
Research Article

Description of New *Pseudeustetha* species from Malaysia (Coleoptera: Chrysomelidae: Galerucinae s. str.)

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Abstract

The small oriental genus of Chrysomelidae, *Pseudeustetha* Jacoby, 1899 from Malaysia was studied. A total of eight species of the genus are recorded from Malaysia, of which seven are described as new to science: *Pseudeustetha minima*, *P. nakasekoi*, *P. rufohirsuta*, *P. sabahcola*, *P. sarawacensis*, *P. sinarutensis* and *P. unicolor*, n. spp. The occurrence of *P. hirsuta* (Jacoby) in Borneo (Sabah, Sarawak) and Peninsular Malaysia was not confirmed in this study. A tentative key to the 11 known species of the genus is provided.

Keywords: *Pseudeustetha*, Galerucinae, Chrysomelidae, New species, Malaysia

Introduction

A small galerucine genus *Pseudeustetha* was established by Jacoby in 1899. It is characterized by the combination of the following: dorsal surfaces closely covered with fine erect hairs; eyes rather large; genae shallower than half the transverse diameter of an eye; antennal insertions separated, situated behind anterior margin of eyes; pronotum not very short, with a pair of lateral depressions, without longitudinal furrows, distinctly marginate on all margins; anterior coxal cavity closed behind, or partially opened; mesosternum rather vertical and free, not covered by a process of metasternum; male with last abdominal segment trilobed, with distinct median lobe; posterior tibiae with many spines at apex, with first tarsal segment shorter than remainder combined; tarsal claws appendiculate.

With a combination of these characters, this genus belongs to the section Antiphites Chapuis of the tribe Sermylini Wilcox. Its appearance may be

expressed as densely pubescent *Dercetina* or *Sermyloides* species.

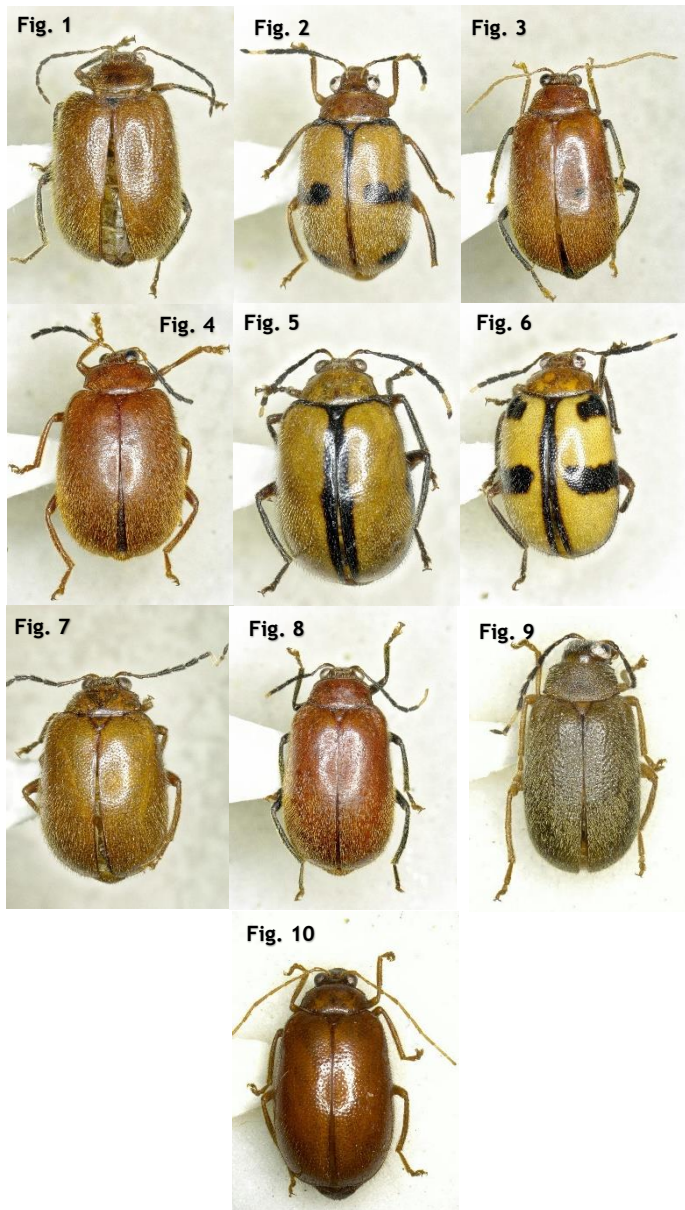
It is, so far, composed of four species: *P. hirsuta* (Jacoby), *P. philippina* Medvedev, *P. quadriplagiata* Jacoby and *P. variabilis* (Jacoby) recorded from India, Indochina, Peninsular Malaysia, Sumatra, Borneo and the Philippines. Mohamedsaid (2004) cited *P. hirsuta* (Jacoby) and *P. variabilis* (Jacoby) from Malaysia. Almost nothing is known of the biology of *Pseudeustetha* species, except that Mohamedsaid (2004) cited *Ovaria* sp. (Annonaceae) as a host of *P. hirsuta*.

Species of this genus show rather wide ranges of colour variations as shown in Figures 21-25. Furthermore, the aedeagus, which is usually weakly chitinized, shows slight differences among species. These features together with variability in the punctuation of the pronotum make discrimination of species rather difficult.

All the holotypes and a series of representative specimens will be deposited in the BORNEENSIS collection of the Institute of Tropical Biology and Conservation (IBTP), Universiti Malaysia Sabah, Kota Kinabalu, Sabah. "DM coll." refers to Dr. M. Daccodi's private collection in Verona, Italy.

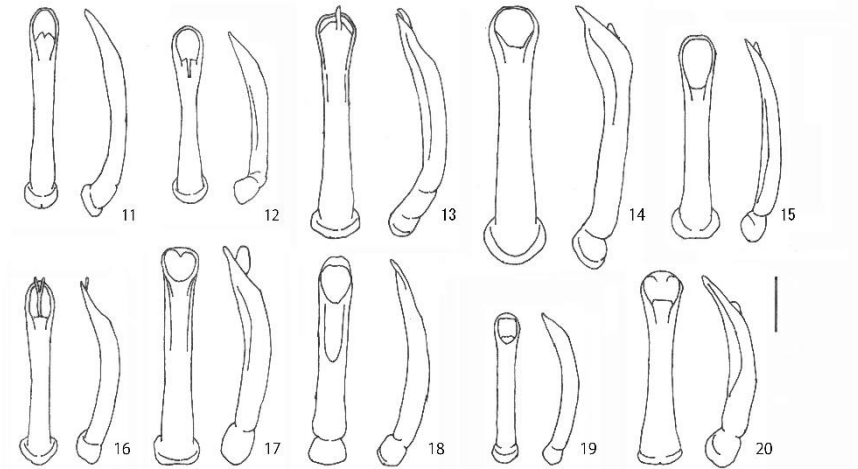
Result and discussion

We collected in this study some 700 specimens of the genus from Malaysia and its neighbouring areas. After detailed examination of these specimens, we concluded that there are 9 species of the genus occurring in Sabah and Sarawak. Among these, 7 species are described in this paper as being new to science. At present, the genus is represented by 11 species, distributed widely in India (1 species), Indochina (1 species), Peninsular Malaysia (1 species), Borneo (8 species), Sumatra (2 species) and the Philippines (1 species). There are some questionable specimens that are undetermined, including one specimen from Al Dalan, Bario in Sarawak. Further extended research on the genus of the Great Sunda area is strongly recommended.



