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The Taiwan species of *Gabrius* STEPHENS (Insecta: Coleoptera: Staphylinidae)

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Abstract

The Taiwan species of the genus *Gabrius* STEPHENS, 1829 are treated, comprising two known and eight new species: *Gabrius ancoripenis* CHO & LEE, 1997, *G. calix* sp.n., *G. contumax* sp.n., *G. eminens* sp.n., *G. praesignis* sp.n., *G. subdolus* sp.n., *G. submolestus* sp.n., *G. taiwanensis* sp.n., *G. trapezipennis* sp.n., *G. trossuloides* (CAMERON, 1933). The aedeagi as well as morphological details of all species are illustrated.

Key words: Insecta, Coleoptera, Staphylinidae, Staphylininae, Staphylinini, Philonthina, *Gabrius*, Taiwan, new species, new records, systematics, taxonomy.

Zusammenfassung

Die in Taiwan vorkommenden Arten der Gattung *Gabrius* STEPHENS, 1829 werden behandelt. Bis zum jetzigen Zeitpunkt konnten zwei beschriebene und acht neue Arten nachgewiesen werden: *Gabrius ancoripenis* CHO & LEE, 1997, *G. calix* sp.n., *G. contumax* sp.n., *G. eminens* sp.n., *G. praesignis* sp.n., *G. subdolus* sp.n., *G. submolestus* sp.n., *G. taiwanensis* sp.n., *G. trapezipennis* sp.n., *G. trossuloides* (CAMERON, 1933). Die Genitalien sowie morfologische Details aller Arten werden abgebildet.

Introduction

Up to present, no species of *Gabrius* STEPHENS, 1829 have been recorded from the island of Taiwan, although a great diversity was to be expected because of the island's geographical position and topography (see SMETANA 1995). Due to the extensive collecting activities of A. Smetana and some Japanese scientists a rich material of Taiwanese *Gabrius* is now available. Since the *Gabrius* fauna of mainland China is also virtually unknown, it was not surprising that all but two species of Taiwan were undescribed. One of the two known species (*G. ancoripenis* CHO & LEE, 1997) was recently described from Korea and was also collected in China, the Taiwan population probably representing a distinct subspecies. The second species (*G. trossuloides* (CAMERON, 1933)) was described from Sumatra.

Acknowledgement and abbreviations

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CHK	coll. Y. Hayashi, Kawanishi City	CST	coll. Y. Shibata, Tokyo
CNC	Canadian National Collection, Ottawa	NHML	The Natural History Museum, London (M. Brendell)
CRL	coll. G. de Rougemont, London		
CSO	coll. A. Smetana, Ottawa	NMW	Naturhistorisches Museum, Wien

In addition, I thank my friend and colleague A. Smetana for reviewing the manuscript.

The *Gabrius fimetarioides* species group

Gabrius taiwanensis sp.n.

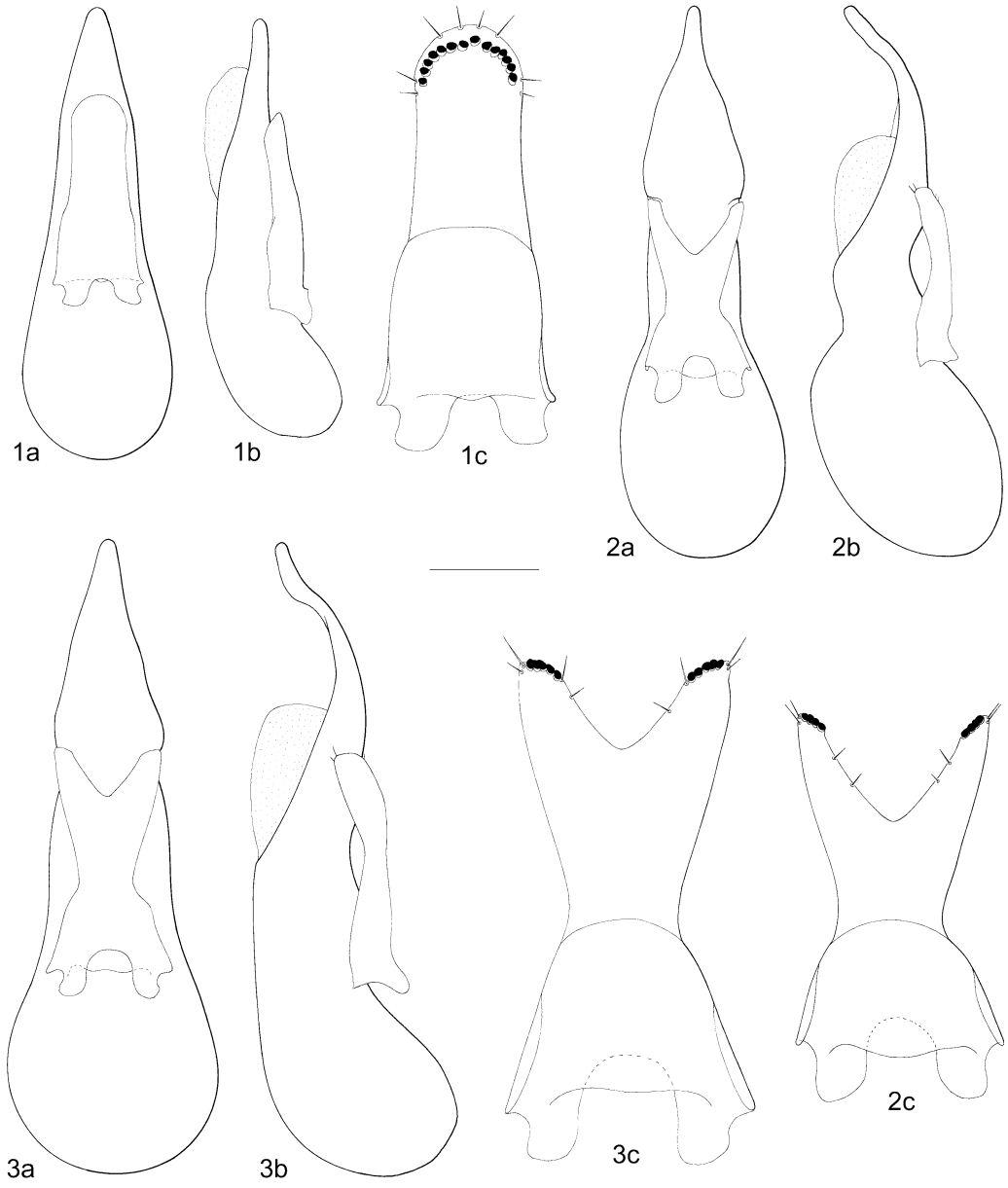
Holotype ♂: "TAIWAN Taichung Hsien, Anmashan 2230 m 30.IV. - 4.V.90 A. Smetana [T32]" (CSO).

Paratypes (70 exs.): TAICHUNG HSIEN: 45 exs.: same data as holotype (40 CSO, 5 NMW); 1 ex.: ibidem, 2120 m, 1.V.1990 [T36] (CSO); 3 exs.: same data as holotype, but 15.V.1992 [T132] (CSO); CHIAI HSIEN: 1 ex.: "TAIWAN, Fenchihu 1400 m, 10.VI.1977 J.u.S. Klapperich" (CNC); 2 exs.: "TAIWAN Chiai Hsien, Alishan, Sister Ponds 2180 m 26.IV.1990 A. Smetana [T24]" (CSO); 6 exs.: ibidem, 2200 m [T25] (CSO); KAOHSIUNG HSIEN: 1 ex.: "TAIWAN, Kaohsiung Hsien, Peinantashan trail, 2390 - 2490 m 5.VII.1993 A. Smetana [T138]" (CSO); 1 ex.: "TAIWAN Kaohsiung Hsien, Crk. 4 km E Yakou, 2600 m 23.VII.93 A. Smetana [T162]" (CSO); 4 exs.: "TAIWAN, Kaohsiung Hsien, Peinantashan trail, 2080 m 5.V.1995 A. Smetana [T173]" (CSO); PINGTUNG HSIEN: 1 ex.: "TAIWAN Pingtung Hsien Peitawushan, Kuai-Ku Hut 2325 m 21.V.1991 A. Smetana [T88]" (CSO); 5 exs.: ibidem, 2130 m, 30.IV.1992 [T109] (4 CSO, 1 NMW).

Description: 4.0 - 5.3 mm long (2.3 - 2.7 mm, abdomen excluded). Head and pronotum black with distinct metallic olivaceous-green lustre, anterior and posterior margins of pronotum sometimes obscurely brownish; elytra brown with slight brassy reflex, particularly at base; abdomen dark brown to black, posterior margins of segments obscurely dark reddish; antennae black, 1st segment and bases of segments 2 and 3 pale brown to reddish; legs yellowish, medial faces of hind tibiae infuscate; winged.

Head almost quadrate in males (l/w ratio: 0.98 - 1.01), slightly oblong in females (l/w ratio: 1.05 - 1.08); tempora parallel (males) or convergent (females), longer than eyes (ratio: 1.42 - 1.52 in males, 1.38 - 1.42 in females); frons with shallow depression; antennae rather short, segment 4 slightly oblong, segments 5 - 6 about as long as wide, segments 8 - 10 distinctly transverse; pronotum 1.09 - 1.16 times as long as wide, variably shaped, either subparallel-sided or slightly narrowed toward base; dorsal rows each with 4 punctures; microsculpture on head and pronotum consisting of very dense but fine transverse meshes; elytra finely, rather densely punctate, punctures separated by 1.5 - 2 puncture diameters in transverse direction, interstices slightly elevated, giving surface somewhat uneven appearance, pubescence long, yellowish-grey; abdominal tergites very finely, very densely, uniformly punctate and pubescent, first four visible tergites with two basal lines, elevated area between basal lines sparingly punctate on first two visible tergites, more densely punctate on third, very densely punctate on fourth visible tergite; male sternite VIII (Fig. 21) with shallow medio-apical emargination, with conspicuous semi-membranous extension; male sternite IX: Fig. 13; female tergite X (Fig. 31) not appreciably differing from that of the other members of the *G. fimetarioides* group.

Aedeagus (Figs. 1a, b) very similar to that of *G. jendeki* (see SCHILLHAMMER 1997: 95, Figs. 47, 51, 56), but apical portion of median lobe slightly slenderer, in lateral view almost straight, not bent ventrad; paramere (Fig. 1c) not dilated subapically, almost parallel-sided; arrangement of peg-setae more or less identical (the two medial peg-setae which are shifted anteriad in *G. jendeki* might be a variable character).



Figs. 1 - 3: Aedeagus of (1) *Gabrius taiwanensis*, (2) *G. subdolus*, (3) *G. submolestus*. - (a) ventral view, (b) lateral view, (c) paramere. Scale bar: 0.2 mm (a, b); 0.1 mm (c).

Diagnosis (male only): The species is very similar to *G. jendeki* from Yunnan in genital characters, and also externally, but differs by the more quadrate head, the shorter tempora, shorter antennae (in *G. jendeki* even the segments 8 - 10 are about as long as wide), the shorter elytra (length of suture: 0.62 mm in *G. taiwanensis*, 0.72 mm in *G. jendeki*) and the darker posterior margin of the abdominal tergites (brightly reddish in

G. jendeki). Since *G. jendeki* was described from a single male, the differences between the females cannot be evaluated at the moment.

