

Three New Species Allied to *Comusia obriumoides* THOMSON (Coleoptera, Cerambycidae) Discovered from Sulawesi, Indonesia and Lanyu Island off Southeastern Taiwan

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Abstract Three new longicorn beetles belonging to the genus *Comusia* THOMSON are described from Sulawesi, Indonesia and Lanyu Is. off southeastern Taiwan. They are externally similar to *C. obriumoides* THOMSON, type species of the genus known from Mindanao Is., the Philippines.

Introduction

Comusia THOMSON is a unique genus belonging to the tribe Obriini and has affinity with *Afromemida* and its relatives from Central Africa (MARTINS, 1977; NIISATO, 1992, 2007). The genus is consisted of 24 species known from East to Southeast Asia (TAVAKILIAN & CHEVILLOTTE, 2016). In the course of our investigation, we found three new species of the genus from Sulawesi, Indonesia and Lanyu Is. off southeastern Taiwan, all of which are externally similar to *C. obriumoides* THOMSON, type species of the genus known from Mindanao Is., the Philippines. We will describe and illustrate them in the following paragraphs.

Material and Method

Materials used in the present study are from the private collection of Wataru TOKI, Shigeo TSUYUKI, Eduard VIVES and the authors. The depositories of the holotypes were described in the section of type series or type specimen in each new taxon.

External structures were observed under an Olympus SZX16 stereoscopic microscope. Microstructures of dissected parts were observed under an Olympus BX53M light microscope with an Olympus DP73 microscope digital camera and an Olympus cellSens Standard image analysis software. The photographs of the whole habitus were taken by a Canon EOS 70D digital camera with an EF50mm compact macro photo lens and Life-Size Converter EF. The drawing of male genital organs was made by using Adobe Illustrator CS3.

The abbreviations used for the ratio of the measurement in the description are as follows: HW — maximum width of head across eye-lobes; PL — length of pronotum; PW — maximum width of pronotum across lateral tubercles; PA — apical width of pronotum; PB — basal width of pronotum; EL — length of elytra; EW — humeral width of elytra.

Taxonomy

Comusia obriumoides THOMSON, 1864

(Figs. 1, 7, 12, 24)

Comusia obriumoides THOMSON, 1864: 250; type locality: Mindanao.

Original description. Long. 16 Mill. Lat. 3 1/2 Mill. *Supra pallida; oculi nigri; antennæ artic. 1–5 rufi flavo-maculati, articulis cæteris flavis; caput prothoraxque impunctata: elytra singula lateraliter vitta nigra longitudinale ante apicem terminata ornata, tenuè punctata; sternum obscurum; abdomen pallidum; pedes flavi. Mindanao.*

Diagnosis. Body length 16–18 mm. Colour basically identical with that of allied species such as *C. wui* sp. nov., though almost entirely brownish in head and pronotum, with transverse dark brown band on elytra located near apical 2/5. Head voluminous, almost as wide as the maximum width of pronotum, shagreened on surface, coarsely punctured near vertex. Antennae medium in length, exceeding elytral apices at segment 8. Pronotum slightly wider than long, rather weakly tuberculate at sides near middle, entirely shagreened on surface. Scutellum elongate trapezoidal, distinctly concave along midline. Elytra rather long and slender, densely finely, and somewhat irregularly punctured except for apical narrow parts, moderately narrowed in gently sinuate line to apices which are bluntly dentate at sutural angles. Prosternal process with apical part subquadrate, resting on internal projection of pleural process. Mesosternal process broad, almost parallel-sided, concave at middle of apical margin. Rake organ in abdominal ventrite in ♀ small, arranged by stout long setae in about median 2/5 width of apical margin, and five or so waved long setae at sides of the median setae. Legs relatively long, with hind femur weakly clavate.

Specimens examined. 1 ♂ (holotype), “Th. / TYPE (light brown card with broad black margin)” “Ex-Musæ / JAMESE THOMSON (white card with black margin)” “*Obriumoides* / Thoms. Type 250 / Mimd ? (white card with reddish yellow double margins)” “MUSEUM PARIS / COLL. J. THOMSON / 1952”; 1 ♂, 1 ♀ in the Muséum national d'histoire naturelle, Paris; 1 ♀, “C3670 / Impasug-ong / Bukidnon / 31 May-2 Jun 03” “Filippines / Mindanao / E. Caligas leg.” “*Comusia* / *obriumoides* Tho. / ♀ / E. Vives det. 10”.

