

## Two New *Doliops* (Coleoptera, Cerambycidae, Lamiinae) from the Philippines

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**Abstract** Two new species of the genus *Doliops* are described from the Philippines: *D. belenae* sp. nov. from Kalinga, northern Luzon and *D. kaorii* sp. nov. from Panay Is., Western Visayas.

### Introduction

To date, 64 species and two subspecies mainly from the Philippines have been known in the lamiine genus *Doliops* WATERHOUSE, 1841 (BARŠEVSKIS, 2017, 2018; YOSHITAKE & YAMASAKO, 2016, 2018). Our recent study of the genus revealed the existence of two additional species from the Philippines, one of which occurs in northern Luzon and another in Western Visayas. Here we describe them as new species, based on detailed morphological observation.

### Material and Methods

This study is based on specimens deposited at the Institute for Agro-Environmental Sciences, NARO, Tsukuba (NIAES) and the Kyushu University Museum, Fukuoka (KUM). The holotypes of new species described herein are preserved in the NIAES. Methods and abbreviations used in descriptive works are almost the same as those explained in YOSHITAKE and YAMASAKO (2016), but the following abbreviations for some additional endophallic structures based on YAMASAKO and OHBAYASHI (2011) are also used in this paper: — CT: central trunk; LSp: large spicules; MSp: micro spicules; MT: medial tube; PB: pre-apical bulb; and SSp: small spicules.

### Taxonomy

*Doliops belenae* sp. nov.

(Figs. 1–10 & 31–36)

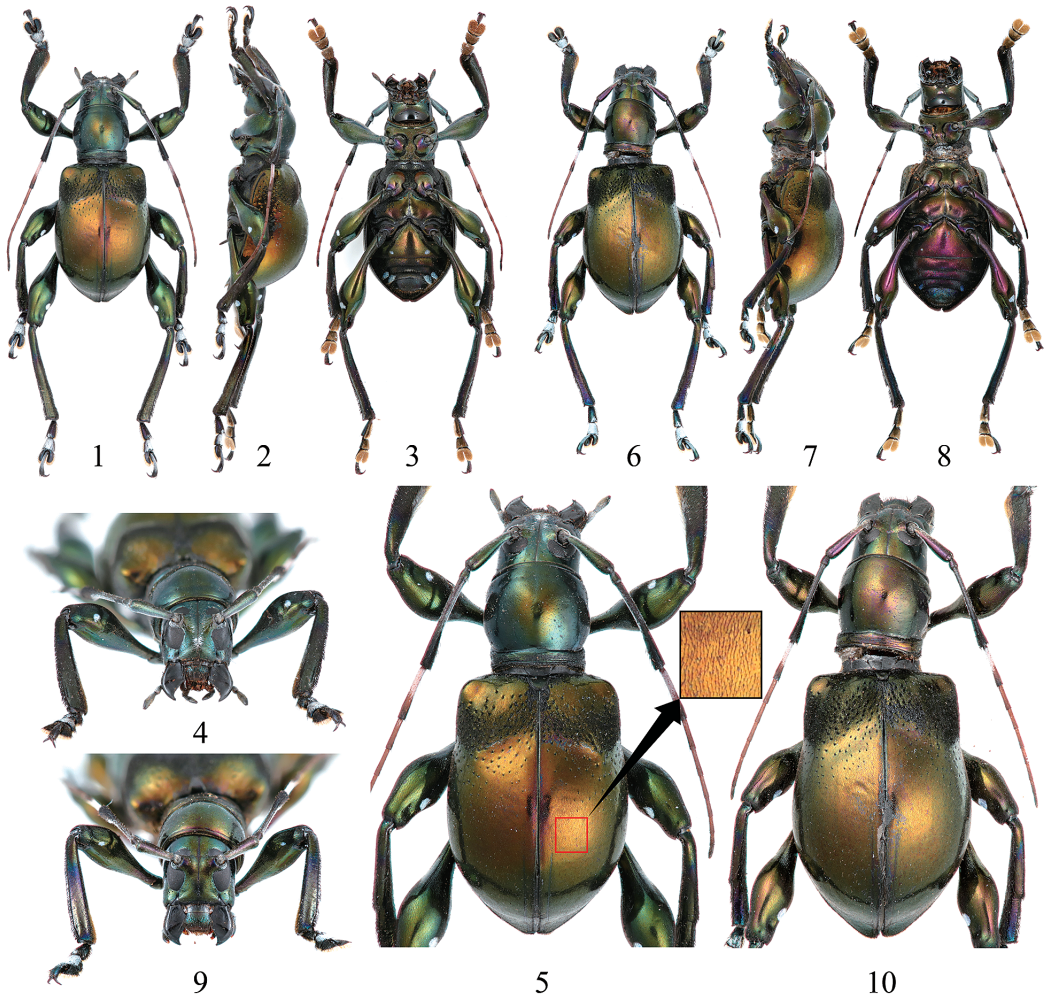
*Description.* Male. Dimensions (in mm): LB: 11.8. WH: 2.5. LG: 0.5. LL: 0.8. WL: 1.0. LP: 3.0. WP: 3.2. LE: 7.8. WE: 5.4. WEH: 4.8. N = 1 for all measurements. Habitus as shown in Figs. 1–5.

