

Five New Passalid Beetles of the Genus *Leptaulax* (Coleoptera,
Passalidae) from the Philippines, with a Key to the Species
of the Philippine *Leptaulax* in the Author's Collection

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Abstract Five new passalid beetles of the genus *Leptaulax* KAUP are described from the Philippines. *Leptaulax intermedius* sp. nov. from Mindoro, *Leptaulax luzonicus* sp. nov. from Luzon, *Leptaulax sakaii* sp. nov. and *Leptaulax negrosensis* sp. nov. from Negros are related to *L. uenoi* IWASE; *Leptaulax mindanaoensis* sp. nov. from Mindanao resembles *L. cyclotaenius* KUWERT. As an appendix, a key to the species of the genus *Leptaulax* from the Philippines is provided.

In this paper, the author is going to describe five Philippine passalid beetles of the genus *Leptaulax* KAUP. All the holotypes will be preserved in the National Science Museum (Nat. Hist.), Tokyo. As an appendix, a tentative key to the species of Philippine *Leptaulax* is provided based on the materials in the author's collection.

Leptaulax intermedius sp. nov.

(Figs. 1–2)

Black and shining, ventral surface somewhat reddish.

Anterior margin of head with four tubercles, median tubercle absent; inner tubercle parabolic, larger than outer one, the distance between the two inner tubercles 1.8–1.9 times as long as that between inner and outer ones; outer tubercle triangular, acute; frontal ridge joining central tubercle with a short longitudinal ridge, slightly tuberculate and strongly curved at the middle, and extending to inner tubercle; central tubercle moderately raised, parietal ridge joining supraorbital one; supraorbital ridge indistinctly joining supraoccipital one; frontal area quadrangular or semicircular, convergent anteriorly, wider than long ($L/W=0.5-0.6$), with scattered hair-bearing punctures; depressed area of head including the part just behind outer tubercles rather densely covered with large punctures, some of which bear a hair near the tubercles of frontal ridges and behind parietal ridges; eye canthus shagreened and opaque, with a short longitudinal ridge smooth, anterior angle rounded; eye moderately large; hypostomal process smooth and shining, with a longitudinal groove shagreened and opaque. Labrum with anterior border almost straight. Antennal lamellae short. Middle part of

mentum with some large punctures, anterior border protrudent anteriorly at the middle, scar rather large, J-shaped; lateral piece with scattered hair-bearing punctures. Ligula lacking longitudinal ridge. Second segment of labial palpus shorter than third one. Mandible obtusely angulate and slightly protrudent at the middle on external side in ventral view; upper tooth obtuse in lateral view; left anterior lower tooth acute, larger than right one, with inner edge vertically truncate.

Pronotum weakly convex, hairless; anterior angle obtuse, not distinctly protrudent, scars indistinctly depressed, median groove short; surface rather densely covered with large punctures on lateral $1/4-1/3$.

Elytra weakly convex, hairless; dorsal grooves distinctly punctate, lateral ones broader than the adjoining ribs, with transverse punctures; dorsal ribs very slightly convex.

Prosternum shagreened and subopaque; posterior plate smooth, shining and somewhat raised along all borders, shagreened with indistinct punctures at the middle. Mesosternum smooth at the middle; scars broad, shagreened and subopaque along inner wall and outer border, rather smooth and shining at the middle, inner wall extending to near posterior border of sternum. Metasternum with central area almost smooth, with scattered large punctures at the middle, anterior depression almost absent; anterior intermediate area smooth, with some punctures near middle coxa, posterior one rather densely punctate, but smooth along lateral area; lateral area very narrow, finely and irregularly punctate along intermediate area, shagreened and subopaque along external border. Abdominal sternites finely and densely punctate at sides; sixth sternite truncate at the median $1/3$, finely and densely punctate at sides and along anterior border, rather widely polished at the posterior middle, with marginal groove distinct at the medial $3/5$. Integument of external face of middle tibia smooth and shining, with scattered hair-bearing punctures.

