

## Study of Asian Strongyliini (Coleoptera, Tenebrionidae)

### IX. Hairy *Strongylium* Species from Southeast Asia (Part 1. Species-group of *Strongylium gibbosulum*)

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**Abstract** This is the ninth part of the study of the Asian Strongyliini and deals with the hairy species of *Strongylium*. The species-group of *S. gibbosulum* is taken up for the first part. Two named species are re-examined and three new ones are described: *Strongylium gibbosulum* FAIRMAIRE, *S. monini* PIC, *S. guizhouense* sp. nov., *S. anhuiense* sp. nov., and *S. fujianense* sp. nov. Besides, lectotypes are designated for *S. monini* PIC.

This is the ninth part of the study of the Asian Strongyliini and deals with the species-group of *S. gibbosulum* as the first part of the hairy species.

FAIRMAIRE (1891) described *S. gibbosulum* from China, and PIC (1917) described *S. monini* from Tonkin. I have been studying hairy *Strongylium* for these two years, and found some undescribed species related to these two. Therefore, I am going to deal with the species-group of *S. gibbosulum* and its relatives as the first part of the hairy *Strongylium*, and I will designate lectotypes for *S. monini* PIC.

The specimens examined are submitted to me for taxonomic study from my old friends in entomology. I wish to express my heartfelt thanks to Dr. Claude GIRARD and M<sup>lle</sup> Jeanne CHARBONNEL, Muséum National d'Histoire Naturelle, Paris, Mrs. Jane BEARD and Mr. Martin J. D. BRENDALL, the Natural History Museum, London, Dr. Wolfgang SCHAWALLER, Staatliches Museum für Naturkunde in Stuttgart, Mr. Stanislav BEČVÁŘ, Czech Academy of Sciences, Dr. Ottó MERKL, Természettudományi Múzeum, Budapest, Dr. Dariusz IWAN, Museum and Institute of Zoology, Polish Academy of Sciences, Warsaw, Dr. Hans J. BREMER, Melle, Germany, and Mr. Kiyoshi ANDO, Ehime University, for providing materials. Thanks are also 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: MNHNP – Muséum National d'Histoire Naturelle, Paris; NMNHP – National Museum (Nat. Hist.), Praha; TMB – Természettudományi Múzeum, Budapest.

*Strongylium gibbosulum* FAIRMAIRE, 1891

(Fig. 1)

*Strongylium gibbosulum* FAIRMAIRE, 1891, C.-R. Soc. ent. Belg., 1891: CCXII.

Type specimen: A female, preserved in MNHNP.

*Original description.* “— Long. 15 mill. — Oblongo-elongatum, valde convexum, longitudinaliter arcuatum, cyaneum, nitidum, elytris sat dense griseo-villosis, capite prothoraceque paulo obscurioribus, magis coeruleis, subtiliter pubescentibus, ano rufo; capite sat dense punctato, medio sulcato, antice fortiter arcuatim impresso, oculis approximatis; antennis medio corporis parum brevioribus, basi gracilibus, ab articulo 5° gradatim paulo dilatatis, fuscis, articulo 1° paulo coerulescente; prothorace elytris valde angustiore transverso, a medio antice angustato, lateribus medio arcuatis, basi utrinque leviter late sinuata, angulis posticis acutiusculis, dorso punctato-rugoso, fere carioso, medio obsolete sulcato et basi medio impressiusculo; scutello triangulari, apice obtuso, fusco-aenescente; elytris oblongatis, ad humeros obliquatis, postice tantum angustatis, apice separatim obtusis, lateribus sat compressis, dorso foveolato striatis, foveolis post medium punctiformibus, apice obsolete, intervallis vix convexiusculis, punctatis, transversim plicatis, striis ipsis plicato-interruptis; subtus obscurius subtilissime punctulatum, breviter griseo-villosulum, pectore fortius punctato; pedibus magnis, intermediis longioribus. — Kiu-Kiang.”

