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**On the taxonomy and zoogeography of some West Palaearctic
Quedius species, with a focus on the East Mediterranean and the
species allied to *Quedius umbrinus* and *Q. nivicola*
(Coleoptera: Staphylinidae: Staphylininae)**

Volker ASSING

A b s t r a c t : Based on a revision of type material, as well as on studies of original descriptions and intraspecific variation, 21 synonymies are proposed in the subgenus *Raphirus* STEPHENS, 1829 of the genus *Quedius* STEPHENS, 1829: *Quedius umbrinus* ERICHSON, 1839 = *Q. cyanescens* MULSANT & REY, 1876, nov.syn., = *Q. bulgaricus* SCHEERPELTZ, 1937, nov.syn., = *Q. cyprusensis* LAST, 1955, nov.syn., = *Q. freyi* SCHEERPELTZ, 1956, nov.syn., = *Q. maronitus* COIFFAIT, 1963, nov.syn., = *Q. gueorguievi* COIFFAIT, 1967, nov.syn.; *Quedius hermonensis* COIFFAIT, 1963 = *Q. coiffaitianus* FAGEL, 1968, nov.syn., = *Q. rugosipennis* FAGEL, 1969, nov.syn.; *Quedius illyricus* WENDELER, 1928 = *Q. paganettii* BERNHAUER, 1936, nov.syn., = *Q. schipkanus* SCHEERPELTZ, 1937, nov.syn., = *Q. pseudopyrenaicus* COIFFAIT, 1967, nov.syn.; *Quedius nemoralis* BAUDI DI SELVE, 1848 = *Q. safaensis* FAGEL, 1968, nov.syn., = *Q. safaensis ormanus* FAGEL, 1971, nov.syn., = *Q. nemoralis erinci* KORGE, 1971, nov.syn.; *Quedius limbatus* (HEER, 1839) = *Q. scheerpeltzianus* FAGEL, 1968, nov.syn.; *Quedius suturalis* KIESENWETTER, 1845 = *Q. humeralis anaticolic* KORGE, 1964, nov.syn., = *Q. troglophilus* COIFFAIT, 1969, nov.syn.; *Quedius job* COIFFAIT, 1963 = *Q. lydus* FAGEL, 1968, nov.syn.; *Quedius humeralis* STEPHENS, 1832 = *Q. coxalis* KRAATZ, 1858, nov.syn., = *Q. atticus* COIFFAIT, 1967, nov.syn.; *Quedius boops* (GRAVENHORST, 1802) = *Q. haafi* SCHEERPELTZ, 1956, nov.syn. Lectotypes are designated for *Quedius cyanescens* MULSANT & REY, 1876, *Q. bulgaricus* SCHEERPELTZ, 1937, *Q. albanicus* BERNHAUER, 1926, and *Q. schipkanus* SCHEERPELTZ, 1937. A neotype is designated for *Q. josue* SAULCY, 1865. The male sexual characters of several species are illustrated. Two species are redescribed. The East Mediterranean species allied to *Quedius nivicola* KIESENWETTER, 1858 are revised. Their zoogeography and natural history are discussed. The currently known distributions of ten species are mapped.

K e y w o r d s : Coleoptera, Staphylinidae, Staphylininae, Quediina, *Quedius*, East Mediterranean, taxonomy, new synonymies, lectotype designations, neotype designation, new records, distribution maps.

Introduction

In the Palaearctic region the mega-diverse genus *Quedius* STEPHENS, 1829 includes more than 600 named species in five subgenera (ASSING 2017b, SCHÜLKE & SMETANA 2015). The most speciose of these subgenera is *Raphirus* STEPHENS, 1829, which alone accounts for more than 300 species and subspecies.

The *Quedius* fauna of the East Palaearctic region is insufficiently known and new species

are continuously being described. The fauna of the West Palaearctic, by contrast, has been subject to a long tradition of taxonomic activity. As a consequence, numerous species were described especially in the second half of the twentieth century, particularly by authors such as Henri Coiffait, Gaston Fagel, Horst Korge, and Otto Scheerpeltz. Coiffait alone made as many as 86 names available, 63 of them in the subgenus *Raphirus*, Fagel described 13 taxa (all of them in *Raphirus*), Korge 27 (15 in *Raphirus*), and Scheerpeltz 13 (10 in *Raphirus*). Over time, numerous names have been synonymized, but a comprehensive revision is still wanting. There is general agreement among staphylinidologists that at present there are more valid names in West Palaearctic *Quedius* than there are species.

Speciose genera of Staphylinidae generally include both widespread species and species with more or less restricted distributions, and the former are usually subject to more pronounced intraspecific variation than the latter. This may be common biological knowledge, but has largely been ignored or not sufficiently appreciated among some taxonomists. As a consequence, morphologically different populations from distant regions have been regarded as distinct species, often owing to a lack of material from other regions and/or an underestimation of intraspecific variation and/or of the distribution. This explains why previous synonymizations mostly affect widespread and common species, e.g., *Q. limbatus* (HEER, 1839) (six synonyms), *Q. scintillans* (GRAVENHORST, 1806) (6), *Q. sublimbatus* MÄKLIN, 1853) (6), *Q. suturalis* KIESENWETTER, 1845 (6), *Q. boops* (GRAVENHORST, 1802) (5), *Q. nitipennis* (STEPHENS, 1833) (5), *Q. picipes* (MANNERHEIM, 1830) (5), *Q. pseudonigriceps* REITTER, 1909 (4), and *Q. umbrinus* ERICHSON, 1839 (4) (ASSING 2017b, SCHÜLKE & SMETANA 2015). It follows that numerous synonymies remain to be discovered and that they are likely to pertain to widespread epigeic macropterous or wing-dimorphic species.

On the other hand, there are species and species groups of *Raphirus* whose distributions are more or less restricted. This particularly applies to micropterous species adapted to high-altitude habitats or to species with subterranean habitats (see ASSING 2017a). Therefore, an assessment of, and a distinction between inter- and intraspecific variation usually also requires a thorough consideration of habitat and zoogeographic data.

The present paper primarily aims at clarifying the identities and status of *Raphirus* names made available by Fagel, Korge, and Scheerpeltz. Owing to the currently highly restrictive loan policy of the natural history museum in Paris, where the Coiffait collection is housed, the type material of species described by Coiffait is inaccessible for scientific study (TAGHAVIAN, e-mail 9 October, 2017). Consequently, these species can be interpreted only based on the details indicated in the original descriptions, especially on illustrations of the aedeagus. It seems certain that, should the type material ever become available for revision again, numerous additional synonymies remain to be discovered.

Material and methods

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

- IRSNB.....Institut Royal des Sciences Naturelle de Belgique, Bruxelles (Y. Gérard)
 MHNL.....Muséum d'Histoire Naturelle, Lyon (H. Labrique)
 MNBMuseum für Naturkunde, Berlin (incl. coll. Schülke; J. Frisch, B. Jaeger, M. Schülke)

NHMW Naturhistorisches Museum Wien (H. Schillhammer)
 SDEL..... Senckenberg Deutsches Entomologisches Institut, Müncheberg (L. Behne)
 ZMUC..... Natural History Museum of Denmark, Copenhagen (A. Solodovnikov)
 cAss..... author's private collection
 cFel private collection Benedikt Feldmann, Münster

The morphological studies were conducted using a Stemi SV 11 microscope (Zeiss), a Discovery V12 microscope (Zeiss), and a Jenalab compound microscope (Carl Zeiss Jena). The images were created using a digital camera (Nikon Coolpix 995), Axiocam ERc 5s, and Picolay stacking software. The maps were created using MapCreator 2.0 (primap) software.

Body length was measured from the anterior margin of the mandibles (in resting position) to the posterior margin of the abdominal tergite VIII, the length of the forebody from the anterior margin of the mandibles to the posterior margin of the elytra, head length from the anterior margin of the frons to the posterior constriction of the head, elytral length at the suture from the apex of the scutellum to the posterior margin of the elytra (at the suture), and the length of the aedeagus from the apex of the median lobe to the base of the aedeagal capsule. The "parameral" side (i.e., the side where the sperm duct enters) is referred to as the ventral, the opposite side as the dorsal aspect.

Results

Quedius (Raphirus) umbrinus ERICHSON, 1839

Quedius umbrinus ERICHSON, 1839: 491 f. [type locality: "Neustadt-Eberswalde"].
Raphirus umbrinus var. *maritimus* J. SAHLBERG, 1876: 29 [first synonymy: Fauvel (1900)].
Quedius (Sauridus) cyanescens MULSANT & REY, 1876: 727 ff.; **nov.syn.**
Quedius umbrinus var. *tetrastigma* LEINBERG, 1900: 79.
Quedius dubius var. *umbripennis* BERNHAUER & SCHUBERT, 1916: 79; see comment below.
Quedius bulgaricus SCHEERPELTZ, 1937: 219 ff.; **nov.syn.**
Quedius cyprusensis LAST, 1955: 251 f.; **nov.syn.**
Quedius freyi SCHEERPELTZ, 1956: 1102 ff.; **nov.syn.**
Quedius pseudoumbrinus LOHSE, 1958: 59; synonymy by POPE (1977) and ASSING (1999).
Quedius maronitus COIFFAIT, 1963: 410; **nov.syn.**
Quedius gueorguievi COIFFAIT, 1967: 399 f.; **nov.syn.**

Type material examined: *Q. cyanescens*: Lectotype ♂, present designation [dissected prior to present study]: "♂ 14 / Lectotype / D. Drugmand Rev. 1995 *Quedius (Sauridus) cyanescens* Muls. Rey / Lectotypus ♂ *Quedius cyanescens* Mulsant & Rey, desig. V. Assing 2017 / *Quedius umbrinus* Erichson, det. V. Assing 2017" (MHNL). Paralectotypes: 1♂: "1 / Paralectotype / D. Drugmand Rev. 1995 *Quedius (Sauridus) cyanescens* Muls. Rey / Paralectotypus ♂ *Quedius cyanescens* Mulsant & Rey, desig. V. Assing 2017 / *Quedius umbrinus* Erichson, det. V. Assing 2017" (MHNL); 1♀: "♀ / Paralectotype / D. Drugmand Rev. 1995 *Quedius (Sauridus) cyanescens* Muls. Rey / Paralectotypus ♀ *Quedius cyanescens* Mulsant & Rey, desig. V. Assing 2017 / *Quedius umbrinus* Erichson, det. V. Assing 2017" (MHNL).

Q. bulgaricus: Lectotype ♂, present designation [dissected prior to present study]: "♂ / Rosalito-polje, Schipka-Balkan, ca. 1900 m / ex coll. Scheerpeltz / Typus *Quedius bulgaricus* O. Scheerpeltz / Lectotypus ♂ *Quedius bulgaricus* Scheerpeltz, desig. V. Assing 2017 / *Quedius umbrinus* Erichson, det. V. Assing 2017" (NHMW). Paralectotypes: 1♀: same labels as lectotype (NHMW); 1♂: same data as lectotype, but "Cotypus" (NHMW); 1♀: "♀ / Jumrukschal, Schipka-Balkan, 1400-1800 m / ex coll. Scheerpeltz / Cotypus *Quedius bulgaricus* O. Scheerpeltz / *Quedius umbrinus* Erichson, det. V. Assing 2017" (NHMW).

A d d i t i o n a l m a t e r i a l e x a m i n e d : Numerous specimens from Germany, Poland, Italy, Austria, Slovakia, Romania, Slovenia, Serbia, Albania, Macedonia, Bulgaria, Greece, Turkey, Cyprus, Lebanon, Russia (West Caucasus), Georgia, and Armenia.

C o m m e n t : *Quedius umbrinus* was described based on an unspecified number of syntypes from "Neustadt-Eberswalde", Germany (ERICHSON 1839).

The original description of *Q. cyanescens* is based on an unspecified number of syntypes from "les environs d'Hyères" (MULSANT & REY 1876). The three syntypes in the Rey collection had been examined, partly dissected, and labelled as lectotype and paralectotypes, respectively, by Didier Drugmand. A designation, however, was never published. In order to establish a formal designation, the male in better condition is designated as the lectotype. The aedeagus of the lectotype is within the range of intraspecific variation of that of *Q. umbrinus*. Hence the synonymy proposed above.

The first and second editions of the Palaearctic Catalogue (SMETANA 2004, SCHÜLKE & SMETANA 2015) list *Quedius umbripennis* ROUBAL, 1913 as a junior synonym of *Q. umbrinus*. ROUBAL (1913) described *Q. umbripennis* as an aberration of *Quedius dubius* from the Caucasus, i.e., as an infrasubspecific and consequently unavailable name (see also HERMAN 2001). In treating the name as a variety of *Q. dubius* (HEER, 1839), BERNHAUER & SCHUBERT (1916) made the name available and, according to the Code, they must be considered the authors of the taxon. In more recent articles (COIFFAIT 1963, 1968, KORGE 1964, HERMAN 2001) it is treated as a distinct species. Based on the illustrations of the aedeagus provided by COIFFAIT (1978a), however, it was correctly placed in synonymy with *Q. umbrinus*.

LAST (1955) described *Q. cyprusensis* based on a male holotype and an unspecified number of paratypes from "Mount Troodus", Cyprus. *Quedius freyi*, which was described based on 16 type specimens from "Pedhoulas" only one year later (SCHEERPELTZ 1956) was subsequently synonymized with *Q. cyprusensis* by COIFFAIT (1978a). At present, *Q. cyprusensis* is known from Cyprus, Lebanon, and Turkey (ANLAŞ & ROSE 2009, ASSING & WUNDERLE 2001, BORDONI 1984, COIFFAIT 1963, 1970, 1978a). According to LAST (1955) and SCHEERPELTZ (1956), the species is distinguished from *Q. umbrinus* by darker coloration of the legs, a larger and more robust body, differently shaped antennae and pronotum, and by the shape of the paramere. LOHSE (1958) already noted that in both external and the male sexual characters *Q. cyprusensis* much resembled *Q. umbrinus*. A comparison of specimens previously identified as *Q. cyprusensis* (see ASSING & WUNDERLE 2001) with material of *Q. umbrinus* from other regions yielded no discrete characters suggesting that the former should represent a distinct species. Neither is the aedeagus of significantly different shape (males of *Q. cyprusensis* from Cyprus and Lebanon examined), nor are the specimens significantly larger than material of *Q. umbrinus* seen, e.g., from Greece, Georgia and Armenia, even though they are at the upper end of the size range. Specimens examined from Cyprus and Lebanon belong to the macropterous morph (hence the long elytra). I have seen macropterous and similarly dark-coloured specimens also from South Greece, Armenia, and Georgia. In consequence, both *Q. cyprusensis* and its junior synonym *Q. freyi* are placed in synonymy with *Q. umbrinus*.

The original description of *Q. bulgaricus* is based on "2♂♂ (1 Typus, 1 Cotypus) und 2♀♀ (1 Typus, 1 Cotypus) vom Rosalito-polje, Schipka Balkan" and "1♀ vom Jumruktchal, Zentral-Balkan... und 1♀ von ebendort... (Cotypen)" (SCHEERPELTZ 1937).

Since a holotype is not specified, all the type specimens have syntype status. The male labelled by Scheerpeltz as "Typus" is designated as the lectotype. According to the key provided by SCHEERPELTZ (1937), *Q. bulgaricus* is mainly distinguished from *Q. umbrinus* by the shape of the head, shorter hind wings, and the absence of a palisade fringe at the posterior margin of the abdominal tergite VII. An examination of the type specimens revealed, however, that the shape of the head, the length of the hind wings, and the shape of the aedeagus are within the range of intraspecific variation of *Q. umbrinus* and that the palisade fringe at the posterior margin of tergite VII is indeed present. The median lobe of the aedeagus is of similar shape as that of material seen from Italy and Georgia. Hence the synonymy proposed above. Externally, the populations from the Stara Planina are characterized by rather extensive yellowish coloration of the lateral and posterior margins of the elytra.