Distribution: At present the species is known only from the island of Taiwan, where it was collected at elevations above 2000 m.

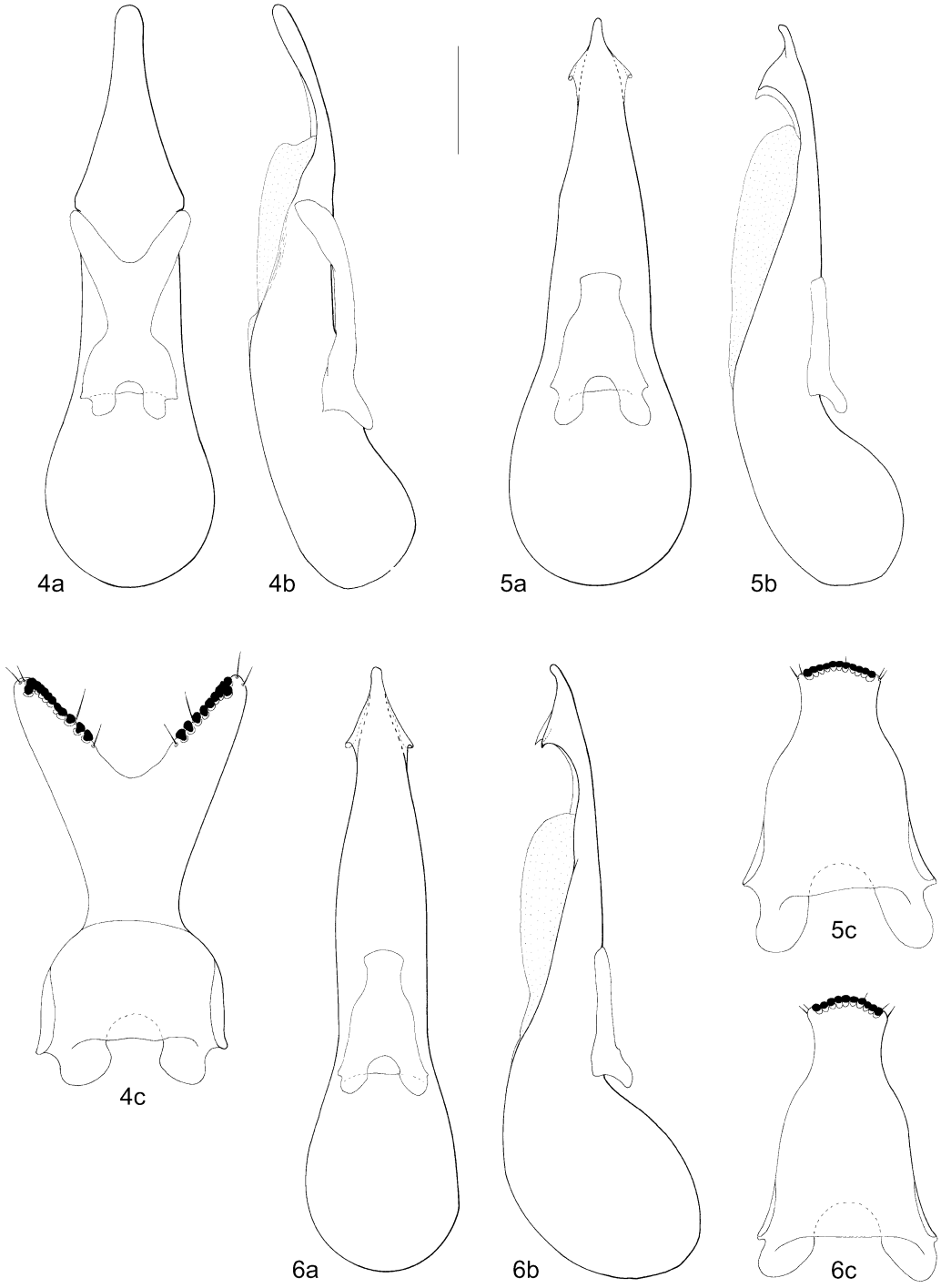
Etymology: The species is named after the place of its origin.

The *Gabrius astutus* species group

Gabrius praesignis sp.n.

Holotype ♂: "TAIWAN, Taichung Hsien, Anmashan, 2150 m, 13.V.92 A. Smetana [T129]" (CSO).

Paratypes (322 exs.): TAOYUAN HSIEN: 13 exs.: "Near Mt. LALASHAN Taoyuan - Hsien, TAIWAN (1600 m) July 23rd, 1982 Y. Shibata leg." (CST); 2 exs.: ibidem, Aug. 1st, 1985 (CST); TAICHUNG HSIEN: 53 exs.: same data as holotype (48 CSO, 5 NMW); 1 ex.: ibidem, 2230 m, 15.V.92 [T132] (CSO); 25 exs.: "TAIWAN Taichung Hsien, Anmashan 2120 m 1.V.1990 A. Smetana [T36]" (CSO); 4 exs.: ibidem, 2225 m, 3.V.1990 [T42] (CSO); 1 ex.: "TAIWAN Taichung Hsien Hsueshan, Hsueshan Main Peak 3650 m 9.V.91 A. Smetana [T73]" (CSO); ILAN HSIEN: 1 ex.: "TAIWAN Ilan Hsien, Chyr Duan 1100 m 19.IV.90 A. Smetana [T9]" (CSO); 10 exs.: "TAIWAN, Ilan Hsien Taipingshan 1880 m 14.VII.93 A. Smetana [T152]" (CSO); 49 exs.: ibidem, 1820 m, 15.VII.93 [T153] (44 CSO, 5 NMW); 6 exs.: ibidem, [T154] (CSO); HUALIEN HSIEN: 2 exs.: "TAIWAN Hualien Hsien, Taroko N.P. Nanhushi Hut 2220 m 8.V.1990 A. Smetana [T48]" (CSO); 1 ex.: "TAIWAN Hualien Hsien, Taroko N.P. Chungyantienshi (Riv.) 2280 m 10.V.1990 [T51]" (CSO); 2 exs.: "TAIWAN Hualien Hsien, Taroko N.P. Nanhushi Hut 2200 m 11.V.1990 A. Smetana [T53]" (CSO); 2 exs.: "TAIWAN Hualien Hsien, Taroko N.P. Nanhushi Hut 2220 m 12.V.1990 A. Smetana [T54]" (CSO); 2 exs.: "(Near Tzeen) Hualien - Hsien TAIWAN (2000 m) Aug. 11th, 1977 Y. Shibata leg." (CST); 4 exs.: "(Near Pilu) Hualien - Hsien TAIWAN (2400 m) Aug. 10th, 1977 Y. Shibata leg." (CST); 2 exs.: "(Near JUISUI-spa) Hualien, TAIWAN Mar. 29th, 1986 Y. Shibata leg." (CST); NANTOU HSIEN: 1 ex.: "Sungchuankang Taiwan 3.V.1982 T. Ito" (CHK); 29 exs.: "TAIWAN Nantou Hsien, Shanlinchi 1650 m 16.V.1990 A. Smetana [T60]" (CSO); 8 exs.: "TAIWAN Nantou Hsien, Shanlinchi 1650 m 19.V.1991 A. Smetana [T87]" (CSO); 1 ex.: "TAIWAN, Nantou Hsien, Meifeng, 2130 m, 4.V.1998 A. Smetana [T197]" (CSO); 5 exs.: "(Near Meifeng) Nantou - Hsien, TAIWAN July 29th, 1971 Coll. Y. Shibata" (CST); 1 ex.:"(Near TSIFENG) Nantou - Hsien, TAIWAN (2200 m) July 27th, 1974 Coll. Y. Shibata" (CST); 1 ex.: ibidem, July 28th, 1973 (CST); 1 ex.: ibidem, 2300 m July 23rd, 1977 (CST); 1 ex.: "(Near TSIUFENG) Nantou - Hsien, TAIWAN (2200 m) July 29th, 1976 Y. Shibata leg." (CST); 1 ex.: "(near TSUIFENG) Nantou, TAIWAN Aug. 7th, 1985 Y. Shibata leg." (CST); 2 exs.: "(Near PILUCHI) Nantou - Hsien, TAIWAN (2300 m) Aug. 2nd, 1983 Y. Shibata leg." (CST); 1 ex.: ibidem, April 1st, 1984 (CST); 5 exs.: ibidem, Aug. 3rd, 1983 (CST); 1 ex.: "(Near SUNGKANG) Nantou - Hsien, TAIWAN (2100 m) July 30th, 1973 Coll. Y. Shibata" (CST); 1 ex.: "Sungkang Formosa 4.VIII.1969 T. Kobayashi" (CHK); 1 ex.: "(Near TUNGPU) Nantou, TAIWAN Aug. 25th, 1987 Y. Shibata leg." (CST); CHIAI HSIEN: 17 exs.: "(ALISHAN) Chiai - Hsien, FORMOSA Aug. 7th, 1970 Coll. Y. Shibata" (CST); 8 exs.: ibidem, Aug. 8th 1970 (CST); 1 ex.: ibidem, Aug. 7th 1971 (CST); 2 exs.: ibidem, (2300 m) Aug. 1st, 1973 (CST); 1 ex.: ibidem, Aug. 2nd, 1973 (CST); 1 ex.: ibidem, April 1st, 1980 (CST); 1 ex.: "TAIWAN, Fenchihu 1400 m, 25.IV.1977 J.u.S. Klapperich" (CNC); 1 ex.: "(FENCHIHU) Chiai - Hsien, FORMOSA Aug. 9th, 1970 Coll. Y. Shibata" (CST); 1 ex.: ibidem, Aug. 10th, 1970 (CST); 4 exs.: "Near TADONGSHAN Chiai - Hsien, TAIWAN (1800 m) July 28th, 1982 Y. Shibata leg." (CST); 1 ex.: ibidem, Aug. 14th, 1983 (CST); 3 exs.: "Mt. Ali Formosa 22.VII.1970 T. Kobayashi" (CHK); 1 ex.: ibidem, 23.VII.1970 (CHK); 16 exs.: "Fenchifu Taiwan 1.V.1983 T. Ito" (CHK); 1 ex.: ibidem, 4.V.1983 (CHK); KAOHSIUNG HSIEN: 1 ex.: "TAIWAN, Kaohsiung Hsien, Peinantashan trail, 2065 m 6.VII.93 A. Smetana [T140]" (CSO); 1 ex.: "TAIWAN, Kaohsiung Hsien, Crk. 2 km E Tien Chih, Hwy. 20 2400 m 22.VII.93 A. Smetana [T161]" (CSO); 1 ex.: "TAIWAN, Kaohsiung Hsien, Crk. 4 km E Yakou, 2600 m 23.VII.93 A. Smetana [T162]" (CSO); 12 exs.: "(Near TIANCHI) Kaohsiung - Hsien, TAIWAN (2200 m) Aug. 1st, 1976 Y. Shibata legt." (CST); TAITUNG HSIEN: 3 exs.: "TAIWAN, Taitung Hsien Hsinkangshan above Chengkung 800 m 27.IV.1995, A. Smetana [T168]" (CSO); 2 exs.: ibidem, 17.IV.1998, A. Smetana & Lise Robillard [T168] (CSO); 1 ex.: ibidem, 550 - 600 m, 22.IV.1998, A. Smetana [T187] (CSO); PINGTUNG HSIEN: 2 exs.: "TAIWAN Pingtung Hsien Peitawushan, Kuai-Ku Hut 2325 m 21.V.1991 A. Smetana [T88]" (CSO);



Figs. 4 - 6: Aedeagus of (4) *Gabrius praesignis*, (5) *G. ancoripenis* (Taiwan), (6) *G. ancoripenis* (China). - (a) ventral view, (b) lateral view, (c) paramere. Scale bar: 0.2 mm (a, b); 0.1 mm (c).

