

## A Revision of the Genus *Phaedis* PASCOE from Java, Indonesia (Coleoptera, Tenebrionidae, Cnodalonini)

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**Abstract** The species of the genus *Phaedis* occurring in Java are revised. Two new species, *Phaedis mantillerii* sp. nov. and *P. bremeri* sp. nov., are described and four known species are redescribed. The *Mantillerii* species group is newly proposed for four species of the genus by the characteristic external features. A key to the Javanese species of the genus is also given.

### Introduction

Six species of the genus *Phaedis* have been known from Java, Indonesia, of which four were described by PIC in very short descriptions and one was described by WIEDEMANN, 1823. Also as of late, ANDO (2016) added one species of the genus as a member of the *Phaedeuycirtus* species group. In this paper, the Javanese species of the genus *Phaedis* are revised, with descriptions of two more new species and redescriptions of four known species described by PIC on the basis of type examinations. However, the full citation of the original description of *Phaedis dentipes* (WIEDEMANN, 1823) is provided with my short comments, due to the lack of an available specimen including the type whose depository is unknown.

One of the new species described herein, *Phaedis mantillerii* sp. nov. is very similar to *Phaedis masumotoi* ANDO, 2011 in having similar habitus to the species of the genus *Gauromaia*. I propose a new species group as the *Mantillerii* species group hereinafter. It includes four species, *P. rufipes* (PIC, 1916), *P. girardi* ANDO, 2000, *P. masumotoi* ANDO, 2011, and *P. mantillerii* sp. nov. A key to the known species from Java is also given.

### Materials and Methods

The specimens used in this study belong to the following institute or private collections (acronyms are in parentheses): Ehime University Museum, Matsuyama, Japan (EUMJ); Muséum National d'Histoire Naturelle, Paris, France (MNHN); Zoologische Staatssammlung München, Germany (ZSM); and collection of Kiyoshi ANDO, Osaka, Japan (CKAO).

Specimens were observed by a Leica MZ16 stereomicroscope. Male and female terminalia were dissected from specimens relaxed in hot water for about one hour, then cleared in hot KOH solution, neutralized with weak acetic acid, and rinsed with water. The illustrations of genitalia, ventral parts, and legs were drawn with a Leica drawing tube attached to the microscope. The terminalia were glued on a paper sheet by “Colle de poisson”. Photographs of specimens were taken by a Canon EOS 7D reflex camera with two macro lens (Canon macro photo lens MP-E 65 mm and EF 100 mm), and combined using a digital auto-montage software (Helicon Focus, v. 6.2.2 Lite).

Body length refers to the median length from the apex of labrum to the apices of elytra. Abbreviations of body parts in the descriptions are as follows: mCG — anterior margin of head between cly-

peus and genae; EL — length of elytra along midline, from anterior margin of scutellum to elytral apices; EW — maximum width of elytra; IE — distance between eyes; PL — length of pronotum along midline; PW — maximum width of pronotum; TD — transverse diameter of an eye in dorsal view.

### Citation of the Original Description of *Phaedis dentipes* with Notes on the Species

#### *Phaedis dentipes* (WIEDEMANN, 1823)

*Cnodalon dentipes* WIEDEMANN, 1823: 44.

*Phaedis dentipes*: GEBIEN, 1941: 1145; ANDO, 2008: 366.

*The original description by WIEDEMANN.* Nigro-aeneum, elytris violascentibus, striato-punctatis, femoribus anticis unidentatis. Longit. Lin. 3 2/3. Java.

Von länglicher Gestalt, nur die fünf letzten Fühlerglieder plattgedrückt<sup>\*)</sup>, mit gelblichen Härchen besetzt. Kopf schwärzlicherzgrün, an beiden Seiten innen neben den Augen ein wenig eingedrückt. Halsschild quer [= quer] viereckig, fast noch einmal so breit als [= wie] lang, Seitenränder convex, etwas hinter der Mitte am stärksten; Hinterrand mitten flach convex, Oberfläche äußerst fein ledernartig, mitten eine sehr schwache Längsfurche und neben ihr an jeder Seite hinten ein schwach vertiefter rundlicher Eindruck. Deckschilde breiter als der Halsschild, gestreift-punctirt, veilchenbläulich mit Metallglanz, Naht und Außenrand erzgrünlich. Untere Fläche schwarz mit wenig grünlichem und veilchenbläulichem Widerscheine. Beine glänzend-schwarz, mit rostgelb behaarten Sohlen; vorderste Schenkel in der Mitte unten mit einem starken Zahne.

<sup>\*)</sup> Latreille gibt Gen. Crust. et Insect. II. 182. als Gattungsmerkmal sieben plattgedrückte Glieder an, die Zahl dieser plattgedrückten Glieder wechselt aber bei den verschiedenen Arten.

*Notes.* Unfortunately, the type specimen of this species was not found in spite of my surveys of several European museums. Therefore, I could not examine the type of this species, and here I only cited the original description from WIEDEMANN (1823). According to the original description, this species is unique in having the following characters: 1) blackish bronze-green head; 2) bluish violet with metallic lustre elytra; 3) clubbed in five distal antennomeres; 4) coriaceous surface of pronotum; 5) pronotum nearly as wide as long; and 6) short body length (7.83 mm). I have never examined any specimens bearing the diagnostic characters of this species until now.

### Redescriptions of Known Species Described by PIC

#### *Phaedis javanus* (PIC, 1924)

(Figs. 1–6, 34)

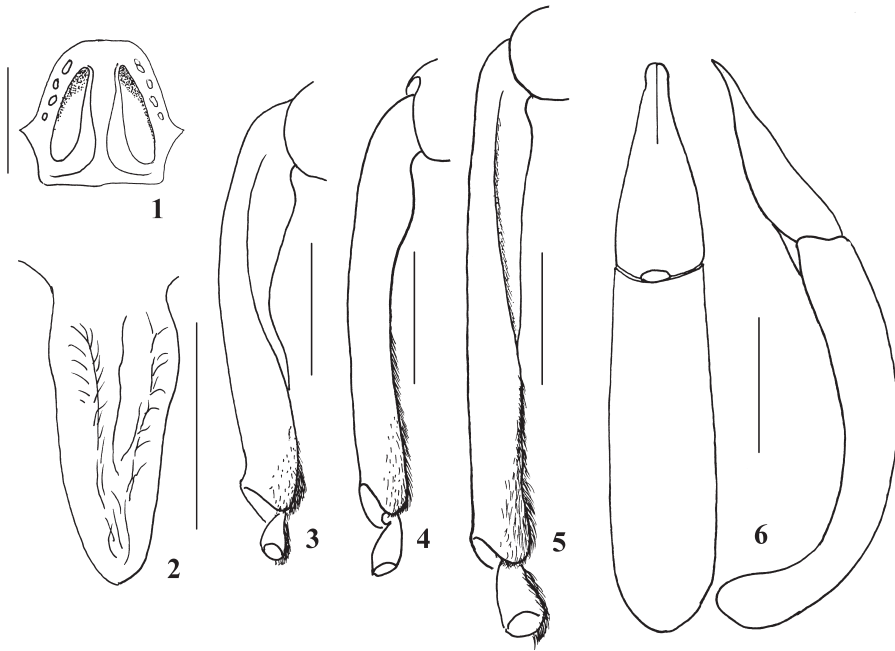
*Pseudeumolpus javanus* PIC, 1924: 27.

