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Study of Asian Strongyliini (Coleoptera, Tenebrionidae)

VIII. Ten New Species of the Genus *Strongylium* from East Asia

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Abstract This is the part eight of the study of the Asian Strongyliini and deals with 10 new species of the genus *Strongylium* from East Asia, which are described under the following names: *Strongylium ardoinianum* sp. nov., *S. bhutanicum* sp. nov., *S. yunnanicum* sp. nov., *S. spinitibiale* sp. nov., *S. inspinitibiale* sp. nov., *S. beardae* sp. nov., *S. puncakdinginense* sp. nov., *S. viridistriatum* sp. nov., *S. katsumii* sp. nov. and *S. iridiorsale* sp. nov.

This paper is the eighth part of my study of the Asian Strongyliini and deals with ten new species of the genus *Strongylium* from various areas of East Asia.

The specimens examined are submitted to me for taxonomic study mainly from the collection of the Muséum National d'Histoire Naturelle, Paris, and partly from that of the Natural History Museum, London and the Staatliches Museum für Naturkunde in Stuttgart. Other materials, besides the specimens in my collection, are also submitted to me personally from Messrs. Katsumi AKITA, Hisai City, and Stanislav BEČVÁŘ, Czech Academy of Sciences.

I wish to express my cordial thanks to Dr. Claude GIRARD and M^{lle} Jeanne CHARBONNEL, Muséum National d'Histoire Naturelle, Paris, Mrs. Jane BEARD and Mr. Martin J. D. BRENDELL, the Natural History Museum, London, Dr. Wolfgang SCHAWALLER, the Staatliches Museum für Naturkunde in Stuttgart, for their invaluable support in the course of the present study. I thank Dr. Dariusz IWAN, Museum and Institute of Zoology, Polish Academy of Sciences, Warsaw, for permitting me to examine the GEBIEN collection preserved in the Museum. Appreciations are due to Mr. Seiji MORITA, Tokyo, for taking photographs inserted in this paper. Finally, my deepest thanks should be expressed to Dr. Shun-Ichi UÉNO, National Science Museum (Nat. Hist.), Tokyo, for his constant guidance of my taxonomic studies.

Depositories of the holotypes to be designated are given in each description.

The abbreviations used herein are as follows: NSMT – National Science Museum (Nat. Hist.), Tokyo; MNHNP – Muséum National d'Histoire Naturelle, Paris; NHML – the Natural History Museum, London; SMNS – Staatliches Museum für Naturkunde in Stuttgart; NMNHP – National Museum (Nat. Hist.), Praha.

Strongylium ardoinianum sp. nov.

(Figs. 1, 11 &12)

Piceous, femora except for apical parts remarkably reddish brown; dorsal surface gently shining with feeble sericeous lustre, ventral surface somewhat alutaceous. Elongate; convex longitudinally.

Head rather wide, weakly micro-shagreened, closely and finely punctate; clypeus somewhat semicircular, rather strongly depressed in basal part, fronto-clypeal border clearly impressed; genae obliquely strongly raised and projected laterad, rather closely, finely punctate, with rounded outer margins; frons somewhat T-shaped though the basal part is biforked, rather steeply inclined forwards, with a distinct longitudinal impression in hind part, each side of which is ridged; vertex closely punctate. Eyes very large, subreniform in dorsal view, approximate with each other, obliquely inlaid into head, strongly convex laterad. Antennae subfiliform, reaching basal 1/4 of elytra, ratio of the length of each segment from basal to apical: 0.92, 0.31, 1.28, 1.13, 0.98, 0.87, 0.84, 0.8, 0.83, 0.81, 0.93.

Pronotum trapezoidal, 1.25 times as wide as long, widest at apical 2/5; apex margined, the margin gently thickened in middle and scattered with minute punctures; base weakly bisinuous, rather boldly margined, the margin bordered from disc by a rather strong impression and very weakly depressed in middle, scattered with microscopic punctures; sides steeply declined to lateral margins, which are entirely bordered from the prosternum by the ridges; front angles rounded, hind angles slightly acute; disc gently convex, weakly micro-shagreened, rather closely and irregularly punctate, with a vague medial impression and also with a pair of impressions slightly behind the middle. Scutellum sublinguiform, slightly elevated, scattered with microscopic punctures in lateral and posterior portions.

Elytra elongated fusiform, 2.54 times as long as wide, 4.86 times the length and 1.54 times the width of pronotum, very sligthly narrowed posteriad in basal 2/3, then rounded to apices; dorsum rather strongly convex longitudinally, highest at basal 1/3; disc punctato-striate, the striae fine and almost entire, 1st and 2nd, and often 3rd and 4th, connected with each other in basal parts, 5th rather strongly impressed near base; intervals convex, micro-shagreened, somewhat transversely micro-aciculate, sparsely scattered with microscopic punctures; humeri swollen; apices rounded.

Male anal sternite elliptically depressed in apical part. Legs slender, without special modification; ratios of the lengths of pro-, meso- and metatarsomeres: 0.67, 0.32, 0.31, 0.37, 1.57; 2.39, 1.1, 0.8, 0.69, 1.68; 2.68, 0.99, 0.74, 1.72.

Male genitalia elongated fusiform, evenly curved in lateral view, 4.7 mm in length and 0.8 mm in width; fused lateral lobes elongated nib-shaped, 1.6 mm in length, with acute apex.

Body length: 22–26 mm.

Holotype: ♂, Plaine des Jarres, VII–1964, Laos, A. BAUDON leg. (MNHNP). Paratypes: 3 exs., same data as for the holotype; 15 exs., Paksong, Sud Laos, 30–III–

1965, J. RONDON leg.; 1 ex., Vientiane, Laos, V–1963, A. BAUDON leg.; 1 ex., Houei Khong, Laos, 17–VI–1965, J. RONDON leg.; 2 exs., Paksong, Sud Laos, 20–III–1965, J. RONDON leg.; 1 ex., Paksé, Sud Laos, 30–IV–1967, J. RONDON leg.; 1 ex., Paksong, Sud Laos, 16–IV–1965, J. RONDON leg.; 1 ex., Paksong, Sud Laos, 30–III–1965, J. RONDON leg.

Notes. This new species closely resembles *S. atricolor* PIC, 1922, from Tonkin, but can be distinguished from the latter by the slenderer legs with reddish femora and the male genitalia very elongated, 4.7 mm in length (3.65 mm in *S. atricolor*). *Strongylium atricolor* PIC should be a member of the species-group of *S. carbonarium*.

Strongylium bhutanicum sp. nov.

(Figs. 2, 13 & 14)

Black, antennae, mouth parts, tarsi, etc., slightly lighter in colour; head, pronotum, pro- and mesosterna, and anterior part of metasternum weakly shining, elytra moderately, feebly sericeously shining, gula, middle and posterior parts of metasternum and abdomen rather strongly so. Elongate, subparallel-sided; rather strongly convex longitudinally.

