

Contributions to the knowledge of the Quediini (Coleoptera: Staphylinidae: Staphylinini) of China. Part 49. Genus *Quedius* Stephens, 1829. Subgenus *Raphirus* Stephens, 1829. Section 13.

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Abstract. Eight new species of the genus *Quedius* Stephens, 1829, subgenus *Raphirus* Stephens, 1829 are described based on specimens from the People's Republic of China: *Q. nigror* sp. nov. (Sichuan), *Q. nesonaster* sp. nov. (Hainan), *Q. rubor* sp. nov. (Guangxi), *Q. caesar* sp. nov. (Yunnan), *Q. cupreostigma* sp. nov. (Zhejiang), *Q. distigma* sp. nov. (Guangxi), *Q. cupreonotus* sp. nov. (Zhejiang), *Q. cupreogutta* sp. nov. (Guangxi, Guizhou, Chongqing). Each species is described, illustrated and all available distributional and bionomic data are given. New records of several already described species are presented.

INTRODUCTION

This is the forty-ninth of a series of papers dealing with the Quediina of the People's Republic of China. It deals with the species of the *intricatus*-group (see Smetana, 1995). Eight species are described as new: *Q. nigror* sp. nov. (Sichuan), *Q. nesonaster* sp. nov. (Hainan), *Q. rubor* sp. nov. (Guangxi), *Q. caesar* sp. nov. (Yunnan), *Q. cupreostigma* sp. nov. (Zhejiang), *Q. distigma* sp. nov. (Guangxi), *Q. cupreonotus* sp. nov. (Zhejiang), *Q. cupreogutta* sp. nov. (Guangxi, Guizhou, Chongqing). Additional taxonomic and faunistic data on some previously described species are presented.

MATERIAL AND METHODS

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

ASC Aleš Smetana collection, Ottawa, Canada;
MSC Michael Schülke collection, Berlin, Germany;
SNUC Collection of the Department of Biology, Shanghai Normal University, Shanghai, P. R. China.

RESULTS

Quedius (Raphirus) maoxingi Hu, Li et Cao, 2012

maoxingi Hu, Li et Cao, 2012: 50 (*Quedius*; subgenus *Raphirus*; description; habitat [p.48]).

New records. CHINA: Yunnan: Nabanhe Nature Reserve, Guomenshan, 1200 m, 8.v.2009, Jia-Yao Hu et Zi-Wei Yin leg., 1 spec., (SNUC); Nabanhe Nature Reserve, Xiaonuoyoushangzhai, 1600 m, 7.v.2009, Jia-Yao Hu et Zi-Wei Yin leg., 2 spec., (ASC, SNUC).

Comments. The species was described from one male specimen with locality data identical to those of the above specimen from Guomenshan. The species is at present known only from the Nabanhe Nature Reserve in southernmost Yunnan.

Quedius (Raphirus) jindrai Smetana, 1998

jindrai Smetana, 1998: 110 (*Quedius*; subgenus *Raphirus*); description; habitat).

New record. CHINA: Shaanxi: Hanzhong city, Nanzheng county, Yuanba town, Liping National F. P., 32°50'N 106°36'E, 1600 m, 16.vii.2012, Chen Li, Ma Zhao leg., 2 ♂♂, (SNUC); Hanzhong city, Nanzheng county, Liping, 1400-1600 m, 16.vii.2012, Pan Yu-Hong leg., 1 ♂, (ASC).

Comments. The darkening of medial faces of middle and hind tibiae present in all specimens of *Q. jindrai* known so far, is absent in the above specimens, rendering the entire legs uniformly testaceous. The aedeoanal characters confirm the assignment of the above specimens to *Q. jindrai*.

Quedius (Raphirus) barbarossa Smetana, 2002

barbarossa Smetana, 2002: 126 (*Quedius*; subgenus *Raphirus*; description; habitat)

New records. CHINA: Shaanxi: Zhouzhi County, Houzhenzhi, Qinling, Qinlingliangxia, 33°48'973"N 107°44'483"E, 1820 m, 18.v.2008, HUANG Hao & XU Wang leg., 1 spec., (SNUC); Sichuan: Qingchengshan Mt., Cuiying Lake, 30°56'N 103°29'E, 1300 m, 31.vii.2012, Peng, Dai & Yin, leg., 3 spec., (ASC, SNUC).

Comments. This is the first record of this species from Sichuan.

Quedius (Raphirus) torrentum Smetana, 2002

torrentum Smetana, 2002: 124 (*Quedius*; subgenus *Raphirus*; description; habitat)

New records. CHINA: Yunnan: Nabanhe Nature Reserve, Shanshenmiao, Bengganghani, 1700 m, 29.iv.2009, Jia-Yao Hu & Zi-Wei Yin leg., 1 spec., (SNUC); Nabanhe Conv., Naban Village, 7.i.2004, Li & Tang leg., 1 spec., (ASC).

Comments. The species is at present known from Hubei, Sichuan and Yunnan.

Quedius (Raphirus) nigror sp. nov.

(Fig. 1)

Type locality. China, Sichuan, Tianquan County, Mt. Erlang Nature Reserve, 2600-2800 m.

Type material. Holotype (♀): CHINA: "China: Sichuan Prov. Ya'an City Tianquan County Mt. Erlang N. R. alt. 2699-2800 m, 11.vii.2012, Zhong OPENG leg.", (SNUC).