*Phaedis javanus*: GEBIEN, 1941: 1146; ANDO, 2008: 366.

*Type specimen examined.* 1 ♂, Mt Kawie / Java // *javanus* / n. sp. // TYPE // Muséum Paris / Coll. M. PIC. (MNHN).

*Measurements.* Body length: 12.8 mm. Male (n = 1): IE/TD 1.90; PW/PL 1.57; EL/EW 1.52.

*Redescription.* Male. Oblong-oval, robust, moderately convex above, shiny. Colour dark reddish brown; head black, with dark greenish sheen in part; pronotum also black, with dark green hue laterally; elytra dark purple, with marginal area and striae metallic green, the dark purple tinge changing into metallic purple in angles of view under florescent lamp; antennae infusate, with apical half



Figs. 1–6. *Phaedis javanus* (Pic, 1924). — 1, Mentum; 2, prosternal process; 3, protibia in ventral view; 4, mesotibia; 5, metatibia; 6, male genitalia (right: lateral; left: dorsal). Scales. 0.25 mm for 1, 1.00 mm for 2–6.

of ultimate antennomeres paler; mouthparts reddish brown, and legs darkened.

Head hexagonal, weakly convex above, mCG not notched; punctures dense and coarse on clypeus and genae, sparse on frons, and minute on vertex; clypeus moderately convex, weakly sinuate at apex; fronto-clypeal suture fine, obscurely impressed in part; genae flat, slightly raised laterad, with outer margins obliquely produced antero-laterad in basal half, steeply and sinuously narrowed forwards in apical half; frons rather narrow, distinctly depressed, strongly raised along lateral margins; tempora thick, rounded laterally; eyes large, transverse, distinctly convex above and laterad, inner ocular-sulci deep and broad, running into behind tempora. Antennae long, reaching before base of pronotum; five distal antennomeres weakly dilated and forming a club; 11th oval. Ultimate maxillary palpomere broad, right-angled triangular, rounded at outer margin. Mentum (Fig. 1) narrow linguiform, longer than wide (11:10), strongly carinate in middle, and narrowly excavate at sides.

Pronotum trapezoidal, widest at middle, weakly convex, shallowly and narrowly sulcate along lateral margins, with punctures fine and dense, nearly as large as on head; anterior margin gently and arcuately emarginate, straight in middle, moderately beaded in each lateral two-fifths; lateral margins subparallel-sided in basal half, roundly narrowed to apex in apical half, not sinuate before base, very narrowly beaded; anterior angles obtusely rounded, produced, posterior angles rectangular, not produced. Scutellum flat, wider than long, with transverse microscopic rugosities.

Elytra oblong-oval, gently divergent posteriorly, widest at apical third, rather weakly convex; striae weakly impressed; striae punctures dense and coarse, irregular in size; intervals weakly convex, minutely and rather densely punctate, 5th intervals short, terminating at apical third; humeral calli weakly humped; epipleuron flat, quite oblique, impunctate.

Pronotal hypomeron coriaceous, finely rugose, impunctate. Prosternum narrow before coxae, finely punctate; prosternal process cuneiform (Fig. 2), not adunc, distinctly sloping posteriorly, irregu-

larly sulcate in middle, and thickly beaded at sides, rounded at apex. V-shaped ridge of mesoventrite widened, sloping forwards, and devoid of anterior angles. Metaventrite rather weakly convex, irregularly rugulose, with fine microscopic punctures in median half. Abdominal ventrites finely and densely punctate, finely rugulose in part.

Male genitalia rather large and robust (Fig. 6); basale distinctly curved ventrad in lateral view; parameres long, gently tapering towards apices, slightly rounded at apical portions, 0.56 times as long as basale.

Legs rather slender; femora robust, profemoral tooth moderate in size, directed laterad at apex; inner margins of protibiae weakly incurved (Fig. 3), distinctly emarginate in basal three-fifths, ancipital in the rest, mesotibiae distinctly depressed dorsally (Fig. 4), with inner margin roundly produced in basal fourth and pubescent in apical two-fifths, metatibiae straight (Fig. 5), with inner margin suddenly produced behind base.

F e m a l e. Unknown.

*Distribution.* Java.

*Diagnosis.* This species resembles *Phaedis picticollis* (FAIRMAIRE, 1893), but is readily separable from the latter by the following characteristics: IE/TD less than twice, body shiny; pronotum with dark green hue laterally, the hue not bordered; head hexagonal; clypeus weakly sinuate at apex; genae obliquely produced in basal half; tempora rounded laterally; inner ocular-sulci deep and broad; antennae with five distal antennomeres forming a club; pronotum shallowly sulcate along lateral margins, with gently emarginate anterior margin and rectangular posterior angles; elytral intervals weakly convex; prosternal process rounded at apex, and mesoventral V-shaped ridge devoid of anterior angles.

***Phaedis violaceipennis* PIC, 1930**

(Figs. 7–11, 35)

*Phaedis violaceipennis* PIC, 1930: 35.

*Type specimen examined.* 1 ♀, Soekaboemi / Java // *Phaedis / violaceipennis / n sp. // type // TYPE // Muséum Paris / Coll. M. PIC. (MNHN).*

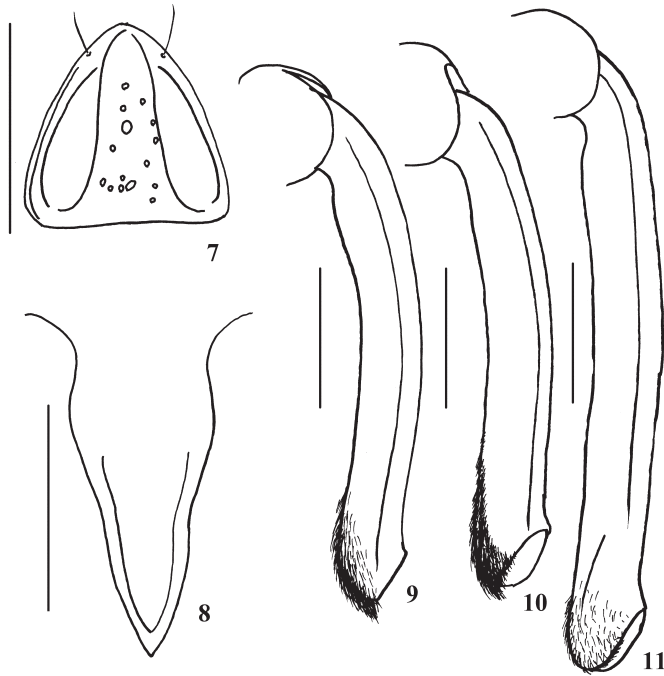
*Measurements.* Body length: 15.2 mm. Female (n = 1): IE/TD 2.35; PW/PL 1.50; EL/EW 1.57.

*Redescription.* F e m a l e. Oblong, distinctly convex, shiny. Colour black, elytra reddish purple, antennae infusate, mouthpart and legs in part dark reddish brown.