Head subdecagonal, weakly micro-shagreened, closely punctate; clypeus semicircular, projected and bent in front, fronto-clypeal border widely arcuate, finely sulcate, impressed at each lateral end; genae closely and finely punctate, strongly raised and produced laterad, with rounded outer margins; frons T-shaped, finely and coarsely punctate, steeply inclined forwards, with a somewhat rhombical impression in posterior part between eyes; vertex weakly convex, closely punctate, weakly depressed along posterior margins of eyes. Eyes very large and approximate to each other, broadly and somewhat obliquely inlaid into head, broadly convex laterad. Antennae subfiliform, reaching basal 1/4 of elytra, ratio of the length of each segment from basal to apical: 0.8, 0.25, 1.15, 1.1, 1.0, 0.92, 0.89, 0.83, 0.82, 0.82, 0.87.

Pronotum somewhat short barrel-shaped, 1.23 times as wide as long, roundly produced laterad, widest at the middle; apex very weakly produced, clearly bordered, area between the border and apical margin raised and frequently punctate; base bordered by rather deep groove, area between the border and basal margin raised and rather closely punctate in posterior part; sides steeply inclined, bordered from metasternum by fine ridges, which are invisible from above; front angles rounded, hind angles weakly projected postero-laterad; disc moderately convex though longitudinally, weakly depressed in middle, very weakly micro-shagreened, closely and irregularly punctate, with a longitudinal impunctate area in the middle, and sometimes also with a pair of vague impressions at basal 1/3. Scutellum slightly elongated triangular with weakly produced sides, feebly convex, weakly micro-shagreened, scattered with small punctures in lateral parts.

Elytra subparallel-sided, though the posterior 1/3 is slightly widened, 2.5 times as long as wide, 4.49 times the length and 1.53 times the width of pronotum; dorsum

rather strongly convex longitudinally, highest slightly before the middle; disc rather strongly punctato-striate, the punctures smaller and more closely set in inner portions, becoming larger and more sparsely so in lateral portions, 1st and 2nd striae and often 3rd and 4th connected with each other near base, 5th striae strongly grooved close to base; intervals convex, micro-shagreened, rather transversely micro-aciculate, sparsely scattered with microscopic punctures; humeri slender; apices gently, roundly produced.

Male anal sternite weakly depressed in apical part. Legs slender, without modification; ratios of the lengths of pro-, meso- and metatarsomeres: 0.4, 0.26, 0.23, 0.24, 1.39; 1.8, 0.8, 0.72, 0.63, 1.71; 2.0, 0.78, 0.69, 1.68.

Male genitalia subfusiform, evenly curved in lateral view, 4 mm in length and 0.68 mm in width; fused lateral lobes elongated equilateral triangular in dorsal view, 1.68 mm in length, with acute apex. Compared with the male, the female is bold in body shape.

Body length: 19.5–25.5 mm.

Holotype: ♂, "British Bootang, Maria Basti, L. Durel". Paratypes: 3 exs., same data as for the holotype; 32 exs., Pedong, A. DESGODINS; 6 exs., 1899, 1 ex., 1900, British Bootang, M. BASTI; 1 ex., 1898, 1 ex., 1899, British Bootang, L. DUREL; 10 exs., Pedong, DESGODINS; 1 ex., Environs de Kurseong, R. P. BRETAUDEAU; 3 exs., British Bootan, Padong, L. DUREL 1913; 1 ex., Bhoutan Pedong, R. OBERTHUR, 1897; 2 exs., Phedong, R. P. DESGODINS; 1 ex., Indes, Pedong, CHASSOT, VI–1960; 1 ex., Assam, Margherita, Chasseurs BRETAUDEAU, 1895.

Notes. This new species somewhat resembles *S. opacicolle* FAIRMAIRE, 1891, originally described from China (Mou-pin), but can be distinguished from the latter by the stout body with bolder antennae, punctures on the pronotum comparatively not so close, triangular scutellum, and elytral intervals more smooth. This new species should also be a member of the species-group of *S. carbonarium*.

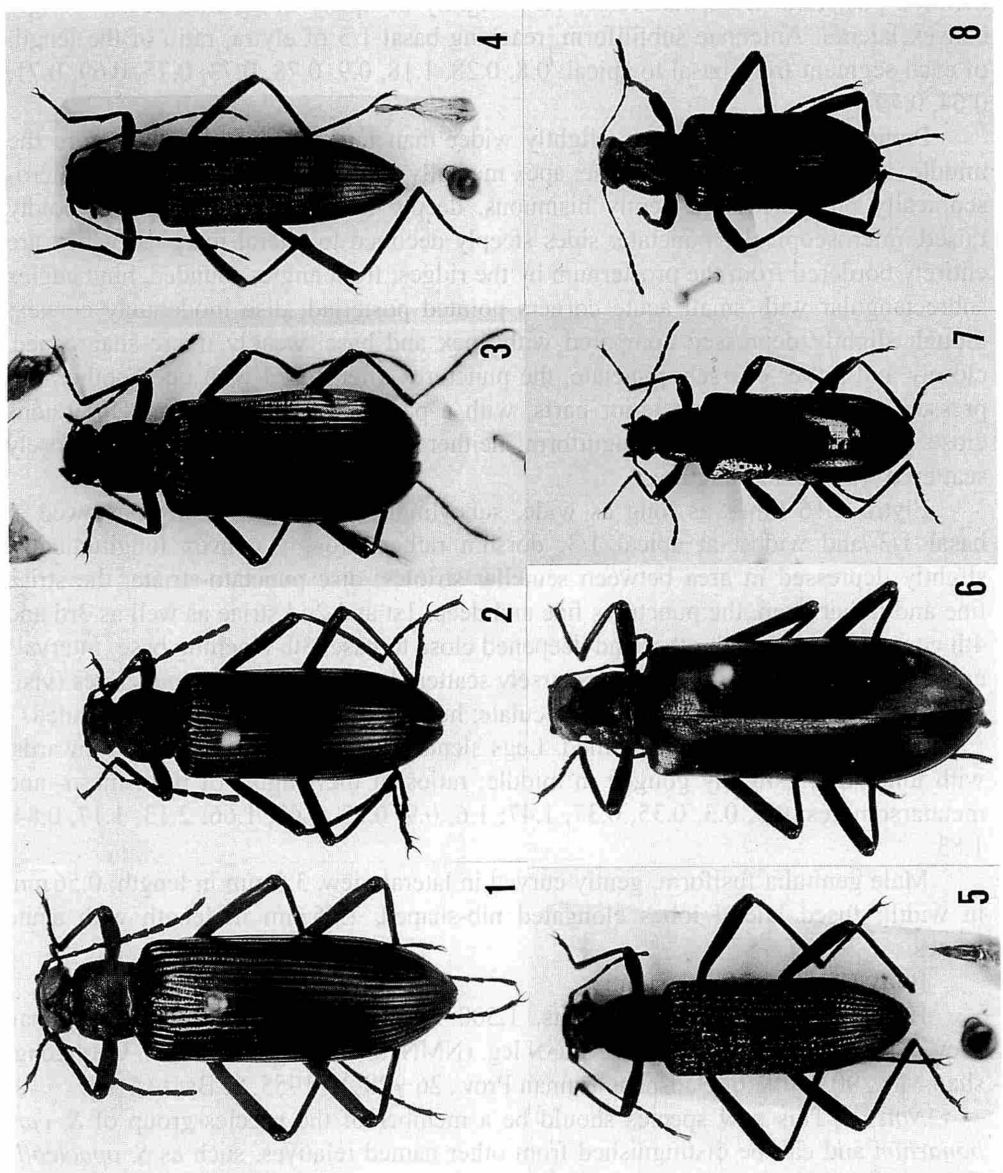
Strongylium yunnanicum sp. nov.