Description: 4.9 - 6.1 mm long (2.6 - 3.2 mm, abdomen excluded). - Black, not metallic, elytra sometimes a bit paler, black-brown; palpi pale brown to yellowish; antennae black, basal two segments frequently slightly paler; legs dark yellowish, medial faces of hind tibiae infuscate; winged.

Head rounded quadrangular or subquadrangular, distinctly oblong, 1.09 - 1.13 times as long as wide; frons with shallow but conspicuous triangular depression; tempora parallel or slightly convergent, 1.34 - 1.38 times as long as eyes in females and small males, 1.41 - 1.48 in large males; antennal segment 4 markedly, segment 5 slightly oblong, segment 6 as long as wide, segments 8 - 10 slightly transverse; pronotum conspicuously oblong, much longer than head, 1.26 - 1.32 times as long as wide, slides slightly or distinctly narrowed toward base; dorsal rows each usually with 7 punctures (rarely one puncture missing in one row), rows slightly divergent posteriorly, posterior two punctures often irregularly placed; head and pronotum with fine and dense microsculpture consisting of rather irregular transverse meshes, meshes becoming particularly irregular and short along midline of head and pronotum; elytra rather long, along suture (from basal line of scutellum to sutural angle) about as long as pronotum; surface moderately densely, finely punctate, punctures separated by 2 - 4 puncture diameters in transverse direction; abdominal tergites very finely and densely, uniformly punctate; first 3 visible tergites with two basal lines, elevated area between basal lines moderately densely punctate, also on first visible tergite; posterior margin of tergite VIII subtruncate in females, somewhat produced medially in males; male sternite VIII (Fig. 24) of characteric astutoid appearance (compare SCHILLHAMMER 1997: 119, Figs. 318 - 329); male sternite IX: Fig. 14; female tergite X: Fig. 32.

Aedeagus (Figs. 4a, b) very conspicuous; median lobe rather broad at base, apical portion strongly, arcuately narrowed toward bluntly pointed apex; paramere (Fig. 4c) with very broad basal portion, separated from apical portion by deep constriction; apical portion deeply bifurcate, lobes strongly divergent, each lobe bearing about 10 peg setae medio-apically.

Diagnosis: The species resembles most closely *G. autumnalis* (CAMERON, 1932) externally, but it differs by the longer tempora and by the additional puncture in the dorsal rows of the pronotum. It cannot be confused with any other species of the *G. astutus* group in the shape of the aedeagus.

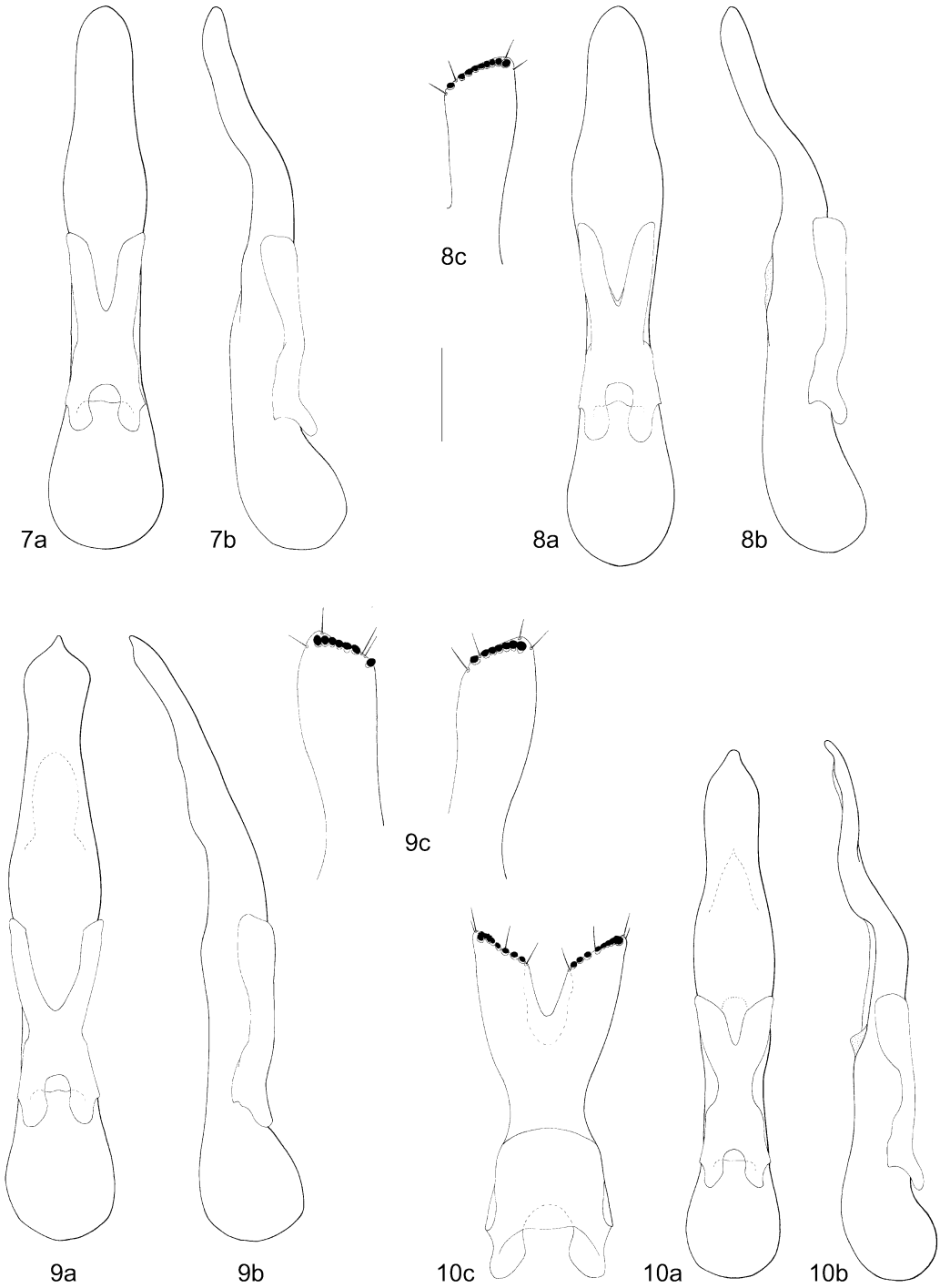
Distribution: The species is known only from the island of Taiwan, where it seems to be one of the most common species, occuring at a wide altitudinal range (550 - 2600 m).

Etymology: The specific name (Latin adjective) means "distinguished".

Gabrius subdolus sp.n.

Holotype ♂: "TAIWAN Nantou Hsien, Shanlinchi 1650 m 16.V.1990 A. Smetana [T60]" (CSO).

Paratypes (11 exs.): NANTOU HSIEN: 2 exs.: same data as holotype (CSO); 2 exs.: ibidem, 19.V.1991 [T87] (CSO, NMW); 1 ex.: "(Near NANSHANCHI) Nantou - TAIWAN July 27th, 1979 Y. Shibata leg." (CST); 1 ex.: "(LUSHAN - Spa) Nantou - Hsien TAIWAN July 31st, 1971 Coll. Y. Shibata" (CST); ILAN HSIEN: 2 exs.: "TAIWAN, Ilan Hsien Shen-Mi Lake 24ø22'43"N 121ø44'12"E, 1110 m, 10.V.1995 A. Smetana [T177]" (CSO, NMW); TAITUNG HSIEN: 2 exs.: "TAIWAN, Taitung Hsien Hsinkangshan Foothills nr. Chengkung 350 - 400 m, 19.VII.1993 A. Smetana [T155]" (CSO); 1 ex.: "TAIWAN, Taitung Hsien Hsinkangshan above Chengkung 800 m 27.IV.1995 A. Smetana [T168]" (CSO).



Figs. 7 - 10: Aedeagus of (7, 8) *Gabrius contumax*, (9) *G. trapezipennis*, (10) *G. calix*. - (a) ventral view, (b) lateral view, (c) paramere. Scale bar: 0.2 mm (a, b); 0.1 mm (c).

Description: 4.1 - 5.9 mm (2.3 - 2.8 mm, abdomen excluded). - Black to dark brown, elytra usually a bit paler (sometimes even brownish-testaceous, in this case also basal one or two visible tergites much paler); posterior margins of tergites obscurely reddish-brown; antennae brown to reddish-brown, middle segments to various extent darkened; legs yellowish, medial faces of hind tibiae infuscate; winged.

Head rounded quadrangular, very flat, inconspicuously to more distinctly oblong (ratio 1.02 - 1.11), tempora parallel or more distinctly divergent, 1.56 - 2.18 times as long as eyes (see "Remark"); frons with shallow, usually triangular depression between eyes; antennae with segments 4 - 6 variably oblong, segment 7 as long as wide, segments 8 - 10 inconspicuously transverse; pronotum 1.22 - 1.25 times as long as wide, sides markedly narrowed toward base; dorsal rows each with 6 almost equidistant punctures, posterior 3 punctures divergent or in convex arrangement; head and pronotum with distinct, dense microsculpture of rather long oblique meshes, mesh length almost uniform throughout entire surface, causing slight iridescence especially in posterior half of pronotum; elytra along suture (from basal line of scutellum to sutural angle) about as long as pronotum; moderately densely punctate, punctures separated by 2 - 5 puncture diameters in transverse direction, pubescence dark greyish-golden; abdominal tergites rather densely punctate, interstices hardly exceeding two puncture diameters in transverse direction; surface between punctures with dense microstriae, causing some iridescence; first three visible tergites with two basal lines, elevated area between basal lines distinctly punctate and pubescent, slightly less distinctly on first visible tergite; male sternite VIII (Fig. 22); male sternite IX: Fig. 15.

