

Linzer biol. Beitr.	46/1	499-514	31.7.2014
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## **On *Domene scabripennis* ROUGEMONT and its close relatives (Coleoptera: Staphylinidae: Paederinae)**

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**Abstract:** Five species of *Domene* FAUVEL 1873, tentatively attributed to the subgenus *Macromene* COIFFAIT 1982, from the East Palaearctic and the northern Oriental regions are (re-) described and illustrated: *D. scabripennis* ROUGEMONT 1995 (Taiwan), *D. alesiana* nov.sp. (Taiwan), *D. immarginata* nov.sp. (China: Yunnan), *D. sagittata* nov.sp. (North Vietnam), and *D. firmicornis* nov.sp. (China: Zhejiang). These species are assigned to the newly established *D. scabripennis* group. The placement of *D. firmicornis* in this group, however, is doubtful and requires confirmation. A key to species is provided. Their distributions are mapped.

**Key words:** Coleoptera, Staphylinidae, Paederinae, *Domene*, Palaearctic region, Oriental region, Taiwan, China, Vietnam, new species, key to species, distribution map.

### **Introduction**

The distribution of the paederine genus *Domene* FAUVEL 1873 ranges across the south of the Palaearctic region sensu SMETANA (2004) and reaches into the northern parts of the Oriental region. According to SMETANA (2004) and an update of this catalogue (SCHÜLKE unpubl.), the genus is currently represented in the Palaearctic region by 52 valid species in six subgenera: the nominate subgenus (19 species distributed in the West Palaearctic); *Canariomene* OROMÍ & HERNÁNDEZ 1986 (five species confined to the Canary Islands); *Lathromene* KOCH 1938 (ten species distributed in the West Mediterranean); *Spelaomene* ESPAÑOL 1977 (four hypogean species from Morocco); *Neodomene* BLACKWELDER 1939 (one species from North India of doubtful generic assignment); *Macromene* COIFFAIT 1982 (ten species distributed in the East Palaearctic). Three species (two of them West Palaearctic and one East Palaearctic) are listed as incertae sedis. A comprehensive phylogenetic analysis of the genus is wanting, but preliminary morphological studies and zoogeographic evidence suggest that the subgeneric concept currently in use is highly artificial. Taxa such as *Canariomene* and *Spelaomene*, for instance, are mainly constituted by characters associated with adaptations to a hypogean habitat. In view of the unresolved phylogenetics and the resulting unsatisfactory subgeneric concept, the two West Palaearctic species listed as incertae sedis, *D. giachinoi* ASSING 2007 from Greece and *D. miranda* ASSING 2010 from Turkey, were not assigned to any subgenus, although they are undoubtedly most closely related to species that have been attributed to the nominate subgenus (ASSING 2007, 2010).

A preliminary revision (FELDMANN in prep.) of East Palaearctic material, including

types, suggests that the *Domene* fauna in this region is represented by a considerable number of undescribed species, a conclusion already pointed out by ROUGEMONT (1995), who described *D. scabripennis*, the sole previously known representative of the genus in Taiwan.

The present contribution is the first part of a sequence of studies of the second author, aiming at a revision of *Domene* in the East Palaearctic region, and focuses on *D. scabripennis* and several evidently closely related species.

### Material and methods

The material treated in this paper is deposited in the following public and private collections:

- NHMB ..... Naturhistorisches Museum Basel (M. Geiser, I. Zürcher)  
 cAss..... author's private collection  
 cFel ..... private collection Benedikt Feldmann, Münster  
 cRou..... private collection Guillaume de Rougemont, Oxford  
 cSch..... private collection Michael Schülke, Berlin  
 cSme..... private collection Aleš Smetana, Ottawa

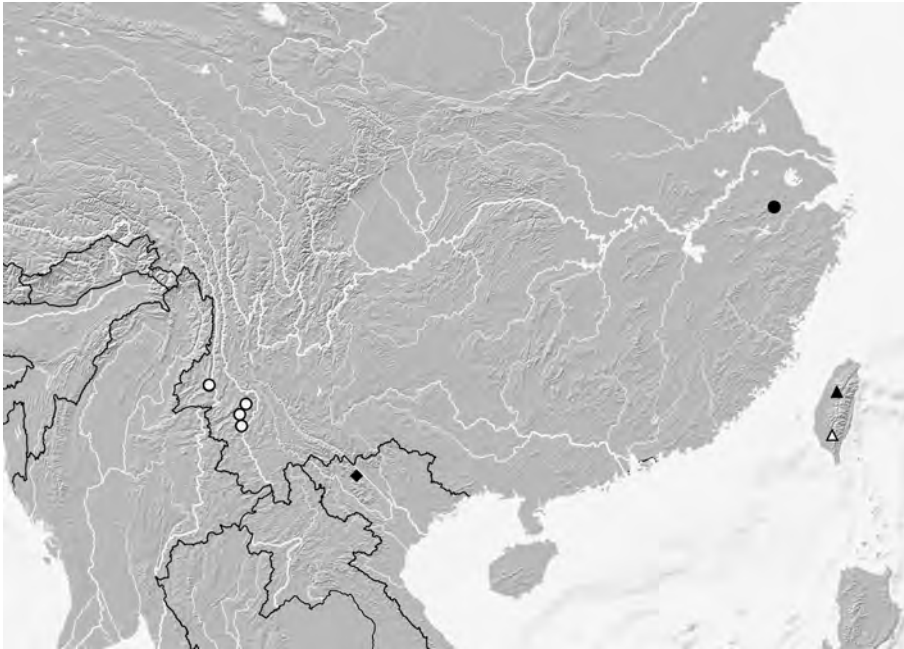
The morphological studies were conducted using a Stemi SV 11 microscope (Zeiss Germany) and a Jenalab compound microscope (Carl Zeiss Jena). A digital camera (Nikon Coolpix 995) was used for the photographs. The map was created using MapCreator 2.0 (primap) software.

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

### The species of the *Domene scabripennis* group

The species allied to *D. scabripennis* are distinguished from other species currently assigned to *Macromene* by the following character combination: head and pronotum with coarse punctation; pronotum large and relatively weakly oblong; protarsomeres I-IV weakly dilated in both sexes; elytra with rough surface, with coarsely coriaceous and irregular macropunctation, with additional micropunctation, with more or less pronounced longitudinal elevations, and with more or less pronounced impressions; male sternite VII without strongly modified short and stout black setae; sternite VIII mostly without, only exceptionally with, strongly modified setae, on either side of the moderately deep and V-shaped posterior excision with a cluster of dense thin setae; ventral process of aedeagus conspicuously slender, more or less spine-shaped.

The species group currently includes five described and one undescribed species distributed in southern and eastern China, in Taiwan, and in Vietnam (Map 1). The placement of one of the species, *D. firmicornis*, in the *D. scabripennis* group is tentative; for details see the comparative notes in the section on *D. firmicornis*.



