

Zopherid Beetles Collected in West Papua Region of New Guinea (Coleoptera, Zopheridae, Colydiinae)

Jun-ichi Aoki

Nishiazabu 3–8–12, Minato-ku, Tokyo, 106–0031 Japan
E-mail: ja-muck@ma.rosenet.ne.jp

(Received 15 October 2012; accepted 25 March 2013)

Abstract Twelve species of zopherid beetles were recorded from West Papua Region of New Guinea, Indonesia. Four of them are also known from Japan, one each from U.S.A, from India and from New Guinea. The remaining five species are described herein as new species: *Papuatrichus dani* gen. et sp. nov., *Neotrichus variegatus* sp. nov., *Phormesa aurata* sp. nov., *Phormesa aspera* sp. nov. and *Phormesa costata* sp. nov.

Key words: Colydiinae, new genus, new species, West Papua, Zopheridae.

Introduction

In the nineteenth Century, a small number of colydiid species were described from New Guinea by Pascoe (1863) and Reitter (1877) and in the twentieth Century more species were reported by Heinze (1943), Lawrence (1980), Pope (1980), Pal and Ślipiński (1984), Ślipiński (1985) and Ślipiński and Poggi (1987).

However, most of these species were found in the eastern half of New Guinea Island, Papua New Guinea. In February 2011, I had an opportunity to investigate beetles in the western part of the island (Fig. 1), or the Indonesian side, and collected twelve species of the family Zopheridae. It was unexpected that four species among them were found in common in West Papua and Japan. Five species are described herein as new species, including a new genus.

The holotypes and a part of the paratypes are deposited in the collection of National Museum of Nature and Science, Tukuba (NSMT), and the remaining paratypes in the author's collection. All the specimens, however, will be put in future under the preservation of the museum.

Bitoma siccana (Pascoe, 1863)

(Fig. 28)

Xuthia siccana Pascoe, 1863b, p. 128, pl. 8, fig. 1.

Xuthia rufina Pascoe, 1863b, p. 128.

Xuthia maura Pascoe, 1863b, p. 128.

Xuthia parallela Sharp, 1885a, p. 70; 1885b, p. 122, pl. 6, fig. 5.

Bitoma parallela: Nakane, 1963, p. 218, pl. 109, fig. 17; Sasaji, 1985, p. 292, pl. 48, fig. 2

Bitoma siccana: Hetschko, 1930, p. 19; Dajoz, 1980, p. 28; Ślipiński, 1985, p. 485; Aoki, 2009, p. 122, fig.; 2012, p. 43, fig. 30.

Collecting data. 4 exs. Anban in Manokwari, West Papua, Indonesia. 10-II-2011. J. Aoki leg.

Distribution. China, Bhutan, India, Taiwan, Japan; West Papua (new record), Africa.

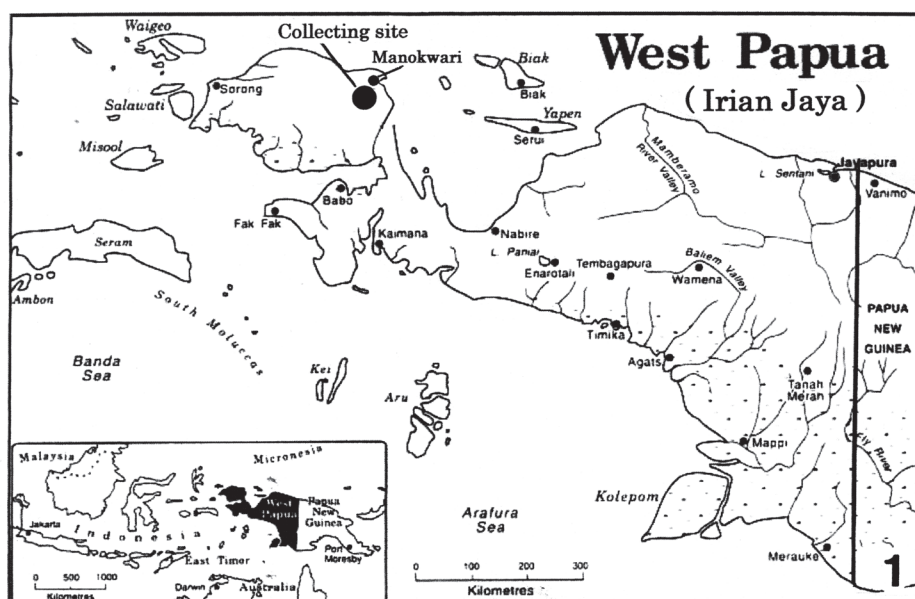
Microprius opacus (Sharp, 1885)

(Fig. 29)

Trionus opacus Sharp, 1885a, p. 70; 1885b, p. 122, pl. 6, fig. 4.

Microprius opacus: Nakane, 1963, p. 218, pl. 109, fig. 19; Sasaji, 1985, p. 292, pl. 48, fig. 3; Aoki, 2010, p. 128, fig.; 2012, p. 48, fig. 35.

Collecting data. 10 exs. Meni Village, Mt. Afrak, West Papua, Indonesia. 3–9-II-2011. J.



Figs. 1–3. Collecting sites in West Papua.—1, A map showing West Papua of New Guinea and collecting site around Mt. Arfak; 2, natural forest of Mt. Arfak with standing dead trees inhabited by colydiid beetles; 3, a Papuan who showed me around dead trees. A large number of colydiine beetles (*Phormesa lunaris*) were collected from dead twigs behind him.

Aoki leg. (log fogging with pyrethrum); 1 ex. Damaisi, Mt. Arfak, West Papua, Indonesia. 4-II-2011. J. Aoki leg. (log fogging with pyrethrum).

Distribution. Japan, the Philippines, India, Sri Lanka, Nepal, West Papua (new record).

***Lasconotus cavicollis* Ślipiński, 1985**

(Fig. 30)

Lasconotus cavicollis Ślipiński, 1985, p. 381, figs. 8–9.

Subcylindrical body, brown body color, granulose surface and vertex with median prominent tubercle indicate that it is no doubt *Lasconotus cavicollis* known from S. E. New Guinea and Kai Islands. Only the difference is that the specimens from West Papua are larger (body length: 2.3–2.4 mm) than the known specimens (1.8 mm).

Collecting data. 1 ex. Mani Village, Mt. Arfak, West Papua, Indonesia, 3–9-II-2011. J. Aoki leg.; 1 ex. Mt. Arfak, West Papua, Indonesia. 8-II-2011. T. Watanabe leg.

