

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

Part 16. Genus *Quedius* STEPHENS, 1829.
Subgenus *Microsaurus* DEJEAN, 1833. Section 10

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Abstract Five species of the genus *Quedius*, subgenus *Microsaurus*, from the People's Republic of China are described as new: *Q. myau* (Sichuan), *Q. faang* (Sichuan), *Q. yaoqi* (Sichuan), *Q. koei* (Shaanxi), *Q. songpan* (Sichuan).

Key words: Coleoptera, Staphylinidae, *Quedius*, China, new species.

This is the sixteenth of a series of papers dealing with the Quediina of the People's Republic of China. It presents the descriptions of five new species of the subgenus *Microsaurus* DEJEAN, 1833, some of them collected recently in China by Drs. S.-I. UÉNO, T. KISHIMOTO and Y. NISHIKAWA. All the five species belong to the group of species around *Q. erythras* SMETANA, 1997.

Quedius (Microsaurus) myau sp. nov.

(Figs. 1–6)

Description. Head piceous-black to black with apical margin narrowly, variably paler; pronotum brownish-piceous to piceous-black, with front and basal margins narrowly and lateral portions variably widely paler, paler coloration not sharply delimited; elytra dark brownish to piceous-black, with suture and apical margin narrowly and lateral portions usually not sharply, variably widely paler, sometimes elytra almost entirely piceous-black with only humeri, suture and apical margin quite narrowly paler; abdomen piceous black with apical margins of tergites to various extent, usually fairly narrowly, paler; elytra with faint, opaque iridescence, abdomen slightly iridescent; maxillary and labial palpi testaceous to rufotestaceous, both with apical segment slightly, partially darkened; antennae testaceous to rufotestaceous, gradually, slightly darkened toward apex; legs rufotestaceous to brunneous, usually with somewhat paler tarsi, medial faces of middle tibiae and hind femora and tibiae distinctly darkened. Head relatively narrow, of rounded quadrangular shape, about as long as wide (but

often appearing, due to narrowing behind eyes, slightly longer than wide), posterior angles obtusely rounded; eyes moderately large and convex, tempora appreciably shorter than eyes seen from above (ratio 0.74); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated close to postero-medial margin of eye, separated from it by distance appreciably larger than diameter of puncture, two punctures between it and posterior margin of head; temporal puncture situated away from posterior margin of eye, slightly closer to posterior margin of head than to posterior margin of eye, a small additional puncture at margin of eye between it and posterior frontal puncture; tempora with some fine punctures; surface of head with very fine and dense microsculpture of transverse waves. Antenna relatively long, only slightly widened toward apex, segment 3 distinctly longer than segment 2 (ratio 1.48), segments 4–7 longer than wide, gradually becoming shorter, segments 8–10 slightly longer than wide, last segment somewhat shorter than two preceding segments combined. Pronotum vaguely wider than long (ratio 1.05), appearing as long as wide, widest at about middle, about equally, almost arcuately, narrowed both anteriorly and posteriorly, with lateral margins continuously arcuate with broadly arcuate base, transversely convex, lateral portions not explanate; dorsal rows each with three punctures; sublateral rows each with three punctures, posterior puncture situated at variable distance behind level of large lateral puncture; microsculpture similar to that on head, but finer and denser. Scutellum impunctate, with fine and dense microsculpture of transverse waves. Elytra relatively long, at base narrower than pronotum at widest point, slightly widened posteriorly, at suture slightly (ratio 1.12), at sides distinctly longer (ratio 1.26) than pronotum at midline; punctation and pale testaceous pubescence fine and moderately dense, transverse interspaces between punctures mostly about twice as large as diameters of punctures; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) with fine apical seam of palisade fringe; punctation and pubescence of abdominal tergites fine and relatively sparse, more or less evenly covering each tergite, in general becoming indistinctly sparser toward apex of abdomen; pubescence pale testaceous; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

Male. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment 2 markedly wider than apex of tibia (ratio 1.30); segment 4 narrower than preceding segments. Sternite 8 with three or four long setae on each side, with inconspicuous, shallow, almost arcuate medio-apical emargination, small triangular area before emargination flattened and smooth (Fig. 1). Genital segment with tergite 10 triangular, narrowly arcuate apically, with numerous setae at and near apical margin (Fig. 2); sternite 9 with basal portion short, apical portion broadly arcuate apically, with fine setae medio-apically, and with two slightly differentiated subapical setae (Fig. 3). Aedoeagus (Figs. 4–6) narrow and elongate; median lobe slightly constricted around middle, anteriorly narrowed into a rather acute apex, with fine, short medial carina on face adjacent to paramere. Paramere elongate, narrow, not quite reaching apex of median lobe, with apex minutely

notched; two minute setae at each side of apical notch, two somewhat stronger setae at each lateral margin far from apex; underside of paramere with two longitudinally arranged sensory peg setae at each lateral margin close to apex. Internal sac without larger sclerotized structures.

Female unknown.

Length 6.8–7.5 mm.

Type material. Holotype (male): China: “CHINA: Sichuan Gongga Shan, Hailuogou, in front of Glacier 1, 2850 m 29°35 N 102°00 E, 7. VII. 1998, A. Smetana [C76]”/“1998 China Expedition J. Farkač, D. Král, J. Schneider & A. Smetana”. In the SMETANA collection, Ottawa, Canada.

Paratypes: China: [Sichuan]: same data as holotype, 1 ♂, in the SMETANA collection; “W-Sichuan (15) Daxue Shan, Hailuogou Glacier Park, Camp 2, 2550–2700 m, 29.35.16 N 102.01.53 E 30./31.05.1997, M. Schülke”, 9 ♂♂, in the SCHÜLKE collection, Berlin, Germany, and in the SMETANA collection; “Daxue Shan, Gongga Shan Mt., Hailuogou glacier park 102.04 E, 29.36 N, river valley ca. 1 km above Camp I, 2100 m, 28./31.V.1997, leg A. PÜTZ”, 2 ♂♂, in the PÜTZ collection, Eisenhüttenstadt, Germany; same, “way from Camp II to Camp I, 2620–1940 m, 31.V.1997, leg. A. PÜTZ”, 4 ♂♂, in the PÜTZ and SMETANA collections; “W Sichuan (13) Daxue Shan, Hailuogou Glacier Park (Gongga Shan), Camp 1, 2100 m 29.36 N/102.04 E 27./28./31.V. ‘97 Wrase”, 13 ♂♂, in the PÜTZ and SMETANA collections, and in the collection of the National Science Museum, Tokyo, Japan; “Xiling Mt. 1600–2400 litter 30.07–4.08. 96 leg. S. Kurbatov”, 1 ♂ in the collection of the Muséum d’Histoire naturelle, Geneva, Switzerland.

