Elytra, *Tokyo*, **36**(1): 181–198, May 30, 2008

Contributions to the Knowledge of the Quediina (Coleoptera, Staphylinidae, Staphylinini) of China

Part 29. Genus *Quedius* STEPHENS, 1829. Subgenus *Raphirus* STEPHENS 1829. Section 6

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Abstract Taxonomic data on the species of the genus *Quedius* subgenus *Raphirus*, from the People's Republic of China are provided. Eight species are described as new: *Q. ruoh* (Gansu), *Q. io* (Shaanxi), *Q. li* (Yunnan), *Q. erl* (Yunnan), *Q. bann* (Sichuan), *Q. pian* (Yunnan), *Q. doan* (Yunnan), *Q. microsauroides* (Xinjiang).

This is the twenty-ninth of a series of papers dealing with the Quediina of the People's Republic of China. It deals with the brachypterous species of the *Muscicola*-group (see SMETANA, 1988, 243) of the subgenus *Raphirus* STEPHENS, 1829. All species treated are described as new. The remaining species of the *Muscicola*-group will be treated in a subsequent paper that will present a key to all species of the *Muscicola*-group known to occur on the territory of the People's Republic of China.

The species treated in this paper may be divided into two lineages, based on two abdominal character states. The species of the first lineage have the second abdominal tergite (in front of the first visible tergite) densely, entirely punctate and pubescent, and the pubescence of the abdominal tergites is uniformly dark (most species treated belong to this group). The species of the second lineage have the second abdominal tergite either entirely lacking any punctation and pubescence, or there are at most a few fine scattered punctures present, and pubescence of the abdominal tergites is pale, often golden-yellowish with distinct tendency to form denser basolateral patch on each side of each tergite (*Q. pian* sp. nov. and *Q. doan* sp. nov. belong here). These two lineages appear also in the group of the winged species of the *Muscicola*-group; they are excellent character states to be used in the keys to species. The last new species described here, *Q. microsauroides*, seems to occupy a rather isolated position.

The symbols used in text, when referring to the deposition of specimens, are as follows:

APC Collection of Andreas PÜTZ, Eisenhüttenstadt, Germany
ASC Collection of Aleš SMETANA, Ottawa, Canada

GRC Collection of G. M. DEROUGEMONT, Londinières, France
MSC Collection of Michael SCHÜLKE, Berlin, Germany
NMW Naturhistorisches Museum, Wien, Austria

The number of paratypes, if applicable, is given for each locality behind the geographical data, followed by the acronym of the collection in which the paratype(s) are deposited in brackets. All data are presented in full for holotypes and allotypes.

Quedius (*Raphirus*) *ruoh* sp. nov.

(Figs. 1–8)

Description. Piceous-black with black head, pronotum often more or less paler; head, pronotum and elytra with slight metallic lustre, abdomen markedly iridescent. Palpi, antennae and legs rufotestaceous, medial faces of middle and hind tibiae darkened. Head rounded, wider than long (ratio 1.23); eyes very large and convex, tempora very short, considerably shorter than length of eyes seen from above (ratio 0.18); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture almost touching posteromedial margin of eye, one puncture between it and posterior margin of head; surface of head with fine, moderately dense microsculpture of irregular transverse waves becoming confused on clypeus. Antenna moderately long, segment 3 slightly narrower and shorter than segment 2, segments 4–6 longer than wide, gradually becoming shorter, outer segments about as long as wide, last segment about as long as two preceding segments combined. Pronotum about as long as wide, broadly arcuate basally, evenly transversely convex, hardly narrowed anteriad; dorsal rows each with three punctures, sublateral rows each with two fine punctures, posterior puncture situated before level of large lateral puncture; surface of pronotum with microsculpture similar to that on head but finer and denser. Scutellum with microsculpure of rudimentary waves, with several setiferous punctures on apical portion. Elytra short, at suture markedly (ratio 0.74), at sides vaguely (ratio 0.92) shorter than pronotum at midline; punctation fine, slightly asperate, moderately dense, transverse interspaces between punctures mostly somewhat larger than diameters of punctures; surface between punctures without microsculpture, piceous-black pubescence moderately long and dense. Wings non-functional, each reduced to a narrow rudiment slightly shorter than elytron. Abdomen with tergite 7 (fifth visible) lacking whitish apical seam of palisade setae; tergite 2 (in front of first visible tergite) entirely punctate and pubescent; punctation of tergites finer and denser than that of elytra, evenly covering first two visible tergites, on remaining tergites becoming gradually sparser toward apical margin of each tergite; first three tergites without shallow lateral impressions, piceous-black pubescence evenly covering each tergite; surface between punctures with excessively fine and dense microsculpture of striae.

M a l e. First four segments of front tarsus distinctly dilated, sub-bilobed, each densely covered with modified pale setae ventrally, segment 2 about as wide as apex of tibia; segment 4 narrower than preceding segments. Sternite 8 with four long setae on

each side, apical margin with moderately deep and wide, obtusely triangular medioapical emargination (Fig. 1), small triangular area before emargination flattened and smooth. Genital segment with tergite 10 narrowly triangular, narrowly arcuate apically, setose as in Fig. 2; sternite 9 as in Fig. 3, with slightly differentiated subapical seta at each side before apex. Aedoeagus (Figs. 4–7) narrow, elongate, median lobe narrowed anteriorly into acute apical portion, on face adjacent to paramere with distinct, moderately long median carina originating at apex of median lobe (lateral view, Fig. 6). Paramere elongate, covering most of apical portion of median lobe, elongate-fusiform, with narrowly arcuate apex not quite reaching apex of median lobe; apical setae minute, situated as in Fig. 7; sensory peg setae on underside of paramere forming longitudinal (often unequally long) row at each lateral margin of apical portion of paramere.

F e m a l e. First four segments of front tarsus not appreciably dilated. Tergite 10 of genital segment narrow, setose as in Fig. 8.

Length 4.0–4.8 mm.

Type material. Holotype (male) and allotype (female): China: "CHINA, Gansu, Dalijia Shan, 46 km W Linxia, 2980 m, 10.VII.1994 A. Smetana [C5]". In the SMETANA collection, Ottawa, Canada.

Paratypes: China: [Gansu]: same data as holotype, 34 ♂♂, 8 ♀♀ (ASC, MSC); Gansu, Dalijia Shan, 60 km W Linxia, 3475 m, 11.VII.1994, A. Smetana [C8], 1 ♀ (ASC).