Distribution. S. E. New Guinea, Kai Islands;

West Papua (new record).

***Papuatrichus* gen. nov.**

Diagnostic characters. Antennal club 3-segmented. Interfacetal setae absent. Anterior angle of pronotum well produced anteriorly. Procoxal cavities externally closed. Prosternal process strongly expanded apically. All ventrites articulated freely. Tarsi of legs with unguis bearing knob-like appendage.

Type species. *Papuatrichus dani* sp. nov.

Etymology. The genus name *Papuatrichus* is a word coined from *Papua* (the collecting place) and *trichus* (a stem of *Neotrichus* which is the closely related genus). The gender is masculine.

Remarks. The new genus is similar to the genera *Neotrichus* Sharp, 1885 and *Lasconotus* Erichson, 1845, but it differs from them in the number of antennal club segments, the shape of prosternal process and that of unguis as shown in the key below.

Key to Three Related Genera Including the New Genus

- 1(2) Antennal club 2-segmented, terminal antennomere rounded; prosternal process tongue-shaped, not expanded apically; facetal setae of eyes present; pronotum with mid-lateral secretory pores; procoxal cavities narrowly open ***Neotrichus***
- 2(1) Antennal club 3-segmented, terminal antennomere transversely elliptical; prosternal process expanded apically; facetal setae of eyes absent; pronotum without mid-lateral secretory pores; procoxal cavities externally closed.
- 3(4) Prosternal process moderately expanded apically, a little wider than coxal cavity; unguis of legs without appendages on dorsal side; surface of metasternum and ventrites foveolate ***Lasconotus***
- 4(3) Prosternal process strongly expanded apically, 1.5 times as wide as coxal cavity; unguis of legs each with curious appendage on dorsal side; surface of metasternum and ventrites showing sinuate pattern ***Papuatrichus* gen. nov.**

***Papuatrichus dani* sp. nov.**

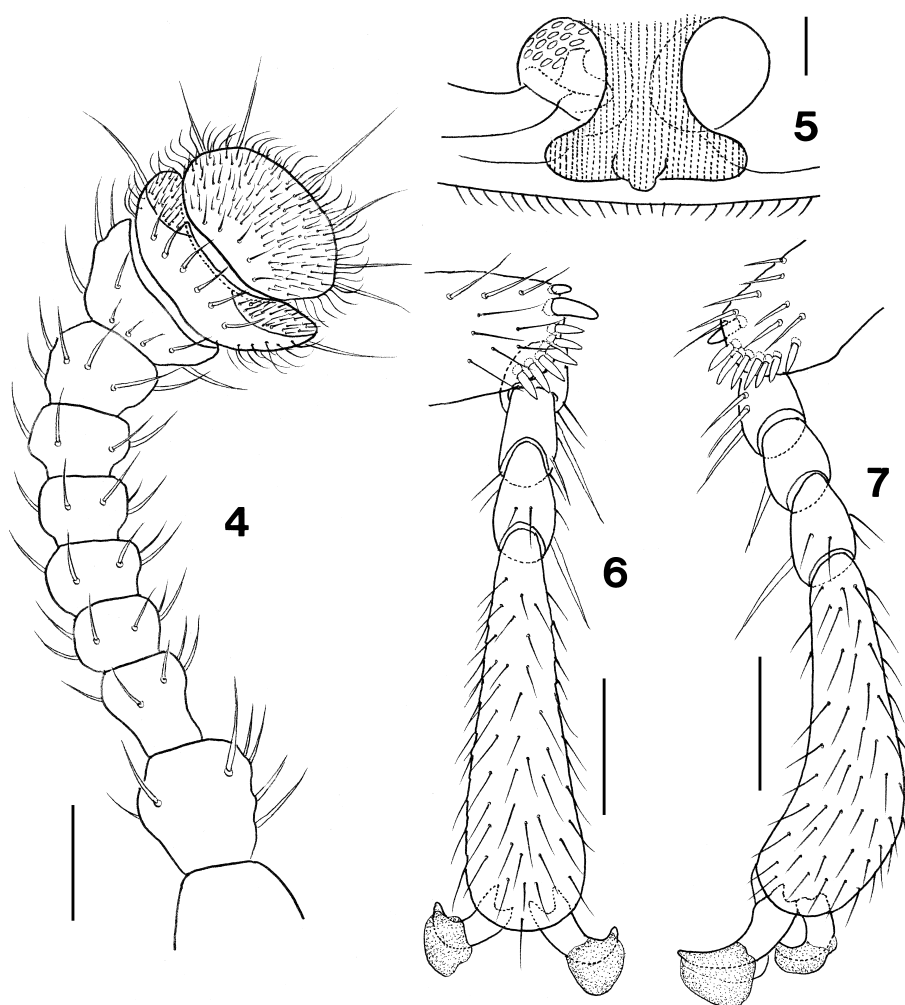
(Figs. 4–7, 8, 10, 31)

Body length. 3.9–4.5 mm.

Color. Head, pronotum and legs dark reddish

brown, elytra black.

Head. Vertex and frons densely covered with granules of different size; large granules each with thick seta blunt at tip and small granules each with fine seta pointed at tip. Antennae (Fig. 4) 11-segmented; antennomere III 1.5 times as



Figs. 4–7. Important parts of *Papuatrichus dani* sp. nov. —4, Antenna (left); 5, prosternal process; 6–7, tarsus and apical part of tibia of hind leg (6, dorsal aspect; 7, lateral aspect). Scale bars 0.1 mm.