Male genitalia as shown in Fig. 2.

Length: 15.0 mm.

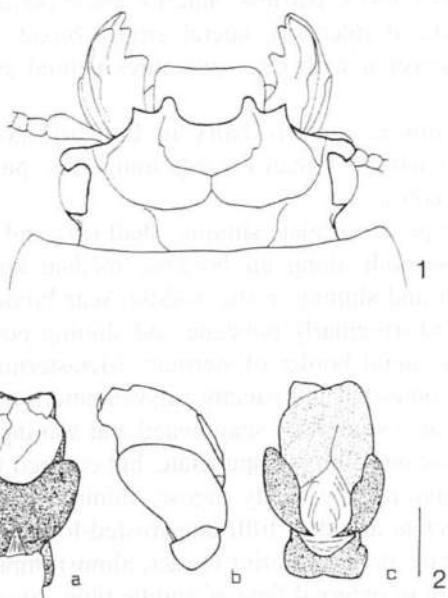
Holotype: ♂, Durangan, Mindoro Is., the Philippines, 11~13-IX-1983; paratypes: 2 ♀♀, same data as the holotype.

This new species is running down to *L. cyclotaenius* in GRAVELY'S (1918) table, but is different from the latter in the absence of median tubercle of anterior margin of head. Incidentally, the new species is characterized by a combination of the following points: hypostomal process grooved; ligula without median keel; second segment of labial palpus shorter than the third; sides of elytra hairless. Therefore, it resembles *L. uenoi* and the following three new species, but the elytral shoulders are hairy in the latter.

Leptaulax luzonicus sp. nov.

(Figs. 3-4)

Black and shining.



Figs. 1-2. *Leptaulax intermedius* sp. nov.; 1, head; 2, male genitalia: a, dorsal view, b, lateral view, c, ventral view (Scale 0.5 mm).

Anterior margin of head with five tubercles, median one minute and obtuse, inner tubercle triangular, larger than outer one, with apex rounded, the distance between the two inner tubercles 1.8-1.9 times as long as that between inner and outer ones; outer tubercle triangular, with apex sharp; anterior angle of head minutely angulate; frontal ridge joining central tubercle with a short longitudinal ridge, tuberculate and strongly curved at the middle, and extending to base of inner tubercle; central tubercle moderately raised, parietal ridge very indistinctly joining supraorbital ridge, occasionally not joining it; supraorbital ridge rather distinctly joining supraoccipital one; frontal area quadrangular, convergent anteriorly, wider than long ($L/W=0.6-0.7$), smooth, with several hair-bearing punctures; depressed area of head almost smooth, with several hair-bearing punctures near the tubercles of frontal ridges, and before and behind parietal ridges; eye canthus smooth and shining, with a fine longitudinal ridge, anterior angle acute and somewhat reflexed, lateral border slightly notched; eye rather small; hypostomal process shagreened, subopaque, with a shallow longitudinal groove. Labrum with anterior border nearly straight. Antennal lamellae short. Middle part of mentum smooth, anterior border weakly arcuate; scar large, J-shaped; lateral piece with several large hair-bearing punctures. Ligula lacking median keel. Second segment of labial palpus shorter than third one. Mandible obtusely protrudent at the middle on external side in ventral view; left upper tooth obtuse, with a low convexity behind anterior tip; left anterior lower tooth sharp, larger than right one, with inner edge obtuse.

