

Revision of the Genus *Allochotes* (Coleoptera, Cleridae) from Japan

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Abstract Four species of the genus *Allochotes* WESTWOOD, 1875 are recognized from Japan, of which three known species are redescribed and one new species, *Allochotes sakaii* sp. n. is described. Two of three Taiwanese species groups, the *choui* group and the *sauteri* group are recognized in the Japanese members based on the chitinous and membranous structures of male genitalia. The full species list of the genus *Allochotes* with Zoobank LSID is provided in the appendix.

Introduction

The genus *Allochotes* WESTWOOD, 1875 of the subfamily Neorthopleurinae is distinguished from other genera by having an oval body and serrate antennomeres (OPITZ, 2009). Most of the known species are distributed in Oriental geographical region, whereas two species from New Guinea and one species from the Seychelles are recorded disjunctively (see Appendix).

Up to now, three species of the genus, *A. amamioshimanus* MIYATAKE, 1965, *A. dichrous* (LEWIS, 1891), and *A. yuwanensis* YAJIMA & NAKANE, 1969, have been known from Japan, but not yet been comprehensively studied based on the detailed features.

In this paper, the Japanese *Allochotes* is revised with the observations of the male genital structures including an inflated condition of aedeagus.

Material and Methods

The specimens used in this paper are preserved in the following institutions and private collections: BMNH: Natural History Museum, London, UK; EUMJ: Ehime University Museum, Matsuyama, Japan; AWJ: private collection of Akihiko WATANABE, Japan; HFJ: private collection of Hirokazu FUKUTOMI, Japan; HKJ: private collection of Hiromu KAMEZAWA, Japan; KAJ: private collection of Katsumi AKITA, Japan; KSJ: private collection of Kaoru SAKAI, Japan; NSMT: National Museum of Nature and Science, Tsukuba, Japan; OMNH: Osaka Museum of Natural History, Osaka, Japan; SHJ: private collection of Shigehisa HORI, Japan; SIJ: private collection of Shôichi IMASAKA, Japan; SYJ: private collection of Shun-ichi YOSHIMICHI, Japan; TARI: Taiwan Agricultural Research Institute, Taichung, Taiwan.

The observational method of the terminal parts and the inflated aedeagus follows MURAKAMI and YAMASAKO (2012).

Terminology follows OPITZ (2010) and the abbreviations used in this study are as follows: BL: body length (PL+EL); CM: connecting membrane between tegmen and phallus; EL: elytral length (from basal margin to apex in suture); EW: maximum conjoint width of elytra; PL: maximum length of pronotum; PW: maximum width of pronotum.

Taxonomy

Genus *Allochotes* WESTWOOD, 1875

Allochotes WESTWOOD, 1875: 241 (type species: *Allochotes bicolor* WESTWOOD, 1875, subsequently designated by CHAPIN, 1924: 256).

Sisyronophorus WATERHOUSE, 1876: 125 (type species: *Sisyronophorus maculatus* WATERHOUSE, 1876, subsequently designated by CHAPIN, 1924: 256, synonymized by LOHDE, 1900: 97).

Diagnosis. Head sparsely covered with setigerous punctures, narrower than pronotum; occiput hidden beneath prothorax; eyes large. Antennomere 1 claviform; 2nd rounded, short, almost half the length of 1st segment; 3rd elongate; 4th–10th more or less serrate; 11th flattened, broad and oval. Pronotum rounded quadrangular, convex dorsally; basal and lateral margins carinate; disk evenly and sparsely set with setigerous punctures throughout. Elytra elongate, oblong, or oval, convex dorsally, slightly longer than width; humeri roundly projected. Legs with femora stout, fusiform; pro- and mesotibae slightly dilated apically, densely covered with setae of which those on the inner side are markedly short; tibial spur formula 0–0–1; tarsal pulvillar formula 3–3–3.

Remarks. The above diagnosis is restricted to the Japanese congeners of the genus.

Key to the Species of *Allochotes* from Japan

1. Elytra metallic blue or metallic green; pronotum with or without three black markings 2
- Elytra dully black or black purple; pronotum without black markings 3
2. Antennomeres, tibia and tarsi chiefly black; antennomeres 4 to 10 well serrate
..... *A. amamioshimanus* MIYATAKE, 1965
- Antennomeres, tibia and tarsi brownish orange; antennomeres 4 to 10 gradually serrate
..... *A. yuwanensis* YAJIMA & NAKANE, 1969
3. Last segment of maxillary palpi elongate; elytra elongate, deeply large punctured
..... *A. sakaii* sp. n.
- Last segment of maxillary palpi elongate; elytra oval, finely punctured
..... *A. dichrous* (LEWIS, 1891)

Allochotes amamioshimanus MIYATAKE, 1965

(Figs. 2D–H, 4H–N, 5G–H, 6G–H)

Allochotes amamioshimanus MIYATAKE, 1965: 24, pl. 3D; YAJIMA & NAKANE, 1969: 7, figs. 3, 4; MIYATAKE, 1985: 158, pl. 25, fig. 25.