Distribution. Mindanao, Philippines.

Comusia nagaii sp. nov.

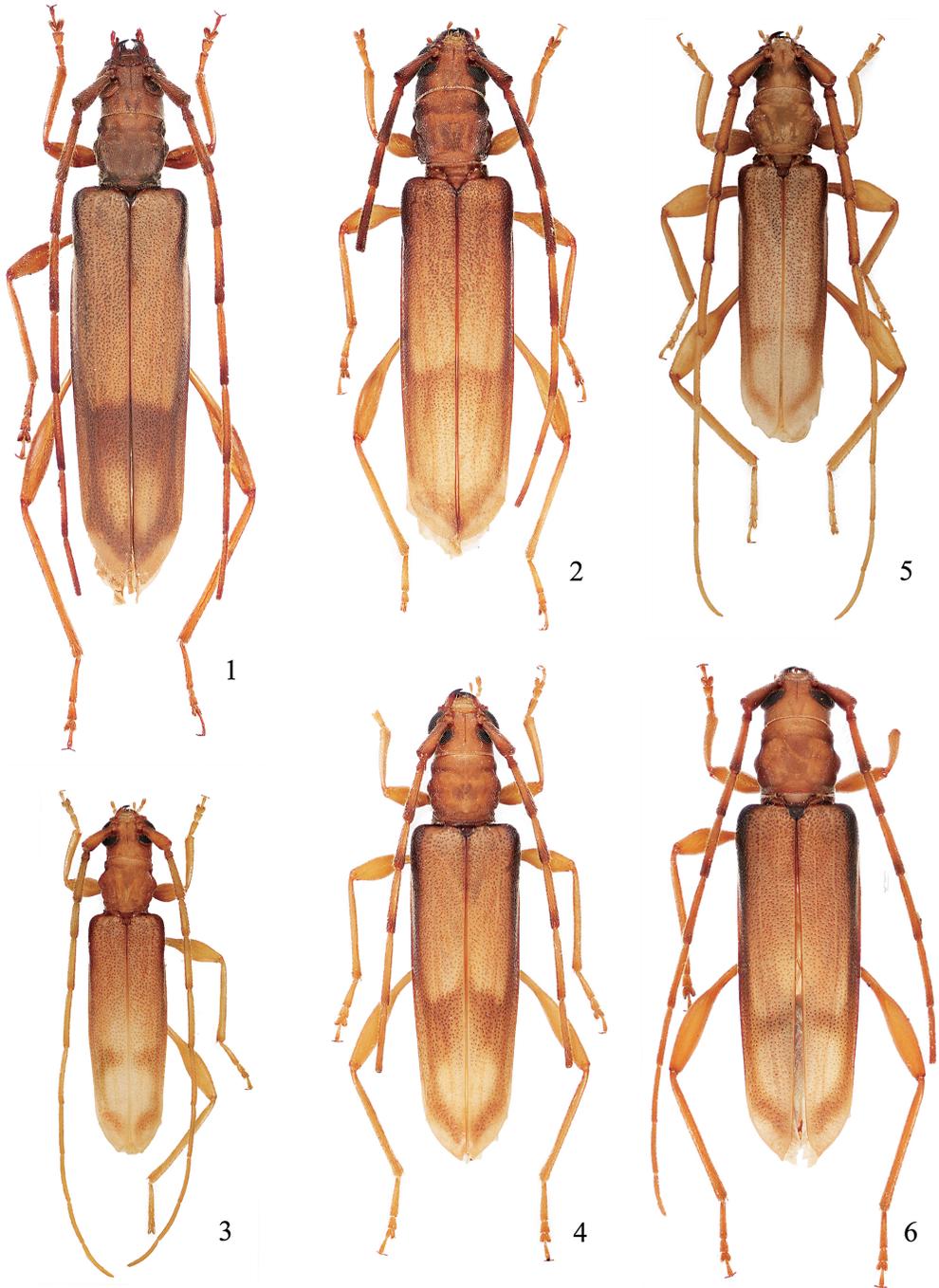
(Figs. 2 & 13)

Body length (from apical margin of frons to elytral apices) 16.5 mm in ♀.

Similar in many respects to *C. wui* sp. nov., though clearly distinguished from the latter by the rounded elytral apices and very small rake organ in abdominal ventrite in ♀.

F e m a l e. Colour almost as in *C. wui*, though more infuscate in general, conspicuously dark brown at sides of head and pronotum, almost entirely dark brown in apical halves of elytra except for yellowish brown apices.