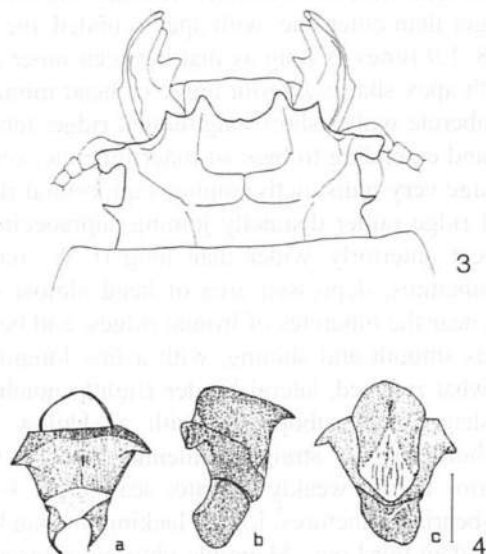
Pronotum weakly convex, hairless; anterior angle obtuse, not protrudent, median groove broad, abbreviated anteriorly, lateral groove broad, with large punctures; surface rather sparsely covered with large punctures behind anterior angles, and in and around lateral scars.

Elytra weakly convex, sparsely hairy in front of shoulders; grooves distinctly punctate, lateral ones narrower than the adjoining ribs, punctures in lateral grooves rounded; ribs weakly convex.

Prosternum with posterior plate shining, shallowly and somewhat rugosely punctate at the middle, smooth along all borders; median keel shagreened and hairy. Mesosternum smooth and shining at the middle; scar broad, shagreened and opaque anteriorly, sparsely and irregularly punctate and shining posteriorly, inner wall about 1/3 to 1/2 as long as lateral border of sternum. Metasternum with central area shallowly, minutely and somewhat indistinctly rugose, anterior depression almost absent; anterior intermediate area somewhat shagreened and shining, with scattered hair-bearing punctures, posterior one almost impunctate, but covered with large punctures along central area; lateral area narrow, finely rugose, shining. Each abdominal sternite narrowly and finely punctate at sides; fifth one frosted-looking at the middle; sixth one rather sharply marginate along posterior border, almost impunctate, frosted-looking at the middle. Integument of external face of middle tibia smooth and shining, with scattered hair-bearing punctures.

Male genitalia as shown in Fig. 4.

Length: 15.5 mm.



Figs. 3-4. *Leptaulax luzonicus* sp. nov.; 3, head; 4, male genitalia: a, dorsal view, b, lateral view, c, ventral view (Scale 0.5 mm).

Holotype: ♂, Banaue, Ifugao, Luzon Is., the Philippines, V-1988; paratypes: 2 ♂♂, 4 exs., same data as the holotype; 2 ♀♀, same locality as the holotype, V-1987; 1 ♀, same locality as the holotype, V-1991.

This new species is running down to *L. bicolor* in GRAVELY'S (1918) table, but is different by the hairy shoulders. The new species is characterized by a combination of the following points: 1) hypostomal process shagreened and grooved; 2) ligula lacking median keel; 3) second segment of labial palpus shorter than third one; 4) frontal area with scattered hairs; 5) elytra hairless at sides, hairy in front of shoulders. It is different from *L. uenoi* IWASE and the following two new species in a combination of the following characters: median tubercle of anterior border of head present; head very sparsely punctate; mesosternal scars almost shining; last abdominal sternite almost impunctate; body small.

Leptaulax negrosensis sp. nov.

(Figs. 5-6)

Black and shining, ventral surface somewhat reddish.

Anterior margin of head with four or five tubercles, median one absent or very slightly and obtusely pointed anteriorly; inner tubercle triangular, larger than outer one, with apex rounded, the distance between the two inner tubercles 1.5-1.7 times as long as that between inner and outer ones; outer tubercle triangular, acute; frontal ridge joining central tubercle with a short longitudinal ridge, tuberculate and strongly curved at the middle, and extending to inner tubercle; central tubercle rather highly raised; parietal ridge gradually becoming lower from middle to side, very indistinctly extending to supraorbital ridge, frequently short, ending before supraorbital ridge; supraorbital ridge indistinctly joining supraoccipital one; frontal area quadrangular, convergent anteriorly, wider than long ($L/W=0.6$), with scattered hair-bearing punctures; depressed area of head rather densely covered with large punctures in most part, sparsely so before and behind parietal ridges, some of the punctures bearing a hair near the tubercles of frontal ridges and near parietal ridges; eye canthus shining, with a fine longitudinal ridge, anterior angle rather acute, with apex rounded; eye large; hypostomal process shagreened and subopaque, with a shallow longitudinal groove. Labrum with anterior border very slightly arcuate or straight. Antennal lamellae rather long. Middle part of mentum with anterior border rather strongly protrudent anteriorly; scar large, U-shaped; lateral piece with scattered hair-bearing punctures. Ligula lacking longitudinal keel. Second segment of labial palpus shorter than third one. Mandible obtusely angulate on external side in ventral view; left upper tooth rectangular, with a rather high convexity behind anterior tip; left anterior lower tooth triangular, larger than right one, with inner edge truncate.