Quedius maronitus was described from a unique male collected in "Liban, Aïn Batara" (COIFFAIT 1963). The holotype is deposited in the Coiffait collection and consequently unavailable for taxonomic revision (see introduction). However, based on the descriptions and illustrations of the aedeagus provided by COIFFAIT (1963, 1978a), as well as on additional material from Lebanon, the holotype is undoubtedly a macropterous specimen of *Q. umbrinus*.

Quedius gueorguievi was described based on a male holotype and two paratypes from "Grotte Porojnata Dupka, Bulgarie" (COIFFAIT 1967). The type material is currently inaccessible for scientific study (see introduction). However, neither the illustrations of the aedeagus nor the description provided by COIFFAIT (1967) provide any evidence suggesting that *Q. gueorguievi* should be distinct from *Q. umbrinus*. The shape of the median lobe of the aedeagus is identical to that of *Q. umbrinus* and the shape and chaetotaxy of the paramere (figure 2L in COIFFAIT 1967) are within the range of its intraspecific variation. Hence the synonymy proposed above.

Intra- and interspecific variation: *Quedius umbrinus* is subject to enormous variation not only of external characters such as size, coloration, and the length of the hind wings and the elytra, but also of the shape of the aedeagus. The macropterous morph, which is usually of more robust habitus, darker coloration, and larger size, was observed in populations from South Greece, Cyprus, the Middle East, and the Caucasus region (Georgia, Armenia). In Armenia, it was repeatedly collected together with the brachypterous morph. The coloration of the body is mostly dark-brown to blackish-brown, but ranges from nearly uniformly reddish (some specimens from North Germany seen) to partly or completely black. The elytra may be bicoloured (dark with more or less extensively paler margins and suture) or unicolorous, and the colour of the legs ranges from yellowish-red (usually with the meso- and metatibiae more or less distinctly infuscate) to blackish. The position of the subapical tooth of the median lobe of the aedeagus may be very close to the apex or more distant (with all transitions). The paramere varies in breadth and, to a lesser extent, also in length; it may be basally constricted or not. The apex of the paramere may be smoothly rounded or obtusely pointed; the sensory peg setae may be arranged in two distinct lateral rows or occupy nearly all of the apical portion of the paramere. Some of the aedeagal variation is illustrated by ASSING (1999).

Quedius sigwalti COIFFAIT, 1972, an endemic of Crete and probably the closest relative of *Q. umbrinus*, resembles *Q. umbrinus* both in external and in sexual characters, but is distinguished by a much broader paramere. Since transitional conditions have not been

observed, this difference is interpreted as interspecific variation. It seems likely that Crete was colonized by the ancestors of *Q. sigwalti* millions of years ago and that the Cretan populations have been isolated ever since.

Quedius umbrinus is widespread and common in practically all of Europe (eastwards to the Caucasus region), Turkey, and the Middle East (material from France, Germany, Slovakia, Austria, Italy, Slovenia, Romania, Serbia, Albania, Bulgaria, Greece, Cyprus, Turkey, Lebanon, Russia (West Caucasus), and Armenia examined). The species is an epigeic and eurytopic inhabitant of moist habitats.

***Quedius (Raphirus) hermonensis* COIFFAIT, 1963** (Figs 1-14, Map 1)

Quedius hermonensis COIFFAIT, 1963: 417 f.

Quedius coiffaitianus FAGEL, 1968a: 11 ff.; **nov.syn.**

Quedius rugosipennis FAGEL, 1969: 115 ff.; **nov.syn.**

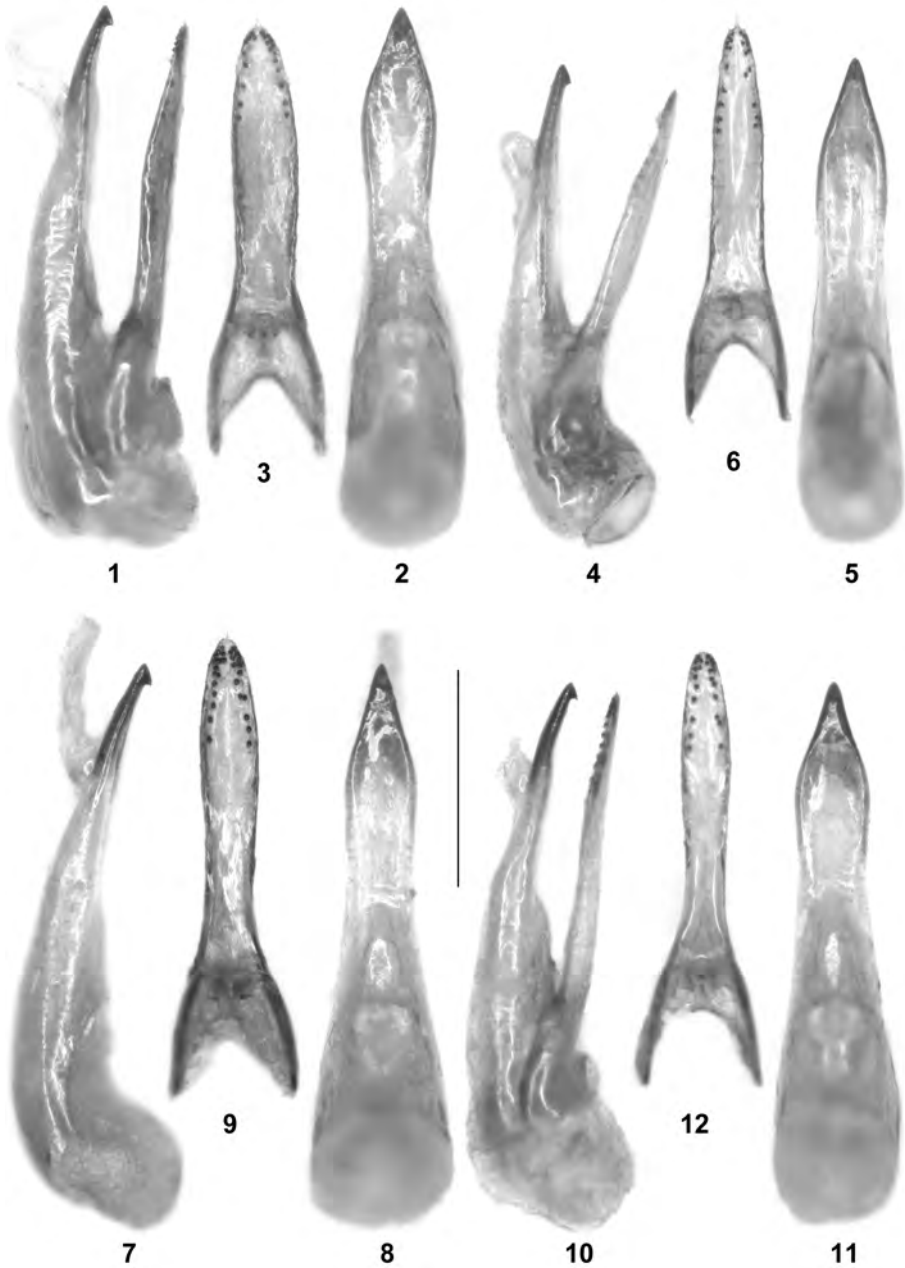
Type material examined: *Q. coiffaitianus*: Paratypes: 15 exs.: "LIBAN: Nabeh Safa, mousses gorges d'eau [1 specimen: "bois marécageux"], 1000 m, V.1966 G. Fagel / G. Fagel det., *coiffaitianus* n.sp. / Paratype / *Quedius hermonensis* Coiffait, det. V. Assing 2018" (IRSNB).

Q. rugosipennis: Holotype ♂ [dissected prior to present study; aedeagus missing]: "Anatolie mér., Antalya, V.1968 G. Fagel / G. Fagel det., *rugosipennis* n.sp. / Type / *Quedius hermonensis* Coiffait, det. V. Assing 2018" (IRSNB). Paratypes: 1♂, 3♀♀: same data as holotype (IRSNB).

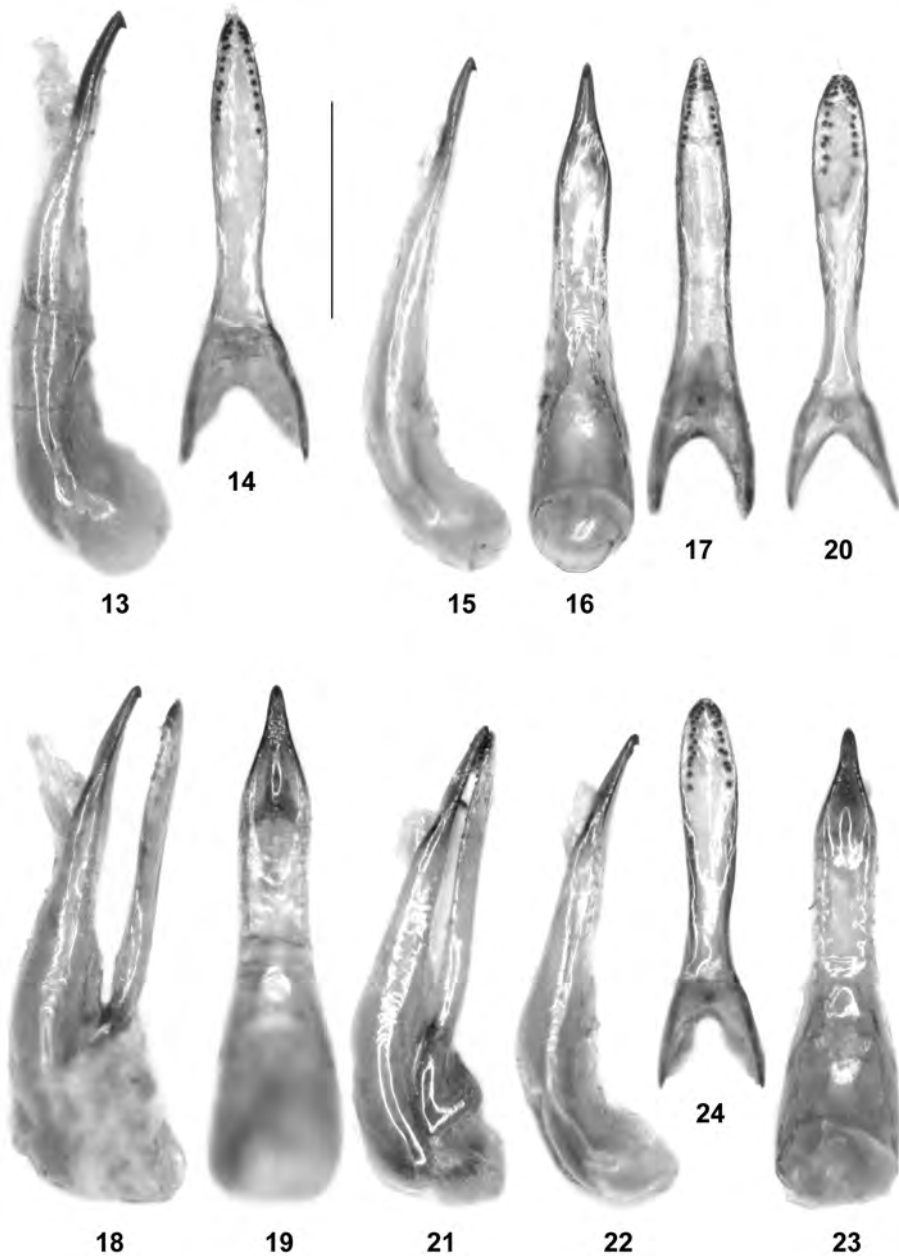
Additional material examined: Turkey: 2♂♂ [1 teneral], Antalya, Anamur-Gazipaşa, Kalandere, 36°07'N, 32°34'E, 40 m, 24.IV.2008, leg. Brachat & Meybohm (cAss). Cyprus: 1♂, Troodos, 34°55'N, 32°52'E, 1550 m, 9.IV.2008, leg. Lompe (cAss). Israel: 1♂, Sea of Galilee, Beit Tsaida Reserve, 32°53'N, 35°38'E, 0 m, 19.IV.2005, leg. Aßmann (cFel); 1♀, Sea of Galilee, Capernaum, bank of Jordan river, 26.III.2008, leg. Aßmann (cFel); 1♂, Hula N. R., 33°04'N, 35°36'E, 65 m, shore of pond, 13.XI.2010, leg. Drees (cFel); 1♀, S Ashdod, Nitzanim, 31°45'N, 34°37'E, sand dunes, pond shore, 12.IV.2013, leg. Buse (cFel); 1♀, Sea Genezareth, Jordan River, 32°54'N, 35°37'E, -215 m, 19.III.2011, leg. Meybohm (cAss).

C o m m e n t : The original description of *Q. hermonensis* is based on a male holotype and a female paratype from "Liban: Hasbaya" and one female paratype from "Nahr es Safa" (COIFFAIT 1963), that of *Q. coiffaitianus* on a male holotype and 27 paratypes from "Nabeh Safa" (FAGEL 1968a) (i.e., from the same locality as that of one of the paratypes of *Q. hermonensis*), and that of *Q. rugosipennis* on a male holotype and four paratypes (one male and three females) from "Anatolie méridionale: Antalya, route de Lara" (FAGEL 1969). An examination of the type material of *Q. coiffaitianus* and *Q. rugosipennis*, as well as of additional material from various regions revealed that in both external and the male sexual characters they are within the range of intraspecific variation of *Q. hermonensis* by COIFFAIT (1963). Hence the synonymy proposed above.

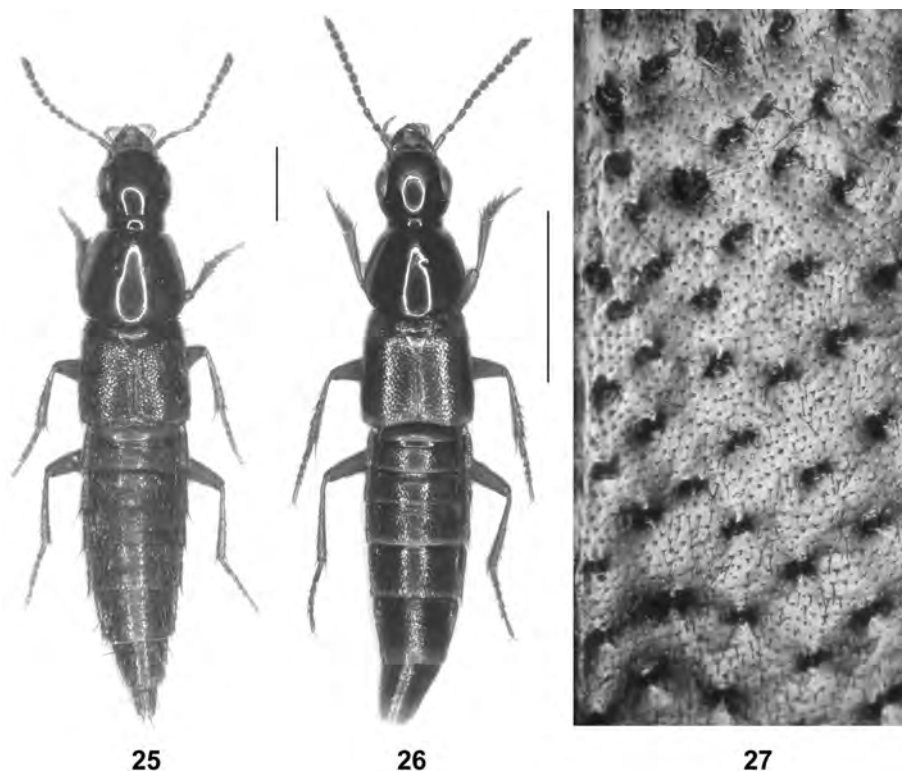
Based on similar external characters (coloration, punctation, habitus, etc.), on the similar general morphology of the aedeagus, and a similar ecology, *Q. hermonensis* is closely allied to *Q. umbrinus*, not to *Q. nigriceps* KRAATZ, 1857 as suggested by COIFFAIT (1978a). Like *Q. umbrinus*, *Q. hermonensis* is subject to pronounced variation of coloration and of the shape of the aedeagus (Figs 1-14). The colour of the forebody ranges from brown to black, often with the anterior and posterior margins of the elytra narrowly yellowish to reddish (especially in material from Cyprus). The length of the aedeagus ranges from 1.0-1.3 mm. The width of the paramere is rather variable, too; in material from Cyprus it is more slender and basally sometimes slightly constricted, whereas in material seen from other regions it is less slender and basally not constricted.