Head similar to that of *C. wui*, though fairly voluminous including less developed eyes, distinctly convex posteriad, shallowly rugose on above, HW/PA 1.08, HW/PW 0.95. Antennae exceeding elytral apices at apical part of segment 9 (segments 10 and 11 are missing in the holotype).



Figs. 1–6. *Comusia* spp. — 1, *C. obriumoides* THOMSON, ♀, Mindanao, the Philippines; 2, *C. nagaii* sp. nov., holotype ♀, from Sulawesi, Indonesia; 3, *C. wui* sp. nov., holotype ♂, from Lanyu Is. off southeastern Taiwan; 4, ditto, paratype ♀; 5, *C. tokii* sp. nov., holotype ♂, from Lanyu Is. off southeastern Taiwan; 6, ditto, paratype ♀.

Pronotum almost as in of *C. wui*, PL/PW 0.89, PL/PA 1.00, PB/PA 0.96. Scutellum isosceles triangular though rounded at apex, concave along midline.

Elytra not so similar to those of *C. wui*, EL/EW 3.16, EL/PL 5.00; sides almost parallel though slightly arcuate near middle, suddenly narrowed apicad in distinct arcuate line from apical sixth; apices with sutural corner rounded angulate, not dentate; disc densely, somewhat irregularly provided with small punctures, the punctures become small and shallow in apical fourth, almost smooth near apices.

Prosternal process very narrow, parallel-sided near middle, with large triangular apical part which is resting on the internal projections of pleural plates. Mesosternal process relatively broad, deeply concave along midline, parallel-sided, almost truncate at apical margin.

Rake organ in 2nd abdominal ventrite small, arranged by fine, rather short setae in 3/10 width of apical margin, and five waved long setae at sides of the median setae.

Legs rather short, distinctly clavate in hind femur, with 1st hind tarsal segment 1.7 times as long as the following two segments combined.

Type specimen. Holotype: ♀, "Palopo / South Sulawesi / Sulawesi Is., Indonesia / 16.VIII.1986 / S. Nagai leg.". The holotype is preserved in Museum Zoologicum Bogoriense (MZB), Cibinong, Indonesia.

Distribution. Sulawesi, Indonesia.

Etymology. The new specific name is derived from the last name of Shinji NAGAI who is the collector of the holotype.

Notes. This new species is very similar to allopatric *C. obriumoides* THOMSON from Minadanao Is., the Philippines and *C. wui* sp. nov. from Lanyu Is. off southeastern Taiwan, but clearly distinguished from those two relatives by the completely rounded elytral apices instead of dentate ones. *Comusia nagaii* sp. nov. is the first representative of the genus for the fauna of Sulawesi, Indonesia.

Comusia wui sp. nov.