**Map 1:** Distributions of the species of the *Domene scabripennis* group: *D. immarginata* (white circles), *D. sagittata* (black diamond), *D. scabripennis* (black triangle), *D. alesiana* (white triangle), and *D. firmicornis* (black circle).

***Domene scabripennis* (ROUGEMONT 1995) (Figs 1-8, Map 1)**

*Domene scabripennis* ROUGEMONT 1995: 136.

Type material examined: **Paratypes:** 1♂: "TAIWAN Taichung Hsien, Anmashan, 2230 m 30.IV.-4.V.90, A. Smetana [T32] / *Domene scabripennis* n. sp., det. 1992, G. de Rougemont / Rougemont collection" (cRou); 1♂: "TAIWAN Taichung Hsien, Anmashan, 2230 m 4.V.90, A. Smetana [T43] / Paratype / *Domene scabripennis* n. sp., det. 1992, G. de Rougemont" (cAss).

**Comment:** The original description is based on eight type specimens from "Taichung Hsien, Anmashan, 2230 m" (ROUGEMONT 1995).

**Additional material examined:** **Taiwan:** 8♂♂: Taichung Hsien, Anmashan, 2230 m, 11.-15.V.1992, leg. Smetana [T124] (cSme, cAss); 2♀♀, same data, but 12.V.1992 [T127] (cSme, cAss); 5♂♂, 2♀♀, same data, but 2225 m [T122] (cSme, cAss); 2♀♀, same data, but 11.V.1992 [T123] (cSme); 4♂♂, same data, but 14.V.1992 [T130] (cSme, cAss); 1♀, same data, but 2150 m, 13.V.1992 [T129] (cSme).

**Redescription:** Body length 9.0-10.0 mm; length of forebody 5.1-5.8 mm. Habitus as in Fig. 1. Coloration: body blackish-brown; legs yellowish-brown to reddish, with the profemora and protibiae occasionally somewhat darker brown; antennae brown to dark-brown.

Head (Fig. 2) approximately as broad as long, broadest across eyes, convexly tapering posteriad behind eyes; punctation (Fig. 3) rather coarse, distinctly umbilicate, and very dense, interstices forming narrow ridges. Antenna 3.8-4.0 mm long; antennomere X nearly twice as long as broad.

Pronotum (Fig. 2) short, 1.13 times as long as broad and 0.97-0.98 times as broad as head, widest at anterior angles and distinctly tapering posteriorly; lateral margins convex in dorsal view; punctation (Fig. 4) similar to that of head; midline with or without rudiment of narrow glossy band in posterior half.

Elytra (Fig. 2) approximately 0.8 times as long as pronotum, each elytron with indistinct three irregular longitudinal, narrowly elevated ridges; suture weakly elevated; macro-punctuation coarse and partly somewhat seriate (Fig. 5); interstices with irregular micro-punctuation, otherwise not microsculptured. Hind wings apparently reduced. Protarsomeres I-IV rather weakly dilated.

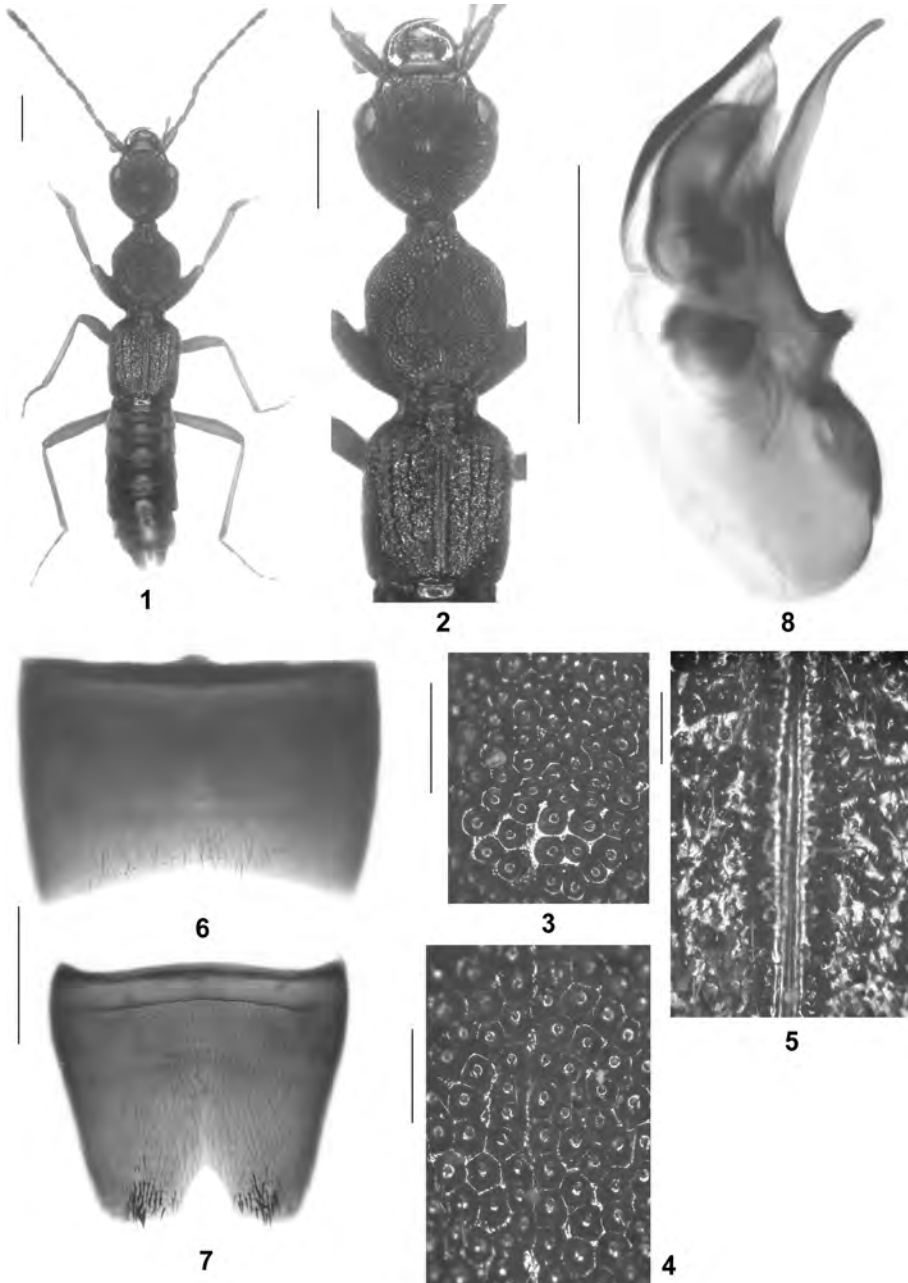
Abdomen nearly as broad as elytra; anterior impressions of tergites III-VI not very coarsely sculptured; punctation extremely fine and extremely dense on tergites III-VII, even finer, but slightly less dense on tergite VIII; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe; tergite VIII with convex posterior margin.