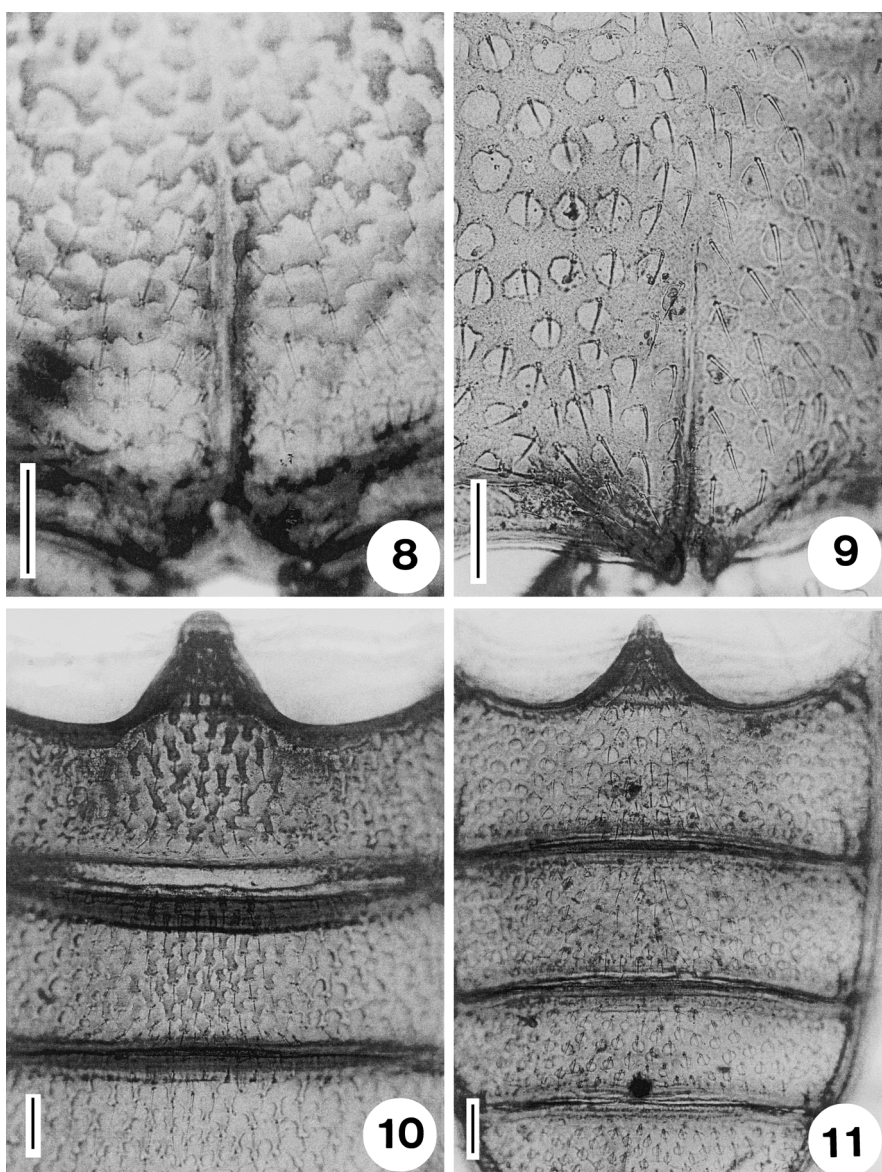
long as IV; antennomeres becoming gradually larger from IV to VIII; ratio in width of antennomere VIII:IX:X:XII = 0.49:0.74:1:0.85; terminal antennomere XII elongated elliptical in shape, 1.7 times as wide as long.

Pronotum a little longer than wide, widest anteriorly, becoming gradually narrower posteriorly; lateral margins crenulate, number of crenae 13–16; anterior margin weakly arcuate, flattened medially, with distinct anterior angle directed forward; disc rather flat, without concavities, densely covered with granules of various sizes, larger ones each with thick seta blunt at tip and

smaller ones each with fine seta pointed at tip; distinctly elevated transverse ridge lying along posterior margin of pronotum.

Elytra parallel-sided, 2.3 times as long as wide; ten rows of punctures on each side, each with short, thickened seta blunt at tip.

Ventral side. Mesosternum and metasternum bearing dense fine setae connected by ripple-mark pattern; prosternal process (Fig. 5) very broad, strongly expanded apically like wings, 1.5 times as wide as coxal cavity; mesosternal process lingulate, weakly narrowing apically and concave at tip.



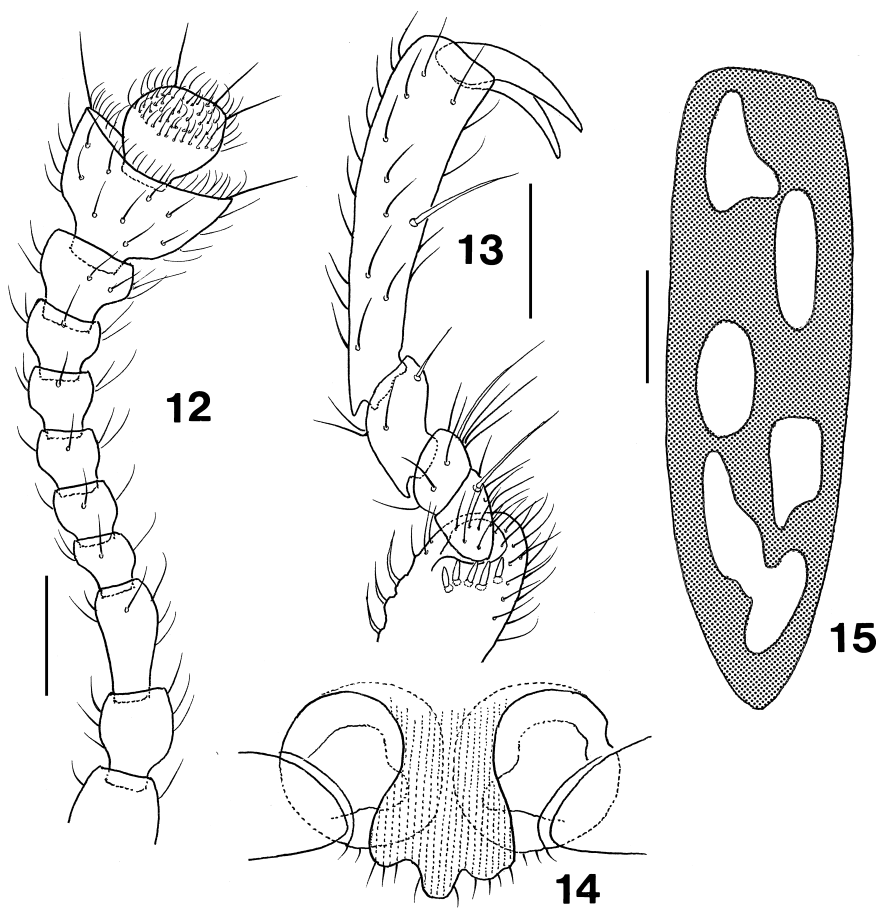
Figs. 8–11. Surface structures of ventral side of *Papuatrichus dani* sp. nov. and *Neotrichus variegatus* sp. nov.—8–9, Basal parts of metasterna (8, *P. dani*; 9, *N. variegatus*); 10–11, ventrites I–III (10, *P. dani*; 11, *N. variegatus*). Scale bars 0.1 mm.

Legs. Ungues of legs each provided with peculiar dorsal appendage, giving appearance of bearing knob on the tip (Figs. 6–7).