Figs. 1 - 10. Habitus of *Pseudeustetha* species.

Fig. 1, *Pseudeustetha hirsuta* (Jacoby) (from Lake Reh, Myanmar); Fig. 2, *P. minima* n. sp. (holotype); Fig. 3, *P. nakasekoi* n. sp. (holotype); Fig. 4, *P. rufohirsuta* n. sp. (holotype); Fig. 5, *P. sabahcola* n. sp. (holotype); Fig. 6, *Pseudeustetha* sp. (from Al Dalan, Bario, Sarawak); Fig. 7, *P. sarawacensis* n. sp. (holotype); Fig. 8, *P. sinarutensis* n. sp. (holotype); Fig. 9, *P. unicolor* n. sp. (holotype); Fig. 10, *P. variabilis* (Jacoby) (from Kg. Moyog, Penampang, Sabah).



Figs. 11 - 20. Aedeagus (left:dorsal view, right: lateral view) of:

Fig. 11, *Pseudeustetha hirsuta* (Jacoby) (from Lake Reh, Myanmar); Fig. 12, *P. minima* n. sp. (holotype); Fig. 13, *P. nakasekoi* n. sp. (holotype); Fig. 14, *P. rufohirsuta* n. sp. (holotype); Fig. 15, *P. sabahcola* n. sp. (holotype); Fig. 16, *Pseudeustetha* sp. (from Al Dalan, Bario, Sarawak); Fig. 17, *P. sarawacensis* n. sp. (holotype); Fig. 18, *P. sinarutensis* n. sp. (holotype); Fig. 19, *P. unicolor* n. sp. (holotype); Fig. 20, *P. variabilis* (Jacoby) (from Poring Park, Sabah).

Descriptions

Pseudeustetha hirsuta (Jacoby, 1891) (Figures 1, 11)

Antipha hirsuta Jacoby, 1891. Entomologist, 24 (suppl.): 32 (Assam: BMNH).

Antipha pubescens (Jacoby, 1892). Annali del Museo civico di storia naturale di Genova, 32: 971 (Burma: Carin, Cheba) - Kimoto, 1989. Esakia, 27: 216 (synonymized: India, Burma, Thailand, Cambodia, Laos).

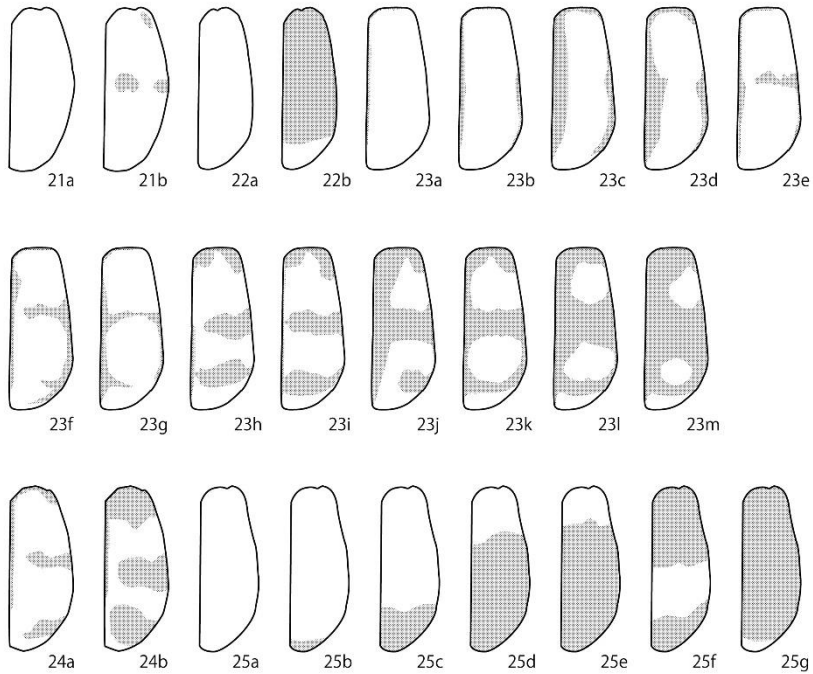
Pseudeustetha hirsuta: Aslam, 1972. Journal of Natural History, 6: 501 - Kimoto, 1989. Esakia, 27: 216—Mohamedsaid, 2004. Catalogue of the Malaysian Chrysomelidae (Insecta: Coleoptera): 78 (Peninsular Malaysia, Sarawak, India, Myanmar, Thailand, Cambodia, Laos).

Pseudeustetha pubescens: Aslam, 1972. ditto.

Avinasa pubescens: Maulik, 1936. Fauna British India, Galerucinae: 457 (Burma).

Male. Body parallel-sided, 6 mm; dark reddish brown, with antennae except for the three basal segments, tibiae and tarsi blackish; venter blackish brown; dorsum densely covered with yellowish pubescence.

Vertex with short median sulcus anteriorly; antennae 0.6 times as long as body,



Figs. 21—25. Variations of elytral patterns in:

Fig. 21, *Pseudeustetha minima* n. sp.; Fig. 22, *P. nakasekoi* n. sp.; Fig. 23, *P. sabahcola* n. sp.; Fig. 24, *P. sarawacensis* n. sp.; Fig. 25, *P. variabilis* (Jacoby)

weakly widened on 4th to 8th segments; 1st segment shorter than 4th, sub-equal to 5th and 11th; 7th longest; 8th 5.3 times and 10th 3.3 times as long as wide. Pronotum twice as wide as long, narrowed from base to anterior angles; disc broadly depressed obliquely behind the anterior angles, densely covered with large punctures, rugose on lateral areas. Elytra subparallel-sided, each 2.8 times as long as wide; disc densely covered with large punctures, of which diameter is as wide as their interspaces; interspaces densely covered with small punctures; 5th visible abdominal sternite with a small median lobe; aedeagus slender and subparallel-sided, weakly dilated ventrally before middle (Figure 11).

Material examined. 1♂, Lake Reh, Chin State, Myanmar, 7-9.VI.2013, A. & R. Abe leg.

Distribution. India, Myanmar, Thailand, Cambodia, Laos.

Host plants. *Ovaria* sp. (Annonaceae: after Mohamedsaid, 2004).

Remarks. This species is characterized by the pronotum rugosely punctate on lateral areas, antennae largely black without yellowish white segments, robust on intermediate segments, and by elytra densely covered with large and small punctures.

It was recorded from Peninsular Malaysia and Sarawak (Mohamedsaid, 2004). Since we could not trace the Malaysian specimens identified as *P. hirsuta* by the second author, and found no Malaysian specimens of this species, we tentatively exclude Peninsular Malaysia and Sarawak from its distribution.

***Pseudeustetha minima* n. sp.** (Figures 2, 12, 21)

Male. Body weakly widened posteriorly, 4.8-5.0mm in length; yellowish brown to reddish brown; sometimes head and pronotum darker than elytra; elytra narrowly margined with black on basal half of suture, basal and lateral margins excepting for apex, with narrow transverse band near middle, a lateral patch near apex black; sometimes these bands and patches enlarged as in Figure 21; antennae black, with basal two segments reddish brown, with 9th and 10th yellowish white; dorsum covered with yellowish pubescence.