Head hexagonal, flat, mCG not notched; punctures fine and dense, sparse and a little larger in frons; clypeus distinctly convex in middle, slightly sinuate at middle of apex; fronto-clypeal suture distinct, tenuously engraved; genae flat, weakly convex on supra antennal insertions, bent downwards posteriorly, rounded at sides in basal half; frons broadened, widely depressed, weakly raised along lateral margins; tempora distinctly produced, but not reaching the level of lateral margins of eyes; eyes large, moderately convex above and distinctly so laterad, inner ocular-sulci broad, moderate in depth. Antennae moderate in length, reaching behind middle of pronotum; five distal antennomeres dilated, forming a weak club; 11th oval. Ultimate maxillary palpomere strongly dilated, securiform. Mentum (Fig. 7) triangular, wider than long (5 : 4), with a triangular median carina and two lateral deep excavations.

Pronotum subtrapezoidal, widest behind middle; disc weakly convex, not sulcate along lateral margins, minutely and densely punctate, punctures a little smaller than those on head; anterior margin deeply and angularly emarginate, slightly and roundly produced in median third, moderately beaded in each lateral third; lateral margins gently arcuate, faintly sinuate before base, very narrowly beaded; anterior angles obtuse and produced, posterior angles acutely pointed, a little produced posteriad. Scutellum short, strongly depressed, sloping forwards in apical fourth, sparsely punctulate.

Elytra oblong-oval, distinctly convex, gently divergent posteriorly, widest at apical third, rather



Figs. 7–11. *Phaedis violaceipennis* PIC, 1930. — 7, Mentum; 8, prosternal process; 9, protibia; 10, mesotibia; 11, metatibia. Scales. 0.50 mm for 7, 1.00 mm for 8–11.

sharpened at apices; striae very weak, interrupted here and there; strial punctures rather dense and small although irregular in density; intervals almost flat or weakly convex, finely and sparsely punctate; humeral calli moderately humped; epipleuron flat, quite oblique, impunctate.

Pronotal hypomeron finely coriaceous, almost smooth. Prosternum short, impunctate; prosternal process narrow and sharp triangular (Fig. 8), adunc, distinctly sulcate in middle, slightly sinuate behind middle, and thickly beaded at sides, pointed at apex. V-shaped ridge of mesoventrite widened, obtusely angulate at anterior angles in lateral view. Metaventrite moderately convex in middle, coriaceous, finely rugulose, with obscure microscopic punctures. Abdominal ventrites finely and densely punctate, longitudinally rugulose in basal areas of three basal ventrites.

Legs rather slender; femora slender, profemoral tooth rather small, with tip directed laterad; inner margins of protibiae weakly incurved (Fig. 9), slightly emarginate near basal two-sevenths received for anterior teeth of profemora, mesotibiae slightly incurved (Fig. 10), metatibiae obliquely deplanate dorsally (Fig. 11), with inner margins not ancipital, sharply edged in basal two-fifths, slightly emarginate between basal seventh and apical six-sevenths.

**M a l e.** Unknown.

**Distribution.** Java.

**Diagnosis.** This species is similar to *Phaedis semicyaneus* (PIC, 1916) from Sumatra, but different from the latter in the following characteristics: interstice between eyes about 2.35 times as wide as an eye; mCG not notched; clypeus slightly sinuate at apex; tempora not reaching lateral terminal of each eye; frons weakly raised along inner ocular-sulci; eyes large; five distal antennomeres forming a club; mentum triangular; ultimate maxillary palpomere securiform; pronotum widest at middle, with punctures smaller than those on head, anterior margin deeply and angularly emarginate, anterior and posterior angles produced; pronotal hypomeron finely coriaceous; prosternal process narrow and

sharp triangular; anterior angles of mesoventral V-shaped ridge obtusely angulate; and inner margin of protibiae slightly emarginate near basal two-sevenths.

***Phaedis diversicollis* PIC, 1930**

(Figs. 12–16, 36)

*Phaedis diversicollis* PIC, 1930: 35.

*Type specimen examined*: 1 ♀, Hoo-Binh / Tonkin [miss attached] // Soekaboemi / Java // *Phaedis diversicollis* / n. sp. // type // TYPE // Muséum Paris / Coll. M. PIC. (MNHN).

*Measurements*. Body length: 14.4 mm. Female (n = 1): IE/TD 2.86; PW/PL 1.72; EL/EW 1.67.

*Redescription*. Female. Oblong, subparallel-sided, moderately convex, with fine isodiametric microsculpture dorsally, dull-shiny. Colour dark reddish brown; head black, with purple sheen, and spotted at middle as in elliptic metallic green; pronotum dull black, with an ambiguous purple spot situated on each lateral fourth, and contact with lateral margin, inner margin of the spot slightly arcuate, bordered by very tenuous brassy and metallic blue; elytra dark green, with purplish hue in angles of view; antennae infusate, with ultimate antennomeres paler at apex; and mouthparts reddish brown.

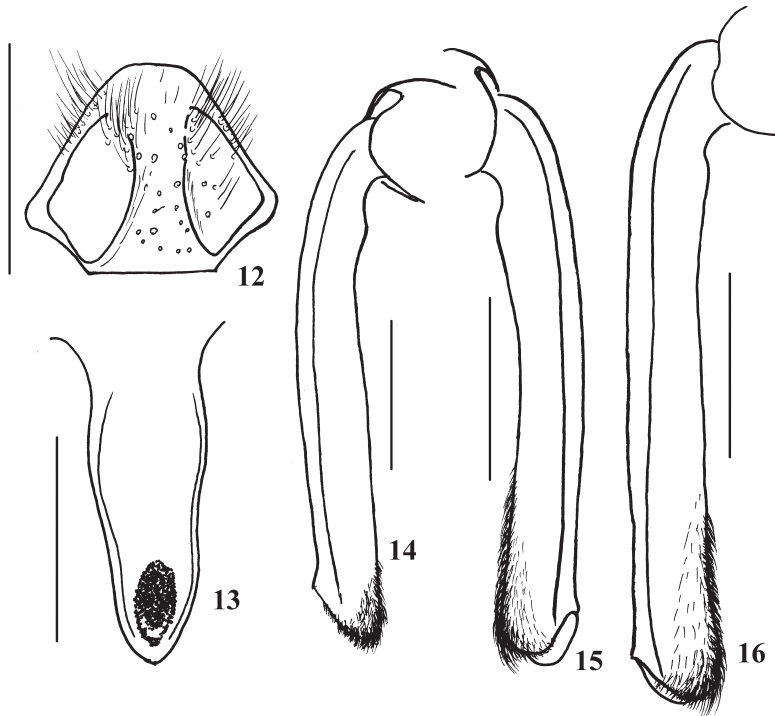
Head semicircular, weakly convex, mCG not notched; punctures minute, dense and coarse on clypeus and genae, sparser and slightly larger on frons; clypeus weakly and transversely convex in middle, slightly sinuate at middle of apex; fronto-clypeal suture fine, distinctly impressed; genae subparallel-sided in basal half, weakly depressed in middle, scarcely raised laterally; frons broad, weakly convex, not raised along inner ocular-sulci; tempora a little produced roundly laterad; eyes distinctly convex above, and weakly so laterad, inner ocular-sulci shallow, terminating just behind eyes. Antennae moderate in length, reaching middle of pronotum; five distal antennomeres weakly dilated and forming a club; 11th semicircular. Ultimate maxillary palpomere large, distinctly securiform. Mentum pentagonal (Fig. 12), wider than long (15 : 12), strongly carinate in middle, and narrowly excavate at sides, the carina narrowed forwards.