(Figs. 3, 15 & 16)

Dark reddish brown, dorsal surface darker in colour, anterior part of head gently shining, posterior part of head, pronotum, scutellum and elytra sericeously, weakly shining, major part of ventral surface and legs moderately shining. Elongate; convex longitudinally.

Head subrhombic, though the clypeus is weakly projected, micro-shagreened, closely and finely punctate; clypeus wide but short, depressed in basal part, bent in front, fronto-clypeal border widely arcuate and grooved with lateral sides bent ante-

Figs. 1–8. Habitus of *Strongylium* spp. —— 1, *Strongylium ardoinianum* sp. nov., holotype ♂; 2, *S. bhutanicum* sp. nov., holotype ♂; 3, *S. yunnanicum* sp. nov., holotype ♂; 4, *S. spinitibiale* sp. nov., holotype ♂; 5, *S. inspinitibiale* sp. nov., holotype ♂; 6, *S. beardae* sp. nov., holotype ♂; 7, *S. puncakdinginense* sp. nov., holotype ♂; 8, *S. viridistriatum* sp. nov., holotype ♂.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riad; genae obliquely and strongly raised laterad, with rounded outer margins; frons somewhat widely T-shaped, gently inclined forwards, medially with a longitudinal impression, diatone about 0.29 times the width of an eye diameter; vertex rather steeply inclined posteriad. Eyes transverse, very slightly obliquely inlaid into head, strongly convex laterad. Antennae subfiliform, reaching basal 1/5 of elytra, ratio of the length of each segment from basal to apical: 0.8, 0.28, 1.18, 0.9, 0.78, 0.73, 0.75, 0.69, 0.71, 0.64, 0.79.

Pronotum nearly quadrate, slightly wider than long, widest slightly before the middle, weakly sinuous before base; apex medially straight, remarkably ridged, microscopically punctate; base gently bisinuous, deeply bordered from disc and boldly raised, microscopically punctate; sides steeply declined to lateral margins, which are entirely bordered from the prosternum by the ridges; front angles rounded, hind angles subrectangular with small acute corners pointed posteriad; disc moderately convex, though slightly depressed compared with apex and base, weakly micro-shagreened, closely and rather coarsely punctate, the punctures often fused with one another, depressed in anterior and posterior parts, with a pair of vague triangular depressions close to base. Scutellum sublinguiform, neither elevated nor convex, rather closely scattered with small punctures.

Elytra 2.16 times as long as wide, subcylindrical, though weakly narrowed at basal 1/3 and widest at apical 1/3; dorsum rather strongly convex longitudinally, slightly depressed in area between scutellar strioles; disc punctato-striate, the striae fine and rather deep, the punctures fine and deep, 1st and 2nd striae as well as 3rd and 4th connected with each other and deepened close to base, 5th reaching base; intervals convex, weakly micro-shagreened, sparsely scattered with microscopic punctures (visible under 20×), very weakly micro-aciculate; humeri gently swollen; apices rounded.

Male anal sternite not modified. Legs slender; male mesotibiae curved inwards, with inner faces slightly gouged in middle; ratios of the lengths of pro-, meso- and metatarsomeres: 0.5, 0.3, 0.35, 0.37, 1.47; 1.6, 0.9, 0.83, 0.67, 1.66; 2.13, 1.17, 0.84, 1.83.

Male genitalia fusiform, gently curved in lateral view, 3.5 mm in length, 0.56 mm in width; fused lateral lobes elongated nib-shaped, 1.65 mm in length with acute apices.

Body length: 17.5–20.5 mm.

Holotype: ♂, Gaoligongshan Mts., 1,500–2,500 m alt., 25.22 N, 98.49 E, Yunnan Prov., China, 17~24–V–1995, V. KUBÁN leg. (NMNHP). Paratypes: 11 exs., Gaoligongshan Mts., 90 km W. of Baoshan, Yunnan Prov., 26~28–V–1955, S. BEČVÁŘ leg.

Notes. This new species should be a member of the species-group of *S. carbonarium* and can be distinguished from other named relatives, such as *S. opacicolle* FAIRMAIRE, 1891, *S. fangense* MASUMOTO, 1996, etc., by the pronotum remarkably rugoso-punctate and the elytra noticeably sericeous and indistinctly punctate.

Strongylium spinitibiale sp. nov.

(Figs. 4, 17 & 18)

Brownish black with dark greenish or bluish lustre, head, pronotum, scutellum and elytra dark greenish, partly with coppery tinge, eyes and major part of femora brownish yellow, antennae, apical parts of femora, tibiae, tarsi, etc., dark brown; head and pronotum somewhat sericeously shining, scutellum and elytra weakly metallically shining, ventral surface rather alutaceous. Rather elongate; convex longitudinally, though the dorsum is gently flattened and tri-sinuate.

Head subelliptical in frontal view, micro-shagreened, closely, finely punctate; clypeus trapezoidal, rather steeply inclined forwards, weakly bent downwards in front, fronto-clypeal border nearly straight widely in middle, bent anteriad in each lateral part, finely sulcate; genae obliquely rhombical, strongly raised outwards, with rounded outer margins; frons T-shaped, steeply inclined forwards, with a subrhombic impression in posterior part between eyes; vertex weakly depressed. Eyes large, approximate to each other, widely inlaid into head, roundly produced laterad. Antennae nearly filiform, reaching slightly before the middle of elytra, ratio of the length of each segment from basal to apical: 0.6, 0.2, 1.23, 1.18, 0.99, 0.9, 0.89, 0.87, 0.84, 0.79, 0.77.

Pronotum somewhat barrel-shaped, slightly wider than long, widest slightly before the middle, and very feebly sinuous before base; apex nearly straight, bordered in a wide V-shape, area between the border and apical margin ridged and finely punctate, the punctures somewhat transverse; base gently sinuous, bordered from disc by groove, the margin ridged and sparsely punctate; sides steeply declined to lateral margins, which are finely ridged and entire; disc moderately convex, weakly depressed in medial part, micro-shagreened, closely and coarsely punctate, the punctures often fused with one another, with a triangular depression in the middle, and a pair of depressions on each side close to base. Scutellum equilateral triangular, slightly raised, micro-shagreened, scattered with fine punctures.