Head rather densely pubescent; frontal tubercles oblique, separated from each other by short upper process of frontal carina; antennae almost half as long as body, with 4th to 8th segments robust and densely pubescent; 1st longest, distinctly longer than 11th; 2nd sub-equal to 10th, slightly shorter than 9th; 8th 1.8 times and 10th 1.5 times as long as wide. Pronotum transverse, 2.2 times as wide as long, gently narrowed from base to anterior angles, weakly rounded at middle on lateral margins, gently emarginated on anterior margin, broadly produced on basal margin; anterior angles robust, obliquely truncate; disc densely and distinctly punctate, sometimes almost rugose on lateral area, with a broad oblique depression behind anterior angle to middle. Elytra subparallel-sided, each 2.5 times as long as wide; disc matt, densely covered with punctures, of which diameter is as wide as interspaces; interspaces with smaller punctures. Fore and middle legs with 1st tarsal segments slender. Fifth visible abdominal sternite with a small median lobe. Aedeagus rather strongly narrowed near middle (Figure 12).

Female. Body 5.0-5.2mm in length; 5th visible abdominal sternite simply produced at apex; fore and middle legs with 1st tarsal segments slender.

Holotype. Male, Poring Park, Ranau, Sabah, Malaysia, 19.IV.2014, H. Takizawa leg. (IBTP). Paratypes. 1♀, Poring Park, Ranau, Sabah, 25.III.2015, H. Takizawa leg.; 1♀, ditto, 19.IV.2014, H. Takizawa leg.; 1♂2♀, ditto, 25-26.IX.2008, H. Takizawa leg.; 1♂, ditto, 21-22.X.2008, H. Takizawa leg. 1♂, Kg. Sinarut Baru,

Ranau, Sabah, 18.III.2012, H. Takizawa leg.

Distribution. Borneo (Sabah).

Host plants. Unknown.

Remarks. This new species is characterized by its smaller body size, antennae robust on intermediate segments, pronotum densely punctate, and by elytra with 2 or 3 transverse bands or patches. This is clearly distinguished from *P. sarawacensis*, n. sp. by densely punctate pronotum, and from *P. unicolor*, n. sp. by elytra with black pattern. This new species is collected by sweeping along forest trails at Poring substation, Ranau. Its specific name refers to its smaller body size.

***Pseudeustetha nakasekoi* n. sp.** (Figures 3, 13, 22)

Male. Body weakly widened posteriorly, 6.5-7.0mm in length; colouration variable, yellowish brown to reddish (Figure 22); venter and legs except for fore tibiae and tarsi infuscate to blackish; pale individuals usually wholly yellowish brown, sometimes with fore and middle legs blackish; sometimes head and pronotum blackish; elytra sometimes black except for apical 1/4; dorsum covered with yellowish pubescence.

Vertex rather densely pubescent; antennae slender, 0.6 times as long as body; each segment rather short, 1st longer than each of 5th to 8th; 8th 2.5 times and 10th 3 times as long as wide. Pronotum transversely trapezoid, almost twice as wide as long, gently narrowed from base to anterior angles; disc with a broad oblique depression behind anterior angles, densely covered with large punctures laterally; punctuation becoming smaller on median part. Elytra each 3 times as long as wide, widest before apical 1/3rd, thence gently narrowed to both ends; disc densely covered with hair bearing small punctures, of which diameter is narrower than their interspaces; 5th visible abdominal sternite weakly truncate at apex with a small median lobe. Legs with first tarsal segments slender. Aedeagus widely rounded at apex, gently widened from middle to both ends (Figure 13).

Female. Body slightly larger, 6.5-7.5 mm in length; 5th visible abdominal sternite simply produced at apex in an arched manner.

Holotype. Male. Kg. Naudu, Tambunan, Sabah, Malaysia, 8.XI.2015, H. Takizawa leg. (IBTP). Paratypes. *Sabah* — 2♂1♀, Kg. Sinarut Baru, Ranau, 26-27.III.2016, H. Takizawa leg.; 1♂, ditto, 2.IV.2015, H. Takizawa leg.; 1♂, ditto, 3-4.IV.2016, H. Takizawa leg.; 1♂, ditto, 16.IV.2013, H. Takizawa leg.; 2♀, ditto, 20.IV.2013, H. Takizawa leg.; 1♂, ditto, 28.X.2012, H. Takizawa leg.; 1♂, ditto, 2.XI.2015, H. Takizawa leg. 1♀, Poring Park, Ranau, 28.III.2016, H. Takizawa leg. 1♂, Kg. Naudu, Tambunan, 23.III.2015, H. Takizawa leg.; 1♀, ditto, 30.III.2015, H.

Takizawa leg.; 1♀, ditto, 5.IV.2016, H. Takizawa leg.; 2♂1♀, ditto, 13.IV.2013, H. Takizawa leg.; 1♂, ditto, 25.VIII.2013, H. Takizawa leg.; 1♀, ditto, 30-31.X.2012, H. Takizawa leg.; 1♀, ditto, 9.XI.2015, H. Takizawa leg. 1♂, Keruak, Kg. Sukau, Sandakan, 15.XII.2009, H. Takizawa leg. 1♀, Tongod Forest Reserve, upper Kinabatangan, Sandakan, 22-23.II.2008, H. Takizawa leg. Sarawak — 2♂2♀, Al Dalan, Bario, Kerambit Highland, 5-7.IX.2007, H. Takizawa leg. 1♂, Pa Ukal, Bario, Kerambit Highland, 4.IX.2007, H. Takizawa leg.

Distribution. Borneo (Sabah, Sarawak).

Host plants. Unknown.

Remarks. This new species is characterized by larger body with heavily punctate pronotum, and antennae with shorter segments. It is somewhat similar to *P. variabilis*, but clearly distinguished from the latter by the heavily punctate pronotum and antennae with shorter segments.

It is distributed on low mountains of 500 to 800 m alt. in Sabah, at 1000 m alt. in Sarawak, and was collected by sweeping along forest trails.

This species is dedicated to Mr. M. Nakaseko in Sabah, a butterfly photographer who accompanied me to various collecting localities in Sabah.

***Pseudeustetha rufohirsuta* n. sp.** (Figures 4, 14)

Male. Body weakly widened posteriorly, and rather robust, 7.0-7.2mm in length; brownish red, densely covered with long golden red pubescence; antennae black, with basal 3 segments yellowish brown, with 9th yellowish white.

Head covered with fine pubescence; antennae 0.6 times as long as body, with 4th to 8th segments distinctly widened to apex, with apical 3 segments slender; 8th 2.2 times and 10th twice as wide as long. Pronotum transverse, slightly wider than twice the length, distinctly narrowed from base to anterior angles, arched on both anterior and posterior margins, weakly produced near middle on lateral margins; disc weakly and sparsely punctate medially, with a pair of distinct oblique impressions laterally, densely punctate outside the impressions; anterior angles robust and obliquely truncate. Scutellum acutely triangular. Elytra each 2.3 times as long as wide, widest behind middle, thence gently narrowed to both ends; disc densely covered with small punctures, with the interspaces smooth and shining; elytral epipleura pubescent, rather horizontal, reaching to apical 1/4th. Mesosternum almost vertical; 5th visible abdominal sternite truncate at apex, with a small median lobe; two anterior legs with the first tarsal segment weakly widened. Aedeagus rather robust, slender, and gradually narrowed from sub-basal constriction to apical 1/4th, thence gently widened to round apex, expanded ventrally at subapical area (Fig. 14).

Female. Body 6.0-7.0 mm in length; last abdominal sternite produced at apex

in an arched manner; first tarsal segments slender.

