

## NOTES ON DRYOPOID BEETLES FROM NEW GUINEA

By Masataka Satô<sup>1</sup>

*Abstract*: Six dryopoid beetles from New Guinea are treated. Included are descriptions of one new species of Dryopidae, two new species and one new subspecies of Elminthidae. The new taxa are illustrated.

Only 11 species of dryopoid beetles have been recorded from New Guinea, so far as I am aware. They are listed as follows:

- | Elminthidae                                 | Limnichidae                             |
|---|---|
| 1. <i>Potamophilus albertisii</i> Grouvelle | 6. <i>Limnichus biroi</i> Pic           |
| 2. <i>P. papuanus</i> (Carter)              | 7. <i>Cyphoniscus neoguineensis</i> Pic |
| 3. <i>Graphelmis binervosa</i> (Reitter)    | 8. <i>C. grandis</i> Pic                |
| 4. <i>Stenelmis biroi</i> Bollow            | 9. <i>Byrrhinus neoguineensis</i> Pic   |
| Chelonariidae                               | 10. <i>B. nitidicollis</i> Pic          |
| 5. <i>Chelonarium biroi</i> Pic             | 11. <i>B. biroi</i> Pic                 |

In this paper, three new species and one new subspecies of dryopoid beetles are added to the fauna of New Guinea. These new taxa are based on specimens preserved in the Bishop Museum and California Academy of Sciences made available for study through the courtesy of Dr J. L. Gressitt and Mr H. B. Leech.

### FAMILY DRYOPIDAE

The following *Elmomorphus*-species is the first record of this family to the New Guinean fauna.

***Elmomorphus* (*Elmomorphellus*) *gressitti* M. Satô, new species**      Fig. 1-5, 13.

♂. Body elongate oval, moderately convex, shining, sparsely and finely pubescent above, somewhat closely punctate beneath; anterior and lateral portions of head, anterior corners of pronotum and U-shaped broad marginal areas of elytra closely imbricate with minute scales; dorsal surface dark brown, ventral surface brown, tarsi and mouthparts yellowish brown.

*Head* more or less concealed under pronotum, disc somewhat flattened, closely and distinctly punctate, finely pubescent; clypeus emarginate at the anterior margin and provided with close and long hairs; eyes large, distance between them separated by  $3 \times$  the diameter of each eye; antennae 9-segmented short, closely pubescent, 1st and 2nd segments stout, 3rd to 9th forming a club; maxillary palpus 4-segmented, longer than antenna, 4th segment elongate and longer than 1st to 3rd together; labial palpi 3-segmented, short. *Pronotum* subquadrate,