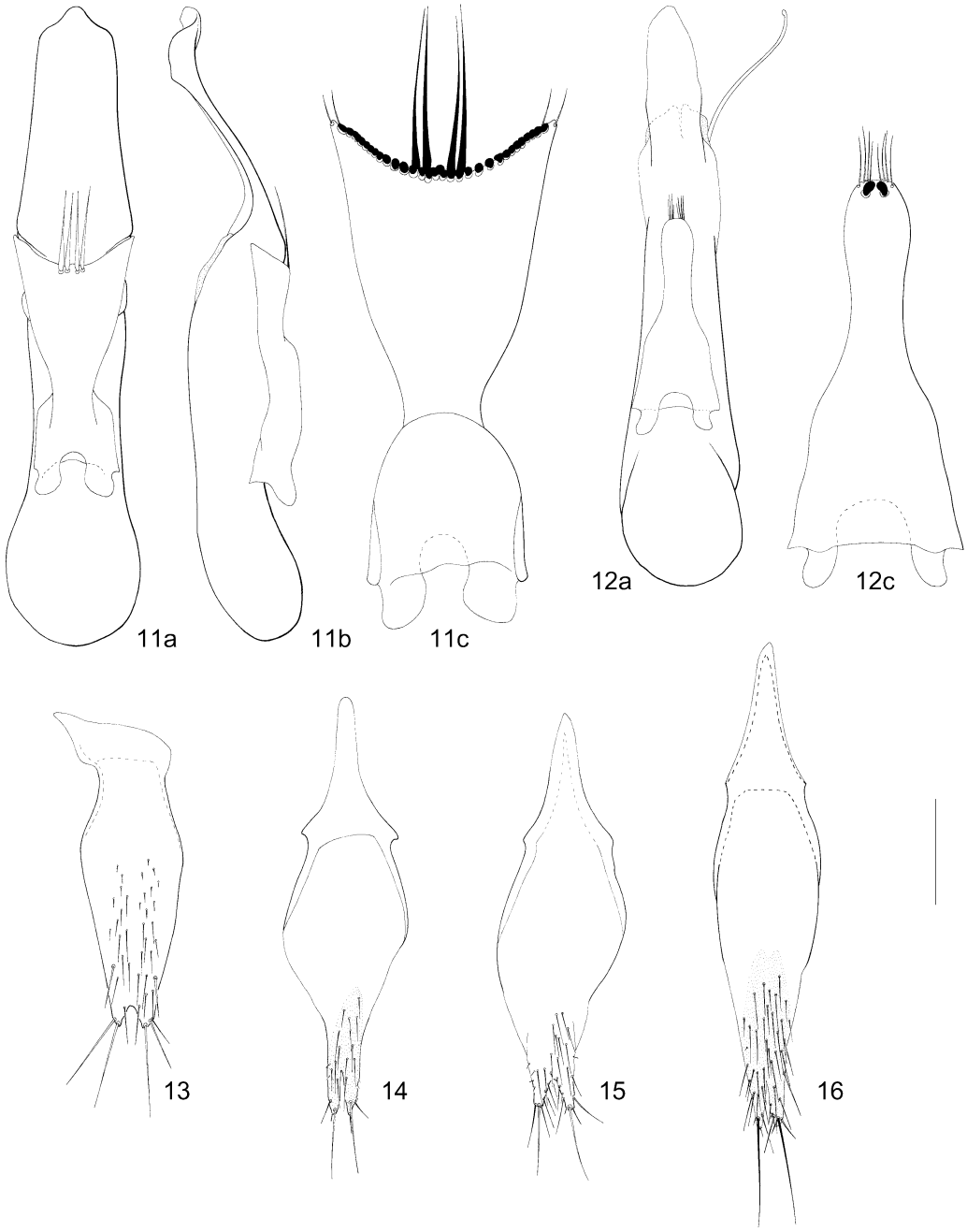
Aedeagus (Figs. 2a, b) very characteristic; apical portion of median lobe slightly variably narrowed to very slender and acutely pointed apex, in lateral view bent dorsad; paramere (Fig. 2c) bifurcate, lobes variably thick, each lobe with 4 peg setae along apical margin; the paramere may be quite variably shaped, particularly in the width of the lobes and the depth of the medio-apical emargination; parameres with broader lobes appear to be quite similar to that of *G. submolestus*.

Diagnosis: Among the winged Taiwan species with densely punctate elevated area between two basal lines on first visible tergite the species can be recognized as follows: from *G. praesignis* by the number of punctures of the dorsal rows of the pronotum and by the distinctly smaller eyes, from *G. submolestus* by aedeagal characters only; females of *G. subdolus* and *G. submolestus* cannot be separated with certainty, the female tergite X which may apply to both species is shown in Fig. 33.

Remark: Two specimens of the type series are markedly smaller (2.3 mm, abdomen excluded), which coincides with distinctly shorter tempora (resulting ratio of tempus/eye: 1.56 - 1.61). Only the availability of a sufficient number of specimens revealed that the morphometric differences are not correlated with aedeagal differences and thus prevented an unjustified description of a separate species (see also *G. contumax* sp.n.).

Distribution: The species is at present known only from three districts of Taiwan (Nantou, Ilan, Taitung). It was collected at an altitudinal range of 350 - 1650 m.

Etymology: The specific epithet (Latin adjective) means "insidious" or "treacherous" and refers to the tricky, polymorphic appearance of the species.



Figs. 11 - 16: (11, 12) Aedeagus of (11) *Gabrius eminens*, (12) *G. trossuloides*; (13 - 16) male sternite IX of (13) *G. taiwanensis*, (14) *G. praesignis*, (15) *G. subdolus*, (16) *G. ancoripenis*. - (a) ventral view, (b) lateral view, (c) paramere. Scale bar: 0.2 mm (a, b, 13 - 16); 0.1 mm (c).

Gabrius submolestus sp.n.

Holotype ♂: "Near Mt. LALASHAN Taoyuan - Taipei H. TAIWAN July 24th, 1978 Y. Shibata leg." (CST).

Paratypes (3 exs.): 2 exs.: "Near Mt. LALASHAN Taoyuan - Hsien, TAIWAN (1600 m) March 27th, 1982 Y. Shibata leg." (1 CST, 1 NMW); 1 ex.: "(Near CHIHTUAN) Ilan - Hsien, TAIWAN (1600 m) March 26th, 1982 Y. Shibata leg." (CST).

Description: 5.2 - 6.0 mm long (2.7 - 3.0 mm, abdomen excluded). - The species is very similar to *G. subdolus* both in external and genital respects but differs by the generally slightly paler color, the slightly broader head (length/width ratio 0.98 - 1.05), in average longer and constantly divergent tempora (tempus/eye ratio 1.88 - 2.31) and a basally more distinctly narrowed pronotum - due to the variability of the mentioned character states a reliable identification is possible only by studying the aedeagus; male sternite VIII (Fig. 23) similar to that of *G. subdolus* but apical setae fewer and slightly longer, also with less numerous short setae along midline.

Aedeagus (Figs. 3a, b) also very similar to that of *G. subdolus*, but slightly larger; apical portion of median lobe less strongly narrowed with apex more obtusely pointed (ventral view), curvation of apical portion different (lateral view); paramere (Fig. 3c) larger, also bifurcate but medio-apical emargination less deep, lobes broader, each lobe with 5 peg setae.

Distribution: The species is at present known only from the northern portion of the island of Taiwan.

Etymology: The specific name (Latin adjective) means "slightly unpleasant" and refers to the general situation on the island of Taiwan where very similar, obviously phylogenetically young species, make the interpretation at the specific level a nerve-consuming task.

The *Gabrius imitator* species group

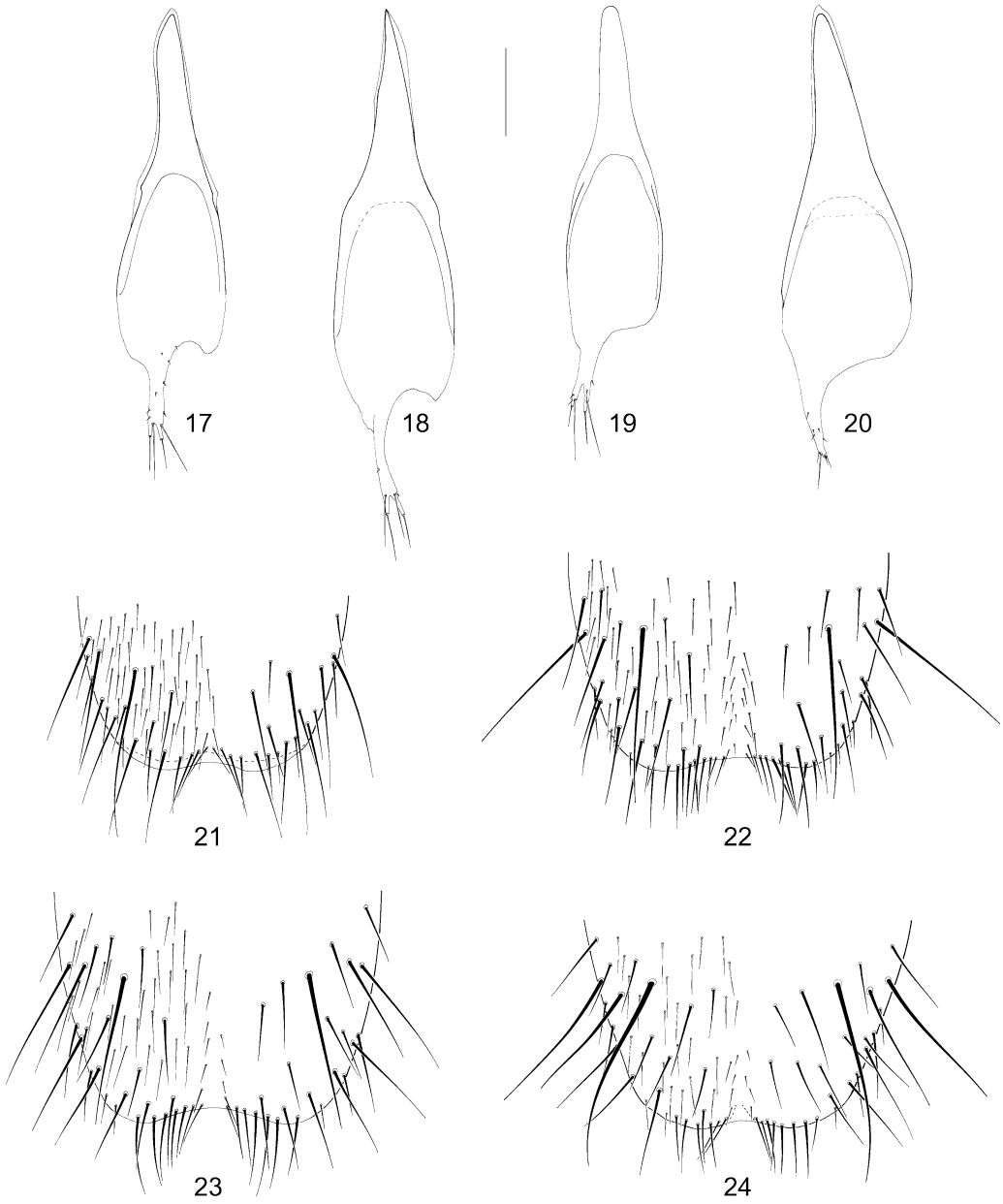
Gabrius ancoripenis Cho & Lee

Gabrius ancoripenis Cho & Lee, 1997: 273

Type material: I have as yet not studied the original material of this species, but the aedeagal characters are so conspicuous that there should be no doubt about its identity (Type locality: S-Korea, Dongchonri, Yeanmyon, Andong, Kyungsangpukdo, 15.VII.1986, leg. Y.B. Cho - deposited in Natural History Museum, Hannam University, Korea)

Description (including mainland specimens): 4.0 - 5.5 mm long (2.1 - 2.5 mm, abdomen excluded). - Dark brown to black-brown, elytra usually a bit or distinctly paler; antennae reddish-brown to yellowish-brown, segments 4 - 9 usually darkened; posterior margins of tergites obscurely to brightly reddish, reddish portion variably well delimited.