Geographical distribution. *Quedius myau* is at present known mainly from the massive of Gongga Shan in western Sichuan, where it occurs at lower elevations below 3,000 m. The locality “Xiling Mt.” lies about 80 km to the west of Chengdu in central Sichuan, therefore the species may be widely distributed at lower elevations on various mountain ranges in Sichuan.

Bionomics. In the Gongga Shan massive, *Q. myau* occurs mainly at lower elevations (highest record is 2,850 m) in the deciduous forest zone. The holotype and the paratype from near the Glacier 1 were taken by sifting leaf litter and other debris under *Salix* bushes near the river.

Recognition and comments. *Quedius myau* may be easily recognized among the species related to *Q. euryalus*, in addition to the sexual characters, by the relatively small eyes, by the temporal puncture situated closer to the posterior margin of the head than to the posterior margin of the eye, by the long antennae, the relatively long elytra, and by the rather sparsely punctate abdominal tergites.

It is unusual that all specimens of the original series are males. The females of the species may therefore live more secretively in a different habitat and may even display sexual dimorphism in external characters. But even if the latter were true, the possibility that they were mismatched with males of other species of the group, occurring in Sichuan, is not likely. The females of all these species are by now known and are believed to be positively matched with males.

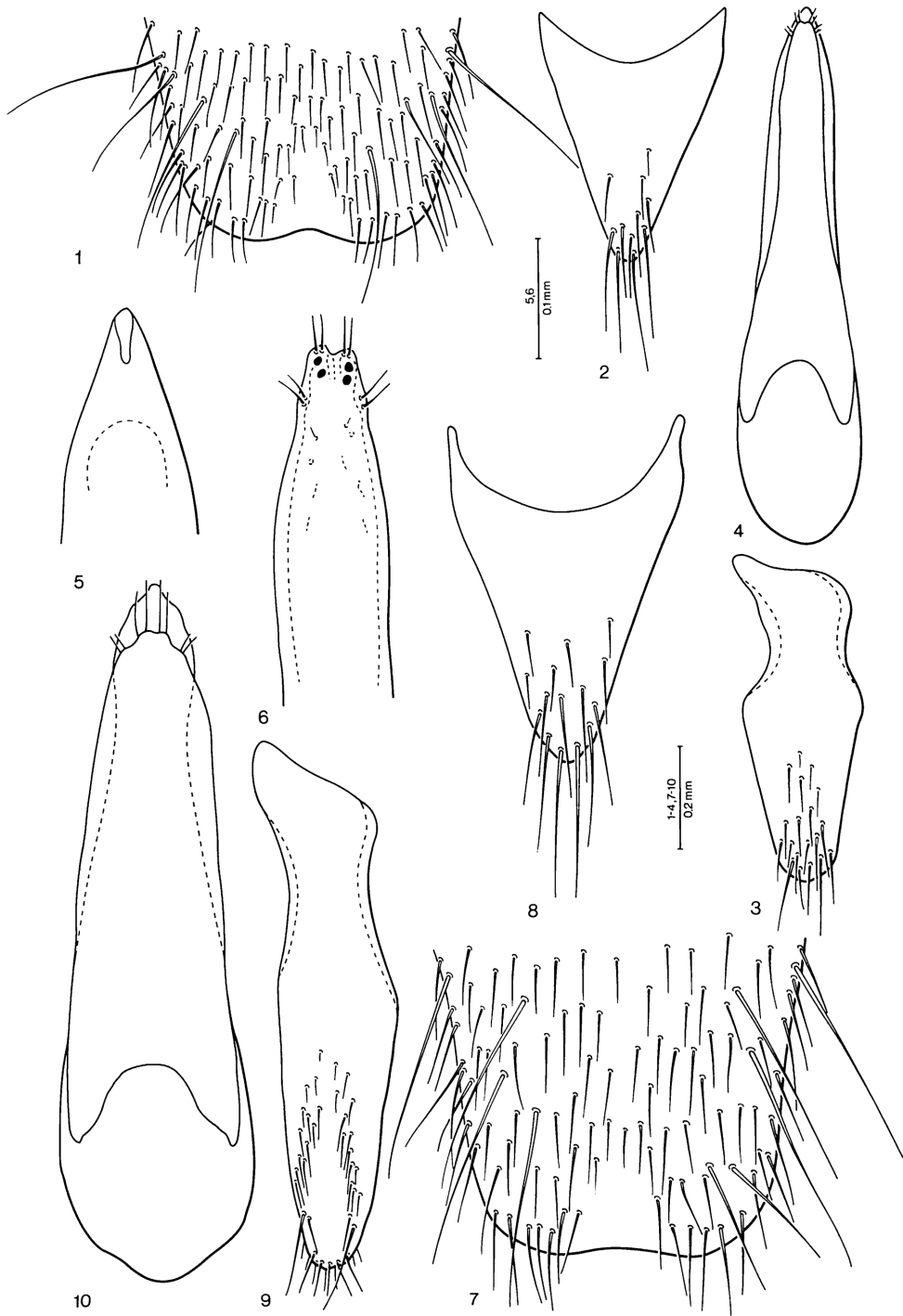
Etymology. The specific epithet is the Chinese word “myau” which in one of its meanings denotes “slender and graceful in stature”. It refers to the general appearance of this species.

Quedius (Microsaurus) faang sp. nov.