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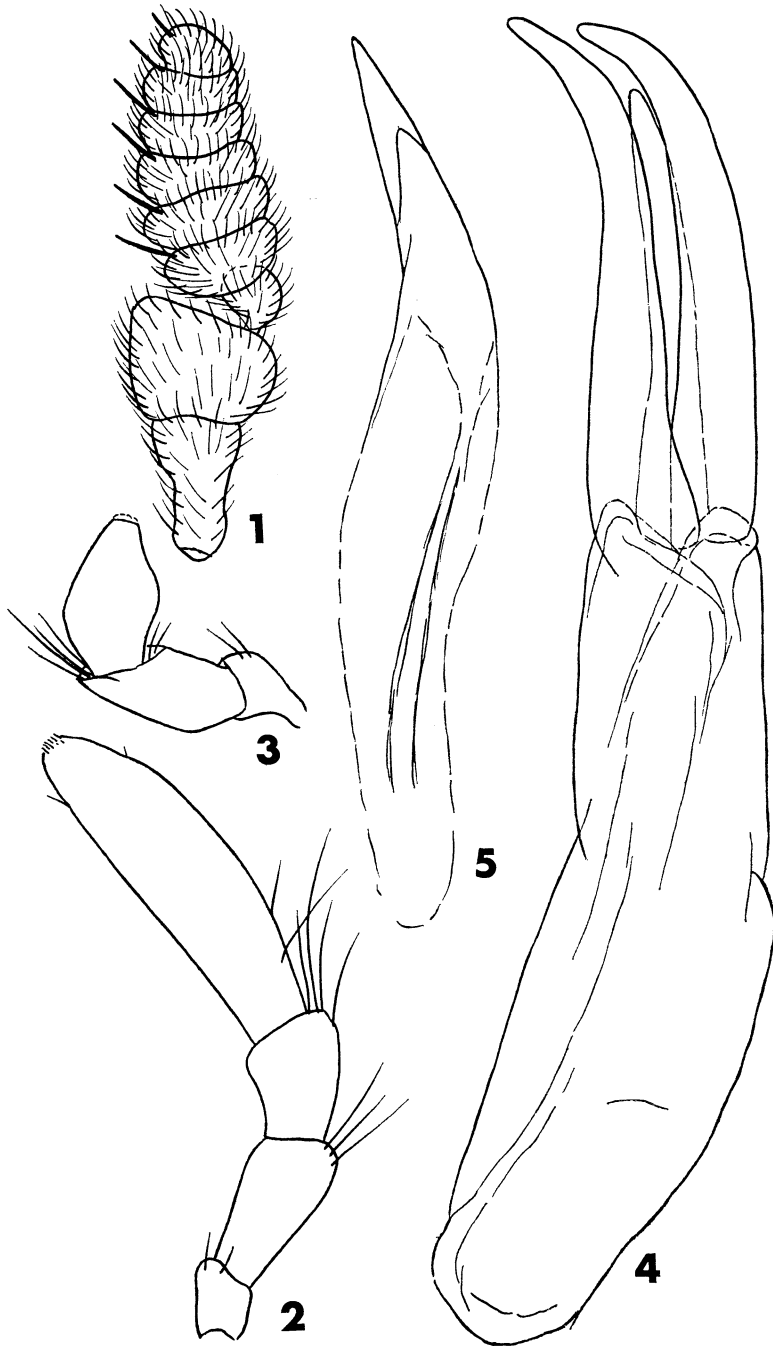


Fig. 1-5. *Elmomorphus (Elmomorphellus) gressitti* n. sp.: 1, antenna; 2, maxillary palpus; 3, labial palpus; 4, ♂ genitalia; 5, ♀ genitalia.

about  $1.5 \times$  as broad as long, distinctly convex, the sides slightly narrowed anteriorly, each angle acute; surface closely and distinctly punctate, integument smooth. *Scutellum* heart-shaped, finely punctate. *Elytra* a little broader than pronotum, about  $1.7 \times$  as long as broad, the sides slightly dilated posteriorly; surface shining at the central area, opaque at broad imbricate, marginal area, the punctures a little closer than those of pronotum; each elytron bearing 2 longitudinal stria-like vague impressions. *Prosternal process* dilated terminally and its apex truncate, surface flattened and rather elevated at the each side. *Legs* slender, all tibiae provided with a fringe of close and rather long hairs on the underside. *Genitalia*: basal lobe about  $1.5 \times$  as long as the length of median lobe which is gently narrowed apically; lateral lobe longer than median lobe, distinctly curved ventrally, evidently narrowed terminally and its apex rounded.

♀. Very similar to ♂ and not distinguishable except on dissection. Genitalia well sclerotized, elongate, bent near the apical  $1/3$ , thence strongly tapering terminally with pointed apex.

Length: 2.8-3.4 mm; breadth: 1.2-1.4 mm.

*Type-series*. Holotype ♂ (BISHOP 9712), NW NEW GUINEA: Hollandia Area, W. Sentani, Cyclops Mts, 50-100 m, 22-24.VI.1959, light trap, J. L. Gressitt & T. C. Maa. Allotype, ♀, same data as holotype. Paratypes: 2, same data as the holotype; 12, Bodem, 100 m, 11 km SE of Oerberfaren, 7-17.VII.1959, T.C. Maa; 1, Sentani, 90+m, 22.VI.1959, M. V. light trap, Gressitt & Maa; 1, Sentani, SW Cyclops, 100 m, 15.VI.1959, M. V. light trap, Gressitt & Maa; NE NEW GUINEA: 3, NE of Kassam, 1350 m, 48 km E of Kainantu, 28.X.1959, sweeping, Maa; 1, Kunai Creek, Bishop Mus. Field Station, Wau, 1400 m, 8.X.1964, W. L. & J. G. Peters.