Pronotum weakly convex, hairless; anterior angle slightly protrudent anteriorly, with apex rectangular; lateral groove rather broad, with two or three irregular rows of punctures; median groove short; surface rather densely covered with large punctures

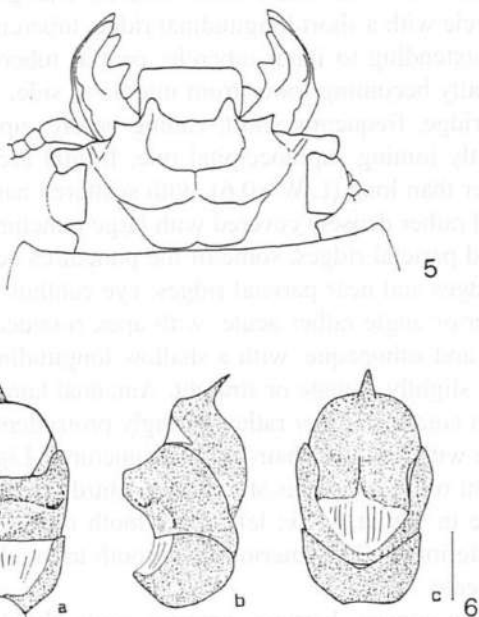
on lateral 1/3.

Elytra slightly convex, sparsely hairy in front of shoulders; four dorsal grooves with small punctures, fifth to tenth ones with large round punctures, narrower than the adjoining ribs; dorsal ribs almost flat.

Prosternum with posterior plate smooth and weakly raised along all borders, shining, finely punctate or rugose at the middle. Mesosternum indistinctly frosted-looking at the middle, rather widely shagreened and opaque along lateral borders and in scars; scar rather broad, rather shallow, inner wall of scar about 1/2 as long as lateral border of sternum. Central area of metasternum slightly uneven, with a few large punctures, and with shallow triangular depression anteriorly; anterior intermediate area indistinctly shagreened and shining, with scattered shallow punctures and several hairs; posterior one rather densely punctate along central area, with several punctures at the middle; lateral area not sharply defined from intermediate area, narrow, finely rugose and subopaque.

Lateral scars of abdominal sternites narrow, finely punctate; fifth one frosted-looking at the middle; sixth one sharply marginate along posterior border, weakly emarginate at the middle of posterior margin, finely punctate at sides and along anterior border, impunctate and frosted-looking at the middle, with posterior marginal groove at the median 1/2.

Integument of external face of middle tibia smooth and shining, with scattered



Figs. 5-6. *Leptaulax negrosensis* sp. nov.; 5, head; 6, male genitalia: a, dorsal view, b, lateral view, c, ventral view (Scale 0.5 mm).

hair-bearing punctures.

Male genitalia as shown in Fig. 6.

Length: 15.5–16.5 mm.

Holotype: ♂, Mambucal, Negros Is, the Philippines, V-1988; paratypes: 2 ♂♂, 4 ♀♀, 5 exs., same data as the holotype.

The new species resembles the preceding new species, *L. luzonicus*, but is different from the latter in the following points: head densely punctate; mesosternal scars opaque; lateral area of metasternum rugose and subopaque.

Leptaulax sakaii sp. nov.