Integument black, with a greenish luster; antennomere III purplish; antennomeres IV–X reddish brown except apices of IV infusate; antennomere XI entirely infusate; pronotum with a weak and elytra with a stronger copper luster; coxae, femora, and tibiae partially tinged with purple; tarsi with a weak bluish luster; underside with a weak copper luster, partially tinged with purple.

Head mostly sparsely covered with dark minute hairs, with a vestigial longitudinal stripe of sil-

ver scales along midline which is covered with dense pubescence; frons with several very long black setae along anterior margin; clypeus glabrous; labrum densely setiferous; each mandible bearing four long black setae laterally; genae immaculate, partially densely pubescent, bearing several long black setae. Antennae mostly finely pubescent; scape and pedicel densely covered with silver hairs, except dorsal surface partially covered with darker ones; antennomere III covered with silver hairs on basal 2/3; apical 1/3 of antennomere III covered with dark hairs, with very dense black curved bristles on ventral surface; antennomere IV covered with silver hairs, except apical 1/3 with dark ones; antennomere V covered with dark hairs except basal part with white ones; antennomeres VI–XI mostly covered with brown pubescence, except ventral surface of V, VI, VII, VIII and IX basally covered with white pubescence. Prothorax covered with dark pubescence, sparsely mingled with long black hairs. Scutellum covered with dark pubescence. Elytra covered with dark pubescence, sparsely mingled with short suberect hairs; subbasal part of each elytron with a transverse densely setiferous portion which is arcuate posteriorly. Legs mostly covered with dark pubescence, but partially with silver one; femora each with a pair of small patches of glossy pale blue scales on subapical part, one on dorsal and another on ventral surface; tibiae densely fringed along outer margins with black suberect bristles which become longer apically; fore tibiae furnished with several black subrecumbent bristles on ventral surface; inner margins of fore tibiae fringed with golden setae, sparsely mingled with black ones; inner margins of mid and hind tibiae subglabrous on basal half and then fringed with dense short black setae on apical half; tarsomeres I, III and V partially covered with silver hairs on dorsal surface; tarsomere II mostly covered with silver hairs on dorsal surface. Lateral pieces of meso- and metasterna covered only with dark pubescence, immaculate. Underside mostly covered with dark pubescence, with the following markings of glossy pale blue scales: 1) a pair of very small patches on middle of ventrite I, 2) a small transverse patch on each side of ventrite III, and 3) a small transverse patch on each side of ventrite IV; ventrites III–V partially covered with silver hairs; ventrite V fringed with long brown hairs along apical margin.

Head slightly narrower than pronotum, WH/WP 0.8, mostly moderately shiny, finely punctured, scattered with coarse punctures, finely shallowly sulcate along suture; frons slightly wider at minimum than lower eye lobe in frontal view, subopaque in middle of apical part due to denser and smaller punctures; genae slightly longer than half length of lower eye lobes, LG/LL 0.7, partially rugose; eyes weakly prominent; lower eye lobes slightly wider than long, WL/LL 1.3. Antennae short and somewhat stout, 0.9 times as long as body; relative length of antennomeres as follows: 1.4 : 0.3 : 2.4 : 1.2 : 0.9 : 0.8 : 0.7 : 0.6 : 0.6 : 0.5 : 0.6; scape and pedicel finely densely punctured, weakly shiny; antennomere III finely densely punctured, more weakly shiny, strongly thickened apically, with apex nearly twice as wide as base; antennomeres IV–XI subopaque, due to dense minute punctures. Prothorax nearly as long as wide, WP/LP 1.1, moderately shiny, with dense minute setiferous punctures which become sparser medially, sparsely mingled with larger ones; dorsum strongly convex, highest at apical 1/3 in profile, with subbasal groove which is straight and moderately separated from basal groove in middle and arcuate anteriorly on each side, and with subapical groove which becomes obscure on middle of pronotum; sides subparallel in basal 1/5, gently expanded to and widest at middle, then narrowed to apical 1/4, weakly expanded before subapical groove, and finally strongly convergent apicad; median part of prosternal process flattened, not sulcate, strongly dilated laterally. Scutellum linguiform, subopaque, finely punctured. Elytra moderate in length, LE/WE 1.4, WE/WP 1.7, LE/LP 2.6, shiny, with coarse punctures on basal half, which become sparser apically, and with dense fine setiferous punctures throughout, strongly convex dorsally, highest behind middle; sides subparallel in basal 1/4, rather strongly widened to widest point at middle, then strongly arcuately convergent apicad, and finally terminated in separately rounded apices, each of which is shallowly arched posteri-