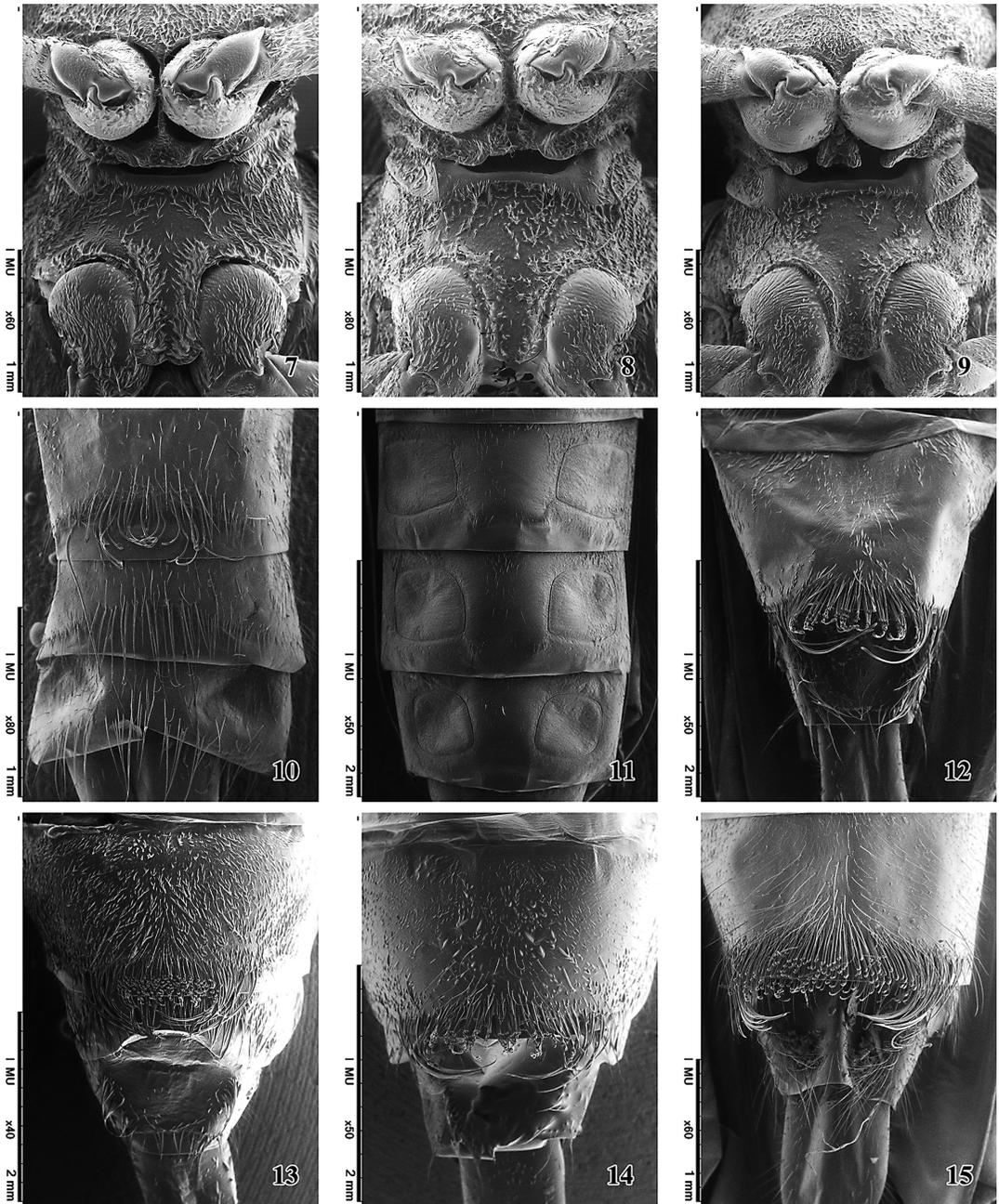
(Figs. 3, 4, 8, 10, 14, 16–19)

Comusia sp.: CHOU, 2004: 373, figs.; CHOU, 2008: 372, figs.

Body length (from apical margin of frons to elytral apices) 11.0 mm in ♂, 15.5 mm in ♀.

Medium-sized species of ordinary brownish habitus with unique longitudinal dark stripes on elytra. Colour yellowish brown to dark yellowish brown, entirely matted; head dull yellowish brown, black in eyes and apical halves of mandibles, palpi pale yellowish brown; antennae yellowish brown, except for segments 1–2 and apices of segments 3–5 which are more or less infuscate; pronotum dull yellowish brown, slightly more brownish at sides; scutellum dark reddish brown; elytron light yellowish brown, provided with a dark brown stripe near external margin, extending from base to apical fifth, then obliquely bent to suture, the stripe branched inwards as transverse vague dark brown band along basal margin and on apical 2/5; thoracic ventrites largely dark brown except for yellowish median parts of meso- and metasterna; abdomen light yellowish brown, more or less brownish in basal ventrite in ♂; legs light yellowish brown. Body clothed with fine silvery white pubescence and a few light yellow golden hairs.

M a l e. Head fairly wider than the apical or narrower than the maximum width of pronotum, HW/PA 1.12, HW/PW 0.9, weakly convex towards occiput, shagreened, scattered with a few shallow punctures; frons 2/3 the length of basal width, distinctly declivous towards a fine furrow which is barely reaching the anterior part of occiput, arcuate and distinctly carinate at sides; clypeus smooth,



Figs. 7–15. Thoraces and abdomens of *Comusia* spp. (SEM images). — 7, 12, *C. obriumoides* THOMSON, from Mindanao, the Philippines; 13, *C. nagaii* sp. nov., from Sulawesi, Indonesia; 8, 10, 14, *C. wui* sp. nov., from Lanyu Is. off southeastern Taiwan; 9, 11, 15, *C. tokii* sp. nov., from Lanyu Is. off southeastern Taiwan. — 7–9, Ventral sides of thoraces (7, 8, ♀; 9, ♂); 10, 11, ventrites 2–4 in ♂; 12–15, ventrites 2–4 in ♀.

gently emarginate at apical margin; mandibles rather stout, distinctly arcuate at external margins, coarsely punctured on basal 3/5; eyes large, weakly prominent, separated from each other by a little less than the width of each lobe. Antennae long and rather stout, 1.6 times as long as body, exceeding elytral apices at apical part of segment 8, provided with sparse rows of fine light golden yellow hairs along undersides of segments 3–6; scape 3/4 the length of segment 3, strongly dilated apicad, more or less depressed above, provided with quadrate apical concavity in dorsal side; segments 3–4 not so stout, weakly thickened at each apex; segment 6 the longest, $1+1/6$ the length of segment 3; terminal segment simply arcuate.