FURTHER SPECIMENS EXAMINED. 2, Gazelle Pen, Bainings, St. Paul's, 350 m, New Britain, 7.IX.1955, Gressitt.

Type-deposition. Holo-, allo- and most paratypes are deposited in the collection of the Bernice P. BISHOP Museum, Honolulu. Some paratypes are deposited in the collections of the California Academy of Sciences, San Francisco and M. Satô's Laboratory, Nagoya Women's University, Nagoya.

DISTRIBUTION: NW and NE New Guinea, New Britain.

Somewhat resembles *Elmomorphus* (*Elmomorphellus*) *sarawakensis* Chûjô & M. Satô from Borneo, but can be easily separated from it in the following points: color pattern of body, dorsal surface lacking the granules, body less convex and elongate, median lobe of ♂ genitalia somewhat stout and ♀ genitalia slender.

The specific name is dedicated to Dr J. L. Gressitt who gave me the opportunity to study the New Guinean specimens.

#### FAMILY ELMINTHIDAE

Up to the present time, four species belonging to three genera are known from New Guinea. An additional two species and one subspecies belonging to two genera are recorded herein. These genera can be separated in the following key.

#### KEY TO NEW GUINEAN GENERA OF ELMINTHIDAE

- 1 (6). Antennae filiform; dorsal surface sparsely covered with pubescence.
- 2 (3). Pronotum transversely impressed at apical  $1/3$  and without lateral carinae; 2nd and

- 4th intervals of each elytron elevated and connected at apical 1/5.....**Simsonia** Carter & Zeck
- 3 (2). Pronotum lacking transverse impression and provided with lateral carinae; 2nd and 4th intervals of each elytron not elevated and not connected.
- 4 (5). Third and 4th striae on each elytron converging near middle; anterior tibiae provided with fringe of tomentum at inner side; terminal segment of antennae about  $2 \times$  as long as 10th ..... **Graphelmis** Delève
- 5 (4). Third and 4th striae on each elytron not converging near middle; anterior tibiae lacking fringe of tomentum; terminal segment of antennae about  $1.5 \times$  as long as 10th.....**Stenelmis** Dufour
- 6 (1). Antennae geniculate; dorsal surface closely covered with pubescence.
- 7 (8). Pronotum angulate just before posterior angle; prosternal process broad, the sides evenly narrowed terminally, the center somewhat elevated; 1st and 2nd segments of abdomen not much larger than others.....**Potamophilus** German
- 8 (7). Pronotum not angulate near posterior angle; prosternal process slender, the sides abruptly narrowed terminally from the middle, the center distinctly carinate; 1st and 2nd segments of abdomen larger than others..... **Potamophilinus** Grouvelle

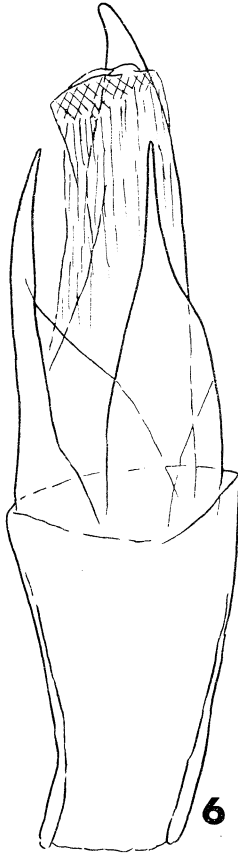


Fig. 6. *Simsonia neoguineana* n. sp. ♂ genitalia.

***Simsonia neoguineana* M. Satô, new species** Fig. 6, 14.

♂. Body elongate, convex, black to brownish black, elytra and pronotum in parts dark reddish brown, most antennal segments, mouthparts and legs reddish brown, clypeus, terminal segment of maxillary palpi, 2nd and 11th segments of antennae yellowish brown.