Figs. 1–10. Habitus of *Doliops belenae* sp. nov. (Kalinga, northern Luzon). — 1–5, Holotype, male; 6–10, paratype, female. — 1, 5, 6 & 10, Dorsal view; 2 & 7, lateral view; 3 & 8, ventral view; 4 & 9, frontal view.

orly. Underside with dense minute setiferous punctures in addition to general microsculpture; mesosternal process depressed along midline and dilated laterally before apex which is slightly emarginate in middle; metasternum slightly shorter than ventrite I, weakly shiny, with disk flattish and more strongly shiny; ventrites subopaque, except ventrite I with a stronger luster on disk; relative length of ventrites as follows: 4.0 : 1.2 : 1.0 : 1.0 : 1.6; ventrites I–IV each with a thin glabrous part along apical margin; ventrites II–V scattered with larger punctures. Femora, tibiae and dorsal surface of tarsi with dense minute setiferous punctures in addition to general microsculpture, weakly shiny; tibiae scattered with larger punctures; fore tibiae flattened, hardly emarginate in apical half of inner margins; outer margins of mid tibiae shallowly emarginate in apical 1/3; hind tibiae barely emarginate apically on outer margins; dorsal surface of mid and hind tibiae weakly rugose apically.

Genitalia as shown in Figs. 31–36. Tegmen widest near middle in dorsal view and gently curved in lateral view; paramere subequal to 1/4 length of tegmen, constricted at base, thence distinctly ex-

panded outwardly and evenly narrowed toward rounded apex, distinctly ridged transversally at base of ventral side, with setae on ventral side concentrated mainly in basal and apical parts; ringed part in dorsal view gently expanded laterally near middle of tegmen, thence evenly narrowed basally. Median lobe in dorsal view weakly constricted before middle, gently curved in lateral view; apex of ventral plate pointed; basal struts dehiscent from near middle of median lobe. Endophallus slightly less than 2.5 times as long as median lobe, subdivided into BPH, MPH (MT+CT+PB), APH; BPH subequal to half length of median lobe, with a pair of CS near ventral swelling on distal part; MPH long, gently curved, with MSp, LSp and SSp; APH with small swelling on dorsal side, roundly projected at distal end with a single ED; MSp minute, arranged on proximal 1/3 of MPH (almost corresponded with MT); LSp minute, unidentate, sparsely arranged on middle part of MPH (almost corresponded with CT); SSp minute, densely covered distal part of MPH (almost corresponded with PB).

**F e m a l e.** Dimensions (in mm): LB: 14.3. WH: 2.7. LG: 0.7. LL: 0.9. WL: 1.0. LP: 3.4. WP: 3.4. LE: 9.5. WE: 6.5. WEH: 5.4. N = 1 for all measurements. Habitus as shown in Figs. 6–10.

Head WH/WP 0.8; genae LG/LL 0.8; lower eye lobes WL/LL 1.2. Antennae slightly shorter, 0.7 times as long as body; relative length of antennomeres as follows: 1.5 : 0.3 : 2.4 : 1.1 : 0.8 : 0.7 : 0.7 : 0.6 : 0.6 : 0.5 : 0.6. Prothorax WP/LP 1.0. Elytra slightly wider, LE/WE 1.5, WE/WP 1.9, LE/LP 2.8. Otherwise practically as in male.

**Type material.** Holotype, male (NIAES), “Pinukpok / Kalinga / North Luzon / V.2017” (typed on white card); “[ HOLOTYPE ] Male / *Doliops belenae* / YOSHITAKE & YAMASAKO, 2018” (typed on red card). Paratype (KUM): 1 female, same locality as the holotype.

**Distribution.** Philippines (Luzon: Cordillera Administrative Region).

**Etymology.** Named after Belen FRANCISCO, an amateur entomologist from Marinduque Is., the Philippines. She is very active mainly in northern Luzon.

**Notes.** This new species is similar in general appearance to *Doliops isabelae* VIVES, 2013 and *D. havai* BARŠEVSKIS, 2018 from northern Luzon. The close affinity among them are emphasized by the elytra with a transverse, densely setiferous portion and the subsequent depression. However, *D. belenae* is distinctive enough not to be confused with *D. isabelae* and *D. havai* in having the metallic green body with a copper sheen and immaculate elytra with smoother surface.