Head almost suborbicular due to broadly rounded hind angles (somewhat recalling members of the *Philonthus longicornis* species group), as long as wide or slightly oblong (ratio 1.00 - 1.06); tempora subparallel or slightly convergent for short distance behind eyes, almost regularly convex toward neck, 1.50 - 1.75 times as long as eyes; antennae short, segments 4 slightly oblong, segment 5 as long as wide or inconspicuously oblong, segments 8 - 10 distinctly transverse; pronotum 1.11 - 1.14 times as long as wide, widest approximately in midlength, sides subparallel to weakly convex; dorsal rows each usually with 6 punctures (rarely the posterior puncture is missing on one



Figs. 17 - 24: (17 - 20) Male sternite IX of (17) *Gabrius contumax*, (18) *G. trapezipennis*, (19) *G. calix*, (20) *G. eminens*; (21 - 24) male sternite VIII of (21) *G. taiwanensis*, (22) *G. subdolus*, (23) *G. submolestus*, (24) *G. praesignis*. Scale bar: 0.2 mm.

side); head and pronotum with very profound microsculpture of transverse and oblique meshes, meshes somewhat irregular on disc of head and along midline of pronotum; elytra along suture (from basal line of scutellum to sutural angle) slightly shorter than prono-

tum, rather finely, moderately densely punctate, punctures separated by 2 - 5 puncture diameters in transverse direction, pubescence pale golden-yellowish; abdominal tergites rather sparsely punctate, surface with distinct microsculpture, as distinct as on head and pronotum but much denser; first three visible tergites with two basal lines, elevated area between basal lines almost impunctate, on third visible tergite with a few scanty punctures, rarely with indistinct rudiment of second basal line on fourth visible tergite; male sternite VIII (Fig. 25) with rather deep medio-apical emargination, semi-membranous extension well developed, but restricted to emargination; disc with numerous macrosetae, posterior half along midline with numerous short setae clearly differing from ground pubesence; male sternite IX: Fig. 16; female tergite X: Fig. 34.

Aedeagus (Figs. 5, 6) very conspicuous; median lobe with acutely pointed apex, subapically with pair of sharp dorso-lateral extensions, thus resembling the aedeagus of *G. sagittifer* SCHILLHAMMER, 1997; paramere (Figs. 5c, 6c) very short and small, apical margin entire, furnished with dense row of 10 - 11 peg setae.

Remarks: The extensive row of spines along the ventro-anterior margin of the front femur mentioned in the original description (CHO & LEE 1997), is not unusual for members of the *G. imitator* group. Among the Taiwan species of *Gabrius*, however, this character is unique.

The Taiwan population differs from the mainland population by the slightly shorter and broader paramere. The differences may be subspecific, but since I have not studied the holotype, and since the additional material is very limited, I am refraining from naming it.

Additional material examined (incl. specimens from mainland China): T A I W A N: NANTOU HSIEN: near Lushan, 1200 m, 27.VII.1977, leg. Y. Shibata (CST); Lushan, Wenchuan, 1200 m, 29.VII.1983, leg. Y. Shibata (CST); near Lushan, 1200 m, 27.VII.1977, leg. Y. Shibata (CST); CHIAI HSIEN: Fenchihu, 1400 m, 7. and 9.VIII.1974, leg. Y. Shibata (CST); Tungpu spa, 22.V.1981, leg. T. Ito (CHK, NMW).

C H I N A: BEIJING: Wofuci, 5.IX.1980, leg. P.M. Hammond (NHML, NMW); Xishan, IX,1992, leg. G. de Rougemont (CRL).

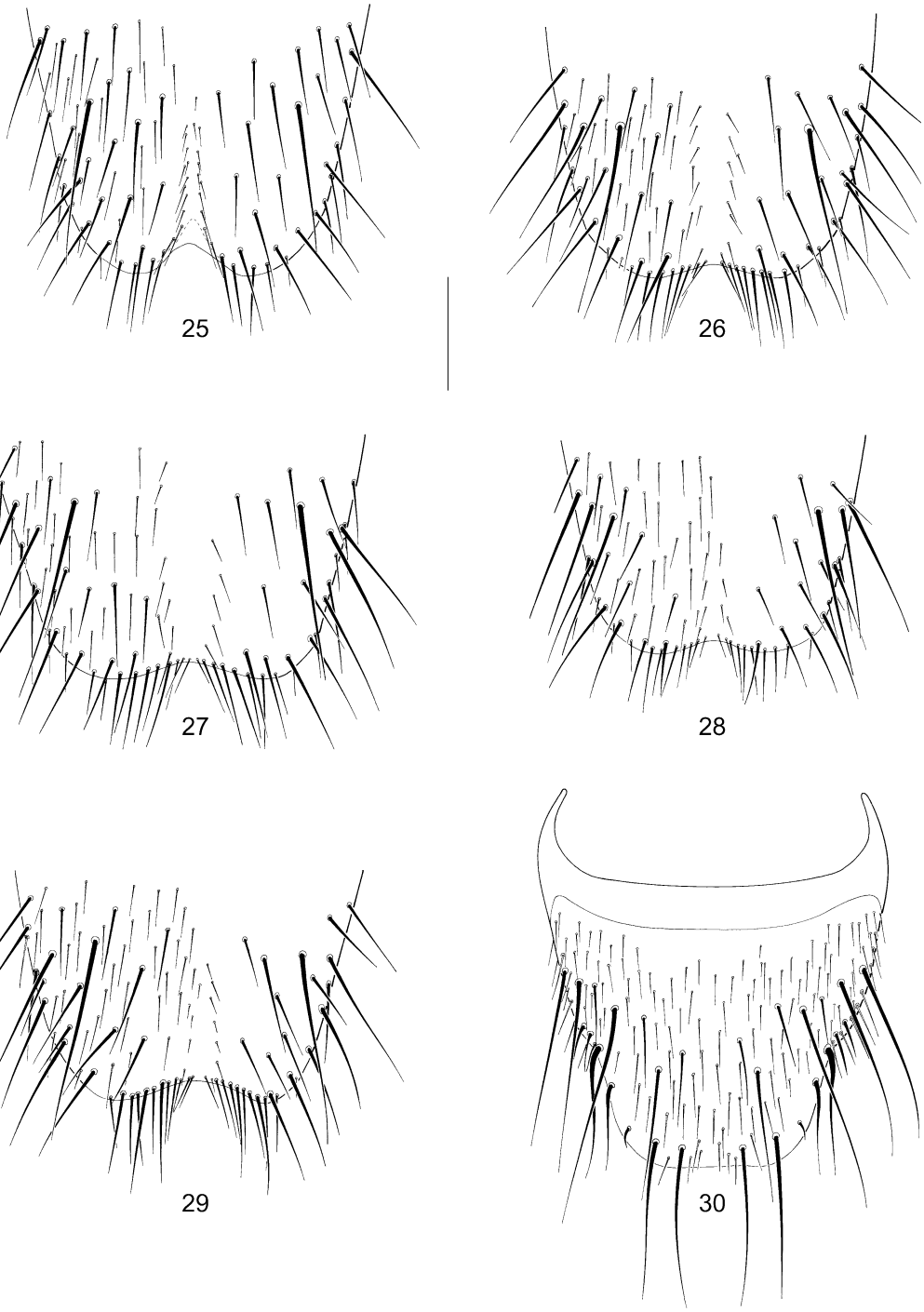
Distribution: The species is rather widely distributed: Korea, eastern China, Taiwan.

The *Gabrius rufocinctus* species group

Gabrius contumax sp.n.

Holotype ♂: "TAIWAN, Kaohsiung Hsien, Peinantashan trail 2450 m, 2.V.1995 A. Smetana [T170]" (CSO) - unwinged specimen.

Paratypes (248 exs.): **unwinged** (177 exs.): ILAN HSIEN: 1 ex.: "TAIWAN, Ilan Hsien Taipingshan 1880 m 14.VII.93 A. Smetana [T152]" (CSO); TAICHUNG HSIEN: 7 exs.: "TAIWAN Taichung Hsien, Anmashan 2120 m 1.V.1990 A. Smetana [T35]" (CSO); 1 ex.: ibidem, 2225 m 2.V.1990 [T37] (CSO); 3 exs.: ibidem, [T38] (CSO); 3 exs.: ibidem, 3.V.1990 [T42] (CSO); 1 ex.: "TAIWAN Taichung Hsien, Hsuehshan Chi-Ka 2463 m 6.V.91 A. Smetana [T67]" (CSO); 3 exs.: "TAIWAN, Taichung Hsien, Anmashan 2225 m 11.V.1992 A. Smetana [T123]" (CSO); 3 exs.: ibidem, 2230 m, 12.V.92 [T127] (CSO); 7 exs.: ibidem, 2225 m, 14.V.92 [T130] (CSO); 1 ex.: ibidem, Creek, 2135 m 12.V.92 [T125] (CSO); HUALIEN HSIEN: 1 ex.: "TAIWAN Hualien Hsien, Taroko N.P. Nanhushi Hut 2220 m 8.V.1990 A. Smetana [T48]" (CSO); 2 exs.: ibidem, 2200 m 11.V.1990 [T53] (CSO); 1 ex.: ibidem, 2220 m 12.V.1990 [T54] (CSO); 10 exs.: ibidem, 12.V.1990 [T55] (9 CSO, 1 NMW); 1 ex.: "TAIWAN Hualien Hsien, Taroko