Holotype. Manokwari–Meni Village (400 m a.s.l.), Mt. Arfak, West Papua, Indonesia. 9-II-2011. J. Aoki leg. By fogging standing rotten wood with pyrethrum.—2 paratypes (containing 1 dissected female mounted on slide): same data

as holotype. Holotype (NSMT-I-C 200178) and one paratype (NSMT-I-C 200179).

Etymology. The specific name *dani* was named after the Dani tribe, the primitive inhabitants of West Papua.



Figs. 12–15. Important parts of *Neotrichus variegatus* sp. nov.—12, Antenna (left); 13, tarsus and apical part of tibia of hind leg; 14, prosternal process; 15, schematic drawing of left elytron showing arrangement of maculae. Scale bars 0.1 mm for 12–14, 0.5 mm for 15.

Neotrichus variegatus sp. nov.

(Figs. 9, 11, 12–15, 32)

Body length. 3.2–5.2 mm.

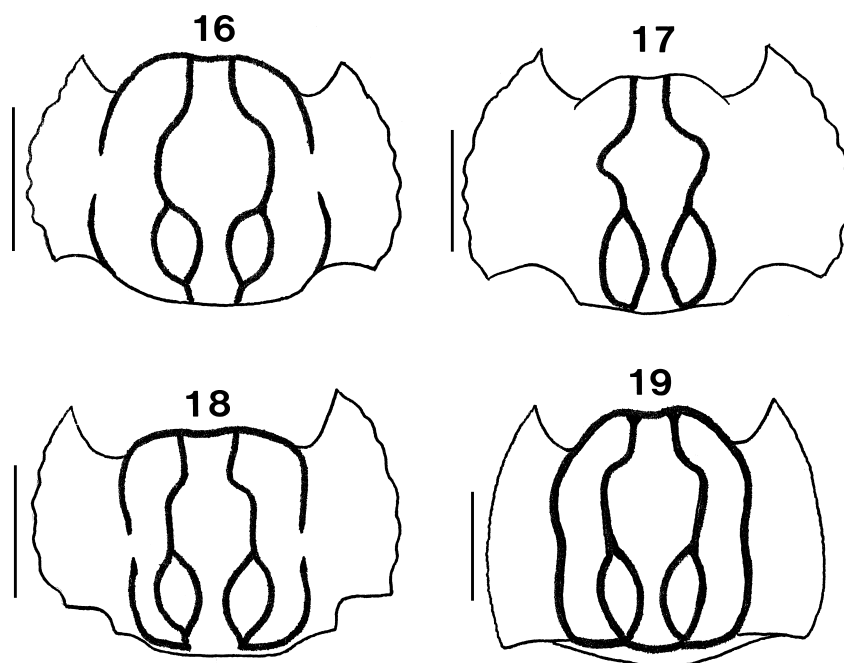
Color. Head, pronotum and elytra black; maculae on elytra yellowish or reddish brown; antennae and legs dark reddish brown. The pattern clearer in smaller specimens and duller in larger ones.

Head. Clypeus with long setae sharply pointed at tip; frons and vertex densely covered with granules each bearing short pointed setae. Interspace between eyes 3 times as long as eye; eyes with interfacetal setae pointed at tip. Antennae

(Fig. 16) 11-segmented; antennomere III nearly as long as IV and V combined; relative sizes of antennomeres: $IV = V < VI = VII < VIII < IX$; antennal club consisting of X and XI; X wide and cup-shaped, $1.6 \times$ as wide as round XI.

Pronotum parallel-sided, 1.3–1.4 times as long as wide; anterior angles weakly produced; disc rather flat, covered with round granules each with short seta pointed at tip; lateral margins straight, crenulate.

Elytra with a pattern of six yellowish or reddish brown maculae (Figs. 15, 32), partly fused together, sometimes distinct, sometimes dull; each elytron with ten rows of punctures; fine pointed setae situated on rows of punctures and a



Figs. 16–19. Comparison among pronotal discs of four species of the genus *Phormesa*. —16, *Ph. aurata* sp. nov.; 17, *Ph. aspera* sp. nov.; 18, *Ph. lunaris* Pascoe; 19, *Ph. cosata* sp. nov. Scale bars 0.5 mm.

little stronger setae between the rows.

Ventral side. Prosternal process (Fig. 14) weakly expanded apically, terminating in three tips, of which the median one is longer than the laterals. Mesosternal process narrow, lingulate, parallel-sided; metasternum covered with large foveolae (Fig. 9), each with fine seta pointed at tip. Abdomen with all ventrites freely articulated, with the same pattern of foveolae as on metasternum; intercoxal process of ventrite I acute.

Legs. Tarsi three-segmented, but first segment subdivided into two parts, showing appearance of having four segments; second and third segments with process at dorsobasal end. Ungues rather slender and weakly curved (Fig. 13).

Holotype. Meni Village (1,200 m a.s.l.), Mt. Arfak, West Papua, Indonesia. 3–9-II-2011. J. Aoki leg. By fogging standing dead trees and seasoned woods with pyrethrum.—18 paratypes (containing 1 dissected male mounted on slide): same data as holotype; 1 paratype: Damaishi (2,000 m), Mt. Arfak (2,000 m a.s.l.), West Papua, Indonesia. 4-II-2011. J. Aoki leg.; 1 paratype:

Anggi (2,000 m), Mt. Arfak, West Papua, Indonesia. 5-II-2011. J. Aoki leg. By spraying dead tree. Holotype (NSMT-I-C 200180) and 10 paratypes (NSMT-I-C 200181–200190).

Etymology. The specific name *variegatus* means “spotted” indicating spotted elytra of the species.

Remarks. In having narrowly elongate body, two-segmented antennal club consisting of wide cup-shaped antennomere X and smaller rounded antennomere XI, eyes with interfacetal seta, acute process of ventrite I and tarsi 3-segmented, this new species is no doubt a member of the genus *Neotrichus*. However, it is distinguishable from other members of the genus by the maculate elytra, ten rows of punctures on elytron, all ventrites articulating freely and pronotum without lateral pores.

Endeitoma granulata (Say, 1827)

(Fig. 33)

Synchita granulata Say, 1827, p. 266.

Endeitoma granulata: Ivie, 2002, p. 451, fig. 21.

Collecting data. 1 ex. Anban, Manokwari, West Papua, Indonesia. 10-II-2011. J. Aoki leg. From fallen dead tree.

Distribution. U.S.A. (Florida and Missouri); West Papua (new record).