Elytra 2.94 times as long as wide, 4.35 times the length and 1.35 times the width of pronotum, widest at base and gradually narrowed apicad, though very slightly constricted at basal 1/3; dorsum moderately convex though widely flattened in middle and tri- or quadri-sinuate, highest at basal 1/4; disc with rows of punctures, those in inner part finely striate, those in lateral parts becoming larger and forming foveae, and those in posterior part becoming smaller and deeply striated, each row strongly impressed in basal part; intervals convex, micro-shagreened, sparsely scattered with microscopic punctures, weakly micro-aciculate; humeri gently swollen; apices sharply dehiscent.

Male anal sternite semicircularly excavated, with apex gently emarginate. Legs slender; male protibia with inner face spined at basal 2/5; ratios of the lengths of pro-, meso- and metatarsomeres: 0.34, 0.22, 0.23, 0.25, 1.2; 2.75, 1.2, 0.75, 0.52, 1.39; 3.63, 1.28, 0.71, —.

Male genitalia elongate and highly modified, 5.35 mm in length and 0.8 mm in width, basal piece oblong-ovate; fused lateral lobes prolonged, 3 mm in length,

widened at base, basal 1/4, apical 1/3 and apical 1/10 in dorsal view, with remarkably spatulate apex.

Body length: 12.5–15.5 mm.

Holotype: ♂, Vientiane, Laos, VII–1963, A. BAUDON leg. (MNHNP). Paratypes: 11 exs., same data as for the holotype; 2 exs., Plaine des Jarres, Laos, VII–1964, A. BAUDON leg.

Notes. This new species resembles *Strongylium jucundum* MÄKLIN, 1864, originally described from Hongkong, of which *S. semipupilatum* PIC, 1940, from Tonkin should be a synonym, but can be distinguished from *S. jucundum* by the slenderer body with larger eyes and highly modified male genitalia.

Strongylium inspinitibiale sp. nov.

(Figs. 5, 19 & 20)

Dark brown with dark greenish or bluish lustre, anterior part of head bluish green, posterior part of head, pronotum, scutellum and major central part of elytra dark copper-coloured, bottoms of punctures greenish, lateral and apical parts of elytra (mostly 8th and 9th intervals) with dark greenish tinge, eyes and two apical segments of antennae brownish yellow; head, pronotum and scutellum weakly, slightly sericeously shining, elytra feebly metallically shining; ventral surface moderately, though partly weakly, shining. Rather elongate; convex longitudinally.

Head subdecagonal in frontal view, micro-shagreened, rather closely, coarsely punctate; clypeus subtrapezoidal, gently inclined forwards, bent downwards at apex, fronto-clypeal border nearly straight widely in middle, bent anteriad in each lateral part, finely sulcate, the sulcus reaching the lateral margins; genae obliquely rhombical, strongly raised outwards, with obtusely angulate outer margins; frons T-shaped, steeply inclined forwards, with a shallow impression in posterior part between eyes, which extends to vertex. Eyes rather large, approximate to each other, somewhat obliquely inlaid into head, roundly produced laterad. Antennae nearly filiform, reaching slightly before the middle of elytra, ratio of the length of each segment from basal to apical: 0.63, 0.2, 1.22, 1.18, 1.03, 1.01, 0.98, 0.91, 0.82, 0.78, 0.82.

Pronotum somewhat barrel-shaped, 1.2 times as wide as long, widest slightly before the middle, weakly sinuous before base; apex nearly straight, finely bordered, area between the border and outer margin weakly convex and sparsely scattered with fine punctures; base feebly sinuous, bordered from disc by fine groove, raised and sparsely punctate; sides steeply declined to lateral margins, which are finely ridged, the ridges disappeared in the posterior half; front angles nearly rounded, hind angles obliquely projected posteriad; disc moderately convex, weakly depressed in medial part, micro-shagreened, closely and coarsely punctate, the punctures often fused with one another, with a vague triangular depression in the middle, and a pair of depressions on each side close to base. Scutellum sublinguiform, weakly depressed, micro-shagreened, irregularly wrinkled.

Elytra 2.7 times as long as wide, about 3 times the length and 1.4 times the width of pronotum, widest at base and gradually narrowed apicad, though very slightly constricted at basal 1/3; dorsum moderately convex though widely flattened in middle and quadri-sinuate, highest at basal 1/4; disc with rows of punctures, of which the upper sides are large and somewhat quadrate and the bottoms are small and rounded, those in inner part shallowly striate, those in lateral parts becoming larger and forming foveae, and those in posterior part becoming smaller and deeply striated, 1st to 5th rows strongly impressed at basal parts, 5th reaching basal margin; intervals convex, micro-shagreened, sparsely scattered with microscopic punctures; humeri weakly swollen; apices gently roundly produced.

Male anal sternite semicircularly depressed, with apex slightly emarginate. Legs slender, without peculiarities; ratios of the lengths of pro-, meso- and metatarsomeres: 0.28, 0.24, 0.22, 0.23, 1.2; 1.8, 1.2, 0.8, 0.58, 1.51; 1.72, 0.77, 0.59, 1.36.

Male genitalia subfusiform, gently curved in lateral view, 3.5 mm in length and 0.6 mm in width; fused lateral lobes somewhat nib-shaped, 1.6 mm in length, with prolonged apices.

Body length: 11.5–14.5 mm.

Holotype: ♂, Vientiane, Laos, VII–1963, A. BAUDON leg. (MNHNP). Paratypes: 21 exs., same data as for the holotype; 8 exs., IX–1963, same locality and collector; 1 ex., VII/IX–1964, same locality and collector; 1 ex., I–1964, same locality and collector; 5 exs., Plaine des Jarres, Laos, VII–1964, A. BAUDON leg.; 2 exs., Phontiou, Thakek, Laos, 8–VI–1965, J. RONDON leg.

Notes. This new species resembles *Strongylium spinitibiale* sp. nov., occurring in the same locality and appearing in the same season, but can be distinguished from the latter by the slightly smaller and stouter body with elytral apices rounded, two apical segments of antennae brownish yellow and legs constantly blackish, and male genitalia obviously simple in shape.

Strongylium beardae sp. nov.

(Figs. 6, 21 & 22)

Piceous, elytra and claws dark castaneous, hairs on ventral surface of tarsi brownish yellow; dorsal surface, fore body beneath and metasternum weakly shining, abdomen alutaceous. Elongate; strongly convex longitudinally.

Head somewhat decagonal, closely punctate, very weakly micro-shagreened; clypeus rather transverse, rather strongly bent in front, fronto-clypeal border feebly arcuate and grooved; genae strongly raised and roundly produced laterad, with depressions in inner parts; frons somewhat T-shaped, finely rugoso-punctate, steeply inclined forwards, vaguely impressed in posterior part between eyes; vertex gradually inclined posteriad. Eyes large and ovoid, approximate to each other, broadly inlaid into head, strongly convex laterad. Antennae subfiliform, reaching basal 1/6 of elytra, ratio of the length of each segment from basal to apical: 0.75, 0.28, 1.22, 0.85, 1.05, 0.8, 0.68,

0.59, 0.58, 0.55, 0.61.