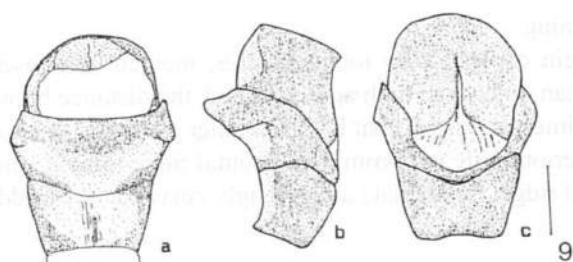
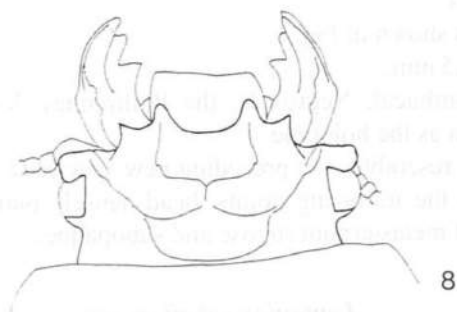
(Figs. 7–9)

Black and shining.

Anterior margin of head with four tubercles, median one absent; inner tubercle triangular, larger than outer one, with apex rounded, the distance between the two inner tubercles 1.9–2.0 times as long as that between inner and outer ones; outer tubercle triangular, acute; anterior angle not prominent; frontal ridge joining central tubercle with a short longitudinal ridge, tuberculate and strongly curved at the middle, and extending



Fig. 7. *Leptaulax sakaii* sp. nov., dorsal aspect.



Figs. 8-9. *Leptaulax sakaii* sp. nov.; 8, head; 9, male genitalia: a, dorsal view, b, lateral view, c, ventral view (Scale 0.5 mm).

to inner tubercle; central tubercle moderately raised, rectangular in lateral view; parietal ridge gradually becoming lower from the middle to side, joining supraorbital one; supraorbital ridge indistinctly joining supraoccipital one; frontal area quadrangular, wider than long ($L/W=0.5$), with scattered hair-bearing punctures; depressed area of head including the part just behind outer tubercles rather sparsely covered with large punctures, some of which bear a hair near the tubercles of frontal area, and before and behind parietal ridges; eye canthus smooth with several hair-bearing punctures, anterior angle widely rounded; eye rather large; hypostomal process shagreened and subopaque, with a longitudinal groove shallow. Labrum with anterior border slightly emarginate. Antennal lamellae rather short. Middle part of mentum smooth, with anterior border arcuate, scar rather small, elliptical; lateral piece with scattered hair-bearing punctures. Ligula with vestigial median keel. Second segment of labial palpus shorter than third one. Mandible very obtusely angulate on external side in ventral view; left upper tooth rectangular, with a higher convexity behind anterior tip; left anterior lower tooth triangular, larger than right one, with inner edge vertically truncate.

Pronotum moderately convex, hairless; anterior angle not protrudent, lateral groove broad, with two irregular rows of punctures, posterior border distinctly emarginate at median $1/3$; median groove fine, lateral scars small, rounded; surface sparsely punctate on lateral $1/4$ (female) or sparsely so behind anterior angles, and in and

around scars (male).

Elytra weakly convex, with hair tufts in front of shoulders, fused; grooves distinctly punctate, lateral ones narrower than the adjoining ribs, but punctures in lateral grooves somewhat transverse; dorsal ribs weakly convex; hindwings incipiently reduced.

Prosternum with posterior plate smooth along all borders, shining and minutely punctate at the middle. Mesosternum indistinctly frosted-looking, very shallowly and semicircularly depressed at the middle, shagreened and subopaque along lateral borders and in scars; scar rather broad, inner wall not sharp, about $2/5$ as long as lateral border of sternum. Central area of metasternum polished, with a slight transverse depression behind the middle, anterior depression triangular and shallow; anterior intermediate area smooth and shining, with scattered hair-bearing punctures; posterior intermediate area with scattered large punctures along central area and at the middle; lateral area not sharply defined from intermediate area, somewhat broad, widest at basal $2/3$, finely rugose, shining. Lateral scars of abdominal sternites rather narrow; sixth one almost smooth, finely punctate along anterior border, sharply marginate along posterior border. Integument of external face of middle tibia smooth, with scattered hair-bearing punctures.