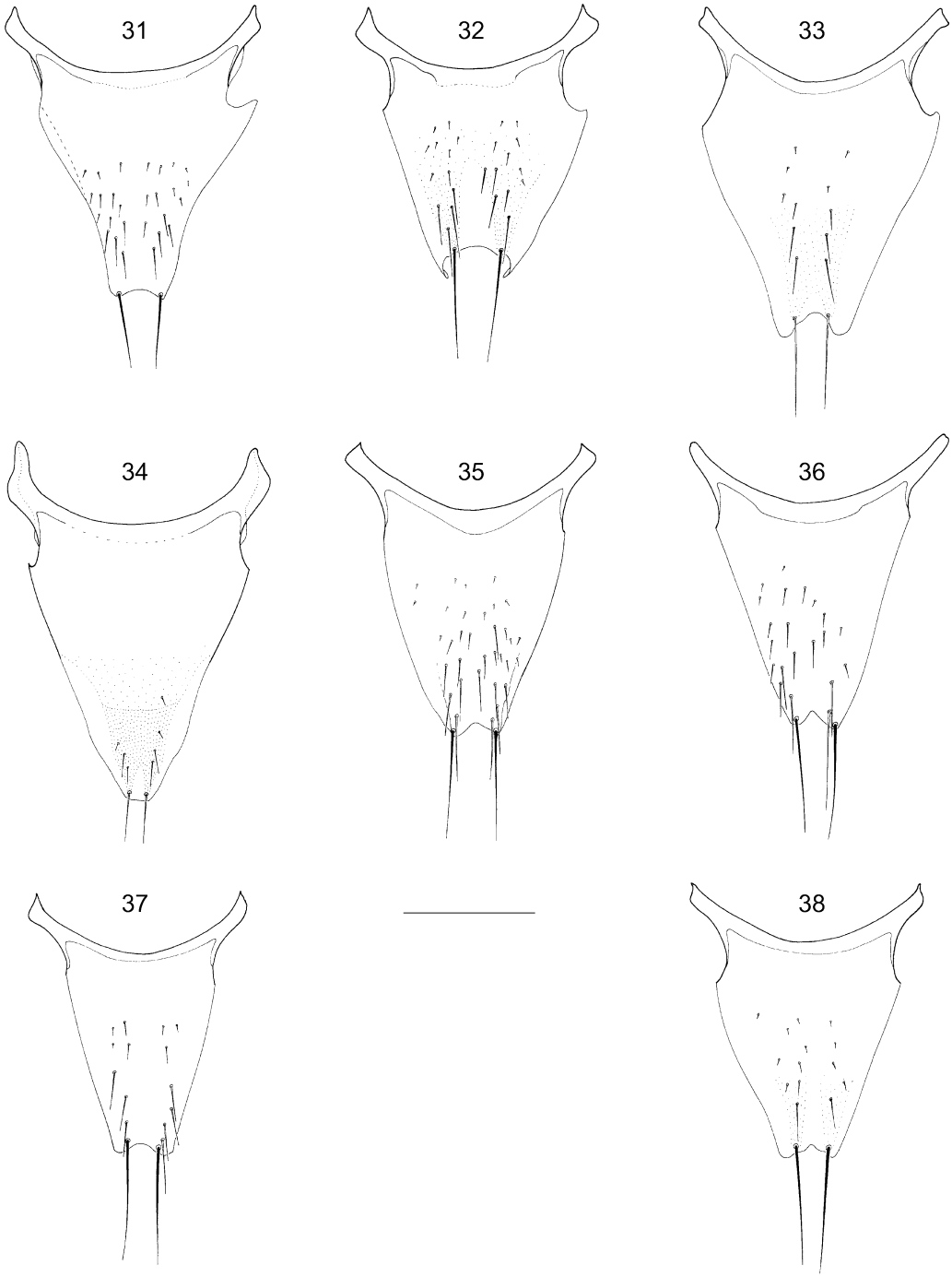
Figs. 25 - 30: Male sternite VIII of (25) *Gabrius ancoripenis*, (26) *G. contumax*, (27) *G. trapezipennis*, (28) *G. calix*, (29) *G. eminens*, (30) *G. trossuloides*. Scale bar: 0.2 mm.

N.P. Chungyantienshi (Riv.) Waterfall 2300 m 10.V.1990 A. Smetana [T50]" (CSO); 7 exs.: ibidem [T51] (CSO); NANTOU HSIEN: 1 ex.: "Sungchuankang Taiwan 3.V.1982 T. Ito" (CHK); 8 exs.: "TAIWAN, Nantou Hsien, Nenkaoshan trail, Yuenhai Hut 2350 m, 4.V.1992 A. Smetana [T112]" (CSO); 8 exs.: "TAIWAN, Nantou Hsien, Nenkaoshan 2.5 km SW Tenchi Hut, 2720 m 6.V.92 A. Smetana [T115]" (7 CSO, 1 NMW); 13 exs.: "TAIWAN, Nantou Hsien, Nenkaoshan trail, 2050 - 2150 m 8.V.92 A. Smetana [T120]" (11 CSO, 2 NMW); 1 ex.: "TAIWAN , Nantou Hsien, Meifeng 2130 m, 4.V.1998 A. Smetana [T199]" (CSO); CHIAI HSIEN: 3 exs.: "TAIWAN Chiai Hsien, Yushan N.P. Mun-Li Cliff 2700 m 27.IV.1990 A. Smetana [T28]" (CSO); 1 ex.: "(Formosa) Mt. Ali 16.V.1968 Y. Hayashi" (CHK); 2 exs.: "Mt. Ali Taiwan 18.V.1981 T. Ito" (CHK); 4 exs.: ibidem, 3.V.1983 (CHK); KAOHSIUNG HSIEN: 9 exs.: same data as holotype (6 CSO, 3 NMW); 3 exs.: "TAIWAN, Kaohsiung Hsien, Kuanshan trail above Kaunshanchi Riv. 2550 m 21.IV.92 A. Smetana [T96]" (CSO); 3 exs.: "TAIWAN, Kaohsiung Hsien, Peinantashan trail, 2400 m 4.VII.93 A. Smetana [T135]" (CSO); 13 exs.: ibidem, 2500 m [T136] (12 CSO, 1 NMW); 1 ex.: ibidem, 2250 m [T137] (CSO); 22 exs.: ibidem, 2390 - 2490 m 5.VII.1993 [T138] (19 CSO, 3 NMW); 5 exs.: ibidem, 2065 m 6.VII.93 [T140] (CSO); 3 exs.: ibidem, 2080 m 6.VII.93 [T141] (CSO); 3 exs.: "TAIWAN, Kaohsiung Hsien, Kuanshan trail at Kaunshanchi Riv. 2400 m 20.VII.93 A. Smetana [T158]" (CSO); 5 exs.: "TAIWAN, Kaohsiung Hsien, Kuanshan trail above Kaunshanchi Riv. 2550 m 22.VII.93 A. Smetana [T160]" (CSO); 2 exs.: "TAIWAN, Kaohsiung Hsien, Crk. 2 km E Tien Chih, Hwy. 20 2400 m 22.VII.93 A. Smetana [T161]" (CSO); PINGTUNG HSIEN: 5 exs.: "TAIWAN Pingtung Hsien Peitawushan, Kuai-Ku Hut 2325 m 21.V.1991 A. Smetana [T88]" (CSO); 3 exs.: ibidem, 22.V.1991 [T90] (CSO); 3 exs.: ibidem, 2130 m 27.IV.1992 [T101] (CSO); 3 exs.: ibidem, 2125 m [T102] (CSO); 1 ex.: "TAIWAN Pingtung Hsien Peitawushan ridge, 2800 - 2910 m 28.IV.1992 A. Smetana [T105]" (CSO).

Winged (71 exs.): ILAN HSIEN: 5 exs.: "TAIWAN, Ilan Hsien Taipingshan 1880 m 14.VII.93 A. Smetana [T152]" (CSO); 5 exs.: ibidem, 1820 m 15.VII.93 [T153] (4 CSO, 1 NMW); TAICHUNG HSIEN: 1 ex.: "TAIWAN Taichung Hsien, Anmashan 2230 m 1.V.90 A. Smetana [T33]" (CSO); 6 exs.: ibidem, 2120 m [T36] (5 CSO, 1 NMW); 2 exs.: ibidem, 2225 m 2.V.1990 [T37] (CSO); 1 ex.: ibidem, 3.V.1990 [T42] (CSO); 3 exs.: ibidem, 2230 m, 4.V.1990 (CSO); 1 ex.: "TAIWAN, Taichung Hsien, Anmashan, Creek, 2135 m 12.V.92 A. Smetana [T125]" (CSO); 3 exs.: "TAIWAN, Taichung Hsien, Anmashan 2150 m 13.V.1992 A. Smetana [T129]" (CSO); HUALIEN HSIEN: 2 exs.: "TAIWAN Hualien Hsien, Taroko N.P. Nanhushi Hut 2220 m 8.V.1990 A. Smetana [T48]" (CSO); 1 ex.: "TAIWAN Hualien Hsien, Taroko N.P. Chungyantienshi (Riv.) Waterfall 2300 m 10.V.1990 A. Smetana [T50]" (CSO); 6 exs.: ibidem, 2200 m 11.V.1990 [T53] (5 CSO, 1 NMW); 3 ex.: ibidem, 2220 m 12.V.1990 [T54] (CSO); NANTOU HSIEN: 2 exs.: "TAIWAN Nantou Hsien, Meifeng 2130 m 3.V.1991 A. Smetana [T61]" (CSO); 1 ex.: ibidem, 12.V.1991 [T78] (CSO); 1 ex.: "TAIWAN, Nantou Hsien, Nenkaoshan trail, Yuenhai Hut 2350 m, 4.V.1992 A. Smetana [T112]" (CSO); 4 exs.: "TAIWAN, Nantou Hsien, Nenkaoshan trail, 2050 - 2150 m 8.V.92 A. Smetana [T120]" (CSO); 1 ex.: "TAIWAN, Nantou Hsien, Meifeng 2130 m 10. - 17.VII.93 yellow pan traps A. Smetana [T147]" (CSO); 5 exs.: "TAIWAN, Nantou Hsien, Meifeng 2130 m 4.V.1998 A. Smetana [T199]" (4 CSO, 1 NMW) CHIAI HSIEN: 3 exs.: "TAIWAN Chiai Hsien, Alishan, Sister Ponds 2180 m 26.IV.1990 A. Smetana [T24]" (CSO); 1 ex. "TAIWAN Chiai Hsien, Alishan 2200 m 26.IV.1990 A. Smetana [T25]" (CSO); KAOHSIUNG HSIEN: 4 exs.: "TAIWAN, Kaohsiung Hsien, Peinantashan trail, 2000 m 7.VII.93 A. Smetana [T144]" (3 CSO, 1 NMW); 1 ex.: ibidem, 1950 m 8.VII.93 [T145] (CSO); 3 exs.: ibidem, 2130 m 10.VII.93 [T146] (CSO); 3 exs.: ibidem, 2500 m, 3.V.1995 [T171] (2 CSO, 1 NMW); 1 ex.: "TAIWAN, Kaohsiung Hsien, Crk. 4 km E Yakou, 2600 m 23.VII.93 A. Smetana [T162]" (CSO); 1 ex.: "TAIW. Kaohsiung Hs. Rd. abv. Tona For. Sta. Km 16-17, 1700 - 1800 m, 28.IV.1998, A. Smetana [T190]" (CSO); PINGTUNG HSIEN: 1 ex.: "TAIWAN Pingtung Hsien Peitawushan, Kuai-Ku Hut 2130 m 30.IV.1992 A. Smetana [T109]" (CSO).

Description: 4.7 - 5.8 mm (2.5 - 2.8 mm, abdomen excluded). - The species appears in two well separable morphs: small-eyed with short elytra (unwinged) and large-eyed with long elytra (winged). Measurements given in square brackets always refer to the winged morph.

Black to black-brown, elytra frequently slightly or even distinctly paler brown; antennae dark brown, basal two and to various extent two outer segments reddish; abdominal tergites dark brown to black brown, posterior margins obscurely to brightly reddish; legs yellowish, medial faces of hind tibiae slightly to distinctly infuscate.



Figs. 31 - 38: Female tergite X of (31) *Gabrius taiwanensis*, (32) *G. praesignis*, (33) *G.* cf. *subdolus* / *submolestus*, (34) *G. ancoripenis*, (35) *G. contumax*, (36) *G. trapezipennis*, (37) *G. calix*, (38) *G. eminens*. Scale bar: 0.2 mm.