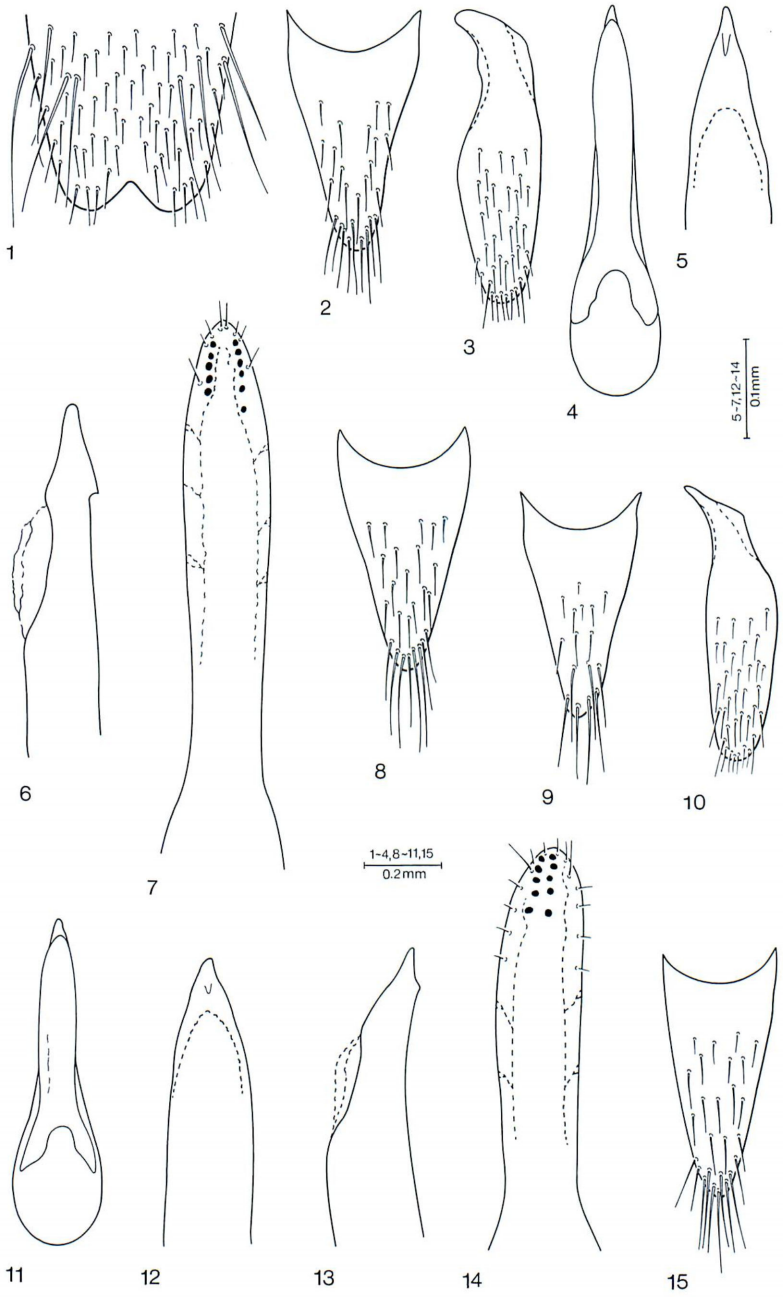
Additional material. Two females labelled: CHINA, Gansu, Hua Er Ge, 5 km SSW Luqu, 3400 m, 13.VII.1994, A. Smetana [C12] were associated with *Q. ruoh*, but were not labelled as paratypes.

Geographical distribution. *Quedius ruoh* is at present known only from the Dalijia Shan in Gansu.

Bionomics. The specimens of the original series were taken by sifting lush vegeta-

Figs. 1–15 (on p. 184). — 1–8. *Quedius ruoh*: 1, apical portion of male sternite 8; 2, tergite 10 of male genital segment; 3, sternite 9 of male genital segment; 4, aedoeagus, ventral view; 5, apical portion of median lobe, paramere removed; 6, apical portion of median lobe, paramere removed, lateral view; 7, underside of paramere with sensory peg setae; 8, tergite 10 of female genital segment. — 9–15. *Quedius io*: 9, tergite 10 of male genital segment; 10, sternite 9 of male genital segment; 11, aedoeagus, ventral view; 12, apical portion of median lobe, paramere removed; 13, apical portion of median lobe, paramere removed, lateral view; 14, underside of paramere with sensory peg setae; 15, tergite 10 of female genital segment.

Figs. 16–29 (on p. 185). — 16–21. *Quedius li*: 16, apical portion of male sternite 8; 17, tergite 10 of male genital segment; 18, sternite 9 of male genital segment; 19, aedoeagus, ventral view; 20, apical portion of median lobe, paramere removed; 21, underside of paramere with sensory peg setae. — 22–28. *Quedius erl*: 22, tergite 10 of male genital segment; 23, sternite 9 of male genital segment; 24, aedoeagus, ventral view; 25, apical portion of median lobe, paramere removed; 26, apical portion of median lobe, paramere removed, lateral view; 27, underside of paramere with sensory peg setae; 28, tergite 10 of female genital segment. — 29, *Quedius bann*: tergite 10 of male genital segment.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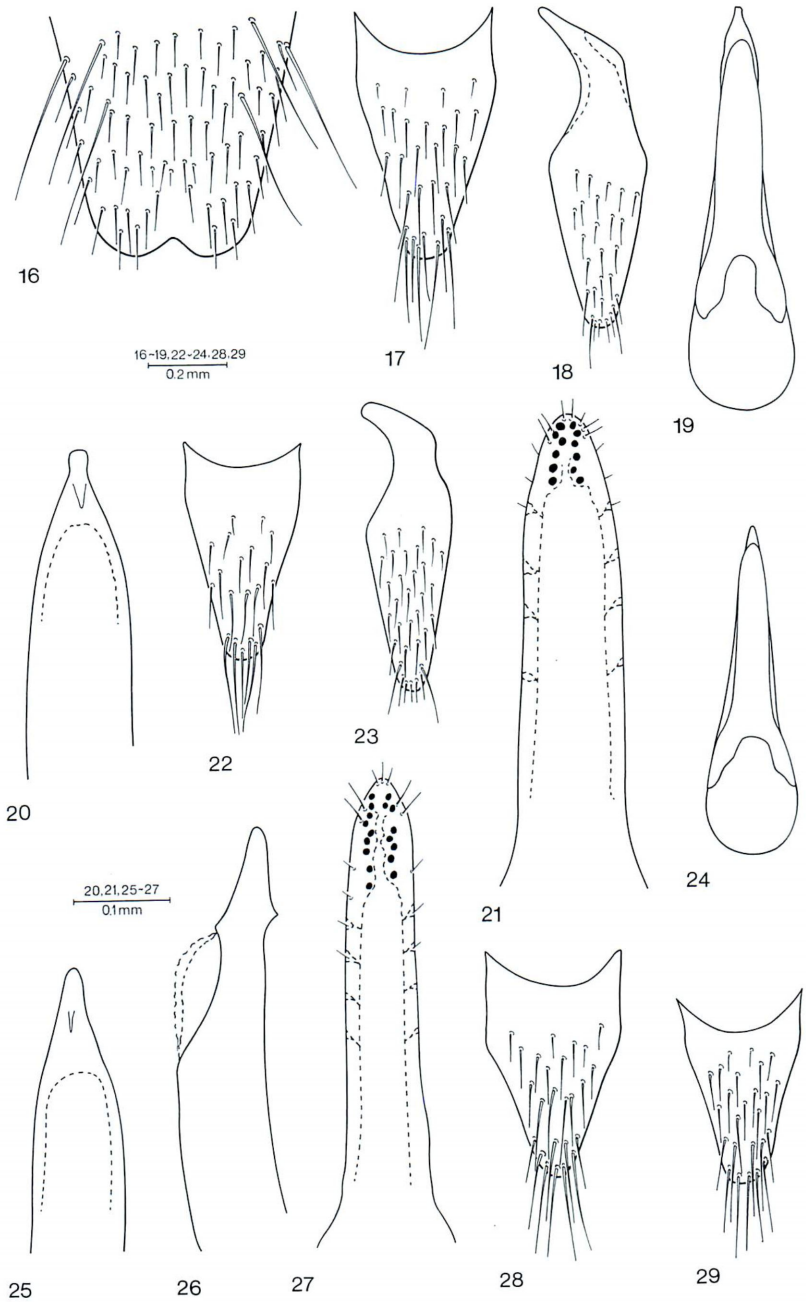
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tion, moss and various debris under shrubs in shady places along a creek [C8], and by sifting of moss and some humus under dwarf *Salix* bushes.