### ***Doliops kaorui* sp. nov.**

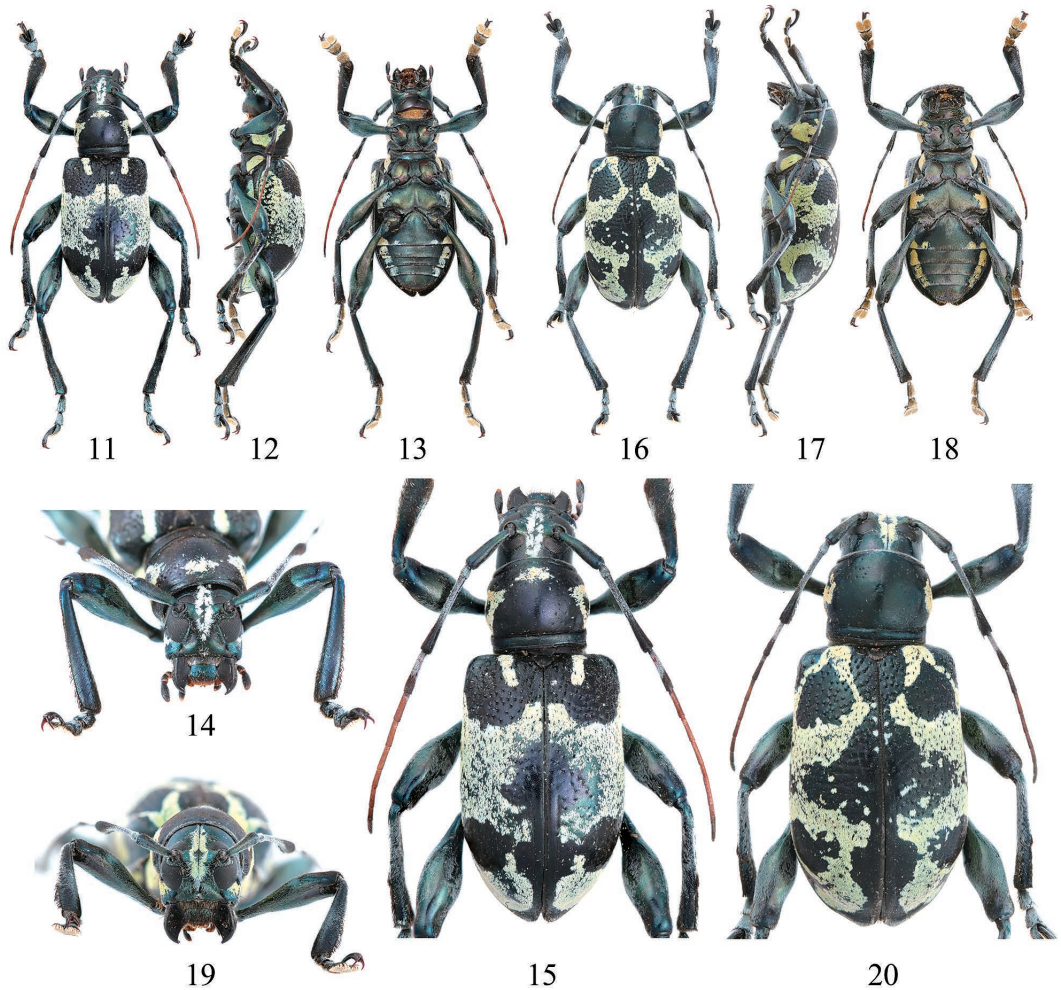
(Figs. 11–20 & 37–43)

**Description.** **M a l e.** Dimensions (in mm): LB: 11.4–12.9 (holotype 11.4; mean 11.9). WH: 2.2–2.6 (2.2; 2.4). LG: 0.4–0.5 (0.4; 0.5). LL: 0.7–0.8 (0.7; 0.7). WL: 0.9–1.0 (0.9; 0.9). LP: 2.6–3.2 (2.8; 2.9). WP: 2.8–3.2 (2.8; 3.0). LE: 6.8–7.7 (6.8; 7.2). WE: 4.7–5.3 (4.8; 4.9). WEH: 4.1–4.7 (4.1; 4.3). N = 3 for all measurements. Habitus as shown in Figs. 11–15.

Integument black, with a weak bluish luster; antennomeres IV–X reddish brown except apices of IV and X infuscate; antennomere XI entirely infuscate; pronotum and elytra with a weak deep blue luster, except elytral humeri with a bluish luster; underside with a weak greenish luster.