Figs 1-12: *Quedius hermonensis* from Samos (1-3), Israel (4-6), and Cyprus (7-12): (1, 4, 7, 10) aedeagus in lateral view; (2, 5, 8, 11) median lobe of aedeagus in ventral view; (3, 6, 9, 12) paramere. Scale bar: 0.5 mm.



Figs 13-24: *Quedius hermonensis* from Cyprus (13-14), *Q. orientalis* (15-17), and *Q. microcapillatus* (18-24) from Iraq (18-20), Turkey (21), and Iran (22-24): (13, 15, 22) median lobe of aedeagus in lateral view; (14, 17, 20, 24) paramere; (16, 19, 23) median lobe of aedeagus in ventral view; (18, 21) aedeagus in lateral view. Scale bar: 0.5 mm.



Figs 25-27: *Quedius orientalis* (25) and *Q. microcapillatus* (26-27): (25-26) habitus; (27) postero-sutural portion of elytra. Scale bars: 25-26: 1.0 mm; 27: 0.1 mm.

The habitat is similar to that of *Q. umbrinus*. The examined specimens were primarily collected in moist substrates: in moist leaf litter, swamps, on the shores of lakes and ponds, and on the banks of rivers and streams.

The revised distribution (Map 1) ranges from the Aegean Island Samos in the west across Turkey and Cyprus to the Middle East (Lebanon, Israel). While the species is fairly common in Cyprus (ASSING & WUNDERLE 2001), it appears to be rather rare elsewhere. For previous records from Cyprus (as *Q. rugosipennis*), Samos (as *Q. rugosipennis*), and Israel see ASSING & WUNDERLE (2001), ASSING (2015), SMETANA (1978), and ASSING (2014), respectively. A previous record of *Q. hermonensis* from Iraq (ASSING 2014), however, which was overlooked by SCHÜLKE & SMETANA (2015), refers to *Q. microcapillatus* (see below).

***Quedius (Raphirus) orientalis* KORGE, 1971** (Figs 15-17, 25, Map 1)

Quedius (Sauridus) orientalis KORGE, 1971b: 18 f.

Type material examined: Holotype ♂ [dissected prior to present study]: "Iran: Kermanshahan, Heinz leg. / Songhor, ca. 1800 m, 7.VIII.1969 / ♂-Holotypus *Quedius (Sauridus) orientalis* Korge" (MNB). Paratypes: 2♀♀: same data as holotype (MNB).

C o m m e n t : The original description is based on a male holotype and two female

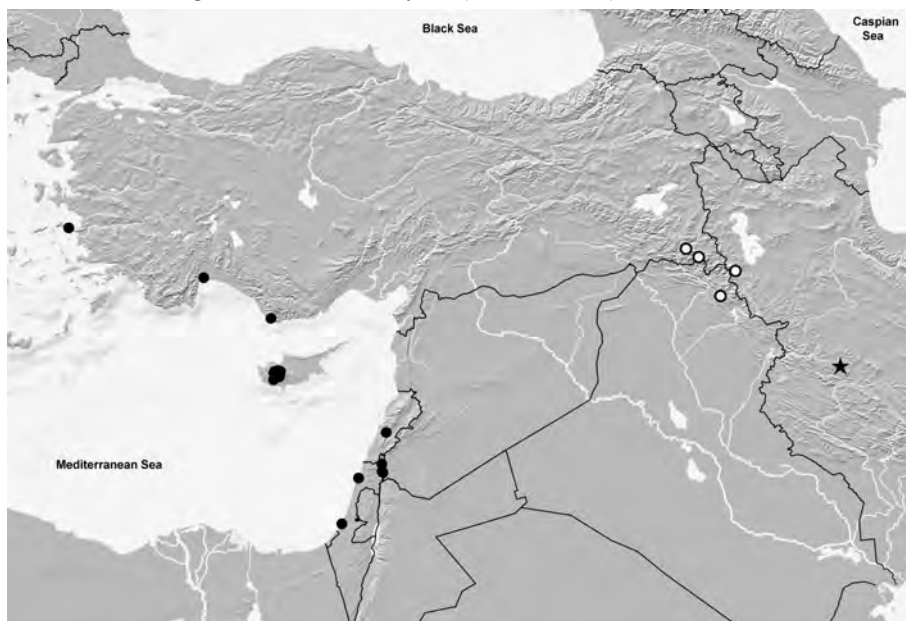
paratypes from "Songhor, ca. 1800 m, Kermanshahan (Iran)" (KORGE 1971b). In external (Fig. 25) and the male sexual characters (Figs 15-17) similar to *Q. hermonensis*, *Q. orientalis* is characterized particularly by the shape of the median lobe of the aedeagus, which has the apex very acute in ventral view. The species is currently known only from Iran (Map 1).

***Quedius (Raphirus) microcapillatus* KORGE, 1971** (Figs 18-24, 26-27, Map 1)

Quedius (Sauridus) microcapillatus KORGE, 1971b: 16 ff.

Type material examined: Holotype ♂ [dissected prior to present study]: "Azarbaijan (Iran), Heinz leg. / Danavar-dagh, s.e. Ushnuiyeh, ~1600 m, 10.VIII.1969 / ♂-Holotypus *Quedius microcapillatus* Korge" (MNB). Paratypes: 1♂, 4♀♀: same data as holotype (MNB).

C o m m e n t : The original description is based on a male holotype and five paratypes from "Danavar-dagh südöstlich Ushnuiyeh" (KORGE 1971b).



Map 1: Distributions of *Quedius hermonensis* (black circles), *Q. microcapillatus* (white circles), and *Q. orientalis* (black star), based on revised records.

A d d i t i o n a l m a t e r i a l e x a m i n e d : Turkey: 1♂, Hakkâri, Hakkâri env., Karakole, river bank, 14.VIII.1969, leg. Heinz (MNB); 1♀, Hakkâri, Dağlıca ["Oramar"], Sat Dağı, 1600-2700 m, 15.VII.1974, leg. Heinz (MNB). Iraq: 5♂♂, 5♀♀, S Rawandoz, 36°30'N, 44°36'E, 1300-1400 m, pitfall traps, XI.2007-III.2008, leg. Reuter (cFel, cAss, ZMUC).

R e d e s c r i p t i o n : Body length 7.0-9.0 mm; length of forebody 3.8-4.5 mm. Habitus as in Fig. 26. Coloration: head black; pronotum dark-brown to black; elytra brown to black with the humeral angles, the posterior margins, and the suture yellowish to reddish; abdomen brown to black with the posterior margins of tergites III-VI narrowly, the posterior margin of tergite VII broadly, and the posterior portion of tergite VIII

reddish; legs dark-yellowish to pale-reddish; antennae reddish-brown to dark-brown with the basal portions of the basal antennomeres more or less extensively reddish.

Head with fine transverse microsculpture. Pronotum approximately 1.05 times as broad as long and 1.3 times as broad as head; disc, including antero-lateral portions, with fine transverse to oblique microsculpture.

Elytra approximately 0.7 times as long as pronotum; disc with rather dense punctation, but interstices distinctly broader than diameter of punctures; interstices with dense micropunctation visible only at a magnification of at least 100 x (Fig. 27). Hind wings fully developed. Protarsomeres with very weakly pronounced sexual dimorphism. Metatarsomere I approximately as long as the combined length of metatarsomeres II and III.

Abdomen with moderately dense punctation and with extremely fine transverse microsculpture; posterior margin of tergite VII with palisade fringe.

♂: aedeagus (Figs 18-24) 1.1-1.2 mm long; median lobe very slender, apically very acute, and with a ventral tooth practically at apex; paramere approximately 1.0 mm long, very slender, in basal portion constricted (ventral view) and oval in cross-section (i.e., not flattened), apically with two marginal series composed of approximately 20 peg-setae each, these series apically converging and forming clusters rather than series.

Comparative notes: *Quedius microcapillatus* is distinguished from the similar *Q. hermonensis*, with which it was previously confounded (ASSING 2014), and from the closely related *Q. orientalis* by the coloration of the elytra (humeral angles, posterior margins, and suture more distinctly and more constantly paler), sparser elytral punctation, and particularly by the presence of micropunctation on the elytra (absent in *Q. hermonensis* and *Q. orientalis*) and the shape of the aedeagus. In *Q. hermonensis*, the median lobe is less acute (ventral view), the apico-ventral tooth is more pronounced and more distant from the apex of the median lobe, the paramere is basally flat in cross-section and the basal portion of the paramere is weakly constricted at most.

Distribution and natural history: The currently known distribution is confined to Southeast Anatolia, Northeast Iraq, and Northwest Iran (Map 1). The specimens from Iraq were collected with pitfall traps near a temporary stream.

Quedius (Raphirus) illyricus WENDELER, 1928 (Map 2)

Quedius albanicus BERNHAUER, 1926: 267 f.; preoccupied.

Quedius illyricus WENDELER, 1928: 298; replacement name.

Quedius paganettii BERNHAUER, 1936: 308 f.; **nov.syn.**

Quedius schipkanus SCHEERPELTSZ, 1937: 223 ff.; **nov.syn.**

Quedius pseudopyrenaicus COIFFAIT, 1967: 396 f.; **nov.syn.**

Type material examined: *Q. albanicus*: Lectotype ♂, present designation: "♂ / Alban. Exped. Pashtrik 1918 / 29.V-4.VI. / *albanicus* Bernh. Cotypus. / ex coll. Scheerpeltz / Dr M Bernhauer donavit / Cotypus *Quedius albanicus* Dr Bernhauer / Lectotypus ♂ *Quedius albanicus* Bernhauer, desig. V. Assing 2017 / *Quedius illyricus* Wendeler, det. V. Assing 2017" (NHMW). **Paralectotypes:** 1♂, 4♀♀: "Alban. Exp. '18., Pashtrik 4-14.7. / Cotypus" (NHMW); 14♀♀: "Alban. Exped. Pashtrik 1918, 29.V-4.VI. / Cotypus" (NHMW); 1♂: "Alban. Exped., Gjalica Ljums, 17.-26.VI.'18 / *Quedius* v. *albanicus* Brnh. n. v. / Cotypus / *Q. (Sauridus) albaniculus* [sic] Coiff., H. Coiffait det. 1967" (NHMW).

Q. schipkanus: Lectotype ♂, present designation [dissected prior to present study]: "♂ / Usanna-Hütte, Schiptschenska-Plan., Schipka-Balkan / 1400-1800 m., F. Schubert leg., Sommer 1925 / Usanna / ex coll. Scheerpeltz / Typus *Quedius schipkanus* O. Scheerpeltz / Lectotypus ♂ *Quedius schipkanus* Scheerpeltz, desig. V. Assing 2017 / *Quedius illyricus* Wendeler, det. V. Assing 2017"

(NHMW). Paralectotypes: 1♀: same labels as lectotype (NHMW); 2♂♂, 2♀♀: "Rosalito-polje, Schipka-Balkan, ca. 1900 m / Juli 1935, leg. Ing. K. Mandl / ex coll. Scheerpeltz / *Cotypus Quedius schipkanus* O. Scheerpeltz / *Quedius illyricus* Erichson, det. V. Assing 2017" (NHMW).

Additional material examined: Serbia: 4♂♂, 6♀♀, Stara Planina, Babin Zub, 22.VIII.2009, leg. Stevanović (cAss); 1♂, 1♀, Bukovic Planina, Kozji GRB, 700 m, 17.VII.2009, leg. Stevanović (cAss); 2♂♂, Tara Planina, Zaovine, 920 m, 28.X.2008, leg. Stevanović (cAss). Bosnia-Herzegovina: 1♂, 12 km S Kladanj, Konjuh planina, 950 m, beech and fir forest, 16.X.2005, leg. Hlaváč (cAss). Greece: 3♀♀, Flórina, 15 km WNW Flórina, Oros Varnous, 40°49'N, 21°15'E, 2000 m, 23.V.2005, leg. Assing (cAss); 4♂♂, 2♀♀, Flórina, 15 km WNW Flórina, Oros Varnous, 40°48'N, 21°15'E, 2010 m, 23.V.2005, leg. Assing (cAss); 1♂, Flórina, Pisodoria, 30.VII.2009, leg. Eifler (cAss); 2♀♀, Makedonia, Kavála, West Rodopi, Skaloti env., Karandere Forest, Elatia old forest village, 1500-1600 m, 13-14.VI.2002, leg. Brachat (cAss).

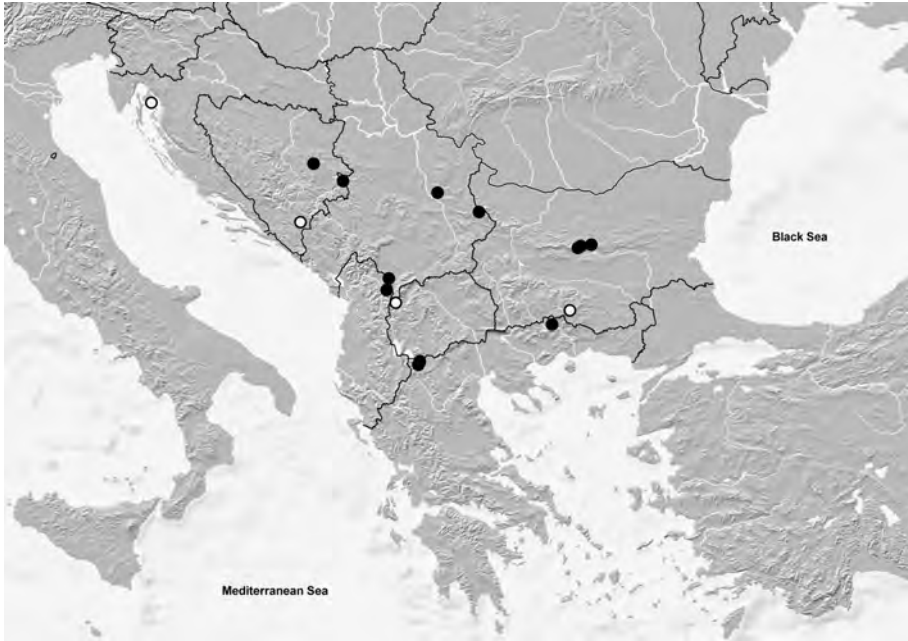
Comment: The original description of *Q. albanicus* is based on numerous ("in Anzahl") syntypes collected "am Pashtrik und Gjalica in Albanien" (BERNHAEUER 1926). The name is a junior primary homonym of *Q. albanicus* BERNHAEUER, 1914 and was subsequently replaced with the nomen novum *Q. illyricus* by WENDELER (1928). COIFFAIT (1967) illustrated the aedeagus of a type specimen. As many as 28 syntypes, 27 of them females, were located in the collections of the NHMW. The sole male available is designated as the lectotype. Aside from Albania, the species was later reported from South Bulgaria (KORGE 1969).