♂: tergite VIII with weakly convex posterior margin; sternite VII (Fig. 6) with short unmodified pubescence, posterior margin broadly concave; sternite VIII (Fig. 7) with shallow median depression, this depression with unmodified pubescence, on either side of the posterior excision with cluster of short dark setae; aedeagus (Fig. 8) approximately 1.15 mm long; ventral process very slender and weakly curved in lateral view; dorsal plate lamellate and moderately sclerotized, with long apical and very short, weakly sclerotized basal portion; internal sac with pair of hook-shaped sclerotized sclerites.

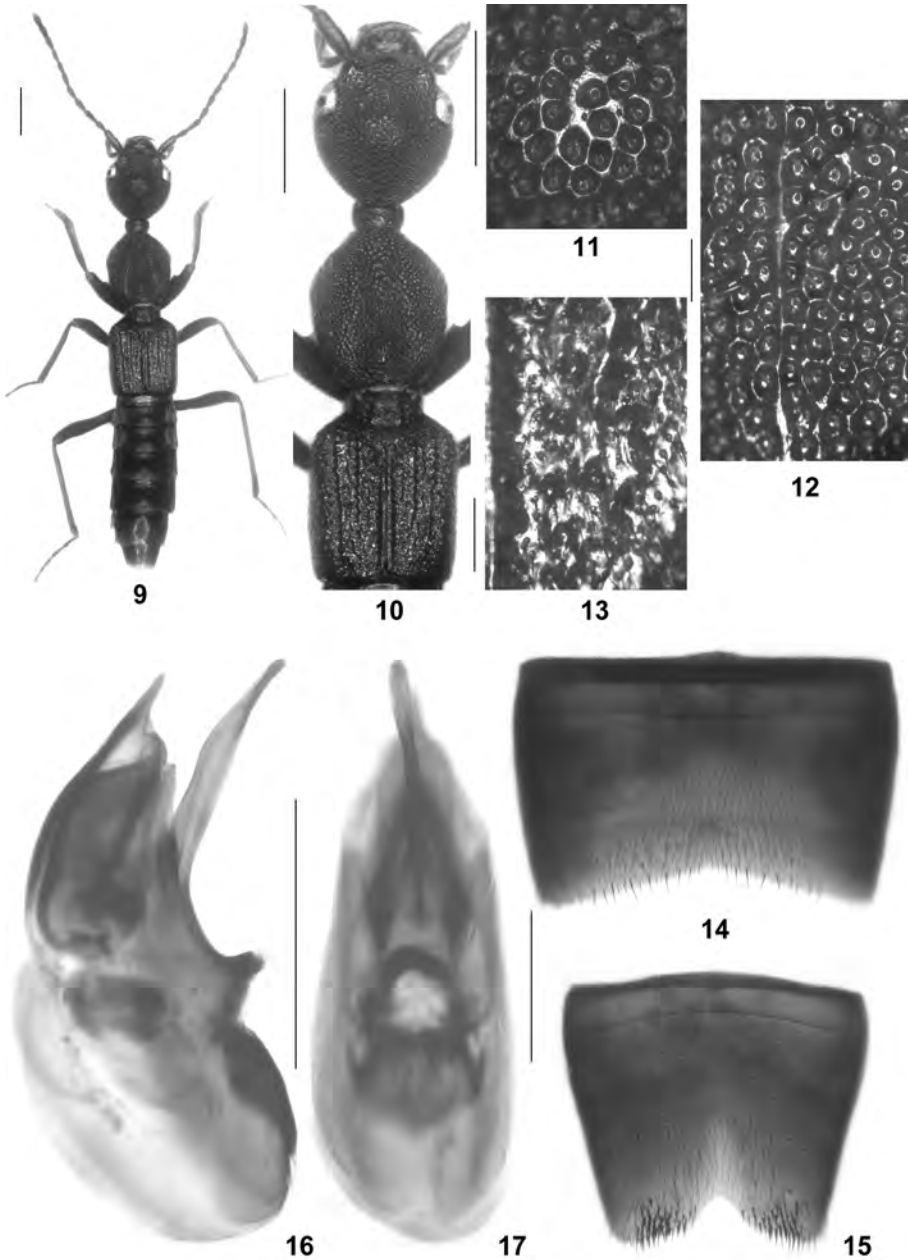
♀: tergite VIII with truncate posterior margin; sternite VIII weakly transverse, posterior margin convex, in the middle weakly concave; tergite IX undivided in the middle and with short postero-lateral processes; tergite X of ovoid shape, distinctly longer than antero-median portion of tergite IX.

**Comparative notes:** This species is distinguished from other representatives of the *D. scabripennis* group, by the shape and chaetotaxy of the male sternite VIII, as well as by the shape of the ventral process of the aedeagus. For details regarding characters separating it from *D. alesiana*, its closest relative, see the comparative notes in the following section.

**Distribution:** The known distribution is confined to the Anmashan, Taichung Hsien, Taiwan (Map 1). The type specimens were collected with pitfall traps baited with chicken droppings in a broadleaved evergreen forest. The additional material was partly collected with yellow pan traps set in a primary mixed forest with numerous large dead trees and a lot of dead wood on the forest floor [T122] and in an old broadleaved forest [T124]. The remaining specimens were sifted from leaf litter, rotting twigs, and other debris around trunks of large dead trees in an old broadleaved forest [T127], from leaf litter and fermenting covers of tree buds accumulated along a forest road after heavy rains [T129], and from leaf litter, various debris, and rotting wood in a mature mixed forest with numerous old dead trees [T130] (SMETANA pers. comm.). The altitudes range from 2150 to 2230 m.



**Figs 1-8:** *Domene scabripennis* ROUGEMONT (paratype): (1) habitus; (2) forebody; (3) median dorsal portion of head; (4) median portion of pronotum; (5) sutural portion of elytra; (6) male sternite VII; (7) male sternite VIII; (8) aedeagus in lateral view. Scale bars: 1-2: 1.0 mm; 6-8: 0.5 mm; 3-5: 0.2 mm.



**Figs 9-17:** *Domene alesiana* nov.sp.: (9) habitus; (10) forebody; (11) median dorsal portion of head; (12) median portion of pronotum; (13) disc of right elytron; (14) male sternite VII; (15) male sternite VIII; (16-17) aedeagus in lateral and in ventral view. Scale bars: 9-10: 1.0 mm; 14-17: 0.5 mm; 11-13: 0.2 mm.