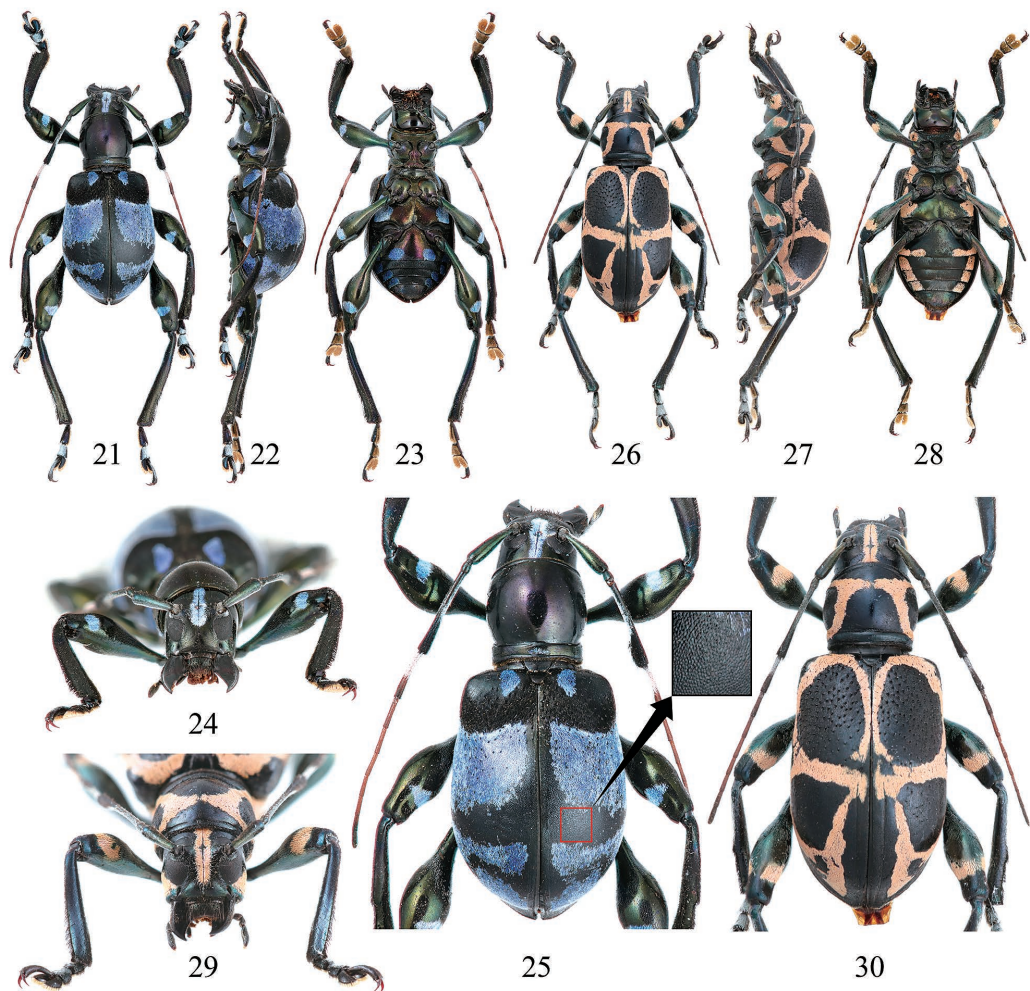
Head mostly sparsely covered with dark minute hairs, with a longitudinal stripe of glossy pale blue to green scales along midline; stripe surrounded by paler pubescence; frons with several very long black setae along anterior margin; clypeus glabrous; labrum densely setiferous; each mandible bearing four long black setae laterally; genae each with a small elliptical patch of glossy pale blue to green scales, bearing some long black setae. Antennae mostly finely pubescent; scape and pedicel densely covered with white hairs, except dorsal surface partially covered with darker ones; antennomere III covered with white hairs on basal 2/3; apical 1/3 of antennomere III covered with dark hairs,