Pronotum across lateral tubercles slightly wider than long, shagreened; PL/PW 0.86, PL/PA 1.08, PB/PA 1.00; sides strongly arcuate in apical third, with lateral tubercles just before middle moderately prominent, then arcuately narrowed before base; disc weakly convex, depressed on apical fifth and basal collar, provided with a pair of subtransverse callosities at sides of apical third, a pair of oblique callosities at sides of basal third where locate on inside of the anterior pair, a pair of rounded callosities at outside of the posterior pair, these three pairs of callosities are indistinctly connected, and also with an obsolete median callosity near basal third; base as wide as apex, largely arcuate near middle. Scutellum tongue-shaped, shallowly concave, provided with small shallow punctures, thinly pubescent.

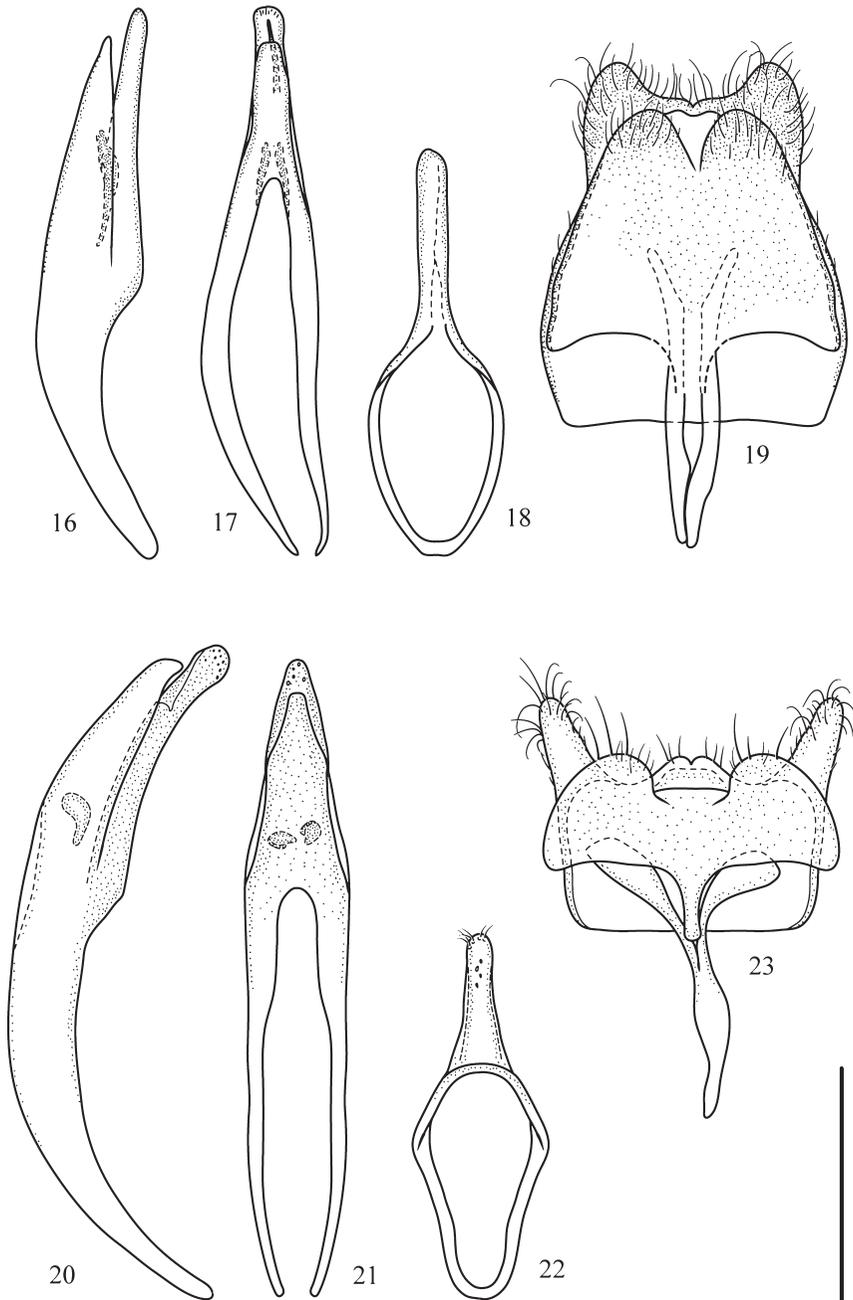
Elytra long, relatively slender, more than three times as long as wide, widest at humeri, EL/EW 3.15, EL/PL 5.13; sides with humeri rounded quadrate, almost straight narrowed to apical 3/20 then straight narrowed to bluntly dentate apices which are weakly sinuate along inner margins; disc flattened or gently raised, narrowly concave near suture in a short distance from scutellum, obliquely depressed along external margin of apex, rather sparsely provided with medium-sized punctures, which are gradually sparse apicad from apical third.