***Domene alesiana* nov.sp.** (Figs 9-17, Map 1)

**Type material:** Holotype ♂: "TAIW. Kaohsiung Hs., Rd. abv. Tona For. Sta., [Fork] 1850 m, 29.IV.98, A. Smetana [T191] / Holotypus ♂ *Domene alesiana* sp. n., det. V. Assing 2013" (cSme). **Paratypes:** 1 ♂: same data as holotype (cAss); 1 ♀ [damaged: two legs missing; abdomen partly eaten by *Anthrenus* sp.]: "TAIW. Kaohsiung Hs., Rd. abv. Tona For. Sta., km 16-17, 1700-1800 m, 28.IV.98, A. Smetana [T190]" (cAss).

**Etymology:** This species is dedicated to Aleš Smetana (Ottawa), who collected the type material and who, through numerous field trips and publications, significantly contributed to our current knowledge of the staphylinid fauna of Taiwan.

**Description:** Body length 9.2-10.3 mm; length of forebody 5.4-5.9 mm. Antenna 3.5-3.7 mm long. Habitus as in Fig. 9. Coloration: body blackish; legs blackish-brown with paler tarsi; antennae dark-brown to blackish-brown, with antennomere I blackish. Other external characters (Figs 10-13) as in *D. scabripennis*.

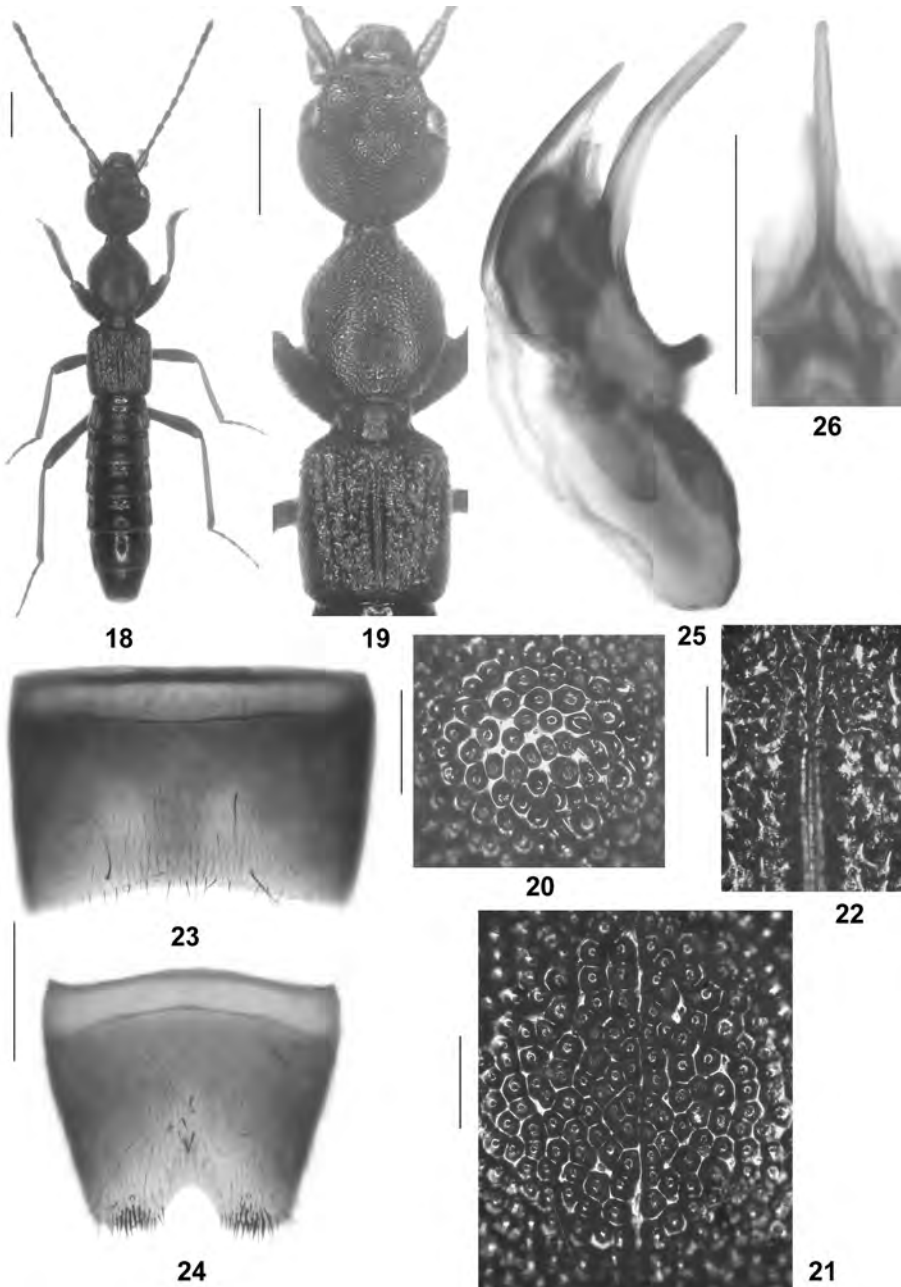
♂: sternite VII (Fig. 14) strongly transverse, with short unmodified pubescence, posterior margin broadly concave; sternite VIII (Fig. 15) transverse, with shallow median depression, this depression with unmodified pubescence, posterior excision not very deep and rather broad, on either side of this excision with cluster of short black setae; aedeagus (Figs 16-17) approximately 1.1 mm long; ventral process very slender and nearly straight in lateral view; dorsal plate lamellate and moderately sclerotized, with long apical and very short, weakly sclerotized basal portion.

**Comparative notes:** Based on the similar external characters, the similar modifications of the male sternites VII and VIII, as well as on the similar morphology of the aedeagus, *D. alesiana* is undoubtedly most closely related to *D. scabripennis*, from which it differs particularly by the distinctly darker coloration of the legs, the shallower and broader posterior excision of the male sternite VIII, as well as by the slightly different shape of the ventral process of the aedeagus.

**Distribution:** The known distribution is confined to the environs of Tona Forest Station, Kaohsiung Hsien, southern Taiwan (Map 1). The type specimens were sifted from debris and mouldy leaf litter at bases of rock walls and along a large rotting tree in remnants of primary broadleaved forest (SMETANA pers. comm.) at altitudes between approximately 1750 and 1850 m.