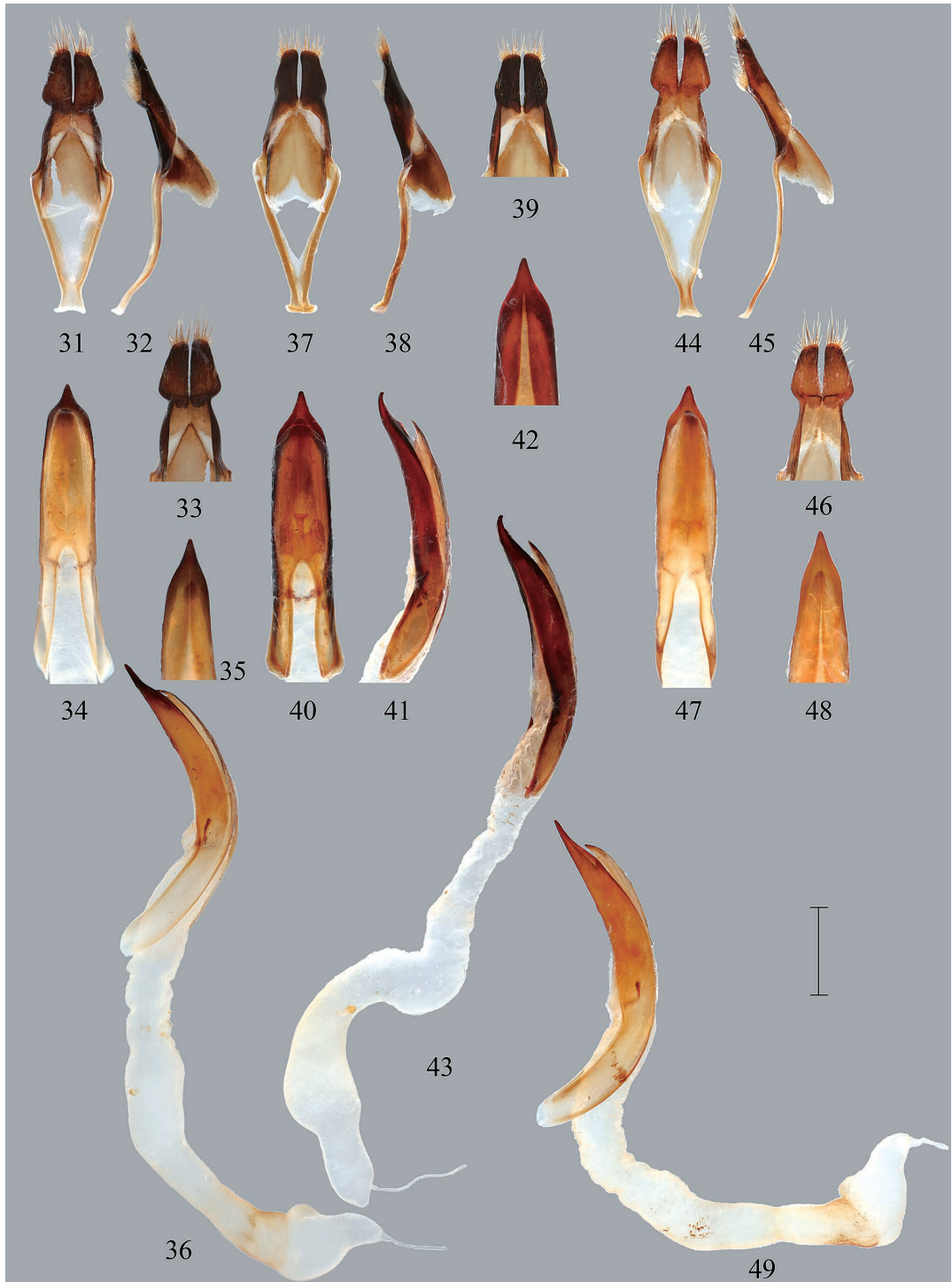
Figs. 11–20. Habitus of *Doliops kaorui* sp. nov. (Panay Is., Western Visayas). — 11–15, Holotype, male; 16–20, paratype, female. — 11, 15, 16 & 20, Dorsal view; 12 & 17, lateral view; 13 & 18, ventral view; 14 & 19, frontal view.

with very dense black curved bristles on ventral surface; antennomere IV covered with white hairs, except apical 1/3 with dark ones; antennomere V covered with dark hairs except basal part with white ones; antennomeres VI–XI mostly covered with brown pubescence, except ventral surface of VI and VII basally covered with white pubescence. Prothorax covered with dark pubescence, sparsely mingled with long black hairs, with the following two markings of dense glossy pale green to yellowish scales: 1) a transverse elliptical patch in middle of subapical part of pronotum and 2) a larger distorted ring marking on each side; subapical patch sometimes vanished; lateral markings sometimes dorsally merged with subapical patch. Scutellum covered with dark short recumbent hairs. Elytra covered with dark pubescence, scattered with short suberect hairs; each elytron with two large distorted ring markings of glossy pale green to yellowish scales, one on basal half and another on apical half; scaly markings variable individually, each of which is sometimes interrupted or connected in varying degrees.



