

New Cerambycid Beetles of the Genus *Lemula* BATES from Taiwan

By

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In 1976 and 1978, the author had opportunities to make surveys of the cerambycid fauna of Taiwan (Formosa). As the result, a number of interesting species of cerambycid beetles were obtained by the author himself and his friends, Messrs. Shûsei SAITO and Toshio SENOH. Among the materials obtained, the author found some interesting specimens which should be attributed to the genus *Lemula* BATES, 1884. After a careful examination, it has become apparent that they are classified into four species, all of which seem undescribed. It is the purpose of the present paper to introduce them into science.

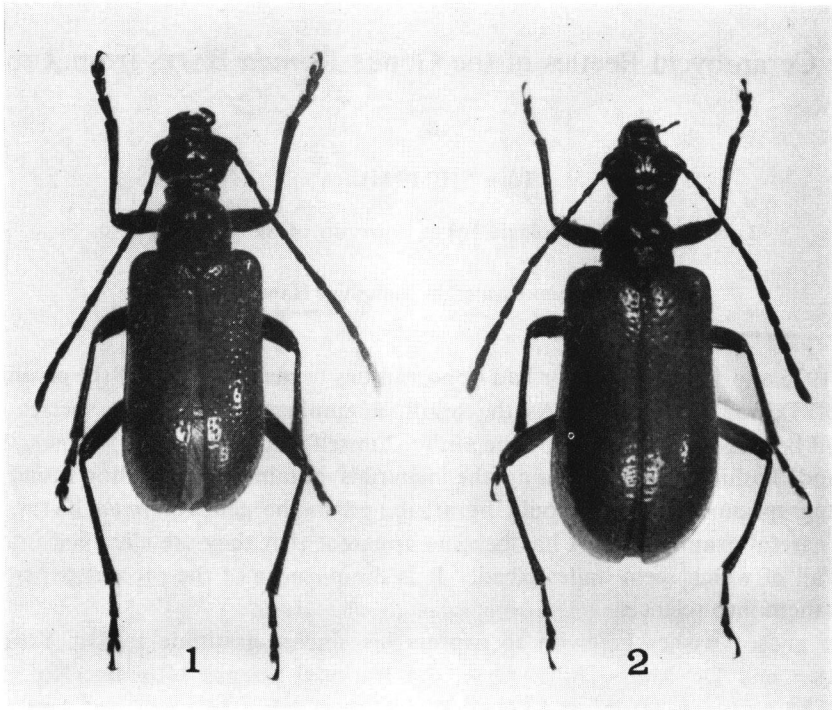
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Lemula brunneipennis sp. nov.

(Figs. 1-2)

Male. Body moderate in size, rotundate, and shiny on the dorsal surface; head black, with anterior portions of mandibles reddish brown; antennae black, except for basal part of scape which is reddish brown, each of 5th-11th segments dull brownish black; prothorax black; scutellum dark reddish brown, sometimes brown; elytra reddish brown, seldom yellowish brown; legs brownish black, though the basal areas of metafemora, metatrochanters and metacoxae are reddish brown; mesothorax, metathorax and abdomen light reddish brown to reddish brown on the ventral surface, mesosternum sometimes dark brown.

Head subquadrate and slightly broader across eyes than the width between lateral tubercles of prothorax, tempora arcuately expanded and distinctly constricted at neck; clypeus transverse, rectangular and slightly narrowed anteriorly, surface sparsely and more or less finely punctured, the punctures somewhat denser at the sides but sparser in middle, and covered with sparse pale yellow pubescence; frons very short, provided with a transverse concavity in front, and with a median longitudinal furrow



Figs. 1-2. *Lemula brunneipennis* sp. nov., from Pilu-shenmu; male (1) and female (2).

continuing to occiput, the furrow becoming deeper between small and weakly raised antennal tubercles, but shallower and finer near occiput; disc relatively elevated above, surface sparsely scattered with small, irregular-sized punctures, though more or less densely punctured near antennal tubercles, and sparsely with pale yellow pubescence; antennae rather slender and moderately long, reaching apical third of elytra, and slightly thickened apically, scape spindle-shaped and slightly swollen towards apex, four basal segments each finely punctured and with sparse yellow pubescence; length order of antennal segments as follows:— 2.0: 0.7: 1.3: 1.2: 2.0: 1.6: 1.8: 1.6: 1.7: 1.5: 1.9.