Male genitalia as shown in Fig. 9.

Length: 18.5 (male)–19.0 (female) mm.

Holotype: ♂, Mambucal, Negros Is., the Philippines, VI–1990; paratype: 1 ♀, same locality as the holotype, VIII–1990.

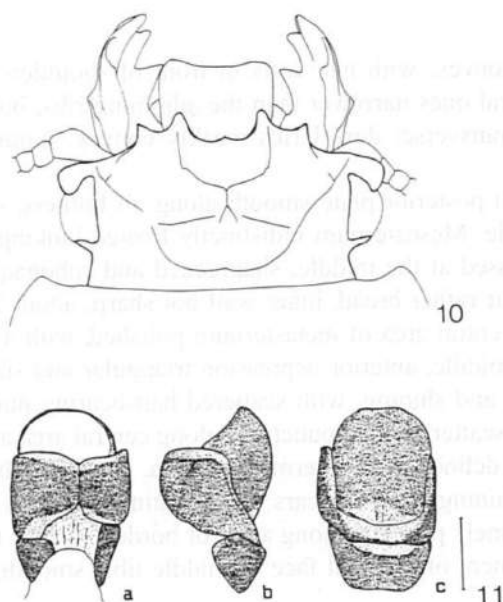
This new species resembles *L. uenoi* IWASE and two preceding species, but is different from the latter in a combination of the following points: median tubercle of anterior margin of head absent; head rather densely punctate; pronotum moderately convex.

Leptaulax mindanaoensis sp. nov.

(Figs. 10–11)

Black and shining, ventral surface somewhat reddish.

Anterior margin of head with five tubercles, median one small and very obtuse; inner tubercle triangular, rather acute, somewhat larger than outer one, with apex rounded, the distance between the two inner tubercles 2.0 times as long as that between inner and outer ones; outer tubercle triangular, with apex rather sharp; anterior angle not prominent; frontal ridge joining central tubercle with a short longitudinal ridge, slightly tuberculate at the middle, obtusely, angulately curved before the middle, and extending to inner tubercle; central tubercle rather highly raised, acute in lateral view; parietal ridge short, gradually becoming lower from the middle to side; supraorbital ridge joining supraoccipital one; frontal area semicircular, wider anteriorly, wider than long ($L/W=0.6-0.7$), hairless, with scattered large punctures; depressed area of head with scattered large hairless punctures just behind outer tubercles, and with hair-bear-