Pronotum subtrapezoidal, widest at base; disc gently convex, sloping laterad, and not sulcate along lateral margins; punctures fine and dense, smaller than on head and obscured by dense microsculpture; anterior margin shallowly and arcuately emarginate, finely beaded laterally; lateral margins gently arcuate, sinuate before base, moderately beaded; anterior angles obtusely rounded, posterior angles acutely pointed, distinctly produced posteriad. Scutellum depressed, wider than long, with a few microscopic punctures.

Elytra oblong, subparallel-sided, slightly divergent posteriorly and widest at apical third; striae almost vestigial; strial punctures large and distinct, rather dense but irregular in density, gradually becoming minuter and sparser posteriorly; intervals flat, minutely and densely punctate among dense microsculpture; scutellary striole densely and roughly punctate; humeral calli very weak; epipleuron flattened, weakly oblique, almost impunctate.

Pronotal hypomeron finely coriaceous, impunctate. Prosternum very short before coxae, almost impunctate; prosternal process cuneiform (Fig. 13), not adunc, moderately sloping and convergent posteriad, evenly depressed, rounded at apex, with an oblong and shallow excavation before apex. V-shaped ridge of mesoventrite horizontal, with anterior margins distinctly emarginate in lateral view; anterior angles acutely angulate. Metaventrite distinctly convex, irregularly rugulose, with fine microscopic punctures. Abdominal ventrites finely and densely punctate, obscurely rugulose on basal three ventrites.

Legs robust; profemoral tooth small, directed weakly laterad at apex; inner margins of protibiae weakly incurved (Fig. 14), weakly emarginate before base, mesotibiae gently incurved (Fig. 15),



Figs. 12–16. *Phaedis diversicollis* PIC, 1930. — 12, Mentum; 13, prosternal process; 14, protibia; 15, mesotibia; 16, metatibia. Scales. 0.50 mm for 12, 1.00 mm for 13–16.

metatibiae almost straight, simple (Fig. 16).

*Male*. Unknown.

*Distribution*. Java.

*Diagnosis*. This species resembles *Phaedis purpuricollis* (FAIRMAIRE, 1893) from Sumatra, but is readily separable from the latter in having the following characteristics: body dull-shiny; pronotal spots vestigial (purple); clypeus slightly sinuate at middle of apex; tempora a little produced laterad; frons weakly convex, not raised beside inner ocular-sulci; inner ocular-sulci shallow; clubbed part of antennae composed of five distal antennomeres; mentum pentagonal; pronotum widest at base, sinuate before base, not sulcate along lateral margins, with posterior angles acutely pointed, distinctly produced; elytral intervals minutely and densely punctate among dense microsculpture; mesoventral V-shaped ridge with anterior angles acutely angulate; and profemoral teeth small.

### *Phaedis rouyeri* (PIC, 1921)

(Figs. 17–21, 37)

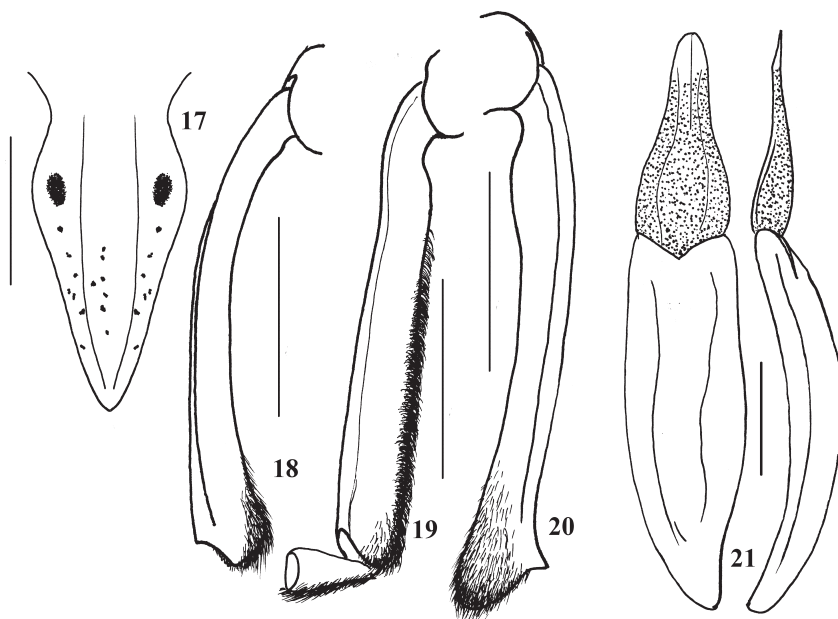
*Pseudeumolpus rouyeri* PIC, 1921: 29.

*Phaedis rouyeri*: GEBIEN, 1941: 1146; ANDO, 2008: 367.

*Type specimen examined*. 1 ♂, Java / (Rouyer) // type // TYPE // *Ps. Rouyeri* / n. sp. (MNHN).

*Measurements*. Body length: 9.6 mm. Male (n = 1): IE/TD 2.00; PW/PL 1.62; EL/EW 1.69.

*Redescription*. *Male*. Colour dark reddish brown; head black, with a metallic lustre, median major part of frons metallic bluish green; pronotum brilliant metallic bluish green, with somewhat violet in part; elytra metallic dark green, covered allover with a strong purple lustre; antennae and legs light reddish brown.



Figs. 17–21. *Phaedis rouyeri* (Pic, 1921). —17, Prosternal process; 18, protibia; 19, mesotibia; 20, metatibia; 21, male genitalia (right: lateral; left: dorsal). Scales. 0.50 mm for 17 and 21, 1.00 mm for 18–20.

Head transversely hexagonal, finely microsculptured, with mCG slightly notched; punctures setiferous, coarse and dense, those on frons larger and sparser than on the rest of head; clypeus produced forwards, transversely and distinctly convex, depressed posteriorly, very slightly emarginate at apex; fronto-clypeal suture fine and very tenuous, roundly angulate laterally; genae large and depressed, narrower than eye; frons weakly convex, distinctly and strongly depressed anteriorly, roundly so at middle; tempora short and not produced; eyes coarsely faceted, distinctly convex, with inner ocular-sulci very deep and broad. Antennae rather slender, reaching behind middle of pronotum; five distal antennomeres dilated, forming a weak club; 11th oval. Mentum narrow linguiform, strongly produced antero-ventrad, with punctate and coarsened surface, weakly and triangularly elevated in middle and depressed at sides, rounded at apex. Ultimate maxillary palpomere strongly transverse, securiform, distinctly emarginate at apex.

Pronotum trapezoidal, widest at base; disc gently convex, steeply sloping at the lateralmost areas, hardly sulcate along lateral margins, densely microsculptured, coarsely and densely punctate, the punctures larger and somewhat obscurer than on head, becoming a little smaller laterad; anterior margin shallowly emarginate, finely beaded laterally; lateral margins gently rounded, steeply narrowed in apical third, and slightly sinuate before base, narrowly and distinctly beaded; anterior angles obtusely rounded and never produced, posterior angles acute, pointed laterad. Scutellum flat, finely microsculptured, with sparse microscopic punctures.