*Distribution.* China.

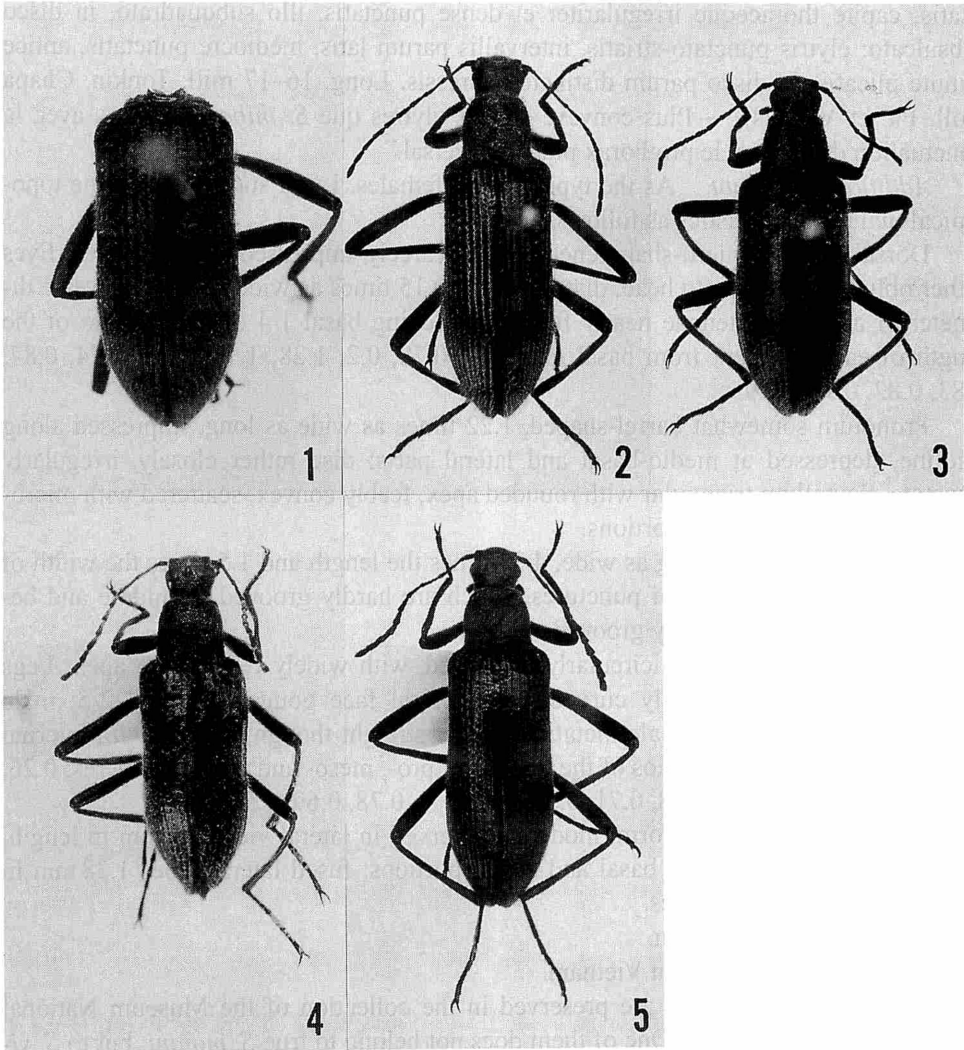
*Notes.* The type specimen is a female, which is badly damaged by dermestid beetles, having lost the fore body. Therefore, I will supplement some features of the scutellum, elytra and some other parts:

Scutellum sublinguiform, slightly convex in middle, micro-shagreened, rather frequently scattered with pily haired fine punctures, the hairs obviously shorter than those on elytra.