Holotype. Male, Poring Park, Ranau, Sabah, Malaysia, 5.III.2010, H. Takizawa leg. (IBTP). Paratypes. 1♀, Poring Park, Ranau, Sabah, 25-26.II.2008, H. Takizawa leg.; 1♂, ditto, 30.III.2016, H. Takizawa leg.; 1♀, 29-30.IX.2007, H. Takizawa leg. 1♀, Kg. Sinarut Baru, Ranau, Sabah, 3-4.IV.2016, H. Takizawa leg.; 1♀, ditto, 14.VI.2018, H. Takizawa leg. 1♂, Kg. Silau, Ranau, Sabah, 25.III.2015, H. Takizawa leg. 1♀, Mahua, B. C. Crocker Range Park, Sabah, 23.X.1999, K. Mizota leg. 1♀, Ulu Kimanis subst., Crocker Range Park, Papar, Sabah, 26-28.II.2010, H. Takizawa leg. 1♀, Kg. Podos, Kota Belud, Sabah, 13.XII.2014, H. Takizawa leg.

Distribution. Borneo (Sabah).

Host plants. Unknown.

Remarks. This new species is characterized by rather broad and red body, densely covered with golden red pubescence. Its antennae are robust on intermediate segments, black except 3 basal segments that are yellowish brown, and the 8th yellowish white. This unique combination of characters easily distinguishes this species from known congeners, as in the key.

This species is found at lowland forests to mountains (200-1,300m alt.). The host plant is unknown. The specific name refers to its golden red pubescence on the dorsum.

***Pseudeustetha sabahcola* n. sp.** (Figures 5, 15, 23)

Male. Body subparallel-sided, 5.0-6.0 mm in length; pale yellowish brown; head and pronotum with more or less reddish brown tinge; venter yellowish to reddish brown, sometimes dark reddish brown to blackish; legs yellowish brown, tibiae apically and tarsi infusate, sometimes with tibiae and tarsi black; antennae blackish, with basal two segments reddish brown, with 9th and 10th yellowish white; sometimes 11th basally yellowish white; dorsum covered with dense yellowish pubescence; colouration of elytra variable (Figure 23): a, elytra margined with black on all margins, except for apical area; b, elytra with one or two transverse bands; sometimes these stripes and bands enlarged in various degrees to leave three yellowish brown patches; sometimes sutural stripe almost disappeared; elytral epipleura always black.

Vertex sparsely covered with fine punctures and hairs; frontal tubercles subquadrate and raised, scarcely delimited laterally, distinctly separated from each other by acute process of frontal carina; frons weakly raised and finely granulate; antennae half as long as body, densely pubescent and robust on 4th to 8th; 3rd segment as long as 11th; 8th twice and 10th 1.3 times as long as wide. Pronotum transverse, twice as wide as long, distinctly narrowed from base to anterior angle, gently emarginated at anterior margin, produced at posterior

margin in a broad and arched manner; anterior angles widely and obliquely truncate; disc obliquely and weakly depressed behind the anterior angles to middle, rather finely punctate. Elytra each 1/3 as wide as long, widest behind apical 1/3rd, thence gently narrowed to base, strongly so to apex; disc densely covered with small hair-bearing punctures, with smooth interspaces; 5th visible abdominal sternite with small median lobe at apex; fore and middle legs with first tarsal segment slender. Aedeagus gently widened from middle to both ends (Figure 15).

Female. Body slightly larger, 5.5-6.5 mm in length; 5th visible abdominal sternite gently produced at apex.

Holotype. Male, Kinabalu Park, HQ, Ranau, Sabah, Malaysia, 5.XI.2015, H. Takizawa leg. (IBTP). Paratypes. 4 exs., Kinabalu Park, HQ, Ranau, Sabah, 19-20, 23.I.2008, H. Takizawa leg.; 3 exs., ditto, 20-24.II.2009, H. Takizawa leg.; 3 exs., ditto, 17-19.III.2008, H. Takizawa leg.; 3 exs., ditto, 3.IV.2015, H. Takizawa leg.; 4 exs., ditto, 13-14.V.2010, H. Takizawa leg.; 3 exs., ditto, 20.VII.2011, H. Takizawa leg.; 5 exs., ditto, 4.VIII.2011, H. Takizawa leg.; 1 ex., ditto, 4.IX.2013, H. Takizawa leg.; 3 exs., ditto, 17-19.X.2008, H. Takizawa leg.; 2 exs., ditto, 16-17.XI.2007, H. Takizawa leg.; 4 exs., ditto, 15.XII.2014, H. Takizawa leg. 4 exs., Mesilau, 1,500m, Ranau, Sabah, 23.III.2008, H. Takizawa leg. 4 exs., Upper Mesilau, Ranau, 19.IV.2013, H. Takizawa leg.; 3 exs., ditto, 28.V.2010, H. Takizawa leg. 1 ex., Mt. Kinabalu, Sabah, 28.V.1999, Z. Snrz leg. (DM Coll.). 2 exs., Mesilau Watergate (Water plant), Ranau, Sabah, 28.I.2011, H. Takizawa leg.; 8 exs., ditto, 24.II.2011, H. Takizawa leg.; 4 exs., ditto, 26.III.2015, H. Takizawa leg.; 3 exs., ditto, 28-29.V.2010, H. Takizawa leg.; 5 exs., ditto, 24.VII.2013, H. Takizawa leg.; 4 exs., ditto, 30.VIII.2013, H. Takizawa leg. 1 ex., Kundasang, Ranau, Sabah, 18.I.2009, H. Takizawa leg.; 1 ex., ditto, 20.II.2010, H. Takizawa leg.; 3 exs., ditto, 16.III.2008, H. Takizawa leg.; 4 exs., ditto, 4.IV.2015, H. Takizawa leg.; 2 exs., ditto, 31.VII.2013, H. Takizawa leg.; 1 ex., ditto, 16.VIII.2008, H. Takizawa leg.; 2 exs., ditto, 22.IX.2007, H. Takizawa leg.; 1 ex., ditto, 6.XI.2008, H. Takizawa leg.; 3 exs., ditto, 20.XII.2009, H. Takizawa leg. 2 exs., Poring Park, Ranau, Sabah, 8-9.I.2010, H. Takizawa leg.; 6 exs., ditto, 13-15.II.2009, H. Takizawa leg.; 1 ex., ditto, 19-20.III.2012, H. Takizawa leg.; 5 exs., ditto, 4-5.IV.2008, H. Takizawa leg.; 2 exs., ditto, 14.V.2017, H. Takizawa leg.; 1 ex., ditto, 10.VII.2008, H. Takizawa leg.; 2 exs., ditto, 2-3.VIII.2010, H. Takizawa leg.; 8 exs., ditto, 29-30.IX.2007, H. Takizawa leg.; 2 exs., ditto, 29.X.2012, H. Takizawa leg.; 5 exs., ditto, 3.XI.2015, H. Takizawa leg.; 9 exs., ditto, 19-20.XII.2007, H. Takizawa leg. 1 ex., Sayap substation, Kota Belud, Sabah, 28-29.IV.2014, H. Takizawa leg.; 1 ex., ditto, 21.VII.2010, H. Takizawa leg. 2 exs., Hot Spring Poring, Mt. Kinabalu, Sabah, II.2000, M. Snizek leg. (DM coll.). 1 ex., Kg. Kiau, Kota Belud, Sabah, 31.V-2.VI.2008, H. Takizawa leg. 1 ex.,