According to the original description, which is based on a unique specimen from "Albanien: Ljuboten", *Q. paganettii* is similar to *Q. pyrenaicus* BRISOUT DE BARNEVILLE, 1863, but distinguished by larger size (BERNHAEUER 1936). The species was subsequently reported also from Bosnia-Herzegovina and Macedonia by KORGE (1964). The description does not indicate any characters suggesting that it should be distinct from *Q. illyricus*.

Quedius schipkanus was described based on "2♂♂ (1 Typus, 1 Cotypus) und 5♀♀ (1 Typus, 4 Cotypen) von Usanna, Schiptschenska-Planina, Schipka-Balkan", "5♂♂, 13♀♀ vom Rosalito-polje, Schipka-Balkan", "4♀♀ vom Massiv des Jumrukschal, Zentral-Balkan", "1♀ von der Schiptschenska-Planina, Schipka-Balkan", and one ♂ and one ♀ from "Jumrukschal, Zentral-Balkan" (SCHEERPELTZ 1937). Since a holotype is not specified, all the type specimens have syntype status. The male labelled by Scheerpeltz as "Typus" is designated as the lectotype. According to SCHEERPELTZ (1937), *Q. schipkanus* is closely allied to *Q. umbrinus*. A revision of the type material, however, revealed that it is identical to *Q. illyricus*.

COIFFAIT (1967) described *Q. pseudopyrenaicus* based on a male holotype from "Île de Krk (Veglia)" and four female paratypes from Bosnia-Herzegovina. The type material deposited in the Coiffait collection is currently not accessible for taxonomic revision (see introduction). However, based on the original description, including the illustrations of the aedeagus, there is no doubt that the type material is conspecific with *Q. illyricus*. COIFFAIT (1978a) reported *Q. pseudopyrenaicus* also from Bosnia-Herzegovina and Serbia. KORGE (1969) already suspected the synonymy of *Q. pseudopyrenaicus* and *Q. paganettii* with *Q. illyricus* without formally synonymizing them, but was doubtful regarding the identities of *Q. schipkanus* and *Q. bulgaricus*.

The currently known distribution of *Q. illyricus* ranges from Croatia across Bosnia-Herzegovina, Serbia, Macedonia, and Albania to North Greece (first record!) and Bulgaria (Map 2).



Map 2: Distribution of *Quedius illyricus* in the Balkans, based on revised (black circles) and literature records (white circles).

***Quedius (Raphirus) pineti* BRISOUT DE BARNEVILLE, 1866**

Quedius nevesi SCHEERPELTZ, 1951: 130 ff.; synonymy confirmed.

Type material examined: Holotype ♂: "P^e Ramiro, Agrela, 29.VII.1940. Portugal / 21 / Typus *Quedius Nevesi* O. Scheerpeltz / ex coll. Scheerpeltz / Holotypus *Quedius nevesi* Scheerpeltz, rev. V. Assing 2017 / *Quedius pineti* Brisout, det. V. Assing 2017" (NHMW).

Comment: The original description of *Q. nevesi* is based on a unique holotype from "Agrela (Prov. Douro, Nord-Portugal)" (SCHEERPELTZ 1951). The name was synonymized with *Q. pineti*, one of the most common *Quedius* species of the Iberian Peninsula, by COIFFAIT (1963). An examination of this holotype revealed that the synonymy is correct.

***Quedius (Raphirus) ramiroi* SCHEERPELTZ, 1951**

Quedius ramiroi SCHEERPELTZ, 1951: 163 ff.

Type material examined: Holotype ♂ [aedeagus missing]: "P^e Ramiro, Penamaior, III-1940 / 22 / Typus *Quedius Ramiroi* O. Scheerpeltz / ex coll. Scheerpeltz / Holotypus *Quedius ramiroi* Scheerpeltz, rev. V. Assing 2017" (NHMW).

Comment: The original description is based on a unique male holotype from the environs of "Peña major in Paços de Ferreira (Prov. Douro, Nord-Portugal)" (SCHEERPELTZ 1951). Unfortunately, the aedeagus of the holotype is missing, so that an interpretation of this species mainly relies on the drawings provided by SCHEERPELTZ (1951). Externally, this species is characterized particularly by very dense and rather fine punctation of the elytra, as well as rather dense punctation of the abdomen.

***Quedius (Raphirus) nemoralis* BAUDI DI SELVE, 1848**

Quedius nemoralis BAUDI DI SELVE, 1848: 131.

Quedius marginalis KRAATZ, 1857: 512; preoccupied.

Quedius mutatus KRAATZ, 1868: 104; replacement name.

Quedius ovaliceps MULSANT & REY, 1876: 744.

Quedius safaensis FAGEL, 1968b: 8 ff.; **nov.syn.**

Quedius safaensis ormanus FAGEL, 1971: 129 f.; **nov.syn.**

Quedius nemoralis erinci KORGE, 1971a: 55; **nov.syn.**

Type material examined: *Q. safaensis*: **Paratypes**: 31 exs.: "LIBAN: Ain Zhalta, Jabal el Jaidi, cédraie, 1750 m, V.1966 G. Fagel / G. Fagel det., *safaensis* nov. sp. / *Quedius nemoralis* Baudi di Selve, det. V. Assing 2018" (IRSNB); 26 exs.: "LIBAN: Nabeh Safa, humus sous cistes [or "bois marécageux" or "mousses gorges d'eau"], 1000 m, V.1966 G. Fagel / G. Fagel det., *safaensis* n. sp. / *Quedius nemoralis* Baudi di Selve, det. V. Assing 2018" (IRSNB); 16 exs.: "LIBAN, Maasser ech Chouf, cédraie, 1850 m, V.1966 G. Fagel / G. Fagel det., *safaensis* n. sp. / *Quedius nemoralis* Baudi di Selve, det. V. Assing 2018" (IRSNB); 2 exs.: "LIBAN: El Barouk, bois de Lab Houll, 1700 m, V.1966 G. Fagel / G. Fagel det., *safaensis* n. sp. / *Quedius nemoralis* Baudi di Selve, det. V. Assing 2018" (IRSNB); 3 exs.: "LIBAN: Ain Dara, Nahr Jesâyer, 900 m, V.1966 G. Fagel / G. Fagel det., *safaensis* n. sp. / *Quedius nemoralis* Baudi di Selve, det. V. Assing 2018" (IRSNB); 17 exs.: "Liban: Kartaba, 1200-1400 m, V.1964 - G. Fagel / G. Fagel det., *safaensis* n. sp. / *Quedius nemoralis* Baudi di Selve, det. V. Assing 2018" (IRSNB).

Q. safaensis ormanus: **Paratypes**: 18♂♂, 14♀♀: "Anatolie occ., Uludagh, 1800-1900 m [or 2000 m], VI.1970 G. Fagel / G. Fagel det., *safaensis ormanus* nov. / Paratype / R. I. Sc. N. B. / *Quedius nemoralis* Baudi di Selve, det. V. Assing 2018" (IRSNB); 1♂, 1♀: "Anatolie occid., Abant Dagh. 1400-1550 m, V.1967 G. Fagel / G. Fagel det., *safaensis ormanus* nov. / Paratype / R. I. Sc. N. B. / *Quedius nemoralis* Baudi di Selve, det. V. Assing 2018" (IRSNB).

Comment: The original description of *Q. nemoralis* is based on an unspecified number of syntypes from Piemonte, North Italy ("in provincia Montisferrati (Pedemontium)" (BAUDI 1848). *Quedius marginalis*, *Q. mutatus*, and *Q. ovaliceps* had been synonymized with *Q. nemoralis* prior to the present paper (see HERMAN 2001).

Quedius safaensis was originally described based on a male holotype and numerous paratypes from "Liban: Nabeh Safa" and on additional paratypes from "Maasser ech Chouf" and from "Kartaba" (FAGEL 1968b).

The original description of *Q. safaensis ormanus* is based on a holotype and twelve paratypes from "Anatolie occidentale: vilayet de Bursa, Uludagh, 1800-1900 m" and two paratypes from "vilayet de Bolu, Abant Dagh, 1400-1500 m" (FAGEL 1971). Strangely, as many as 27 specimens labelled as paratypes from the type locality were found in the Fagel collection at the IRSNB. The principle difference indicated in the description as distinguishing *Q. ormanus* from *Q. safaensis* and *Q. nemoralis* is the coloration.

According to the original description of *Q. nemoralis erinci*, which is based on a holotype and six paratypes from "Bosburun-Gebirge im Pisidischen Taurus", this subspecies is distinguished from the nominal subspecies by slight differences in head shape, coloration, and the size of the aedeagus (KORGE 1971a). A study of abundant material from various localities both in South and North Anatolia, however, revealed that the Turkish populations are within the range of intraspecific variation of *Q. nemoralis*. Moreover, a zoogeographically plausible distribution pattern was not observed.

The known range of *Quedius nemoralis* ranges from the Iberian Peninsula across Central and South Europe eastwards to the Caucasus region, Turkey, Cyprus, and Iran (SCHÜLKE & SMETANA 2015). Additional material from numerous localities in Spain, France, Germany, Austria, Italy, Croatia, Serbia, Montenegro, Albania, Macedonia, Greece,

Turkey, and Lebanon was examined. Based on personal observations it is one of the most common *Raphirus* species in the East Mediterranean, and can be found in leaf litter and debris in various shrub and forest habitats, often in large numbers. It is subject to considerable intraspecific variation of coloration (sometimes even within populations). The variability of the aedeagus is moderate, i.e., not as pronounced as in *Q. umbrinus*.

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

Heterothops limbatus HEER, 1839: 220.

Quedius scheerpeltzianus FAGEL, 1968c: 195 f.; **nov.syn.**

Type material examined: Holotype ♂ [dissected prior to present study; most of median lobe of aedeagus missing; remainder of aedeagus transferred from microvial to transparent slide]: "Morée: Taygète, IX.1953, J. Brondeel / G. Fagel det., *scheerpeltzianus* n. sp. / Type / *Quedius limbatus* (Heer), det. V. Assing 2018" (IRSNB).

Comment: The original description of *Q. scheerpeltzianus* is based on a male holotype from "Morée: Taygète" and a male paratype from "Anatolie: Amasia" (FAGEL 1968c). An examination of the holotype revealed that it belongs to the macropterous morph of *Q. limbatus*.

***Quedius (Raphirus) suturalis* KIESENWETTER, 1845**

Quedius humeralis anatolicus KORGE, 1964: 119 ff.; **nov.syn.**

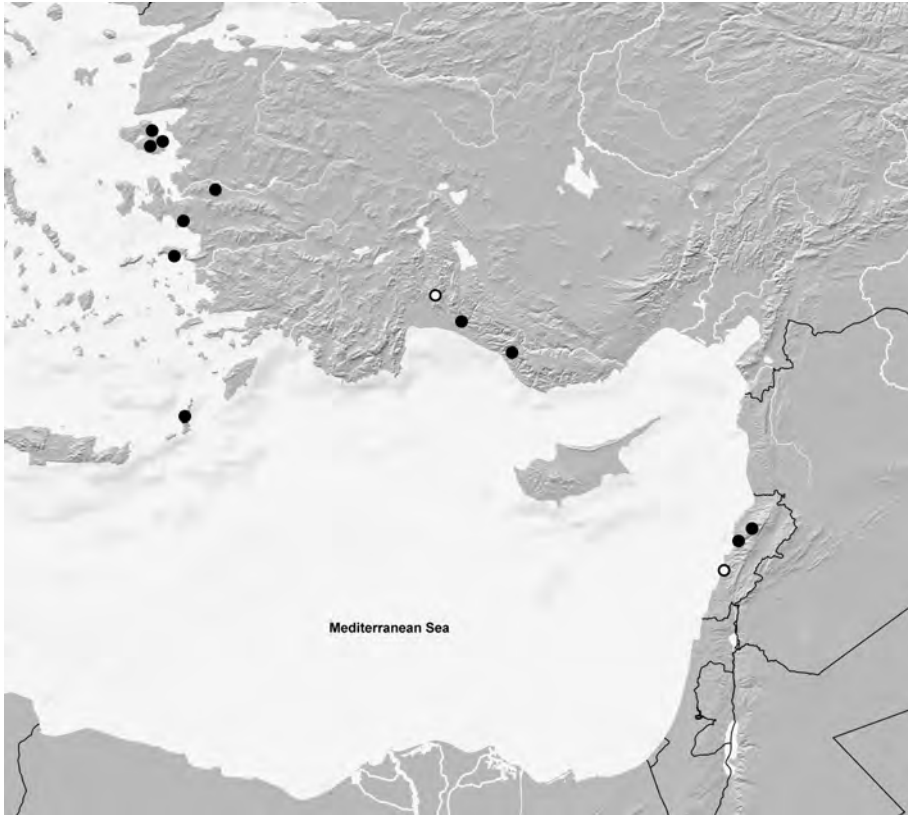
Quedius suturalis anatolicus FAGEL: COIFFAIT (1978a).

Quedius troglophilus COIFFAIT, 1969: 46 ff.; **nov.syn.**

Type material examined: Holotype ♂ [teneral; dissected prior to present study]: "Asia minor, leg. H. Korge / Abant-Geb., 1100-1500 m, 8.8.1963 / ♂-Holotypus *Quedius humeralis* ssp. *anatolicus* Korge / *Quedius suturalis* Kiesenwetter, det. V. Assing 2018" (MNB).

Comment: The original description of *Q. humeralis anatolicus* is based on a unique male from "Abant-Gebirge" (KORGE 1964); the type locality is situated in Bolu province, North Turkey. COIFFAIT (1978a) moved the subspecies to *Q. suturalis*. According to KORGE (1964) and COIFFAIT (1978a), *Q. anatolicus* is distinguished from the nominal subspecies by slight differences in the shape of the aedeagus (paramere broader, longer in relation to median lobe; subapical tooth closer to the apex of the median lobe). *Quedius troglophilus* was described based on material from several caves in Bulgaria (COIFFAIT 1969).

Quedius suturalis is common and widespread in the Palaearctic region, its distribution ranging from the Iberian Peninsula across practically all of Europe eastwards to the Caucasus region (SCHÜLKE & SMETANA 2015). An examination of material of *Q. suturalis* from various regions (France, Germany, Austria, Italy, Czech Republic, Slovenia, Serbia, Albania, Greece, Turkey, Georgia), including various localities across North Anatolia (Bursa, Samsun, Giresun, Gümüşhane, and Rize provinces), revealed some intraspecific variation in the shape of the aedeagus. An examination of the teneral holotype of *Q. humeralis anatolicus* and the illustrations of *Q. troglophilus* provided by COIFFAIT (1969) leave no doubt that the aedeagi of *Q. anatolicus* and *Q. troglophilus* are within the range of this variation, so that both names are placed in synonymy with *Q. suturalis*.



Map 3: Distribution of *Quedius job* in the East Mediterranean, based on revised (black circles) and literature records (white circles).

***Quedius (Raphirus) job* COIFFAIT, 1963 (Map 3)**

Quedius job COIFFAIT, 1963: 415 ff.

Quedius lydus FAGEL, 1968c: 193 f.; **nov.syn.**

Type material examined: Holotype ♂ [dissected prior to present study; most of median lobe of aedeagus missing; remainder of aedeagus transferred from microvial to transparent slide]: "Turquie, Güne Dag, X.1953, J. Brondeel / G. Fagel det., *lydus* n. sp. / Type / *Quedius job* Coiffait, det. V. Assing 2018" (IRSNB). Paratypes: 1♂ [dissected prior to present study; paramere broken; aedeagus transferred from microvial to transparent slide]: "Samos, Kuruntere / G. Fagel det., *lydus* n. sp. / Paratype / *Quedius job* Coiffait, det. V. Assing 2018" (IRSNB); 1♀: "Anatolie, Manisa Dag / G. Fagel det., *lydus* n. sp. / Type / *Quedius job* Coiffait, det. V. Assing 2018" (IRSNB).