***Colobicus parilis* Pascoe, 1860**

(Fig. 34)

Colobicus parilis Pascoe, 1860, p. 202; Sasaji, 1984, p. 36, figs. 4G, 5C, 6B, 7D.

Colobicus coformis Pascoe, 1863, p. 124.

Collecting data. 4 exs. Anban Beach in Manukwari, West Papua, Indonesia. 10-II-2011. J. Aoki leg.

Distribution. India, Indonesia, Malaysia, Samoa, the Philippines, Molucca, Hawaii, U.S.A., Mauritius, Australia and Japan ; New Guinea (new record).

Remarks. The Papuan specimens of *C. parilis* are well in accord with the Japanese specimens of the species in the shape of antennal club, setae on head, pronotum, elytra and other important features. The only difference between them is in the sculpture on abdominal ventrites; the third and the fourth ventrites with fine pores along posterior margins in the Japanese specimens, while there are no pores on the Papuan ones.

***Acolophus debilis* Sharp, 1885**

(Fig. 35)

Acolophus debilis Sharp, 1885a, p. 66; Sasaji, 1985b, p. 293, pl. 48, fig. 10; Aoki, 2009, p. 142, unnumbered fig. on p. 143.

The Papuan specimen is well in accord with the Japanese specimens in most of features except in the white scale-like setae which are arranged in rows of several contiguous setae more conspicuous in contrast with black ground color of elytra.

Collecting data. 1 ex. Damaisi, Mt. Arfak (2,000m a.s.l.), West Papua, Indonesia. 4-II-2011. J. Aoki leg. From standing dead tree.

Distribution. Japan; West Papua (new record).

Genus *Phormesa* Pascoe, 1863

Phormesa Pascoe, 1863a, p. 31; Pascoe, 1863b, p. 130 (key); Carter and Zeck, 1937, p. 188

Diagnosis. Head subquadrate, antennal groove well developed; antennae 11-segmented, terminal club 2-segmented; lateral parts of pronotum strongly explanate, often with crenulate margins; disc with one or two pairs of costae forming peculiar pattern; median pair of costae approaching anteriorly and forming a pair of loops posteriorly.

The genus *Phormesa* resembles the genera *Bitoma* and *Microprius*, but it is distinguishable from the latter two by broader body shape, pronotum with dilated and often crenate lateral margins, disc with costae in peculiar form, and the presence of antennal grooves (sulcis).

In West Papua the members of *Phormesa* seem to be the commonest and most widely distributed colydiids. Four species collected at that place are described below with characteristic features other than those in the generic diagnosis mentioned above.

Key to the West Papuan Species of the Genus *Phormesa*

- 1(4) Elytra strongly carinate, carinae numerously interrupted.
- 2(3) Pronotal disc with two pairs of costae, lateral costae feeble and interrupted; elytra not elevated posteriorly, surface with golden powder-like ornamentation *Ph. aurata* sp. nov.
- 3(2) Pronotal disc with only one pair of costae, lateral costae absent; elytra strongly elevated posteriorly, surface without golden powder-like ornamentation *Ph. aspera* sp. nov.

- 4(1) Elytra moderately carinate, carinae solid, uninterrupted.
 5(6) Pronotal disc with two pairs of costae, lateral ones feeble and interrupted; pronotum with crenulate lateral margins, posterior parts distinctly constricted..... *Ph. lunaris* Pascoe
 6(5) Pronotal disc with two pairs of costae, lateral ones strong and entire; pronotum with lateral margins not crenulate, posterior parts not constricted *Ph. costata* sp. nov.

***Phormesa aurata* sp. nov.**

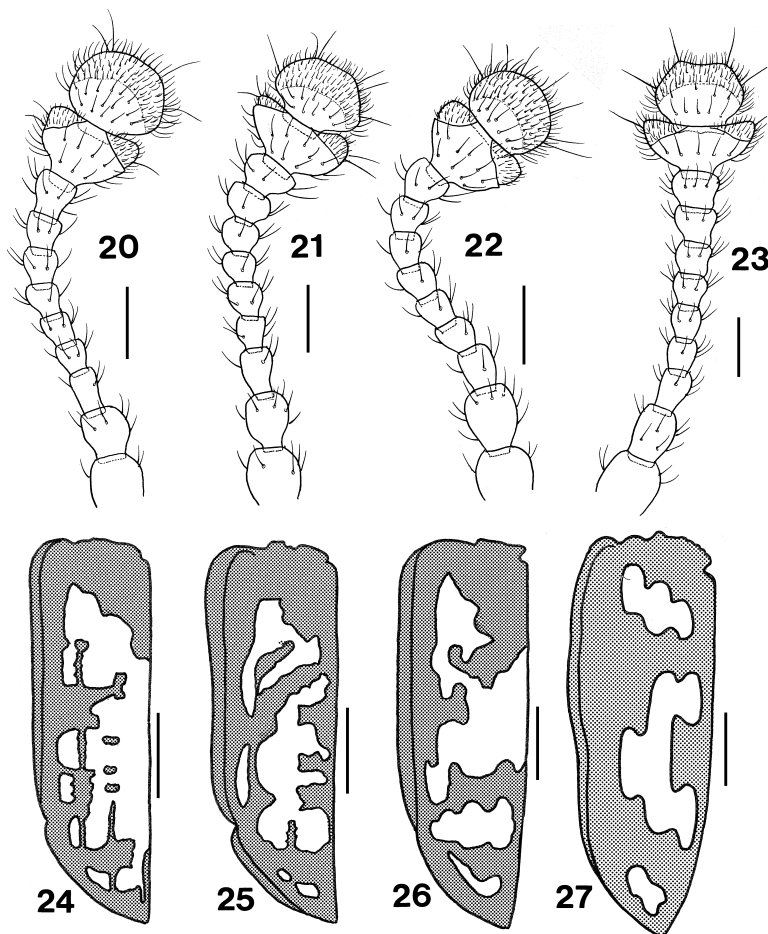
(Figs. 16, 20, 24, 36)

Body length. 2.9–3.9 mm.

Color. Ground color of body black, but greater parts of body are occupied by yellowish brown

color in dilated lateral parts of pronotum and broad fasciae on elytra; antennae and legs dark reddish brown.

Head a little longer than broad, nearly rectangular with straight anterior margin and parallel lateral margins; vertex densely covered with granules of different sizes, each bearing weakly



Figs. 20–27. Comparison of antennae (20–23) and elytral maculae and fasciae (24–27) among four species of *Phormesa* (schematic drawings).—20 and 24, *aurata*; 21 and 25, *aspera*; 22 and 26, *lunaris*; 23 and 27, *costata*. Scale bars 0.1 mm for 20–23, 0.5 mm for 24–27.

thickened seta. Eyes with short and broadened interfacetal setae: Antennomeres X little wider and shorter than terminal XI (Fig. 20).