Head rounded quadrangular to sub-ovoid, 1.05 - 1.14 times as long as wide; tempora subparallel to slightly convexly divergent, 2.13 - 2.69 [1.77 - 1.94] times as long as eyes; antennae with segments 4 and 5 about as long as wide, segments 8 - 10 distinctly transverse; pronotum subparallel-sided, rarely sides inconspicuously convex or inconspicuously narrowed toward base, 1.16 - 1.23 times as long as wide, markedly wider than head (ratio 1.10 - 1.18); dorsal rows each with 6 punctures; head and pronotum with distinct and dense microsculpture of transverse meshes, meshes becoming very short, almost isodiametrical on disc of head and along midline of pronotum; elytra along suture (from basal line of scutellum to sutural angle) shorter than [as long as] pronotum, along sides (from shoulders to postero-lateral angle) shorter [markedly longer] than pronotum along midline, length of suture 0.47 - 0.52 mm [0.63 - 0.66 mm]; surface finely, moderately densely punctate, punctures separated by 2 - 4 puncture diameters in transverse direction; pubescence moderately long, grey to golden-grey; abdominal tergites very finely, rather densely (except tergite VIII which is sparingly punctate), uniformly punctate; first three visible tergites with two basal lines, elevated area between basal lines variably punctate, usually always punctate on second and third visible tergite, rarely only on third; tergite VII with whitish seam of palisade fringe (winged specimens) or without (unwinged specimens); male sternite VIII (Fig. 26) with shallow medio-apical emargination, semi-membranous extension lacking; male sternite IX: Fig. 17; female tergite X: Fig. 35.

Aedeagus (Figs. 7, 8) slightly variable; median lobe long and rod-like, apical portion slightly convexly, variably widened basally, more or less parallel apically, with obtusely rounded or indistinctly pointed apex; paramere (Fig. 8c) deeply bifurcate, each lobe variably wide, bearing dense row of peg-setae along apical margin.

Diagnosis: Unwinged specimens are very similar to *G. trapezipennis* (see there).

Distribution: The species is at present known only from Taiwan, where it seems to be similarly common and equally widely distributed as *G. praesignis*.

Etymology: The specific name (Latin adjective) means "obstinate" or "unmanageable" and refers to my irresolution caused by the polymorphy of the species.

Gabrius trapezipennis sp.n.

Holotype ♂: "TAIWAN Nantou Hsien Yushan N.P. Mun-Li Cliff 2700 m 13.V.91 A. Smetana [T79]" (CSO).

Paratypes (22 exs.): NANTOU HSIEN: 4 exs.: same data as holotype (CSO); CHIAI HSIEN: 1 ex.: "TAIWAN Chiai Hsien, Yushan N.P. Ta-Ta Ghia 2750 m 27.IV.1990 A. Smetana [T27]" (CSO); 4 exs.: ibidem, 2700 m [T28] (3 CSO, 1 NMW); 4 exs.: ibidem, 18.V.91 [T86] (3 CSO, 1 NMW); PINGTUNG HSIEN: 3 exs.: "TAIWAN, Pingtung Hsien, Peitawushan Kuai-Ku Hut 2130 m 27.IV.1992 A. Smetana [T101]" (CSO); 2 exs.: "TAIWAN, Pingtung Hien, Peitawushan ridge, 2800 - 2910 m 28.IV.1992 A. Smetana [T 105]" (CSO, NMW); 4 exs.: "TAIWAN, Pingtung Hsien, Peitawushan above Kuai-Ku Hut 2680 m, 29.IV.1992 A. Smetana [T106]" (CSO).

Description: 4.9 - 5.0 mm (2.3 - 2.5 mm, abdomen excluded). - Black to dark brown, elytra markedly paler, brownish to reddish testaceous; antennae dark, basal two and outer two segments reddish, segment 3 also to various extent reddish; posterior margins of tergites obscurely reddish-brown; legs pale yellowish-brown, medial faces of hind tibiae infuscate; unwinged.

Head ovoid, 1.05 - 1.09 times as long as wide; tempora slightly widened behind eyes, 2.85 - 3.16 times as long as very small eyes; antennae short, segment 4 about as long as wide, segments 7 - 10 distinctly transverse; pronotum subparallel-sided, sometimes inconspicuously narrowed toward base, 1.23 - 1.27 times as long as wide; dorsal rows each with 6 punctures; head and pronotum with fine and dense microsculpture of rather irregular meshes, on disc of head and along midline of pronotum becoming isodiametrical; elytra very short, markedly widened posteriad, along suture (from basal line of scutellum to sutural angle) markedly shorter than pronotum (ratio about 0.75); punctation moderately dense (punctures separated by about 3 - 5 puncture diameters in transverse direction), fine, but slightly asperate; abdominal tergites rather densely, finely and uniformly punctate; first three visible tergites with two basal lines, elevated area between basal lines moderately densely punctate on third, much less densely on second, with a very few scattered punctures on first visible tergite; surface with microsculpture of fine microstriae; male sternite VIII (Fig. 27) with wide and shallow medio-apical emargination, semi-membranous extension lacking, with row of 3 preapical macrosetae on each side; male sternite IX: Fig. 18; female tergite X: Fig. 36.

Aedeagus (Figs. 9a, b) with very long and slender median lobe, apical portion very long, slightly constricted subapically, flattened and spatula-like widened toward apex, apex acutely pointed; paramere (Fig. 9c) deeply bifurcate, each lobe with 7 peg setae along apical margin, arrangement slightly variable.

Diagnosis: The species is easily recognized among the Taiwan species with short elytra by the very small eyes. It differs from unwinged specimens of *G. contumax* which have similarly small eyes, by the densely punctate elevated areas between the two basal lines on first three visible tergites. Among the remaining Oriental species there is at present no described species with which it could be closely associated.

Distribution: Since the species is flightless, it is most likely endemic to the island of Taiwan, where it is at present known only from three provinces (Pingtung, Chiai, Nantou).

Etymology: The specific name refers to the trapezoid outline of the elytra.

Gabrius calix sp.n.

Holotype ♂: "TAIWAN Nantou Hsien, Hwy. 14 blw. Wushe, 1700 m 21.IV.90 A. Smetana [T15]" (CSO).

Paratypes (63 exs.): ILAN HSIEN: 1 ex.: "TAIWAN Ilan Hsien, Chyr Duan 1100 m 19.IV.90 A. Smetana [T9]" (CSO); 2 exs.: same data as holotype (CSO); TAICHUNG HSIEN: 1 ex.: "TAIWAN Taichung Hsien, Anmashan 2120 m 1.V.1990 A. Smetana [T36]" (CSO); 4 exs.: "TAIWAN Taichung Hsien, Anmashan 2230 m 4.V.1990 A. Smetana [T43]" (CSO); 2 exs.: ibidem, 2150 m, 13.V.1992 [T129] (CSO); 4 exs.: ibidem, 2230 m, 15.V.1992 [T132]" (3 CSO, 1 NMW); NANTOU HSIEN: 2 exs.: "TAIWAN Nantou Hsien, Hwy. 14 Fengnan 700 m 22.IV.90 A. Smetana [T17]" (CSO); 1 ex.: "TAIWAN Nantou Hsien, Shanlinchi 1650 m 16.V.1980 A. Smetana [T60]" (CSO); 3 exs.: "TAIWAN Nantou Hsien, Shanlinchi 1650 m 19.V.1991 A. Smetana [T87]" (2 CSO, 1 NMW); CHIAI HSIEN: 18 exs.: "(FENCHIHU) Chiai - Hsien, FORMOSA Aug. 9th, 1970 Coll. Y. Shibata" (15 CST, 3 NMW); 14 exs.: ibidem, Aug. 10th, 1970 (13 CST, 1 NMW); 1 ex.: ibidem, Aug. 6th, 1976 (CST); 2 exs.: "(Near FENCHIFU) Chiai - Hsien, TAIWAN (1400 m) Mar. 30th, 1982 Y. Shibata leg." (CST); 1 ex.: "(Mt. TADONGSHAN) Chiai - Hsien, TAIWAN (1800 m) July 28th, 1982 Y. Shibata leg." (CST); 1 ex.: ibidem, Aug. 14th, 1983 (CST); 3 exs.: "Fenchifu Taiwan 1.V.1983 T. Ito" (CHK); 1 ex.: ibidem, 4.V.1983 (CHK); 1 ex.: "Mt. Ali Taiwan 18.V.1981 T. Ito" (CHK); PINGTUNG HSIEN: 1 ex.: "Kenting Park Formosa 13.VIII.1969 Y. Maeda" (CHK).

Description: 4.5 - 5.3 mm long (2.3 - 2.6 mm, abdomen excluded). - Black to dark brown, elytra usually markedly paler, brownish-testaceous; tergites black to black-brown, posterior margins narrowly and obscurely reddish testaceous, more brightly on first two visible tergites; antennae dark, basal two segments reddish-brown, last segment frequently to various extent reddish; winged.

Head rounded quadrangular, 1.07 - 1.11 times as long as wide; tempora parallel, 1.2 - 1.38 (male) or about 1.5 (female) times as long as rather large eyes; antennae with segment 4 inconspicuously oblong, segment 5 about as long as wide, segments 8 - 10 markedly transverse, but less than in preceding species; pronotum 1.18 - 1.26 times as long as wide, slightly wider than head, parallel-sided or rarely slightly narrowed toward anterior margin; dorsal rows each with 6 punctures; head and pronotum with dense and fine microsculpture of transverse meshes, meshes becoming almost isodiametrical along midline of head, particularly in frontal depression; elytra of normal length, along suture (from basal line of scutellum to sutural angle) about as long as pronotum; punctation moderately dense, punctures separated by 2 - 4 puncture diameters in transverse direction; pubescence moderately long, grey to golden-grey; abdominal tergites densely and uniformly punctate, pubescence rather long; first three visible tergites with two basal lines, rarely with a weakly pronounced second basal line also on fourth visible tergite; elevated area between basal lines variably punctate, distinct but moderately dense on third, sparse or almost impunctate on second, without or with a very few scattered punctures on first visible tergite; male sternite VIII (Fig. 28) similar to that of *G. trapezipennis*, but with slightly different setation; male sternite IX: Fig. 19; female tergite X: Fig. 37.

Aedeagus (Figs. 10a, b) somewhat similar to that of *G. trapezipennis*, but median lobe not widened subapically; paramere (Fig. 10c) much less deeply bifurcate, of characteristic calyx-shape, lobes very broad, each lobe bearing 9 - 10 peg setae along apical margin, very densely arranged laterally, more sparsely toward medial margin.

Diagnosis: The species may be recognized among the Taiwan species with 6 punctures in the dorsal rows by the large eyes. The only species with similarly large eyes (*G. ancoripenis*) has a markedly shorter head and pronotum.

Distribution: At present, the species is known only from the island of Taiwan.

Etymology: The specific epithet is the Latin noun calix, -icis ("cup", "chalice") in apposition; it refers to the shape of the paramere, its outline resembling a flower calyx or a chalice.

Gabrius eminens sp.n.

Holotype ♂: "TAIWAN Pingtung Hsien, Takuanshan For. 17.IV.90 1650 m A. Smetana [T91]" (CSO).

