

Three New Species of the Genus *Parastasia* (Coleoptera, Scarabaeidae, Rutelinae) from Southeast Asia

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Abstract Three new species of the genus *Parastasia* belonging to the *canaliculata* group are described from Mindanao, Borneo and Kangean Island: *Parastasia mitsumata* sp. nov., *P. takahikoi* sp. nov., and *P. kangeanensis* sp. nov.

Key words: Coleoptera, Scarabaeidae, Rutelini, *Parastasia*, new species, descriptions.

The group of *Parastasia canaliculata* is one of the large species-groups of the genus, which includes about 28 species and is characterized by the medium to large sized body, variously divided apices of parameres, and lateral margins of scutellum sometimes concave in female. In the course of studying the members of this species-group, I found some unknown species collected in Borneo and Kangean Island. On the other hand, I studied many specimens of *P. canaliculata* WESTWOOD, 1842 collected from the Philippine Islands to Taiwan. In the course of this study, I found a species from Mindanao Island that is different from *P. canaliculata* in the configuration of male genitalia.

In 2006, I had opportunities to reexamine the type specimens of the genus *Parastasia* preserved in the collections of the Natural History Museum, London, the Museum für Naturkunde der Humboldt Universität zu Berlin, the Muséum national d'Histoire naturelle, Paris, the Institut royal des Sciences naturelles de Belgique, and the Nationaal Natuurhistorisch Museum, Leiden. After my detailed comparative study, I have concluded that the specimens under consideration belong to a new species.

In this article, I am going to describe three new species as a result of my study, under the names *Parastasia mitsumata* sp. nov., *P. takahikoi* sp. nov., and *P. kangeanensis* sp. nov.

Before going further, I wish to express my cordial appreciation to Dr. Shun-Ichi UÉNO, National Museum of Nature and Science, Tokyo, for his critical reading of the manuscript, and Dr. Shûhei Nomura, the same museum, for his kindness of loaning me materials. My deep indebtedness is also due to Dr. Johannes FRISCH and Mr. Joachim WILLERS of the Museum für Naturkunde der Humboldt Universität zu Berlin, Mr. Malcolm D. KERLEY of the Natural History Museum, London, Dr. Pol LIMBOURG of the Institut royal des Sciences naturelles de Belgique, Dr. Thierry DEUVE and Ms. Azadeh TAGHAVIAN of the Muséum national d'Histoire naturelle, Paris, Ms. M^a Eulàlia

Gassó MIRACLE of the Nationaal Natuurhistorisch Museum, Leiden, for giving me the opportunity to examine collections of the genus *Parastasia* and loaning me materials. I would also like to thank Dr. Denis KEITH of the Muséum d'Histoire naturelle de Préhistoire, Paris, for his helpful advice and kind cooperation. I wish to express my deepest appreciation to Dr. Mary Liz JAMESON of the University of Nebraska State Museum, Lincoln and Mr. Carsten ZORN, Gnoien, for their constant encouragement and helpful advice to my entomological studies, and their generous loaning of specimens in their collections. Finally, my thanks are due to Mr. Masayuki FUJIOKA, Tokyo, and Kaoru SAKAI, Tokyo for providing me with the invaluable materials, and also to Dr. Shigeru DAIGOBO, Dr. Yu IOKAWA and the late Mr. Takahiko ITO, Joetsu University of Education, Niigata, for their help in taking stereoscopic microscope photographs.

The holotypes of the new species to be described will be preserved in the collection of the Department of Zoology, National Museum of Nature and Science, Tokyo.

Parastasia mitsumata sp. nov.