Pronotum 1.5 times as wide as long, with anterior margin slightly concave medially, well produced triangular anterior angles, broadly dilated lateral parts with crenulate margin not constricted posteriorly. Disc with two pairs of costae; inner costae distinct, approaching anteriorly, but the outer costae are feeble and interrupted in middle (Fig. 16); surface densely covered with granules, each with weakly thickened seta.

Elytra 1.6 times as long as broad, with narrow lateral margins; each elytron with four carinae; carina II interrupted with long distance, but carina III with short distance; carina IV developed only apically; two rows of punctures between them, each with weakly thickened seta; greater parts of elytra occupied by yellowish patterns variable individually (Figs. 24, 36).

Ventral side. Prosternal process with straight apical margin and weakly swollen lateral margins; mesosternum and metasternum densely covered with small, polygonal granules, each with weakly thickened seta; mesocoxal process narrowing apically, with deep notch on apical margin. Abdominal ventrites I–V all jointed loosely; all surface covered with irregular polygonal granules, each with fine seta; lateral margins of ventrites I–III weakly angulate; transverse sinuate ridge on ventrite V; intercoxal process acute.

Holotype. Meni Village (1,200 m a.s.l.), Mt. Arfak, West Papua, Indonesia. 3–9-II-2011. J. Aoki leg. By spraying of dead trees.—9 paratypes (containing 1 dissected male mounted on slide); same data as holotype. Holotype (NSMT-I-C 200191) and 4 paratypes (NSMT-I-C 200192–200195).

Etymology. The specific name *aurata* means golden, suggesting golden powder-like ornamentation of body surface.

Remarks. Having prothorax broadest behind the middle and regularly lobed margins the new species resembles *Ph. inornata* Pascoe, 1863, but it is distinguishable from the latter by curved, distinctly interrupted outer costae of prodorsum

and faint yellowish spots scattered all over elytra.

***Phormesa aspera* sp. nov.**

(Figs. 17, 21, 25, 37)

Body length. 3.4–4.5 mm.

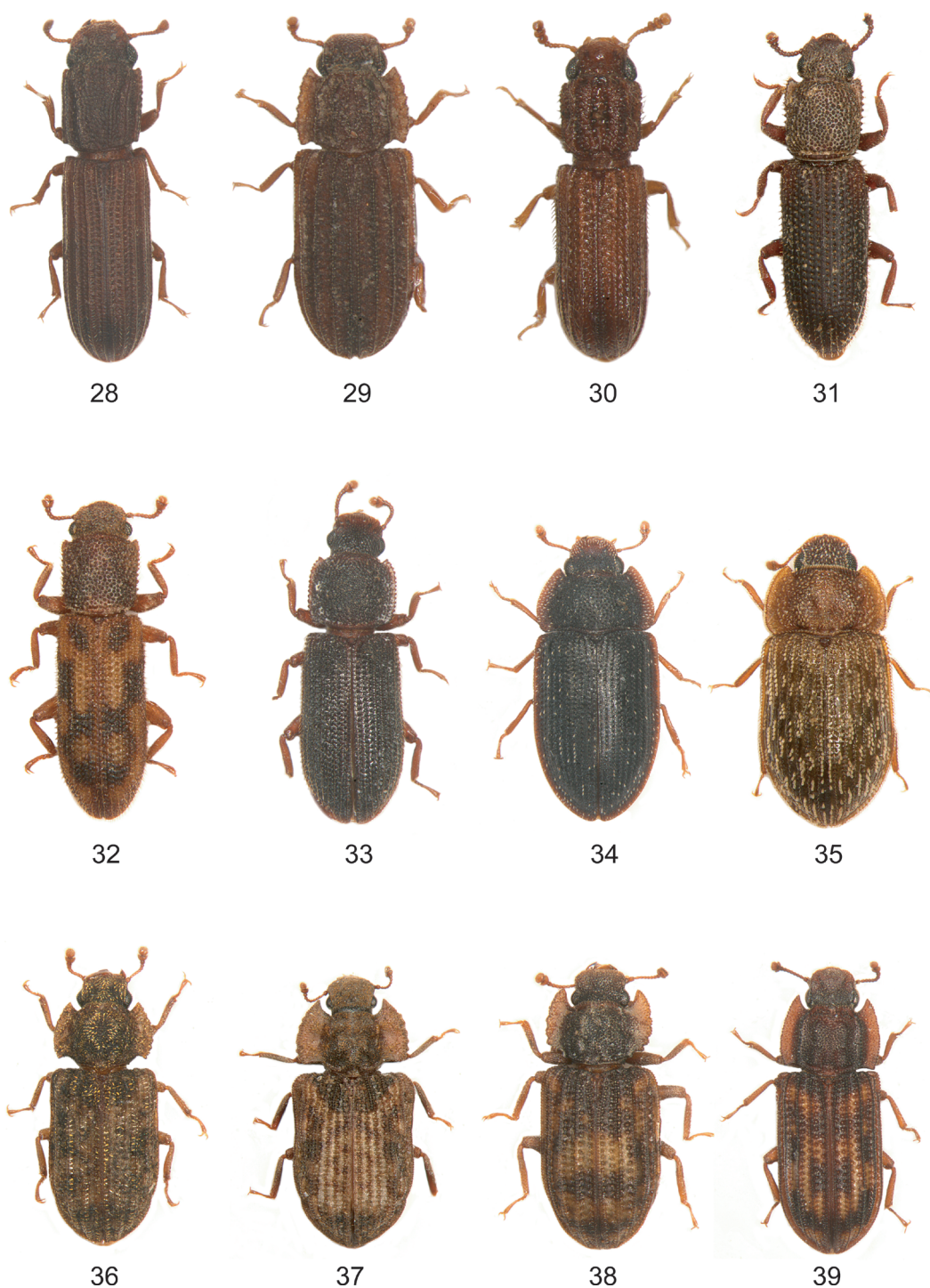
Color. Body dull yellowish brown, sometimes with black elytra with reddish brown fasciae.

Head nearly rectangular, with straight anterior margin and parallel lateral sides; vertex covered with granules of different sizes, each with rather long sword-shaped seta. Eyes without interfacetal setae. Antennal club consisting of antennomeres X and XI; X a little shorter and wider than XI (Fig. 21).