***Domene immarginata* nov.sp.** (Figs 18-26, 35, 44, Map 1)

**Type material:** Holotype ♂: "CHINA: Yunnan, Lincang Pref., Bangma Shan, 20 km NW Lincang, 2210 m, 23°58'25"N, 99°54'36"E, water reservoir, devast. forest with ferns, litter & ferns sifted, reservoir bank, 9.IX.2009, leg. M. Schülke [CH09-37] / Holotypus ♂ *Domene immarginata* sp.n., det. V. Assing 2013" (cAss). **Paratypes** [see also [Addendum](#)]: 1 ♂, 3 ♀ [3 teneral]: same data as holotype (cSch); 2 ♂ [1 slightly teneral], 1 ♀: "CHINA: Yunnan, Lincang Pref., Bang-ma Shan, 33 km SSW Lincang, 2150 m, 23°35'41"N, 100°00'27"E, decid. forest remnant, N-slope, litter and dead wood sifted, 11.IX.2009, leg. M. Schülke [CH09-42]" (cSch, cAss); 2 ♀ [1 teneral]: same data, but leg. Wrase (cSch); 1 ♂, 1 ♀: "CHINA: Yunnan, Lincang Pref., Xue Shan, 48 km N Lincang, 2070 m, 24°19'03"N, 100°07'13"E, forest remnant, N-slope, litter & mushrooms sifted, 12.IX.2009, leg. M. Schülke [CH09-45]" (cSch, cFel); 1 ♀: "CHINA: Yunnan, Baoshan Pref., Gaoligong Shan, W pass 35 km SE Tengchong, 2100 m, 24°50'18"N, 98°45'43"E, devast. prim. dec. forest, litter, wood, mushrooms sifted, 25.VIII.2009, leg. M. Schülke [CH09-06]" (cAss); 1 ♀: "CHINA: Yunnan, Baoshan Pref., Gaoligong Shan, 33 km SE Tengchong, 2150 m, 24°51'22"N, 98°45'36"E, devast. primery [sic] deciduous forest, litter, wood, mushrooms sifted, 28.VIII.2009, leg. M. Schülke [CH09-08a]" (cAss).



**Figs 18-26:** *Domene immarginata* nov.sp.: (18) habitus; (19) forebody; (20) median dorsal portion of head; (21) median portion of pronotum; (22) anterior sutural portion of elytra; (23) male sternite VII; (24) male sternite VIII; (25) aedeagus in lateral view; (26) apical portion of aedeagus in ventral view. Scale bars: 18-19: 1.0 mm; 23-26: 0.5 mm; 20-22: 0.2 mm.



**E t y m o l o g y :** The specific epithet is composed of the Latin prefix im- and the past participle of the Latin verb marginare (to seam, to border); it alludes to the absence of a palisade fringe at the posterior margin of the abdominal tergite VII.

**D e s c r i p t i o n :** Body length 9.0-11.0 mm; length of forebody 5.2-6.2 mm. Habitus as in Fig. 18. Coloration: body blackish; legs brown, with the profemora and the apical halves of the meso- and metafemora blackish-brown to blackish; antennae dark-brown, with antennomere I usually somewhat darker.

Head (Fig. 19) 1.00-1.03 times as long as broad, widest behind eyes; punctation (Fig. 20) moderately coarse, distinctly umbilicate, and very dense, interstices forming narrow ridges. Antenna 3.9-4.0 mm long; antennomere X nearly twice as long as broad.

Pronotum (Fig. 19) approximately 1.2 times as long as broad and 1.06-1.08 times as broad as head, widest at anterior angles and distinctly tapering posteriad; lateral margins convex in dorsal view; punctation (Fig. 21) similar to that of head or slightly coarser; midline with or without narrow rudiments of a glossy line.

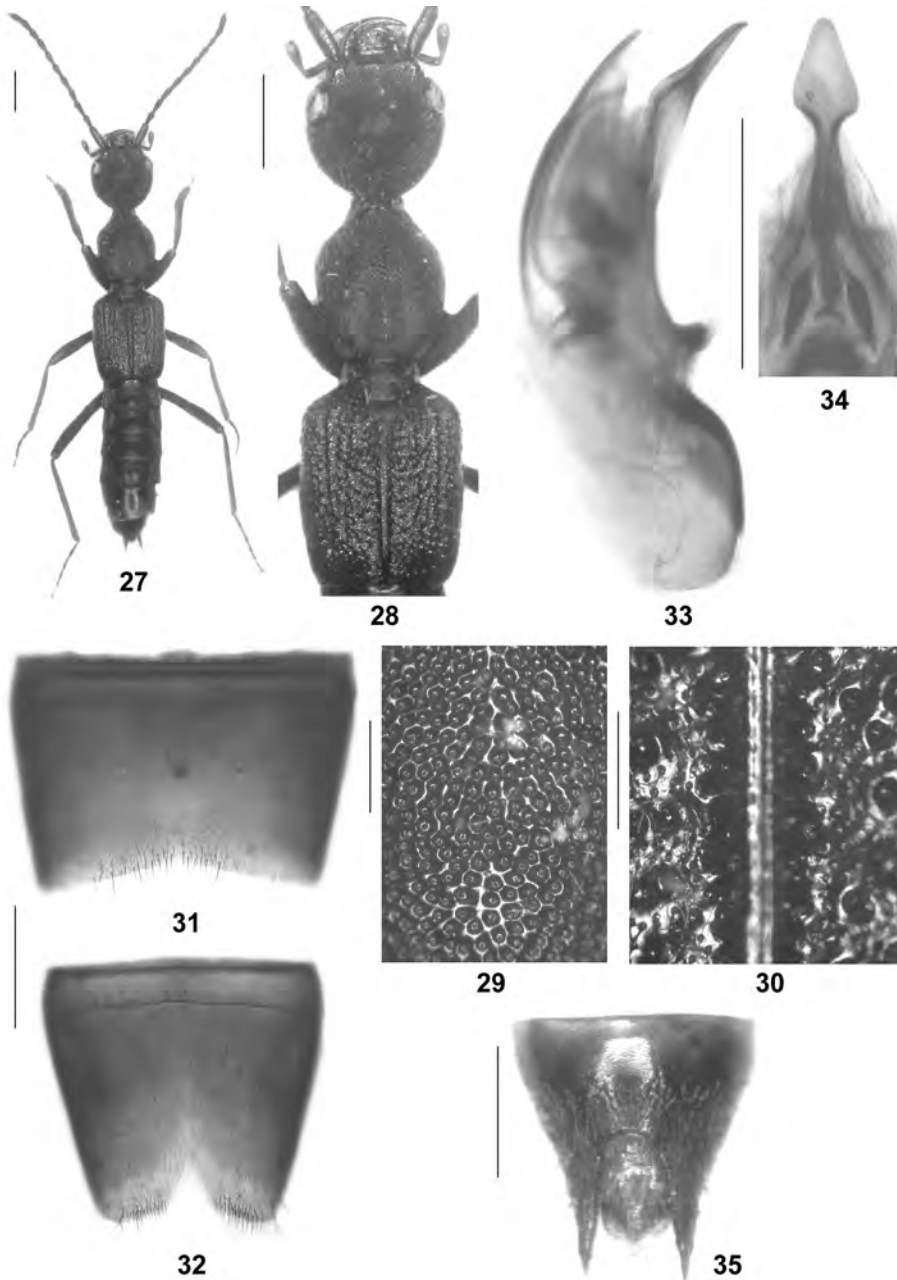
Elytra (Fig. 19) approximately 0.75 times as long as pronotum, each elytron with 2-3 more or less distinct and more or less irregular longitudinal narrowly elevated ridges; disc often more or less distinctly impressed; suture elevated in posterior two thirds; macropunctation (Fig. 22) coarse, irregular, partly confluent, and partly somewhat seriate; interstices with irregular micropunctation, otherwise not microsculptured. Hind wings reduced. Protarsomeres I-IV rather weakly dilated in both sexes.