Elytra 2.36 times as long as wide, gently constricted at basal 1/3; dorsum strongly convex, highest at slightly behind basal 1/3, feebly depressed along scutellar striae; disc weakly micro-shagreened, with rows of punctures, which are oblong-ovate in the internal portions, often connected with one another and form longitudinal grooves in the medio-lateral portions, and become smaller and mostly striated in apical portions, 1st and 2nd rows connecting with each other near base, 5th reaching base, 6th barely extending to base through inside of humeral swelling; scutellar striae finely but clearly impressed; intervals gently convex, often transversely connected with one another in medio-lateral portions, and forming somewhat transverse wrinkles, rather frequently scattered with fine haired punctures; humeri swollen; apices gently produced.

Metasternum and abdomen somewhat alutaceous, rather frequently scattered with pily haired fine punctures.

Middle and hind legs slender, ratios of the lengths of meso- and metatarsomeres: 1.48, 0.63, 0.58, 0.44, 1.22; 1.61, 0.67, 0.48, 1.37.



Figs. 1-5. Habitus. — 1, *Strongylium gibbosulum* FAIRMAIRE, holotype, ♀; 2, *S. monini* PIC, ♂; 3, *S. guizhouense* sp. nov., holotype, ♂; 4, *S. anhuiense* sp. nov., holotype, ♂; 5, *S. fujianense* sp. nov., holotype, ♂.

***Strongylium monini* PIC, 1917**

(Figs. 2, 6-8)

*Strongylium monini* PIC, 1917, Mél. exot.-ent., Moulins, (23): 17.

Syntypes: 3 exs., females, preserved in MNHNP.

*Original description.* "Oblongo-elongatus, postice attenuatus, griseo pubescens, nitidus, supra aeneus, infra plus minusve caeruleus. Antennis longis, apice parum di-

latatis, capite thoraceque irregulariter et dense punctatis, illo subquadrato, in disco subsulcato; elytris punctato-striatis, intervallis parum latis, mediocre punctatis, antice minute plicatis, in disco parum distincte depressis. Long. 16–17 mill. Tonkin. Chapa (coll. PIC et VITALIS). — Plus convexe sur les elytres que *S. thibetanus* PIC, avec la ponctuation différente, le prothorax plus transversal.”

*Additional account.* As the types are all females, I will supplement some topotypical male characteristics as follows:

Dorsal surface micro-shagreened. Head scarcely impressed between eyes. Eyes rather obliquely inlaid into head, diameter about 0.15 times as wide as the transverse diameter of an eye. Antennae nearly filiform, reaching basal 1/4 of elytra, ratio of the length of each segment from basal to apical: 0.78, 0.2, 1.28, 1.17, 1.03, 0.94, 0.87, 0.83, 0.82, 0.78, 0.89.

Pronotum somewhat barrel-shaped, 1.22 times as wide as long, impressed along midline, depressed at medio-basal and lateral parts; disc rather closely, irregularly punctate. Scutellum triangular with rounded apex, feebly convex, scattered with microscopic punctures in lateral portions.

Elytra 2.4 times as long as wide, 4.33 times the length and 1.5 times the width of pronotum; disc with rows of punctures, which are hardly grooved in middle and become finer and more strongly grooved apicad.

Male anal sternite semicircularly depressed, with widely emarginate apex. Legs slender; male protibia gently curved, with ventral face gouged at basal 2/5; male mesotibia nearly straight; male metatibia nearly straight though twisted, with internal face gouged at basal 2/5; ratios of the lengths of pro-, meso- and metatarsomeres: 0.26, 0.19, 0.2, 0.22, 1.2; 2.08, 0.8, 0.71, 0.58, 1.56; 1.8, 0.78, 0.69, 1.54.

Male genitalia subfusiform, moderately curved in lateral view, 3.3 mm in length, weakly constricted between basal and apical portions; fused lateral lobes 1.38 mm in length, with prolonged apices.

Body length: 14–17 mm.

*Distribution.* Northern Vietnam.

*Notes.* Four syntypes are preserved in the collection of the Muséum National d'Histoire Naturelle, Paris. One of them does not belong to true *S. monini*, but to *S. vitalisi* PIC. I hereby designate lectotypes.