Pronotum convex above, about as long as basal width, provided with a very obtuse tubercle at middle of each lateral side, rather strongly constricted just behind anterior margin and weakly so just before posterior margin, space between anterior margin and anterior constriction weakly swollen; apex distinctly narrower than base, both margin finely bordered, the latter slightly sinuate on each side; surface with a large discal prominence on each side of median line which is broadly and shallowly impressed in basal two-thirds, sparsely scattered with fine punctures, though more or less coarsely punctured near anterior and posterior margin, and with sparse yellow pubescence all over; interspace between punctures relatively polished. Scutellum

subtriangular, somewhat broader than long and tongue-shaped at apex; surface minutely punctured, and sparsely covered with fine pale yellowish pubescence.

Elytra rather convex above, about twice as long as basal width, almost parallel-sided, and broadly rounded at apices; surface more or less coarsely and sparsely punctured, the punctures being somewhat finer and sparser towards apex, and sparsely covered with fine golden pubescence and outstanding long golden setae all over.

Legs slender, moderately covered with subrecumbent pale yellow pubescence; first segment of hind tarsus slightly longer than the following two segments together.

Abdomen broad and relatively short, gradually narrowed apically, surface of each sternite covered with coriaceous ground sculpture, sparsely scattered with extremely fine punctures and moderately with pale yellow pubescence; last sternite more or less densely fringed with short yellowish hairs along apical margin, of which the median portion is broadly rounded.

Length: 7.2–8.0 mm (from mandibular tips to elytral apices); width: 2.0–2.2 mm (across humeral angles of elytra).

Female. Though similar in general appearance to the male, it is different in the following points: body more rotundate; mouth-parts and clypeus sometimes completely reddish brown; prothorax with anterior and posterior margins sometimes reddish brown; all of coxae, trochanters and femora sometimes reddish brown; antennae shorter and reaching the middle of elytra; elytra gradually broadened towards apical third.

Length: 6.0–8.0 mm (from mandibular tips to elytral apices); width: 1.7–2.4 mm (across humeral angles of elytra).

Type-series. Holotype: ♂, Pulu-shenmu (about 2,000–2,400 m in alt.), Hualien Hsien, Taiwan, 18-V-1978, T. SHIMOMURA lgt. Allotype: ♀, same locality as the holotype, 8-V-1977, S. SAITO lgt. Paratypes: same locality as the holotype: 1 ♀, 8-V-1977, S. SAITO lgt.; 2 ♂♂, 3-V-1978, S. SAITO lgt.; 1 ♀, 4-V-1978, S. SAITO lgt.; 1 ♂, 16-V-1978, T. SHIMOMURA lgt.; 1 ♀, 18-V-1978, S. SAITO lgt.; 1 ♂, 20-V-1978, S. SAITO lgt.; 2 ♀♀, 21-V-1978, T. SHIMOMURA lgt.; 2 ♀♀, 24-V-1978, T. SHIMOMURA lgt.

The holo- and allotype are preserved in the National Science Museum (Nat. Hist.), Tokyo; the paratypes are distributed to the above collection, the Laboratory of Entomology, Tokyo University of Agriculture, and the author's and S. SAITO's private collections.

Notes. In general appearance, this species resembles *L. inaequalicollis* PIC, 1957, described from Fukien, East China, but differs from the latter in the following characters: prothorax provided with obtuse lateral tubercles, head and prothorax mostly black, elytra reddish brown, and so on. It is also similar to *L. decipiens* BATES, 1884, distributed in Japan, but differs from the latter in having the dorsal surface much more shining, the scutellum reddish brown or brown, the elytral punctures sparser, and the elytral pubescence sparser and longer.

Lemula crucifera sp. nov.