(Figs. 7–12)

Description. Head piceous-black, pronotum piceous with lateral margins narrowly and indistinctly paler (holotype), or more distinctly paler (allotype), elytra dark brownish, abdomen piceous, apical margins of tergites and apex of abdomen indistinctly paler; abdomen markedly iridescent; maxillary and labial palpi rufotestaceous, antennae pale rufous, legs dark brown with paler tarsi, medial faces of all tibiae (less distinctly on front tibiae) darkened. Head rounded, wider than long (ratio 1.16), posterior angles entirely rounded; eyes very large and convex, protruding from lateral contours of head, tempora considerably shorter than eyes seen from above (ratio 0.31); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated quite close to posteriomedial margin of eye, separated from it by distance about equal to diameter of puncture, two punctures between it and posterior margin of head; temporal puncture situated slightly closer to posterior margin of eyes than to posterior margin of head; small additional puncture at margin of eye between it and posterior frontal puncture; tempora with a few fine punctures; surface of head with very fine and dense microsculpture of transverse waves. Antenna slender, vaguely widened toward apex, segment 3 markedly longer than segment 2 (ratio 1.42), segments 4–7 distinctly longer than wide, gradually becoming shorter, segments 8–10 slightly longer than wide, last segment somewhat shorter than two preceding segments combined. Pronotum as long as wide, almost parallel-sided in middle section, slightly narrowed anteriorly, lateral margins continuously arcuate with broadly arcuate base, transversely convex, lateral margins not explanate; dorsal rows each with three punctures; sublateral rows each with three punctures, posterior puncture situated distinctly behind level of large lateral puncture; microsculpture similar to that on head, but still finer and denser. Scutellum impunctate, with very fine and dense microsculpture of transverse striae. Elytra moderately long, at base narrower than pronotum at widest point, hardly widened posteriorly, at sides about as long as, at suture vaguely shorter than pronotum at midline (ratio 0.88); punctation and pubescence moderately fine and dense, transverse interspaces between punctures mostly almost twice as large as diameters of punctures; pubescence piceous; surface between punctures without mi-

Figs. 1–10. — 1–6. *Quedius myau*: 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 of aedoeagus, ventral view; 6, apical portion of underside of paramere. — 7–10. *Quedius faang*: 7, apical portion of male sternite 8; 8, tergite 10 of male genital segment; 9, sternite 9 of male genital segment; 10, aedoeagus, ventral view.



microsculpture. Wings well developed but probably non-functional. Abdomen with tergite 7 (fifth visible) with whitish apical seam of palisade fringe; punctation and pubescence of abdominal tergites similar to that on elytra, but finer, almost evenly covering each tergite, becoming in general slightly sparser toward apex of abdomen; pubescence piceous; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

Male. First four segments of front tarsus strongly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment 2 wider than apex of tibia (ratio 1.21); segment 4 narrower than preceding segments. Sternite 8 with five long setae on each side; with very shallow, inconspicuous, subarcuate medioapical emargination, small triangular area before emargination flattened and smooth (Fig. 7). Genital segment with tergite 10 triangular, markedly, evenly narrowed toward narrowly arcuate apex, with two weakly differentiated apical setae and some additional weaker setae on apical portion (Fig. 8); sternite 9 with short basal portion, rather narrowly subarcuate apically, with two subapical setae and setation characteristically arranged into two longitudinal groups (Fig. 9). Aedoeagus (Figs. 10, 11) rather large, elongate; median lobe gradually, markedly constricted at about apical fourth, apical portion tapered into subacute apex and with minute tooth on face adjacent to paramere. Paramere very large and particularly wide, covering most of median lobe, far from reaching apex of median lobe; gradually narrowed anteriorly to close to apex and then biangulately tapered toward minutely emarginate apex; two fine setae at apex on each side of medioapical emargination, two similar setae at each lateral margin below apex; underside of paramere with five sensory peg setae forming transverse group with two and three setae on each side of midline. Internal sac without larger sclerotized structures.

Female. First four segments of front tarsus similar to those of male, but scarcely narrower; segment 2 only slightly narrower than apex of tibia (ratio 1.12). Genital segment with tergite 10 in general wide and short, pigmented medioapically; tapered into indistinctly differentiated, short subacute apex; with fine strong setae on apical portion and with additional, shorter setae in front of them (Fig. 12).

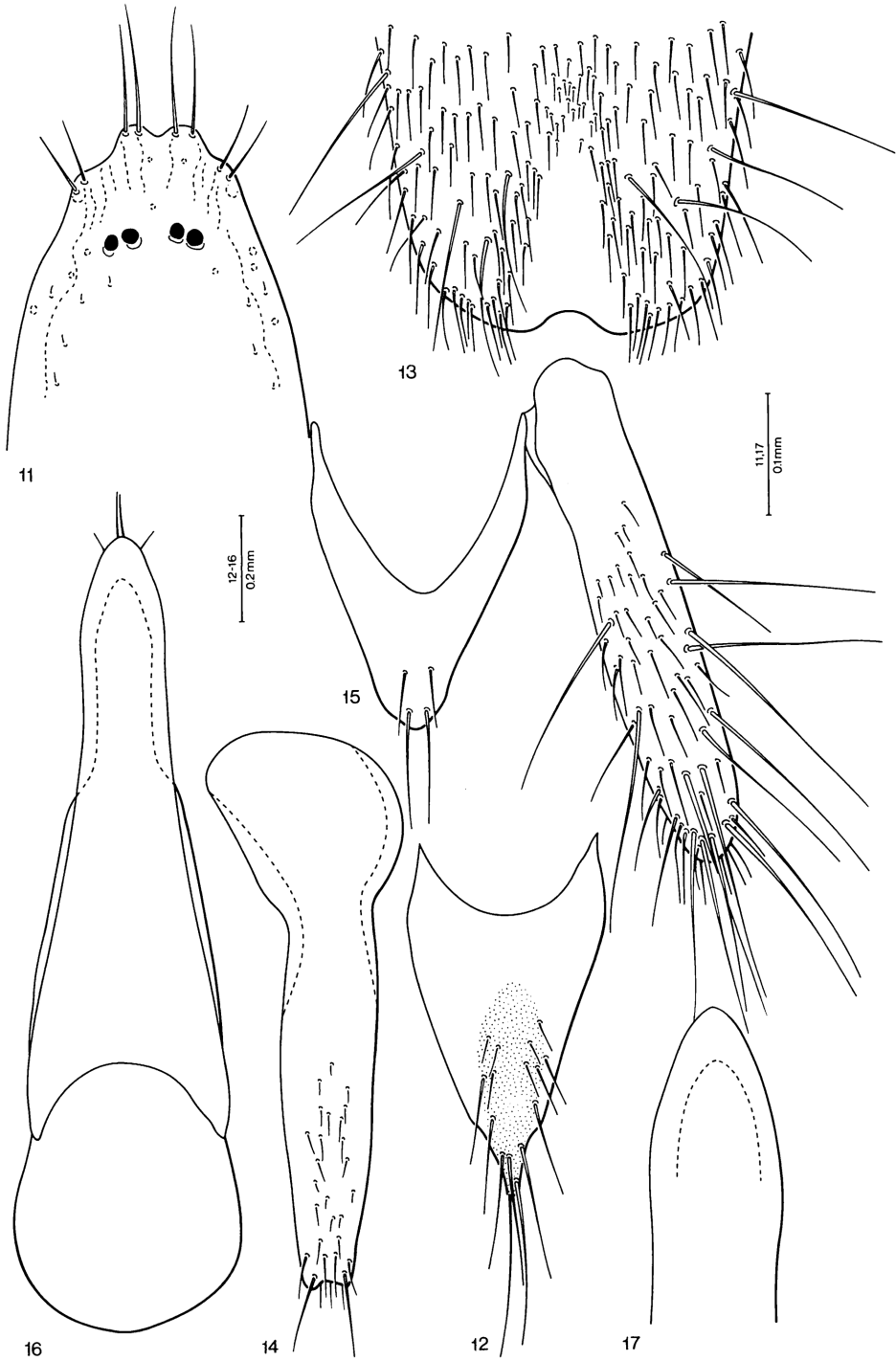
Length 7.6–7.9 mm.