Abdomen approximately as broad as elytra; punctation extremely fine and dense on tergites III-VI, even finer, but somewhat less dense on tergite VIII; interstices with distinct microreticulation; posterior margin of tergite VII without palisade fringe; tergite VIII with convex posterior margin.

♂: sternite VII (Fig. 23) with unmodified pubescence; sternite VIII (Fig. 24) with narrow and shallow postero-median impression, this impression with few scattered modified, rather short and stout black setae, on either side of posterior excision with cluster of short dark setae; aedeagus (Figs 25-26) approximately 1.15 mm long; ventral process very slender and distinctly curved in lateral view; dorsal plate lamellate and moderately sclerotized, with long apical and very short, weakly sclerotized basal portion.

♀: tergites IX-X and sternite VIII as in Figs 35, 44.

**C o m p a r a t i v e n o t e s :** As can be inferred from the similar external morphology (especially the sculpture of the elytra) and particularly from the similar modifications of the male sternite VIII (distinct cluster of modified setae on either side of the posterior excision) and the similarly derived morphology of the aedeagus (ventral process very slender), *D. immarginata* is most closely related to the species pair *D. scabripennis* + *D. alesiana*, from which it differs by the shape of the head (widest behind eyes), the less coarse punctation of head and pronotum, the more oblong and more slender (in relation to head) pronotum, the absence of a palisade fringe at the posterior margin of the abdominal tergite VII, the shape and chaetotaxy of the male sternite VIII (with more distinct median depression with modified pubescence; shape of posterior excision), as well as by the shape of the ventral process and by the absence of sclerotized spines in the internal sac of the aedeagus. It additionally differs from *D. scabripennis* by the distinctly darker coloration of the legs.



**Figs 27-35:** *Domene sagittata* nov.sp. (27-34) and *D. immarginata* nov.sp. (35): (27) habitus; (28) forebody; (29) median dorsal portion of head; (30) sutural portion of elytra; (31) male sternite VII; (32) male sternite VIII; (33) aedeagus in lateral view; (34) apical portion of aedeagus in ventral view; (35) female tergites IX-X. Scale bars: 27-28: 1.0 mm; 31-35: 0.5 mm; 29-30: 0.2 mm.

**Distribution and natural history:** The distribution is confined to several localities in the Bangma Shan, the Xue Shan (to the north of Lincang), and the Gaoligong Shan in western Yunnan, China (Map 1). The specimens were sifted from forest leaf litter at altitudes of 2070-2210 m. Some of them are more or less distinctly general.

***Domene sagittata* nov.sp.** (Figs 27-34, Map 1)

**Type material:** Holotype ♂: "VIETNAM Lao Cai, ca 40 km SE Sapa, 1400 m, 15-16.II.05, G. de Rougemont leg. / Holotypus ♂ *Domene sagittata* sp.n., det. V. Assing 2013" (cRou).

**Etymology:** The specific epithet is an adjective derived from the Latin noun *sagitta* (arrow) and refers to the shape of the ventral process of the aedeagus (ventral view), which somewhat resembles an arrowhead.

**Description:** Body length 10.5 mm; length of forebody 6.0 mm. Habitus as in Fig. 27. Coloration: body black; legs blackish, with slightly paler tarsi; antennae blackish-brown.

Head (Fig. 28) approximately as long as broad, widest across eyes, and convexly tapering behind eyes in dorsal view; frons somewhat domed and glossy in the middle; punctation (Fig. 29) relatively fine, weakly umbilicate, and very dense, interstices forming narrow ridges. Antenna 3.9 mm long; antennomere X nearly twice as long as broad.

Pronotum (Fig. 28) 1.23 times as long as broad and approximately 0.9 times as broad as head, widest at anterior angles and distinctly tapering posteriad; lateral margins nearly straight in the middle in dorsal view; punctation similar to that of head; midline with rudiment of a fine glossy line.

Elytra (Fig. 28) long, approximately as long as pronotum, each elytron with irregular longitudinal, narrowly elevated ridges; suture elevated in posterior three fourths; macropunctation (Fig. 30) moderately coarse and partly somewhat seriate; interstices with irregular micropunctation, otherwise not microsculptured. Hind wings probably present. Protarsomeres I-IV rather weakly dilated.

Abdomen distinctly narrower than elytra; anterior impressions of tergites III-VI not very coarsely sculptured; punctation extremely fine and extremely dense on tergites III-VIII; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe; tergite VIII with convex posterior margin.

♂: sternite VII (Fig. 31) with weakly modified pubescence, in postero-median portion with some darker setae; sternite VIII (Fig. 32) with shallow median impression with unmodified pubescence and with rather shallow posterior excision, on either side of posterior excision with cluster of short dark setae; aedeagus (Figs 33-34) approximately 1.15 mm long; ventral process slender and weakly curved in lateral view, and somewhat shaped like an arrowhead in ventral view; dorsal plate lamellate and moderately sclerotized, with long apical and practically obsolete basal portion.

♀: unknown

**Comparative notes:** The similar chaetotaxy of the male sternite VIII and the slender ventral process of the aedeagus suggest that *D. sagittata* is closely related to the lineage *D. immarginata* + (*D. scabripennis* + *D. alesiana*). It is readily distinguished

from these species by the finer punctation of the head and the pronotum, the different shape of the frons, the much longer elytra, the shallower posterior excision of the male sternite VIII, and by the different shape of the ventral process of the aedeagus.

**Distribution and natural history:** The type locality is situated in North Vietnam (Map 1), not far from the border with Yunnan, to the southeast of Sapa [= Sa Pa]. The holotype was collected at an altitude of 1400 m.

***Domene firmicornis* nov.sp.** (Figs 36-43, Map 1)

**Type material:** Holotype ♂: "CHINA: Zhejiang Prov., Lin'an County, 700 m., W. Tianmu Shan N.R., 16.V.1996 J. Cooter / Holotypus ♂ *Domene firmicornis* sp.n., det. V. Assing 2013" (cRou). Paratypes: see Addendum.

**Etymology:** The specific epithet (Latin, adjective) alludes to the relatively massive antennae, one of the characters distinguishing this species from its closest relatives.

**Description:** Body length 12.0 mm; length of forebody 6.6 mm. Coloration: body black; legs, except for the slightly paler tarsi and antennae blackish.