Recognition and comments. *Quedius ruoh* may be best recognized among the species with the abdominal tergites bearing uniform, dark pubescence, in male sex by the following characters: markedly dilated first four segments of front tarsus; elongate aedoeagus with median lobe on face adjacent to paramere with moderately long median carina originating at apex of median lobe (lateral view); elongate-fusiform paramere with sensory peg setae forming longitudinal row at each lateral margin of apical portion of paramere. The coloration of the body is in general mostly dark. However, in one male specimen the pronotum is brightly rufotestaceous.

Etymology. The specific epithet is the Chinese word "ruoh" (weak, feeble). It refers to the inability of the species to fly.

Quedius (*Raphirus*) *io* sp. nov.

(Figs. 9–15)

Description. In all characters similar to *Q. ruoh*, but different in some external characters and in a slightly different aedoeagus. Size on average somewhat smaller and body form more slender, body coloration on average paler, rather piceous with pronotum and even elytra more often brunneous to rufobrunneous; punctation of elytra somewhat finer and denser, punctation and pubescence of abdominal tergites markedly finer and denser.

M a l e. First four segments of front tarsus similar to those of *Q. ruoh*, but markedly less dilated, segment 2 slightly narrower than apex of tibia (ratio 0.75). Sternite 8 with three long setae on each side, medioapical emargination not appreciably different from that of *Q. ruoh*. Genital segment with tergite 10 narrower and less setose (Fig. 9); sternite 9 with basal portion much narrower than that of *Q. ruoh* (Fig. 10). Aedoeagus (Figs. 11–14) smaller, median lobe on face adjacent to paramere with minute, short carina appearing far below apex of median lobe (lateral view, Fig. 13). Paramere similar to that of *Q. ruoh* but distinctly shorter; apical setae minute, situated as in Fig. 14; sensory peg setae on underside of paramere forming two irregular longitudinal rows along midline of apical portion of paramere.

F e m a l e. First four segments of front tarsus not appreciably dilated. Genital segment with tergite 10 narrow, setose as in Fig. 15.

Length 3.8–4.2 mm.

Type material. Holotype (male) and allotype (female): China: "CHINA: S Shaanxi Qinling Shan mt. range W pass on rd. X'ian-Shagouie " / " 45 km SSW X'ian 33°52′N 108°46′E 2600 m 25.VII.2001 A. Smetana [C118]". In the collection A. SMETANA, Ottawa, Canada.

Paratypes: China: [Shaanxi]: same data as holotype, 11 ♂♂, 13 ♀♀ (ASC); same but 2675 m, 26.VII.2001, A. Smetana [C119], 2 ♂♂, 7 ♀♀ (ASC); Qin Ling Shan, 108.47E 33.51N, Mountain W Pass at Autoroute km 70, 47 km S X'ian, 2300–2500 m,

sifted, 26.–30.08.1995, leg. A. Pütz, 15 ♂♂, 17 ♀♀ (ASC, MSC); same, but M. Schülke leg., 21 ♂♂, 15 ♀♀ (ASC, MSC).

Bionomics. The specimens collected by SMETANA [C118] were taken in an open deciduous forest (many *Betula*) with shrubs and lush vegetation by sifting various debris and vegetation around bases of larger standing trees.

Geographical distribution. *Quedius io* is at present known only from the eastern portion of Qinling Shan range south of X'ian in Shaanxi.

Recognition and comments. *Quedius io* may be best recognized by the shape of the aedoeagus, with median lobe on face adjacent to paramere with minute, short carina appearing far below apex of median lobe (lateral view), in combination with the first four segments of front tarsus being only slightly dilated, with very dense punctation and pubescence of the abdominal tergites, and with the tendency for paler body coloration (see above).

Etymology. The specific epithet is the name of the twelfth king of Argos, son of Lyncaeus and Hypermnestra, grandson of Danaus, father of Acrisius and grandfather of Perseus, in apposition.

Quedius (*Raphirus*) *li* sp. nov.

(Figs. 16–21)

Description. In all characters similar to *Q. ruoh* and different mainly by male sexual characters. Coloration similar to that of *Q. ruoh*, but pronotum piceous with lateral portions pale testaceous; pubescence of elytra and abdominal tergites brunneo-piceous; head more distinctly wider than long (ratio 1.31, corresponding ratio in *Q. ruoh* = 1.23).