Venter of thoraces closely rugosely punctured, though simply shagreened on middle of metasternum. Prosternal process very thin, parallel-sided, triangularly dilated at apex, sides of which are completely covered by pleural plates. Mesosternal process relatively broad, strongly concave along midline, gently narrowed apicad and weakly rounded at apical margin. Metasternum strongly raised towards middle.

Abdomen provided with the peculiar structure like a rake organ as in ♀, gradually narrowed apicad in basal two ventrites and rather distinctly dilated apicad in ventrites 3–4, shagreened on surface; basal ventrite nearly 2/5 the length of abdomen, clothed with a few long hairs near middle in apical half; 2nd ventrite 3/5 the length of basal ventrite, concave as a crescent-shaped near apical 2/5 on disc, provided with three kinds of pale yellow setae and hairs along or near apical margin of the concavity as follows: 15–16 long to medium-sized arcuate setae with brownish apical part and a spoon-like extremity near middle of apical margin, a few waved long setae at sides of the median setae, and also entirely with long hairs near apical margin; 3rd ventrite nearly half the length of basal ventrite, with the same but shallower depression as in 2nd ventrite, clothed with long hairs along apical margin; 4th ventrite transverse trapezoidal, nearly half the length of 3rd ventrite, clothed with long hairs near the middle and along apical margin; anal ventrite elongate trapezoidal though slightly bilobed at apical part which is clothed with short hairs.

Legs rather long, relatively stout, clothed with light golden yellow hairs; hind femur strongly swollen in apical 3/5, tibiae almost straight, with fine and short apical spurs, with 1st hind tarsal segment twice the length to the following two segments combined.

Male genital organs. Median lobe small, 1/4 the length of abdomen, very slender, slightly convex; apical lobe distinctly compressed in dorsal view, moderately narrowed in arcuate line to apex, distinctly exposing the apical part of ventral plate which is more or less dilated apicad and almost



Figs. 16–23. Male genital organs of *Comusia* spp. — 16–19, *C. wui* sp. nov., holotype ♂, from Lanyu Is. off southeastern Taiwan; 20–23, *C. tokii* sp. nov., holotype ♂, from Lanyu Is. off southeastern Taiwan. — 16, 20, Median lobe, lateral view; 17, 21, ditto, dorsal view; 18, 22, tegmen, dorsal view; 19, 23, 8th abdominal segment, ventral view. Scale: 0.5 mm.



Fig. 24. Holotype and its labels of *Comusia obriumoides* THOMSON, from Mindanao, the Philippines preserved in the Muséum national d'histoire naturelle, Paris.

truncate at apical margin. Tegmen slender, 4/5 the length of median lobe; paramere mono-lobed, long, slender and almost parallel-sided, without setae near apex which is roundly truncate; ring part elongate ovate. Eighth tergite bluntly projected at sides of apical margin. Eighth sternite subtriangular, bilobed in apical margin.

F e m a l e. Antennae short, slightly longer than body if they are complete, with segment 7 barely reaching apical 3/10 of elytra (segments 8–11 are missing in paratype). Rake organ in 2nd abdominal ventrite arranged by fine, short to medium setae about 3/5 width in apical margin, and about ten, waved long setae at sides of the median setae. Standard ratios of body parts as follows: HW/PA 1.14, HW/PW 0.96, PL/PW 0.87, PL/PA 1.02, PB/PA 1.00, EL/EW 3.04, EL/PL 5.07.