Additional material examined: Turkey: 1♂, Antalya, Manavgat env., Yaylaalan, 900 m, ravine, floated from debris on stream bank, 31.XII.1990, leg. Assing (cAss); 1♂, Antalya, 25 km ESE Alanya, 36°32'N, 32°16'E, 900 m, litter of deciduous trees sifted, 23.XII.2006, leg. Assing (cAss). Lebanon: 2♂♂, 1♀, 30 km NE Beirut, Ibrahim river near Adonis, 5.III.2014, leg. Reuter (cFel); 1♀, 48 km NE Beirut, Chatine near Arz Tannourine, 1500 m, river bank, 29.IV.2014, leg. Reuter (cFel).

Comment: The original description of *Q. job* is based on six males and seven females from "Liban: Nahr es Safa" (COIFFAIT 1963), that of *Q. lydus* on a male holotype

from "Anatolie égéenne: Güne Dagh", a male [sic] from "Anatolie égéenne: Manisa Dagh", and two paratypes (a male and a female) from "Samos: Kuruntere" (FAGEL 1968c). An examination of the type material of *Q. lydus* revealed that the paratype from "Manisa Dagh" is in fact a female, and the aedeagi of the two remaining male type specimens are damaged. The aedeagus of the male paratype from Samos is identical to that of *Q. job*.

Quedius job was reported from Turkey ("Bosburun-Gebirge im Pisidischen Taurus") by KORGE (1971a) and from the Greek islands Karpathos, Lesbos, and Samos by ASSING (2016a, b, 2017d). The currently known distribution is illustrated in Map 3; the doubtful locality "Samos, Kuruntere" (FAGEL 1968c) is omitted from the map.

***Quedius (Raphirus) humeralis* STEPHENS, 1832**

Quedius humeralis STEPHENS, 1832: 220.

Quedius oblitteratus ERICHSON, 1840: 549.

Quedius coxalis KRAATZ, 1858: 59 f.; **nov.syn.**

Quedius gestroi GRIDELLI, 1922: 136.

Quedius atticus COIFFAIT, 1967: 408 f.; **nov.syn.**

Type material examined: Lectotype ♂ [dissected prior to present study]: "Graecia / Typus / *coxalis* mihi / Coll. Kraatz / *Gestroi* mihi, det. E. Gridelli / Dtsch. Ent. Inst. Eberswalde / G. Fagel elig. 1968, *Quedius coxalis* Kr. Lectotype / DEI Müncheberg Col - 10021 / *Quedius humeralis* Stephens, det. V. Assing 2018" (SDEI).

Comment: The original description of *Q. coxalis* is based on several syntypes ("nicht gerade selten") from "Athen" (KRAATZ 1858). There is, however, only one syntype in the Kraatz collection. This specimen, a male, was examined and designated as the lectotype by FAGEL (1968b). COIFFAIT (1967) described *Q. atticus* based on a male holotype and seven paratypes (a male and six females) from "Mont Pantélique près d'Athènes". *Quedius atticus* was synonymized with *Q. coxalis* by COIFFAIT (1977).

An examination of the lectotype of *Q. coxalis* revealed that it is conspecific with the widespread and common *Q. humeralis*. Hence, both *Q. coxalis* and its junior synonym *Q. atticus* are placed in synonymy with this name.

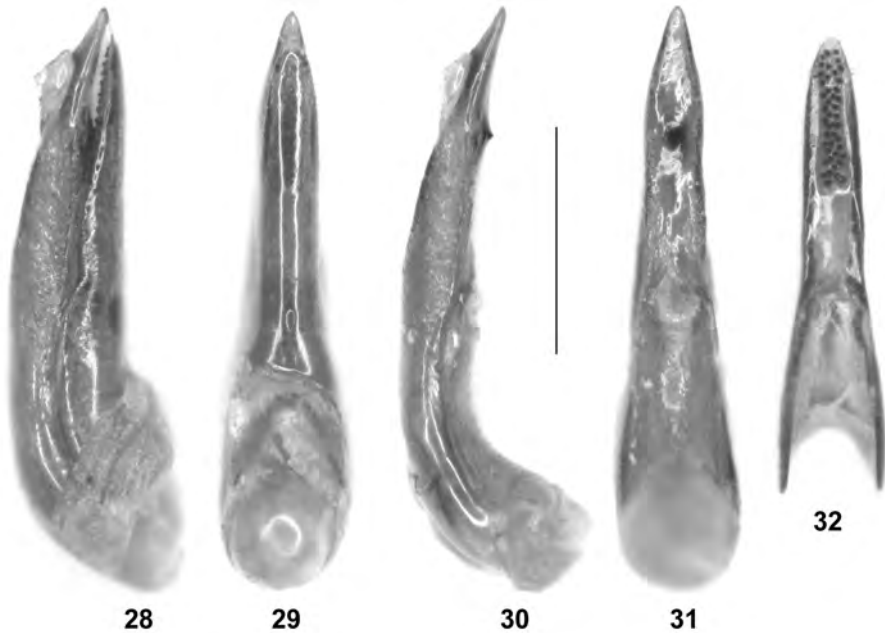
***Quedius (Raphirus) kirklarensis* KORGE, 1971**

Quedius (Sauridus) kirklarensis KORGE, 1971a: 52 f.

Quedius (Sauridus) drannazensis COIFFAIT, 1978b: 171.

Type material examined: Holotype ♂ [dissected prior to present study; median lobe of aedeagus broken]: "Anatolia bor., leg. H. Korge / 2000 m, 23.V.1964, Çamlık s. Rize / ♂-Holotypus *Quedius kirklarensis* Korge / *Quedius kirklarensis* Korge, A. Solodovnikov det. 2000" (MNB).

Comment: The original description of *Q. kirklarensis* is based on a unique male holotype from "Kirklar-Dağları oberhalb des Dorfes Çamlık" (KORGE 1971b), that of *Q. drannazensis* on a unique male from "Drannaz Dag" (COIFFAIT 1978b). *Quedius kirklarensis* was revised by SOLODOVNIKOV & ŠTOURAC (2002), who also established the synonymy with *Q. drannazensis*. The species is distinguished from all other *Raphirus* species with an impunctate scutellum by its small size (approximately 6.0 mm) in combination with completely reduced hind wings and the absence of a palisade fringe at the posterior margin of the abdominal tergite VII. The aedeagus is similar to that of *Q. limbatus*.



Figs 28-32: *Quedius semirufus*: (28) aedeagus in lateral view; (29) aedeagus in ventral view; (30) median lobe of aedeagus in lateral view; (31) median lobe of aedeagus in ventral view; (32) paramere. Scale bar: 0.5 mm.

***Quedius (Raphirus) semirufus* KORGE, 1971 (Figs 28-32)**

Quedius (Sauridus) semirufus KORGE, 1971b: 14 f.

Type material examined: Holotype ♂ [dissected prior to present study]: "Azarbaijan (Iran), Heinz leg. / Charasu-dagh östl. Heroabad, 2000-2300 m, I.VIII.1968 / ♂-Holotypus *Quedius (Sauridus) semirufus* Korge" (MNB). Paratype ♀: same data as holotype (MNB).

Additional material examined: Iran: 1♂, Gilan, Charasu Dagh SW Assalam, 1200-1800 m, 3.VIII.1978, leg. Heinz (MNB).

C o m m e n t : The original description is based on a male holotype and a female paratype from "Charasu-dagh östlich Heroabad" (KORGE 1971b). Based on external and the male sexual characters, *Q. semirufus* belongs to the *Q. obliquiseriatus* group. For illustrations of the aedeagus of this conspicuous micropterous species see Figs 28-32.

***Quedius (Raphirus) boops* (GRAVENHORST, 1802)**

Quedius haafi SCHEERPELTZ, 1956: 1107 f.; **nov.syn.**

Type material examined: Syntypes: 1♂ [dissected prior to present study; aedeagus missing]: "♂ / Pedhoulas, 3600 ft, Cyprus, 2.5.1955, leg. Dr. E. Haaf / Museum Frey Tutzing / Dr. E. Haaf don. 1956 / ex coll. Scheerpeltz / Cotypus *Quedius Haafi* O. Scheerpeltz / *Quedius boops* (Gravenhorst)♂, det. V. Assing 2017" (NHMW). 2♀♀: same data (NHMW).

Additional material examined: 1♂: "♂ / Cypem, Madari-Geb., Mavromoustakis / Haafi / ex coll. Scheerpeltz / Cotypus *Quedius Haafi* O. Scheerpeltz" (NHMW).

C o m m e n t : A widespread and rather variable species, *Q. boops* previously already had five junior synonyms (ASSING 2017a). *Quedius haafi* was originally described based on "1♂, 1♀ Typen, 1♂, 3♀♀ Paratypen" from "Cyprus: Pedhoulas, 3600 ft, 2.5.1955" (SCHEERPELTZ 1956). Since no holotype is specified, all type specimens have syntype status. Three syntypes, a male and two females, were located in the collections of the NHMW. Since the aedeagus of the male is missing, a lectotype is not designated. The three remaining syntypes are probably in the Frey collection (currently housed at the Naturhistorisches Museum Basel). An intact male labelled by Scheerpeltz as "Cotypus" (see additional material above) does not have type status, since it is not mentioned in the original description. A dissection of this male revealed that it is conspecific with *Q. boops*. In external characters, it is indistinguishable from the examined syntypes of *Q. boops*, suggesting that they are conspecific, too. Hence the synonymy proposed above.

The species of the *Quedius nivicola* group

The species allied to *Q. nivicola* were treated by FAGEL (1968a), who attributed five species to this group: *Q. nivicola*, *Q. josue*, *Q. troodites*, *Q. problematicus*, and *Q. petraensis*, the latter three newly described. KORGE (1971a) described *Q. ortrudae* based on type material from Ordu (North Anatolia) and attributed it to the *Q. nivicola* group. Aside from these species, COIFFAIT (1978a) additionally included the following species: *Q. semirufus* KORGE, 1971 (Azerbaijan), *Q. obliquiseriatus* EPPELSHEIM, 1889 (North-west Caucasus), *Q. rhodicus* COIFFAIT, 1976 (Rhodos), *Q. vulneratus* GEMMINGER & HAROLD, 1868 (Caucasus region, Turkey), *Q. abkasicus* COIFFAIT, 1964 (now a synonym of *Q. vulneratus*), and *Q. ponteuxinus* COIFFAIT, 1976 (Southeast Bulgaria). However, *Q. obliquiseriatus* and *Q. vulneratus* clearly belong to other species groups (ASSING 2016c); the same applies to *Q. semirufus* (see above). The identities and affiliations of *Q. rhodicus* and *Q. ponteuxinus* require revision. *Quedius troodites* was synonymized with *Q. josue* by ASSING (2014).

An examination of the type material of the species described by FAGEL (1968a) and a revision of material previously identified as *Q. nivicola* and *Q. josue* revealed that, in fact, the *Q. nivicola* group includes five species in the East Mediterranean region: *Q. nivicola*, *Q. ortrudae*, *Q. josue*, *Q. problematicus*, and *Q. petraensis*.

In external (size, proportions, habitus, coloration, punctuation, etc.) and the male primary sexual characters, the five species here attributed to the *Q. nivicola* group are highly similar. The aedeagus is of similar general structure and interspecific variation is weakly pronounced, a phenomenon also observed in other species groups of the subgenus *Raphirus*.

The general distribution pattern is similar to that of the recently revised *Q. coloratus* group (ASSING 2017a), with the whole group distributed in the East Mediterranean. The distributions of the individual species are partly allo- or parapatric and partly sympatric.

Ecologically, the species of the *Q. nivicola* group fall into two categories. While *Q. josue* and *Q. problematicus* are evidently epigeic species, available evidence suggests that the habitats of *Q. nivicola* and *Q. ortrudae* are essentially subterranean, like those of the species of the *Q. coloratus* group.

***Quedius (Raphirus) nivicola* KIESENWETTER, 1858** (Figs 33-39, Map 4)

Material examined: Greece: mainland: 5♂♂, Atikí, Oros Kithairón, 1210 m, VI.2004-VI.2005, leg. Giachino & Vailati (cAss); 6♂♂, same data, but V.2003-VI.2004 (cAss, cFel); 1♂, 1♀, same data, but VI.2002-V.2003 (cAss); 1♀, Etolia-Akamanía, Oros Arákinthos, road to Klima, 38°28'N, 21°28'E, 800 m, subterranean pitfall trap, 29.V.2011-11.VI.2012, leg. Giachino & Vailati (cAss); 1♀, Atikí, Oros Kithairón, 38°11'N, 23°16'E, 1210 m, subterranean pitfall trap, 3.IX.2015-26.V.2017, leg. Giachino & Vailati (cAss); 1♀, Thessalia, Parnassos Oros, 38°33'N, 22°34'E, 2000 m, 11.VI.2013, leg. Eifler (cAss). Pelopónnisos: 1♂, 2♀♀, Lakonía, Oros Taygetos, Prof. Elías, 1940 m, VI.1999-VI.2000, leg. Giachino & Vailati (cAss); 1♀, Taygetos, Prof. Elías, 36°57'N, 22°21'E, 2250 m, 16.V.2007, leg. Aßmann (cFel); 1♂, Erimanthos, Kalentzi, 37°56'56"N, 21°46'14"E, 1200 m, 18.IV.2017, leg. Brachat & Meybohm (cAss); 4 exs., Likódimo, 35 km SW Kalamata, 36°56'N, 21°52'E, 790 m, oak forest, litter sifted, 25.IV.2015, leg. Schülke (MNB).