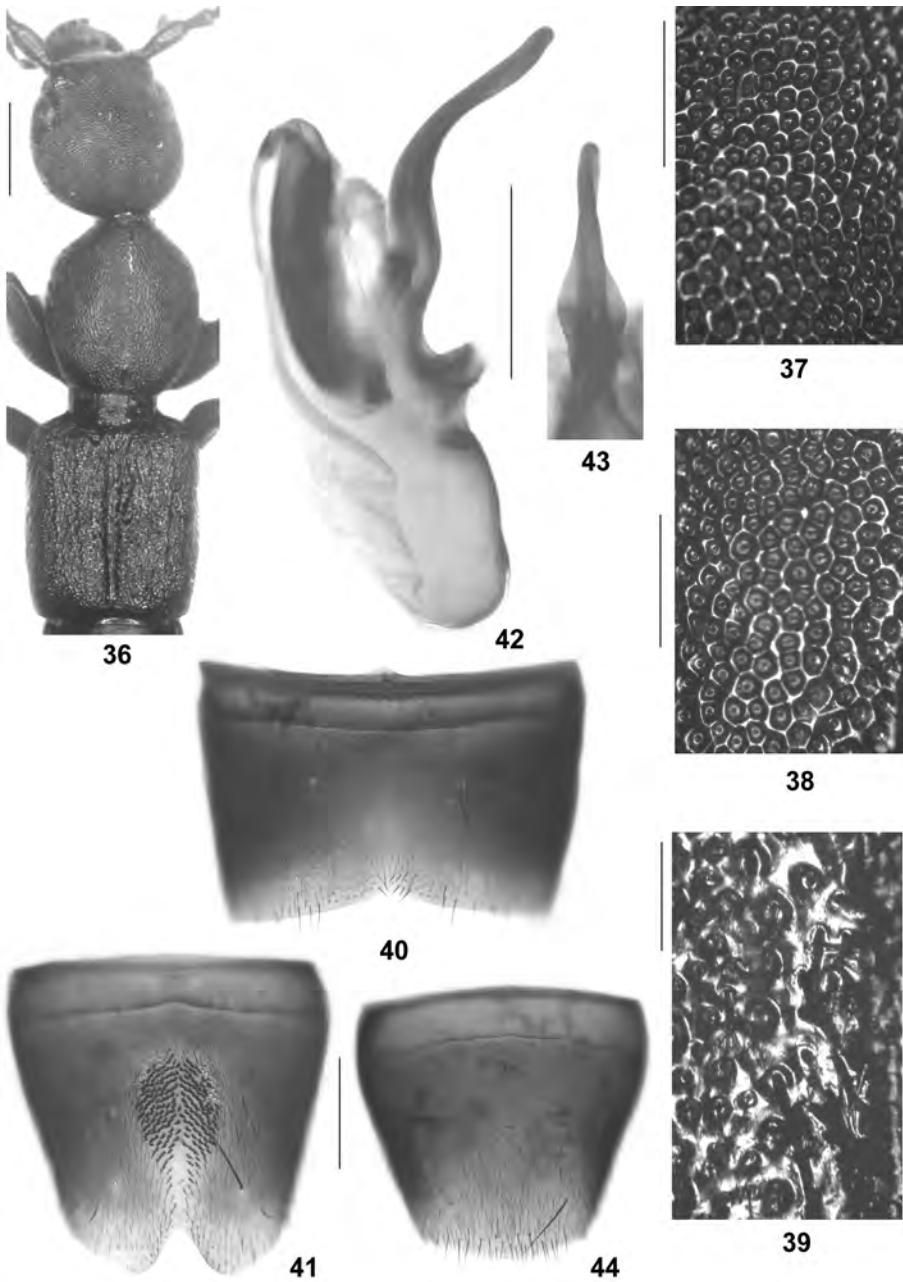
Head (Fig. 36) nearly as broad as long, somewhat flattened, of subcircular shape, widest behind eyes; lateral margins behind eyes broadly convex in dorsal view; frons anteriorly straight and glossy; punctation (Fig. 37) moderately coarse, umbilicate, and very dense, interstices forming narrow ridges. Antenna 4.1 mm long; antennomere X barely 1.5 times as long as broad.

Pronotum (Fig. 36) short and broad, 1.11 times as long as broad and 0.95 times as broad as head; 1.23 times as long as broad and approximately 0.9 times as broad as head, widest in the middle; lateral margins convex in dorsal view; punctation (Fig. 38) similar to that of head; midline with rudiments of a fine glossy line anteriorly and posteriorly.

Elytra (Fig. 36) 0.9 times as long as pronotum, without distinct longitudinal ridges, somewhat impressed on either side of anterior half of suture; suture elevated in posterior three fourths; macropunctation (Fig. 39) irregular, composed of a mix of coarser and less coarse punctures. Hind wings not examined. Protarsomeres I-IV distinctly dilated.

Abdomen slightly narrower than elytra; anterior impressions of tergites III-VI distinctly sculptured; punctation extremely fine and extremely dense on tergites III-VI, somewhat less dense on tergites VII and VIII; interstices with distinct microreticulation; posterior margin of tergite VII with palisade fringe; tergite VIII with truncate posterior margin.

♂: sternite VII (Fig. 40) with shallow postero-median impression, this impression with a few modified short and black setae posteriorly; sternite VIII (Fig. 41) with pronounced and long median impression, this impression with numerous distinctly modified, short and stout black setae, posterior excision moderately deep and V-shaped, on either side of this excision without clusters of black setae; aedeagus (Figs 42-43) 1.65 mm long; ventral process long and bisinuate in lateral view; dorsal plate completely reduced; internal sac with long membranous structures.



**Figs 36-44:** *Domene firmicornis* nov.sp. (36-43) and *D. immarginata* nov.sp. (44): (36) forebody; (37) median portion of head; (38) median portion of pronotum; (39) disc of left elytron; (40) male sternite VII; (41) male sternite VIII; (42) aedeagus in lateral view; (43) apical portion of aedeagus in ventral view; (44) female sternite VIII. Scale bars: 36: 1.0 mm; 40-44: 0.5 mm; 37-39: 0.2 mm.

**Comparative notes:** *Domene firmicornis* is distinguished from all the preceding species by numerous characters, particularly the more massive antennae with less slender antennomeres, the subcircular head, the less distinctly oblong pronotum, the punctuation of the elytra, the strongly dilated protarsomeres I-IV, the presence of a few modified setae on the male sternite VII, the shape and chaetotaxy of the male sternite VIII (pronounced median impression with numerous distinctly modified setae, shape of posterior excision, absence of clusters of black setae on either side of posterior excision), and by the morphology of the larger aedeagus (longer and bisinuate ventral process, dorsal plate completely reduced). In view of the nature (especially the strongly dilated protarsomeres I-IV, the shape and chaetotaxy of the male sternite VIII, and the morphology of the aedeagus) and number of these differences, its placement in the *D. scabripennis* group is doubtful and tentative, and it requires confirmation.

The new species is distinguished from the sympatric *D. reitteri* KOCH 1939 particularly by larger body size, much darker coloration, the different elytral punctuation, the completely different shapes and chaetotaxy of the male sternites VII and VIII, as well as by the completely different morphology of the aedeagus (*D. reitteri*: ventral process much broader in lateral view; dorsal plate sclerotized and long). For illustrations of *D. reitteri* see KOCH (1939).