Type series. Holotype: 1 male (OMNH), “Mt. YUWAN, / AMAMI IS. / 25. IV. 1964”, “K. SAKO”, “♂”, “HOLOTYPUS”, “*Allochotes / amamioshimanus / m. miyatake*”.

Specimens examined. Japan: [Kagoshima] <Amami-Ōshima> 1 male (AWJ), Marubatake-rindō, 1–VI–1973, T. OGASAWARA leg.; 1 female (SHJ), Chûô-rindō, Sumiyô-son, 21–IV–1996, S. HORI leg.; 1 male (SHJ), same locality, 21 to 28–IV–1996, S. HORI leg.; 2 males (EUMJ), Nisinakama, 30–III–1999, M. SATÔ leg.; 3 males (EUMJ), Chûô-rindō, 29–III–1999, M. SATÔ leg.; 1 male (SYJ), same locality, 29–III–1999, K. OKADA leg.; 1 male (EUMJ), Kinsakubaru, 26–III–1999, N. OHBAYASHI leg.; 1 male (KSJ), Mitarou, Sumiyô-son, 9–IV–2002, S. FUKUDA leg.; 1 male (KSJ), Kinsakubaru, 10–III–2003, S. FUKITA leg.; 2 males (SYJ), Wase-touge, Sumiyô-son, 7 to 8–IV–2005, S. FUKUDA leg.; 1 male (SYJ), same locality, 6–IV–2006, S. FUKUDA leg.; 1 female (KSJ), Kinsakubaru,