Description. Male. Shiny, head, pronotum and elytra bluish dark green, abdomen black, iridescent; maxillary and labial palpi piceous, antennae with first segment black, segments 2 and 3 piceous (except for paler bases), following segments gradually becoming paler, outer segments pale brown; front coxae black, entire femora and tibiae black, tarsi slightly paler. Head rounded, wider than long (ratio 1.34); eyes very large and convex, tempora considerably shorter than eyes seen from above (ratio 0.18); dorsal surface of head with four deep coarse interocular punctures surrounded by some finer punctures, posterior area with deep, coarse punctures with intermixed fine punctures, clypeus impunctate, rather small area on vertex only with scattered, very fine punctures; surface between punctures with very fine, superficial meshed microsculpture. Antenna rather short, segments 2 and 3 subequal in length, segments 4 and 5 slightly longer than wide, following segments becoming gradually shorter, outer segments vaguely wider than long, last segment about as long as two preceding segments combined. Pronotum relatively narrow, about as long as wide, indistinctly narrowed anteriorly, lateral margin continuously arcuate with rounded base; transversely convex, lateral portions not explanate; dorsal rows irregular, each with 7 or 8 coarse punctures, a group of 6 or 7 slightly finer punctures laterad of each dorsal row, lateral portions of pronotum without fine punctation; surface with very fine, superficial microsculpture of transverse striae. Scutellum impunctate, with very fine microsculpture of transverse waves. Elytra with elevated, smooth suture; moderately long, at base about as wide as pronotum; at suture as long as, at sides slightly longer than pronotum at midline (ratio 1.20); punctation coarse and dense, to some extent confluent; deflexed portion of each elytron with fine, rather sparse punctation; pubescence mixed, darker hairs intermixed with some yellowish ones, especially on lateral portion of each elytron; surface between punctures without microsculpture. Wings apparently fully developed. Abdomen with tergite 7 (fifth visible) bearing distinct whitish seam of palisade fringe; punctation of abdominal tergites very fine, about evenly covering each tergite, but becoming gradually somewhat sparser toward apex of abdomen; first visible tergite with inconspicuous tuft of golden-reddish pubescence on each lateral portion; following tergites each with dark pubescence on middle portion, and with group of golden hairs on each lateral portion; surface between punctures with excessively fine microsculpture of transverse striae.

Female. First four segments of front tarsus moderately dilated, each with tenent setae ventrally; segment 2 slightly narrower than apex of tibia (ratio 0.85); segment 4 slightly narrower than preceding segments. Genital segment with tergite 10 of the usual triangular shape, narrowly pigmented medioapically, setose as in Fig. 1.

Length 6.5 mm.

Geographical distribution. *Quedius nigror* is at present known only from the type locality in Erlang Shan in Sichuan.

Bionomics. Nothing is known about the habitat requirements of this species, but it may be safely assumed that it lives in a way similar to that of the other species of the *intricatus*-group (moist to wet moss associated with mountain creeks, waterfalls and other water bodies).

Recognition and comments. *Quedius nigror* may be easily recognized by the black legs in combination with the pronotum which is relatively narrow, about as long as wide, indistinctly narrowed anteriorly with lateral portions not explanate and missing the fine punctuation.

Etymology. The specific epithet is the Latin noun *nigror*, *-oris*, m (blackness) in apposition. It refers to the dark color of the appendages of the species.

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

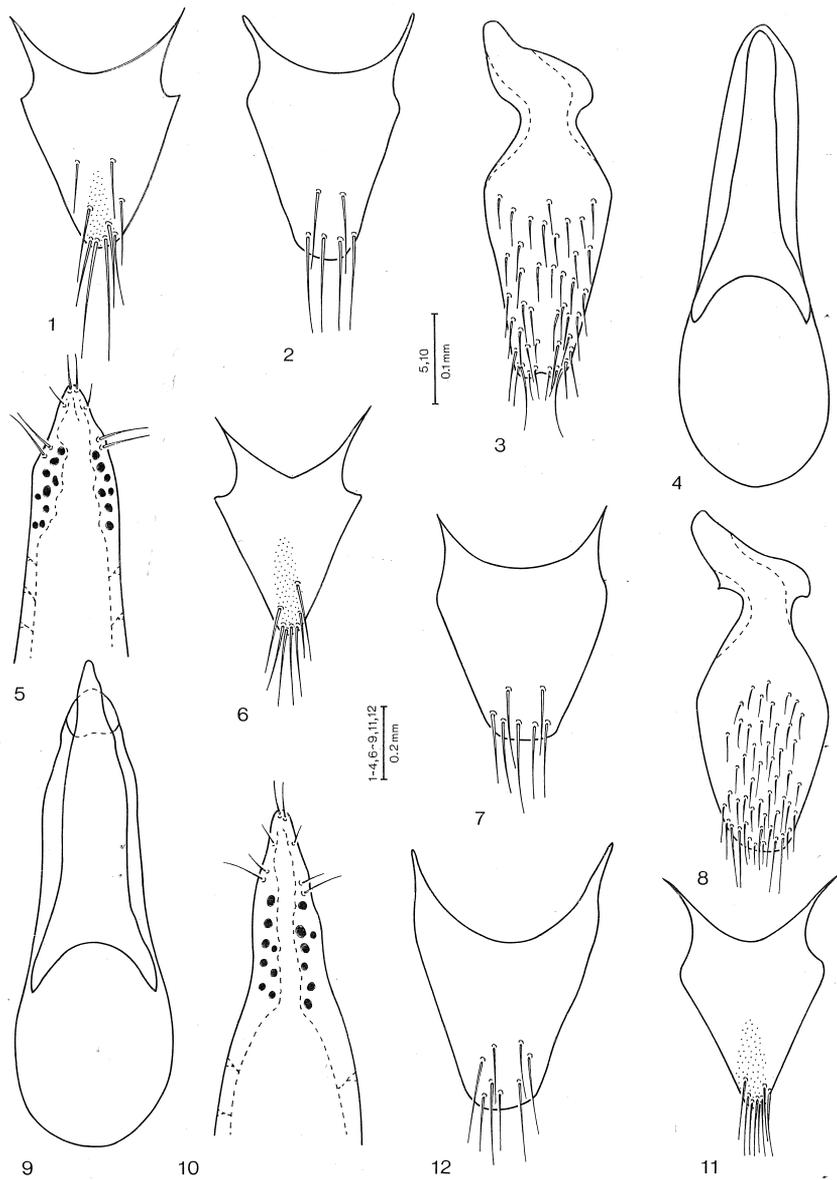
(Figs 2-6)

Type locality. China, Hainan, Lingshui County, Diaoluoshan Nature Reserve, 1000 m.