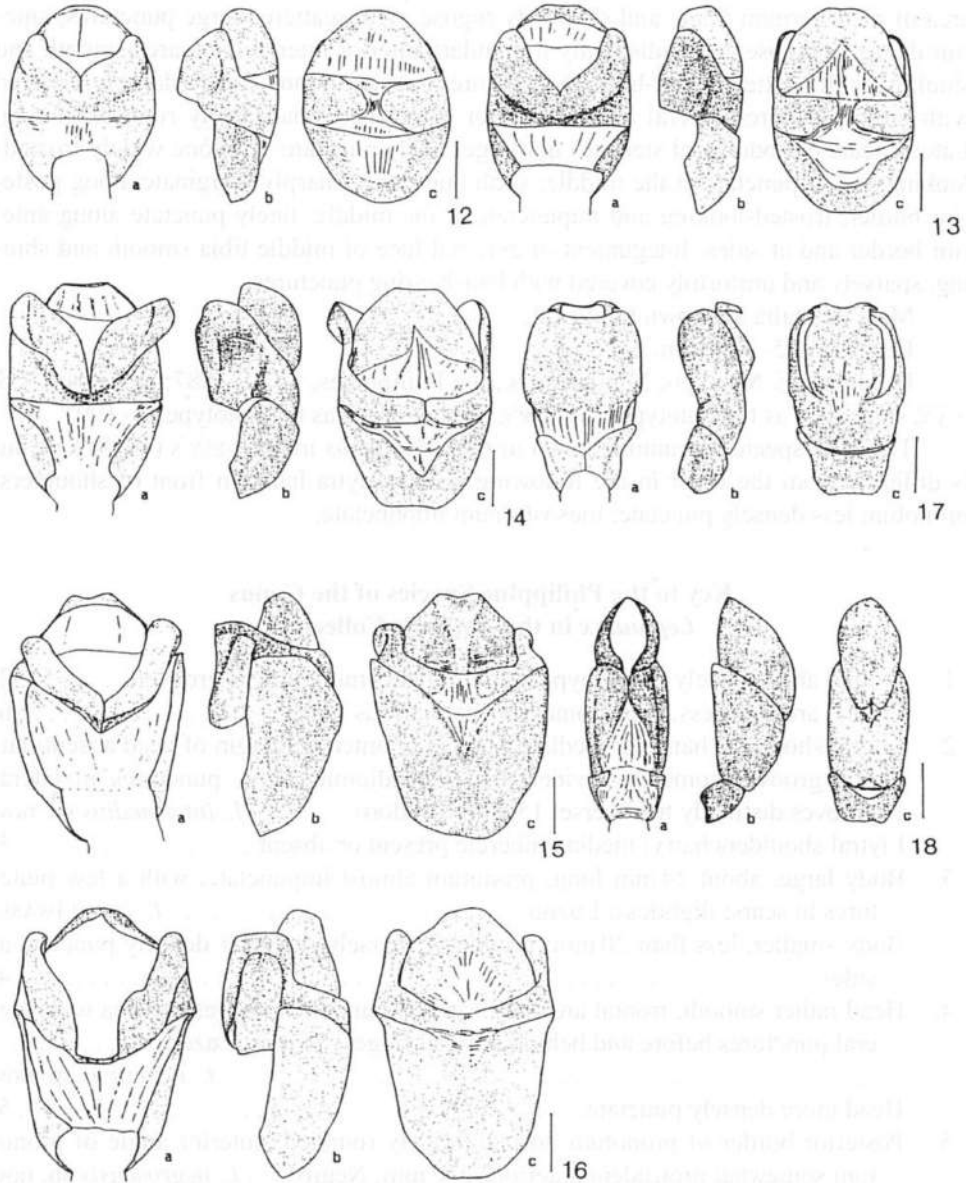
Figs. 10–11. *Leptaulax mindanaoensis* sp. nov.; 10, head; 11, male genitalia: a, dorsal view, b, lateral view, c, ventral view (Scale 0.5 mm).

ing ones before and behind parietal ridges; eye canthus with a fine longitudinal ridge, shagreened in front of the ridge, smooth and shining behind it, anterior angle widely rounded; eye rather large; hypostomal process smooth with a longitudinal groove, the bottom of which is shagreened. Labrum with anterior border weakly emarginate, left anterior angle more pointed anteriorly than right one. Antennal lamellae short. Middle part of mentum frequently with a few punctures, anterior border moderately arcuate, scar large, J-shaped; lateral piece with scattered hair-bearing punctures. Ligula with a fine median keel indistinct. Second segment of labial palpus as long as third one. Ventral face of mandible weakly but rather sharply pointed at the middle on external side in ventral view; left upper tooth rather low, gradually and slightly raised posteriorly, with anterior tip rectangular; left anterior lower tooth triangular, larger than right one, with inner edge sharp.

Pronotum weakly convex, convergent anteriorly, hairless; anterior border weakly emarginate in lateral 1/4, anterior angle obtuse, slightly protrudent or not, lateral scar shallow; surface rather densely punctate on lateral 1/3 including scars.