*Head* slightly convex, closely minutely and distinctly punctate, sparsely pubescent; eyes lateral, somewhat prominent, the distance between them about  $4 \times$  as broad as the breadth of each compound eye; clypeus transverse; antenna filiform, medium length, basal 2 segments stout, relative lengths of segments as follows : 5 : 4 : 3.5 : 3 : 3 : 3 : 3 : 3 : 3 : 3 : 6, internal to antennal insertion distinctly ridged; terminal segment of maxillary palpus oval. *Pronotum* quite convex, a little broader than long, breadth of anterior margin slightly narrower than posterior margin, broadest at near the basal 2/5, the sides distinctly ridged, disc closely and distinctly punctate, sparsely pubescent, transversely impressed at the apical 1/3, triangularly so at the middle and longitudinally so at the middle of basal 1/2, bearing a nodule-like elevation on the each side of basal 1/3 of middle. *Scutellum* nearly oval, closely and distinctly punctate, sparsely pubescent. *Elytra* about  $1.7 \times$  as long as broad, slightly dilated posteriorly, the sides reflexed, each apex rounded; surface provided with 10 rows of punctures which are oval, variable, rough and somewhat finer posteriorly, the intervals of 6th and 8th distinctly and 2nd and 4th strongly raised. *Ventral surfaces* sparsely pubescent, broad lateral areas of abdomen, sides of metasternum, epipleura and femoral plate tomentose; pro-, meso- and metasternum closely, distinctly and corrugately punctate; abdomen distinctly and rather sparsely punctate except the 1st sternite which has close punctures, apex of terminal visible sternite slightly emarginate and sparsely pubescent; prosternal

process broad and its apex papillary, surface slightly longitudinally impressed at the each side of middle. *Legs* slender, sparsely punctate and pubescent, femora rather swollen. *Genitalia* : Median lobe distinctly narrowed apically with dully pointed apex and covered with membranous piece in the middle of ventral side; lateral lobe fairly shorter than median lobe, abruptly narrowed at the apical 1/3 and its apex sharply pointed; basal lobe about 2/3 of the length of median lobe.

Length : 4.3 mm ; breadth : 1.7 mm.

♀. Unknown.

*Type-specimen*. Holotype ♂, NE NEW GUINEA : Edie Creek, Camp, 2000 m, 14.X. 1964, W. L. & J. G. Peters.

*Type-deposition*. The type-specimen is deposited in the collection of the California Academy of Sciences, San Francisco.

**DISTRIBUTION** : NE New Guinea.

This species may be differentiated from *Simsonia nicholsoni* (Carter) of Australia in the following points : elytral intervals finely pubescent, the 2nd interval strongly raised and form of the pronotum nearly hexagonal. The ♂ genitalia is the first illustrated for this specific group.

#### KEY TO NEW GUINEAN SPECIES OF POTAMOPHILUS

- 1 (2). Pronotum with fine gibbosities ; elytra brownish black, slightly shining and sharply pointed at their apices.....**albertisii** Grouvelle  
 2 (1). Pronotum with somewhat vague gibbosities and bearing 2 small impressions just before scutellum ; elytra black, shining and dully pointed at their apices.....  
 ..... **papuanus** (Carter)

**Potamophilus albertisii** Grouvelle Fig. 7-8, 16.

*Potamophilus Albertisii* Grouvelle, 1896, *Ann. Mus. Civ. Stor. Nat. Genova* (2) 17 : 32.

**SPECIMENS EXAMINED** : NW NEW GUINEA : 2 ♂♂, 1 ♀, Bokondini, 40 km N of Baliem Valley, 1300 m, 5-11.XI.1961, light trap, S. & L. Quate ; 2 ♂♂, 1 ♀, Central Mts, Archbold Lake, 760 m, 23.XI-3.XII.1961, S. & L. Quate ; SE NEW GUINEA : 1 ♀, Kiunga, Fly River, Papua, 11-14.VII.1957, W.W. Brandt.

**DISTRIBUTION** : NW and SE New Guinea.

**Note** : Though originally described from New Guinea, Fly River, no exact record has hitherto been recorded for this species.

♂ genitalia stout, basal lobe nearly same length as median lobe which is slightly curved ventrally and somewhat narrowed at the middle ; lateral lobe shorter than median lobe, apical portion membranous and its apex rounded. ♀ genitalia : general form stout, lateral lobe of ovipositor nearly triangular, papilla small ; struts of ovipositor dilated at the base.