Type material. Holotype (♂) and allotype (♀): CHINA: "CHINA: Hainan Prov. Lingshui County Diaoluoshan N. R. 1000 m, 24.iv.2012, Peng & Dai leg.". Holotype in (SNUC), allotype in (ASC). Paratypes (44 spec.): same data as holotype: 9 ♂, 10 ♀, (ASC, SNUC); Hainan: Wuzhishan City, Shuiman Village, Wuzhishan N. R., 650-700 m, 21.iv.2012, Peng & Dai leg., 8 ♂, 7 ♀; Ledong County, Jianfengling N. R., Wufenqu, 900 m, 2.v.2012, Peng & Dai leg., 3 ♂, 2 ♀, (ASC, SNUC); same, but 900 m, 13.v.2010, Yuan & Yin leg., 1 ♂, 1 ♀, (SNUC); Changjiang County, Bawangling N. R., 1000 m, 11.iv.2010, Yin Z.W. leg., 1 ♂, (SNUC); Lingshui County, Diaoluoshan N. R., 1000 m, 20.iv.2010, Yuan Xiao-Zhuan leg., 1 ♀, (SNUC); same, but 18°43'N 109°51'E, 9650 m, 14.iv.2012, Yin Zi-Wei leg., 1 ♂, (SNUC); Wanning County, Mt. Dialuo, 900 m, 18.xi.2006, LI Li-Zhen leg., 1 ♀, (SNUC).

Description. In all external characters (inclusive wide pronotum slightly wider than long, markedly narrowed anteriorly, narrowly explanate posteriorly and with lateral portions densely punctate) similar to *Q. barbarossa* Smetana, 2002, but different by front coxae (except for dark narrow base) and femora (except for black apices) milky white (same, but yellow in *Q. barbarossa*), and by differently shaped aedeagus.

Male. First four segments of front tarsus markedly dilated, each densely covered by long tenent setae ventrally; segment 2 wider than apex of tibia (ratio 1.20); segment 4 narrower than preceding segments. Sternite 7 vaguely sinuate medioapically. Sternite 8 with two long setae on each side, with moderately wide, obtusely triangular medioapical emargination, small triangular area before emargination flattened and smooth. Genital segment with tergite 10 not appreciably different from that of *Q. barbarossa* (Fig. 2); sternite 9 similar, but broader, mostly slightly emarginated medioapically and in general less setose (Fig. 3). Aedeagus (Figs 4-5) similar to that of *Q. barbarossa*, but markedly smaller and more slender; median lobe entirely symmetrical, with apical portion narrowly arcuate (broadly rounded in *Q. barbarossa*); paramere similar to that of *Q. barbarossa*, but narrower, with apex about reaching apex of median lobe (Fig. 4), or exceeding apex of median lobe as in *Q. barbarossa* (see Comments), four apical setae (including medial pair) minute, considerably finer than pair of subapical setae at each lateral margin); sensory peg setae on underside of paramere close to each other (distant from each other in *Q. barbarossa*)



Figs. 1-12. *Quedius nigror*: 1- tergite 10 of female genital segment; *Quedius nesonaster*: 2- tergite 10 of male genital segment; 3- sternite 9 of male genital segment; 4- aedeagus, ventral view; 5- apical portion of underside of paramere with sensory peg setae; 6- tergite 10 of female genital segment. *Quedius rubor*: 7- tergite 10 of male genital segment; 8- sternite 9 of male genital segment; 9- aedeagus, ventral view; 10- apical portion of underside of paramere with sensory peg setae; 11- tergite 10 of female genital segment. *Quedius caesar*. 12- tergite 10 of male genital segment.

Female. First four segments of front tarsus similar to those of male, but less dilated, segment 2 about as wide as apex of tibia. Genital segment with tergite 10 distinctly different, markedly wider and conspicuously narrowed toward narrowly arcuate apex, pigmented medioapically, setose as in Fig. 6.

Length 5.5-6.2 mm.

Geographical distribution. *Quedius nesonaster* is at present known from several localities in Henan.

Bionomics. Nothing is known about the habitat requirements of this species, but it certainly lives in habitats typical for the species of the *intricatus*-group (see under *Q. nigror*).

Recognition and comments. *Quedius nesonaster* may be easily recognized by the characters given in the description. It is the only species with tufts of golden-yellow pubescence on first visible abdominal tergite with milky white coxae and femora.

There is some variation in the shape of the paramere and in the relation of its apex to the apex of median lobe. In some specimens the paramere is slightly asymmetrical (as in *Q. barbarossa*) and exceeds slightly apex of median lobe, in other specimens the paramere is symmetrical and about reaches apex of median lobe (e.g., in holotype).

Etymology. The specific epithet is a noun in apposition, a combination of two Greek nouns: νησος (island) and ναστηρ (inhabitant). It refers to the occurrence of this species on the island of Hainan.

Quedius (Raphirus) rubor sp. nov.