Figs. 21–30. Habitus of *Doliops* spp. — 11–15, *Doliops havai* BARŠEVSKIS, male (Pinukpok, Kalinga, northern Luzon); 16–20, *D. gertrudis* HÜDEPOHL, female (Mt. Canlaon, Negros Is., Western Visayas). — 21, 25, 26 & 30, Dorsal view; 22 & 27, lateral view; 23 & 28, ventral view; 24 & 29, frontal view.

Legs mostly covered with white pubescence; coxae somewhat densely pubescent; trochanters subglabrous, partially pubescent; femora with pubescence which becomes sparser on basal and darker on apical parts, respectively; tibiae mainly covered with dark pubescence, partially with white one; fore tibiae furnished with several black subrecumbent bristles on ventral surface; inner margins of fore tibiae fringed with paler setae, sparsely mingled with black ones; outer margins of fore tibiae densely fringed with black bristles, which are suberect and becoming longer apically, sometimes basally covered with dense pale setae; mid and hind tibiae fringed with white setae on basal half and with black bristles on apical half along outer margins; bristles dense, suberect and becoming longer apically; tarsomeres I–III mostly covered with white hairs on all legs. Mesepisterna each with a large patch of glossy pale green to yellowish scales; mesepimera each with a small scaly patch along lower margin; metepisterna covered with dark pubescence, immaculate. Underside mostly covered with dark pubes-



Figs. 31–49. Male genitalia of *Doliops* spp. — 31–36, *Doliops belenae* sp. nov.; 37–43, *D. kaorui* sp. nov.; 44–49, *D. isabelae* VIVES. — 31, 32, 37, 38, 44 & 45, Tegmen; 33, 39 & 46, parameres; 34, 40, 41 & 47, median lobe; 35, 42 & 48, apex of median lobe; 36, 43 & 49, aedeagus. — 31, 34, 37, 40, 44 & 47, Dorsal view; 32, 36, 38, 41, 43, 45 & 49, lateral view; 33, 35, 39, 42, 46 & 48, ventral view. Scale: 1.0 mm.



cence, with the following markings of glossy pale green to yellowish scales: 1) a large subtriangular patch on each side of metasternum, 2) four transverse patches along apical margin of ventrite I, of which inner patches are much smaller than outer ones, 3) a small subquadrate patch on each side of ventrites II, III and IV; apical margin of ventrite V fringed with long brown hairs.

Head slightly narrower than pronotum, WH/WP 0.8, mostly moderately shiny, finely punctured, shallowly impressed along suture; frons nearly as wide at minimum as lower eye lobe in frontal view, subopaque in middle of apical part due to denser and smaller punctures; genae slightly longer than half length of lower eye lobes, LG/LL 0.6–0.7 (holotype 0.6; mean 0.6), partially rugose; eyes moderately prominent; lower eye lobes slightly wider than long, WL/LL 1.3. Antennae short and somewhat stout, 0.8–0.9 (holotype 0.9; mean 0.9) times as long as body; relative length of antennomeres as follows: 1.4–1.5 : 0.3 : 2.4 : 1.3–1.4 : 0.8–0.9 : 0.7 : 0.7 : 0.6 : 0.5–0.6 : 0.5 : 0.6; scape and pedicel finely densely punctured, weakly shiny; antennomere III finely densely punctured, more weakly shiny, strongly thickened apically, with apex nearly twice as wide as base; antennomeres IV–XI subopaque, due to dense minute punctures. Prothorax nearly as long as wide, WP/LP 1.0–1.1 (holotype 1.0; mean 1.0), weakly shiny, with dense minute setiferous punctures, sparsely mingled with larger ones; dorsum moderately convex, highest just before middle in profile, with subbasal groove which is straight and narrowly separated from basal groove in middle and arcuate anteriorly on each side, and with subapical groove which becomes obscure on middle of pronotum; sides subparallel in basal 1/4, strongly expanded to and widest at middle, then rapidly narrowed to apical 1/3, weakly expanded before subapical groove, and finally strongly convergent apicad; median part of prosternal process weakly sulcate, strongly dilated laterally. Scutellum linguiform, subopaque, finely punctured. Elytra moderate in length, LE/WE 1.4–1.5 (holotype 1.4; mean 1.5), WE/WP 1.6–1.7 (1.7; 1.7), LE/LP 2.4–2.8 (2.4; 2.5), moderately shiny, with coarse punctures which become shallower apically, and with dense fine setiferous punctures throughout, moderately convex dorsally, highest behind middle; sides gradually widened to widest point at middle, then gently convergent apicad, and finally terminated in separately rounded apices, each of which is deeply arched posteriorly. Underside with dense minute setiferous punctures, in addition to general microsculpture; mesosternal process weakly depressed along midline and dilated laterally before apex which is emarginate in middle; metasternum slightly shorter than ventrite I, weakly shiny, with disk flattish and more strongly shiny; ventrites subopaque, except ventrite I with a stronger luster on disk; relative length of ventrites as follows: 4.0 : 1.2 : 1.0 : 1.0 : 1.4; ventrites I–IV each with a thin glabrous part along apical margin; ventrites II–V scattered with larger punctures. Femora, tibiae and dorsal surface of tarsi with dense minute setiferous punctures, in addition to general microsculpture, weakly shiny; tibiae scattered with larger punctures; fore tibiae flattened, hardly emarginate in apical half of inner margins; outer margins of mid tibiae shallowly emarginate in apical 1/3; hind tibiae barely emarginate apically on outer margins; dorsal surface of mid and hind tibiae weakly rugose apically.