(Fig. 3)

Female. Body moderate in size, rotundate, and shiny on the dorsal surface; head deep red, with apical portions of mandibles and palpi brownish black; eyes black; antennae black, except for basal part of scape which is deep red, each of 5th–11th segments dull black; prothorax deep red; scutellum dark brownish red; meso- and metathoraces light reddish brown beneath; elytra pale yellow, each elytron decorated with shiny blackish markings as follows: median longitudinal stripe extending along sutural margin for the whole length, though the apical portion becomes narrower, lateral longitudinal stripe on each pleural ridge, though becoming narrower apically behind apical fourth, a transverse band just behind middle, and more or less broad transverse band at base, whose posterior margin is emarginate at middle, the two transverse bands being connected with the stripes at sutural margin and pleural ridge; legs black, femora reddish brown with black apical parts; abdomen light brownish yellow, though the posterior portion of each sternite is dark brownish yellow, last sternite translucent pale yellow.

Head subrectangular, about as broad as the width between lateral tubercles of prothorax, tempora slightly narrowed in anterior half and distinctly constricted in posterior half; clypeus transverse and rectangular, surface closely punctured and sparsely covered with pale yellowish pubescence; frons relatively short, provided with a shallow transverse impression in front, and with a median longitudinal furrow which continues to central space between posterior margins of eyes, the furrow becoming somewhat deeper between antennal tubercles which are small and weakly raised; disc weakly elevated above, surface sparsely scattered with small punctures and with pale yellowish pubescence, though the tempora are coarsely punctured and bear conspicuous pale yellow pubescence; antennae slender though fairly short, not reaching middle of elytra and slightly thickened apically, scape weakly swollen towards apex, basal four segments each with yellow pubescence and the remainings densely clothed with extremely fine pale yellow pubescence; length order of antennal segments as follows:—2.0: 0.7: 1.2: 1.3: 1.8: 1.2: 1.5: 1.2: 1.2: 1.1: 1.8.

Pronotum convex above, slightly shorter than basal width and narrower at apex than base, provided with an obtuse tubercle at middle of each lateral side, distinctly constricted just behind anterior margin and weakly so just before posterior margin, space between apical margin and anterior constriction distinctly swollen; both anterior and posterior margins finely bordered, the latter slightly sinuate on each side; surface with a discal prominence on each side of median line which is more or less broadly and shallowly impressed in basal two-thirds, sparsely and finely punctured, though the punctures are somewhat coarser near anterior and posterior margins, and sparsely covered with short pale pubescence and also with outstanding long setae on each side near posterior margin. Scutellum subtriangular, rounded apically and depressed; surface minutely and sparsely punctured, and sparsely covered with fine pale yellowish

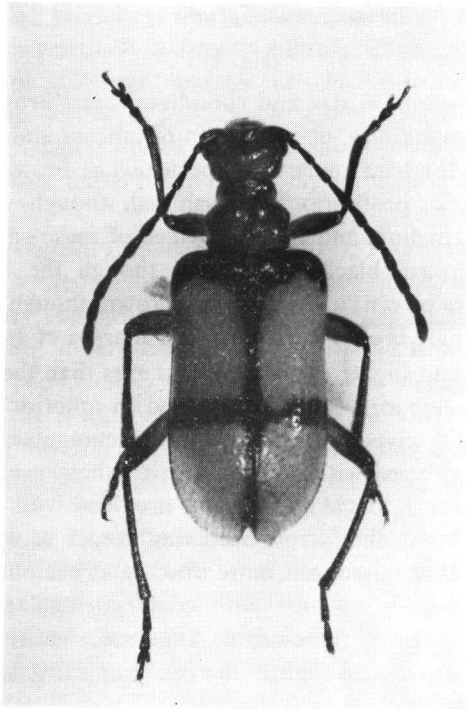


Fig. 3. *Lemula crucifera* sp. nov., female, from Palin.

pubescence.

Elytra rather convex above, about twice as long as basal width, nearly parallel-sided, though slightly constricted at basal third and slightly broadened at apical third; apices broadly rounded; surface sparingly and finely punctured and sparsely covered with fine golden pubescence and with outstanding long golden setae, which are blackish in apical area.