(Figs 7-11)

Type locality. China, Guangxi, Lingui County, Huaping Nature Reserve, Anjiangping, 1700 m.

Type material. Holotype (♂) and allotype (♀): CHINA: "China: Guangxi Prov. Lingui County Huaping N. R. Anjiangping alt. 1700m, 17.vii.2011, PENG Zhong leg. Holotype in (SNUC), allotype in (ASC). Paratypes (4♂, 1♀): same data as holotype, (ASC, SNUC).

Description. In all external characters (inclusive wide pronotum slightly wider than long, markedly narrowed anteriorly, narrowly explanate posteriorly and with lateral portions densely punctate) similar to *Q. barbarossa*, but different by several external characters, and by the different male sexual characters, particularly by differently shaped aedeagus and by the differently shaped tergite 10 of female genital segment. Gross punctures on head medially and posteromedially of each eye conspicuously large and deep, crater-like, less numerous. Colored hairs on lateral portion of each elytron yellow, those on lateral portion and on apical margin of abdominal tergites golden.

Male. First four segments of front tarsus markedly dilated, but slightly less so than those of *Q. barbarossa*, each densely covered by long tenent setae ventrally; segment 2 slightly wider than apex of tibia (ratio 1.10); segment 4 narrower than preceding segments. Sternite 7 vaguely sinuate medioapically. Sternite 8 with two long setae on each side, with moderately wide, obtusely triangular medioapical emargination, small triangular area before emargination flattened and smooth. Genital segment with tergite 10 wider and shorter than that of *Q. barbarossa*, setose as in Fig. 7; sternite 9 markedly shorter and wider, with differently

shaped basal portion, apical portion with subtruncate apex (Fig. 8). Aedoeagus (Figs 9-10) somewhat smaller than that of *Q. barbarossa*, apex of apical portion of median lobe narrowly arcuate (broadly rounded in *Q. barbarossa*); paramere perfectly symmetrical in basal two thirds, anteriorly markedly narrowed into long apical portion, apical portion slightly curved toward left margin of median lobe; subacute apex of paramere markedly exceeding apex of median lobe; four apical setae minute, with lateral pair situated markedly below apex, lateral setae distinctly unequal, with upper seta minute and lower seta long; sensory peg setae on underside less numerous, forming two irregular longitudinal rows, shorter than those of *Q. barbarossa*.

Female. First four segments of front tarsus similar to those of male, but less dilated, segment 2 about as wide as apex of tibia. Genital segment with tergite 10 quite different, markedly wider, markedly narrowed toward narrowly arcuate apex, distinctly pigmented medioapically, with numerous setae at apex (Fig. 11).

Length 5.9-6.2 mm.

Geographical distribution. *Quedius rubor* is at present known only from the Huaping Nature Reserve in northern Guangxi. Huaping Nature Reserve coordinates are 25°31' -25°40'N 109°49' -109°58'E.

Bionomics. Nothing is known about the habitat requirements of this species, but it certainly lives in habitats typical for the species of the *intricatus*-group (see under *Q. nigror*).

Recognition and comments. *Quedius rubor* may be easily distinguished from *Q. barbarossa* by the characters given in the description. *Quedius caesar* with golden hairs on the same body areas as in *Q. rubor* differs, in addition to the differently shaped aedoeagus, by the larger and more robust body, and by the finer gross punctures on the head mediad and posterioromediad of each eye. *Quedius cupreogutta* is sympatric with *Q. rubor*.

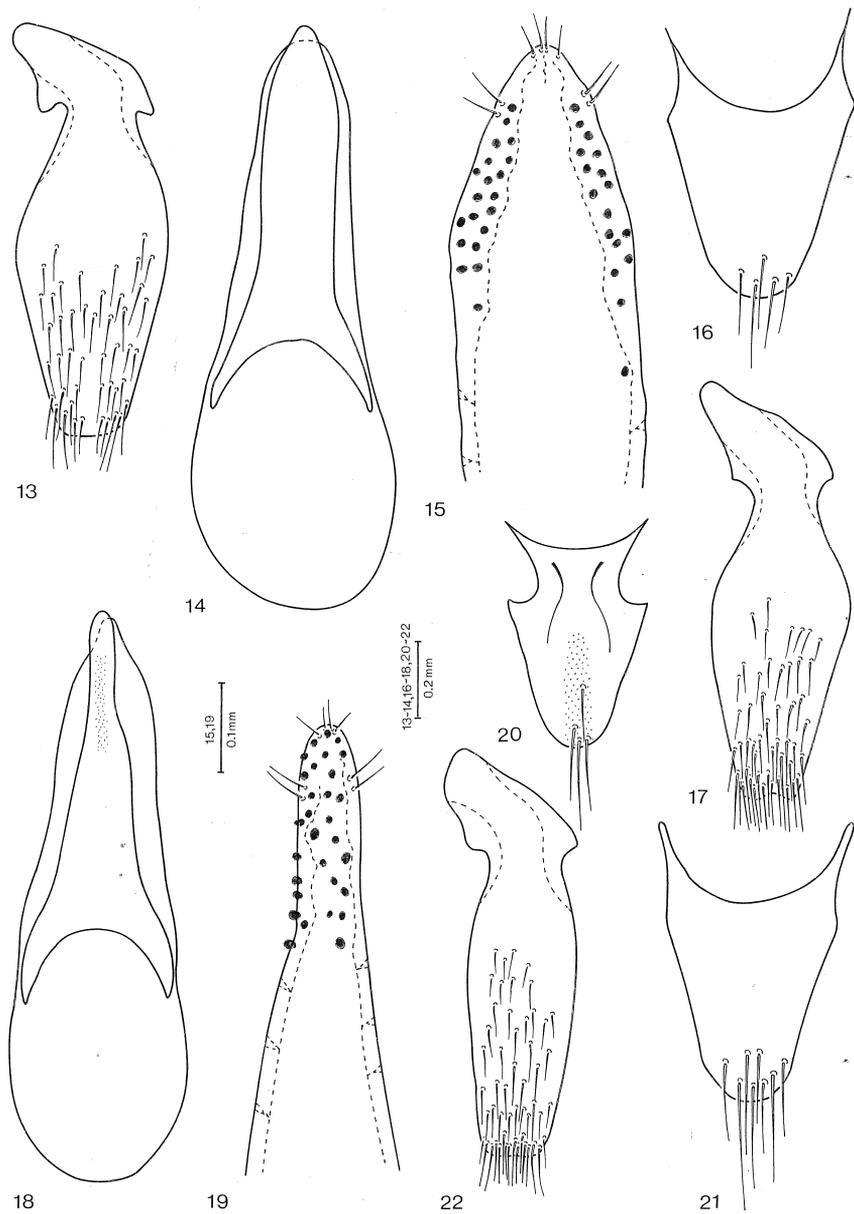
Etymology. The specific epithet is the Latin noun *rubor*, -oris, m (redness) in apposition. It refers to the golden-reddish pubescence on the first visible abdominal tergite.