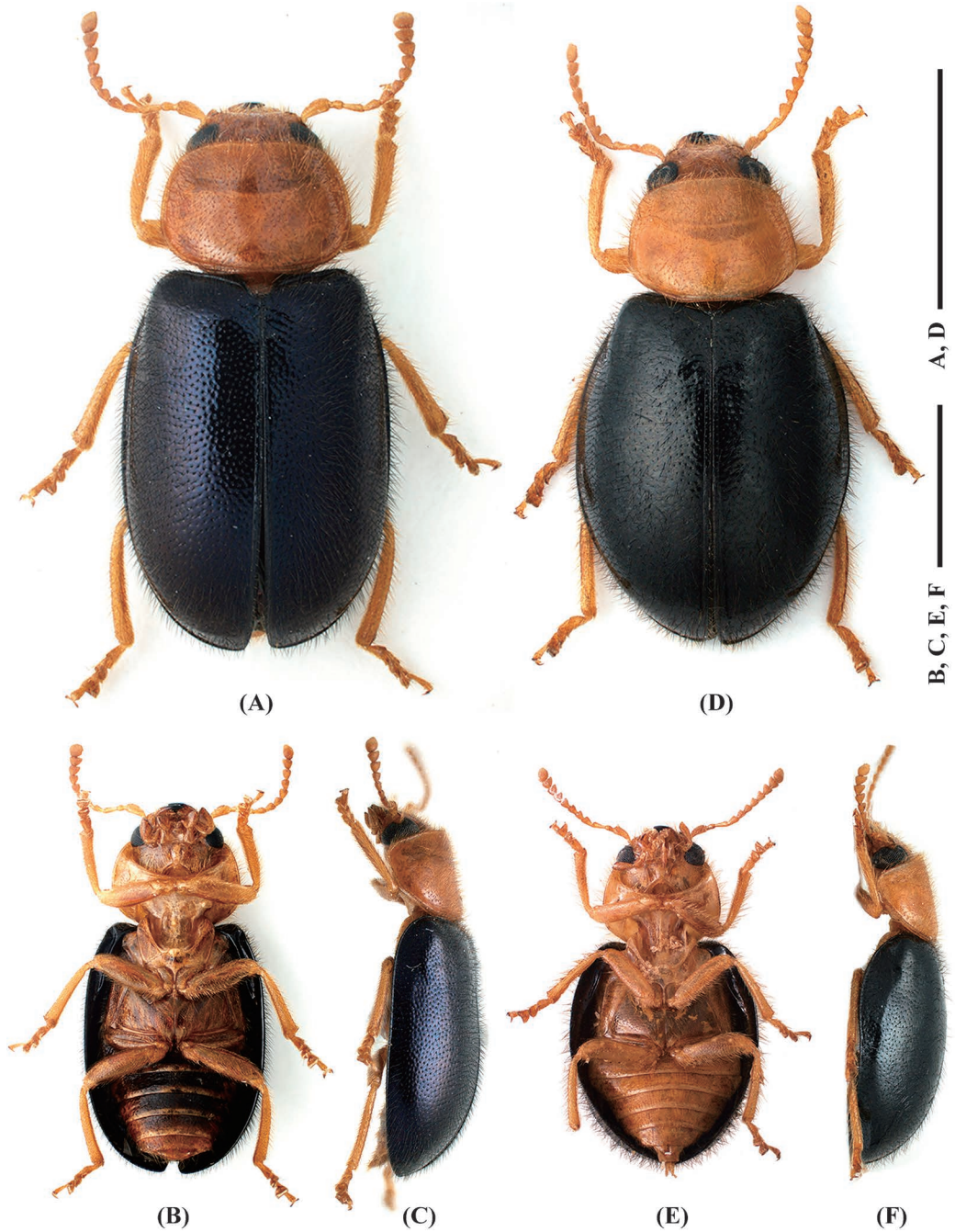


Fig. 1. Habitus of *Allochotes* spp. from Japan. —A–C, *Allochotes sakaii* sp. n., holotype; D–F, *A. dichrous*. —A & D, Dorsal view; B & E, ventral view; C & F, lateral view. Scale bars: 3.0 mm.