Legs slender, moderately covered with pale yellowish pubescence; first segment of hind tarsus slightly longer than the following two segments together,

Abdomen broad and relatively short, gradually narrowed apically, surface of each sternite sparsely scattered with extremely fine punctures, and sparsely covered with pale yellow pubescence; last sternite more or less densely fringed with short yellowish hairs along apical margin, of which the median portion is broadly rounded or somewhat truncate.

Length: 7.0 mm (from mandibular tips to elytral apices); width 2.2 mm (across humeral angles of elytra).

Holotype: ♀, Palin (about 700 m in alt.), Taoyuan Hsien, Taiwan, 26-IV-1978, S. SAITO lgt. (deposited in the National Science Museum (Nat. Hist.), Tokyo).

Notes. This species is very peculiar in having a blackish cross marking on elytra.

Lemula obscuripennis sp. nov.

(Fig. 4)

Female. Body moderate in size and rotundate; head brownish red to dark red, with apical portions of mandibles, basal portion of labrum and palpi brownish black; antennae black, except for basal part of scape which is brownish red, each of 5th–11th segments dull black; prothorax brownish red, though anterior and posterior margins being darker; scutellum and ventral surface of meso- and metathoraces dark brown; elytra dark purplish black; legs black, though the basal area of femora, trochanters and coxae are brown; abdomen dark brown, though the 5th sternite is pale yellow and 4th sternite pale brown, each posterior margin of 1st–3rd sternites darker.

Head subquadrate and slightly broader across eyes than the width between lateral tubercles of prothorax, tempora slightly narrowed in anterior half and weakly constricted in posterior half; clypeus transverse and rectangular, surface coarsely and closely punctured, and covered with pale yellowish pubescence; frons very short and bearing a shallow transverse concavity in front, provided with a median longitudinal furrow continuing to occiput, the furrow becoming deeper between antennal tubercles which are small and weakly raised, but more obscure at occiput; disc gently elevated above, surface rather densely covered with coarse, irregular-sized punctures, and sparsely with short pale yellow pubescence; antennae slender and fairly short, not reaching the middle of elytra and slightly thickened apically, scape distinctly swollen towards apex, basal four segments each sparsely with pale yellow pubescence and 5th–11th segments each densely clothed with extremely fine blackish pubescence; length order of antennal segments as follows:— 2.0: 0.8: 1.2: 1.1: 1.9: 1.5: 1.5: 1.4: 1.4: 1.3: 1.6.

Pronotum convex above, about as long as basal width and narrower at apex than at base, provided with an obtuse tubercle at middle of each lateral side, distinctly constricted just behind anterior margin and weakly so just before posterior margin, space between anterior margin and anterior constriction slightly swollen; both anterior and posterior margins finely bordered, the latter slightly sinuate on each side, and with an obscure discal elevation on each side of median line which is broadly and very shallowly impressed in basal two-thirds; within the impression there is a shallow concavity at basal fourth; surface rather coarsely and closely punctured, sparsely with short pale yellow pubescence. Scutellum subtriangular, somewhat broader than long and rounded apically, surface minutely and sparsely punctured, and sparsely covered with fine yellowish pubescence.

Elytra rather convex above, about twice as long as basal width, feebly dilated towards apex, though slightly constricted at basal third; apices broadly rounded; surface rather coarsely and closely punctured, the punctures becoming somewhat finer and sparser towards apex, and densely covered with conspicuous long whitish setae.