***Quedius (Raphirus) caesar* sp. nov.**
(Figs 12-15)

Type locality. China, Yunnan, Nabanhe Nature Reserve, Huazhulianshan, Bengganghani, 2300 m.

Type material. Holotype (♂): CHINA: "China: Yunnan Prov. Nabanhe N. R. Huazhulianshan / Bengganghani alt. 2300 m, 29.v.2009, Jia-Yao Hu & Zi-Wei Yin leg.", (SNUC).

Description. In all external characters (inclusive wide pronotum slightly wider than long, markedly narrowed anteriorly, narrowly explanate posteriorly and with lateral portions densely punctate) similar to *Q. barbarossa*, but different by several external characters, and by the differently shaped aedoeagus. Size larger, body markedly more robust. Antenna somewhat longer, with middle segments 4-6 appreciably longer than those of *Q. barbarossa*. Colored hairs on lateral portion of each elytron yellow, those on lateral portion and on apical margin of abdominal tergites golden.



Figs. 13-22. *Quedius caesar*. 13- sternite 9 of male genital segment; 14- aedeagus, ventral view; 15- apical portion of underside of paramere with sensory peg setae. *Quedius cupreostigma*: 16- tergite 10 of male genital segment; 17- sternite 9 of male genital segment; 18- aedeagus, ventral view; 19- apical portion of underside of paramere with sensory peg setae; 20- tergite 10 of female genital segment. *Quedius distigma*. 21- tergite 10 of male genital segment; 22- sternite 9 of male genital segment.

Male. First four segments of front tarsus markedly dilated, almost patellate, distinctly more so than those of *Q. barbarossa*, each densely covered by long tenent setae ventrally; segment 2 markedly wider than apex of tibia (ratio 1.37); segment 4 narrower than preceding segments. Sternite 7 with moderately wide, not deep, obtuse medioapical emargination, narrow area in front of it somewhat flattened and asetose. Sternite 8 with two long setae on each side, with rather wide, obtusely triangular medioapical emargination, small triangular area before emargination flattened and smooth. Genital segment with tergite 10 evenly narrowed toward widely arcuate apex, setose as in Fig. 12; sternite 9 markedly shorter and wider, with similarly shaped basal portion, apical portion with widely arcuate apex (Fig. 13). Aedoeagus (Figs 14-15) with median lobe gradually, evenly narrowed toward apical portion with arcuate apex; paramere relatively wide, parallelsided in middle section, anteriorly narrowed into apical portion with subacute apex, apex slightly exceeding apex of median lobe; four fine apical setae and two similar setae at each lateral margin below apex; sensory peg setae on underside of paramere numerous, forming a somewhat irregular longitudinal group along each lateral margin of apical portion (Fig. 15). Length 6.3 mm.

Female. Unknown.

Geographical distribution. *Quedius caesar* is at present known only from the type locality in southern Yunnan. Coordinates for Nabanhe Nature Reserve are 22°10.00'N 100°88.000'E.

Bionomics. Nothing is known about the habitat requirements of this species, but it certainly lives in habitats typical for the species of the *intricatus*-group (see under *Q. nigror*).

Recognition and comments. *Quedius caesar* may be easily distinguished from *Q. barbarossa* by the characters given in the description, in addition to the markedly different aedoeagus. See under *Q. rubor* for the differences distinguishing these two species.

Etymology. The specific epithet is the name of *Caesar*- a cognomen in the gens of *Julia*; of these the most celebrated was *C. Julius Caesar*, distinguished as general, statesman and author. Noun in apposition.

***Quedius (Raphirus) cupreostigma* sp. nov.**
(Figs 16-20)

Type locality. China, Zhejiang, Lin'an City, Mt. East Tianmushan, 1050-1150 m.

Type material. Holotype (♂) and allotype (♀) : CHINA: "China: Zhejiang Prov. Lin'an City Mt. East Tianmushan / alt. 1050-1150 m, 13.v.2011, PENG & ZHU leg." Holotype in (SNUC), allotype in (ASC). Paratypes (56 spec.): same data as holotype, 21 ♂, 11 ♀, (ASC, SNUC); Zhejiang: Longwang Shan, 3.x.2003, Hu & Tang leg., 5 ♂, 9 ♀, (ASC, SNUC); same, but 950-1200 m, 25.iv.2004, Jing-Wen Zhu; Li-Long Zhu; Jing Chen leg., 3 ♂, 3 ♀, (ASC, SNUC); Linan City, Mt. West Tianmu, 9-15.vi.2000, Li-Zhen Lil leg., 1 ♂, 2 ♀, (SNUC); Tianmu Shan, pass 25 km NNW Linan, 620-820 m, 32°25'40"N 119°35'30"E, 16.vi.2007, [CH 07-37], M. Schülke, 1 ♀, (MSC).