Lectotype designation: Lectotype – ♀, labeled “Tonkin, Chapa, 8–VI–1918, JEAN-VOINE; *S. monini* (hand-writing); type (hand-writing); TYPE; *S. monini* PIC.” Paralectotypes: 1 ♀, labeled “Chapa, g...; *S. monini* (hand-writing); TYPE; Muséum Paris, Coll. M. PIC”; 1 ♀, labeled “*S. monini* PIC (hand-writing).”

### *Strongylium guizhouense* sp. nov.

(Figs. 3, 9–11)

Piceous, mouth parts, apical half of anal segment, claws, etc., brownish, dorsal surface with dark bluish or dark violet tinge, ventral surface dark blue partly with fee-

ble greenish tinge; dorsal surface weakly sericeously shining, ventral surface feebly alutaceous; each surface clothed with pale pily hairs. Oblong-ovate; strongly convex above.

Head almost rounded, though the clypeus is strongly projected antero-ventrad, closely punctate, very weakly micro-shagreened; clypeus semicircular, finely impressed along the fronto-clypeal border; genae oblique, strongly raised antero-laterad, depressed in anterior parts of eyes, impressed along the border of vertex behind eyes, with rounded outer margins; frons somewhat T-shaped, rather strongly impressed in posterior part between eyes, diatone 0.23 times as wide as the transverse diameter of an eye. Eyes subreniform, obliquely inlaid into head, weakly convex laterad. Antennae subfiliform, reaching basal 1/3 of elytra, ratio of the length of each segment from basal to apical: 0.75, 0.2, 1.23, 1.12, 0.84, 0.81, 0.8, 0.78, 0.73, 0.62, 0.68.

Pronotum trapezoidal, 1.23 times as wide as long, widest at base; apex nearly straight, bordered in wide V-shape and raised; base sinuous on each side, rather finely margined and weakly raised; sides moderately declined to lateral margins, which are scarcely bordered from prosternum; front angles subrectangular, hind angles feebly produced; disc scarcely micro-shagreened, irregularly, coarsely punctate, the punctures often fused with one another, very weakly impressed along median line, gently depressed at medio-basal part. Scutellum triangular with rounded apex, flattened, micro-shagreened, scattered with microscopic punctures.

Elytra 2.14 times as long as wide, 4.53 times the length and 1.66 times the width of pronotum, widest slightly behind the middle; dorsum strongly convex, highest at basal 1/3, feebly depressed along scutellar striae; disc scarcely micro-shagreened, with rows of punctures, which are somewhat ovate and become smaller and grooved apicad, 5th rows deeply impressed close to base; intervals very weakly convex, transversely connected with one another in middle portions, rather frequently scattered with minute, posteriorly oriented punctures; humeri feebly swollen; apices gently, roundly produced.

Male anal sternite broadly subelliptically depressed, with apex widely though feebly emarginate. Legs slender; male protibia curved, with ventral face rather distinctly gouged in middle; male mesotibia gently curved; male metatibia almost straight, with interior face hardly gouged; ratios of the lengths of pro-, meso- and metatarsomeres: 0.26, 0.19, 0.21, 0.23, 1.23; 1.81, 0.78, 0.69, 0.38, 1.46; 1.91, 0.8, 0.51, 1.39.

Male genitalia elongated fusiform, very slightly curved in lateral view, about 5 mm in length, 0.8 mm in width; fused lateral lobes 2.3 mm in length, elongated equilateral triangular in dorsal view, impressed along midline in apical 2/5, with apices not sharply pointed.

Body length: 15–17 mm.

Holotype: ♂, "CH – Guizhou NE 27. V. – 3. VI. 20 km NW of Jiangkou, 1995 FANJING SHAN – Kuaichang E. Jendek & O. Šauša leg." (NHNHP). Paratypes: 3 exs., same data as for the holotype.

*Strongylium anhuiense* sp. nov.