M a l e. First four segments of front tarsus not appreciably different from those of *Q. ruoh.* Sternite 8 with three long setae on each side, medioapical emargination narrower and less deep (Fig. 16). Tergite 10 of genital segment similar to that of *Q. ruoh*, but somewhat wider (Fig. 17); sternite 9 with basal portion markedly narrower, apical portion with three slightly differentiated setae, distinctly less setose (Fig. 18). Aedoeagus (Figs. 19–21) similar to that of *Q. ruoh*, but median lobe with apex characteristically knob-like dilated. Paramere more parallel-sided, apex by far not reaching apex of median lobe; apical setae minute, situated as in Fig. 21; sensory peg setae on underside forming an irregular group below apex.

F e m a l e. Unknown.

Type material. Holotype (male): China: "CHINA: Yunnan [Ch 07–08] Dali Bai Auton. Pref., Diancang Shan 43 km NW Dali, 3078 m, 25°59′35″N 99°52′06″W pass, Rhodod., oaks, bamboo, sifted, 29.V.2007, M. Schülke". In the SMETANA collection, Ottawa, Canada.

Paratypes: China: [Yunnan]: same data as holotype but leg. A. PÜTZ, 3 ♂♂ (APC, ASC).

Bionomics. According to the data on the locality label, the holotype was taken at

the elevation 3,078 m by sifting debris under rhododendron–oaks–bamboo growths.

Geographical distribution. *Quedius li* is at present known only from the Diancang Shan in Yunnan.

Recognition and comments. *Quedius li* may be positively distiguished from *Q. ruoh* by the differently shaped aedoeagus, particularly by the characteristic, knob-like apex of the median lobe (Figs. 19, 20).

It is worth mentioning that at present three species of the genus *Quedius* occur in Diancang Shan: *Quedius vafer* SMETANA, 1997 of the subgenus *Microsaurus* DEJEAN, 1833, and two of the subgenus *Raphirus*: *Quedius li* sp. nov., and *Q. pian* sp. nov. The first species was until now known only from three females of the original series; however, the male became available quite recently and will be described in one of the next papers.

Quedius (*Raphirus*) *erl* sp. nov.

(Figs. 22–28)

Description. In all characters quite similar to *Q. ruoh* and different by male sexual characters.

M a l e. First four segments of front tarsus similar to those of *Q. ruoh*, but less dilated, segment 2 slightly narrower than apex of tibia. Sternite 8 with five long setae on each side, medioapical emargination less deep and more rounded. Genital segment with tergite 10 similar to that of *Q. ruoh* but narrower, with less numerous long setae at apex (Fig. 22); sternite 9 similar to that of *Q. ruoh* (Fig. 23). Aedoeagus (Figs. 24–27) similar to that of *Q. ruoh*, but distinctly shorter, median lobe shorter and wider, with shorter apical portion. Paramere shorter, rather parallel-sided, leaving lateral portions of median lobe exposed, with narrowly arcuate apex not reaching apex of median lobe; apical setae minute, situated as in Fig. 27; sensory peg setae on underside of paramere more numerous, arranged in two irregular rows situated more medially.

F e m a l e. First four segments of front tarsus not appreciably dilated. Tergite 10 of genital segment shorter and markedly wider (Fig. 28).

Length 3.8–5.0 mm.

Type material. Holotype (male) and allotype (female): China: "CHINA N Yunnan, Xue Shan nr. Zhongdian 3800 m 26.VI.1996 27°49′N 99°34′E C43 " / " collected by A. Smetana, J. Farkač and P. Kabátek". In the SMETANA collection, Ottawa, Canada

Paratypes: China: [Yunnan]: same data as holotype, 3 ♂♂, 2 ♀♀ (ASC); N-Yunnan Zhongdian Co. pass 28 km ESE Zhongdian 27°43.9′N 99°58.2′E 3700–3750 m 22.VIII.2003 A. Smetana [C131], 1 ♂, 5 ♀♀ (ASC); same, but devastated primary forest with young Abies, Larix, Betula, Rhodod., leg. M. Schülke, 6 ♀♀ (MSC); N-Yunnan Zhongdian Co. 36 km ESE Zhongdian 27°40.9′N 100°01.5′E 3500–3550 m 23.VIII.2003 A. Smetana [C133], 7 ♂♂, 7 ♀♀ (ASC); same, but overgrown rock hillside with old mixed forest, bamboo, dead wood, mushrooms, leg. M. Schülke, 13 ♂♂, 12 ♀♀ (ASC, MSC); N-Yunnan Diqing Tibet. Aut. Pr. Zhongdian Co. 35 km ESE

Zhongdian 27°41.00′N 100°01.47′E 3.VI.2005 A. Smetana [C150], 2 ♀♀ (ASC); same, but (devastated mixed forest near small creek, sifted from litter, moss, dead wood) D. W. Wrase [03], 12 ♂♂, 8 ♀♀ (ASC, MSC); same, but M. Schülke [C2005–03], 4 ♂♂, 1 ♀ (MSC).

Geographical distribution. *Quedius erl* is at present known from several localities in Xue Shan in northern Yunnan.

Bionomics. The specimens of the original series were collected in habitats in high montane, coniferous (mostly *Abies*) or mixed forests at elevations above 3,000 m (up to 3,800 m). Most specimens were taken by sifting various forest floor debris, including dead wood and bark, moss and leaf litter and other debris under *Rhododendron* bushes or bamboo growths. Some were also taken by sifting debris under old mushrooms on forest floor.

Recognition and comments. In addition to distinct geographical isolation, *Q. erl* differs from *Q. ruoh* by the male sexual characters, as they were outlined in the description above. The same goes for comparison of *Q. erl* with *Q. io*, the latter occurring in Qinling Shan in Shaanxi, although the body coloration of specimens of *Q. io* tends to be paler.

Etymology. The specific epithet is the Chinese word "erl" (son, child). It refers to the similarity of the species to *Q. ruoh*.

Quedius (*Raphirus*) *bann* sp. nov.

(Figs. 29–34)

Description. In all characters similar to *Q. ruoh*, but different as follows: average size smaller, body form narrower; maxillary and labial palpi darker, brunneopiceous to piceous; antennae darker, dark brownish with first three segments more or less piceous; legs darker, medial faces of both middle and hind tibiae more distinctly and more extensively darkened. Head narrower, only vaguely wider than long (ratio 1.08) to equally long as wide, eyes relatively larger, tempora still shorter than those of *Q. ruoh* (corresponding ratio 0.14), surface of head lacking microsculpture, except for rudiments on clypeus. Pronotum narrower, disc lacking microsculpture, lateral portions with rudimentary microsculpture of longitudinal waves. Elytra shorter than those of *Q. ruoh*, at suture considerably (ratio 0.70), at sides feebly (ratio 0.92) shorter than pronotum at midline. Wings more reduced, each in form of a flap much shorter than elytron.