Pronotum subquadrate, 1.3 times as wide as long, gently produced laterad, weakly sinuous in posterior parts, widest at apical 2/5; apex very weakly produced, finely bordered, area between the border and apical margin sparsely scattered with minute punctures; base widely bisinuous, bordered from disc by a groove, which is somewhat trisinuous, area between the groove and basal margin raised and irregularly punctate; front angles rounded, hind angles rather acutely projected; disc weakly micro-shagreened, closely, irregularly punctate, the punctures often fused with one another, with an impunctate medial part, and also with a pair of vague impressions at basal 1/3. Scutellum sublinguiform, slightly raised, coarsely punctate in middle.

Elytra about twice as long as wide, feebly widened posteriad, widest at apical 1/3, then rounded; dorsum strongly convex, highest at the middle, weakly depressed along scutellar strioles; disc with rows of fine punctures, which are sometimes fused or connected by fine striae with one another in the anterior and middle portions, and become smaller and striated in the apical portion; intervals almost flattened, micro-shagreened, rather noticeably micro-aciculate, scattered with minute punctures; humeri swollen; apices slightly roundly produced.

Male anal sternite feebly depressed in apical part. Legs slender, without any special modification; ratios of the lengths of pro-, meso- and metatarsomeres: 0.67, 0.34, 0.35, 0.33, 1.58; 2.45, 0.95, 0.81, 0.74, 1.8; 2.77, 1.18, 0.79, 1.8.

Male genitalia elongated subfusiform, weakly curved in lateral view, 3.8 mm in length and 0.6 mm in width; fused lateral lobes nib-shaped, 1.78 mm in length, with prolonged apices.

Body length: 24–25 mm.

Holotype: ♂, Mt. Victoria, Chinhills, 2,200 m alt., Burma, IV–1938, G. HEINRICH leg. (NHML). Paratypes: 2 exs., same data as for the holotype; 1 ex., V–1938, 1 ex., VI–1938, same locality and collector as for the holotype.

Notes. This new species resembles *Strongylium instriatum* PIC, 1940, originally described from India, but can be distinguished from the latter by the smaller (28 mm in *S. instriatum*) and slenderer body, with pronotum more finely punctate, scutellum distinctly coarsely punctate, elytra dark castaneous and intervals noticeably micro-aciculate. Another undescribed species related to *S. instriatum* occurs in eastern Tibet, though the male specimen has not been found as yet.

Strongylium puncakdinginense sp. nov.

(Figs. 7, 23 & 24)

Piceous, head, pronotum and scutellum with dark coppery tinge, elytra dark greenish tinge, basal parts of femora and tibiae, tarsi, etc., reddish brown, hairs on legs (mostly beneath) brownish yellow; head and pronotum gently shining, elytra strongly so, ventral surface mostly alutaceous. Elongate; strongly convex longitudinally.

Head subdecagonal, rather closely, irregularly punctate; clypeus rather remarkably

projected forwards, gradually inclined apicad, fronto-clypeal border widely arcuate and finely sulcate; genae oblique, finely punctate, strongly raised outwards, with rounded outer margins; frons widely T-shaped, gently inclined forwards, medially with a vague impression, diatone about 0.4 times the width of an eye diameter; vertex gently inclined posteriad, medially with an impunctate area. Eyes medium-sized, rather transverse, obliquely inlaid into head, roundly produced laterad. Antennae subfiliform, reaching basal 1/4 of elytra, ratio of the length of each segment from basal to apical: 0.65, 0.2, 1.0, 0.82, 0.62, 0.61, 0.59, 0.6, 0.58, 0.61, 0.73.

Pronotum trapezoidal, 1.2 times as wide as long, roundly produced laterad, sinuous before base, widest slightly before the middle; apex nearly straight, widely triangularly bordered, apical marginal area microscopically punctate in posterior part; base very weakly bisinuous, bordered from disc by deep groove, area between the groove and posterior margin ridged and sparsely scattered with microscopic punctures; sides steeply declined to lateral margins, which are bordered from the prosternum by the fine ridges; front angles rounded, hind angles slightly projected; disc moderately convex, irregularly scattered with strong punctures, which are sometimes fused with one another, with a pair of oblique depressions close to base. Scutellum sublinguiform, elevated, with surface not flat and sparsely scattered with fine punctures.

Elytra 2.46 times as long as wide, 4.91 times the length and 1.64 times the width of pronotum, subparallel-sided though very weakly constricted at basal 1/3; dorsum strongly convex longitudinally, though weakly sinuate at basal 1/4, 1/2, etc., highest at basal 1/5; disc with rows of punctures, which are small and closely set in internal part, and large and sparsely set in lateral parts, punctures in lateral parts sometimes fused with one another and forming elongated foveae, 1st and 2nd rows, and sometimes 3rd and 4th, connected with each other near base and deeply impressed, 5th impressed close to base; humeri rather noticeably swollen; apices roundly produced and remarkably dehiscent.

Male anal sternite weakly depressed in apical part, truncate at apex with a pair of indistinct swellings at basal 1/3. Legs slender, without modifications; ratios of the lengths of pro-, meso- and metatarsomeres: 0.36, 0.31. 0.28, 0.26, 1.16; 1.1, 0.67, 0.56, 0.41, 1.38; 1.18, 0.6, 0.4, 1.36.

Male genitalia elongated fusiform, very weakly constricted between basal piece and lateral lobes, gently curved in lateral view, 2.7 mm in length and 0.49 mm in width; fused lateral lobes elongated nib-shaped, 1.4 mm in length, with apex not acute, microscopically punctate.

Body length: 14–15 mm.

Holotype: ♂, Puncak Dingin, Sulawesi, 17–X–1985, M. TAO leg. Paratypes: 3 exs., 13–XI–1985, 17–XI–1985, same locality and collector as for the holotype.

Notes. This new species somewhat resembles *Strongylium kenokokense* MASUMOTO, 1998, from Borneo, but can be distinguished from the latter by the punctures on the dorsal surface weaker, the pronotum not impressed in the antero-medial part, and the elytral apices remarkably dehiscent.

Strongylium viridistriatum sp. nov.

(Figs. 8, 25, 26 & 27)

Brownish black, head, pronotum, scutellum, sutural intervals, 8th and 9th intervals, legs, major part of ventral surface, etc., with dark greenish, or sometimes coppery to brassy tinge, major part of elytra except for sutural, 8th and 9th intervals purplish; dorsal surface except for scutellum weakly, sericeously shining, scutellum metallically shining, ventral surface alutaceous, and partly weakly shining. Oblong-ovate; strongly convex above and somewhat hunchbacked.

Head subdecagonal, weakly micro-shagreened, rather closely punctate; clypeus semicircular, gently inclined forwards, bent downwards in front, fronto-clypeal border widely arcuate and finely sulcate; genae obliquely subrhombical, strongly raised outwards; frons finely T-shaped, steeply inclined forwards, with a rhombic impression in posterior parts between eyes; vertex gently inclined posteriad, with impressions along hind margins of eyes. Eyes approximate to each other, widely inlaid into head, roundly convex laterad. Antennae slightly clavate, though the apical parts are flattened, ratio of the length of each segment from basal to apical: 0.7, 0.2, 1.05, 0.63, 0.57, 0.68, 0.65, 0.58, 0.53, 0.52, 0.57.

