEPHENS, 1833) (6), *Q. levicollis* (BRULLÉ, 1832) (5), *Q. obscuripennis* BERNHAUER, 1901 (4), *Q. ochripennis* (MÉNÉTRIÉS, 1832) (3), *Q. abietum* KIESENWETTER, 1858 (2), *Q. scintillans* (GRAVENHORST, 1806) (2), *Q. nigrocaeruleus* FAUVEL, 1876 (1), *Q. puncticollis* (THOMSON, 1867) (1), *Q. cruentus* (OLIVIER, 1795) (1), *Q. henroti* COIFFAIT, 1970 (1), *Q. semiobscurus* (MARSHAM, 1802) (1), *Q. persimilis* MULSANT & REY, 1876 (1), and an unidentified species (one female).

¹ Results of the program "Research Missions in the Mediterranean Basin" sponsored by the World Biodiversity Association onlus. XXXIX contribution.

While most of these species are widespread and were evidently accidentally captured in the MSS layer, partly because they were attracted by the baited traps, some species such as *Q. endogeus*, *Q. bernhaueri*, *Q. nivicola*, and *Q. hellenicus* appear to inhabit a subterranean environment. Previously unpublished collecting data of *Q. endogeus* and *Q. bernhaueri*, plus those of *Q. puncticollis* (new record from Greece) are listed below. Those of *Q. hellenicus*, *Q. nivicola*, and *Q. henroti* are listed in the description of *Q. hellenicus* above and in ASSING (2016b, c), respectively.

***Quedius (Microsaurus) bernhaueri* RAMBOUSEK, 1915 (Map 2)**

Material examined: Greece: 8 exs., Flórina, Oros Vitsi, above Drosopigi, 1380 m, 19.VI.2007-17.VI.2008, leg. Giachino & Vailati (cAss); 2 exs., Florina, Oros Vitsi, above Drosopigi, 40°39'N, 21°24'E, 1340 m, 19.VI.2007-17.VI.2008, leg. Giachino & Vailati (cAss).



Map 2: Distributions of *Quedius endogeus* (black circles) and *Q. bernhaueri* (white triangles).

Comment: Originally described from the Perister (= Pelister) range in Macedonia, this species was recorded from Greece (Oros Vitsi) for the first time by ASSING & WUNDERLE (2001). Additional records from the same region were reported by ASSING

(2006) and SOLODOVNIKOV (2005). The currently known distribution is illustrated in Map 2. Whether this species is a true inhabitant of the MSS stratum is doubtful. The previously published material from Greece was collected by sifting leaf litter in calcareous beech forests and debris near snowfields. The altitudes range from 1340 to 2040 m.

***Quedius (Microsaurus) puncticollis* (THOMSON, 1867)**

Material examined: Greece: 1 ♂, Korinthía, Oros Saítas, 37°52'N, 22°15'E, 1140 m, 3.VI.2014-1.IX.2015, leg. Giachino & Vailati (cAss).

Comment: According to SCHÜLKE & SMETANA (2015), this widespread species had not been recorded from Greece.

***Quedius (Raphirus) endogeus* ASSING, 2007 (Map 2)**

Material examined: Greece: 1 ex., Évia, Seta, Oros Lamna, 38°34'N, 23°55'E, 910 m, 7.VI.2010-26.V.2011, leg. Giachino & Vailati; 2 exs., Evia, Oros Dirfi, road to Strópones, 38°36'N, 23°52'E, 965 m, 7.VI.2012-8.VI.2014, leg. Giachino & Vailati; 7 exs., Evritanía, Oros Ntelidimi, Tría Sínora, road Trovátó-Petrilo, 39°14'N, 21°37'E, 1500 m, 14.VI.2014-7.IX.2015, leg. Giachino & Vailati; 20 exs., Evritanía, Agrínio-Karpeníssi, 38°55'N, 21°36'E, 500 m, 10.VI.2010-30.V.2011, leg. Giachino & Vailati; 4 exs., Evritania, road Belokomíti-Vrangianá, Oros Voidholivadhó, 39°13'N, 21°39'E, 1400 m, 1.VI.2011-14.VI.2014, leg. Giachino & Vailati; 1 ex., Evritania, road Belokomíti-Vrangianá, Oros Voidholivadhó, 39°13'N, 21°40'E, 1580 m, 1.VI.2011-14.VI.2014, leg. Giachino & Vailati; 38 exs., Evritanía, road Belokomíti-Vrangianá, Oros Voidholivado, Agios Nikólaos, 39°13'N, 21°40'E, 1580 m, 14.VI.2014-6.IX.2015, leg. Giachino & Vailati; 10 exs., Evritanía, road Belokomíti-Vrangianá, Oros Voidholivado, 39°10'N, 21°40'E, 1525 m, 14.VI.2014-7.IX.2015, leg. Giachino & Vailati; 4 exs., Evritania, Oros Kokinias, peak above Livadaki, 38°43'N, 21°53'E, 1495 m, 12.VI.2007-4.VI.2008, leg. Giachino & Vailati; 1 ex., Evritania, Agraftotis valley, below Oros Koftra, 670 m, 17.VI.2002-9.VI.2003, leg. Giachino & Vailati; 10 exs., Evritania, Oros Kaliakouda, road Mega Horio-Psiana, 1700 m, 14.VI.2002-4.VI.2003, leg. Giachino & Vailati; 3 exs., Trikala, Oros Tringía, Kranía, 39°37'N, 21°23'E, 1360 m, 17.VI.2014-1.IX.2015, leg. Giachino & Vailati; 4 exs., Trikala, Oros Athamano, Neráida, 39°26'N, 21°14'E, 950 m, 4.VI.2011-19.VI.2014, leg. Giachino & Vailati; 2 exs., Ahaíia, Oros Skepasto, Kerpini-Plataniotisa, 38°05'N, 22°05'E, 1150 m, 4.VI.2010-20.V.2011, leg. Giachino & Vailati; 1 ex., Ahaíia, Anastasi (Klitoria), 37°54'N, 22°01'E, 1160 m, 3.VI.2014-1.IX.2015, leg. Giachino & Vailati; 1 ex., Ioánina, road Kaletsi-Ioanina, Ellinikó, 39°33'N, 20°55'E, 750 m, 6.VI.2011-20.VI.2014, leg. Giachino & Vailati; 17 exs., Ioánina, Oros Lakmos, road Anilio-Haliki, 1400 m, 13.VI.2003-25.VI.2004, leg. Giachino & Vailati; 1 ex., Ioánina, Katara pass, 39°47'N, 21°14'E, 1765 m, 2.VI.2008-13.VI.2010, leg. Giachino & Vailati; 1 ex., Korinthía, Oros Saítas, 37°52'N, 22°15'E, 1140 m, 6.VI.2008-1.VI.2010, leg. Giachino & Vailati; 3 exs., Arta, Melissourgi, Oros Kakarditsa, Oros Tourla, 39°29'N, 21°10'E, 1420 m, 15.VI.2008-16.VI.2010, leg. Giachino & Vailati. Material deposited in cAss, cFel, and MNB.