M a l e. First four segments of front tarsus only slightly dilated, second segment distinctly narrower than apex of tibia (ratio 0.65). Sternite 8 similar to that of *Q. ruoh*, but medioapical emargination slightly less deep and narrower. Genital segment with tergite 10 shorter (Fig. 29); sternite 9 with basal portion markedly narrower, apical portion with two slightly differentiated setae on each side (Fig. 30). Aedoeagus (Figs. 31–34) similar to that of *Q. ruoh*, but markedly shorter; median lobe shorter and somewhat wider, on face adjacent to paramere with short carina appearing far below

apex of median lobe (lateral view, Fig. 33); paramere markedly shorter; apical setae minute, situated as in Fig. 34; sensory peg setae on underside of paramere forming two longitudinal rows below apex, similar to those of *Q. ruoh*.

F e m a l e. First four segments of front tarsus not at all dilated, simple. Tergite 10 not appreciably different from that of *Q. ruoh*.

Length 3.5–4.5 mm.

Type material. Holotype (male): China: "CHINA: W Sichuan, Pass Zheduo Shankou W Kangding, W slope, 4000 m, 29°58′N 101°47′E, 17.VII. 1998, A. Smetana [C84] " / " 1998 China Expedition J. Farkač, D. Král, J. Schneider & A. Smetana".

Allotype (female): China: "CHINA (W Sichuan) (11) Daxue Shan, 5 km W Tsheto-La Pass (W Kangding) 3900–4000 m 30.04N/101.47E 26.V.1997 Wrase". In the SCHÜLKE collection, Berlin.

Paratypes: China: [Sichuan]: same data as holotype, 3 ♂♂ (ASC); same data as allotype, but 30.04.20′N 101.46.39′E, M. Schülke, 1 ♂ (MSC); Ganzi Pref. Daxue Shan 101.47E, 30.04N, ca. 21 kmW Kangding, km 2884, 3970 m, 26.V.1997, 1 ♀, leg. A. Pütz (APC).

Geographical disribution. *Quedius bann* is known at present from the Zheduo Shankou Pass (Tsheto-La Pass) west of Kanding in Sichuan.

Bionomics. The specimens collected by SMETANA [C84] were taken in the alpine zone by sifting moss and various debris under the *Juniper* and low *Azalea* growths.

Recognition and comments. *Quedius bann* may be rather easily recognized, in addition to the shape of aedoeagus, by a combination of the following characters: small size, lack of microsculpture on the disc of both head and pronotum, quite short elytra, and by the only slightly dilated first four segments of the male front tarsus.

Etymology. The specific epithet is the Chinese word "bann" (half, to halve). It refers to the markedly short elytra.

Quedius (*Raphirus*) *pian* sp. nov.

(Fig. 35)

Description. Dark brownish with black head; head, pronotum and elytra with inconspicuous, vague metallic lustre, abdomen markedly iridescent. Palpi, antennae and legs entirely rufotestaceous. Head rounded, wider than long (ratio 1.20); eyes very large and convex, tempora very short, considerably shorter than length of eyes seen from above (ratio 0.18); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture almost touching posteromedial margin of eye, one puncture between it and posterior margin of head; surface of head with very fine, moderately dense microsculpture of irregular transverse waves becoming submeshed on clypeus. Antenna moderately long, segment 3 slightly narrower and shorter than segment 2, following segments longer than wide, gradually becoming shorter, outer segments about as long as wide, last segment slightly shorter than two preceding segments combined. Pronotum about as long as wide, broadly arcuate basally, evenly

transversely convex, markedly narrowed anteriad; dorsal rows each with three punctures, sublateral rows each with one puncture, situated before level of large lateral puncture; surface of pronotum with microsculpture similar to that on head but denser. Scutellum with very fine microsculpure of rudimentary waves, with several punctures on apical portion bearing pale setae. Elytra short, at suture markedly (ratio 0.80), at sides vaguely (ratio 0.92) shorter than pronotum at midline; punctation fine, dense, slightly asperate, transverse interspaces between punctures mostly smaller than diameters of punctures; surface between punctures without microsculpture, yellowish-golden pubescence moderately long and dense. Wings non-functional, each reduced to a rudiment slightly shorter than elytron. Abdomen with tergite 7 (fifth visible) lacking whitish apical seam of palisade setae; tergite 2 (in front of first visible tergite) with only a few, scattered, very fine punctures; punctation of tergites finer than that of elytra, in general sparse, becoming sparser toward apical margin of each tergite; first three tergites each with traces of shallow lateral impression; pale brownish pubescence evenly covering each tergite but each tergite on each side with basolateral patch of denser yellowish-golden pubescence and denser punctation; surface between punctures with excessively fine and dense microsculpture of striae.

F e m a l e. First four segments of front tarsus not appreciably dilated. Tergite 10 of female genital segment as in Fig. 35.

M a l e. Unknown.

Length 6.3 mm.