26km peak, Jln. Kimanis, Papar, Sabah, 24.III.2012, H. Takizawa leg.; 1 ex., ditto, 17.V.2017, H. Takizawa leg.; 1 ex., ditto, 24.VII.2013, H. Takizawa leg.; 1 ex., ditto, 24.VIII.2013, H. Takizawa leg.; 1 ex., ditto, 10.XI.2015, H. Takizawa leg. 1 ex., Gn. Alab, Crocker Range Park, Tambunan, Sabah, 29.VII.2011, H. Takizawa leg. 1 ex., Mahua waterfall, Tambunan, Sabah, 29.I.2011, H. Takizawa leg.; 1 ex., ditto, 21.III.2012, H. Takizawa leg.; 1 ex., ditto, 25.IV.2014, H. Takizawa leg.; 1 ex., ditto, 24.VII.2011, H. Takizawa leg. 1 ex., Malangan subst., Tambunan, Sabah, 31.III.2015, H. Takizawa leg. 1 ex., Kg. Naudu, Tambunan, Sabah, 30.III.2015, H. Takizawa leg.; 1 ex., ditto, 15.V.2017, H. Takizawa leg.; 1 ex., ditto, 25.VIII.2013, H. Takizawa leg.; 1 ex., ditto, 9.XI.2015, H. Takizawa leg. 3 exs., Kg. Ragkan, Tambunan, Sabah, 14.IV.2013, H. Takizawa leg.; 2 exs., ditto, 28.X.2012, H. Takizawa leg. 3 exs., Pk. Tambunan, Tambunan, Sabah, 25.III.2012, H. Takizawa leg. 1 ex., W. of Apin V., Crocker Range E., V.1997, M. Snizek leg. (DM coll.). 1 ex., Crocker Range Park, HQ, Keningau, Sabah, 23.III.2012, H. Takizawa leg.: 1 ex., ditto, 6.XII.2014, H. Takizawa leg. 1 ex., Ulu Senagang substation, Keningau, Sabah, 10-12.III.2012, H. Takizawa leg.; 1 ex., ditto, 24-25.VII.2010, H. Takizawa leg. 1 ex., Kalang waterfall, Tenom, Sabah, 22.III.2016, H. Takizawa leg. 3 exs., Muaya waterfall, Kg. Muaya, Sipitang, 7-9.III.2009, H. Takizawa leg.

Additional material examined (all the specimens were collected by the first author). Kinabalu Park HQ: 2 exs., 22-23.I.2010; 2 exs., 20-24.II.2009; 1 ex., 24.II.2008; 3 exs., 24.II.2008; 2 exs., 28-29.II.2008; 3 exs., 5.III.2010; 1 ex., 13.III.2012; 2 exs., 14.III.2012; 3 exs., 17-19.III.2008; 2 exs., 23-25.III.2010; 1 ex., 29.III.2016; 1 ex., 29-30.III.2010; 1 ex., 31.III.2016; 3 exs., 1.IV.2016; 1 ex., 2.IV.2016; 1 ex., 3.IV.2015; 2 exs., 20.IV.2013; 3 exs., 12.V.2017; 3 exs., 13-14.V.2010; 2 exs., 14.V.2017; 3 exs., 20.V.2017; 9 exs., 22.V.2017; 5 exs., 27-28.V.2008; 1 ex., 8.VII.2010; 1 ex., 8.VII.2011; 3 exs., 20.VII.2011; 2 exs., 23-25.VII.2008; 1 ex., 4.VIII.2011; 1 ex., 19-20.VIII.2008; 2 exs., 4.IX.2103; 1 ex., 17-18.IX.2008; 1 ex., 22.X.2007; 2 exs., 5.XI.2015; 1 ex., 6.XI.2015; 1 ex., 7.XI.2015; 1 ex., 8.XI.2015; 2 exs., 15.XII.2014; 2 exs., 16.XII.2014; 2 exs., 21-22.XII.2007; 11 exs., 23-24.XII.2008. Upper Mesilau: 6 exs., 17.IV.2013; 2 exs., 19.IV.2013; 3 exs., 28.V.2010. Mesilau Watergate (water plant): 3 exs., 28.I.2011; 2 exs., 25.II.2008; 3 exs., 28.II.2009; 3 exs., 6.III.2010; 1 ex., 26.III.2015; 1 ex., 31.III.2016; 2 exs., 12.V.2017; 2 exs., 28-29.V.2010; 2 exs., 30.VIII.2013. Kundasang: 2 exs., 30.I.2010; 1 ex., 20.II.2010; 7 exs., 23.II.2009; 1 ex., 31.VIII.2013; 1 ex., 22.IX.2007; 2 exs., 20.X.2007; 3 exs., 6.XI.2008; 2 exs., 11.XI.2012; 2 exs., 17.XII.2007; 1 ex., 28.XII.2008. Poring Park: 3 exs., 9-10.I.2009; 1 ex., 21-22.I.2008; 3 exs., 11-12.III.2009; 1 ex., 12.III.2009; 1 ex., 16-17.III.2008; 1 ex., 19-20.III.2012; 3 exs., 24.III.2009; 1 ex., 19.IV.2014; 3 exs., 4-5.VII.2009; 7 exs., 10.VII.2008; 6 exs., 2-3.VIII.2010; 3 exs., 21-22.VIII.2008; 1

ex., 25-26.VIII.2007; 5 exs., 28-29.VIII.2013; 2 exs., 25-26.IX.2008; 5 exs., 29-30.XI.2007. Jln. Kimanis 26km peak: 1 ex., 29.III.2015;. Mahua waterfall: 2 exs., 24.VII.2011. Kg. Malangan: 3 exs., 12-14.III.2010. Kg. Naudu: 1 ex., 23.III.2015. Sayap substation: 1 ex., 21.VII.2012. Crocker Range Park, HQ, Keningau: 1 ex., 9.III.2012. Ulu Senagang substation: 1 ex., 24-25.VII.2010.

Distribution. Borneo (Sabah).

Host plants. *Desmodium* sp. (Fabaceae).

Remarks. This new species is characterized by its colouration that is yellowish to brownish dorsum with variable black stripes or patches, the pronotum distinctly narrowed anteriorly, and the antennae with robust median segments. The dorsal patterns in the patched type may be similar to those of *P. sarawacensis*, n. sp. However, the latter has a smaller body, and elytra densely covered with distinctly large punctures, and with the interspaces almost as wide as diameter of punctures.

One specimen (Figure 6) from Al Dalan, Bario highland in Sarawak seems closely related to this, but differs in the elytral pattern. This might belong to a different species. Since we saw only a single male specimen, we refrain from further identification at the moment.

This species is widely distributed in Sabah, and is found in a wide range of habitats from wet, shadowed floors in forests to sunny, open roadsides. It covers 300m alt. (Kalang waterfall in Tenom) to 1,800m alt. (Kinabalu Park, Headquarters area and Gunung Alab), but mainly occurs in montane area of 900 to 1,800m alt. The striped type generally occupies higher area, whereas the banded type tends to extend to lower areas. It feeds on a lot of plant species, including *Desmodium* sp.

Its specific name refers to its occurring area, Sabah State in Malaysia.

***Pseudeustetha sarawacensis* n. sp.** (Figures 7, 17, 24)

Male. Body small, weakly widened posteriorly, 4.5-5.0mm in length; yellowish brown to reddish brown, covered densely with yellowish pubescence; antennae black with basal 3 segments yellowish brown, with 9th and 10th yellowish white. One female specimen with three small black spots on elytron, one on humerus, two transversely arranged at middle.