Description. In all external characters (inclusive pronotum relatively narrow, about as long as wide, only vaguely narrowed anteriorly with lateral portions not explanate) similar to *Q. bisignatus* Smetana, 2002, but different by entire lateral portions of pronotum lacking dense and relatively fine punctuation, and by the different both male and female sexual characters.

Male. First four segments of front tarsus markedly dilated, distinctly more so than those of *Q. bisignatus*, each densely covered by long tenent setae ventrally; segment 2 markedly wider than apex of tibia (ratio 1.22); segment 4 narrower than preceding segments. Sternite 7 vaguely sinuate medioapically. Sternite 8 with two long setae on each side, with deep and rather wide, obtusely triangular medioapical emargination, small triangular area before emargination flattened and smooth. Genital segment with tergite 10 similar to that of *Q. bisignatus*, but in general broader and markedly less narrowed toward broadly arcuate apex (Fig. 16); sternite 9 similar to that of *Q. bisignatus* (Fig. 17). Aedoeagus (Figs 18-19) similar to that of *Q. bisignatus*, but narrowed apical portion of median lobe shorter and wider; paramere in about apical third markedly attenuated into subparallelsided apical portion with narrowly arcuate apex, apex slightly exceeding apex of median lobe (distinctly so in *Q. bisignatus*), apical portion of face away from median lobe longitudinally impressed; apical setae minute, lateral setae at each lateral margin distinctly longer than apical setae; sensory peg setae on underside of paramere numerous, covering attenuate apical portion (Fig. 19).

Female. First four segments of front tarsus similar to those of male, but markedly less dilated, segment 2 about as wide as apex of tibia. Genital segment with tergite 10 distinctly pigmented medioapically as that of *Q. bisignatus*, but otherwise markedly different, with two linear, sigmoid, dark structures (Fig. 20).

Length 5.6-6.3 mm.

Geographical distribution. *Quedius cupreostigma* is at present known only from Tianmu Shan in northern Zhejiang.

Bionomics. Nothing is known about the habitat requirements of this species, but it apparently lives in habitats typical for the species of the *intricatus*-group (see under *Q. nigror*). However, the specimen collected by Schülke was taken in a “creek valley with bamboo and mixed forest, litter, sifted”. This is likely an accidental find.

Recognition and comments. *Quedius cupreostigma* may be easily distinguished from *Q. bisignatus* by the pronotal character given in the description, and by the different both male and female sexual characters. *Quedius distigma* with pronotal characters same as those of *Q. cupreostigma* (see above) differs from *Q. cupreostigma*, in addition to the differently shaped aedoeagus, by all femora pale yellow to milky yellow, each with only very apex darkened, and by the golden colored hairs on abdominal tergites.

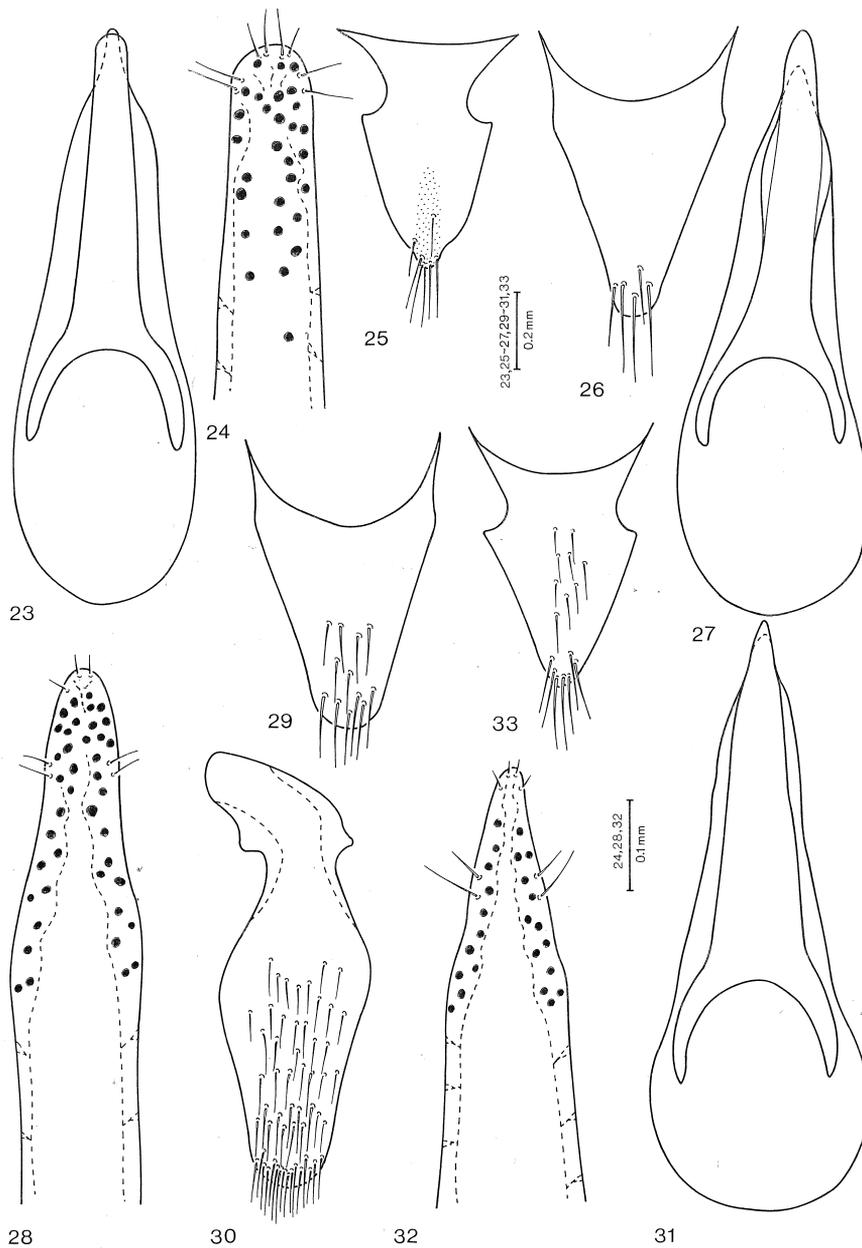
Etymology. The specific epithet is a combination of the Latin adjective *cupreus*, -a, -um (of copper) and the noun *stigma*, -atis, n (a mark, a brand), referring to the two coppery spots on elytra. Noun in apposition.