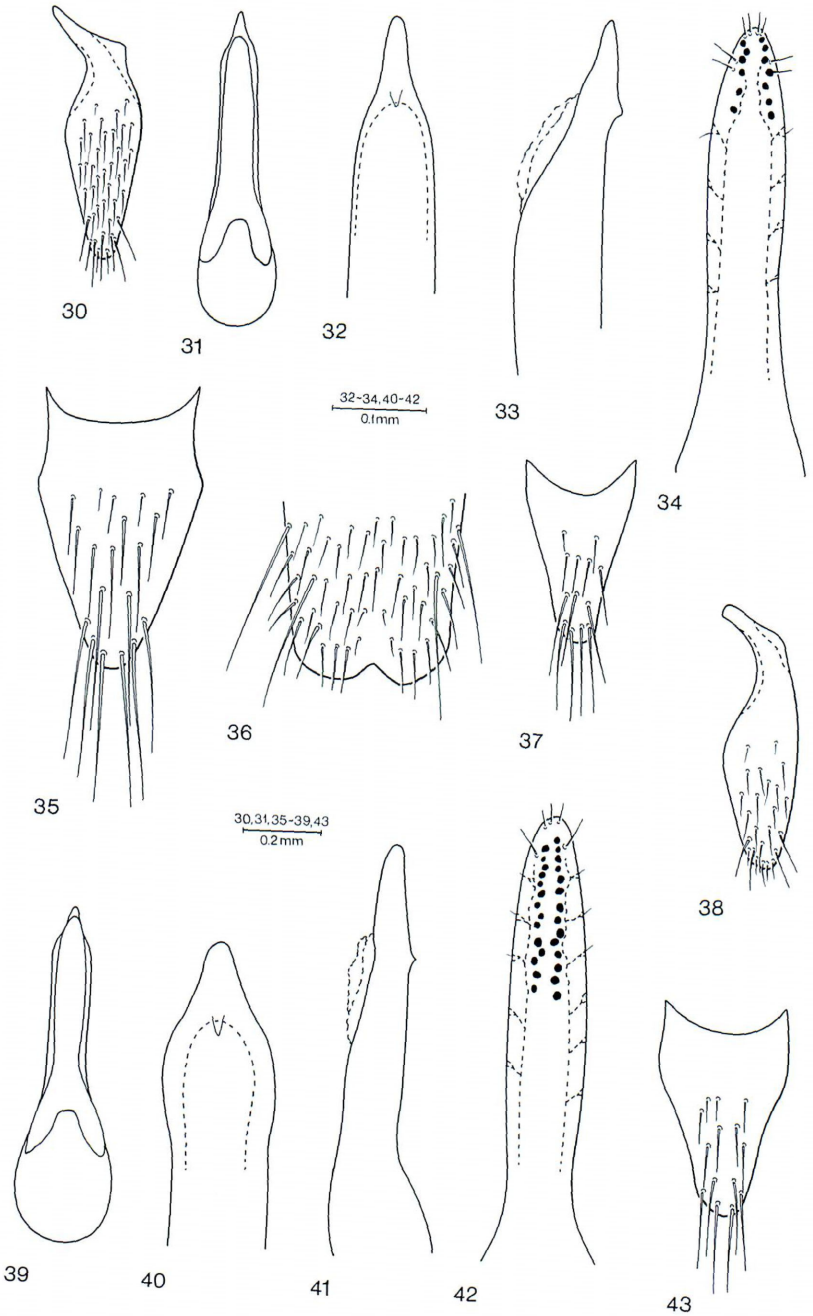
Type material. Holotype (female): China: "CHINA (N-Yunnan) Dali Bai Nat. Aut. Pref., Diancang Shan, 3 km W Dali old town, creek valley at "Cloud Road", right upper chairlift station 25°41.1′N/100°06.3′E, 2650–2750 m (bamboo, moss, leaf litter) 29.VIII.–1.X.2003 Wrase [19]". In the SMETANA collection, Ottawa, Canada.

Geographical distribution. *Quedius pian* is at present known only from Diancang Shan in northern Yunnan.

Bionomics. No details are known about the collection circumstances of the holotype.

Recognition and comments. I decided to describe this species, although only one female is available. The species stands out among the brachypterous species dealt with in this paper by its relatively large size, the body coloration and the pattern of the pubescence of elytra and abdomen, as well as by the antennae with outer segments slightly longer than wide. It cannot be confused with any other species.

Figs. 30–43 (on p. 192). —— 30–34. *Quedius bann*: 30, sternite 9 of male genital segment; 31, aedoeagus, ventral view; 32, apical portion of medin lobe, paramere removed; 33, apical portion of median lobe, paramere removed, lateral view; 34, underside of paramere with sensory peg setae. —— 35. *Quedius pian*: tergite 10 of female genital segment. —— 36–43. *Quedius doan*: 36, apical portion of male sternite 8; 37, tergite 10 of male genital segment; 38, sternite 9 of male genital segment; 39, aedoeagus, ventral view; 40, apical portion of median lobe, paramere removed; 41, apical portion of median lobe, paramere removed, lateral view; 42, underside of paramere with sensory peg setae; 43, tergite 10 of female genital segment.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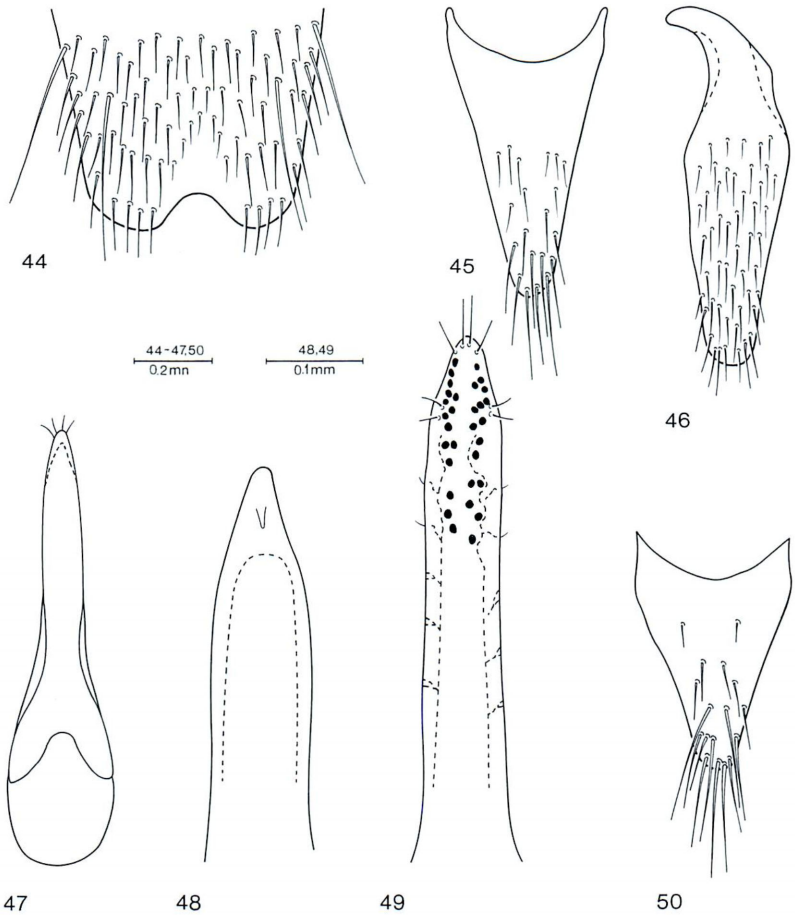

Figs. 44–50. *Quedius microsauroides*: 44, apical portion of male sternite 8; 45, tergite 10 of male genital segment; 46, sternite 9 of male genital segment; 47, aedoeagus, ventral view; 48, apical portion of median lobe, paramere removed; 49, underside of paramere with sensory peg setae; 50, tergite 10 of female genital segment.

Etymology. The specific epithet is the Chinese word "pian" (partial). It refers to the fact that only one sex is known.

Quedius (*Raphirus*) *doan* sp. nov.