Pronotum short barrel-shaped, slightly wider than long, gently produced laterad, sinuous in basal 1/3, widest at the middle; apex very slightly produced, distinctly bordered in a wide U-shape, area between border and apical margin gently raised and scattered with microscopic punctures; base widely triangularly bordered, raised and microscopically punctate, very slightly sinuous on each side; sides steeply declined to lateral margins, which are ridged in apical 2/3; front angles rounded, hind angles subrectangular; disc moderately convex, micro-shagreened, rather frequently punctate, the punctures intermixed with smaller ones, with a medial impression, and also with a somewhat triangular depression on each side close to base. Scutellum triangular, gently elevated, micro-shagreened, sparsely scattered with microscopic punctures.

Elytra twice as long as wide, 3.13 times the length and 1.48 times the width of pronotum, gradually narrowed apicad, though very weakly constricted at basal 1/3; dorsum strongly convex, with a pair of swellings at basal 1/7, areas between and behind them gently depressed; disc punctato-striate, the striae shallow, the punctures deep and somewhat longitudinally ovate, those in lateral portions becoming larger, and forming foveae, 1st and 2nd striae, and often 3rd and 4th, connected with each other near base, 5th deepened close to base and reaching base; intervals irregularly convex, micro-shagreened, sparsely scattered with microscopic punctures, microscopically wrinkled; humeri swollen; apices rounded, rather remarkably expanded posteriad.

Male 1st and 2nd abdominal sternites depressed in middle, male anal sternite remarkably excavated in major apical part, with truncate apex. Male protibia with inner face gouged widely in middle, weakly twisted in apical 2/3; male metatibia flattened and twisted in middle; ratios of the lengths of pro-, meso- and metatarsomeres: 0.4, 0.25, 0.22, 0.28, 1.2; 2.25, 1.0, 0.75, 0.64, 1.56; 1.85, 0.79, 0.63, 1.56.

Male genitalia rather slender, constricted in middle, gently curved in lateral view, 2.85 mm in length, 0.52 mm in width; fused lateral lobes rather elongate, 1.24 mm in length, medially grooved, with acute apices.

Body length: 13.5–16.5 mm.

Holotype: ♂, Montes Mauson, Tonkin, IV–V. 2–3,000′, Coll. H. FRUHSTORFER (MNHNP). Paratypes: 7 exs., same data as for the holotype; 1 ex., "*dorsocupreum* To", Coll. P. ARDOIN.

Notes. This new species resembles *Strongylium dorsocupreum* FAIRMAIRE, 1903, originally described from Tonkin, but can be distinguished from the latter by the dorsal surface less metallically shining, the eyes not roundly but rather obliquely inlaid into the head, the sutural intervals always dark greenish, and the male metatibiae more strongly flattened and twisted.

I had an opportunity of examining a small series of specimens from Guizhou, China, which closely resemble the new species. As the Guizhou specimens can be discriminated from the latter by such characteristics as the basal part of elytra dark greenish, etc., I will possibly describe them as a subspecies of this new species in the future.

Judging from the somewhat hunchbacked body, the elytra with a pair of swellings and the anal sternite distinctly excavated in the male, this species seems related to the species-group of *S. gravidum*.

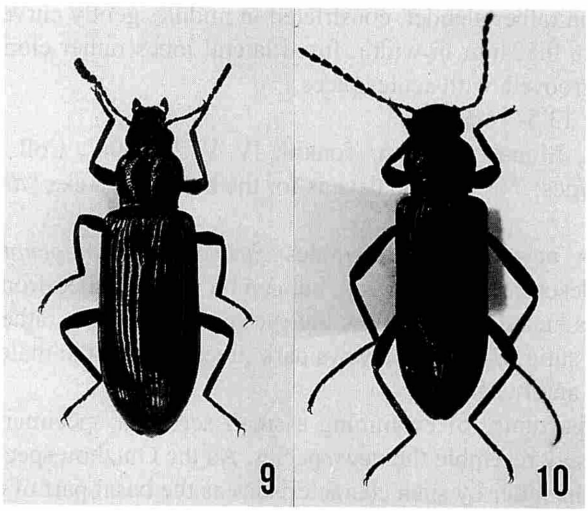
Strongylium katsumii sp. nov.

(Figs. 9, 28 & 29)

Piceous, dorsal surface with dark greenish or somewhat ferrous tinge, mouth parts, tibiae, coxae, etc., lighter in colour, hairs on mouth parts and ventral surfaces of legs brownish yellow; dorsal surface metallically shining, ventral surface somewhat alutaceous. Elongate; rather flattened in middle.

Head somewhat elliptical, though the clypeus is projected antero-ventrad, microshagreened; clypeus semicircular, closely punctate, depressed in posterior part, bent in front, fronto-clypeal border deeply, semicircularly impressed; genae finely punctate, rather strongly raised laterad, depressed before eyes, with rounded outer margins; frons somewhat boldly I-shaped, gently inclined forwards, longitudinally impressed in the middle, scattered with punctures, which become smaller and closer in lateral parts, diatone about the same in width as an eye diameter in dorsal view; vertex almost concealed beneath pronotum. Eyes large, subreniform in dorsal view, obliquely inlaid into head, noticeably convex laterad, with the borders of frons weakly grooved. Antennae subclavate, 1st to 6th segments longer than wide, 7th equilateral triangular, 8th to 11th wider than long, reaching basal 1/5 of elytra, ratio of the length of each segment from basal to apical: 0.45, 0.2, 0.73, 0.49, 0.41, 0.39, 0.37, 0.38, 0.35, 0.32, 0.38.

Pronotum 1.17 times as wide as long, roundly produced laterad, widest at apical 2/5, noticeably constricted in basal parts; apex almost straight, widely triangularly bordered, impunctate; base weakly bisinuous, rather boldly bordered by a deep impres-



Figs. 9–10. Habitus of *Strongylium* spp. —— 9, *Strongylium katsumii* sp. nov., holotype ♂; 10, *S. iridi-dorsale* sp. nov., holotype ♂.