(Figs. 4, 12–14)

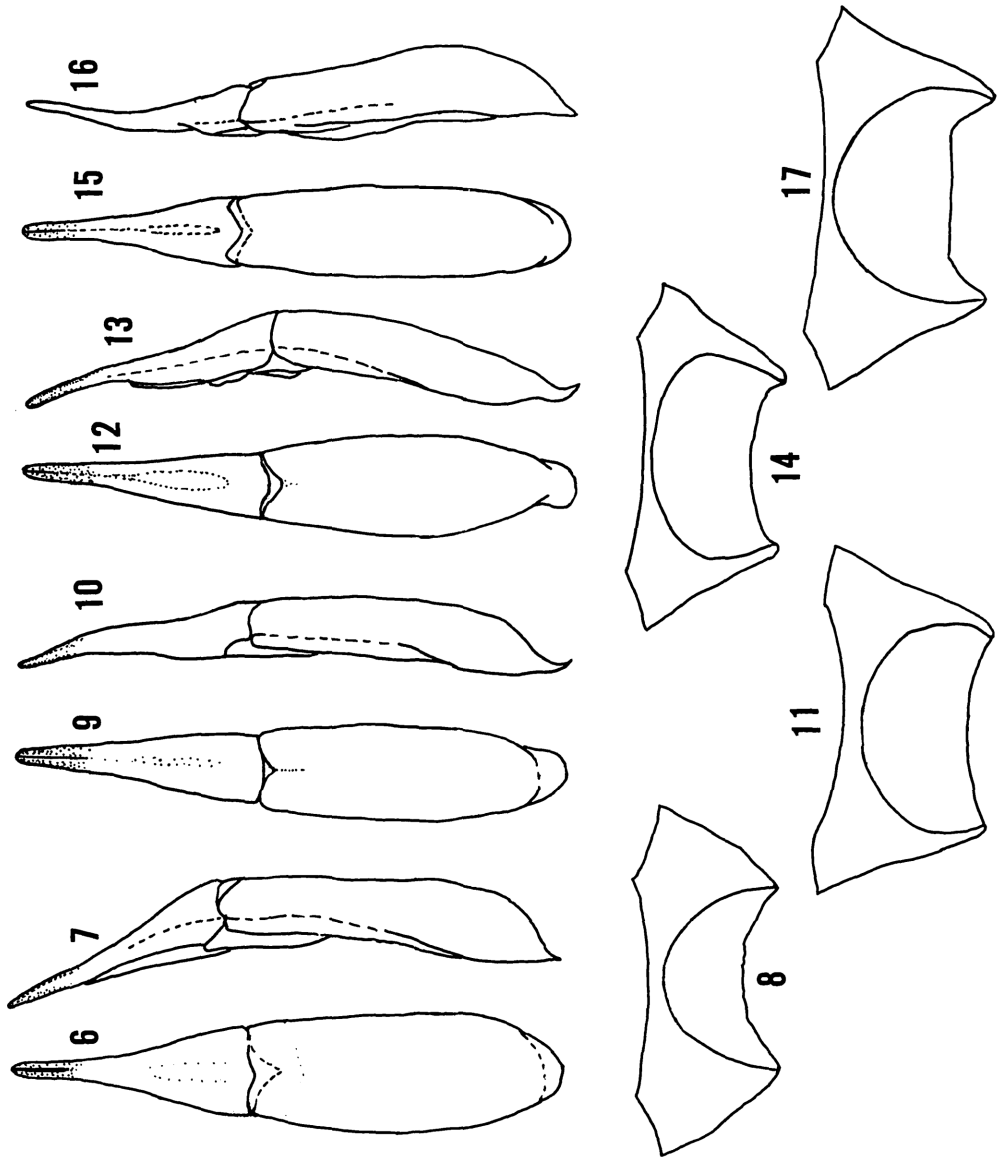
Piceous with dark purplish tinge, head, two or three basal segments of antennae, apex and base of pronotum, scutellum, prosternum, epipleura of elytra, ventral side of legs, etc., with feeble bluish tinge; dorsal surface gently, slightly sericeously shining, ventral surface weakly, somewhat alutaceously shining; each surface covered with pily hairs. Oblong; strongly convex above.