Type material. Holotype (male): China: “[CHINA] Sichuan Pv. Meigu Xian, Wahei, Dafengding (2320 m) 6. X. 1997 T. Kishimoto leg.” In the collection of the National Science Museum, Tokyo, Japan.

Allotype (female): China: same data as holotype, but Y. NISHIKAWA leg. In the SMETANA collection, Ottawa, Canada.

Geographical distribution. *Quedius faang* is at present known only from the type locality in southern Sichuan.

Figs. 11–17. — 11–12. *Quedius faang*: 11, apical portion of underside of paramere; 12, tergite 10 of female genital segment. — 13–17. *Quedius yaoqi*: 13, apical portion of male sternite 8; 14, sternite 9 of male genital segment; 15, tergite 10 of male genital segment and stylus of tergite 9; 16, aedoeagus, ventral view; 17, apical portion of median lobe of aedoeagus, ventral view.



Bionomics. The specimens of the original series were taken by sifting dead leaves and mosses accumulated or growing along a narrow stream that flowed through a deciduous broadleaved forest just below the *Abies* zone.

Recognition and comments. *Quedius faang* is similar to *Quedius euryalus* SMETANA, 1997, with which it shares the similar arrangement of the setation of sternite 9 of the male genital segment (Fig. 9 and fig. 3 in SMETANA, 1997). However, it differs, in addition to the slightly smaller size, by the finer and sparser punctation of the elytra and of the abdominal tergites, by the male sexual characters, particularly by the aedeagus with quite wide paramere with different apical portion that distinctly does not reach apex of median lobe, and by the different shape of the apical portion of the median lobe (Figs. 10, 11 and figs. 4–6 in SMETANA, 1997). Tergite 10 of female genital segment is also differently shaped in both species (Fig. 12 and fig. 7 in SMETANA, 1997).

Etymology. The specific epithet is the Chinese verb “faang” which means “to resemble”. It refers to the similarity of *Q. faang* to *Q. euryalus*.

***Quedius (Microsaurus) yaoqi* sp. nov.**

(Figs. 13–19)

Description. Head piceous-black, pronotum dark brown with anterior and posterior margins narrowly, and lateral margins widely, testaceorufous, or entirely testaceorufous (allotype), elytra rufobrunneous to testaceorufous (allotype), abdomen piceobrunneous with indefinitely paler apical margins of tergites and apex, or entirely rufobrunneous (allotype); abdomen markedly iridescent; maxillary and labial palpi testaceous, antennae rufotestaceous, legs rufobrunneous with somewhat paler tarsi, medial faces of all tibiae, but particularly those of middle and hind tibiae, distinctly blackened. Head rounded, somewhat wider than long (ratio 1.22), posterior angles entirely rounded; eyes large and convex, tempora considerably shorter than eyes seen from above (ratio 0.47); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated close to posteriomedial margin of eye, separated from it by distance about as large as diameter of puncture (posterior frontal puncture is doubled on left side in paratype), two punctures between it and posterior margin of head; temporal puncture situated close to posterior margin of eye, separated from it by distance hardly larger than diameter of puncture, small additional puncture at posterior margin of eye between it and posterior frontal puncture; tempora with a few fine punctures; surface of head with very fine, superficial and rather dense microsculpture of transverse waves (microsculpture partially rudimentary in holotype). Antenna moderately long, hardly widened toward apex, segment 3 longer than segment 2 (ratio 1.40), segments 4–7 longer than wide, gradually becoming shorter, segments 8–10 slightly longer than wide, last segment somewhat shorter than two preceding segments combined. Pronotum vaguely wider than long (ratio 1.06), widest at about posterior third, slightly narrowed anteriorly, with lateral margins continuously arcuate with widely

rounded base, transversely convex, lateral portions not explanate; dorsal rows each with three punctures; sublateral rows each with three punctures, posterior puncture situated behind level of large lateral puncture; microsculpture very fine and extremely dense, considerably finer and denser than that on head. Scutellum impunctate, with very fine and dense microsculpture of transverse waves. Elytra rather short, at base narrower than pronotum at widest point, hardly widened posteriad, at suture somewhat shorter (ratio 0.89), at sides about as long as pronotum at midline; punctation and pubescence moderately dense and fine, transverse interspaces between punctures mostly somewhat less than twice as large as diameters of punctures; pubescence brownish; surface between punctures without microsculpture. Wings folded once under elytra, almost certainly non-functional. Abdomen with tergite 7 (fifth visible) with fine whitish apical seam of palisade fringe; punctation and pubescence of abdominal tergites markedly finer than that on elytra, moderately dense, almost evenly covering each tergite, gradually becoming slightly sparser toward apex of abdomen; pubescence brownish; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