Elytra oblong, weakly divergent posteriorly, moderately convex above, widest at apical third; striae fine and weak, disappear in apical portions; strial punctures dense and distinct, becoming finer apically; intervals flat, or slightly convex in part, finely and very densely punctate; humeral calli distinctly humped; epipleuron flat and horizontal, impunctate.

Pronotal hypomeron evenly microsculptured, sparsely punctate. Prosternum short before coxae, densely microsculptured and finely rugose; prosternal process narrow and sharp triangular (Fig. 17),



descendant behind coxae, densely microsculptured and coarsely punctate, shallowly sulcate in middle, acutely rounded at apex, with a rounded fovea beside middle of coxa. Mesoventrite densely rugose, with antero-median carina; V-shaped ridge horizontal, finely and sparsely punctate, with anterior angles acutely pointed forwards in lateral view. Metaventrite moderately convex, depressed in middle, with punctures very fine and puberulous. Abdomen densely and coarsely punctate, finely microsculptured; fifth ventrite roundly depressed at apex.

Male genitalia robust (Fig. 21), distinctly bisinuate in lateral view; parameres narrowed in apical third, and rounded at apex, minutely and very densely punctate.

Legs rather short; profemora tumid, with anterior margin pubescent in basal two-fifths, profemoral teeth directed forwards at apex, mesofemora slender, strongly incurved, posterior margins of meso- and metafemora weakly pubescent in each basal half; tibiae weak and slender, inner margins of protibiae (Fig. 18) weakly emarginate at basal two-sevenths, mesotibiae almost straight (Fig. 19), with inner margin weakly produced inwards behind base, thence to apex densely covered with cirrate pubescence, metatibiae weakly incurved (Fig. 20), with inner margin roundly produced behind base, thence feebly emarginate to apex; tarsi long and slender.

F e m a l e. Unknown.

*Distribution.* Java.

*Diagnosis.* This species is similar to *Phaedis aeruginosus* ANDO, 2008 from the Malay Peninsula, but is different from the latter in the following characteristics: head and pronotum different in colour; head transversely hexagonal; clypeus distinctly convex, slightly emarginate at apex; IE/TD 2.00 instead of 2.44 in the latter; ultimate maxillary palpomere securiform; pronotum with punctures distinctly larger than on head, anterior angles obtusely rounded, not angulate, posterior angles acute; elytral intervals very densely punctate; prosternal process narrow and sharp triangular, coarsely punctate, shallowly sulcate in middle, with a rounded fovea beside middle of coxa; mesoventral V-shaped ridge with anterior angles acutely pointed forwards; metaventrite with punctures puberulous; and male genitalia with parameres distinctly constricted at sides in apical half.

This species is also similar to *Phaedis viridescens* (PIC, 1916) from Vietnam (Tonkin), but different from the latter in the following characteristics: head with punctures dense; clypeus slightly emarginate at apex; fronto-clypeal suture roundly angulate posteriorly; frons not elevated laterally; mentum narrow linguiform; pronotum widest at base, coarsely and densely punctate, slightly sinuate before base; elytral intervals very densely punctate; hypomeron evenly microsculptured; prosternal process narrow and sharp triangular; mesoventral V-shaped ridge with anterior angles acutely pointed; fifth abdominal ventrite roundly depressed at apex; and legs light reddish brown.

## Descriptions of New Species

### *Phaedis mantillerii* sp. nov.

(Figs. 22–27, 38)

*Gauromaia javana* PIC, 1922: 24. (in parte)

*Type series.* Holotype: ♀, Java occident, Mons Gede, 4000' 1893, H. FRUHSTORFER, PARATYPE, Muséum Paris Coll. M. PIC. (MNHN).

*Measurements.* Body length: 17.0 mm. Female (n = 1): IE/TD 3.16; PW/PL 1.46; EL/EW 1.73.

*Description.* F e m a l e. Oblong, rather elongate, similar in shape to *Gauromaia* species, moderately convex above, dull-shiny. Colour dark reddish brown; head and pronotum pitchy black, pronotum with oblong and ambiguous purple spot along each lateral margin; elytra dark violet-purple; legs

blackish brown, femora with reddish brown annular about in median half; mouthparts and ultimate antennomeres reddish brown.

Head hexagonal, weakly convex, microsculptured, with mCG weakly notched; punctures fine and moderately dense, denser on genae and sparser on frons; clypeus slightly convex, deeply notched at apex in U-shape; fronto-clypeal suture tenuous, obscure laterally by coarse and concentrated punctures; genae longer than wide, depressed in middle, and weakly raised laterally; frons broadened, slightly convex, weakly raised near anterior corners; tempora rounded, not produced; eyes small, transverse, convex above and scarcely produced laterad, inner ocular-sulci distinct, rather narrow. Antennae moderate in length, reaching middle of pronotum; five distal antennomeres dilated, forming a weak club; 11th subquadrate. Ultimate maxillary palpomere broad, weakly securiform. Mentum pentagonal (Fig. 22), wider than long (20 : 13), triangularly convex in middle, and deeply excavate at sides.

Pronotum transversely quadrate, widest before middle, weakly convex, not sulcate along lateral margins, microsculptured; punctures dense and minute, minuter than those on head; anterior margin almost straight, slightly produced in median two-thirds, weakly beaded laterally; lateral margins arcuate, evenly narrowed forwards and weakly rounded backwards from the widest point, suddenly narrowed and a little sinuate before base, moderately beaded; anterior angles obtuse, not produced, posterior angles acute, pointed backwards; basal margin thickly beaded. Scutellum rounded posteriorly, depressed anteriorly, sparsely punctate, with dense microsculpture.

Elytra oblong, moderately convex, slightly divergent posteriorly, widest at apical third; striae rudimental; strial punctures distinct, minute and dense, but irregular in density, interspace between punctures one to three times as wide as puncture's diameter; intervals entirely flat, finely and sparsely punctate, with dense isodiametric microsculpture; humeral calli feebly humped; epipleuron flat, quite oblique, impunctate.

Pronotal hypomeron coriaceous, finely rugulose. Prosternum sloping forwards, finely punctate, prosternal process narrow cuneiform (Fig. 23), not adunc, sloping posteriad, sulcate and coarsened in middle, and thickly beaded at sides, rounded at apex. V-shaped ridge of mesoventrite weak, roundly sloping forwards, and devoid of anterior angles. Metaventrite strongly convex in middle, densely rugulose, with very fine and sparse microscopic punctures. Abdominal ventrites finely and densely punctate, finely rugulose in three basal ventrites.