Pronotum broad, 1.6 times as wide as long, with anterior margin distinctly concave medially, well produced anterior angles directed somewhat inward, broadly dilated lateral parts with crenulate margins. Disc with a pair of costae approaching anteriorly and forming a pair of loops posteriorly; lateral costae absent (Fig. 17); surface densely covered with granules, each with sword-shaped seta.

Elytra rather short, 1.42–1.48 times as long as broad, with rather broad flat lateral margins, posterior portion markedly elevated; four sharply edged carinae strongly interrupted intermittently; carina IV developed only apically; two rows of punctures between carinae; neighboring punctures joined by short bridges, each with sword-shaped seta; yellowish or reddish brown fasciae and maculae on elytra (Figs. 25, 37).

Ventral side. Prosternal process a little broader than coxal cavity, slightly broadened apically, with straight anterior margin and weakly swollen lateral margins. Mesosternum and metasternum densely covered with granules, each with sword-shaped seta, tending to connect each other in lateral parts of sternum; mesocoxal process narrowing apically, with deep notch at tip. Abdominal ventrites I–V all jointed loosely, surface densely covered with granules rounded in median part and irregular in shape in lateral parts; ventrite V with deep, sinuate preapical groove; intercoxal



Figs. 28–39. Photos of colydiine beetles collected in West Papua.—28, *Bitoma siccana* (Pascoe); 29, *Microprius opacus* (Sharp); 30, *Lasconotus cavicolis* Šlipiński; 31, *Papuatrichus dani* gen. et sp. nov.; 32, *Neotrichus variegatus* sp. nov.; 33, *Endeitoma granulata* (Say); 34, *Colobicus parilis* Pascoe; 35, *Acolophus debilis* Sharp; 36, *Phormesa aurata* sp. nov.; 37, *Phormesa aspera* sp. nov.; 38, *Phormesa lunaris* Pascoe; 39, *Phormesa costata* sp. nov.

process acute.

Holotype. Pinibut (1,900 m a.s.l.), Mt. Arfak, West Papua, Indonesia. 5-II-2010. J. Aoki leg.—5 paratypes (containing 1 dissected male and 1 dissected female mounted on slides): Anggi (2,000 m a.s.l.), Mt. Arfak, West Papua, Indonesia. 5-II-2011. J. Aoki leg. By spraying fallen dead trees. Holotype (NSMT-I-C 200196) and 2 paratypes (NSMT-I-C 200197, 200198) are deposited in the collection of the National Museum of Nature and Science, Tokyo.

Etymology. The specific name *aspera* came from rough and uneven structure of elytra.

Remarks. The new species is similar to *Ph. elevata* Pascoe, 1863, but it is easily distinguishable from the latter by the inner costa on prothorax forming a loop posteriorly.

***Phormesa lunaris* Pascoe, 1863**

(Figs. 18, 22, 27, 38)

Phormesa lunaris Pascoe, 1863a, p. 32, pl. 3, fig. 6; Pascoe, 1863b, p. 130 (key); Carter and Zeck, 1937, p. 189 (key); Aoki, 2011, p. 25, fig. 1.

Body length. 3.1–3.9 mm.

Color. Body black to dark brown, lateral expansions of pronotum and fasciae on elytra light yellowish brown, antennae and legs reddish brown.

Head a little longer than wide including hidden part; anterior margin slightly concave; lateral margins weakly convex before eyes and straight and parallel behind eyes; vertex covered with large granules more or less elongated, each bearing sword-shaped seta. Eyes with minute interfacetal setae. Antennal club consisting of antennomeres X and XI; antennomere X cup-shaped, anterolateral parts densely bristled and remaining basal part with a few long setae (Fig. 22).

Pronotum broad, 1.6–1.7 times as wide as long, with anterior margin gently convex, sometimes only slightly concave medially, well produced anterior angles with concave inner margin, broad lateral expansions with crenulate lateral margins distinctly constricted posteriorly. Disc

with two pairs of costae; outer costae feeble and interrupted in middle (Fig. 18), inner costae approaching anteriorly, parallel in middle and forming a pair of loops posteriorly; surface of disc rather sparsely covered with granules, each with sword-shaped seta.

Elytra 1.6 times as long as broad, with narrow lateral margins; each elytron with five costae all entire, never interrupted; two rows of punctures between costae; punctures jointed by slender bridges, each with sword-shaped seta; elytra ornamented by several yellowish fasciae and maculae (Figs. 26, 38), central one the largest and semilunate in shape.

Ventral side. Prosternal process a little narrower than coxal cavity, nearly parallel-sided, apical margin trilobate; mesosternum and metasternum covered with thorny granules, each with sword-shaped seta; mesocoxal process narrowing anteriorly, with apical notch. Abdominal ventrites all jointed loosely, surface covered with thorny granules as on metasternum, each with sword-shaped seta; a pair of setae on posterior margin especially long; ventrite V with sinuate preapical groove; intercoxal process acute.

Collecting data. 14 exs. Meni Village (1,200 m a.s.l.), Mt. Arfak, West Papua, Indonesia. 3–9-II-2011. J. Aoki leg. By spraying standing dead trees.

Distribution. India; West Papua (new record).

***Phormesa costata* sp. nov.**

(Figs. 19, 23, 27, 39)

Body length. 4.3 mm.

Color. Body black except for reddish brown lateral expansions of pronotum, antennae, legs and yellowish fasciae and maculae on elytra.

Head nearly as long as wide, anterior margin trilobate; dorsal side with two grooves diverging anteriorly. Eyes separated by 2.5 times diameter of single eye. Vertex covered with granules and recumbent setae. Antennomere X shallow cup-shaped (Fig. 23), much wider than long; antennomere XI rounded, but with flattened and slightly

concave apex.

Pronotum broad, 1.5 times as wide as long, widest posteriorly; lateral flat areas not so broad compared to those in other species of *Phormesa*; lateral margins nearly smooth, not crenulate, only bordered with row of fine granules; anterior angles prominent, with concave interior margin. Disc with two pairs of entire (not interrupted) and sharply edged costae (Fig. 19); outer costae parallel in middle parts, connecting to anterior and posterior costae to form subquadrate ring-like structure; inner costae parallel in middle, approaching together anteriorly and forming a pair of loops posteriorly; surface of disc densely covered with granules.

Elytra 1.75 times as long as broad; each elytron with carina III approaching to carina II apically, but never joining to it, ending short distance before reaching apical margin; carina V interrupted and dislocated near base. Three pairs of yellowish fasciae-group on elytra, middle one largest (Fig. 27).