Male. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment 2 markedly wider than apex of tibia (ratio 1.28); segment 4 narrower than preceding segments. Sternite 8 (Fig. 13) with five long setae on each side, with shallow, inconspicuous medioapical emargination, extensive triangular area before emargination flattened and smooth; general setation fine and short, rather sparse, setae gradually becoming minute toward base of sternite. Genital segment with styli of tergite 9 flattened and rather wide (Fig. 15); tergite 10 of characteristic shape, very short, deeply emarginate basally, arcuate apically, with a few setae near apex (Fig. 15); sternite 9 very narrow and elongate, with short, rather large basal portion, sub-emarginate apically, with a few unequally long setae near apex and in front of them, with extremely small, minute setae medially (Fig. 14). Aedoeagus (Figs. 16–18) of quite characteristic shape; median lobe in about apical fourth rather abruptly narrowed into rod-like apical portion with narrowly arcuate apex. Paramere very large and wide, particularly its basal portion, covering almost entire median lobe, subparallel-sided in middle portion, with narrowly arcuate apex distinctly exceeding apex of median lobe; four setae at apex, middle pair considerably longer and stronger than fine lateral pair, two very fine setae at each lateral margin considerably below apex; sensory peg setae on underside of paramere forming a round medial group far below apex of paramere. Internal sac without larger sclerotized structures.

Female. First four segments of front tarsus similar to those of male, but distinctly less dilated; segment 2 hardly wider than apex of tibia (ratio 1.08). Genital segment with tergite 10 of characteristic shape, narrowly pigmented medioapically, with single long seta at subacute apex (Fig. 19).

Length 7.2–7.4 mm.

Type material. Holotype (male): China: "(CHINA) Sichuan Pv., Baoxing Xian,

Yaoqi/Mahuanggou (2650 m) 2. X. 1997 Y. Nishikawa leg.” In the collection of the National Science Museum (Natural History), Tokyo, Japan.

Allotype (female): China: [Sichuan]: “(CHINA) Sichuan Pv., Baoxing Xian, Yaoqi/Baiyu-shan (2580 m) 1. X. 1997 S. Uéno leg.” In the collection of the National Science Museum (Natural History), Tokyo, Japan.

Paratype (male): China: [Sichuan]: same data as holotype, but T. KISHIMOTO leg. In the SMETANA collection, Ottawa, Canada.

Bionomics. The Baiyu-shan specimens were taken by sifting dead bamboo leaves accumulated on the wet bank of a narrow muddy gully covered with deciduous broadleaved trees and bamboos. The holotype from Mahuanggou was also sifted out from a heap of dead bamboo leaves, but at this collecting site, deciduous broadleaved trees were much taller and the bamboo undergrowth was dwarf.

Recognition and comments. *Quedius yaoqi* is quite distinctive among all habitually similar species around *Q. erythras* by the shape of the sclerites of the male genital segment, including the wide styli of tergite 9, the characteristic tergite 10 of the female genital segment with one strong apical seta (Figs. 14, 15, 19), and particularly by the unique shape of the aedeagus and location of the sensory peg setae on the underside of the paramere (Figs. 16, 18).

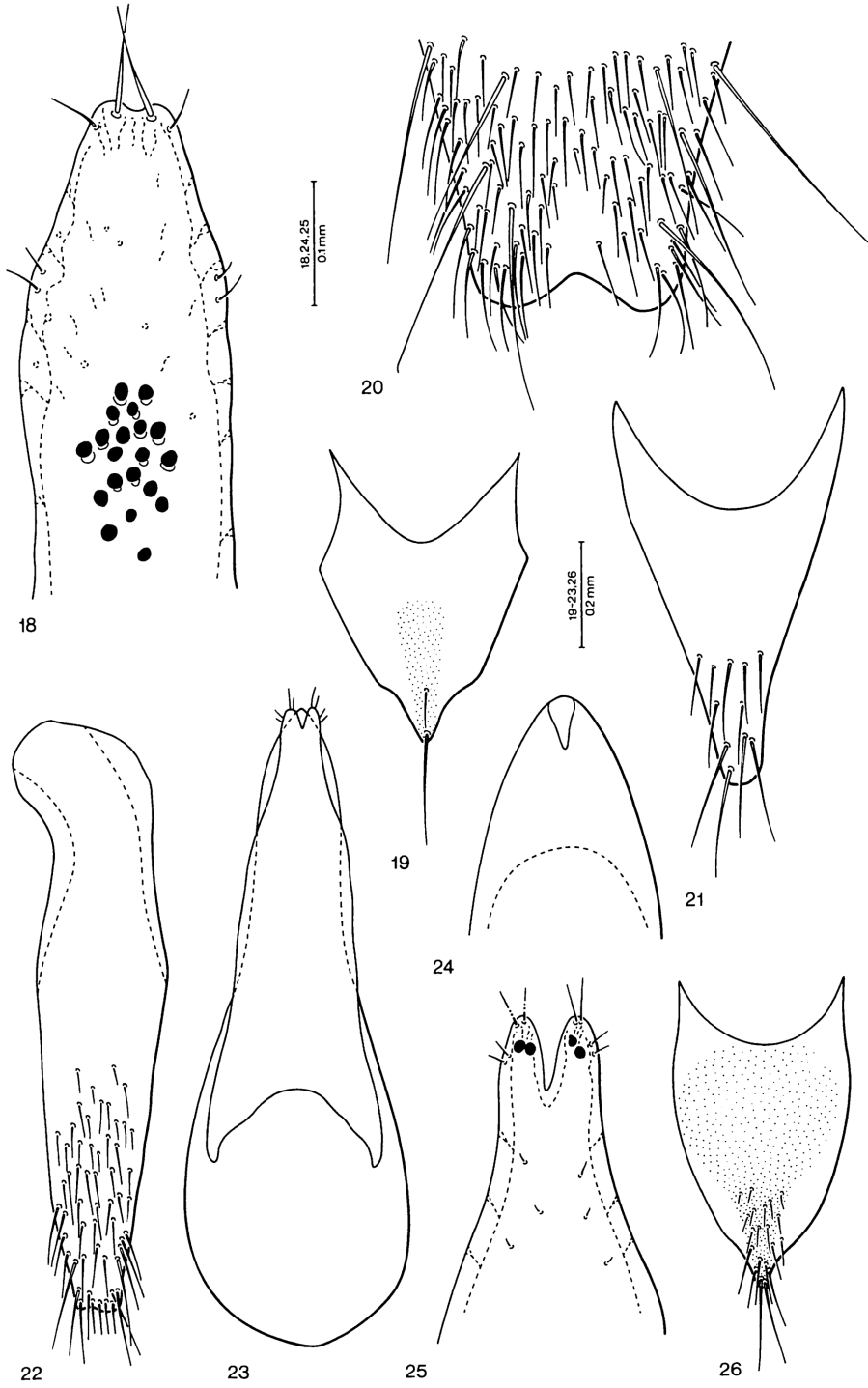
Etymology. The specific epithet is one part of the Chinese name of the type locality of the species, in apposition.