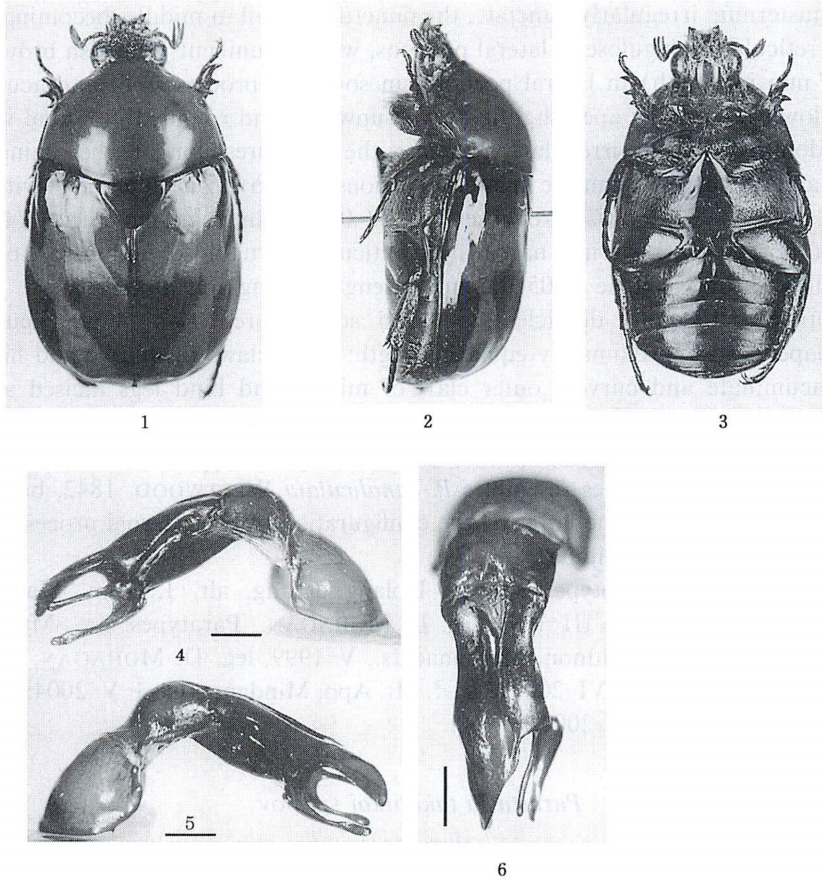
(Figs. 1-6)

Description. Body length: 18.0-20.5 mm, width: 10.5-11.4 mm.

Head and elytra black, pronotum red to black, antennae, propygidium, pygidium and ventral surface reddish brown to blackish brown; elytra with a pair of zigzag orange patches in anterior half and a pair of elongate orange patches at apical knob, these patches sometimes connected with each other; dorsal surface except propygidium and pygidium, legs and ventral surface with vitreous lustre, propygidium and pygidium with rather weak lustre.

Head micro-shagreened (visible under $\times 60$); clypeus trapezoidal, reticulately rugulose; apical margin reflexed, widely rounded at antero-lateral corners, with a pair of sharp upright teeth; lateral margins before eye-canths almost parallel, with a pair of transverse, high subparallel ridges at the bases of eye-canths in lateral 1/3 of clypeus; frons and vertex irregularly punctate, the punctures round in middle, elongate and partly coalescent in lateral portions, becoming smaller in posterior portion, furnished with decumbent yellowish brown setae (0.17-0.38 mm in length) along eyes; eyes moderately convex; interocular distance 1.42 times as wide as an eye diameter. Labrum transversely truncate, with anterior margin broadly emarginate in middle. Galea with four teeth, the apical one large, the 2nd and the 3rd ones rather small, stout and acute, the basal one porrect and trifid. Length of antennal club shorter than interocular distance (0.56 : 1 in male).

Pronotum 1.3 times as wide as long, strongly narrowed apicad in apical half, weakly widened posteriad, and slightly curved inwards in posterior 1/4; front angles obtusely angulate, hind angles rounded; lateral margins rimmed, the rims extending to hind margin opposite to humeral swellings; disc with a pair of vague impressions at the middle of lateral portions, irregularly punctate, the punctures round and small in middle, becoming larger antero-laterad, smaller posteriad, large and partly coalescent in antero-



Figs. 1-6. Habitus of *Parastasia mitsumata* sp. nov. — 1-3, Holotype, ♂; 1, dorsal view, 2, lateral view, 3, ventral view; 4-6, male genitalia (scale: 1 mm), 4, lateral view (left), 5, lateral view (right), 6, dorsal view.

lateral portions.

Elytra sparsely scattered with minute punctures; lateral margins slightly sinuous in basal 1/3, widened at middle, narrowed posteriad in apical half, thickly rimmed in basal 1/3, the rims becoming finer in the remaining part, and extending to sutural apices; distal margins almost straight; sutural apices rectangular.

Propygidium microsculptured, with a pair of transverse impressions at anterolateral portions; disc irregularly scattered with small punctures in apical 3/4, elongate and partly rugulose in apical and lateral portions, becoming sparser posteriad, the punctures setigerous in basal 1/4, each with a decumbent yellowish brown seta (0.05-0.15 mm in length).