**Distribution and natural history:** The type locality is situated in the Tianmu Shan, a mountain range in Zhejiang, East China (Map 1). The holotype was collected at an altitude of 700 m.

### ***Domene* sp.**

**Material examined:** 1♀: "LAOS-NE, Houa-Phan prov., 20°12'01-30"N 104°00'34-55"E, 1750-1850 m, Phou Pane Mt., 4.+10.vi.2009, Zdeněk Kraus leg. (NHMB); 1♀: "CHINA Guangdong Pr., Ding Hu Shan Biosphere R., 6.V.1998 J. Fellowes" (cRou).

**Comment:** Based on external characters, the above female represents an undescribed species most closely allied to *D. sagittata*. It is characterized by a noticeably oblong head with fine and extremely dense punctuation, the pronotal punctuation being noticeable coarser than that of the head, the conspicuously coarse and irregular macro-punctuation of the elytra, and the meso- and metatibiae being of distinctly paler coloration than the meso- and metafemora.

### **Key to the species of the *Domene scabripennis* group**

1. Antennae moderately slender; antennomere X barely 1.5 times as long as broad. Protarsomeres I-IV strongly dilated. Head flattened, of nearly subcircular shape, and broadest behind eyes (Fig. 36). Whole body blackish. ♂: sternite VIII with pronounced median impression with numerous distinctly modified short and stout black setae, on either side of the posterior excision without cluster of black setae (Fig. 41); aedeagus larger, approximately 1.65 mm long, with bisinuate ventral process (lateral view), and with completely reduced dorsal plate (Figs 42-43). China: Zhejiang (Map 1).....*D. firmicornis* nov.sp.
- Antennae slender; antennomere X nearly twice as long as broad. Protarsomeres I-IV rather weakly dilated. Head less strongly flattened and not of subcircular shape. ♂: sternite VIII with few modified setae at most, on either side of posterior excision with cluster of black setae; aedeagus smaller, approximately 1.15 mm long and with distinct dorsal plate.....2

2. Posterior margin of abdominal tergite VII without palisade fringe. ♂: sternite VIII as in Fig. 24; aedeagus as in Figs 25-26. China: western Yunnan (Map 1).....*D. immarginata* nov.sp.
- Posterior margin of abdominal tergite VII with palisade fringe. ♂: male sexual characters different.....3
3. Elytra shorter, approximately 0.8 times as long as pronotum. Punctuation of head and pronotum coarse. ♂: aedeagus with very slender ventral process. Taiwan. ....4
- Elytra longer, at least approximately 0.95 times as long as pronotum. Punctuation of head and pronotum fine. ♂: aedeagus with less slender ventral process. Absent from Taiwan.....5
4. Legs reddish. ♂: sternite VIII with deeper and slightly narrower posterior excision (Fig. 7); aedeagus as in Fig. 8. Central western Taiwan: Taichung Hsien: Anma Shan (Map 1).....*D. scabripennis* ROUGEMONT
- Legs blackish-brown. ♂: sternite VIII with shallower and broader posterior excision (Fig. 15); aedeagus as in Figs 16-17. Southern Taiwan: Kaohsiung Hsien (Map 1) .....*D. alesiana* nov.sp.
5. Head approximately as broad as long (Fig. 28). Elytra approximately as long as pronotum (Fig. 28). Pronotum more oblong, approximately 1.23 times as long as broad (Fig. 28). ♂: sternite VIII and aedeagus as in Figs 32-34. Vietnam (Map 1).....*D. sagittata* nov.sp.
- Head noticeably oblong. Elytra approximately 0.95 times as long as pronotum. Pronotum less oblong, approximately 1.13 times as long as broad. ♂ unknown. Laos; China: Guangdong .....*D. sp.*

### Addendum

Additional paratypes of two of the species described above were communicated to us after the proof-reading stage by Zhong Peng (Shanghai). These paratypes are listed below, but not included in Map 1. They are deposited in the Insect Collection of Shanghai Normal University, Shanghai.

#### *Domene immarginata* nov.sp.

Additional paratypes: 2♂♂, 1♀: "CHINA: Yunnan Prov., Nabanhe N. R., Bengganghani, Shanshenmiao, N22.08.450 E100.35.289 / alt. 1700 m, 14.xi.2008 Jia-Yao Hu & Liang Tang leg."; 1♂: same data, but "14.xi.2008 alt. 1,930 m"; 2♂♂, 2♀♀: same data, but "Huazhulian Shan, 29.v.2009 alt. 2,300 m, Jia-Yao Hu & Zi-Wei Yin."

#### *Domene firmicornis* nov.sp.

Additional paratypes: 2♂♂, 1♀: "CHINA: Zhejiang Prov., Lin'an, Qingliangfeng, Qianqingtang / 30°18'N, 119°07'E, 16.v.2012 1,000-1,100 m, Chen, Ma, & Zhao leg"; 1♀: [teneral], same data, but "Guanlizhan 30°07'N, 118°54'E, 15.vii.2009 alt. 1,000 m, Yuan & Feng leg"; 1♀: same data, but "Tianmu Shan 30°19'N, 119°27'E, 29.v.2010 alt. 300-400 m, Xu & Zhu leg"; 1♀: same data, but "Tianmu Shan 30°19'N, 119°26'E, 28.vii.2011 alt. 300-500 m, Li-Zhen Li leg".

### Acknowledgements

We are indebted to the colleagues indicated in the material section for the loan of material under their care, in particular to Michael Schülke (Berlin) and Aleš Smetana (Ottawa) for the generous gift of the holotype of *D. immarginata* and a paratype of *D. scabripennis*, respectively.

## Zusammenfassung

Fünf vorläufig der Untergattung *Macromene* COIFFAIT 1982 zugeordnete Arten der Gattung *Domene* FAUVEL 1873 aus der Ostpaläarktis und der nördlichen Orientalis werden beschrieben bzw. redeskribiert und abgebildet: *D. scabripennis* ROUGEMONT 1995 (Taiwan), *D. alesiana* nov.sp. (Taiwan), *D. immarginata* nov.sp. (China: Yunnan), *D. sagittata* nov.sp. (Nordvietnam) und *D. firmicornis* nov.sp. (China: Zhejiang). Die Arten werden der neu definierten *D. scabripennis*-Gruppe zugeordnet. Ob *D. firmicornis* tatsächlich in diese Gruppe gehört, ist allerdings fraglich und bedarf der Bestätigung. Eine Bestimmungstabelle der Arten wird erstellt. Ihre Verbreitung wird anhand einer Karte illustriert.

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Artikel/Article: [On \*Domene scabripennis\* ROUGEMONT and its close relatives \(Coleoptera: Staphylinidae: Paederinae\) 499-514](#)