Quedius (Microsaurus) koei sp. nov.

(Figs. 20–26)

Description. Head black, pronotum piceous-black with all margins rufotestaceous, lateral ones more widely so, elytra testaceo-brunneous to brunneous, abdomen piceous-black with apical margins of tergites slightly, narrowly paler (not so in one paratype), abdomen markedly iridescent; maxillary and labial palpi testaceous, antennae rufotestaceous, legs brunneous with slightly paler tarsi, medial faces of all tibiae, particularly those of middle and hind tibiae, distinctly blackened. Head rounded, slightly wider than long (ratio 1.21), posterior angles entirely obsolete; eyes large and convex, tempora considerably shorter than eyes seen from above (ratio 0.45); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated close to posteriomedial margin of eye, separated from it by distance no more than slightly larger than diameter of puncture, two punctures between it and posterior margin of head; temporal puncture situated slightly closer to posterior margin of eye than to posterior margin of head, a small additional puncture at margin of eye be-

Figs. 18–26. — 18–19. *Quedius yaoqi*: 18, apical portion of underside of paramere; 19, tergite 10 of female genital segment. — 20–26. *Quedius koei*: 20, apical portion of male sternite 8; 21, tergite 10 of male genital segment; 22, sternite 9 of male genital segment; 23, aedeagus, ventral view; 24, apical portion of median lobe of aedeagus, ventral view; 25, apical portion of underside of paramere; 26, tergite 10 of female genital segment.



tween it and posterior frontal puncture; tempora with a few fine punctures; surface of head with fine and dense microsculpture of transverse waves, with intermixed, sparse micropunctulation. Antenna moderately long, vaguely widened anteriorly, segment 3 vaguely longer than segment 2 (ratio 1.10), segments 4–7 longer than wide, gradually becoming shorter, segments 8–10 vaguely longer than wide, last segment somewhat shorter than two preceding segments combined. Pronotum vaguely wider than long (ratio 1.12), widest at about posterior third, slightly narrowed anteriorly, with lateral margins continuously arcuate with broadly rounded base, transversely convex, lateral portion not explanate; dorsal rows each with three punctures; sublateral rows each with three punctures, posterior puncture situated distinctly behind level of large lateral puncture; microsculpture similar to that on head but finer and denser. Scutellum impunctate, with very fine and dense microsculpture of transverse waves. Elytra rather short, at base narrower than pronotum at widest point, vaguely widened posteriorly, at suture somewhat shorter (ratio 0.91), at sides about as long as pronotum at midline; punctation and pubescence moderately fine and dense, transverse interspaces between punctures mostly about 1.5 times as large as diameters of punctures; pubescence brownish; surface between punctures without microsculpture. Wings folded once under elytra, almost certainly non-functional. Abdomen with tergite 7 (fifth visible) with fine whitish apical seam of palisade fringe; punctation and pubescence of abdominal tergites slightly finer and denser than that of elytra, almost evenly covering each tergite, gradually becoming somewhat sparser toward apex of abdomen; pubescence brownish-piceous; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

Male. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment 2 wider than apex of tibia (ratio 1.20); segment 4 narrower than preceding segments. Sternite 8 with four long setae on each side, with rather wide and deep, obtusely triangular medioapical emargination, small area before emargination flattened and smooth (Fig. 20). Genital segment with tergite 10 rather long, markedly narrowed toward obtusely arcuate apex, with numerous setae on apical portion (Fig. 21); sternite 9 narrow, elongate, with small basal portion, with subtruncate-emarginate apex, with two vaguely differentiated subapical setae (Fig. 22). Aedoeagus (Figs. 23–25) large; median lobe subparallel-sided in middle portion, anteriorly arcuately attenuate into narrowly arcuate apex, with fine medioapical carina on face adjacent to paramere. Paramere large, almost entirely covering median lobe, about reaching apex of median lobe, anteriorly concavely narrowed into deeply emarginate apex; four fine setae at apex (both missing on one side in holotype), two somewhat shorter setae at each lateral margin below apex; underside of paramere with two sensory peg setae on each side of medioapical emargination below apex. Internal sac without larger sclerotized structures.

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 extensively pigmented, anteriorly narrowed into short, narrowly rounded apex, with two

slightly differentiated apical setae and numerous setae in front of them (Fig. 26).

Length 7.5–7.8 mm.

Type material. Holotype (male): China: “CHINA (Shaanxi) Qin Ling Shan/108.47 E 33.51N/Mt. W pass autoroute km 70, 47 km S Xian 2500–2600 m 26–29. VIII. 1995 Wrase”. In the SCHÜLKE collection, Berlin, Germany.

Allotype (female): [Shaanxi]: same data as holotype, but 2300–2500 m, sifted, 26.–30. 08. 1995. leg. A. PÜTZ. In the SMETANA collection, Ottawa, Canada.