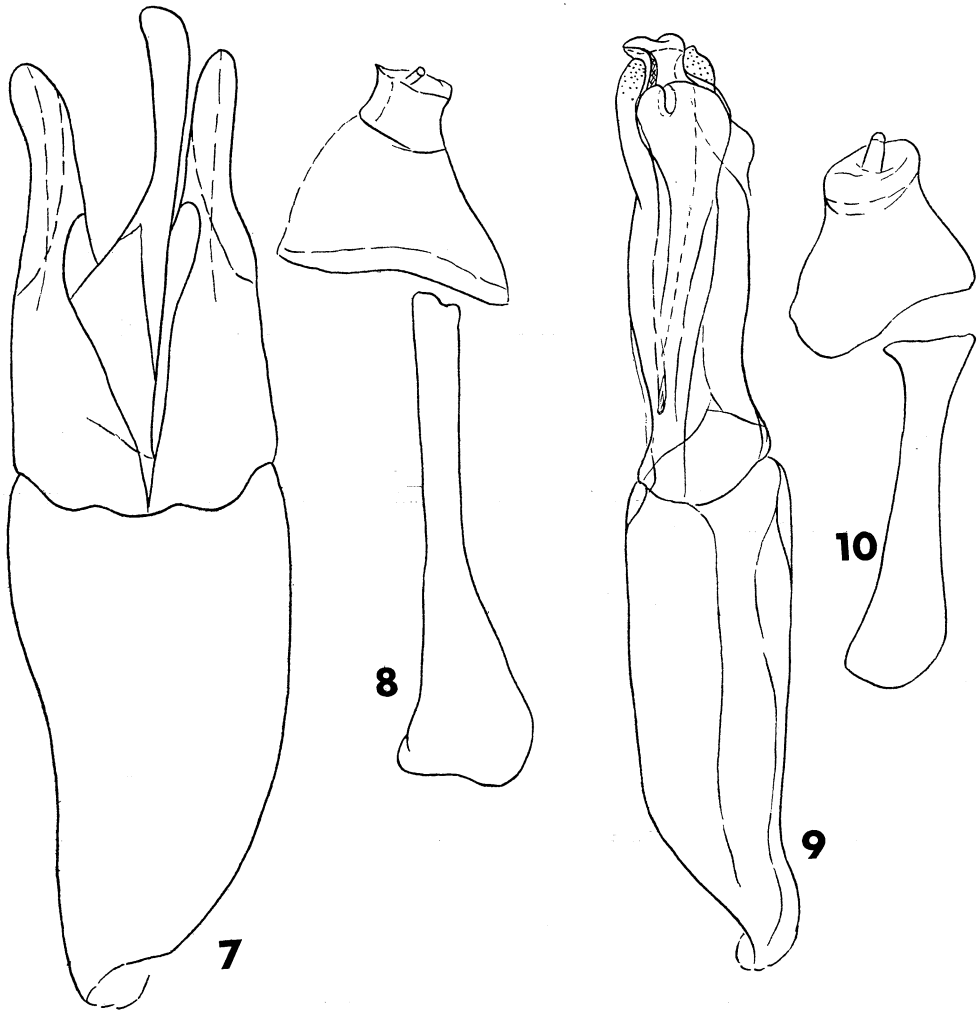


Fig. 7, 8. *Potamophilus albertisii* Grouvelle: 7, ♂ genitalia; 8, ♀ genitalia. Fig. 9, 10, *Potamophilus papuanus* (Carter): 9, ♂ genitalia; 10, ♀ genitalia.

***Potamophilus papuanus* (Carter)** Fig. 9-10, 15.

*Stetholus papuanus* Carter, 1930, *Proc. Linn. Soc. N. S. W.* 55: 188, pl. 4, figs. 1-3.

*Potamophilus papuanus*: Hinton, 1935, *Stylops* 4 (8): 173.

**SPECIMENS EXAMINED.** NE NEW GUINEA: 25 ♂♂, 27 ♀♀, Wonenara, 1450 m, 6° 40' S 145° 55' E, 14.VI.1966, J. L. Gressitt; 11 ♂♂, 17 ♀♀, ditto, Gressitt & Wilkes; 1, Bulolo R., 250 m, 18.X.1964, J. & M. Sedlacek; 1, Wau, 1100 m, 25.I.1964, J. & M. Sedlacek; NW NEW GUINEA: 1 ♂, 1 ♀, Bokondini, 40 km N of Baliem Valley, 1300 m, 5-11. XI.1961, light trap, S. & L. Quate.