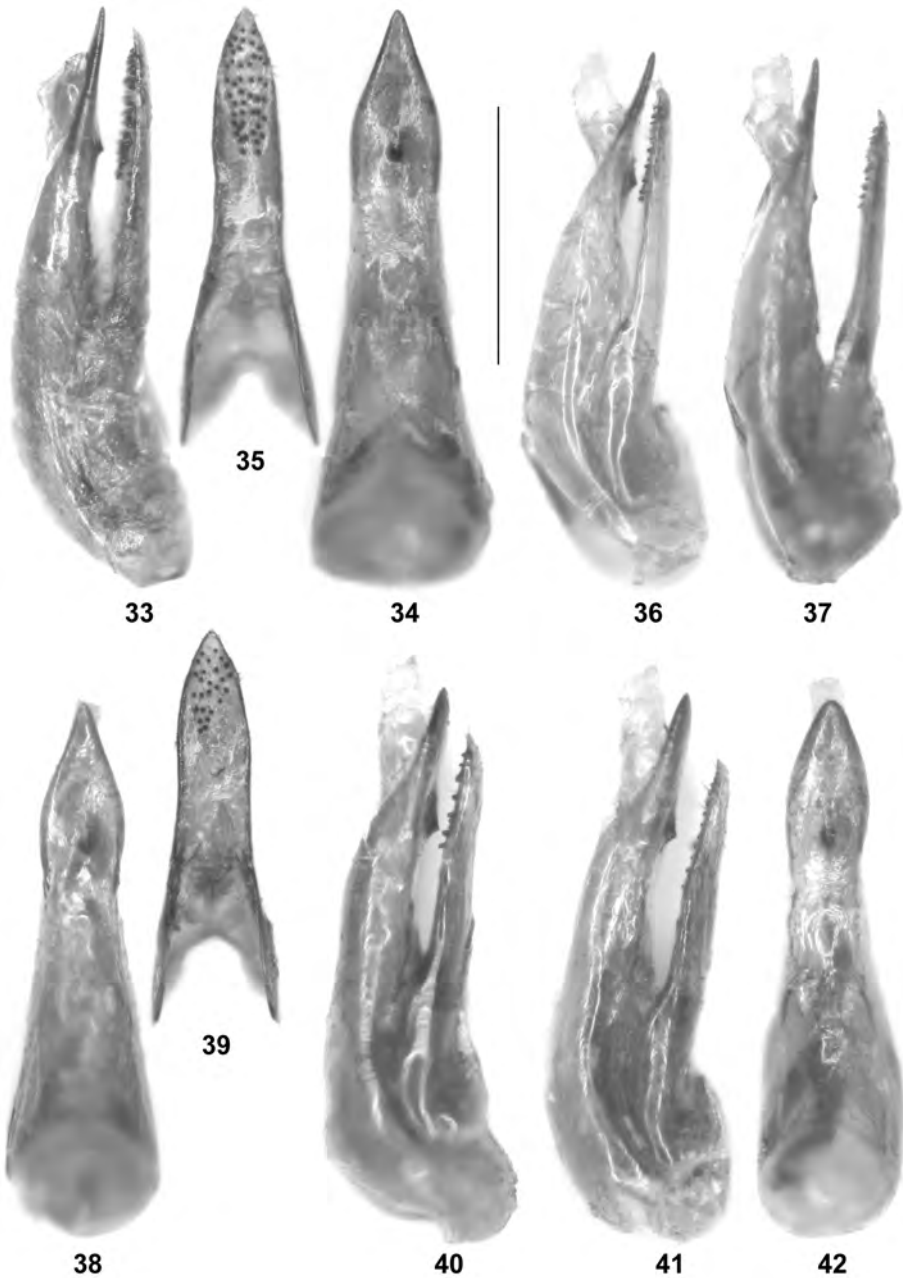
Comment: The original description is based on several syntypes ("in einigen Exemplaren") collected from under stones "auf dem Parnes bei Athen" (KIESENWETTER 1858). Aside from Greece, this species has subsequently been reported from Turkey, Lebanon, Israel, and Iran (ASSING 2016c, SCHÜLKE & SMETANA 2015). A re-examination of material from various regions in the East Mediterranean, which had previously been identified as *Q. nivicola*, revealed, however, that the distribution of the true *Q. nivicola* is confined to Greece and that records from other regions refer to closely related species. This also applies to previous records of *Q. nivicola* from the Aegean Islands Samos, Ikaria, and Kos (ASSING 2015, 2017c, d). For recent, correctly identified records from the Ionian Island Corfu see ASSING et al. (in press). The records from Greece in ASSING (2017a), too, refer to *Q. nivicola*. The currently known distribution is illustrated in Map 4.

Quedius nivicola is reliably distinguished from other species of the *Q. nivicola* group (*Q. ortrudae*, *Q. josue*, *Q. problematicus*, *Q. petraensis*) by the shape of the aedeagus, from *Q. problematicus*, *Q. josue*, and *Q. petraensis* also by the coloration (pronotum completely black; elytra red, not yellowish or yellowish-red). The aedeagus is characterized by a conspicuously flat (lateral view) and apically acute apex (ventral view) of the median lobe and by a relatively broad paramere with usually 35-50 peg-setae (Figs 33-39).

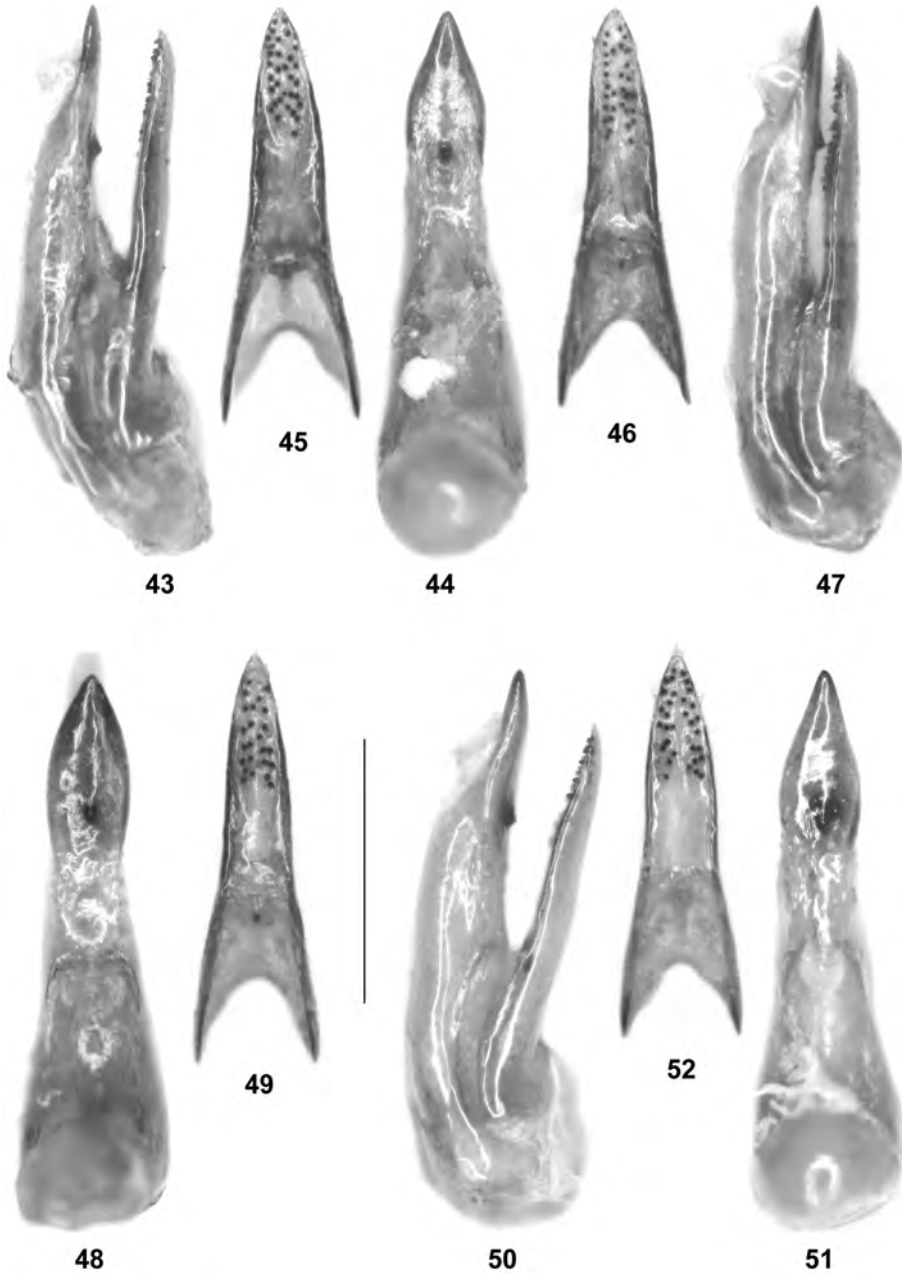
Most of the revised material of *Q. nivicola* was collected with subterranean pitfall traps. The remaining records are probably accidental, as can be inferred from the fact that they are mostly based on singletons. One specimen from Corfu was collected on the wing (with a car-net) in the beginning of June. These observations and the general rarity of records suggest that the reproduction habitat of *Q. nivicola* is hypogean.

***Quedius (Raphirus) ortrudae* KORGE, 1971** (Figs 40-49, Map 4)

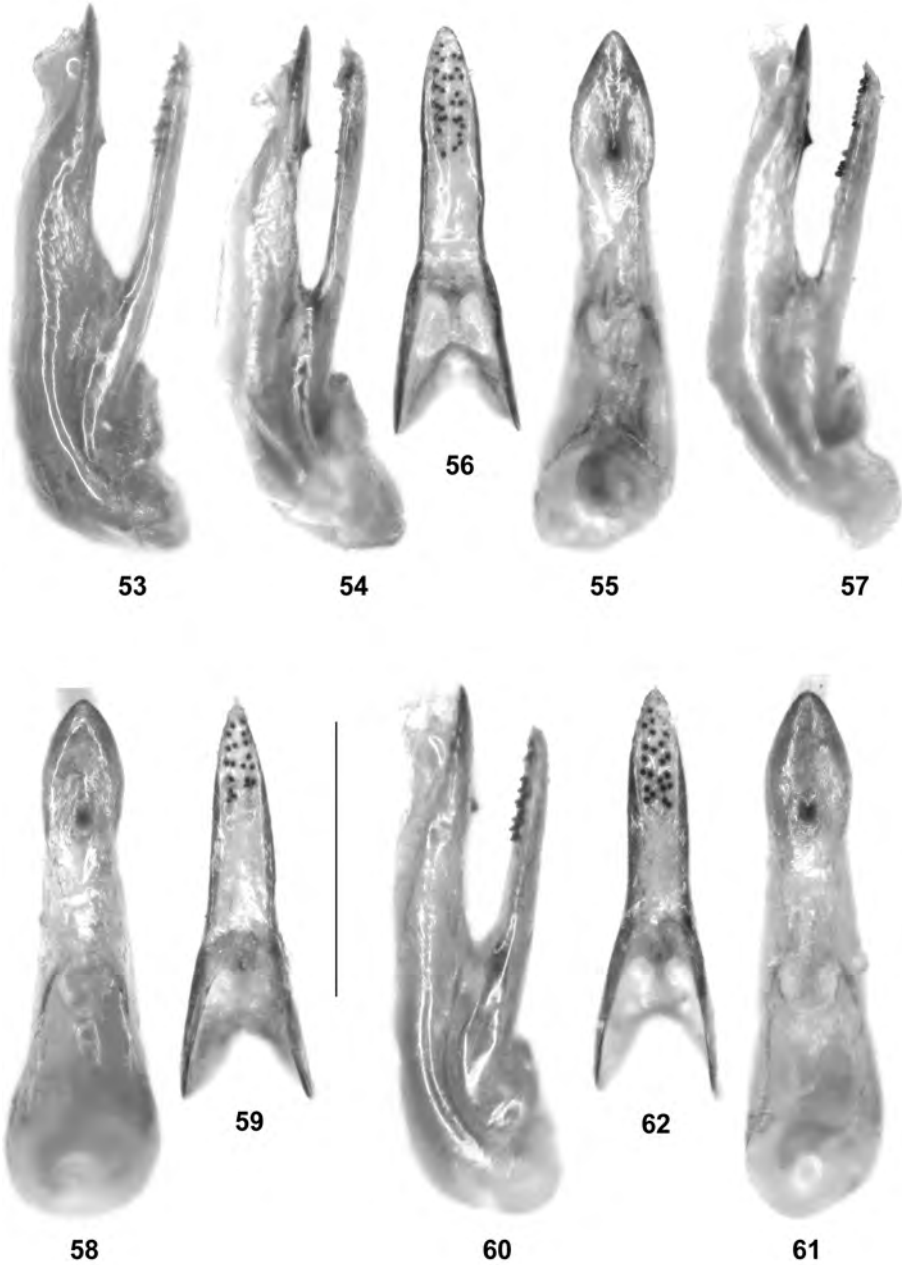
Type material examined: Holotype ♂ [dissected prior to present study; median lobe of aedeagus somewhat damaged]: "Anatolia bor., Heinz leg. / Paß 1800 m, nördl. Koyulhisar, 24.VII.1967 / ♂-Holotypus *Quedius ortrudae* Korge / *Quedius ortrudae* Korge, det. V. Assing 2018" (MNB). Paratype ♀: same data as holotype (MNB).



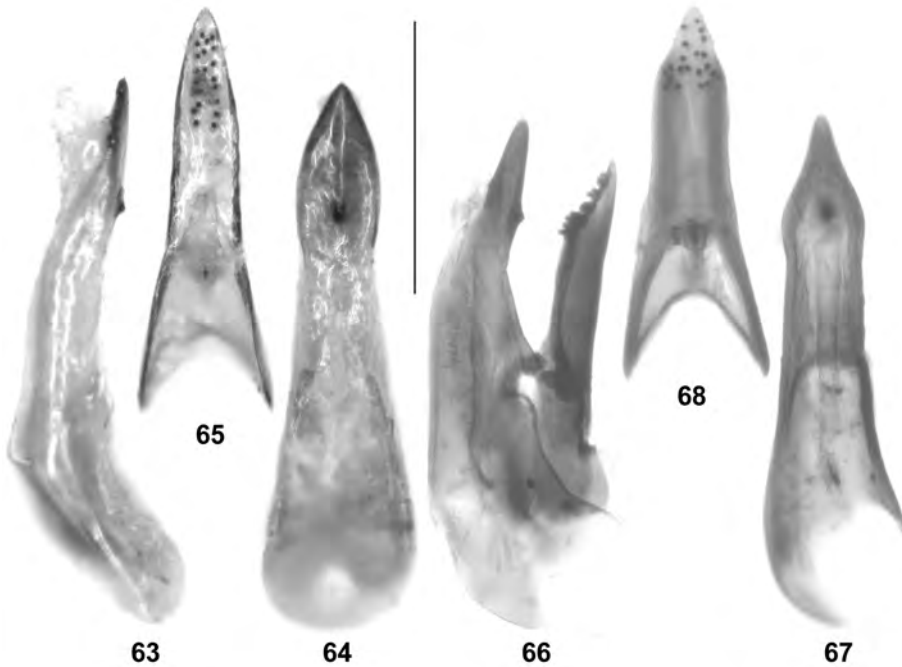
Figs 33-42: *Quedius nivicola* (33-39) from Taygetos (33-35), Erimanthos (36), and Atiki (37-39) and *Q. ortrudae* (40-42) from Samsun (40) and Ordu (41-42): (33, 36-37, 40-41) aedeagus in lateral view; (34, 38, 42) median lobe of aedeagus in ventral view; (35, 39) paramere. Scale bar: 0.5 mm.



Figs 43-52: *Quedius ortrudae* (43-49) from Iraq (43-45), Ordu (46), and Adana (47-49), and *Q. problematicus* (50-52): (43, 47, 50) aedeagus in lateral view; (44, 48, 51) median lobe of aedeagus in ventral view; (45-46, 49, 52) paramere. Scale bar: 0.5 mm.



Figs 53-62: *Quedius josue* from Lebanon (53), Israel (54-56), and Cyprus (57-62): (53-54, 57, 60) aedeagus in lateral view; (55, 58, 61) median lobe of aedeagus in ventral view; (56, 59, 62) paramere. Scale bar: 0.5 mm.



Figs 63-68: *Quedius josue* from Syria (**63-65**) and *Q. petraensis*, holotype (**66-68**; figures in transparent light): (**63**) median lobe of aedeagus in lateral view; (**64**, **67**) median lobe of aedeagus in ventral view; (**65**, **68**) paramere; (**66**) aedeagus in lateral view. Scale bar: 0.5 mm.