Head sparsely punctate and hairy; frontal tubercles subquadrate and slightly oblique, distinctly separated by upper portion of frontal carina; antennae robust and densely pubescent on 4th to 8th segments, 0.7 times as long as body; 1st segment longest and sub-equal to 5th; 8th and 10th each 3 times as long as wide. Pronotum transverse, 2.2 times as wide as long, weakly narrowed to anterior angles, slightly rounded at middle on lateral margins, gently emarginated on anterior margin, broadly produced at posterior margin; anterior angles robust

and obliquely truncate; disc broadly depressed obliquely behind anterior angles to middle, sparsely covered with small hair-bearing punctures, with interspaces smooth. Elytra subparallel-sided, each 2.5 times as long as wide; disc densely covered with larger punctures, of which diameter is distinctly narrower than interspaces; elytral epipleura concave and pubescent. Fifth visible abdominal sternite with a small median lobe at apex. Fore and middle legs with 1st tarsal segment weakly widened. Aedeagus weakly and gently widened from middle to both ends (Figure 17).

Female. Body 5.0-5.2mm in length; 5th visible abdominal sternite simply produced at apex; fore and middle legs with 1st tarsal segment slender.

Holotype. Male. Lanjak Entimau Wildlife Sanct., HQ, Sarawak, Malaysia, 18-28.VI.2008, H. Takizawa leg. (IBTP). Paratypes. 1♂2♀, data same as holotype; 1♂, Ridon, Lanjak Entimau Wildlife Sanct., HQ, Sarawak, 18, 20.VI.2008, H. Takizawa leg.

Distribution. Borneo (Sarawak).

Host plants. Unknown.

Remarks. This new species is characterized by its smaller body size, antennae with robust intermediate segments, and by the pronotum sparsely punctate. Similarly sized *P. minima* and *P. unicolor*, n. spp. are distinguished by the dense, almost rugose punctuation on the pronotum.

This species was collected by sweeping at a lowland riverside at Lanjak Entimau Wildlife Sanctuary in Sarawak.

Its specific name refers to its occurring area, Sarawak State in Malaysia.

***Pseudeustetha sinarutensis* n. sp.** (Figures 8, 18)

Male. Body 6.0 - 6.5 mm. in length, weakly widened posteriorly; reddish brown, with legs black except for apical segments of tarsi reddish brown; sometimes metathorax dark reddish brown; antennae black on 3rd or 4th to 8th segments, yellowish white on apical 3 segments; colouration variable: sometimes dorsum yellowish orange wholly, or dark reddish brown; antennae sometimes wholly pale yellowish brown; venter black, with pronotum and mesosternum reddish brown; fore legs yellowish brown; dorsum densely covered with yellowish red pubescence.

Antennae shorter, less than 0.6 times body length; robust on 4th - 8th segments; 8th and 10th each 3.2 times as long as wide. Pronotum transverse; disc rather densely covered with obscure punctures on antero-median area, where the diameter of punctures are slightly smaller than interspace. Elytra each 3 times as long as wide, rather straightly widened from base to apical 2/5th, thence roundly narrowed to apex, where both apices are separately rounded; disc distinctly impressed longitudinally inward to humerus, densely punctate with

diameter of punctures smaller than interspaces; last visible abdominal sternite weakly tri-lobed, with median lobe produced posteriorly in an ached manner. Aedeagus subparallel-sided, rather truncate at apex, with a weak lateral ridge on apical half, weakly expanded ventrally at subapical area (Figure 18).

Female. Body slightly larger, 6.5–7.5 mm in length; 5th visible abdominal sternite roundly produced at apex.

Holotype. Male, Kg. Sinarut Baru, Ranau, Sabah, Malaysia, 15.III.2012, H. Takizawa leg. (ITBC). Paratypes. 1♂, same as the holotype, 2.IV.2015, H. Takizawa leg. 1♀, Poring park, Ranau, 19-20.III.2012, H. Takizawa leg.; 1♀, ditto, 7.IV.2013, H. Takizawa leg.; 1♂, ditto, 19.IV.2014, H. Takizawa leg.; 1♀, ditto, 14.V.2017, H. Takizawa leg. 2♀, Pk. Tambunan, Tambunan, 16.III.2012, H. Takizawa leg.; 1♀, ditto, 19.III.2012, H. Takizawa leg.; 1♀, ditto, 25.III.2012, H. Takizawa leg. 1♀, Kg. Naudu, Tambunan, 5.IV.2016, H. Takizawa leg.; 1♂, ditto, 15.IV.2013, H. Takizawa leg. 1♀, Tabin Wildlife Reserve, Lahad Datu, 25-26.XII.2008, H. Takizawa leg.

Distribution. Borneo (Sabah, Sarawak?).

Host plants. Unknown.

Remarks. This new species is characterized by the antennae robust on 4th to 8th segments, the pronotum rather densely punctate on antero-median area and by the dorsum wholly yellowish brown to reddish brown. *P. sarawacensis*, n. sp. is somewhat similar to it, having stout antennae and the dorsum wholly reddish brown, but the latter is easily distinguished from *P. sinarutensis*, n. sp. by almost impunctate pronotum and smaller body size. From similarly coloured *P. nakasekoi*, n. sp. and reddish brown type of *P. variabilis* (Jacoby), it is immediately distinguished by the robust antennae.

There are two female specimens collected at the Lanjak Entimau Wildlife Sanctuary, the headquarters area, Kapit, Sarawak (27-28.VI.2008). These probably belong to this new species, but the pronotum strongly punctates like in *P. nakasekoi*, n. sp. They are not included in the paratypes.

Its specific name is derived from the type locality, Kg. Sinarut Baru near Ranau.

***Pseudeustetha unicolor* n. sp.** (Figures 9, 19)

Male. Body parallel-sided and slender, 4.0-5.5mm in length; wholly yellowish brown; sometimes dorsum dark reddish brown to blackish brown; elytra sometimes reddish brown on basal 1/3, blackish on apical 2/3; dorsum covered with yellowish pubescence; antennae blackish, with 1st segment yellowish brown, with 9th and 10th basally yellowish white.

Vertex densely punctate, with a short median sulcus anteriorly; frontal tubercles subquadrate, delimited by a narrow furrow interiorly; antennae almost 0.6 times

as long as body, densely pubescent and robust on 4th to 8th; 1st segment subequal to 4th, 5th, 6th and 11th in length; 8th and 10th each 3 times as long as wide. Pronotum transverse, twice as wide as long, gently and almost straightly narrowed from base to anterior angles, gently emarginated at anterior margin, broadly and somewhat sinuately produced on basal margin; anterior angles robust, obliquely truncate; disc densely and rugosely punctate, with a broad semilunar depression leaving raised area antero-medially. Elytra subparallel-sided, each three times as long as wide, densely covered with large punctures which have a tendency to arrange longitudinally; diameter of larger ones distinctly wider than their interspaces; interspace densely covered with small punctures; elytral epipleura rather oblique; 5th visible abdominal sternite with a small median lobe at apex. Fore legs with 1st tarsal segment slightly widened. Aedeagus rather short and subparallel-sided (Figure 19).

Female. Body slightly larger, 4.0-5.8 mm in length; 5th visible abdominal sternite simply produced at apex; fore and middle legs with 1st tarsal segment slender.