Head somewhat transversely elliptical though the clypeus is projected antero-ventrad, very feebly micro-shagreened, closely, finely punctate; clypeus semicircular, widely finely impressed along fronto-clypeal border; genae strongly raised antero-laterad, depressed in areas before eyes, impressed along the cervical border, with triangular outer margins; frons somewhat T-shaped, though the posterior part is strongly impressed between the eyes, the impression rugoso-punctate, diatone (the nearest points) 0.2 times as wide as the transverse diameter of an eye. Eyes roundly inlaid into head, gently convex laterad. Antennae nearly filiform, reaching basal 1/3 of elytra, ratio of the length of each segment from basal to apical: 0.69, 0.2, 1.27, 1.11, 0.96, 0.9, 0.88, 0.86, 0.79, 0.67, 0.72.

Pronotum 1.25 times as wide as long, widest at base, weakly sinuous before base; apex nearly straight and raised, finely bordered on each side; base feebly sinuous on each side and ridged, bordered widely in middle; sides rather steeply declined to lateral margins, which are hardly ridged; front angles rectangular with rounded corners, hind angles rather acutely produced; disc weakly convex, depressed at medio-basal part, transversely impressed at basal 2/5 on each side, not micro-shagreened, irregularly, closely punctate, the punctures often fused with one another and forming rugulosities. Scutellum elongated equilateral triangular, very feebly concave in middle, micro-shagreened and finely punctate in lateral portions.

Elytra 2.2 times as long as wide, 4.31 times the length and 1.5 times the width of pronotum; dorsum strongly convex, weakly undulate slightly before the middle, noticeably depressed in area between scutellar striae, though the holotype might be malformed (in case of the female paratype, this area is only weakly depressed), highest slightly before the middle; disc micro-shagreened and rather frequently, microscopically punctate and densely, pily haired, with rows of punctures, which are small and rounded in interior portion, becoming larger and elongate in lateral portions, and smaller and finely striated in apical portions; intervals feebly convex, often transversely united and raised in medio-lateral portions, often forming transverse wrinkles; humeri feebly swollen; apices weakly projected apicad.

Male anal sternite subelliptically depressed, with apex widely emarginate. Male protibia gently curved, with ventral surface gouged in middle; male mesotibia weakly curved interiad and slightly warped dorsad; male metatibia nearly straight, slightly warped dorsad, weakly twisted, with interior face gouged in basal half; ratios of the lengths of pro-, meso- and metatarsomeres: 0.24, 0.15, 0.17, 0.21, 1.2; 1.6, 0.77, 0.48,



Figs. 6–17. Male genitalia and male anal sternites of *Strongylium* spp. — 6–8. *S. monini* Pic; 6, male genitalia, dorsal view; 7, ditto, lateral view; 8, male anal sternite. — 9–11. *S. guizhouense* sp. nov.; 9, male genitalia, dorsal view; 10, ditto, lateral view; 11, male anal sternite. — 12–14. *S. anhuiense* sp. nov.; 12, male genitalia, dorsal view; 13, ditto, lateral view; 14, male anal sternite. — 15–17. *S. fujianense* sp. nov.; 15, male genitalia, dorsal view; 16, ditto, lateral view; 17, male anal sternite.

1.37; 1.8, 0.7, 0.56, 1.5.

Male genitalia elongated fusiform, gently bent mediad in lateral view, 5 mm in length, 0.8 mm in width; fused lateral lobes 2.3 mm in length, impressed along midline in apical 2/3, with prolonged, not so acute apices.

Body length: 16–18 mm.