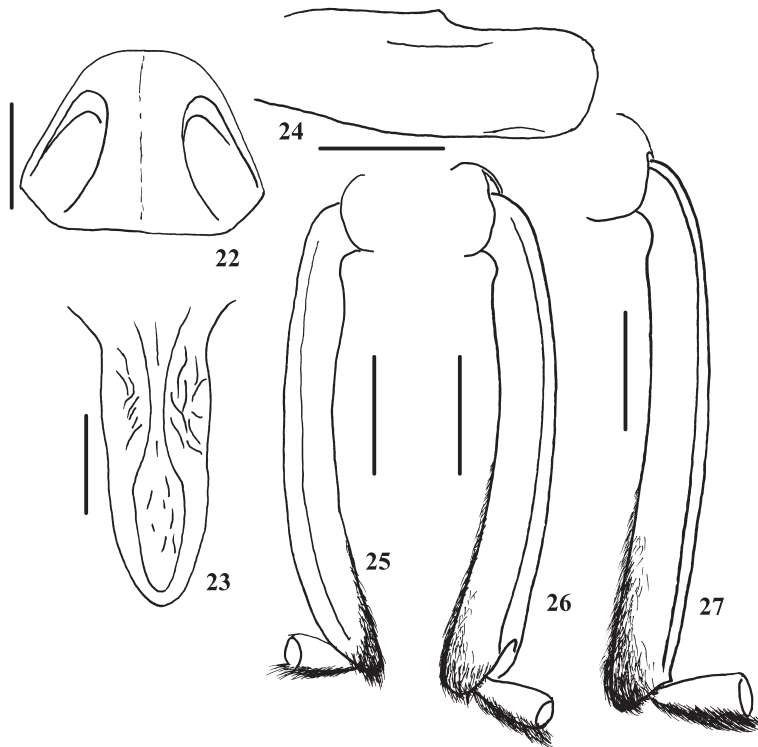
Legs rather slender; femora slender and annulate, profemoral teeth consist of very weak edge (Fig. 24); inner margins of protibiae weakly incurved (Fig. 25), devoid of emargination received for profemoral teeth, meso- and metatibiae distinctly deplanate in inner margins (Figs. 26–27).

M a l e. Unknown.

*Distribution.* Java.

*Etymology.* The specific name of this new species is cordially dedicated to Dr. Antoine MANTILLERI, who is a curator of the Muséum National d'Histoire Naturelle, Paris, and constantly helped me with his warm hospitality for the series of this study.

*Diagnosis.* This new species is similar to *Phaedis rufipes* (PIC, 1916) from Borneo, but is different from the latter in the following characteristics: body colour darker; clypeus deeply notched at apex in U-shape; frons weakly raised near anterior corners; tempora not produced; antennae reaching middle of pronotum; ultimate maxillary palpomere securiform; mentum pentagonal; pronotum widest before middle, almost straight at anterior margin, with punctures minuter than on head; elytra not strongly convex, strial punctures minute and denser; elytral epipleuron impunctate; hypomeron coriaceous, not smooth; prosternum punctate; prosternal process narrow cuneiform, rounded at apex; mesoventrite with V-shaped ridge weakly raised, devoid of anterior angles; femora annulate, and profemoral teeth



Figs. 22–27. *Phaedis mantillerii* sp. nov. — 22, Mentum; 23, prosternal process; 24, right profemur; 25, protibia; 26, mesotibia; 27, metatibia. Scales. 0.25 mm for 22, 0.50 mm for 23, 1.00 mm for 24–27.

very weak. This new species is also similar to *Phaedis masumotoi* ANDO, 2011 from the Philippines, but is different from the latter in having elytra without stripes; femora annulate; inner ocular-sulci distinct; pentagonal mentum; frons between eyes more than three times as wide as an eye; pronotum widest before middle, a little sinuate before base, with punctures minuter than on head; elytra a little wider than pronotum, with intervals flat; and prosternal process not adunc.

*Notes.* This specimen was found in the type series of *Gauromaia javana* PIC, 1922 preserved in the collection of MNHN, but it was different species and should be belonged to the genus *Phaedis* by the presence of profemoral teeth in spite of its similar habitus to species of the genus *Gauromaia*. This specimen is deposited in the PIC's collection together with the holotype of *Gauromaia javana*, which bears a label printed as "HOLOTYPE" and another noted the species name by PIC's own handwriting. However, this specimen does not bear its corresponding species-name label, but only a label printed as "PARATYPE" is attached to it. Therefore, it is not clear if this specimen was designated as a paratype by PIC himself or just attached a paratype label by a later investigator.

I propose here a new species group of the genus *Phaedis* named as the *Mantillerii* species group which includes *Phaedis mantillerii* sp. nov., together with three other congeners, viz., *P. rufipes* (PIC, 1916), *P. girardi* ANDO, 2000, and *P. masumotoi* ANDO, 2011. This species group is similar in body appearance to the genus *Gauromaia* and characterised by the well produced anterior head, distinctly notched anterior margin of clypeus, small profemoral teeth, and slender legs.

*Phaedis bremeri* sp. nov.

(Figs. 28–33, 39)

*Type series.* Holotype: ♂, East Java, M. Betali Natl. Park; Malangeari Vill; 500 m; 5.VI.1996; JAKL leg., *Phaedis* sp. 5 H. J. BREMER det. 19, coll. H. J. BREMER, Zool. Staatsslg. München. (ZSM). Paratype: 1 ♀, Indonesia: Mt. Argopuro, East Java, V–1997, Native leg. (CKAO).

*Measurements.* Body length: 11.5–13.0 mm. Male (n = 1): IE/TD 1.94; PW/PL 1.56; EL/EW 1.59; female (n = 1): IE/TD 2.00; PW/PL 1.63; EL/EW 1.55.

*Description.* Oblong, robust, moderately convex above, shiny. Colour black to dark reddish brown; head dark metallic green; pronotum blackish green, with a purple lustre; elytra strong metallic green, with a strong purple lustre on each interval in angles of view; antennae infusate, mat in five distal antennomeres; mouthparts paler, and legs darker.

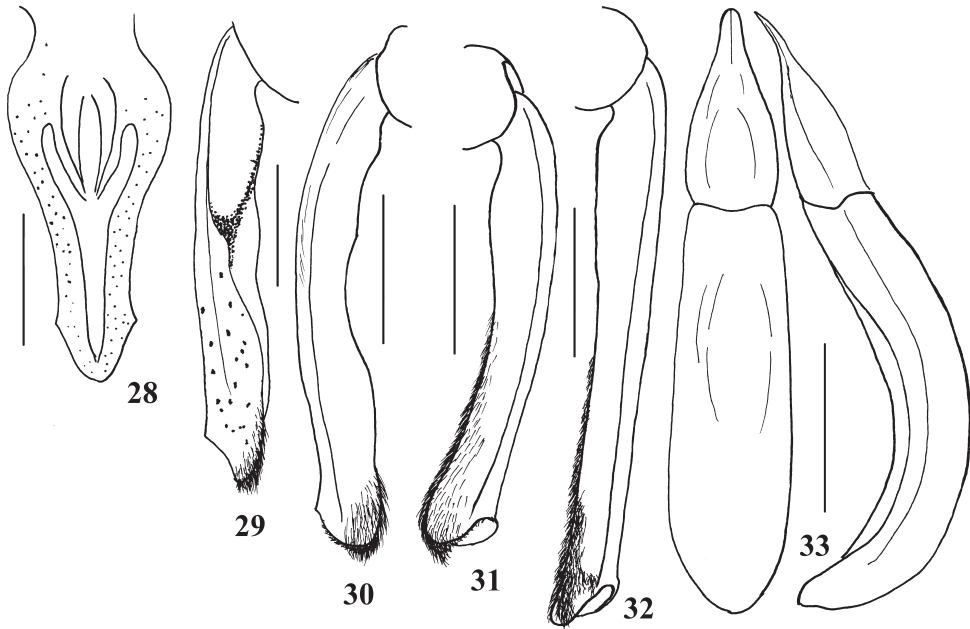
*Male.* Head depressed, well produced forwards in anterior half, mCG not notched, with punctures setiferous and oblong, dense and large, but sparse on frons; clypeus weakly convex anteriorly, feebly depressed laterally, very slightly emarginate at apex; fronto-clypeal suture narrow and distinct, not angulate laterally, wholly roundly curved; genae large, longer and nearly as wide as an eye; tempora thin, punctate, and produced laterad, but not reaching the level of lateral terminal of eye; eyes large and robust, distinctly convex, inner ocular-sulci distinct and extremely deep; frons sloping forwards, strongly and roundly depressed in major portion of middle, hardly raised laterally. Antennae long, reaching humeral calli; five distal antennomeres weakly dilated, nearly as long as wide, forming a weak club; 11th subquadrate. Mentum linguiform, roundly acute at apex, microsculptured, broadly rounded in middle and longitudinally excavate at sides, with punctures coarse and setiferous. Ultimate maxillary palpomere rather long, thick and triangular.