Quedius (Raphirus) distigma sp. nov.

(Figs. 21-25)

Type locality. China, Guangxi, Jinxiu County, Dayaoshan Nature Reserve, 1200-1400 m.

Type material. Holotype (♂) and allotype (♀) : CHINA: “China: Guangxi Prov. Jinxiu County Dayaoshan N. R. 7km / alt. 1200-1400 m, 22.vii.2011, PENG Zhong leg.”. Holotype in (SNUC), allotype in (ASC). Paratypes: same data as holotype, 8 ♂♂, 7 ♀♀, (ASC, SNUC).



Figs. 23-32. *Quedius distigma*. 23- aedeagus, ventral view; 24- apical portion of underside of paramere with sensory peg setae; 25- tergite 10 of female genital segment. *Quedius cupreonotus*. 26- tergite 10 of male genital segment; 27- aedeagus, ventral view; 28- apical portion of underside of paramere with sensory peg setae. *Quedius cupreogutta*. 29- tergite 10 of male genital segment; 30- sternite 9 of male genital segment; 31- aedeagus, ventral view; 32- apical portion of underside of paramere with sensory peg setae; 33- tergite 10 of female genital segment.

Description. In all external characters (inclusive pronotum relatively narrow, about as long as wide, only vaguely narrowed anteriorly with lateral portions not explanate) similar to *Q. bisignatus*, but different by entire lateral portions of pronotum lacking dense and relatively fine punctuation, by all femora pale yellow to milky white, each with only very apex darkened (yellowish, each with apical portion more extensively blackened and black color extended backwards along dorsal margin in *Q. bisignatus*), by colored hairs on each lateral portion and on apical margin of abdominal tergites golden (silvery in *Q. bisignatus*), and by the different both male and female sexual characters.

Male. First four segments of front tarsus markedly dilated, more so than those of *Q. bisignatus*, each densely covered by long tenent setae ventrally; segment 2 wider than apex of tibia (ratio 1.20); segment 4 narrower than preceding segments. Sternite 7 vaguely sinuate medioapically. Sternite 8 with two long setae on each side, with deep and wide, obtusely triangular medioapical emargination, small triangular area before emargination flattened and smooth. Genital segment with tergite 10 similar to that of *Q. bisignatus*, but longer, less markedly narrowed toward apex and with narrowly arcuate apex (Fig. 21); sternite 9 longer than that of *Q. bisignatus*, with truncate apex (Fig. 22). Aedoeagus (Figs. 23,24) similar to that of *Q. bisignatus*, but narrow apex of median lobe longer and less acute; paramere subparallelsided, only slightly, evenly narrowed toward subarcuate apex, apex of paramere not quite reaching apex of median lobe; four fine apical setae and two stronger, unequally long lateral setae at each lateral margin close to apex; sensory peg setae on underside of paramere numerous, covering apical portion as in Fig. 24.

Female. First four segments of front tarsus similar to those of male, but markedly less dilated, segment 2 about as wide as apex of tibia. Genital segment with tergite 10 distinctly pigmented medioapically as that of *Q. bisignatus*, but otherwise markedly different (Fig. 25).

Length 5.8-6.8 mm.

Geographical distribution. *Quedius distigma* is at present known only from the type locality in Dayaoshan Nature Reserve in western Guangxi. Dayaoshan Nature Reserve coordinates are 24°2.00'N 110°18.00'E.

Bionomics. Nothing is known about the habitat requirements of this species, but it certainly lives in habitats typical for the species of the *intricatus*-group (see under *Q. nigror*).

Recognition and comments. *Quedius distigma* may be easily distinguished from *Q. bisignatus* by the external characters given in the description, and by the different both male and female sexual characters. See under *Q. cupreostigma* for the differences distinguishing these two species.

Etymology. The specific epithet is a combination of the Greek adverb δις (twice, doubly) and the noun στίγμα, -ατος, η (a mark). It refers to the two coppery spots on elytra. A noun in apposition.

***Quedius (Raphirus) cupreonotus* sp. nov.**
(Figs 26-28)

Type locality. China, Zhejiang, Wuyanling Conv., 700 m.

Type material. Holotype (♂): CHINA: "Wuyanling Conv. Zhejiang Prov. / alt. 700 m, 9.v.2004, Hu & Tang & Zhu leg.", (SNUC).

Description. In all external characters (inclusive pronotum relatively narrow, about as long as wide, only vaguely narrowed anteriorly with lateral portions not explanate) similar to *Q. bisignatus*, but different by entire lateral portions of pronotum lacking dense and relatively fine punctuation, by pale appendages: both maxillary and labial palpi presumably testaceous (see Comments), first three antennal segments testaceous, rest of antennae gradually becoming slightly darker, legs pale testaceous with medial faces of all tibiae blackened, by abdominal tergites quite sparsely punctate, and by the different male sexual characters.