Holotype: ♂, "CHINA, SW. – ANHUI, YUEXI Co., MIAODAOSHEN Mts., 600–1300 m, 18.–20. 7. 1995, 30 48–50' / 116 05' L.+R. BUSINSKÝ lgt." (NMNHP). Paratype: 1 ex., same data as for the holotype.

*Notes.* This new species is distributed in Yuexi, southern part of Anhui, geographically not so far from the type locality Kiu Kiang of *S. gibbosulum*. As compared with it in female, this species can be discriminated from the latter by the elytra with rows of the punctures not grooved, the intervals not micro-shagreened, not so distinctly, transversely wrinkled but rather smooth, and the apices a little more strongly produced.

### *Strongylium fujianense* sp. nov.

(Figs. 5, 15–17)

Piceous, with dorsal surface, particularly elytra, dark bluish to dark purplish, apical part of 11th antennal segment, mouth parts, anal sternite, lateral portions of 3rd visible abdominal sternite (and also 4th in some individuals) brownish yellow, legs and lateral portions of body often with bronzy reflection; head and pronotum rather sericeous and hardly shining, scutellum and elytra dully, metallicly shining, ventral surface gently, somewhat alutaceously shining; each surface clothed with pily hairs, which are not so long on head, pronotum and ventral surface, and rather long on elytra, above all in lateral portions. Rather elongate; strongly convex longitudinally.

Head comparatively small in male, medium-sized in female for a species of this group, subdecagonal, micro-shagreened and closely, finely punctate; clypeus simicircular, moderately bent ventrad in apical part, widely, rather clearly impressed along fronto-clypeal border; genae strongly, somewhat obliquely raised antero-laterad, depressed before eyes, impressed postero-laterad from posterior margins of eyes, with obtuse outer margins; frons somewhat T-shaped, weakly ridged between eyes, rather noticeably impressed behind the ridge, diatone about 0.1 times as wide as the transverse diameter of an eye. Eyes rather large, obliquely inlaid into head, rounded in front, rather strongly convex laterad. Antennae subfiliform, reaching basal 1/4 of elytra, 6th to 10th segments dilated to each apex, 6th to 11th gently flattened; ratio of the length of segments from basal to apical: 0.68, 0.2, 1.4, 1.16, 1.0, 0.87, 0.88, 0.70, 0.68, 0.67, 0.87.

Pronotum 1.33 times as wide as long, widest at base, gently sinuous before base; apex nearly straight, raised and margined; base weakly sinuous and raised on each side; sides rather steeply declined to lateral margins, which are hardly bordered; front angles rounded, hind angles acutely produced postero-laterad; disc weakly micro-sha-



greened, closely, irregularly punctate, the punctures fused with one another and often forming rugulosities, rather noticeably depressed at medio-basal part, lateral parts near base and medial part near apex, and impressed at basal 1/3 on each side. Scutellum sublinguiform, feebly convex, micro-shagreened, irregularly, finely punctate in postero-lateral parts.

Elytra 2.44 times as long as wide, 5 times the length and 1.64 times the width of pronotum, widest at apical 1/3; dorsum strongly convex, highest at basal 1/4, feebly undulate at basal 1/4, weakly depressed between scutellar striae; disc weakly micro-shagreened, feebly, rather transversely raised and forming wrinkles, with rows of punctures, which are small, ovate and closely set in antero-interior portion, become larger, elongate and somewhat foveate in lateral portions, and smaller and striated in apical portion, 1st and 2nd rows united with each other at the base, 5th rows deeply impressed close to base; intervals feebly convex, frequently scattered with microscopic punctures; humeri feebly swollen; apices simply rounded.

Male anal sternite strongly, semicircularly depressed, with the apex noticeably emarginate and the margin widely straight in middle. Male protibia weakly arcuate, with ventral face feebly gouged in middle; male mesotibia slightly curved and weakly warped above; male metatibia nearly straight, feebly warped above, slightly twisted, with internal face weakly gouged in basal 3/7; ratios of the lengths of pro-, meso- and metatarsomeres: 0.27, 0.19, 0.21, 0.23, 1.2; 1.8, 0.78, 0.63, 0.53, 1.39; 1.83, 0.8, 0.56, 1.51.