Comment: The previously known distribution was confined to two localities in Evritanía (ASSING 2007; SCHÜLKE & SMETANA 2015). The new records (see also Map 2) reveal that *Q. endogeus* is widespread in Greece (Pindos range, northern Pelopónnisos, Evvoia). The morphological adaptations (reduced eye size, pigmentation, and hind wings; slender habitus; slender pronotum), the complete absence of records other than those with subterranean traps, and the frequent catches with these traps suggest that *Q. endogeus* is a true and exclusive inhabitant of the MSS stratum.

II. On a new synonymy

The group of *Quedius paradisianus* (HEER, 1830) was revised recently (ASSING 2016d).

Jiří Vávra, Ostrava, recently drew my attention to *Quedius crnagoricus* COIFFAIT, 1980, according to the original description a close relative of *Q. paradisianus*, that had escaped my notice.

***Quedius (Raphirus) paradisianus* (HEER, 1839)**

Quedius (Raphirus) crnagoricus COIFFAIT, 1980: 38; **nov.syn.**

C o m m e n t : The original description of *Q. crnagoricus* is based on a male holotype and five paratypes (three males and two females) from "Montenégro, Col de Čakor" deposited in the Coiffait collection (COIFFAIT 1980). However, the type material was looked for, but not found, by the curator in charge of the Coiffait collection at the MNHNP (TAGHAVIAN, e-mail 9 February, 2017). According to COIFFAIT (1980), this species is similar to *Q. paradisianus* in the shape of the aedeagus, but distinguished by infusate metitibiae (sometimes also infusate mesotibiae) and by entirely black elytra. As pointed out by ASSING (2016d), the coloration of the tibiae is variable in *Q. paradisianus*, and the elytra are mostly blackish in this species. Moreover, the shape of the aedeagus (COIFFAIT 1980: figures 1C-E) is identical to that of *Q. paradisianus*. Finally, the type locality of *Q. crnagoricus* is within the known range of *Q. paradisianus*. In consequence, there is no reasonable doubt that the type material of *Q. crnagoricus* is conspecific with *Q. paradisianus*.

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Zusammenfassung

Eine Revision von zuvor als *Quedius coloratus* FAUVEL, 1875 determiniertem Material ergab, dass es sich um einen Komplex aus mindestens fünf Arten handelt, die beschrieben und abgebildet werden: *Q. (Raphirus) coloratus* (Naher Osten); *Q. (R.) hellenicus* nov.sp. (Griechenland); *Q. (R.) hebes* nov.sp. (Südanatolien); *Q. (R.) spiculatus* nov.sp. (Nordanatolien); *Q. (R.) carpathius* nov.sp. (Karthos). Ein Männchen einer möglicherweise sechsten, aber nicht benannten Art (Griechenland: Thessalien) wird beschrieben und abgebildet. Die Arten leben vermutlich in einem unterirdischen Habitat und sind allo- oder parapatrisch verbreitet. Zumindest die benannten Arten sind offenbar durchweg flugfähig. Eine Bestimmungstabelle wird erstellt. In einem Anhang werden weitere Nachweise, davon ein Erstnachweis, von drei *Quedius*-Arten aus Griechenland gemeldet; das Material stammt aus unterirdischen Bodenfallen. Die derzeit bekannten Verbreitungsgebiete der Arten des *Q. coloratus*-Komplexes sowie von *Q. (Microsaurus) bernhaueri* RAMBOUSEK, 1915 und *Q. (Raphirus) endogeus* ASSING, 2007 werden anhand von Karten illustriert. *Quedius endogeus*, zuvor nur von zwei Fundorten bekannt, ist in Griechenland weit verbreitet und ganz offensichtlich ein Bewohner der MSS-Schicht. *Quedius crnagoricus* COIFFAIT, 1980, nov.syn., wird mit *Q. paradisianus* (HEER, 1839) synonymisiert.

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