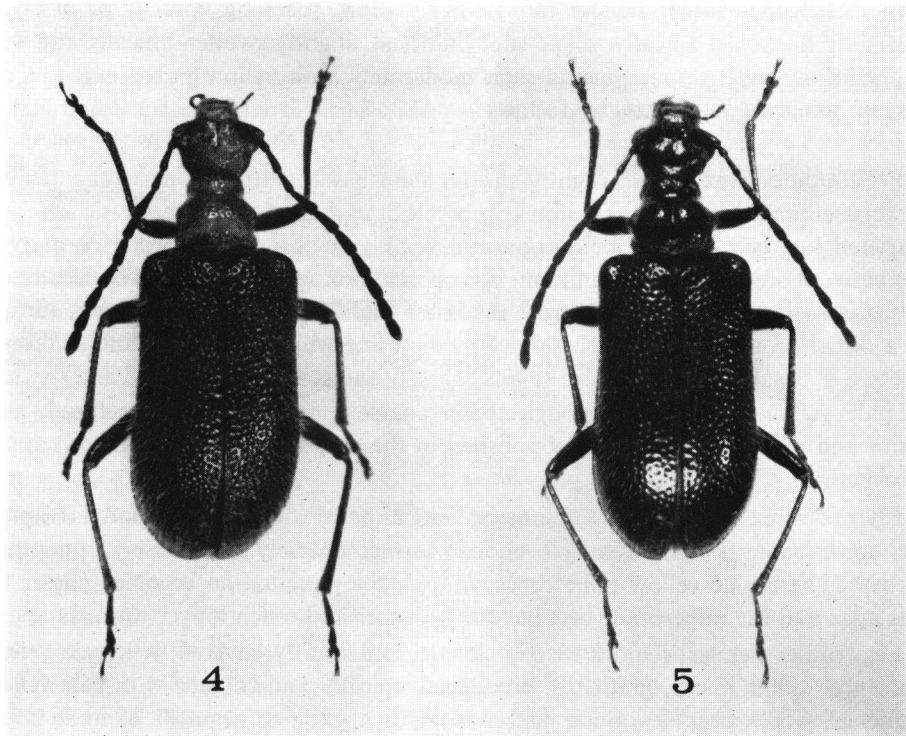
Legs slender, moderately covered with subrecumbent whitish pubescence; first segment of hind tarsus slightly longer than the following two segments together.

Abdomen broad and relatively short, 1st–2nd sternites slightly broadened posteriorly, 3rd–5th sternites gradually narrowed apically; surface of each sternite covered with microscopic ground sculpture, sparsely scattered with extremely fine punctures and moderately with pale yellowish pubescence; apical margin of last sternite broadly rounded or somewhat truncate, with sparse pale yellowish pubescence.

Length: 8.0 mm (from mandibular tips to elytral apices); width: 2.2 mm (across humeral angles of elytra).

Holotype: ♀, Nanshanchi (about 800 m in alt.), Nantou Hsien Taiwan, 26–III–1977, T. SENOH lgt. (deposited in the National Science Museum (Nat. Hist.), Tokyo).

Notes. This species somewhat resembles *L. densepunctata* HAYASHI, 1974, described from Taiwan, but differs from the latter in the following characters: quite different coloration of body, longer prothorax and less stronger lateral tubercles on prothorax, and so on. It is also similar to *L. setigera* TAMANUKI et MITONO, 1939, described from Taiwan, but differs from the latter in having quite different coloration of body, much denser and much coarser punctures on elytra, and so on.



Figs. 4–5. *Lemula* spp. nov., from Taiwan. — 4. *L. obscuripennis* sp. nov., female, from Nanshanchi. — 5. *L. longipennis* sp. nov., female, from Mt. Lala-shan.

Lemula longipennis sp. nov.

(Fig. 5)

Female. Body moderate in size, somewhat delicate and slender; head black and faintly tinged with bronze, though anterior portions of mandibles and palpi are dark brown, eyes black, antennae dark brownish black, with 5th–11th segments dull brown; prothorax, scutellum, ventral surface of meso- and metathorax black and faintly tinged with bronze; elytra dull dark green; legs black; abdomen yellowish brown.

Head subquadrate, about as broad as the basal width of prothorax, tempora slightly narrowed in anterior half and distinctly constricted in posterior half; clypeus transverse, rectangular and covered with rather coarse coriaceous ground sculpture, coarsely and sparsely punctured, and covered with pale yellow long pubescence; frons very short, bearing a sharp transverse concavity in front, provided with a median longitudinal furrow, which continues to occiput and becomes deeper between antennal tubercles but shallower near occiput, the tubercles being small and weakly raised; disc gently elevated above, though slightly depressed along median furrow; surface sparsely scattered with extremely fine punctures and pale yellow short pubescence, though the tempora and antennal tubercles are covered with more or less long pale yellow pubescence; antennae rather slender though fairly short, reaching basal third of elytra and slightly thickened apically, scape subcylindrical, slightly swollen apically and with fine punctures, basal four segments each moderately with yellow pubescence; length order of antennal segments as follows:— 2.0: 0.5: 1.3: 1.1: 1.6: 1.3: 1.4: 1.3: 1.3: 1.3: 1.7.