(Figs. 36–43)

Description. Piceous-black to black, elytra and abdomen often somewhat paler, abdominal tergites with apical margins usually narrowly paler; head, pronotum and elytra with slight metallic lustre, abdomen markedly iridescent. Palpi and antennae rufotestaceous, labial palpi often darker, antennae usually slightly darkened toward apex; legs rufotestaceous, medial faces of middle tibiae slightly, those of hind tibiae more distinctly darkened. Head rounded, wider than long (ratio 1.23); eyes very large and convex, tempora very short, considerably shorter than length of eyes seen from above (ratio 0.11); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture touching posteromedial margin of eye, one puncture between it and posterior margin of head; surface of head with very fine, moderately dense microsculpture of irregular transverse waves becoming submeshed on clypeus. Antenna moderately long, segment 3 slightly narrower and shorter than segment 2, segments 4 and 5 longer than wide, segments 6 and 7 as long as wide, outer segments slightly wider than long, last segment about as long as two preceding segments combined. Pronotum about as long as wide to vaguely wider than long (ratio 1.09), broadly arcuate basally, evenly transversely convex, no more than slightly narrowed anteriad; dorsal rows each with three punctures, sublateral rows each with two punctures, posterior puncture situated before level of large lateral puncture; surface of pronotum with microsculpture similar to that on head but mostly somewhat denser. Scutellum with microsculpure of rudimentary waves, with several setiferous punctures on apical portion. Elytra short, at suture moderately shorter (ratio 0.82), at sides about as long as pronotum at midline; punctation fine, slightly asperate, moderately dense, transverse interspaces between punctures mostly somewhat larger than diameters of punctures; surface between punctures without microsculpture, golden-yellowish pubescence moderately long and dense. Wings non-functional, each reduced to rudiment slightly shorter than elytron. Abdomen with tergite 7 (fifth visible) lacking whitish apical seam of palisade setae; tergite 2 (in front of first visible tergite) with no more than a few scattered, very fine punctures; punctation of tergites finer and denser than that of elytra, becoming sparser toward apical margin of each tergite; first three tergites without shallow lateral impressions, golden-yellowish pubescence with tendency to become denser basolaterally on each tergite; surface between punctures with excessively fine and dense microsculpture of striae.

M a l e. First four segments of front tarsus slightly dilated, sub-bilobed, each densely covered with modified pale setae ventrally, segment 2 narrower than apex of tibia (ratio 0. 80); segment 4 narrower than preceding segments. Sternite 8 with two long setae on each side, apical margin with moderately deep and wide, obtusely

triangular medioapical emargination (Fig. 36), small triangular area before emargination flattened and smooth. Genital segment with tergite 10 narrow, setose as in Fig. 37; sternite 9 as in Fig. 38, sparingly setose and with two slightly differentiated setae on each side. Aedoeagus (Figs. 39–42) narrow, elongate, median lobe anteriorly markedly, arcuately dilated before narrowed into subacute apical portion, on face adjacent to paramere with minute, short carina appearing far below apex of median lobe (lateral view, Fig. 41). Paramere elongate, subparallel-sided to elongate-fusiform, with narrowly arcuate apex not reaching apex of median lobe; apical setae situated as in Fig. 42; sensory peg setae on underside of paramere numerous, forming two dense longitudinal rows along midline of apical portion of paramere.

F e m a l e. First four segments of front tarsus not appreciably dilated. Tergite 10 of female genital segment relatively wide and short, arcuate apically, setose as in Fig. 43.

Length 3.8–4.5 mm.

Type material. Holotype (male) and allotype (female): China: "CHINA: N-Yunnan Nujiang Lisu Aut. Pr. Gongshan Co. Gaoligong Shan, valley at 3000–3050 m 27°47.90′N 98°30.19′E 21.VI.2005 A. SMETANA [C169]". In the SMETANA collection, Ottawa, Canada.

Paratypes: China: [Yunnan]: same data as holotype, 5 ♂♂, 2 ♀♀ (ASC); same data as holotype, but M. Schülke [C2005–16]/conif.forest with *Rhododendron*, broad leaved bushes, litter, moss, dead wood sifted along creek and snowfields, 9 ♂♂, 4 ♀♀ (ASC, MSC); [CH 07–24] Nuijang Lisu Aut. Pref., Gaoligong Shan, valley 18 km W Gongshan, 3020 m, 27°47.54′N 98°30.13′E, mixed forest, litter, moss, wood sifted, 7.VI. 2007, M. Schülke, 1 ♂, 6 ♀♀ (ASC, MSC); same as previous, but D. W. Wrase [24], 3 ♀♀ (ASC, MSC).

Geographical distribution. *Quedius doan* is known only from the type locality in the Gaoligong Shan, a mountain range west of the Salween river near the Myanmar border, Yunnan.

Bionomics. The specimens of the original series were taken at the elevation about 3,000 m in a large clearing in a coniferous forest by sifting leaflitter, various debris, moss and dead wood under rhododendron and broadleaved bushes along creeks and snowfields. Specimens of *Q. goong*, *Q. jaang*, *Q. kwang*, *Q. pyn* and *Q. lanugo* (see SMETANA, 2006) were collected in the same habitat.

Recognition and comments. *Quedius doan* may be easily recognized among the brachypterous species of the *Muscicola*-group, in addition to the characters of the aedoeagus, by the golden-yellowish pubescence of the elytra and abdomen, and by the almost impunctate second tergite of the abdomen.

In some specimens the sublateral rows of punctures each may have three punctures, and the last puncture may be at the level, or even behind the level of the large lateral puncture.

Etymology. The specific epithet is the Chinese word "doan" (short). It refers to the short elytra of the species.

Quedius (*Raphirus*) *microsauroides* sp. nov.