## DISTRIBUTION: NE and NW New Guinea.

Note: This species seems to be common in New Guinea, but no published record after the original one is known, except for Hinton's short note.

♂ genitalia somewhat slender, basal lobe of the same length as median which is complex with 2 pieces at apical portion, ventral one nearly spoon-shaped and cracked at the middle of apex, dorsal one reflexed dorsally, constricted at a little behind the apex; lateral lobe shorter than median lobe, the sides sinuate, the apex slightly angulate. ♀ genitalia: lateral lobe of ovipositor obtuse at each corner, papilla rather distinct; struts of ovipositor stout and somewhat constricted at apical 1/3.

**Potamophilinus papuanus** M. Satô, new species Fig. 11-12, 17.

♂. Body elongate, moderately convex, closely covered with overall aurocinereous pubescence; head, pronotum and scutellum brownish black elytra dark brown, mouthparts, basal 2 segments of antennae, trochanter and basal 1/3 of femora yellowish brown, apical 2/3 of femora dark brown to blackish brown, tibiae and tarsi reddish brown to dark brown, ventral surface brown to dark brown except sides of abdomen and metepisternum which are blackish brown.

*Head* convex on vertex, somewhat flattened on the area between eyes and minutely and closely punctate, integument shagreened; labrum transverse, rounded at the anterior angles and sparsely punctate; eyes prominent, the distance between them separated by about  $2.3 \times$  the diameter of each compound eye, margin of eye provided with long and stiff hairs; antennae comparatively short, covered with pubescence, 1st segment elongate, 2nd small and obconic, 3rd-11th forming a club; maxillary palpi 1/2 as long as antennae, terminal segments oval and truncate on the innerside. *Pronotum* subquadrate, moderately convex, about  $1.2 \times$  as broad as long, broadest at near the base, posterior breadth about  $1.4 \times$  as broad as anterior breadth, the sides narrowed anteriorly, front angles obtuse, hind angles rectangular; surface distinctly and closely punctate, the punctures separated by 1/2 or  $1 \times$  their diameters, distinctly impressed at each corner, transversely so at apical 1/4, more or less triangularly so at the middle of apical 1/3, and vaguely so at just before the scutellum and provided with a short keel at basal 1/3 of each lateral portion; integument finely shagreened. *Scutellum* heart-shaped, finely punctate. *Elytra* about  $1.4 \times$  as broad as pronotum, about  $2 \times$  as long as broad, the sides slightly dilated posteriorly, separately, angulate at apices; each elytron bearing 10 punctate striae and an accessory stria between 1st and 2nd striae at the base, punctures in each stria oval and strongly impressed at the middle, becoming finer anteriorly and posteriorly and separated by 1/2 to  $1 \times$  their diameters, humerus distinctly produced, 7th interstria strongly raised from basal 1/5 to apical 2/5 and 1st one from basal 1/5 to apex. *Prosternum* triangular, its apical 1/2 distinctly raised with dully pointed apex. *Legs* slender, 5th segment of front and middle tarsi nearly same length as 1st to 4th together, 5th of hind one a little shorter than 1st to 4th combined; claws comparatively large and slightly dilated at the base. *Abdomen*

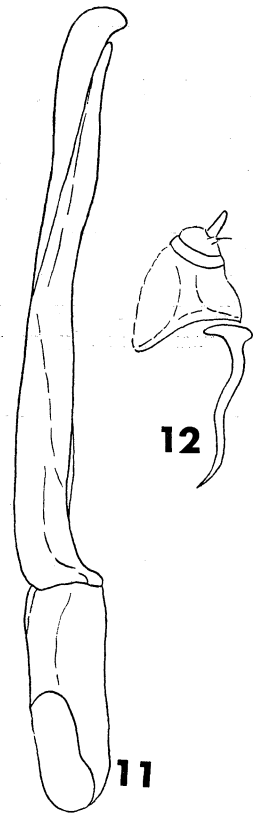


Fig. 11, 12, *Potamophilinus papuanus* n. sp.: 11, ♂ genitalia; 12, ♀ genitalia.

having 6 visible segments, basal 2 segments moderate, 5th distinctly emarginate at the terminal margin, 6th rounded at the apex. *Genitalia* slender, basal lobe small, about 1/3 of the length of median lobe which is slender, bent ventrally near the apex; lateral lobe slender, tapering terminally, shorter than median lobe and its apex rounded.