Pronotum convex above, slightly shorter than basal width and narrower at apex than at base, provided with a very obtuse tubercle at middle of each lateral side, strongly constricted just behind anterior margin and weakly so just before posterior margin, space between anterior margin and anterior constriction weakly swollen; both anterior and posterior margins finely bordered, the latter slightly sinuate on each side; surface with a discal prominence on each side of median line which is broadly and shallowly impressed in basal two-thirds, more or less coarsely and sparsely punctured and sparsely with pale yellow pubescence, though much coarsely and densely punctured near anterior and posterior margins, and polished in the anterior constricted area at apical two-sevenths.

Elytra convex above, about 2.1 times as long as basal width, gently dilated to apical third; apices more or less broadly rounded; surface coarsely and densely punctured, and covered with pale yellow pubescence, though the punctuation become sparser towards apex and the pubescence become much denser and much longer towards apex.

Legs rather slender; femora weakly clavate, and scantily covered with pale yellow pubescence; tibiae linear, gradually broadened apically and covered with pale yellow pubescence, which becomes much denser towards apex; first segment of hind tarsus slightly longer than the following two segments together.

Abdomen broad and relatively short, distinctly narrowed apically, and roundly

impressed near each side of 3rd–4th sternites; surface of each sternite subglobular, sparsely scattered with microscopic ground sculpture and with pale yellow pubescence; apical portion of last sternite broadly rounded or somewhat truncate and densely fringed with pale yellow hairs.

Length: 7.8–8.0 mm (from mandibular tips to elytral apices); width 2.0–2.2 mm (across humeral angles of elytra).

Holotype: ♀, Mt. Lala-shan, at the border of Taoyuan and Taipei Hsiens, Taiwan, 8–V–1978, T. SHIMOMURA lgt. (deposited in the National Science Museum (Nat. Hist.), Tokyo).

Paratype: ♀, same locality as the holotype, 12–V–1978, S. SAITO lgt. (author's private collection).

Notes. In general appearance, this species resembles *L. coerulea* GRESSITT, 1939, described from East China and *L. cyanipennis* HAYASHI, 1974, described from Taiwan, but differs from them in the following points: dorsal surface less lustrous; colour of head and prothorax black and faintly tinged with bronze, elytral colour dull dark green; elytra slightly longer; elytral pubescence much longer and much denser towards apex, and so on.

References

- BATES, H. W., 1884. Longicorn beetles of Japan. Additions, chiefly from the later collections of Mr. George LEWIS; and notes on the synonymy, distribution, and habits of the previously known species. *Linn. Soc. J.*, (Zool.), **18**: 205–262, 2 pls.
- GRESSITT, J. L., 1939. A collection of longicorn beetles from T'ien-Mu Shan, East China (Coleoptera: Cerambycidae). *Not. Ent. chin., Mus. Heude*, **6**: 81–132 (inclusive of 3 pls.).
- 1951. Longicorn beetles of China. *Longicornia*, **2**: 1–667.
- HAYASHI, M., 1974. New and unrecorded longicorn beetles from Taiwan (Coleoptera: Cerambycidae) I. *Bull. Ōsaka Jonan Women's Jr. Coll.*, (9): 1–36.
- PIC, M., 1957. Sept nouveaux Cérambyciens (Col.) de Chine du Musée Alexander Koenig, Bonn. *Bonn. zool. Beitr.*, **8**: 75–77.
- TAMANUKI, K., & T. MITONO, 1939. On new species, subspecies and varieties, belonging to the subfamily Lepturinae from Formosa (Coleoptera: Cerambycidae). *Trans. nat. Hist. Soc. Formosa*, **29**: 207–215.