Holotype. Male. Poring Park, Ranau, Sabah, Malaysia, 13-15.II.2009, H. Takizawa leg. (IBTP). Paratypes. *Sabah*: 1♂, Poring Park, 13-15.II.2009, H. Takizawa leg. 1♂, Kawang Forest Reserve, Papar, 4.XII.2014, H. Takizawa leg. 1♀, Ulu Kimanis subst., Crocker Range Park, Papar, 26-28.II.2010, H. Takizawa leg. 1♂2♀, Ulu Senagang subst., Crocker Range Park, Keningau, 10-12.III.2012, H. Takizawa leg.; 3♀, ditto, 31.I-1.II.2011, H. Takizawa leg. 2♂1♀, Microwave 197km, Bukit Tavitu Forest Reserve, Telupid, 8.III.2012, H. Takizawa leg. 1♂1♀, Kg. Singgahmata, Telupid, 27.VII.2013, H. Takizawa leg. 1♀, Tawai Forest Reserve, Telupid, 25-26.I.2011, H. Takizawa leg.; 1♀, ditto, 24.III.2015, H. Takizawa leg. 1♂3♀, Microwave, Tawai Forest Reserve, Telupid, 22-24.IV.2014, H. Takizawa leg.; 1♀, ditto, 10.XII.2014, H. Takizawa leg. 2♂4♀, Muaya waterfall, Kg. Muaya, Sipitang, 7-9.III.2009, H. Takizawa leg. 3♀, Tibow Forest Reserve, HQ, 6km to Sapulut, Pensiangan, 17-19.XII.2008, *Sarawak*: 2♂2♀, HQ, Lanjak Entimau Wildlife Sanct., Kapit, 18-26.VI.2008, H. Takizawa leg. 1♂2♀, Bagua, HQ, Lanjak Entimau Wildlife Sanct., Kapit, 19.VI.2008, H. Takizawa leg. 1♂, Joh, HQ, Lanjak Entimau Wildlife Sanct., Kapit, 21.VI.2008, H. Takizawa leg. 3♀, Ridon, HQ, Lanjak Entimau Wildlife Sanct., 18-20.VI.2008, H. Takizawa leg. *Peninsular Malaysia*: 3♀, Awana Hotel, Genting Highlands, Pahang, 25.X.2012, H. Takizawa leg. 1♂2♀, Robinson waterfall, Cameron Highlands, Pahang, 12.III.2018, H. Takizawa leg.; 2♀, ditto, 15.III.2018, H. Takizawa leg.; 1♂, ditto, 16.III.2018, H. Takizawa leg.; 1♂4♀, ditto, 13-14.XII.2013, H. Takizawa leg. 1♀, Gn. Jasar, Cameron Highlands, Pahang, 13.III.2018, H. Takizawa leg.; 1♂1♀, ditto, 9.XII.2013, H. Takizawa leg.

Distribution. Borneo (Sabah, Sarawak), Peninsular Malaysia (Pahang).

Host plants. Undetermined tree (Figure 26).

Remarks. This small species is uniquely characterized by the pronotum and elytra densely pubescent, heavily and partially confluent punctate, antennae with robust intermediate segments, and by elytra lacking distinct patterns. It is similar to *P. hirsuta* (Jacoby) from Myanmar, but the latter species has the pronotum much densely punctate, with smooth and shining interspace, and the antennae without yellowish white segments.

This new species is distributed widely in Peninsular Malaysia, Sabah and Sarawak. It is usually collected by sweeping in secondary forests in lower altitude. At Tibow in Sabah it was found feeding on leaves of an undetermined tree in a garden. The specific name refers to its dorsal colouration, which usually uniformly yellowish brown to blackish.



Fig. 26. Undetermined host tree of *Pseudeustetha unicol*

Pseudeustetha variabilis (Jacoby, 1886) (Figures 10, 20, 25)

Antipha variabilis Jacoby, 1886. Annali del Museo civico storia naturale di Geneva, 24: 101 (Sarawak: Genova, MCZ).

Anthipa variabilis: Jacoby, 1896. Annali del Museo civico storia naturale di Geneva, 36: 476.

Dercetina variabilis: Wilcox, 1971, Coleopterorum Catalogue, 78: 179.

Pseudeustetha variabilis: Mohamedsaid, 1995. Wallaceana, 74: 5 (Sabah) - 2004, Catalogue of the Malaysian Chrysomelidae (Insecta, Coleoptera). p. 78 (Peninsular Malaysia, Sarawak, Sabah).

Body convex dorsally and weakly widened posteriorly, 6.0-8.0mm in length; colouration variable, generally yellowish to reddish brown; sometimes venter

wholly or partially black; pronotum very often black; elytra often with variable black patches (Figure 25); legs sometimes black; dorsum covered with dark brown to black pubescence.

Antennae slender, 0.8 as long as body; 7th segment longest, distinctly longer than 1st; 4th sub-equal to 8th, 9th and 11th; 10th subequal to 1st, slightly shorter than 11th; 8th and 10th 3.3 and 3.6 times as long as wide; in female 4th to 7th, each sub-equal to 11th; 9th distinctly longer than 8th or 10th. Pronotum weakly narrowed from base to anterior angles; disc sparsely covered with small punctures, of which diameter is distinctly narrower than interspaces; interspaces smooth and shining; elytra each 2/3 as wide as long, widest near middle; 5th visible abdominal sternite with a small median lobe in male, simply produced in female; fore and middle legs with 1st tarsal segments slender; aedeagus slender, gently narrowed to middle, thence gently widened to subapical area, weakly truncate at apex (Figure 20).

Material examined. *Peninsular Malaysia*: 1 ex., Genting Highland, Awana Hotel, Pahang, 25.X.2012, H. Takizawa leg. 1 ex., Kg. Sungai Buloh, Kuala Lumpur, 30.III.2007, H. Takizawa leg. *Sabah*: 1 ex., Kg. Kiapad, Inanam, Kota Kinabalu, 13.I.2010, H. Takizawa leg.; 2 exs., ditto, 14.II.2010, H. Takizawa leg.; 1 ex., ditto, 13.III.2012, H. Takizawa leg.; 1 ex., ditto, 30.III.2008, H. Takizawa leg.; 1 ex., ditto, 6.IV.2010, H. Takizawa leg.; 2 exs., ditto, 1.V.2014, H. Takizawa leg.; 1 ex., ditto, 18.V.2008, H. Takizawa leg.; 2 exs., ditto, 26.VI.2010, H. Takizawa leg.; 1 ex., ditto, 5.VII.2008, H. Takizawa leg.; 1 ex., ditto, 12.VII.2009, H. Takizawa leg.; 1 ex., ditto, 8.IX.2013, H. Takizawa leg.; 2 exs., ditto, 10.XI.2012, H. Takizawa leg.; 1 ex., ditto, 11.XI.2015, H. Takizawa leg. 1 ex., Kg. Moyog, Jln. Tambunan, Penampang, 20.I.2011, H. Takizawa leg.; 1 ex., ditto, 13.II.2010, H. Takizawa leg.; 1 ex., ditto, 3.V.2014, H. Takizawa leg.; 2 exs., ditto, 15.XI.2012, H. Takizawa leg.; 1 ex., ditto, 12.XII.2009, H. Takizawa leg.; 1 ex., ditto, 17.XII.2014, H. Takizawa leg. 1 ex., Kg. Kipouvo, Jln. Tambunan, Penampang, 8.I.2008, H. Takizawa leg. 1 ex., Kawang Forest Reserve, Papar, 4.XII.2014, H. Takizawa leg. 2 exs., Kg. Tambatuon, Kota Belud, 9.IV.2013, H. Takizawa leg.; 3 exs., ditto, 17.IV.2014, H. Takizawa leg.; 1 ex., 22.IV.2013, H. Takizawa leg.; 1 ex., ditto, 3.IX.2013, H. Takizawa leg.; 2 exs., ditto, 12.XII.2014, H. Takizawa leg. 1 ex., Kg. Kiau, Kota Belud, 31.V-2.VI.2008, H. Takizawa leg. 1 ex., Sayap subst., Kota Belud, 20.VII.2010, H. Takizawa leg. 1 ex., Poring Park, Ranau, 8-9.I.2010, H. Takizawa leg.; 1 ex., ditto, 9-10.I.2009, H. Takizawa leg.; 1 ex., ditto, 11-12.III.2009, H. Takizawa leg.; 2 exs., 19-20.III.2012, H. Takizawa leg.; 1 ex., ditto, 30.III.2016, H. Takizawa leg.; 2 exs., ditto, 1.IV.2015, H. Takizawa leg.; 1 ex., ditto, 4-5.IV.2008, H. Takizawa leg.; 1 ex., ditto, 26.IV.2014, H. Takizawa leg.; 2 exs., ditto, 21.V.2017, H. Takizawa leg.; 1 ex., ditto, 4-5.VII.2009, H., Takizawa leg.; 1 ex., ditto, 3.XI.2015, H. Takizawa leg. 1 ex.,