♀. Basal 2 segments of abdomen large, 5th rounded at the terminal margin, 6th slightly emarginate at the apex. *Genitalia* small, lateral lobe of ovipositor provided with ring-like sclerotized portion near the apex; struts of ovipositor well sinuate.

Length: 4.2-5.6 mm; breadth 1.6-2.1 mm.

*Type-series.* Holotype: ♂ (BISHOP 9713), NE NEW GUINEA: Wum, Upper Jimi Valley, 840 m, 16.VII.1955, light trap, J. L. Gressitt. Allotype ♀, same data as the holotype. Paratypes: 4 ♂♂, 3 ♀♀, same data as the holotype; 2 ♀♀, Wau, 1200 m, 25-30.IX.1964, M. V. light trap, J. & M. Sedlacek; 2 ♂♂, 1 ♀ (+ 1 ex.), same locality, 5-13.III., 12-13, 25-30.IX.1964, J. Sedlacek; 14 ♂♂, 14 ♀♀, Wau, Morobe Distr., 1200 m, 25-30.IV.1962, 9.IV, 28-29.VII.1963, J. Sedlacek; 1 ♂, same locality, 27.VI.1966, G. A. Samuelson; 1 ♀, Wau, 10.V.1964, J. & M. Sedlacek; 1 ♂, Wau, 960 m, 19.IV.1966, G. Lippert; 1 ♂, Wau, Morobe Distr., Mt Missim, 1340 m, 19.IV.1966, G. Lippert; 1 ♂, Nondugl, 1600 m, 8.VII.1955, light trap, Gressitt; 1 ♂, Bulolo R., 18.X.1969, J. & M. Sedlacek; SE NEW GUINEA: 3 ♀♀, Popondetta, 60 m, 1-4.IX.1963, light trap, J. Sedlacek.

FURTHER SPECIMENS EXAMINED. NE NEW GUINEA: 3 ♂♂, 2 ♀♀, Umboi Island, c8 km, WNW Lab Lab, 300 m, 8-19.II.1967, fast flowing water, G. A. & S. Samuelson.

Type-deposition. Holo-, allo- and most paratypes are deposited in the collection of the Bernice P. Bishop Museum, Honolulu. Some paratypes are deposited in the collection of M. Satô's Laboratory, Nagoya Women's University, Nagoya.

DISTRIBUTION: NE and SE New Guinea, Umboi I.

This new species can be easily distinguished from *Potamophilinus sumatrensis* Delève of Sumatra by having the apex of elytra and the ♂ genitalia different in shape, the pronotum distinctly impressed at each corner and not dilated at the side.

#### **Potamophilinus papuanus irianus** M. Satô, new subspecies Fig. 18.

The specimens from northwest district of *Potamophilinus papuanus* n. sp. are somewhat differentiated from specimens from the north and southeast, nominate subspecies, in the following points. It may be a subspecifically distinct and named here as a new subspecies of the latter.

The interstriae of elytra more or less flattened and 7th interstria not raised and 1st one not so much distinct as in the nominate one, the punctures of pronotum a little finer than those of the nominate one.

TYPE-SERIES. Holotype ♂ (BISHOP 9714), NW NEW GUINEA: Waris, S of Hollandia, 450-500 m, 1-7.VIII.1959, M. V. light trap, T. C. Maa. Allotype: ♀, same data as the holotype. Paratypes: 10 ♂♂, 8 ♀♀, same locality as the holotype, 1-7, 16-23.VIII.1959, M. V. light trap; 4 ♂♂, 1 ♀, Bodem, 100 m, 11 km SE of Oerberfaren, 7-17.VII.1959, Maa; 1 ♂, River Tor (Mouth), nr Maffen, 2-5.VII.1959, Maa; 1 ♂, W. Sentani, 75 m, 24-25.VI.1959, Maa; 1 ♀, Sentani, SW of Cyclops, 100 m, 15.VI.1959, M. V. light trap, Gressitt & Maa.