(Figs. 44–50)

Description. Piceous to piceous-black with black head, pronotum and elytra usually variably paler, pronotum rufotestaceous in some specimens, apical margin of each elytron narrowly pale testaceous, apical margins of abdominal tergites usually variably paler; abdomen markedly iridescent. Palpi brunneous, antennae and legs rufotestaceous to brunneous, medial faces of middle and hind tibiae slightly darkened. Head rounded, wider than long (ratio 1.15); eyes very large and convex, tempora markedly shorter than length of eyes seen from above (ratio 0.35); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture separated from posteromedial margin of eye by distance about equal to diameter of puncture, one puncture between it and posterior margin of head; surface of head with very fine, moderately dense microsculpture of irregular transverse waves becoming confused on clypeus. Antenna moderately long, segments 2 and 3 subequal in length, segments 4–6 longer than wide, gradually becoming shorter, outer segments as long as wide to slightly wider than long, last segment as long as two preceding segments combined. Pronotum about as long as wide, broadly arcuate basally, evenly transversely convex, slightly narrowed anteriad; dorsal rows each with three punctures, sublateral rows each with one to two punctures, posterior puncture situated before level of large lateral puncture; surface of lateral portions of pronotum with microsculpture similar to that on head, becoming to great extent rudimentary or entirely missing on middle portions of pronotal disc. Scutellum with microsculpure of rudimentary transverse waves, impunctate. Elytra short, at suture moderately shorter (ratio 0.82), at sides about as long as pronotum at midline; punctation fine, slightly asperate, moderately dense, transverse interspaces between punctures mostly somewhat larger than diameters of punctures; surface between punctures without microsculpture, piceous pubescence moderately long and dense. Wings non-functional, each markedly reduced, but folded once under elytron. Abdomen with tergite 7 (fifth visible) lacking whitish apical seam of palisade setae; tergite 2 (in front of first visible tergite) with a few scattered, very fine punctures; punctation of tergites much finer than that of elytra, becoming markedly sparser toward apical margin of each tergite and in general toward apex of abdomen; first three tergites without shallow lateral impressions, piceous pubescence moderately dense; surface between punctures with excessively fine and dense microsculpture of striae.

M a l e. First four segments of front tarsus moderately dilated, sub-bilobed, each densely covered with modified pale setae ventrally, segment 2 narrower than apex of tibia (ratio 0. 80); segment 4 narrower than preceding segments. Sternite 8 with two long setae on each side, apical margin with moderately deep, rather wide, almost arcuate medioapical emargination (Fig. 44), small triangular area before emargination flattened and smooth. Genital segment with tergite 10 markedly narrowly triangular, narrowly arcuate apically, setose as in Fig. 45; sternite 9 narrow, extensively setose, without any differentiated subapical or apical setae (Fig.46). Aedoeagus (Figs. 47–49) quite narrow

and elongate, median lobe anteriorly narrowed into subacute apical portion, on face adjacent to paramere with minute, short carina appearing far below apex of median lobe. Paramere elongate, subparallel-sided, covering most of median lobe, with narrowly arcuate apex slightly exceeding apex of median lobe; apical setae minute, situated as in Fig. 49; sensory peg setae on underside of paramere numerous, forming two dense, irregular longitudinal rows along midline of apical portion of paramere.

F e m a l e. First four segments of front tarsus not appreciably dilated. Tergite 10 of genital segment as in Fig. 50, except for apical portion quite sparingly setose.

Length 4.0–5.1 mm

Type material. Holotype (male) and allotype (female): China: "China, Xinjiang, 2000–2500 m NE slope of Tian Shan mt. Road Urumqui–Houxia, ca. 60 km SW Urumqui, 1993 15–17.V. Jaroslav Turna leg." In the collection of the Naturhistorisches Museum Wien, Austria.

Paratypes: China: [Xinjiang]: same data as holotype, 2 ♀♀ (ASC, NMW); same, but J. Kaláb leg., 1 ♀ (NMW); China–Xinjiang, road Narat–Kuytun, pass 40 km NE Narat, 3500 m, alpine region, 16.–18. 7. 1993, J. Kaláb leg., 1 ♂, 3 ♀♀ (ASC, NMW); same, but Jaroslav Turna leg., 2 ♂♂ (ASC, NMW); road Bayanbulak–Narat, Tian Shan, pass 30 km ESE Narat 2800 m, 13–14. VII. 1993, Jar. Turna or J. Kaláb leg., 2 ♂♂, 2 ♀♀ (ASC, NMW); Tian Shan, road Kuqa–Bayanbulak, pass 80 km SW Bayanbulak, 3500 m 10–12/VII. 1993, J. Turna or J. Kaláb leg., 5 ♂♂, 2 ♀♀ (ASC, NMW); N slope of Tian Shan mts., road Kuqa–Bayanbulak, 50 km SW Bayanbulak, ca. 2800 m, 10.VII.1993, Jaroslav Turna leg., 2 ♂♂, 1 ♀ (ASC, NMW); S slope of Tian Shan mts., road Kuqa–Bayanbulak ca. 100 km NNE Kuqa, 2,000–3,000 m, 8–11.V. 1993, Jaroslav Turna leg., 4 ♂♂, 3 ♀♀ (ASC, NMW); road Narat–Kuytun, pass ca 40 km NE Narat 3500 m, 16–18/VII 1993, Jaroslav Turna leg., 2 ♂♂ (ASC, NMW); SW slope of Borohoro 40 km ENE Qingshuihezi, 2000–3000 m, 24–26/VII. 1993, Jaroslav Turna leg., 1 ♂, 1 ♀; CHINA, 70 km W Urumqui, VIII. 1982, Rougemont, 2 ♀♀ (ASC, GRC); Xinjiang: Nanshan, VIII. 86, Rougemont, 1 ♂, 1 ♀ (ASC, GRC); Xinjiang: Tienshi VIII. 86, Rougemont, 1 ♂ (GRC).

Geographical distribution. *Quedius microsauroides* is at present known from numerous localities in the Tian Shan range in Xinjiang.

Bionomics. No details are known about the habitat requirements of this species. It occurs from habitats in moderate mountain elevations (2,000 m) all the way up to the alpine zone (3,500 m).

Recognition and comments. *Quedius microsauroides* resembles in its habitus some small species of the subgenus *Microsaurus* DEJEAN, 1833. However, the chaetotaxy of the head (the presence of only one puncture between the posterior frontal puncture and the posterior margin of the head), and the shape of the aedoeagus confirm that it is a member of the subgenus *Raphirus*. It cannot be confused with any other member of the subgenus *Raphirus,* occurring in the mainland China.

Etymology. The specific epithet is a combination of the stem of the existing name *Microsaurus*, and the suffix *-oides*. It refers to the *Microsaurus*-like habitus of the species.

Acknowledgments

I thank Mr. Go SATO, Agriculture and Agri-Food Canada, Biodiversity, Ottawa, Canada, who carefully finished the line drawings. I also thank my friend Michael SCHÜLKE, Berlin, who graciously allowed me to keep the holotypes of *Q. li* and *Q. pian* in my collection.

要　　約

A. SMETANA: 中国産ツヤムネハネカクシ亜族に関する知見. 29. ツヤムネハネカクシ属 *Raphirus* 亜属の 6. —— *Raphirus* 亜属のツヤムネハネカクシの 8 新種を, 陝西, 甘粛, 四川, 云南および新彊の各省から命名記載した. いずれも短翅型の *Q. muscicola* 種群に属し, 高山帯に生息している.

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