Pygidium reticulately rugulose; outer margins thickly rimmed, almost straight laterally, truncate at apex.

Metasternum irregularly punctate, the punctures small in middle, becoming denser laterad, reticulately rugulose in lateral portions, with decumbent yellowish brown setae (0.2–0.7 mm in length) in lateral portions; mesosternal process stout and acute, protruded downwards, with apex slightly curved upwards and rounded in lateral view.

Abdominal sternites irregularly punctate, the punctures elongate, becoming larger laterad, and reticulately rugulose in lateral portions, 2nd to 4th sternites each with a row of short, decumbent yellowish brown setae (0.12–0.5 mm in length) in apical 1/4 to half of lateral portions, 6th sternite narrow, 7th reticulately rugulose, with a row of short, erect yellowish brown setae (0.05–0.2 mm in length) along apical margin.

Protibiae tridentate, denticles stout and acute; fore claws simple, acuminate, sickle-shaped and approximately equal in length; inner claws of middle and hind legs simply acuminate and curved; outer claw of middle and hind legs incised apically, forming two branches, and approximately equal in width, the lower branch shorter than the upper in male.

Notes. This new species resembles *P. canaliculata* WESTWOOD, 1842, but can be easily distinguished from the latter by the configuration of mesosternal process and the peculiar shape of male genitalia.

Type material. Holotype: ♂, Mt. Dolang dolang, alt. 1,300 m, Malaybarlay Bukidnon, Mindanao Is., VIII–1999, leg. D. MOHAGAN. Paratypes: 1 ♂, Mt. Dolang dotang, Malaybarlay, Bukidnon, Mindanao Is., V–1999, leg. D. MOHAGAN; 1 ♂, Mt. Apo, South Mindanao, 10–VI–2004; 2 ♂♂, Mt. Apo, Mindanao Is., 1–V–2004; 1 ♂, Mt. Apo, Mindanao Is., 17–IV–2004.

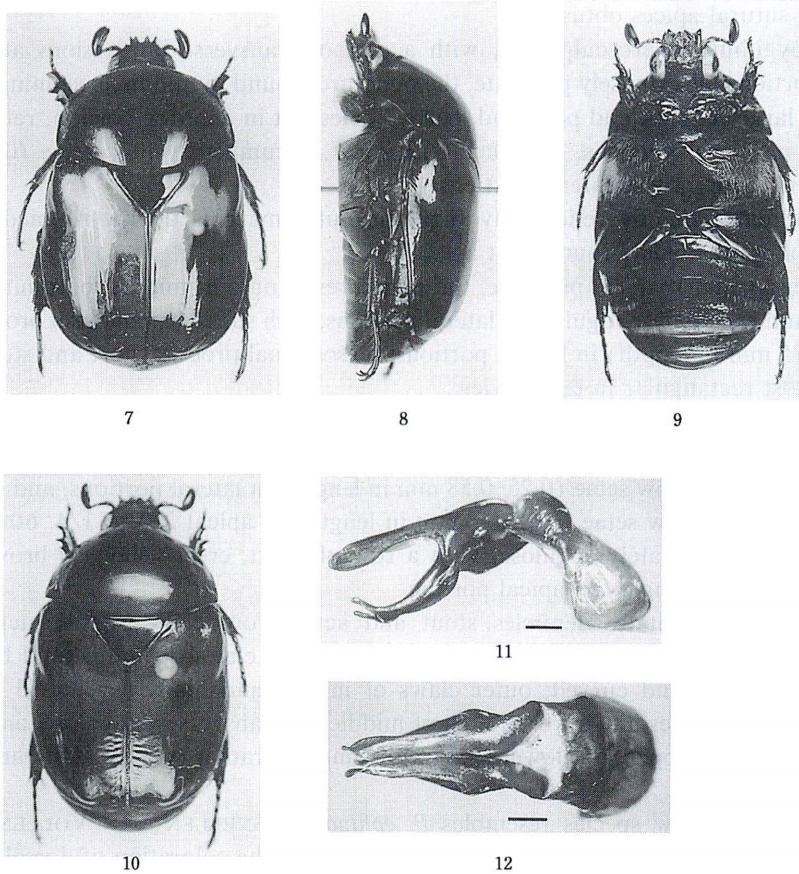
Parastasia takahikoi sp. nov.

(Figs. 7–12)

Description. Body length: 18.7–23.4 mm, width: 11.5–12.4 mm.