Genitalia as shown in Figs. 37–43. Tegmen widest near middle in dorsal view and gently curved in lateral view; paramere slightly shorter than 1/4 length of tegmen, constricted at base, gently ridged transversally near base of ventral side, with lobe gently expanded outwardly and arcuately narrowed toward rounded apex, with setae on ventral side concentrated in basal half and apical part; ringed part in dorsal view gently expanded laterally near middle of tegmen, thence evenly narrowed basally. Median lobe in dorsal view weakly constricted at basal 1/3, gently curved in lateral view; apex of ventral plate pointed; basal strut dehiscent from before middle of median lobe. Endophallus slightly less than 2.5 times as long as median lobe, subdivided into BPH, MPH (MT+CT+PB), APH; BPH subequal to half length of median lobe, with a pair of CS near ventral swelling on distal part; MPH long, sinuate in distal half, with MSp, LSp and SSp; APH roundly projected distally, with a single ED on dorsal



side of distal end; MSp minute, sparsely arranged on proximal 1/3 of MPH (almost corresponded with MT); LSp few, minute, unidentate, arranged on middle part of MPH (corresponded with a part of CT); SSp minute, densely covered distal part of MPH (almost corresponded with PB).

**Female.** Dimensions (in mm): LB: 12.5. WH: 2.7. LG: 0.5. LL: 0.7. WL: 1.0. LP: 2.8. WP: 3.3. LE: 8.2. WE: 5.3. WEH: 4.6. N = 1 for all measurements. Habitus as shown in Figs. 16–20.

Head WH/WP 0.8; genae LG/LL 0.7; lower eye lobes slightly wider, WL/LL 1.4. Antennae slightly shorter, 0.7 times as long as body; relative length of antennomeres as follows: 1.4 : 0.3 : 2.6 : 1.2 : 0.9 : 0.8 : 0.7 : 0.5 : 0.5 : 0.4 : 0.5. Prothorax WP/LP 1.2. Elytra wider, slightly less convex dorsally, LE/WE 1.6, WE/WP 1.6, LE/LP 3.0. Otherwise practically as in male.

**Type material.** Holotype, male, “Mt. Madja-as / Antique / Panay Island / IV.2017” (typed on white card); “[ HOLOTYPE ] Male / *Doliops kaorui* / YOSHITAKE & YAMASAKO, 2018” (typed on red card). Paratypes (KUM & NIAES): 1 male and 1 female, same data as the holotype; 2 males, the same locality as the holotype, VII.1998.

**Distribution.** Philippines (Western Visayas: Panay Is.).

**Etymology.** Named after Kaoru SAKAI who provided us a part of the type material.

**Notes.** This new species is somewhat similar in general appearance to *Doliops gertrudis* HÜDEPOHL, 1990 (Figs. 16–20) from Negros Is., Western Visayas, the Philippines. However, it clearly differs from *D. gertrudis* mainly by differences in the vestiture color and scaly markings including immaculate femora, as well as in having the elytra whose dorsal contour is more weakly convex.

### Acknowledgments

We thank Kaoru SAKAI (Tokyo) for cooperation so far in our study of the genus *Doliops*. Our thanks are also due to Kazuhiko IJIMA (Mushi-sha, Tokyo) and Munetoshi MARUYAMA (KUM) for help in obtaining the specimens used in this study.

### 要 約

吉武 啓・山迫淳介：フィリピン産ニセカタゾウカミキリ属（鞘翅目カミキリムシ科フトカミキリ亜科）の2新種。——本論文では、フィリピン産ニセカタゾウカミキリ属 *Doliops* WATERHOUSE に2新種を認め、それぞれ *D. belenae* sp. nov. (ルソン島北部・カリンガ州) および *D. kaorui* sp. nov. (西ビサヤ地方・パナイ島) として、命名・記載した。

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