Type series. Holotype: ♂, "29-III-1998 / 蘭嶼燈塔 (Dengta) / 吳書平 (Shu-PingWu) Leg." Paratype: 1 ♀, same data as for the holotype. A pair of the type series are preserved in the National Museum of Natural Science, Taichung, Taiwan.

Distribution. Lanyu Is., Taiwan.

Etymology. The new specific name is derived from the last name of Shu-Ping WU who is the collector of the type series.

Notes. *Comusia wui* sp. nov. has a closer relationship with allopatric *C. obriumoides* THOMSON from Mindanao Is., the Philippines and *C. nagaii* sp. nov. from Sulawesi, Indonesia in view of morphological similarities such as the fore coxal cavities closed behind and more or less undeveloped rake organ in 2nd ventrite of abdomen in female. This new species is also similar in general appearance to sympatric *C. toki* sp. nov. described in the following paragraphs, but easily distinguished from the latter by the structure of abdominal ventrites in both sexes.

***Comusia tokii* sp. nov.**

(Figs. 5, 6, 9, 11, 15, 20–23)

Body length (from apical margin of frons to elytral apices) 10.0–14.0 mm in ♂ or 16.5 mm in ♀.

Very similar in general appearance to the preceding new species, *C. wui* sp. nov., for instance in colouration including elytral maculation, and structures of head, pronotum and elytra, but clearly distinguished from the latter by the narrowly opened fore coxal cavities and different conformation of abdominal ventrites in both sexes.

M a l e. Head similar to that of *C. wui*, though fairly large and voluminous, moderately convex towards occiput, HW/PA 1.15 & 1.18, HW/PW 0.88 & 0.97; frons with a deep median furrow extending from apical margin to basal half of occiput; eyes more or less strongly prominent. Antennae almost as in those of *C. wui*, 1.4–1.5 times as long as body, exceeding elytral apices at middle of segment 8, with segments 3–4 fairly stout, moderately thickened at each apex, segment 5 weakly so at apex.

Pronotum similar to that of *C. wui*, though slightly more broad, PL/PW 0.87 & 0.88, PL/PA 1.07 & 1.13, PB/PA 1.00. Scutellum subquadrate, shallowly concave, rounded at apex.

Elytra similar to those of *C. wui*, though slightly more slender, with almost straight sides near middle, more weakly attenuate to apices, EL/EW 3.16 & 3.18, EL/PL 4.22 & 4.66.

Venter of thoraces shagreened, sparsely scattered with small granules; prosternal process markedly compressed between coxae which are usually osculated each other, with apical part semicircular or subquadrate, slightly apart from pleural plates at sides; mesosternum slightly convex, with intercoxal process relatively broad, almost parallel and gently emarginate at sides, with obtusely rounded apex (narrowly concave at middle of apical margin in paratype ♂); metasternum weakly convex, strongly produced anteriorly at middle of apical margin which is almost attaining mesosternal process.

Abdomen slender and elongate, moderately convergent apically, provided with a pair of large shallow subquadrate depression in 2nd to 4th ventrites, each depression bearing a short stem at post-internal corner; anal ventrite rounded trapezoidal, arcuate at apical margin which is gently produced or shallowly concave at middle according to individuals.

Legs similar to those of *C. wui*, though tarsi shorter, with 1st hind tarsal segment 1.5 times as long as the following two segments combined.

Male genital organs. Median lobe small, a little less than 2/5 the length of abdomen, slender, rather moderately convex; dorsal plate narrowed in arcuate line to apical third which is more or less angulate at sides, then strongly narrowed to subtruncate extremity; ventral plate distinctly narrowed in sinuate line to apex which is obtusely pointed and largely visible from above due to narrow dorsal plate. Tegmen small and slender, a little more than half the length of median lobe; paramere monolobed, not so long, slender and narrowed to bluntly pointed apex which is provided with a few short setae; ring part narrowed in sinuate line posteriorly. Eighth tergite provided with long projections at sides of apical margin. Eighth sternite transverse semicircular, with apical margin bilobed at sides, truncate in wide median part.

F e m a l e. Antennae 1.2 times as long as body. Rake organ in 2nd abdominal ventrite arranged by dense, stout long setae about median half width in apical margin, and more than 15 waved long setae at sides of the median setae. Standard ratios of body parts as follows: HW/PA 1.08, HW/PW 0.87, PL/PW 0.81, PL/PA 1.00, PB/PA 1.06, EL/EW 2.88, EL/PL 4.76.