Antennae, dorsal surface, legs and ventral surface reddish brown to dark reddish brown; elytra with a vague broad orange area in basal 1/3 of medial portion and apical swellings; dorsal surface and legs with vitreous lustre, propygidium, pygidium and ventral surface with rather strong lustre. In female, dorsal surface, legs and ventral surface dark reddish brown to blackish brown; elytra with a circumscutellar yellow patch in basal 1/3.

Head micro-shagreened (visible under $\times 60$); clypeus trapezoidal, reticulately rugulose; apical margin reflexed, with a pair of sharp upright teeth; lateral margins before eye-canths almost parallel, with a pair of transverse, subparallel low ridges at the base of eye-canths in lateral 1/3 of clypeus; frons irregularly punctate, the punctures large and round in middle, becoming denser antero-laterad, reticulately rugulose in anterior and lateral portions, smaller posteriad; vertex sparsely scattered with minute punctures; eyes moderately convex; interocular distance 1.43 times as wide as an eye diameter. Labrum emarginate, with anterior margin sinuous. Galea with four teeth, the apical two and the middle one almost equal, stout and acute, and the basal one porrect and trifid. Length



Figs. 7-12. Habitus of *Parastasia takahikoi* sp. nov. — 7-9, Allotype, ♀; 7, dorsal view, 8, lateral view, 9, ventral view; 10, holotype, ♂, dorsal view; 11-12, male genitalia (scale: 1 mm); 11, lateral view (left), 12, dorsal view.

of antennal club shorter than interocular distance (0.65: 1 in male).

Pronotum 1.3 times as wide as long, strongly narrowed apicad in apical half, weakly widened posteriad, and almost parallel-sided before hind angles; front angles obtusely angulate, hind angles rounded; lateral margins rimmed, the rims becoming narrower in posterior half, and extending to hind angles; disc with a pair of vague impressions at the middle of lateral portions, irregularly punctate, the punctures round and small in middle, becoming denser and larger laterad, elongate in lateral portions, reticulately rugulose in anterior portion, sparser posteriad.

Elytra with eight rows of round and small punctures, intervals sparsely scattered with minute punctures; lateral margins sinuous in basal 1/3, widened at middle, narrowed posteriad in apical half, thickly rimmed in basal 2/5, the rims becoming finer in the remaining part, and disappearing before hind corners; distal margins slightly

rounded; sutural apices obtuse.

Propygidium microsculptured, with a pair of transverse impressions at antero-lateral portions; disc densely punctate, the punctures round in middle, becoming sparser arteriad, larger laterad and posteriad, partly coalescent in anterior portion, reticulately rugulose in lateral portions, furnished with short, decumbent yellow setae (0.05–0.13 mm in length) in antero-lateral portions.

Pygidium distinctly reticulately rugulose; outer margins thickly rimmed, almost straight laterally, widely rounded at apex.

Metasternum sparsely punctate, the punctures minute in middle, becoming larger laterad, and reticulately rugulose in lateral portions, with suberect yellowish brown setae (0.25–0.75 mm in length) in lateral portions; mesosternal process short and stout, with apex almost rectangular in lateral view.

Abdominal sternites irregularly punctate in middle, the punctures elongate, becoming denser laterad, and reticulately rugulose in lateral portions, 1st to 5th sternites each with decumbent yellow setae (0.25–0.58 mm in length) in lateral portions, and a row of short, suberect yellow setae (0.25–0.4 mm in length) in apical 2/3 to 1/4, 6th sternite glabrous, 7th reticulately rugulose, with a row of short, erect yellowish brown setae (0.05–0.35 mm in length) in apical portion.

Protibiae tridentate, denticles stout and acute; fore claws simple, acuminate, sickle-shaped and approximately equal in length; inner claws of middle and hind legs simply acuminate and curved; outer claws of middle and hind legs incised apically, forming two branches, the lower branch of middle leg transversely rugulose, and rather broader than the upper, the lower branch of hind leg rather weakly and transversely rugulose.

Notes. This new species resembles *P. ephippium* SNELLEN VAN VOLLENHOVEN, 1864, but can be easily distinguished from the latter by the coloration of dorsal surface, the peculiar shape of male genitalia and inner sac.