Paratypes (38 exs.): TAOYUAN HSIEN: 2 exs.: "TAIWAN Taoyuan Hsien, Takuanshan For. 17.IV.90 1650 m A. Smetana [T5]" (CSO); 5 exs.: "Near Mt. LALASHAN Taoyuan - Hsien, TAIWAN (1600 m) March 27th, 1982 Y. Shibata leg." (CST); 1 ex.: ibidem, July 23rd, 1982 (CST); TAICHUNG HSIEN: 1 ex.: "TAIWAN, Taichung Hsien, Anmashan 2230 m, 15.V.92 A. Smetana [T132]" (CSO); NANTOU HSIEN: 1 ex.: "TAIWAN Nantou Hsien, Shanlinchi 1650 m 16.V.1990 A. Smetana [T60]" (CSO); 2 exs.: "TAIWAN, Nantou Hsien Meifeng 2130 m 4.V.1998 A. Smetana [T199]" (NMW); KAOHSIUNG HSIEN: 15 exs.: "TAIW. Kaohsiung Hs. Rd. abv. Tona For. Sta. km 16-17, 1700 - 1800 m 28.IV.1998, A. Smetana [T190]" (12 CSO, 3 NMW); 6 exs.: "TAIW. Kaohsiung Hs. Rd. abv. Tona For. Sta. [Fork] 1850 m, 29.IV.98 A. Smetana [T191]" (CSO); PINGTUNG HSIEN: 5 exs.: same data as holotype (CSO).

Description: 4.9 - 6.2 mm long (2.5 - 2.7 mm, abdomen excluded). - Black to black-brown, elytra usually paler, dark brown to reddish-brown; abdominal tergites dark brown to black, iridescent; posterior margins usually brightly reddish; antennae usually dark with basal two and two outer segments reddish, sometimes entire antennae pale brown with middle segments variably darkened; legs reddish-yellow, medial faces of hind tibiae infuscate, sometimes also medial faces of middle tibiae slightly infuscate; winged.

Head rounded quadrangular, 1.05 - 1.09 times as long as wide; tempora parallel or slightly divergent, 1.88 - 2.06 times as long as eyes; frontal depression shallow; antennae with segment 4 slightly oblong, segments 5 and 6 about as long as wide, segments 7 - 10 slightly transverse; pronotum 1.14 - 1.21 times as long as wide, distinctly wider than head, sides subparallel to slightly convex; dorsal rows each with 6 punctures; head and pronotum with very fine and dense microsculpture of transverse and oblique meshes, meshes somewhat irregular along midline of pronotum, becoming almost isodiametrical in frontal depression; elytra along suture (from basal line of scutellum to sutural angle) slightly shorter than pronotum; punctation fine, moderately dense, punctures separated by 3 - 5 puncture diameters in transverse direction; pubescence moderately long, pale greyish-golden; abdominal tergites finely, uniformly, rather densely punctate; first three or four visible tergites with two basal lines, elevated area between basal lines impunctate on first two visible tergites, with a few scattered punctures or impunctate on third visible tergite; elevated area on fourth visible tergite (if present) also very sparingly punctate; surface of tergites with very dense microstriae, causing strong iridescence; male sternite VIII (Fig. 29) similar to that of *G. trapezipennis*, but preapical row of macrosetae obviously shifted apicad and merged with apical row; male sternite IX: Fig. 20; female tergite X: Fig. 38.

Aedeagus (Figs. 11a, b) very similar to that of *G. kambaitiensis* SCHEERPELTZ, 1965, but apical portion of median lobe with straight sides, apex acutely pointed and more distinctly bent ventrad; paramere (Fig. 11c) almost identical to that of *G. kambaitiensis* but apical row of peg setae not interrupted medially.

Diagnosis: *Gabrius eminens* may be distinguished from the other Taiwan species with impunctate elevated area between two basal lines on first two visible tergites as follows: from *G. calix* by the distinctly smaller eyes, from *G. ancoripenis* by the more oblong and less convex head and pronotum.

Distribution: The species is at present known only from the island of Taiwan, particularly from its southern portion.

Etymology: The specific name (Latin adjective) means "outstanding" and refers to the shape of the aedeagus which is in fact outstanding among the Taiwanese *Gabrius*.

The *Gabrius submetallicus* species group

Gabrius trossuloides (CAMERON, 1933)

Philonthus trossuloides CAMERON, 1933: 389; SCHILLHAMMER 1999.

Type material: see SCHILLHAMMER 2000: 134.

Description (including also specimens from Sumatra): 3.5 - 4.4 mm long (1.95 - 2.4 mm, abdomen excluded). - Head (incl. neck) black; pronotum brown to brownish-testaceous,

always markedly paler than head; elytra dark brown to pale brown; abdominal tergites dark brown to brown, posterior margins usually paler brownish- or reddish-testaceous; antennae black, basal three segments reddish, segment 3 usually a bit darker than segments 1 and 2; legs pale yellowish, medial faces of hind tibiae often with infuscate shade; winged.

Head quadrangular to weakly trapezoid, usually wider than long in both sexes, rarely slightly oblong in females (l/w ratio: 0.87 - 0.91 in males, 0.93 - 1.08 in females); frons distinctly sulcate; tempora parallel or slightly convergent, distinctly longer than eyes (ratio 1.15 - 1.31 in males, 1.05 - 1.11 in females); antennae with segment 4 about as long as wide, subsequent segments increasingly transverse; pronotum 1.14 - 1.23 times as long as wide, subparallel-sided or slightly narrowed toward base, widest in anterior third; dorsal rows each with 6 punctures, but foremost puncture (at anterior margin) markedly finer than discal punctures and often lacking; distance between anterior and second puncture much larger than subsequent interspaces; head and pronotum with fine and dense microsculpture of long meshes, transverse on pronotum, very oblique on head, pointing toward frontal sulcus; elytra along suture about as long as pronotum, finely and moderately densely punctate, punctures separated by 2 - 4 puncture diameters in transverse direction; abdominal tergites rather finely and densely punctate, punctation uniform in basal two thirds of each tergite, becoming slightly sparser toward posterior margin; first four visible tergites with two basal lines, elevated area between basal lines usually impunctate; surface of tergites with dense and pronounced microsculpture of transverse microstriae, causing slight iridescence; male sternite VIII: Fig. 30.

Aedeagus: Fig. 12a; apical portion of median lobe weakly sclerotized, thus slightly variable in shape; paramere (Fig. 12c) with entire, rounded apex, with two peg-setae close to apical margin and two groups (each with 4 setae) of long usual setae.

Diagnosis: *Gabrius trossuloides* may be easily recognized among the Taiwan species by the characteristic coloration and the sulcate head.

Additional material examined: T A I W A N: CHIAI HSIEN: Fenchihu, 1400 m, 8.V.1977, leg. J. & S. Klapperich (CNC); near Mt. Fenchihu, 9.VIII.1974, 13.VIII.1983, leg. Y. Shibata (CST); TAITUNG HSIEN: Hsinkangshan above Chengkung, 850 m, 26.IV.1995, leg. A. Smetana [T166, T167] (CSO, NMW); PINGTUNG HSIEN: Kenting Park, 13.III., 7.IV.1970, leg. T. Kobayashi (CHK, NMW).

Distribution: The species is at present known from the type locality in western Sumatra and from the southern portion of Taiwan.

species incertae sedis

Gabrius sp. (island groups sensu SCHILLHAMMER 1997)

Six specimens in the material I studied are represented only by females; they are neither named or described. From their appearance and the measurements, they most certainly represent two different, closely related species. Externally, they are very similar to *G. viduus* (CAMERON) from Borneo.

Material examined: CHIAI HSIEN: 1 ex.: "Mt. Ali Formosa 23.VII.1970 T. Kobayashi" (CHK); 1 ex.: "TAIWAN Chiai Hsien, Tjuchung 2200 m 27.IV.1990 A. Smetana [T26]" (CSO); HUALIEN HSIEN: 1 ex.: "TAIWAN Hualien Hsien, Taroko N.P. Nanhushi Hut 2220 m 8.V.1990 A Smetana [T48]" (CSO); 3 exs.: ibidem, but 12.V.1990 [T54] (CSO).

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CABELA A., GRILLITSCH H. & TIEDEMANN F., 2001

Atlas zur Verbreitung und Ökologie der Amphibien und Reptilien in Österreich: Auswertung der Herpetofaunistischen Datenbank der Herpetologischen Sammlung des Naturhistorischen Museums in Wien.

Umweltbundesamt, Wien: 880 pp. (Preis ATS 920,– / € 66,86)

Reptilien und Amphibien sind in Österreich mit rund drei Dutzend Arten vertreten. Die Verbreitung, Systematik und Ökologie dieser Tiergruppen werden in der 880 Seiten starken Publikation, deren Herausgeber das Bundesumweltamt ist, eindrucksvoll und voller Details dargestellt. Trotz des Umfangs der Publikation haben die Autoren – Herpetologen des Naturhistorischen Museums - auf allgemeine biologische Angaben zur Ernährung, Fortpflanzung, Überwinterung et cetera, verzichtet. Ebenso wird auf morphologische Beschreibung verzichtet. Diese Aspekte werden Lehr- und Bestimmungsbüchern überlassen. Ausnahme machen die Schlüssel zur Bestimmung von Laich und Larven der Amphibien. Die Adulti der einzelnen Arten sind in hervorragender Bildqualität dargestellt. Neben der allgemeinen Verbreitung der einzelnen Arten und deren Vorkommen in Österreich werden in sehr sachlicher Weise die Lebensräume beschrieben und die Ansprüche der einzelnen Arten eingegrenzt. Nicht erhobene Zeigefinger sondern penibel erhobene Daten führen den Nutzer dieses Buches zu seinen Schlußfolgerungen. Das Thema Schutz und Gefährdung ist in zwei Kapiteln abgehandelt und die befassen sich sowohl mit Ursachenanalysen und Maßnahmenvorschlägen, als auch mit modernen Ansätzen der Populationsbiologie und Genetik. Und auch auf die rechtliche Seite wird nicht vergessen. Der "Atlas zur Verbreitung der Amphibien und Reptilien in Österreich" ist in erster Linie als Grundlage für Natur- und Umweltschutz gedacht.

Dass Habitatpräferenzen, Art und Ausmaß der Vergesellschaftung mit anderen Arten und die Phänologie sowohl textlich als auch anhand anschaulicher Grafiken dargestellt sind, erleichtert ein übersichtliches Nachschlagen und Vergleichen bei den einzelnen Arten. Von unschätzbaren Wert ist die Zusammenstellung der Literatur, wenngleich die Zitierung bei den einzelnen Arten nicht immer vollständig ist. Aber bei der riesigen Menge verarbeiteter Daten muß man die eine oder andere Ungenauigkeit wohl als in der Natur der Sache liegend hinnehmen. Als Mangel erscheint auch das Fehlen eines Inhaltsverzeichnisses, der allerdings durch die klare Strukturierung und die detaillierte Inhaltsübersicht fast wettgemacht wird. Schwerpunkte der Publikation sind zweifellos der Atlas, die Angaben zu Verbreitung und Ökologie. Breiter Raum ist aber auch der Methodik der Datenerhebung und der Einschätzung der Lebensräume gewidmet. In sehr positiver Weise ergänzt werden diese Informationen durch Kapitel kompetenter Autoren zur Paläontologie und Archäologie der betreffenden Tiergruppen. Alles in allem ist dieser Atlas ein umfassendes, ehrliches Buch, dass sicher als Standardwerk anzusehen ist.

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