Pronotum trapezoidal, widest at base; disc moderately convex, very feebly microsculptured, finely sulcate before basal margin and not sulcate along lateral margins; punctures fine and dense, neither oblong nor setiferous, minuter than those on head; anterior margin gently and arcuately emarginate, finely beaded except for median fourth; lateral margins feebly rounded in basal half, steeply narrowed forwards in a straight line in apical half, not sinuate before base, moderately beaded; anterior angles almost rectangular, weakly produced, posterior angles rectangular, not produced. Scutellum depressed, densely microsculptured, with a few microscopic punctures.

Elytra subparallel-sided, weakly divergent posteriorly, widest at apical third; striae fine, clear even in apical portions; stria punctures dense and distinct, clearly wider than the width of the corresponding stria, those in apical portions minute but still visible; intervals almost flat, slightly convex in apical portions, irregularly and transversely rugulose behind scutellum, finely and rather densely punctate; humeral calli small, weakly humped; epipleuron flattened, slightly oblique, impunctate, with very fine microsculpture.

Pronotal hypomeron coriaceous, impunctate, and longitudinally rugulose. Prosternum very short and steeply declined in front of coxae, impunctate and finely microsculptured; prosternal process strongly cuneiform (Fig. 28), curved up at acute apex, distinctly sulcate between coxae, with an ypsiloid sulcus behind coxae. Mesoventrite roughened, with a punctate longitudinal carina anteriorly; V-shaped ridge short, and distinctly sloping forwards, with anterior angles very obtuse and rounded in lateral view. Metaventrite rather weakly convex, finely punctate, densely rugulose in median third. Abdomen microsculptured, densely and coarsely punctate in basal three ventrites and finely so in apical two ventrites; fifth ventrite roundly depressed at apex.

Male genitalia short and robust (Fig. 33); basale distinctly incurved, with antero-dorsal margin weakly emarginate, not notched at middle; parameres guttiform, well convex above, rounded in basal



Figs. 28–33. *Phaedis bremeri* sp. nov. — 28, Prosternal process; 29–30, protibiae (29: ventral view; 30: dorsal view); 31, mesotibia; 32, metatibia; 33, male genitalia (right: lateral; left: dorsal). Scales. 0.50 mm for 28, 1.00 mm for 29–33.

half, thence steeply narrowed to apices, sparsely and microscopically punctate.

Legs slender; femora without appendages, profemoral teeth small, directed outwards at apex; protibia with ventral margin strongly emarginate in basal two-thirds (Fig. 29), and inner margin finely sulcate in a short distance behind apex (Fig. 30), mesotibiae gently incurved (Fig. 31), with inner margin weakly and roundly produced behind base, metatibiae almost straight (Fig. 32), with inner margin depressed in basal half; tarsi long and robust.

*F e m a l e.* Antennae shorter, not reaching base of pronotum; five distal antennomeres distinctly wider than long; fifth abdominal ventrite not depressed; inner margins of protibiae without apical short sulcus.

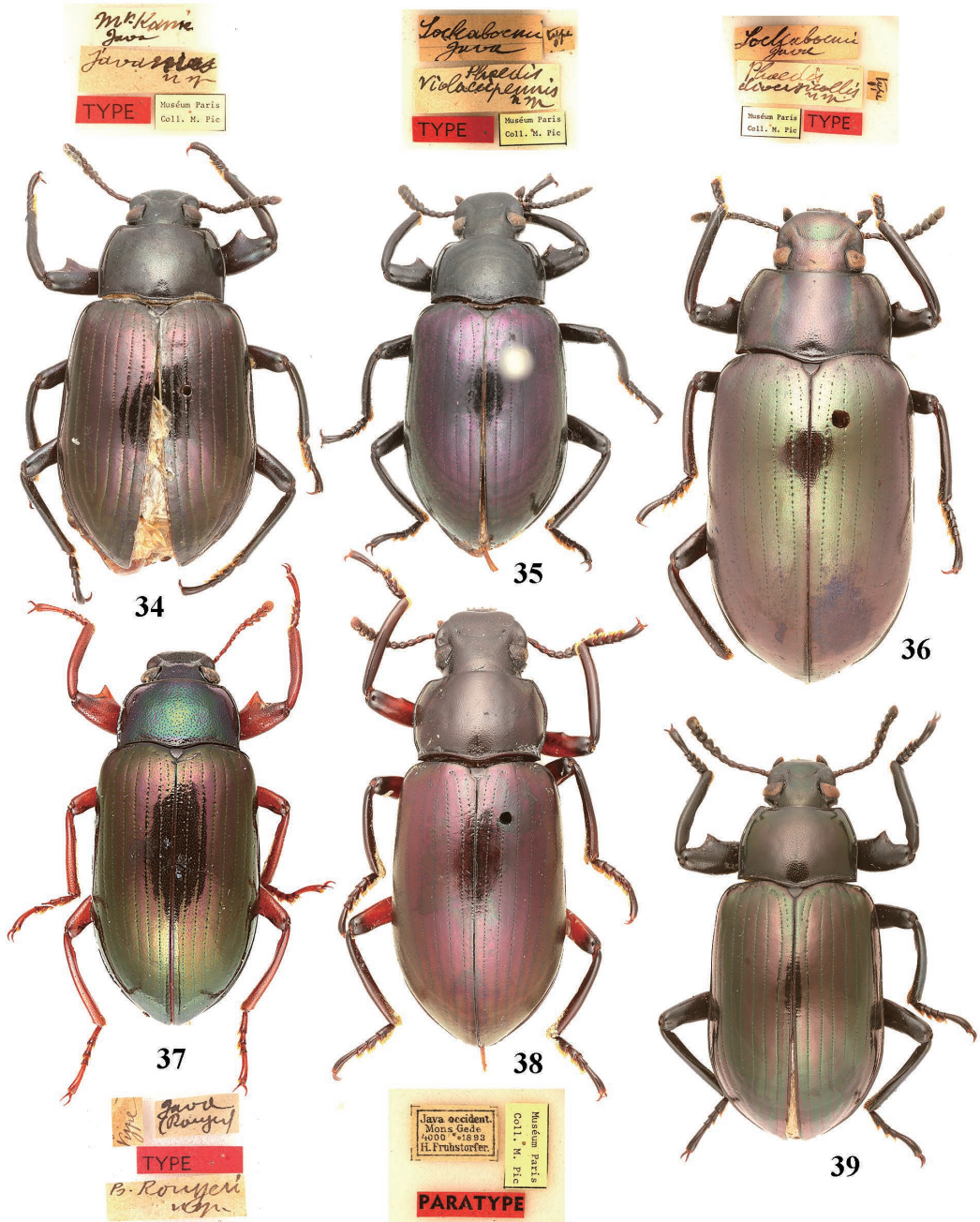
*Distribution.* Java.