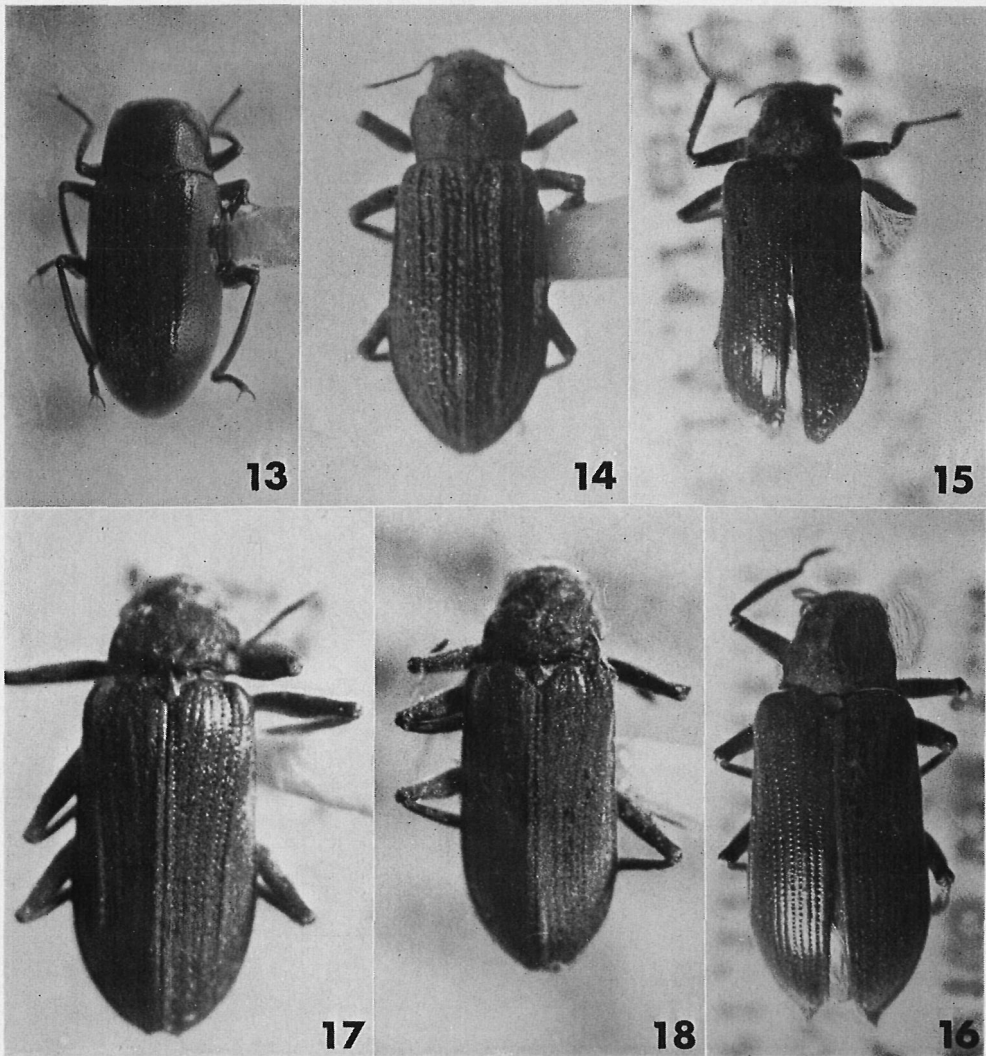


Fig. 13-16. 13, *Elmomorphus (Elmomorphellus) gressitti* n. sp. 14, *Simsonia neoguineana* n. sp. 15, *Potamophilus papuanus* (Carter). 16, *Potamophilus albertisii* Grouvelle. 17, *Potamophilinus papuanus* n. sp. 18, *Potamophilinus papuanus irianus* n. ssp.

Type-deposition. Holo-, allo- and most paratypes are deposited in the collection of the Bernice P. Bishop Museum, Honolulu. Some paratypes are deposited in the collection of M. Satô's Laboratory, Nagoya Women's University, Nagoya.

DISTRIBUTION : NW New Guinea.

*Acknowledgements* : I gratefully acknowledge the considerable assistance of Dr J. L. Gressitt, Mr H. B. Leech and Dr A. Takahashi in many ways.