Paratypes: China: [Shaanxi]: 2 ♀♀, same data as allotype, but 2500–2600 m, 26.–27. 08. 1995. In the SMETANA collection and PÜTZ collection, Eisenhüttenstadt, Germany (to be eventually deposited in the Deutsches Entomologisches Institut, Eberswalde).

Geographical distribution. *Quedius koei* is at present known only from the type locality in Qin Ling Shan in southern Shaanxi.

Bionomics. No details are known about the collection circumstances, except that some specimens of the original series were sifted, very likely from the forest floor litter.

Recognition and comments. *Quedius koei* is in all external characters similar to *Q. erythras*, but it differs by the paler coloration of the pronotum and elytra and some further details, in addition to the sexual differences. The aedoeagus of *Q. koei* resembles that of *Q. euryalus*, but the latter species differs distinctly by the different medio-apical emargination on male abdominal sternite 8 and by the different sclerites of both male and female genital segments (Figs. 20–26, and figs. 1–7 in SMETANA, 1997); in addition, *Q. euryalus* is distinctly larger.

The right antenna of the holotype is missing, except for three basal segments.

Etymology. The specific epithet is the Chinese noun “koei” (a puppet) in apposition.

Quedius (Microsaurus) songpan sp. nov.

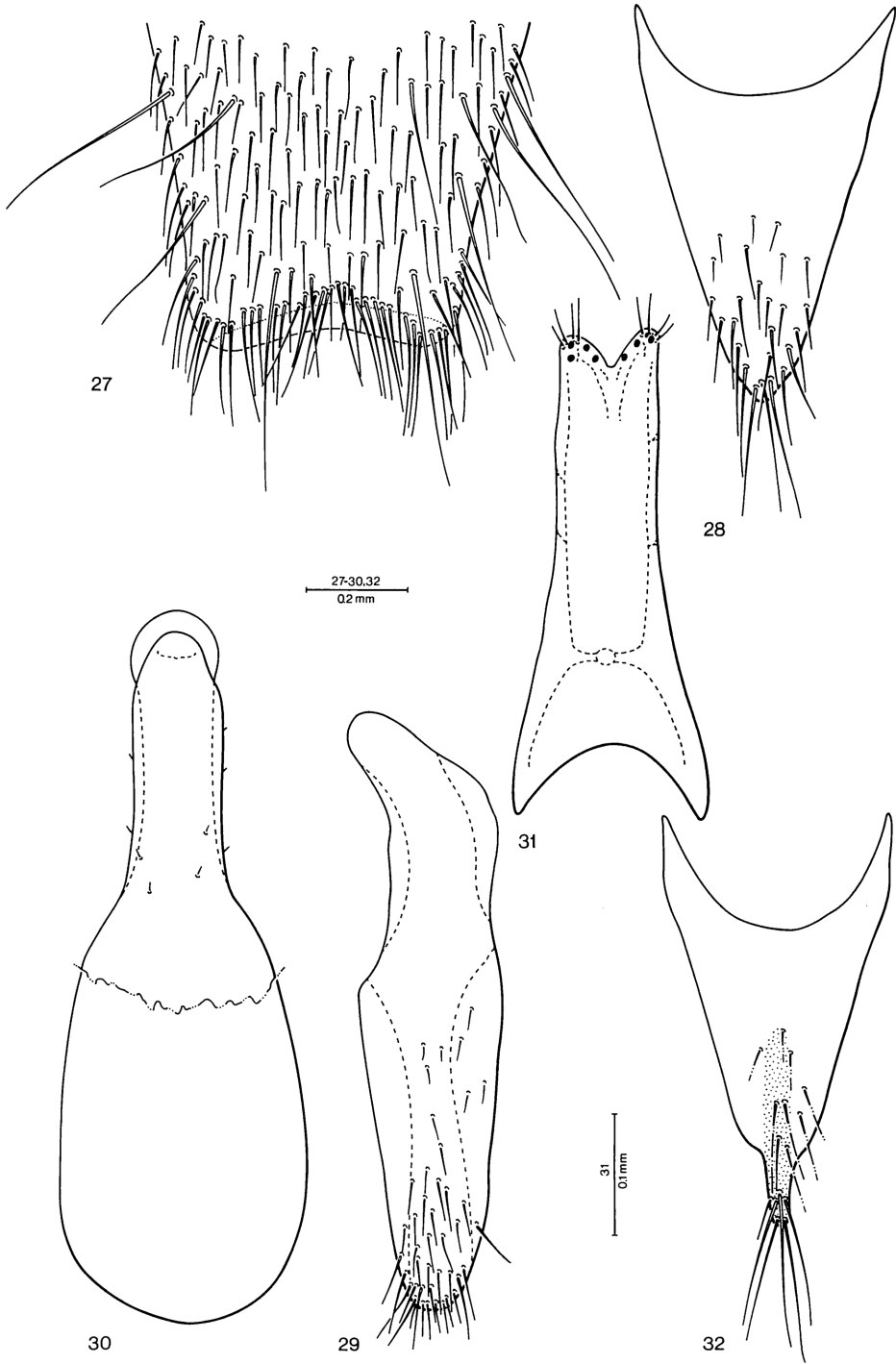
(Figs. 27–32)

Description. Head black, pronotum rufopiceous to piceous-black with anterior and posterior margins narrowly and lateral margins variably widely paler, elytra piceous to piceous-black with suture and apical margin very narrowly paler, or elytra almost entirely reddish-brown, abdomen piceous with apical margins of tergites and apex slightly paler; elytra with faint, opaque iridescence, abdomen iridescent; maxillary and labial palpi testaceous, antennae rufotestaceous, legs rufobrunneous to dark brunneous with slightly paler tarsi, medial faces of all tibiae distinctly blackened, less distinctly so on front tibiae. Head rounded, somewhat wider than long (ratio 1.14), posterior angles entirely obsolete; eyes large and convex, tempora considerably shorter than eyes seen from above (ratio 0.43); no additional setiferous punctures between anterior frontal punctures; posterior puncture situated close to posteriomedial margin of eye, separated from it by distance slightly larger than diameter of puncture, two punc-