Elytra hairy on anterior vertical portion and in front of shoulders; dorsal grooves distinctly punctate, punctures in lateral ones transverse; dorsal ribs slightly convex, lateral one somewhat narrower than the adjoining grooves.

Prosternum with posterior plate shining, smooth and somewhat raised along all borders, indistinctly punctate inside the smooth margins, smooth at the middle. Mesosternum smooth at the middle, shagreened and opaque along lateral borders and



Figs. 12-18. Male genitalia of *Leptaulax* spp.; a, dorsal view, b, lateral view, c, ventral view (Scale: 0.5 mm). — 12, *L. manillae* KUWERT from Luzon; 13, *L. manillae* KUWERT from Mindanao; 14, ? *L. bicolor* (F.) from Luzon; 15, ? *L. bicolor* (F.) from Negros; 16, ? *L. bicolor* (F.) from Mindanao; 17, *L. humerosus* KUWERT from Palawan; 18, ? *L. dentatus* (F.) from Luzon (body length: 29 mm).

- Hypostomal process without groove 7.
7. Parietal ridge short 8.
- Parietal ridge joining supraorbital ridge 9.
8. Elytral shoulders hairy; eighth to tenth grooves of elytra worn-looking; 16 mm;
Palawan *L. humerosus* KUWERT (Fig. 17).
- Elytral shoulders hairless; elytra almost shining; 21–30 mm; Luzon, Mindoro,
Negros, Mindanao, Palawan ? *L. dentatus* (FABRICIUS) (Fig. 18).
9. Elytral shoulders hairy; pronotum with a few hairs in lateral scars; 19–23 mm;
Mindanao
. ? *L. bicolor* (FABRICIUS) (Fig. 16) (= *eschsoltzi* KAUP, sensu KUWERT).
- Elytral shoulders hairless or with a few hairs; pronotum hairless 10.
10. Last abdominal sternite rather densely hairy; marginal groove of anterior femur
vestigial; 15–18 mm; Luzon, Negros, Mindanao
. *L. manillae* KUWERT (Figs. 12–13).
- Last abdominal sternite hairless 11.
11. Pronotum sparsely punctate behind anterior angles, and in and around scars, an-
terior angles not protrudent; 17–20 mm; Luzon
. ? *L. bicolor* (FABRICIUS) (Fig. 14).
- Pronotum rather uniformly punctate at sides, anterior angles somewhat protru-
dent; 19–22 mm; Negros ? *L. bicolor* (FABRICIUS) (Fig. 15).

List of the Available Names (Described from the Philippines)

Excluding those in the Above Key

Specific name	Author	Year	GRAVELY (1914, 1918)
<i>differentispina</i>	KUWERT	1891	<i>bicolor</i>
<i>separandus</i>	KUWERT	1891	<i>bicolor</i>
<i>medius</i>	KUWERT	1891	<i>bicolor</i>
			(type loc. = Ceram and the Philippines)
<i>medius</i> ab. <i>divaricatus</i>	KUWERT	1898	<i>bicolor</i>
<i>geminatus</i>	KUWERT	1898	<i>dentatus</i>
<i>palawanicus</i>	ZANG	1905	<i>bicolor</i>

Acknowledgement

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要 約

岩瀬一男：フィリピン産クロツヤムシ，*Leptaulax*属の5新種。——フィリピンに産するクロツヤムシの*Leptaulax*属に属する5種を，新種として記載した。ミンドロ島の*L. intermedius*，ルソン島の*L. luzonicus*，ネグロス島の*L. sakaii*と*L. negrosensis*の4種は，ルソン島から記載された*L. uenoi* IWASEに近縁なものと思われる。ミンダナオ島の*L. mindanaoensis*は，大スンダ地域に広く分布する*L. cyclotaenius* KUWERTに似ている。また，著者の手元にある標本をもとに，フィリピン産の*Leptaulax*属の暫定的な種検索表を付載した。

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