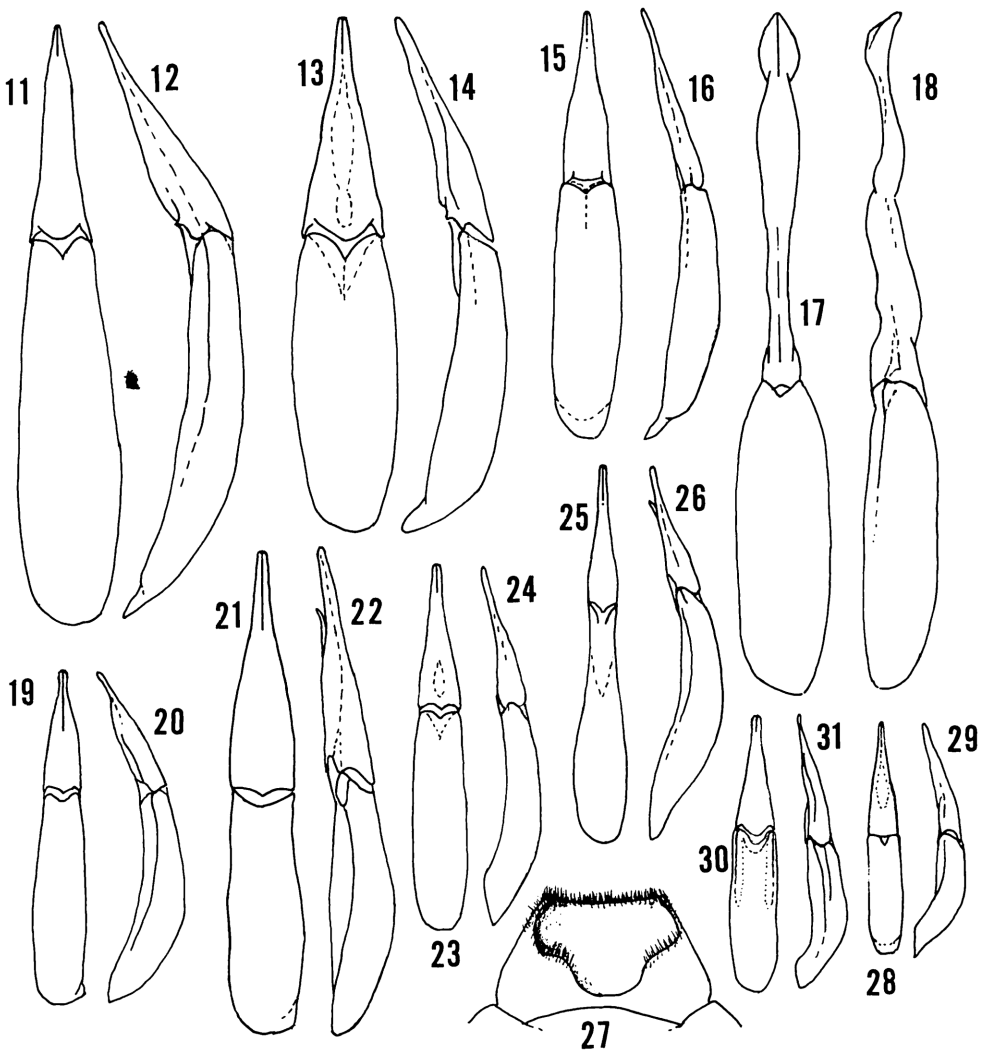
sion, which is distinctly bisinuous in middle, with a short longitudinal ridge on each side; sides steeply declined to lateral margins, which envelope the prothorax, and are finely bordered from the prosternum; front angles rounded, hind angles almost rectangular with weakly projecting corners; disc gently convex, remarkably depressed in the middle with a longitudinal impression, rather closely, irregularly punctate, sparsely scattered with minute punctures among larger ones. Scutellum subcordate, weakly elevated, micro-shagreened, sparsely scattered with fine punctures, with a transverse impression near base in the case of the type specimen.

Elytra elongated fusiform though the base is truncate, 2.13 times as long as wide, 3.48 times the length and 1.51 times the width of pronotum, subparallel-sided, though feebly widened in posterior portions, widest at apical 3/8; dorsum gently convex, transversely depressed at basal 1/4 and longitudinally so between two swellings at basal 1/8, which are the highest; disc punctato-striate, the striae fine and often interrupted, the punctures deep but not so large; intervals weakly convex, micro-shagreened, micro-aciculate, and scattered with microscopic punctures; humeri gently swollen longitudinally; apices roundly produced and rather remarkably extended posteriad.

Anal sternite not modified in male. Legs without modification; ratios of the lengths of pro-, meso- and metatarsomeres: 0.35, 0.2, 0.2, 0.2, 1.2; 0.8, 0.6, 0.37, 0.26, 1.35; 1.27, 0.53, 0.36, 1.36.

Male genitalia elongated fusiform, gently curved in basal part and almost straight in middle and apical parts in lateral view, 1.75 mm in length and 0.32 mm in width; fused lateral lobes elongated nib-shaped, 0.8 mm in length, with acute apex.

Body length: 10.3 mm.



Figs. 11–31. Male genitalia (11–26, 28–31) and male anal sternite (27). —— 11–12, *Strongylium ardoinianum* sp. nov., dorsal view (11), and lateral view (12); 13–14, *S. bhutanicum* sp. nov., dorsal view (13) and lateral view (14); 15–16, *S. yunnanicum* sp. nov., dorsal view (15) and lateral view (16); 17–18, *S. spinitibiale* sp. nov., dorsal view (17) and lateral view (18); 19–20, *S. inspinitibiale* sp. nov., dorsal view (19) and lateral view; 21–22, *S. beardae* sp. nov., dorsal view (21) and lateral view (22); 23–24, *S. puncakdinginense* sp. nov., dorsal view (23) and lateral view (24); 25–27, *S. viridistriatum* sp. nov., dorsal view (25), lateral view (26), and anal sternite (27); 28–29, *S. katsumii* sp. nov., dorsal view (28) and lateral view (29); 30–31, *S. iridiodorsale* sp. nov., dorsal view (30) and lateral view (31).

Holotype: ♂, Lishan, 1,500 m alt., Taichung Hsien, C. Taiwan, 29–VII–1984, K. AKITA leg. (NSMT).

Notes. This new species resembles *S. fisicolle* FAIRMAIRE, 1903, from Haut-Tonkin, in having the elongated body with subclavate antennae, longitudinally depressed pronotum and depressed elytra, hence the two species should form a species-group. The former can be distinguished from the latter by the eyes larger and more strongly convex laterad, elytral depressions weaker and the male genitalia obviously more elongated.

Strongylium iridiodorsale sp. nov.

(Figs. 10, 30 & 31)

Blackish brown, dorsal surface darker in colour, head partly with greenish lustre, pronotum with an iridescent metallic patch, the central part of which is dark green, surrounded by purple and yellowish green bands (whole of pronotum almost purplish in some individuals); elytron with an iridescent elongate metallic patch, the central part of which is dark green, and surrounded by purple and yellow green bands, 1st intervals greenish golden, 8th and 9th with greenish blue. Rather elongate; moderately convex longitudinally, though weakly flattened in middle.

Head semicircular, finely punctate; clypeus transversely hexagonal, flattened in posterior part, bent downwards in front, fronto-clypeal border very slightly arcuate and deeply sulcate; genae oblique, raised outwards, with rounded outer margins; frons T-shaped, gently inclined forwards, with an impression in posterior part between eyes; vertex inclined posteriad, concealed under pronotum. Eyes large, approximate to each other, obliquely inlaid into head, strongly convex laterad, with a groove along each hind margin. Antennae subfiliform, reaching basal 1/4 of elytra, ratio of the length of each segment from basal to apical: 0.46, 0.2, 0.58, 0.41, 0.54, 0.44, 0.42, 0.41, 0.39, 0.42, 0.58.