tures between it and posterior margin of head; temporal puncture situated slightly closer to posterior margin of eye than to posterior margin of head, a small additional puncture at margin of eye between it and posterior frontal puncture; tempora with a few fine punctures; surface of head with fine and dense microsculpture of transverse waves. Antenna moderately long, only vaguely widened anteriorly, segment 3 slightly longer than segment 2 (ratio 1.20), segments 4 to 7 longer than wide, gradually becoming shorter, segments 8–10 almost, or as wide as long, last segment about as long as two preceding segments combined. Pronotum about as long as wide, widest at about posterior third, slightly narrowed anteriorly, with lateral margins continuously arcuate with broadly rounded base, transversely convex, lateral portions not explanate; dorsal rows each with three punctures; sublateral rows each with three punctures, posterior puncture situated distinctly behind level of large lateral puncture; microsculpture similar to that on head, but denser and somewhat finer. Scutellum impunctate, with fine and dense microsculpture of transverse waves. Elytra rather short, at base narrower than pronotum at widest point, vaguely widened posteriorly, at suture about as long as, at sides vaguely longer (ratio 1.1) than pronotum at midline; punctation and pubescence fine and moderately dense, transverse interspaces between punctures mostly about 1.5 as large as diameters of punctures; pubescence piceous-brown; surface between punctures without microsculpture, but with some microscopical irregularities, particularly near posterior margin. Wings folded once under elytra, almost certainly non-functional. Abdomen with tergite 7 (fifth visible) with fine whitish apical seam of palisade fringe; punctation and pubescence of abdominal tergites finer and somewhat denser than that on elytra, becoming slightly sparser toward apex of each tergite and in general toward apex of abdomen; pubescence piceous-brown; surface between punctures with exceedingly dense and fine microsculpture of transverse striae.

Male. First four segments of front tarsus markedly dilated, sub-bilobed, each densely covered with modified pale setae ventrally; segment 2 somewhat wider than apex of tibia (ratio 1.13); segment 4 narrower than preceding segments. Sternite 8 with four to six long setae on each side, with quite characteristic, wide and moderately deep subarcuate emargination margined by membranous seam, without flattened and asetose medioapical area (Fig. 27). Genital segment with tergite 10 markedly narrowed toward subacute apex, with three indistinctly differentiated subapical setae (Fig. 28); sternite 9 with rather long basal portion, obtusely rounded apically, without differentiated apical or subapical setae (Fig. 29). Aedoeagus (Figs. 30, 31) large, with voluminous basal bulb; median lobe subparallel-sided in middle portion, anteriorly rather suddenly dilated into broadly rounded, spoon-like apex. Paramere large, apparently covering most of median lobe but not quite reaching apex of median lobe (see *Comments* below), subparallel-sided with apex deeply emarginate; four fine setae at each side of

Figs. 27–32. — *Quedius songpan*: 27, apical portion of male sternite 8; 28, tergite 10 of male genital segment; 29, sternite 9 of male genital segment; 30, aedoeagus, ventral view; 31, underside of paramere; 32, tergite 10 of female genital segment.



apical emargination, lateral pairs finer than medial ones; underside of paramere with four apical sensory peg setae at each side of emargination. Internal sac without larger sclerotized structures.

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 relatively narrow, narrowly pigmented medioapically, rather abruptly narrowed into differentiated, rod-like apical portion with several long setae (Fig. 32).

Length 7.9–8.1 mm.

Type material. Holotype (male) and allotype (female): China: “CHINE province de Sinchuan région de SONGPAN 3250 m Lacs ERDAO M. TRONQUET 04/08/94”. In the SMETANA collection, Ottawa, Canada.

Paratype: China [Sichuan]: same data as holotype, but 3050 m ZHAGA FALL 05/08/94, 1 ♀, in the SMETANA collection.

Geographical distribution. *Quedius songpan* is at present known only from the type locality in northern Sichuan.

Bionomics. Nothing is known about the habitat requirements of this species.

Recognition and comments. *Quedius songpan* is in external characters similar to *Q. erythras*, but it differs from it, as well as from all other similar species of the group, by the unique male abdominal sternite 8 with distinct, membranous apical seam (Fig. 27), and by the distinctive shape of the apical portion of the median lobe of the aedoeagus (Fig. 30).

The holotype of the species was received dissected, with the paramere removed and with the median lobe broken in two pieces. The illustrations of the aedoeagus reflect this condition; the median lobe was reconstructed from the two pieces and the break line is shown. For this reason, the proper relations between the apical portions of the median lobe and the paramere cannot be precisely defined and the data given in the description are just guesses.

One female specimen, with the same locality data as those of the female paratype, differs somewhat from the specimens of the original series by the wider head and shorter elytra with surface between the punctures bearing distinct microscopical irregularities and therefore appearing somewhat dull. The genital segment of this specimen does not appreciably differ from that of the allotype; nevertheless, this specimen was associated with *Q. songpan* only tentatively and is not part of the original series.

Etymology. The specific epithet is a part of the name of the type locality in apposition.

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and Agri-Food Canada, Research Branch, Ottawa, commented on the original draft of the manuscript. Mr. Go SATO from the same establishment carefully finished the line drawings.

要 約

A. SMETANA : 中国産ツヤムネハネカクシ亜族に関する知見. 16. ツヤムネハネカクシ属 *Microsaurus* 亜属の10. — 中国の四川省および陝西省から, *Microsaurus* 亜属のツヤムネハネカクシの5新種を記載し, それらに *Q. myau*, *Q. faang*, *Q. yaoqi*, *Q. koei* および *Q. songpan* の新名を与えた. いずれも *Q. erythras* と同じ系列のものだと考えられる.

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A New Type of Sexual Dimorphism in the Silphinae (Coleoptera, Silphidae)

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It is fundamentally important for identification of beetles to determine if a given specimen of a certain species is a male or a female. In silphine beetles, some external characters have already been known to show sexual dimorphism, that is, shape of the elytral apices, basal segments of the fore tarsi, emargination of the apical sternite of abdomen and excurvature of the hind tibiae. Since they are more or less subtle, however, sexual dimorphism in other parts of their body has been searched for to make accurate determination of the sex.