*Etymology.* The specific epithet is cordially dedicated to Dr. Hans J BREMER, who is one of great taxonomists of the family Tenebrionidae in Germany and my good friend for a long time. The holotype of this new species is one of BREMER Collection in Zoologische Staatssammlung München.

*Diagnosis.* The new species is very similar to *Phaedis robustus* (PIC, 1927) from Sumatra, but has the tempora strongly pointed laterad and the protibia with a sulcus and an emargination, each of which is different in structure (Figs. 29–30). Also, this new species is similar to *P. atricollis* (PIC, 1927) from Sumatra, but is distinctly different from the latter in the following characteristics: punctures setiferous; clypeus weakly convex; genae nearly as wide as an eye; frons roundly depressed; antennae long, reaching base of elytra; mentum linguiform, not triangular; pronotum arcuately emarginate at apex, almost rectangular at anterior angles, not sinuate before base, with punctures minuter than on head; elytral epipleuron not smooth; and pronotal hypomeron coriaceous.

### Key to the Species of the Genus *Phaedis* from Java

1. Posterior margins of meso- and metafemora dentigerous at least in male .....  
..... *P. opacipennis* ANDO (*Phaedeucyrtus* species group: See ANDO, 2016)
- Posterior margins of meso- and metafemora devoid of teeth ..... 2
2. Head well developed in anterior part; clypeus deeply notched at apex; femora with coral annuli,  
profemoral tooth small ..... *P. mantillerii* sp. nov.
- Anterior head normal; clypeus straight or slightly to weakly emarginate at apex, otherwise weakly  
rounded; femora not annular by the different colour, profemoral tooth normal in size ..... 3
3. Pronotum coriaceous laterally; head blackish bronze-green, elytra violet; body length less than  
8.00 mm ..... *P. dentipes* (WIEDEMANN)
- Pronotum smooth or finely microsculptured; body various in colour; body length more than 9.00  
mm ..... 4
4. Legs light reddish brown; inner margin of male mesotibiae densely covered with cirrate pubes-  
cence ..... *P. rouyeri* (PIC)
- Legs black to dark reddish brown; inner margin of mesotibiae not pubescent, otherwise, if pubes-  
cent, the pubescence normal and not curled ..... 5
5. Tempora distinctly produced laterad ..... 6
- Tempora not produced laterad ..... 7
6. Elytra strong metallic green with a purple lustre; punctures on head setiferous; clypeus weakly  
convex; frons hardly raised laterally; inner ocular-sulci extremely deep; ultimate maxillary  
palpomere triangular; pronotum widest at base, with anterior margin deeply and angularly  
emarginate, and with anterior angles almost rectangular, weakly produced, posterior angles  
rectangular, not produced; elytra subparallel-sided; metaventricle finely punctate; 5th abdomi-  
nal ventricle roundly depressed at apex; protibiae with inner margin strongly emarginate in bas-  
al two-thirds, sulcate in a short distance behind apex ..... *P. bremeri* sp. nov.
- Elytra reddish purple; punctures on head not setiferous; clypeus distinctly convex; frons weakly  
raised along inner ocular-sulci which are moderate in depth; ultimate maxillary palpomere se-  
curiform; pronotum widest behind middle, with anterior margin gently and arcuately emargin-  
ate, and with anterior angles obtusely produced, posterior angles acutely pointed; elytra ob-  
long-oval; metaventricle with obscure microscopic punctures; 5th abdominal ventricle not  
depressed at apex; protibiae with inner margin weakly emarginate behind base, without sulci  
behind apex ..... *P. violaceipennis* (PIC)
7. Body dull-shiny; head hexagonal, IE/TD 1.90; mentum narrow linguiform; ultimate maxillary  
palpomere right-angled triangular; pronotum widest at middle, shallowly and narrowly sulcate  
along lateral margins, straight in middle of apex, with lateral margins subparallel-sided in bas-  
al half and not sinuate before base, pronotal punctures nearly as large as on head; elytral inter-  
vals weakly convex; prosternum finely punctate; mesoventral V-shaped ridge sloping for-  
wards, devoid of anterior angles ..... *P. javanus* (PIC)
- Body shiny; head semicircular, IE/TD 2.86; mentum pentagonal; ultimate maxillary palpomere  
securiform; pronotum widest at base, not sulcate along lateral margins, evenly arcuate at apex,  
with lateral margins gently arcuate, sinuate before base, pronotal punctures smaller than on  
head; elytral intervals flat; prosternum almost impunctate; mesoventral V-shaped ridge hori-  
zontal, with distinct anterior angles ..... *P. diversicollis* PIC



Figs. 34–39. *Phaedis* spp. Habitus and their labels. — 34, *Phaedis javanus* (Pic, 1924), ♂; 35, *P. violaceipennis* Pic, 1930, ♀; 36, *P. diversicollis* Pic, 1930, ♀; 37, *P. rouyeri* (Pic, 1921), ♂; 38, *P. mantillerii* sp. nov., ♀; 39, *P. bremeri* sp. nov., ♂.

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### 要 約

安藤清志：ジャワ産カタビロキマワリ属の再検討（鞘翅目ゴミムシダマシ科ニジゴミムシダマシ族）。—— インドネシアのジャワ産カタビロキマワリ属全種の再検討を行った。ジャワ島からは本属の種は従来5種が知られていたが、昨年 ANDO (2016) が1種を加え、現在6種が記録されている。従来の5種のうち1種 (*P. dentipes*) はタイプ標本の所在が確定できず、原記載に頼ったが、残る4種についてはタイプ標本を基に再記載を行い、現在の位置づけを明らかにした。これに2新種 (*P. mantillerii* sp. nov., *P. bremeri* sp. nov.) を命名・記載し、全種の検索表を付帯した。2新種のうち *P. mantillerii* の外部形態に一定の固有な特徴を認め、*Gauromaia* 属の種に類似した外部形態を持つ上に、よく発達し、強く前方に張り出した頭、前縁が明瞭に深くえぐれた頭楯、小さな前腿節歯と細い脚をもつものを *Mantillerii* species group として提唱した。このグループには今のところ、*P. rufipes* (PIC, 1916), *P. girardi* ANDO, 2000, *P. masumotoi* ANDO, 2011, 及び *P. mantillerii* sp. nov. の4種が含まれる。

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