Pronotum 1.25 times as wide as long, roundly produced laterad, widest at the middle; apex weakly produced and finely bordered, the border interrupted in the middle; base slightly bisinuous, bordered from disc by deep sulcus, area between the border and posterior margin ridged and sparsely scattered with microscopic punctures; sides gently declined to lateral margins, which are finely ridged and visible from above; front angles rounded, hind angles subrectangular with slightly acute corners; disc moderately convex, frequently punctate, sparsely scattered with far smaller punctures among larger ones, longitudinally depressed in medial part and transversely so in basal 1/5, with a pair of oblique impressions at basal 1/5, and also with a sulcus along each lateral margin close to base. Scutellum short linguiform, elevated, very weakly micro-shagreened, sparsely scattered with microscopic punctures.

Elytra 2.34 times as long as wide, 3.85 times the length and 1.3 times the width of pronotum, widest at base, gradually narrowed apicad, though very slightly constricted at basal 1/3; dorsum strongly convex, though the middle part is flattened and very

weakly sinuous, highest at basal 2/5; disc with rows of punctures, which are somewhat ovate, closely set in inner portion, and sparsely so in lateral portions, 1st and 2nd rows connected with each other near base, 5th rows deeply impressed close to base; humeri feebly swollen; apices simply, roundly produced.

Male anal sternite very feebly depressed in apical part. Legs without modification; ratios of the lengths of pro-, meso- and metatarsomeres: 0.29, 0.21, 0.23, 0.25, 1.2; 1.8, 0.8, 0.62, 0.49,1.27; 1.63, 0.58, 0.4, 1.13.

Male genitalia elongated fusiform, gently curved in lateral view, 2 mm in length and 0.3 mm in width; fused lateral lobes prolonged, 0.8 mm in length, with slightly spatulate apices.

Body length: 8.5–10.5 mm.

Holotype: ♂, near Keningau, Sabah, N. Borneo, 22–III–1988, M. ITO leg. (NSMT). Paratypes: same locality and collector as for the holotype, 1 ex., 23–III–1988, 1 ex., 15–IV–1988, 1 ex., 22–IV–1988, 1 ex., 11–III–1988; 1 ex., Ranau, Borneo, 22–VI–1980, S. NAGAI leg.; 2 exs., Headquarter, Sabah, 30–IV–1981, M. TAO leg.; 2 exs., 16 miles NW. of Keningau, 1,400 m alt., Sabah, 12～19–VIII–1983, Y. NOTSU leg.; 1 ex., nr. Keningau, Sabah, 2–I–1981, M. TOYAMA leg.; 1 ex., Keningau, 1,000 m alt., Sabah, 7～12–IX–1980, Y. GUNJI leg.; 1 ex., Keningau, Sabah, 31–V–1992, M. ITO leg.; nr. Keningau, Sabah, 1 ex., 28–IV–1994, 1 ex., 5–V–1994, M. ITO leg.; 1 ex., Kimanis Rd., Keningau, 3–III–1994, no collector's name; 1 ex., Sabah, no further detailed data; 1 ex., Keningau, Sabah, 15–V–1981, M. TAO leg.; Headquarters, 1,500–1,700 m alt., Mt. Kinabalu, Sabah, 1 ex., 26–III–1976, 1 ex., 15–IV–1976, 1 ex., 16–IV–1976, S. NAGAI leg. (MNHNP); Headquarters, 1,500–1,600 m alt., Kinabaru, at light, 1 ex., 12–XI–1996, 1 ex., 13–XI–1996, 1 ex., 14–XI–1996, D. GRIMM leg.; 1 ex., Crocker Range, 900–1,200 m alt., 16～20–XI–1996, W. SCHAWALLER leg. (SMNS).

Notes. This new species is easily distinguishable from the other named species by the stout, flattened, iridescent body, with lateral margins of pronotum remarkably impressed near the base. Allied species are widely distributed in the Malay Peninsula, the Philippines and India. GEBIEN seemed to have prepared for describing one of these relatives from Bombay as "*S. bombayense*" before his death. The female material is now preserved in the Zoology and Museum, Polish Academy of Sciences in Warsaw.

要　　約

益本仁雄：アジア産ナガキマワリ族（Strongyliini）の研究．VIII．東アジアのナガキマワリ属の10新種について．—— アジア産ナガキマワリ族の研究の第8回として，東アジアに分布するナガキマワリ属（*Strongylium*）の10新種を記載した．新たに与えた種名は次のとおりである．*Strongylium ardoinianum* sp. nov., *S. bhutanicum* sp. nov., *S. yunnanicum* sp. nov., *S. spinitibiale* sp. nov., *S. inspinitibiale* sp. nov., *S. beardae* sp. nov., *S. puncakdinginense* sp. nov., *S. viridistriatum* sp. nov., *S. katsumii* sp. nov., *S. irididorsale* sp. nov．なお，今後，種群ごとにまとめることを考慮して，各種の近似種をノートに可能な限り明記した．

Reference (Additional)

MASUMOTO, K., 1998. Study of Asian Strongyliini (Coleoptera, Tenebrionidae). V. Twenty new species of the genus *Strongylium* from East Asia. *Elytra, Tokyo*, **26**: 173–200.

Elytra, Tokyo, **27** (2): 352, November 13, 1999

Record of *Agathidium* (*Microceble*) *carinatum* (Coleoptera, Leiodidae) from Kyushu, Japan

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Agathidium (*Microceble*) *carinatum* ANGELINI et DE MARZO, 1988 was described from Honshu and Shikoku, Japan. In 1996, I made a collecting trip to Mt. Kurodake, Kyushu, and collected some specimens of this species by using Berlese funnels. I will record it for the first time from Kyushu in the present report. Before going further, I wish to express my sincere gratitude to Prof. Junichi YUKAWA (Kyushu University) for continuous guidance.

Agathidium (*Microceble*) *carinatum* ANGELINI et DE MARZO, 1988

[Japanese name: Jôshû-maru-tamakinokomushi]

Agathidium (*Microceble*) *carinatum* ANGELINI et DE MARZO, 1988, Ent. Bari, **23**: 116 (Honshu and Shikoku). —— ANGELINI, 1995, Mus. reg. Sci. nat. Torino, Monogr., **18**: 444.

Specimens examined. 1♂, 2♀♀, Mt. Kurodake, Ôita Pref., Kyushu, 24–VII–1996, H. HOSHINA leg.

Distribution. Japan (Honshu, Shikoku, and Kyushu).

Remarks. This species is similar in appearance to *Agathidium* (*Microceble*) *ciliatum* PORTEVIN, 1908, but the proximal part of the aedeagus is more twisted than in the latter.

References

ANGELINI, F., 1995. Revisione tassonomica delle specie paleartiche del genere *Agathidium* PANZER (Coleoptera: Leiodidae: Agathidiini). *Mus. reg. Sci. nat. Torino, Monogr.*, **18**: 1–485.

——— & L. DE MARZO, 1988. Anisotomini del Giappone (Coleoptera, Leiodidae). *Ent. Bari*, **23**: 47–122.