Material examined: Greece: I k a r í a : 1♂, NNE Pezi, Prof. Ilias, 37°35'N, 26°04'E, 570 m, stream valley, litter and ivy under *Arbutus* sifted, 12.IV.2017, leg. Assing (cAss). S a m o s : 2♀♀, Samos, SE Agios Konstantinos, Oros Ambelos: N-slope, 37°45'N, 26°51'E, 910 m, N-slope with old pine, litter and grass sifted, 4.IV.2015, leg. Assing (cAss); 1♀, SSW Agios Konstantinos, Oros Ambelos: N-slope, 37°47'N, 26°49'E, 940 m, grassy clearing with *Quercus ilex*, litter and grass beneath *Quercus ilex* sifted, 15.IV.2017, leg. Assing (cAss). K o s : 1♀, 3 km ENE Pili, 36°51'N, 27°11'E, 120 m, oak and bushes in abandoned arable land, litter sifted, 27.XII.2016, leg. Assing (cAss). Turkey: K a s t a m o n u : 1♂, 1♀, North slope of Ilgaz Dağı, 1300 m, pitfall trap, 10.VII.1973, leg. Heinz (MNB); 1♀, Ilgaz Dağı, steppe side, 1900 m, 21-27.V.1987, leg. Korge (MNB); 1♀, road Tosya to Kastamonu, Ilgaz Dağı, 1300-1500 m, 12.VII.1973, leg. Heinz (MNB). S a m s u n : 1♂, 33 km SW Samsun, road Kavak to Asarcık, 7 km SE Kavak, 41°03'N, 36°07'E, 470 m, *Quercus-Carpinus* forest, litter sifted, 20.VII.2008, leg. Assing (cAss); 2♂♂, 31 km NE Havza, 41°12'N, 35°52'E, 670 m, beech forest, 19.VII.2008, leg. Schülke (MNB); 2♂♂, 1♀, 21 km NNE Havza, 41°09'N, 35°45'E, 950 m, *Quercus-Carpinus* forest, 19.VII.2008, leg. Schülke (MNB, cAss); 1♀, 40 km W Samsun, 41°16'N, 35°52'E, 890 m, beech forest, 21.VII.2008, leg. Schülke (MNB); 1♀, 33 km SW Samsun, 41°03'N, 36°07'E, 470 m, 20.VII.2008, leg. Schülke (MNB); 1♀, Ladik env., Aslantaş, 1000 m, pitfall trap, VI-VII.1973, leg. Heinz (MNB). T o k a t : 1♂, 16 km ENE Tokat, 40°22'N, 36°44'E, 915 m, mixed deciduous forest, 16.VII.2008, leg. Schülke (MNB); 1♂, 20 km ENE Tokat, 40°22'N, 36°47'E, 1000 m, *Quercus-Carpinus* forest, 16.VII.2008, leg. Schülke (MNB). Ç o r u m : 1♂, 1♀, pass N Iskilip, 1500-1800 m, 13.VII.1969, leg. Heinz (MNB). S i v a s : 2♂♂ [teneral], 1♀, 19 km W Suşehri, Karabay Geçidi, 40°10'N, 37°52'E, 1800 m, mixed deciduous forest (*Quercus*, *Fagus*, *Acer*), litter sifted, 17.VII.2008, leg. Assing & Schülke (cAss, MNB). O r d u : 1♂, 25 km SSE Gölköy, 40°29'N, 37°43'E, 980 m, N-slope with bushes, dry litter sifted, 14.VII.2008, leg. Assing (cAss). A m a s y a : 1♀, Borabay gölü env., Ak Dağı,

1300 m, 10.VIII.1978, leg. Heinz (MNB). E r z u r u m : 1 ♀, Horasan env., Tahir Geçidi, 2100 m, 28.VII.1968, leg. Heinz (MNB). A y d ı n : 1 ♀, Dilek Dağı, Kanyon, 37°41'N, 27°10'E, 70-200 m, 29.IV.2006, leg. Brachat & Meybohm (cAss); 1 ♂, Dilek Dağı, 37°41'N, 27°09'E, 10 m, 27.IV.2006, leg. Brachat & Meybohm (cAss). A f y o n : 1 ♂, 1 ♀, Sultan Dağları, 15 km SE Çay, 38°32'N, 31°11'E, 1430 m, oak forest, litter and bark sifted, 18.IV.2011, leg. Assing (cAss); 1 ♀, Emir Dağları, 20 km S Emirdağ, 38°54'N, 31°08'E, 1230 m, N-slope with oak, 18.IV.2011, leg. Assing (cAss). B u r d u r : 2 ♀♀, 17 km SE Burdur, N Çeltikçi Geçidi, 37°36'N, 30°24'E, 1260 m, 16.II.2011, leg. Schülke (MNB). I s p a r t a : 1 ♂, 12 km N Sütçüler, 37°36'N, 30°59'E, 1100 m, oak forest, litter and grass, mostly between stone s, sifted, 26.IV.2011, leg. Assing (cAss). A n t a l y a : 2 ♀♀, road from Antalya to Saklikent, 1000 m, pine forest, 11.V.2000, leg. Brachat & Meybohm (cAss); 2 ♂♂, Killik env., cave entrance, 780 m, 2-4.VI.2003, leg. Lohaj (MNB); 1 ♂, Bey Dağ, Kızlar Sivris Tepe, 36°35'N, 30°06'E, 2300-2700 m, leg. Marggi (cAss); 2 ♂♂, 8 km NNW Akseki, 37°07'N, 31°46'E, 1220 m, pine and fir forest, 14.II.2011, leg. Schülke (MNB, cAss); 1 ♀, 32 km NW Alanya, 36°46'N, 31°46'E, 400 m, 18.II.2011, leg. Schülke (MNB); 1 ♀, Anamur env., Abanoz, 36°21'N, 32°56'E, 1240 m, 19.V.2000, leg. Meybohm (cAss). K o n y a : 2 ♂♂, 1 ♀, Sultan Dağları, NW Dereçine, 38°29'N, 31°15'E, 1320 m, oak forest, litter sifted, 21.IV.2011, leg. Assing (cAss); 1 ♀, Sultan Dağları, SW Sultandağı, 38°30'N, 31°12'E, 1730 m, 19.IV.2008, leg. Meybohm & Brachat (cAss); 1 ♀, Seydesehir, cave, 5-6.VI.2003, leg. Lohaj (MNB); 1 ♀, W Hadım, Korualan - Geynebeli Geçidi, 36°59'N, 32°21'E, 20.IV.2008, leg. Brachat & Meybohm (cAss). M e r s i n : 1 ♂, ca. 25 km NW Erdemli, 1150 m, 36°33'N, 34°10'E, 1150 m, oak litter, 29.XII.2000, leg. Assing (cAss); 1 ♀, 30 km NW Erdemli, S Yağda, 36°44'N, 34°03'E, 1310 m, *Abies* forest, 29.XII.2000, leg. Assing (cAss); 1 ♀, NW Tarsus, Çamlıyayla, 37°09'N, 34°37'E, 1190 m, 23-24.IV.2005, leg. Brachat & Meybohm (cAss). A d a n a : 1 ♂, 1 ♀, Akkaya, 8 km S Feke, 37°46'N, 35°54'E, 760 m, 21.IV.2011, leg. Brachat & Meybohm (cAss); 1 ♀, 21 km W Feke, road to Mansurlu, 37°51'N, 35°46'E, 965 m, 22.IV.2011, leg. Meybohm & Brachat (cAss); 1 ♀, N Osmaniye, Karatepe National Park, 37°17'N, 36°14'E, 200 m, 28.XII.2000, leg. Assing (cAss). K a h r a m a n m a r a ş : 1 ♀, Kahramanmaraş, 60 km SE Kahramanmaraş, Gani Dağı, 37°30'N, 37°25'E, 950 m, 21.III.2005, leg. Assing (cAss); 1 ♀, ca. 35 km SW Kahramanmaraş, Doluca, 37°22'N, 36°40'E, 1280 m, 27.IV.2004, leg. Brachat & Meybohm (cAss); 1 ♀, pass N Tekir, S Göksun, 37°57'N, 36°34'E, 1400-1550 m, 25.IV.2004, leg. Besuchet (cAss); 1 ♂, 4 ♀♀, 30 km W Kahramanmaraş, Başkonuş Yaylaşı, 37°34'N, 36°34'E, 1270 m, 27.IV.2004, leg. Besuchet (cAss); 1 ♀, same data, but 28.IV.2004, leg. Brachat & Meybohm (cAss); 1 ♀, W Kahramanmaraş, Başkonuş Yaylaşı, 37°34'N, 36°34'E, 1250 m, 5.V.2005, leg. Brachat & Meybohm (cAss); 1 ♀, Başkonuş Yaylaşı, 37°34'N, 36°34'E, 1250 m, 24.IV.2007, leg. Meybohm & Brachat (cAss). O s m a n i y e : 1 ♂, 1 ♀, Nur Dağları, Zorkun - Gökbel, 1500-1700 m, 6-8.VIII.1971, leg. Heinz (MNB); 1 ♂, NE Yarpuz, 37°04'N, 36°26'E, 920 m, alder litter sifted, 6.IV.2004, leg. Schülke (MNB). H a t a y : 1 ♀, Nur Dağları, WSW Yeşilkent, 36°55'N, 36°19'E, 990 m, mixed deciduous forest, 28.XII.2000, leg. Assing (cAss); 1 ♂, 1 ♀, Nur Dağları, 9 km SE Iskenderun, 5 km NE Belen, 36°31'N, 36°15'E, 1240 m, oak and beech forest, 4.IV.2004, leg. Schülke (MNB); 1 ♀, W Antakya, Ziyaret Dağı, W Sungur, 36°00'N, 36°05'E, 760 m, 21.IV.2004, leg. Besuchet (cAss); 1 ♂, 1 ♀, Ziyaret Dağı, W Şenköy, 36°01'N, 36°07'E, 750 m, 21.IV.2004, leg. Brachat & Meybohm (cAss); 1 ♀, Ziyaret Dağı, 36°00'N, 36°06'E, 21.IV.2004, leg. Brachat & Meybohm (cAss). G a z i a n t e p : 1 ♂, Kartal Dağı, W Isikli, 37°08'N, 37°11'E, 820 m, 25.IV.2004, leg. Besuchet (cAss); 2 ♂♂, 3 ♀♀, 1 ex., Kartal Dağı, E Yamaçoba, 37°11'N, 37°08'E, 1070 m, north slope with oak, grass roots sifted, 9.IV.2004, leg. Schülke (MNB, cAss). A d ı y a m a n : 1 ♀, 8 km N Narince, 37°56'N, 38°45'E, 1130 m, 24.III.2005, leg. Assing (cAss); 2 ♀♀, 8 km NE Narince, 37°55'N, 38°49'E, 870 m, 24.III.2005, leg. Assing (cAss). Iraq: 3 ♂♂, 7 ♀♀, S Rawandoz, Akoian valley, ~36°30'N, 44°36'E, ~1400 m, pitfall trap, 17-25.IV.2017, leg. Reuter (cFel, cAss); 1 ♀, same data, but 14-22.XI.2004 (cFel); 6 ♂♂, 5 ♀♀, S Rawandoz, 36°30'N, 44°36'E, 1200-1400 m, pitfall trap, XI.2007-III.2008, leg. Reuter (cFel, cAss).

R e d e s c r i p t i o n : Body length 8.0-11.0 mm; length of forebody 3.8-4.8 mm. Coloration: head black; pronotum blackish, sometimes with the margins narrowly paler (particularly in material from North Turkey); elytra reddish, often with the scutellar and sutural portions more or less distinctly and more or less extensively infuscate; abdomen blackish with the posterior portions of segments VII and VIII and all of segments IX-X reddish; legs pale-reddish; antennae with the basal antennomeres reddish and the apical

antennomeres brown to dark-brown. Externally highly similar to *Q. nivicola*, distinguished only by the shape of the aedeagus.

♂: aedeagus 1.05-1.13 mm long; median lobe and paramere shaped as in Figs 40-49.

Comparative notes: *Quedius ortrudae* is distinguished from other representatives of the *Q. nivicola* group as follows:

from *Q. nivicola* by an apically less flat (lateral view) and less acute (ventral view) median lobe of the aedeagus and by a slightly less broad paramere with on average fewer peg-setae;

from *Q. problematicus* by darker coloration (particularly of the elytra and the pronotum, the latter rarely with paler margins) and by the shape of the aedeagus (*Q. problematicus*: apical portion of median lobe slightly sinuate, slightly longer; subapical tooth more distant from apex of median lobe);

from *Q. josue* by darker coloration of the pronotum (*Q. josue*: pronotum mostly dark-brown to blackish-brown with narrowly yellowish margins; elytra yellowish with the sutural halves usually distinctly and extensively infusate) and by a larger aedeagus with the apex of the median lobe slightly longer and slightly more acute in ventral view.

Distribution and natural history: The currently known distribution ranges from the Aegean islands Icaria, Samos, and Kos across Turkey eastwards to North Iraq. The specimens were collected in various habitats (forests, open land). The altitudes range from near sea-level to above 2300 m. Teneral adults were found in July (North Anatolia). Available evidence suggests that, as in *Q. nivicola*, the habitat of *Q. ortrudae* is essentially subterranean. Records of the species are rare and mostly based on singletons. Some were collected with pitfall traps, and three specimens were found in caves. The absolute number of records and specimens may convey a different impression, but it should be kept in mind that they represent the result of numerous field trips by various collectors amounting, in total, to years of intense collecting activity in Turkey alone. Moreover, the majority of records are from regions characterized by limestone (especially central southern Anatolia), and the general distribution of records is similar to that observed also for species of the *Q. coloratus* group, which too appear to have a hypogean reproduction habitat (ASSING 2017a, e).

***Quedius (Raphirus) problematicus* FAGEL, 1968 (Figs 50-52, Map 5)**

Quedius problematicus FAGEL, 1968a: 9 ff.

Type material examined: **Paratypes:** 36 exs.: "Liban: Kartaba, 1200-1400 m, V.1964 - G. Fagel / *Quedius problematicus* n.sp. G. Fagel det. 1967 / Paratype / *Quedius problematicus* Fagel, det. V. Assing 2018" (IRSNB); 18 exs.: "LIBAN: Nabeih Safa, humus sous cistes [or "bois marécageux" or "mousses gorges d'eau"], 1000 m, V.1966 G. Fagel / *Quedius problematicus* n.sp. G. Fagel det. 1967 / Paratype / *Quedius problematicus* Fagel, det. V. Assing 2018" (IRSNB); 2 exs.: "LIBAN: Ain Dara, Nahr Jesayer, 900 m, V.1966 G. Fagel / *Quedius problematicus* n.sp. G. Fagel det. 1967 / Paratype / *Quedius problematicus* Fagel, det. V. Assing 2018" (IRSNB).

Additional material examined: **Turkey:** Hatay: 1♀, Ziyaret Dağı, N Yaladagi, 35°55'N, 36°03'E, 440 m, 22.IV.2004, leg. Brachat & Meybohm (cAss); 3♂♂, 1♀, Ziyaret Dağı, 19 km S Antakya, SW ^aenköy, 36°02'N, 36°07'E, 910 m, oak and laurel shrubs sifted, 2+5.IV.2004, leg. Schülke (MNB, cAss); 4♂♂, Harbiye, 36°08'N, 36°08'E, 200 m, 13.IV.2009, leg. Brachat & Meybohm (cAss). **Lebanon:** 1♂, Rayfoun, 33°58'N, 35°42'E, 800-900 m, mixed deciduous forest, pitfall trap, 12.XII.2012, leg. Reuter (cFel); 1♀, same data, but

18.XI.2012 (cFel); 1♂, Rayfoun, 33°58'N, 35°42'E, 990 m, mixed oak forest, pitfall trap, 30.V.2016, leg. Reuter (cFel); 1♂, same data, but 18.XI.-16.XII.2016 (cAss); 1♂, same data, but 22.IV.-10.V.2016 (cAss); 1♂, 1♀, same data, but 14-30.IV.2017 (cFel); 1♂, same data, but IV.2013 (cFel); 2♂♂, same data, but 3-20.XI.2013 (cFel); 9 exs., same data, but 9-18.XII.2017 (cFel); 1 ex., same data, but 18.XII.-11.I.2018 (cFel); 3 exs., same data, but 11-23.I.2018 (cFel); 3 exs., same data, but 11-28.II.2018 (cFel); 1♂, Rachaya, Tannoura, 33°29'N, 35°48'E, 900 m, oak forest, V.2016, leg. Reuter (cFel); 1♂, 31 km NE Beirut, above Yahshoush, near source of Nahr Ibrahim, 500 m, 25.III.2016, leg. Reuter (cFel); 1♂, Ehmej, 34°08'N, 35°47'E, 1300 m, 25.V.-9.VI.2013, leg. Reuter (cFel); 2♂♂, 27 km NE Beirut, Kfardebian env., 1100 m, mixed oak forest, pitfall trap, 10-25.V.2016, leg. Reuter (cFel); 1♂, same data, but 20.XI.-1.XII.2013 (cFel). Israel: 1♂, Upper Galilee, Meron env., 33°01'N, 35°24'E, flight trap, 15.V.-15.VI.2007, leg. Buse (cFel); 1♀, Upper Galilee, Harashim, 32°57'N, 35°20'E, 800 m, 21.III.2011, leg. Hetzel (cFel); 1♂, Upper Galilee, Ya'ar Baram, 33°02'N, 35°25'E, 670 m, old forest, 21.V.2005 (cFel); 1♂, same data, but VI.2005 (cFel); 1♂, Upper Galilee, Hurfeish, 33°00'N, 35°22'E, 665 m, old forest, 13.XI.2005 (cAss).