Male. First four segments of front tarsus slightly more dilated than those of *Q. bisignatus*, each densely covered by long tenent setae ventrally; segment 2 wider than apex of tibia (ratio 1.15); segment 4 narrower than preceding segments. Sternite 7 vaguely sinuate medioapically. Sternite 8 with two long setae on each side, with deep and wide, obtusely triangular medioapical emargination, small triangular area before emargination flattened and smooth. Genital segment with tergite 10 narrower and longer than that of *Q. bisignatus*, with narrowly arcuate apex (Fig. 26); sternite 9 see Comments. Aedoeagus (Figs 27-28) similar to that of *Q. distigma*, but paramere quite characteristic with narrow lateral extension of anterior part, apex of paramere narrowly arcuate, markedly exceeding apex of median lobe; four apical setae minute, lateral setae markedly stronger; sensory peg setae on underside numerous, forming a solid apical field extended backward as irregular line along each lateral margin, including lateral extension (Fig. 28). Length 6.0 mm.

Female. Unknown.

Geographical distribution. *Quedius cupreonotus* is at present known only from the type locality in Zhejiang.

Bionomics. Nothing is known about the habitat requirements of this species, but it certainly lives in habitats typical for the species of the *intricatus*-group (see under *Q. nigror*).

Recognition and comments. *Quedius cupreonotus* may be easily recognized, in addition to the characteristic aedoeagus, by the pale color of the appendages, in combination with the sparsely punctate abdominal tergites.

The holotype is missing both maxillary and labial palpi except for the first segment of left maxillary palpus. Sternite 9 of the male genital segment was received badly damaged, it is therefore not illustrated.

Etymology. The specific epithet is a combination of Latin adjectives *cupreus*, *-a*, *-um* (of copper) and *notus*, *-a*, *-um* (known by). It refers to the presence of the two coppery spots on the elytra.

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

(Figs 29-33)

Type locality. China, Guangxi, Lingui County, Huaping Nature Reserve, Anjiangping, 1200 m.

Type material. Holotype (♂): CHINA: "China: Guangxi Prov. Lingui County Huaping N. R. / Anjiangping, 1200 m, 13.vii.2011, PENG Zhong leg.", (SNUC). Allotype (♀): CHINA: "Mt.Fanjing Guizhou Prov. 23.vii.2003, Li Zhenli leg.",(ASC).Paratypes: same data as allotype, 3 ♂♂, 1 ♀, (ASC, SNUC); Chongqing City, Chengkou Coun. East Daba-Shan upper Huang'an-Gou, 31°51.785N 109°09.459E / Alt. 2039 m, 22-23.iv.2008, HUANG Hao & XU Wang leg., 1♂, (ASC).

Description. In all external characters (inclusive pronotum relatively wide, slightly wider than long, markedly narrowed anteriorly with lateral portions narrowly explanate posteriorly) similar to *Q. zhoui* (see Smetana, 2009a: 282), but different by the differently shaped aedoeagus.

Male. First four segments of front tarsus slightly more dilated than those of *Q. zhoui* Zheng, 2003 each densely covered by long tenent setae ventrally; segment 2 wider than apex of tibia (ratio 1.15); segment 4 narrower than preceding segments. Sternite 7 sinuate medioapically. Sternite 8 with two long setae on each side, with deep and wide, obtusely triangular medioapical emargination, small triangular area before emargination flattened and smooth. Genital segment with tergite 10 as in Fig. 29, with arcuate apex; sternite 9 as in Fig. 30, with broadly arcuate apex. Aedoeagus (Figs 31-32) similar to that of *Q. zhoui* but somewhat larger, apical acute portion of median lobe longer; paramere wider, leaving lateral portions of median lobe only narrowly exposed (paramere narrower, leaving lateral portions of median lobe widely exposed in *Q. zhoui*), apex distinctly exceeding apex of median lobe (about reaching apex of median lobe in *Q. zhoui*); apical setae markedly minute, lateral setae at each lateral margin considerably longer, anterior pair distinctly shorter than posterior pair; sensory peg setae on underside of paramere situated along each lateral margin (situated at random in *Q. zhoui*).

Female. First four segments of front tarsus similar to those of male, but markedly less dilated, segment 2 about as wide as apex of tibia. Genital segment with tergite 10 similar to that of *Q. zhoui*, but different mainly by presence of numerous setae on middle portion of the tergite (Fig. 33).

Length 6.5-6.8 mm.

Geographical distribution. *Quedius cupreogutta* is at present known from the Huaping Nature Reserve in northern Guangxi, and from Chongqing Municipality. Huaping Nature Reserve coordinates are 25°31'-25°40'N 109°49'-109°58'E. *Quedius rubor* is sympatric with *Q. cupreogutta*.

Bionomics. Nothing is known about the habitat requirements of this species, but it certainly lives in habitats typical for the species of the *intricatus*-group (see under *Q. nigror*).

Recognition and comments. *Quedius cupreogutta* may be positively distinguished from *Q. zhoui* by the differently shaped aedoeagus and tergite 10 of the female genital segment (see above). The two coppery spots on the elytra are rather indistinct in the allotype and in some of the paratypes. Some of the paratypes are in poor shape, missing various appendages.

Etymology. The specific epithet is a combination of the Latin adjective *cupreus*, -a, -um (of copper) and the noun *gutta*, -ae, f (drop, spot). It refers to the presence of the two coppery spots on the elytra. A noun in apposition.

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