Type series. Holotype ♂, “Tienchih Trail / Lanyu Township, Taitung County / Lanyu Is. off southeastern Taiwan / 22.III.2010 / collected by a light trap / W. Toki leg.”. Paratypes: 1 ♂, same lo-

cality and collector as the holotype but “24.III.2010”; 1 ♀, “Lanyu Is. / 8~10 IV 2012 / M. TAKAMURA leg.”. The holotype is preserved in the National Museum of Natural Science, Taichung, Taiwan, and the paratypes are in the private collection of T. NIISATO (1 male paratype) and S. TSUYUKI (1 female paratype).

Etymology. The new specific name is derived from the last name of Wataru TOKI who is the collector of the holotype.

Distribution. Lanyu Is., Taiwan.

Notes. It is very interesting that two similar species of the genus *Comusia* are sympatric in such a small oceanic island as Lanyu Is. *Comusia tokii* sp. nov. is greatly similar to *C. wui* sp. nov. and hardly distinguished from it by the dorsal habitus alone. However, these two species can be distinguished by the structures of prosternum, and male and female abdomen.

The ecological information of the new species is almost unknown. According to W. TOKI, two male type series including the holotype came in flight to a light trap set along Tienchih Trail of the island.

Provisional Key to *Comusia obriumoides* and its Allied Species

Comusia obriumoides THOMSON and three new species described herein are externally similar to each other and have the colouration in common including the elytral maculation as follows: 1) Body largely yellowish brown, matted in general, usually infuscate or brownish at sides of head and pronotum, venter of thoraces; 2) antennae usually bicoloured in yellowish brown and dark brown; 3) elytron decorated with brownish strip along external margin which is obliquely bent towards suture near apex, and transverse band near or behind middle. These four allied species are also relatively similar in external morphology, distinguished by the following provisional key.

- 1 (2) Fore coxal cavities narrowly opened behind (internal projection of pleural process not attaining the apical part of prosternal process); Lanyu Is. *C. tokii* sp. nov.
- 2 (1) Fore coxal cavities closed behind (internal projection of pleural process attaining the apical part of prosternal process).
- 3 (4) Scutellum tongue-shaped, shallowly concave above; elytra sparsely punctured near middle; Lanyu Is. *C. wui* sp. nov.
- 4 (3) Scutellum triangular or trapezoidal, deeply concave along midline; elytra densely punctured near middle.
- 5 (6) Elytra almost parallel-sided, suddenly narrowed to apices from apical sixth; elytral apices roundly angulate at sutural corner; pronotum dark yellowish brown with infuscate sides; elytra almost entirely brown in apical halves; Sulawesi. *C. nagaii* sp. nov.
- 6 (5) Elytra distinctly narrowed to apices; elytral apices obtusely dentate; pronotum entirely brown, sometimes with vague dark lateral stripes; elytra provided with brown band behind middle; Mindanao. *C. obriumoides* THOMSON

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their kind offer of invaluable specimens used in this study. Thanks are also due to Dr. Terry DUVE of the Muséum national d'histoire naturelle, Paris for his permission to examine the type specimen of *Comusia obriumoides* THOMSON preserved in his museum.

要 約

新里達也・周 文一：スラウェシと紅頭嶼から発見された *Comusia obriumoides* に似た3新種(鞘翅目カミキリムシ科)。——— オガサワラチャイロカミキリ属 *Comusia* は、アフリカの *Afromemida* 属とその近縁群に類縁関係が示唆されるムナミゾアメイロカミキリ族 Obriini の特異なグループで、東アジア～東南アジアの地域からこれまで24種が知られている。本論文では、スラウェシ(インドネシア)と紅頭嶼(台湾)から3新種を記載したが、これらはいずれもミンダナオ(フィリピン)に分布する *C. obriumoides* THOMSON (属のタイプ種)に外見がよく似ている。このうち *C. obriumoides* (ミンダナオ)、*C. nagaii* sp. nov. (スラウェシ)および *C. wui* sp. nov. (紅頭嶼；蘭嶼小笠原褐天牛(新中名))は、前胸腹板や雌腹部の熊手状器官の構造が類似し、異所的に分布する代置種のような関係であると推定される。いっぽう、紅頭嶼に *C. wui* sp. nov. と同所的に分布する *C. tokii* sp. nov. (土岐氏小笠原褐天牛(新中名))は、前胸腹板と雌雄腹部の構造が著しく異なり、外見の類似とはうらはらに他の3種とは類縁が遠い存在であるかもしれない。

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