Kinabalu nr. Ranau, 1,200m, 15.VII.1989, K. Maruyama leg. 1 ex., Kg. Sinarut Baru, Ranau, 26-27.III.2016, H. Takizawa leg.; 2 exs., ditto, 21.IV.2014, H. Takizawa leg.; 2 exs., ditto, 27.IV.2014, H. Takizawa leg. 1 ex., Mamut Mine, Ranau, 27.I.2011, H. Takizawa leg.; 1 ex., ditto, 21.VII.2011, H. Takizawa leg. 1 ex., Mamut, Lohan, Ranau, 23.VII.2011, H. Takizawa leg. 1 ex., Mahua waterfall, Tambunan, 25.IV.2014, H. Takizawa leg. 2 exs., Kg. Naudu, Tambunan, 30.III.2015, H. Takizawa leg. 4 exs., Kg. Singgahmata, Telupid, Sandakan, 27.VIII.2013, H. Takizawa leg. 4 exs., Kalang waterfall, Tenom, 22.III.2015, H. Takizawa leg. *Sarawak*: 1 ex., Mt. Serapi, Kuching, 21.V.1990, Y. Nishiyama leg. 4 exs., Lanjak Entimau Wildlife Sanct., HQ, Kapit, 18-28.VI.2008, H. Takizawa leg. 1 ex., Joh, Lanjak Entimau Wildlife Sanct., HQ, Kapit, 21-23.VI.2008, H. Takizawa leg. 2 exs., Menyaring, Lanjak Entimau Wildlife Sanct., HQ, Kapit, 24-25.VI.2008, H. Takizawa leg. 3 exs., Ridon, Lanjak Entimau Wildlife Sanct., HQ, Kapit, 18-20, 24-25.VI.2008, H. Takizawa leg.

N. Sumatra: 2 exs., Dolok Barus, Siborangit, 29.X.1999, H. Takizawa leg. 2 exs., Urung Tama, Sibolangit, 24.IV.1998, 13,18.IX.1998, H. Takizawa leg. 1 ex., Derek, Siborangit, 16.IX.1998, H. Takizawa leg. 1 ex., Passar Baru, Siborangit, 15.IX.1998, H. Takizawa leg. 1 ex., Susuk, 24.V.1994, K. Maruyama leg. 1 ex., Kota Cane, Aceh, 26-28.IV.1998, H. Takizawa leg. 1 ex., Banyak Is. 2,000m, 15-30.VI.1999, Awi leg.

Distribution. Peninsular Malaysia, Borneo (Sabah, Sarawak); Sumatra.

Host plants. unknown.

Remarks. This species is characterized by slender antennae and is distinguished from most species of the genus with this character. *P. nakasekoi*, n. sp. has similar slender antennae, but is distinguished from this by the heavily punctate pronotum.

There are considerable variations in dorsal colouration, pronotal punctuation and shape of aedeagus, and width/length ratios of antennal segments. This may suggest the heterogenous nature of the examined material. At present they are placed under *P. variabilis*.

This species is distributed generally in lowland, reaching 700-1,100m in Poring and Kg. Kiau in Sabah. It is collected by sweeping along trails in the forests.

Conclusion

In conclusion the known species of the genus are distinguished by the following keys.

Tentative key to species

1. Antennae slender, sometimes 3 apical segments shorter than the preceding ones..... 2
 - Antennae with middle segments robust and more or less widened, with 3 apical ones shorter than preceding ones..... 4

2. Head with deep groove above frontal tubercles; vertex finely punctate; pronotum finely and very densely punctate; elytra strongly and densely punctate; body 5.3-6.3 mm.; dark red to red fulvous or flavous, with elytra sometimes almost black (based on original description)..... *P. philippina* Mededev
 - Head without deep groove above frontal tubercles..... 3

3. Pronotum sparsely punctate, especially on lateral 1/3; pubescence yellowish brown..... *P. variabilis* (Jacoby)
 - Pronotum heavily and rugosely punctate at baso-lateral area..... *P. nakasekoi* n. sp.

4. Body small, less than 5 mm; yellowish to reddish brown, sometimes elytra with three small black spots; pronotum subquadrate, weakly rounded at lateral margins..... *P. minima* n. sp.
 - Body larger than 5 mm; yellowish brown to reddish brown, with/without black patch, bands or stripes on elytra..... 5

5. Elytra densely punctate, more or less rugose and matt on interspaces..... 6
 - Elytra sparsely/densely punctate, smooth and shining on interspaces..... 8

6. Pronotum weakly rounded on lateral margins; reddish brown with 3 patches/bands and sutural and lateral stripes black..... *P. sarawacensis* n. sp.
 - Pronotum almost straight on lateral margins; colouration variable, with/without black patches and stripes..... 7

7. Pronotum rugosely punctate; body slender, subparallel-sided; yellowish to reddish brown, or dark greyish brown; elytra densely covered with large punctures..... *P. unicolor* n. sp.
 - Body widened posteriorly; dark reddish brown; pronotum subquadrate, straight on lateral margins, strongly and densely punctate; elytra covered with large and small punctures; larger ones with their diameter as wide as interspaces..... *P. hirsuta* (Jacoby)

8. Pronotum subquadrate, weakly converging anteriorly, finely rugose; fulvous, elytra with large patch basally, and another one near apex black; elytra finely punctate, with indistinct rows of larger punctures (based on original description)----- *P. quadriplagiata* Jacoby
- Pronotum distinctly converging anteriorly----- 9
9. Pronotum much strongly narrowed anteriorly; elytra pale yellowish brown, with distinct black stripes or bands----- *P. sabahcola* n. sp.
- Pronotum distinctly narrowed anteriorly; elytra yellowish to reddish brown, without distinct black pattern -----10
10. Body robust and ovate, covered with long golden pubescence; elytra each 2.3 times as long as wide; legs reddish brown ----- *P. rufohirsuta* n. sp.
- Body narrower, widened posteriorly; elytra each 3 times as long as wide; yellowish to reddish brown; two posterior legs blackish in reddish brown individuals----- *P. sinarutensis* n. sp.

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