Male genitalia elongated fusiform, about 4 mm in length, 0.6 mm in width, with gently curved basal piece and warped lateral lobes in lateral view; fused lateral lobes 1.6 mm in length, impressed along midline in apical 9/10, with prolonged apices.

Body length: 14.5–17.5 mm.

Holotype: ♂, "CHINA Fujian – Prov. SHAOWU env., 13.–16. 6. 1991, lgt. Nikodym, Cervenka" (NMNHP). Paratypes: 2 exs., same data as for the holotype; 1 ex., "CHINA Fujian prov. Shaowu env. 5.–10. 7. 1991"; 1 ex., "KUATUN, FUKIEN China, 15. 6. 1946, leg. Tschung Sen" (TMB).

### Key to the Species of the Group of *S. gibbosulum*

- 1(2) Elytra distinctly purplish, with punctures in rows connected with one another and distinctly forming longitudinal impressions in medial portions, 6th row barely reaching base inside the humeral swelling; 15 mm; Kiu-Kiang, China. . . . .  
. . . . . *S. gibbosulum* FAIRMAIRE.
- 2(1) Elytra not distinctly purplish, with punctures in rows hardly connected with one another and not forming longitudinal impressions in medial portion, 6th row not reaching base but disappearing behind the humeral swelling.
- 3(4) Body slenderer; diatone narrower (0.1 times the width of an eye diameter); pronotum noticeably closely punctate, barely touching one another; hairs on each surface shorter and finer; 14.5–17.5 mm; Fujian, China. . . . .

- ..... *S. fujianense* sp. nov.
- 4(5) Body bolder; diatone wider; pronotum less closely punctate; hairs on each surface longer and not stouter.
- 5(6) Head and pronotum wider; pronotum more sparsely punctate, the punctures hardly fused with one another; elytra with rows of punctures more frequently, more closely set, often finely striate; intervals more sparsely, finely punctate, less noticeably wrinkled; 14–17 mm; N. Vietnam. . . . . *S. monini* PIC.
- 6(5) Head and pronotum narrower; pronotum more closely, irregularly punctate, the punctures often fused with one another; elytra with rows of punctures less frequently, less closely set, hardly striate; intervals more closely, irregularly punctate, more noticeably wrinkled.
- 7(8) Pronotum more noticeably rugoso-punctate; elytral intervals rather smooth, scattered with less strong punctures, elytral apices gently projected; male anal sternite moderately, subelliptically depressed, with apex feebly, widely emarginate at apex; hairs on surface not so long and dense; 16–18 mm; Anhui, China . . . . . *S. anhuiense* sp. nov.
- 8(7) Pronotum less noticeably rugoso-punctate; elytral intervals rather shagreened, scattered with stronger punctures, elytral apices simply rounded; male anal sternite strongly, semicircularly depressed, with apex noticeably emarginate, widely straight in middle; hairs on each surface longer and denser; 15–17 mm; Guizhou, China . . . . . *S. guizhouense* sp. nov.

### 要 約

益本仁雄：アジア産ナガキマワリ族 (*Strongyliini*) の研究。IX. 東南アジア産有毛キマワリ属その1, *S. gibbosulum* 種群について。—— アジア産ナガキマワリ族 (*Strongyliini*) の研究の第9回として、東南アジア産キマワリ属で体表に毛を顕著に装うグループのなかから *S. gibbosulum* およびその近縁種をとりあげた。既知種の *Strongylium gibbosulum* FAIRMAIRE および *S. monini* PIC の2種を再検討し、3新種 *S. guizhouense* sp. nov., *S. anhuiense* sp. nov., *S. fujianense* sp. nov. を記載した。また、*S. monini* PIC については、後基準標本の指定をおこなった。

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