Holotype (partly dissected and mounted on slides). Anbon, Manokwari, West Papua, Indonesia. 10-II-2011. J. Aoki leg. From a fallen dead tree. Holotype (NSMT-I-C 200199) is deposited in the collection of the National Museum of Nature and Science, Tokyo.

Etymology. The specific name *costata* indicates strong and sharply edged costae on pronotal disc and elytra.

Remarks. In having strong outer costae on prothorax, the new species resembles *Ph. heros* Pascoe, 1863, but differs from the latter in smooth, uncrenate lateral margins of prothorax.

Acknowledgments

In the collecting trip to West Papua four entomologists including myself were accompanied by Mr. Shinichi Fukuda, who had experience in visiting West Papua once. I am deeply grateful to him for careful planning and kindness during the trip. Beautiful color photos (Figs. 28–39) were taken by Mr. Shinya Kawai using special technique. I give cordial thanks to Dr. S.-I. Uéno for

his critical reading of the manuscript.

References

- Aoki, J. 2009. Japanese species of Colydiidae not appeared in illustrated books published in Japan. Kanagawa-Chûhō, Odawara, (165): 1–51. (In Japanese.)
- Aoki, J. 2010. Colydiids: A Charming Group of Beetles, with Catalogue of the Japanese Species. 194 pp. Tokai University Press, Tokyo. (In Japanese.)
- Aoki, J. 2011. Unrecorded colydiine beetle collected by Dr. K. Kusama. Kanagawa-Chûhō, (175): 25–26. (In Japanese.)
- Carter, H. J. and E. H. Zeck, 1937. A monograph of the Australian Colydiidae. Proceedings of Linnean Society of New South Wales, 62: 181–208, pls. 8–9.
- Dajoz, R. 1980. Insectes Coleopteres: Colydiidae et Cerylonidae. Faune de Madagascar, 54: 1–256.
- Heinze, E. 1943. Studien zur Kenntnis der Tribus Deretaphrini und deren Stellung im System (Colydiidae). Entomologische Blätter für Biologie und Systematik der Käfer, 39: 85–93, 97–124.
- Hetschko, A. 1930. Colydiidae. In Junk, W. and S. Schenkling (eds.): Coleopterorum Catalogus, pp. 1–124. W. Junk, Berlin.
- Ivie, M. A. 2002. 103. Colydiidae Erichson 1845. In R.H. Arnett, Jr., M. C. Thomas, P. E. Skelley and J. H. Frank (eds.): American Beetles, vol. 2. Polyphaga: Scarabaeoidea through Curculionoidea, pp. 445–453. CRC Press, London.
- Lawrence, J. F. 1980. A new genus of Indo-Australian Gempylodini with notes on the constitution of the Colydiidae (Coleoptera). Journal of Australian Entomological Society, 19: 293–310.
- Nakane, T. 1963. Colydiidae. In Nakane, T. *et al.* (eds.): Iconographia Insectorum Japonicorum Colore Naturali Edita, 2, pp. 218–219, pls. 109–110. Hokuryukan, Tokyo. (In Japanese with Latin book title.)
- Pal, T. K. and S. A. Ślipiński, 1984. Notes on the *Nematidium* Erickson (Coleoptera, Colydiidae) with description of new species. Polskie Pismo Entomologiczne, 53: 531–543.
- Pascoe, F. P. 1860 Notice of new or little known genera and species of Coleoptera, part II. Journal of Entomology, 1: 98–132, pls. 5–8.
- Pascoe, F. P. 1863a. Notice of new or little known genera and species of Coleoptera. Journal of Entomology, 2: 26–56.
- Pascoe, F. P. 1863b. List of the Colydiidae collected in the Indian Islands by Alfred R. Wallace, Esq., and description of new species. Journal of Entomology, 2: 121–143, pl. 8.
- Pope, R. D. 1980. A revision of the species of *Sosylus*

- (Coleoptera: Colydiidae) occurring in New Guinea. Bulletin of Entomological Research, 70: 235–245.
- Reitter, E. 1877. Neue Arten aus den Familien der Cucujidae, Nitidulidae, Colydiidae und Cryptophagidae. Mitteilungen des Münchener Entomologische Vereins, 1: 22–28.
- Sasaji, H. 1984. Contribution to the taxonomy of the superfamily Cucujoidea (Coleoptera) of Japan and her adjacent district. II. The Memoirs of Faculty of Education, Fukuoka University, Series 2 (Natural Science), (34): 21–63.
- Sasaji, H. 1985. Colydiidae. In Kurosawa *et al.* (eds.), The Coleoptera of Japan in Color, 3: 290–295 (incl. pl. 48). Hoikusha, Osaka. (In Japanese with English book title.)
- Sasaji, H. 1986. Notes on Colydiidae (Coleoptera) of Japan and Formosa. Entomologica Papers presented to Yoshihiko Kurosawa on the occasion of his retirement. The Coleopterists' Association of Japan: 243–249.
- Say, T. 1827. Descriptions of new species of coleopterous insects inhabiting the United States. Journal of Philadelphia Academy of Science, 5: 237–284.
- Sharp, D. 1885a. On the Colydiidae collected by Mr. G. Lewis in Japan. Journal of Linnean Society of London, 19: 58–84, pl. 3.
- Sharp, D. 1885b. On some Colydiidae obtained by Mr. G. Lewis in Ceylon. Journal of Linnean Society of London, 19: 117–131, pl. 1.
- Sharp, D. 1894. Fam. Colydiidae. In Godman, F. and O. Salvin (eds.): Biologia Centrali-Americana. Insecta. Coleoptera, Vol. II, Part I, pp. 441–488. Dulau & Co., London.
- Ślipiński, S. A. 1985. Studies on the Colydiidae (Coleoptera, Tenebrionoidea) of New Guinea. Part I. Genera: *Colobicones* Grouv., *Hystriicones* Sharp and *Lasconotus* Erickson. Annali del Museo Civico di Storia Naturale, 85: 375–387.
- Ślipiński, S. A. and J. F. Lawrence, 1997. Genera of Colydiinae (Coleoptera: Zopheridae) of the Australo-Pacific Region. Annles Zoologici (Warszawa), 47: 341–440.
- Ślipiński, S. A. and R. Poggi, 1987. Codescrizione di *Pseudendestes papuanus* n. sp. In Ślipiński, S. A. (ed.): Studies on the Colydiidae (Coleoptera, Tenebrionoidea) of New Guinea, Part II. Genus *Pseudendestes* Lawrence. Doriana, Genova, 6: 1–5.