Type material. Holotype: ♂, Crocker Range, 1,000–1,400 m, nr. Keningau, Sabah, N. Borneo, 6~10-V-1988, leg. N. KOBAYASHI. Paratypes: 1 ♂, 1 ♀, same data as for the holotype; 1 ♂, Trus Madi, Mts., near Keningau, Sabah, Malaysia, VIII-1993; 1 ♀, Mt. Bawang, West Kalimantan, Borneo, IV-1990.

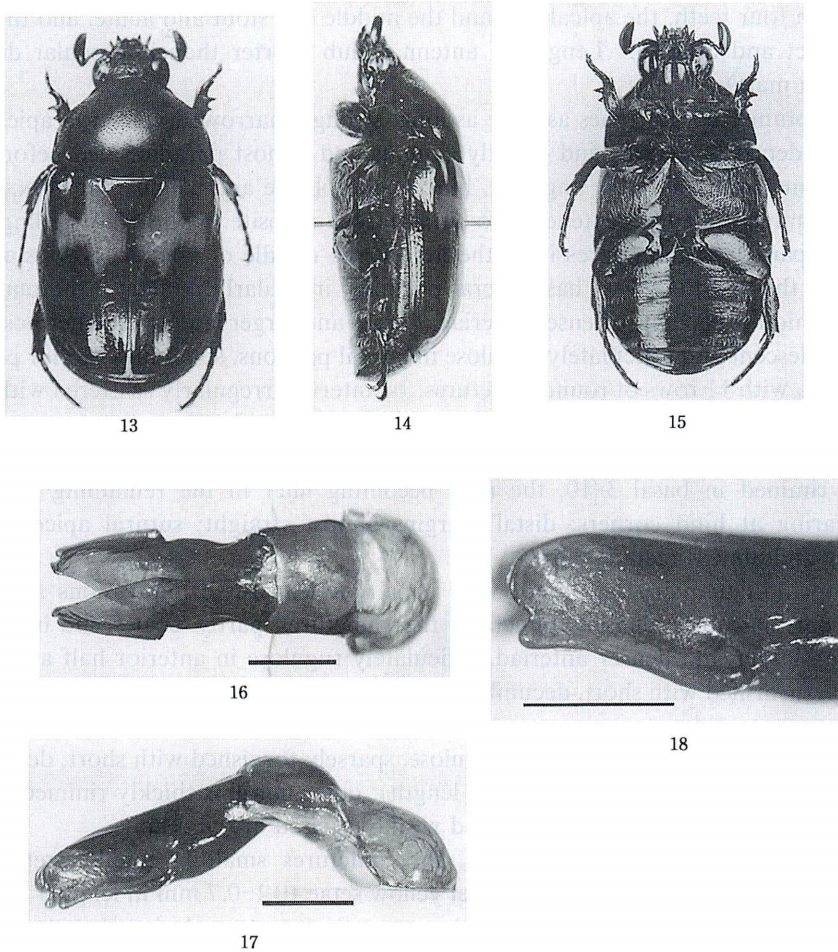
Etymology. This new species is dedicated to the late Mr. Takahiko ITO, who was an amateur botanist and my best friend while studying at Joetsu University of Education. I wish to express my sympathy to his unexpected death.

Parastasia kangeanensis sp. nov.

(Figs. 13–18)

Description. Body length: 15.5–16.7 mm, width: 8.5–9.0 mm.

Head, legs and ventral surface dark reddish brown to black, antennae, dorsal surface except head reddish brown to dark reddish brown; elytra with a pair of orange patches at anterior portion; elytra, legs and ventral surface with rather strong vitreous



Figs. 13-18. Habitus of *Parastasia kangeanensis* sp. nov. — 13-15, Holotype, ♂, 13, dorsal view, 14, lateral view, 15, ventral view; 16-18, male genitalia (scale: 1 mm), 16, dorsal view, 17, lateral view (left), 18, apex of paramera (lateral view).

lustre, head, pronotum, propygidium and pygidium with rather weak lustre.

Head micro-shagreened (visible under $\times 60$); clypeus truncated with rounded angles, reticulately rugulose; apical margin reflexed, widely rounded at antero-lateral corners, with a pair of sharp upright teeth; lateral margins before eye-canthi almost parallel, with a pair of transverse, subparallel ridges at the base of eye-canthi in lateral 1/3 of clypeus; frons and vertex irregularly punctate, the punctures partly coalescent in middle, reticulately rugulose in anterior and lateral portions, becoming sparser posteriorly; eyes moderately convex; interocular distance 1.0-1.1 times as wide as an eye diameter. Labrum broadly rounded, with anterior margin slightly excised in middle.