C o m m e n t : The description of *Q. problematicus* is based on a male holotype and 17 paratypes from "Liban: Kartaba" and 14 paratypes from "Liban: Nabeh Safa" (FAGEL 1968a). The specimens from "Ain Dara" in the Fagel collection, which too are labelled as paratypes, are not mentioned in the description. The species was subsequently reported also from Israel by SMETANA (1978) and ASSING (2014).

In general appearance (size, coloration), *Q. problematicus* is highly similar to the sympatric *Q. josue*, from which it is distinguished particularly by the differently shaped apex of the median lobe (slightly sinuate in lateral view; subapical tooth of the median lobe separated from the apex by a greater distance) (Figs 50-52) and by a slightly more slender pronotum of paler average coloration and with usually more broadly yellowish to reddish margins (*Q. josue*: pronotum either of uniformly dark coloration or with narrowly reddish margins).

The revised distribution of *Q. problematicus* is confined to the Middle East from the Turkish province Hatay in the north across Lebanon to North Israel in the south.

Unlike *Q. nivicola*, *Q. problematicus* is epigeic, as can be inferred from the habitat details reported by FAGEL (1968a), by the fact that most of the examined material was sifted from leaf litter, and by the partly long series of specimens collected on various occasions.

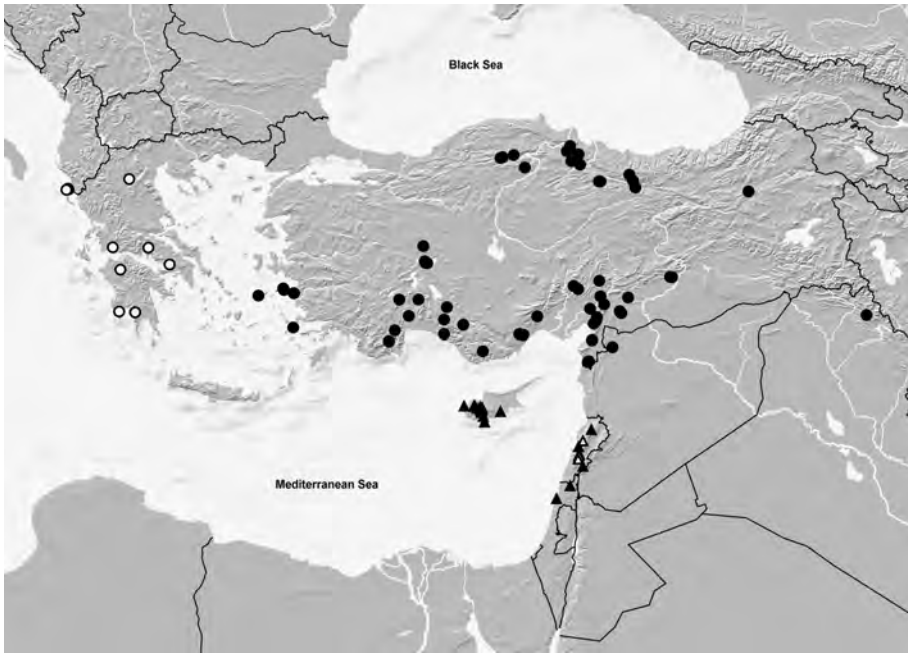
***Quedius (Raphirus) josue* SAULCY, 1865 (Figs 53-65, Map 4)**

Quedius josue SAULCY, 1865: 636.

Quedius troodites FAGEL, 1968a: 7 ff.; synonymy by ASSING (2004).

Type material examined: Neotype ♂, present designation: "ISRAEL, Upper Galilee, near Meron, "Appleplot", 15.V.-5.VI.2007 (31), N33.00.37 E35.24.13, leg. J. Buse, flight trap / Neotypus ♂ *Quedius josue* Saulcy, desig. V. Assing 2018" (MNB).

Additional material examined: Syria: 3♂♂, 1♀, Samaan, Qalaat, Simeons Monastery, 28.IV.1996, leg. Sprick (cAss). Lebanon: 2♂♂, Rachaya, Tannoura, 33°29'N, 35°48'E, 900 m, oak forest, V.2016, leg. Reuter (cFel); 1♂, Rayfoun, 33°58'N, 35°42'E, 990 m, mixed oak forest, 18.XI.-16.XII.2016, leg. Reuter (cFel); 1♂, 28 km E Tripoli, Fnaideq, Djebel Qammouaa, 1300-1400 m, coniferous forest, 20.V.2012, leg. Reuter (cAss). Israel: 1♀, Haifa, Mount Carmel, Ya'ar Ha'arbaim, 32°45'N, 35°01'E, 30.IV.2009, leg. Buse & Pavlicek (cFel). Cyprus: 6 exs., Pafos, Troodos Mts., Stavros tis Psokas, 800-950 m, 12+18.IV.2010, leg. Wolf (MNB).



Map 4: Distributions of *Quedius nivicola* (white circles; revised records), *Q. ortrudae* (black circles; revised records), and *Q. josue* (black triangles: revised records; white triangles literature records) in the East Mediterranean.

C o m m e n t : *Quedius josue* was originally described based on a unique female from "Arag-el-Emir" (SAULCY 1865), today Iraq al-Amir [$31^{\circ}55'N$, $35^{\circ}45'$] in Jordan. According to the description, the apical antennomeres are "d'un roux foncé", the pronotum has the "bord latéral et postérieur étroitement d'un roux foncé", and the elytra are "testacées,.... avec un grande tache triangulaire commune d'un brun noir entourant l'écusson, s'étendant depuis la base". The species was subsequently reported from Lebanon, Cyprus (as *Q. troodites*), Israel, Turkey, and Iraq by FAGEL (1968a), KORGE (1971a), ASSING & WUNDERLE (2001), and ASSING (2004). When treating the species of the *Q. nivicola* group, FAGEL (1968a: 2) stated that the types of the *Quedius* species described by Saulcy were "introuvables au Muséum d'Histoire naturelle, de Paris", so that they, like the type material of so many other Staphylinidae species described by Saulcy, must be regarded as lost. In view of the similarity of the species allied to *Q. josue*, of the frequent previous confusion of these species, and of the fact that they have partly sympatric distributions, the designation of a neotype is indispensable to unambiguously define the species. Based on the original description and the distributions of species of the *Q. nivicola* group, three species would qualify as suitable candidates: *Q. petraensis*, *Q. problematicus*, and the species previously interpreted as *Q. josue* (and illustrated as such) by FAGEL (1968a). In the interest of the stability of nomenclature, a male belonging to the latter species is designated as the neotype, thus avoiding further taxonomic changes.

The coloration of *Q. josue* is subject to rather pronounced intraspecific variation. The pronotum may be of uniformly dark-brown to blackish coloration or it may have the margins narrowly reddish or yellowish (especially in material from Cyprus). The elytra may be uniformly yellowish to pale reddish, or they may be more or less extensively and more or less distinctly infuscate near the scutellum and along the suture. The aedeagus and its variation are illustrated in Figs 53-65.

Quedius josue is distinguished from the sympatric or geographically close species of the *Q. nivicola* group (*Q. petraensis*, *Q. problematicus*, *Q. ortrudae*) as follows:

from *Q. petraensis* by the different shapes of the median lobe and the paramere of the aedeagus, as well as by the paler coloration of the elytra;

from *Q. problematicus* by the different shape of the apex of the median lobe of the aedeagus both in lateral and in ventral view, as well as by the darker coloration (*Q. problematicus*: pronotum usually more extensively, or even completely reddish or yellowish) of the slightly less slender pronotum;

from *Q. ortrudae* by a slightly smaller aedeagus with the apical portion of the median lobe of slightly different shape, and by the paler coloration of the elytra (*Q. ortrudae*: elytra reddish to dark reddish, or even darker).

The known distribution of *Q. josue* includes Cyprus and the Middle East from Lebanon and North Syria (first record) to Israel and Jordan (Map 4). Previous records from Turkey and Iraq refer to *Q. ortrudae*.

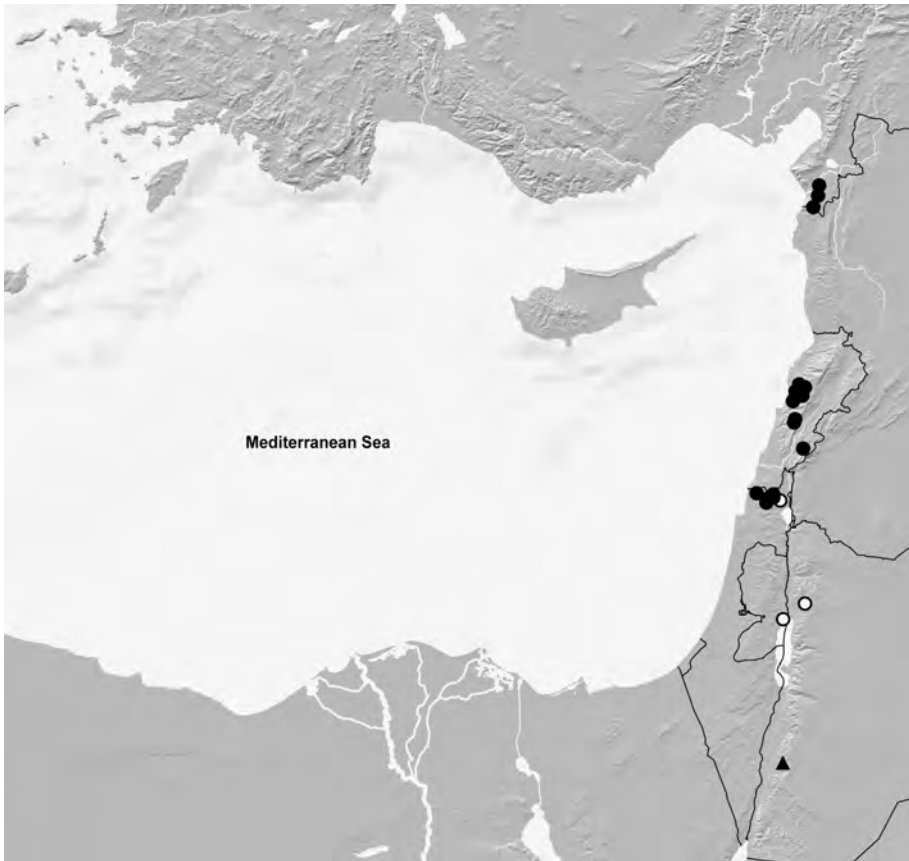
Like *Q. problematicus*, *Q. josue* is epigeic, as can be inferred from the habitat details reported by FAGEL (1968a) and ASSING & WUNDERLE (2001), by the fact that most of the examined material was sifted from leaf litter, and by the long series of specimens collected on various occasions.

***Quedius (Raphirus) petraensis* FAGEL, 1968** (Figs 66-68, Map 5)

Quedius petraensis FAGEL, 1968a: 6 f.

Type material examined: Holotype ♂ [dissected prior to present study; aedeagus slightly damaged, transferred from microvial to transparent slide]: "Coll. R. I. Sc. N. B., Pétra. 3, Arabie, elytr. parcius punctatus, ex coll. Fauvel / Coll. et det. A. Fauvel, *Quedius josue* Saulcy, R.I.Sc.N.B. 17.479 / G. Fagel det., *Quedius petraensis* n.sp. / Type / *Quedius petraensis* Fagel, det. V. Assing 2018" (IRSNB).

Comment: The original description is based on a unique male holotype from "Arabie: Pétra" (FAGEL 1968c), a locality today situated in South Jordan, not in Saudi Arabia as indicated in SCHÜLKE & SMETANA (2015). Subsequent records are unknown. Externally, *Q. petraensis* differs from the geographically close *Q. josue* by the coloration (pronotum blackish with the margins narrowly reddish; elytra uniformly pale-reddish). The species is characterized particularly by the shapes of the apices of the median lobe and of the paramere of the aedeagus in ventral view (Figs 66-68).



Map 5: Distributions of *Quedius problematicus* (black circles: revised records; white circles: literature records) and *Q. petraensis* (black triangle) in the Middle East.

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Zusammenfassung

Auf der Grundlage einer Revision von Typenmaterial, einer Auswertung von Originalbeschreibungen und Untersuchungen zur intraspezifischen Variabilität werden 21 Namen in der Unterartgattung *Raphirus* STEPHENS, 1829 der Gattung *Quedius* STEPHENS, 1829 synonymisiert: *Quedius umbrinus* ERICHSON, 1839 = *Q. cyanescens* MULSANT & REY, 1876, nov.syn., = *Q. bulgaricus* SCHEERPELTZ, 1937, nov.syn., = *Q. cyprusensis* LAST, 1955, nov.syn., = *Q. freyi* SCHEERPELTZ, 1956, nov.syn., = *Q. maronitus* COIFFAIT, 1963, nov.syn., = *Q. gueorguievi* COIFFAIT, 1967, nov.syn.; *Quedius hermonensis* COIFFAIT, 1963 = *Q. coiffaitianus* FAGEL, 1968, nov.syn., = *Q. rugosipennis* FAGEL, 1969, nov.syn.; *Quedius illyricus* WENDELER, 1928 = *Q. paganettii*

BERNHAEUER, 1936, nov.syn., = *Q. schipkanus* SCHEERPELTZ, 1937, nov.syn., = *Q. pseudopyrenaicus* COIFFAIT, 1967, nov.syn.; *Quedius nemoralis* BAUDI DI SELVE, 1848 = *Q. safaensis* FAGEL, 1968, nov.syn., = *Q. safaensis ormanus* FAGEL, 1971, nov.syn., = *Q. nemoralis erinci* KORGE, 1971, nov.syn.; *Quedius limbatus* (HEER, 1839) = *Q. scheerpeltzianus* FAGEL, 1968, nov.syn.; *Quedius suturalis* KIESENWETTER, 1845 = *Q. humeralis anatolicus* KORGE, 1964, nov.syn., = *Q. troglophilus* COIFFAIT, 1969, nov.syn.; *Quedius job* COIFFAIT, 1963 = *Q. lydus* FAGEL, 1968, nov.syn.; *Quedius humeralis* STEPHENS, 1832 = *Q. coxalis* KRAATZ, 1858, nov.syn., = *Q. atticus* COIFFAIT, 1967, nov.syn.; *Quedius boops* (GRAVENHORST, 1802) = *Q. haafi* SCHEERPELTZ, 1956, nov.syn. Für *Quedius cyanescens* MULSANT & REY, 1876, *Q. bulgaricus* SCHEERPELTZ, 1937, *Q. albanicus* BERNHAUER, 1926 und *Q. schipkanus* SCHEERPELTZ, 1937 werden Lektotypen, für *Q. josue* SAULCY, 1865 wird ein Neotypus designiert. Die Aedoeagi mehrerer Arten werden abgebildet. Zwei Arten werden redeskribiert. Die ostmediterranean Verwandten von *Quedius nivicola* KIESENWETTER, 1858 werden revidiert; die verfügbaren zoogeographischen und ökologischen Daten werden diskutiert. Die derzeit bekannten Verbreitungsgebiete von zehn Arten werden anhand von Karten illustriert.

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