Galea with four teeth, the apical two and the middle one stout and acute, and the basal one porrect and divided. Length of antennal club shorter than interocular distance (0.87: 1 in male).

Pronotum 1.35–1.4 times as wide as long, strongly narrowed apicad in apical 2/5, weakly widened posteriad, and slightly sinuous and almost parallel-sided before hind angles; front angles obtusely angulate, hind angles obtuse and rounded at apex; lateral margins rimmed, the rims extending to hind margin opposite to humeral swellings; disc with two pair of vague impressions, the first at the middle of lateral portions and the second at the lateral 1/4 of baso-lateral portions, irregularly punctate, the punctures round in middle, becoming denser anteriad, denser and larger laterad, smaller posteriad, partly coalescent and reticulately rugulose in lateral portions, small in posterior portion.

Elytra with 11 rows of round punctures, 1st interval irregularly scattered with small and round punctures, each interval irregularly scattered with minute punctures; lateral margins sinuous in basal 1/3, widened at middle, narrowed posteriad in apical half, thickly rimmed in basal 3/10, the rims becoming finer in the remaining part, and disappearing at hind corners; distal margins almost straight; sutural apices weakly angulate and almost rectangular.

Propygidium microsculptured, with a pair of transverse impressions at antero-lateral portions; disc densely punctate, the punctures partly coalescent in middle, becoming larger and denser anteriad, reticulately rugulose in anterior half and lateral portions, furnished with short, decumbent yellow setae (ca. 0.05 mm in length) in lateral portions.

Pygidium distinctly reticulately rugulose, sparsely furnished with short, decumbent yellowish brown setae (0.05–0.1 mm in length); outer margins thickly rimmed, almost straight laterally, with apex truncate and weakly excised at the middle.

Metasternum irregularly punctate, the punctures small in middle, reticulately rugulose in lateral portions, with suberect yellow setae (0.1–0.7 mm in length) in lateral portions; mesosternal process short, with apex rather acute and almost rectangular in lateral view.

Abdominal sternites irregularly punctate in middle, the punctures elongate, becoming denser laterad, and reticulately rugulose in lateral portions, 1st to 5th sternites each with a row of short, suberect yellowish brown setae (0.2–0.6 mm in length) in apical 1/3 to 1/2, 6th sternite glabrous, 7th reticulately rugulose, with a row of short, erect yellowish brown setae (0.15–0.3 mm in length) along marginal portions.

Protibiae tridentate, denticles stout and acute; fore claws simple, acuminate, sickle-shaped and approximately equal in length; inner claws of middle and hind legs simply acuminate and curved; outer claws of middle and hind legs longer than the inner ones, incised apically, forming two branches, the lower branch transversely rugulose, and broader than the upper in male.

Notes. This new species resembles *P. sumbawana* OHAUS, 1898, but can be easily distinguished from the latter by the peculiar shape of male genitalia. The paramera of male genitalia is simple and indicated a primitive form of the *canaliculata* group; *P.*

sumbawana and its related species.

Type material. Holotype: ♂, Indonesia, Sumatra Kangean Is., leg. local collector. Paratypes: 3 ♂♂, same data as for the holotype; 2 ♂♂, Kangean Is., N. Java, Indonesia, XII-1995.

要 約

和田 薫：東南アジア産 *Parastasia* 属コガネムシに含まれる3新種の記載。—— *Parastasia* 属コガネムシの3新種を、ミンダナオ島、ボルネオ島およびカーンゲアン島から記載した。それらは、*Parastasia mitsumata* sp. nov., *P. takahikoi* sp. nov., および *P. kangeanensis* sp. nov. である。これらの種のうち *P. mitsumata* sp. nov. は、*P. canaliculata* WESTWOOD, 1842 に非常に近縁であると考えられるが、前胸腹板突起および交尾器の形態から明確に区分される。*P. takahikoi* sp. nov. は *P. ephippium* SNELLEN VAN VOLLENHOVEN, 1864 に非常に近縁であるが、色彩、交尾器の形状および内袋などの形態から明確に区別される。なお種名の *P. takahikoi* sp. nov. は、アマチュアの植物研究者で大学の友人であった故伊藤貴彦氏に献名した。*P. kangeanensis* sp. nov. は、*P. sumbawana* OHAUS, 1898 に近縁であると考えられるが、交尾器の形態は2分岐せずに単純で、原始的形態を示していると考えられる。

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