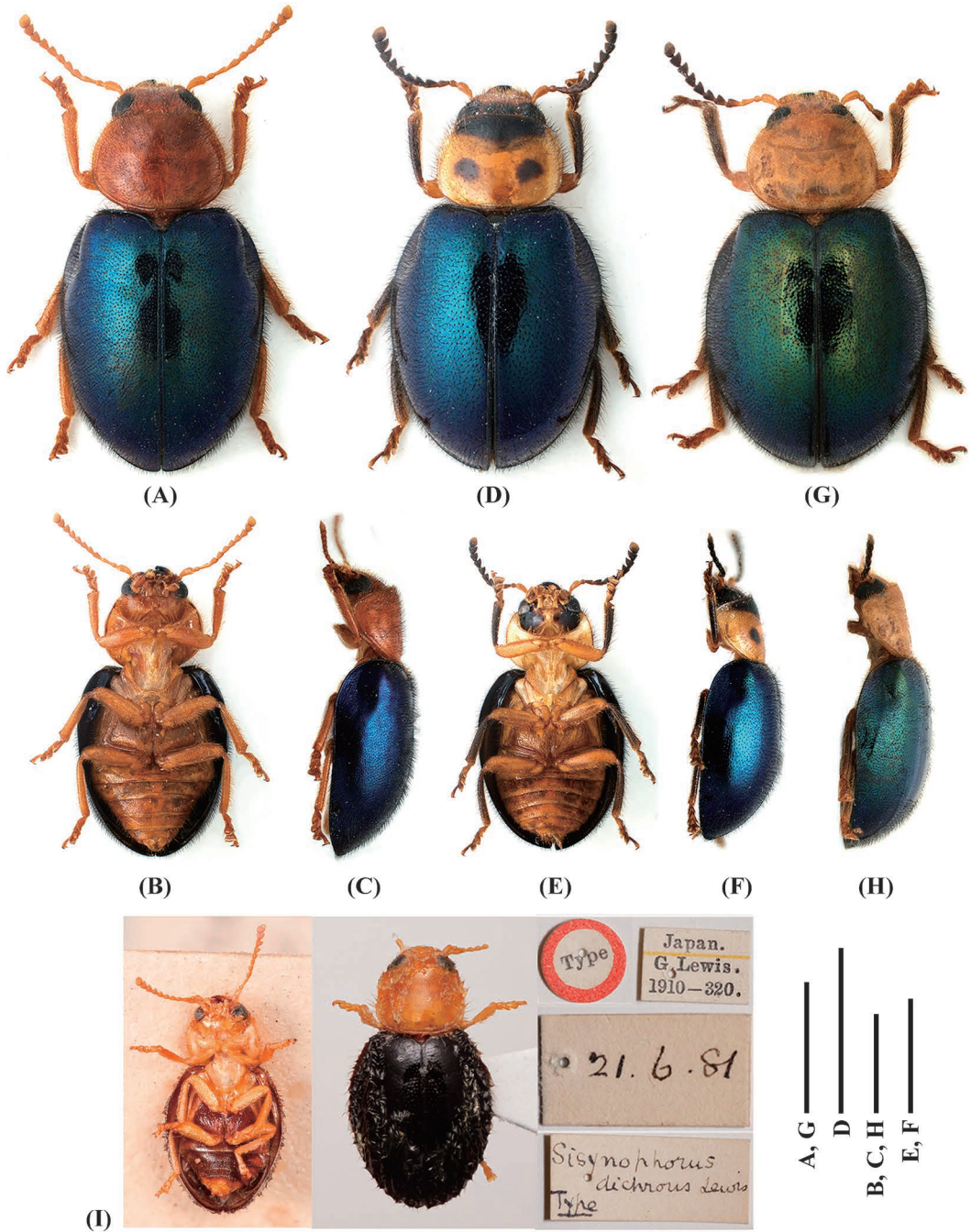


Fig. 2. Habitus and labels of *Allochotes* spp. from Japan. — A–C, *Allochotes yuwanensis*; D–F, *A. amamioshimanus* from Amami-Ôshima; G & H, *A. amamioshimanus* from Okinawa-jima; I, syntype of *A. dichrous* deposited in BMNH. — A, D & G, Dorsal view; B & E, ventral view; C, F & H, lateral view. Scale bars: 3.0 mm.

18–IV–2006, S. FUKITA leg.; 1 female (KSJ), Wase, Sumiyô-son, 31–III–2007, S. FUKITA leg. [Okinawa] (Okinawa-jima) 3 males (EUMJ), Takae, Higashi-son, 7 to 11–IV–2003, GA-SHOW leg.

Type locality. Mt. Yuwandake, Amami-Ôshima, Kagoshima Pref., Japan.

Diagnosis. This species is distinctly differentiated from the other Japanese congeners by the following characteristics: antennomeres, tibiae and tarsi black or brownish black; spicular lobe lacking; phallic plates densely with unidentate large denticles extending from basal 1/3 to subapices of ventral margins.

Redescription. *M a l e* (Figs. 2D–H). Head, antennomeres 1 and 2, femora and abdomen yellowish orange; head, antennomeres 3 to basal half of 11th, tibiae and tarsi black. Pronotum with two black spots on disk, and transverse markings occupying apical area (Fig. 2D), or without the markings only in Okinawa-jima (Fig. 2G); antennomeres 4 to basal half of 11th, tibiae and tarsi brownish black (Figs. 2G–H). Elytra metallic blue or metallic green. Head clothed with yellowish suberect setae on the area from frons to vertex and brownish setae on occiput; pronotal disk with brownish suberect setae; elytra clothed with black suberect setae, mingled with yellowish setae near humeri; legs and abdomen with yellowish and brownish suberect setae.

Antennomeres 4 to 6 weakly serrate, gradually shortened toward apical segments; 7th to 10th serrate; 7th and 8th as wide as long; 9th and 10th wider than long. Maxillary palpi with the last segment elongate, obliquely truncate at apex. Pronotum more or less densely with setigerous punctures throughout; postcoxal projections sharply and slightly pointed inwardly. Elytra oval, sides strongly arcuate.

Pygidium (Fig. 4H) with posterior margin faintly emarginate. Eighth sternite (Fig. 4I) trapezoidal; posterior margin almost straight. Spicular fork (Fig. 4J) with an elongate intraspicular plate; spicular lobes lacking; spicular apodeme 1/4 as long as total length of spicular fork.

Aedeagus in fully inflated condition (Fig. 5G) significantly and acutely curved at the base of CM in lateral view; CM swollen cylindrically, slightly dilated basally; phallus cylindrically swollen in basal half, thence tapered apically. Tegmen (Figs. 4K–L) with phallobase well sclerotized, in ventral view 4/5 of the total length of tegmen, widest at basal 1/5, thence gently narrowed apically, weakly pointed at apex; phallobasic apodeme in ventral view elongate, dilated apically from middle and incised at apex; phallobasic struts divaricated from basal 1/4 of phallobase. Phallus (Figs. 4M–N) as long as tegmen; phallic plates densely with unidentate large denticles from basal 1/3 to subapices of ventral margins; phallic ventral membrane (Fig. 5H) with a linear median sclerite.

F e m a l e. Similar to male, but the apical margin of 7th sternite slightly and triangularly incised at middle. Pygidium (Fig. 6G) trapezoidal; pygidial struts stout, short. Eighth sternite (Fig. 6H) with apical margin incised at middle.

Measurements. N = 14. BL 6.2–9.4 (8.0), PL 1.7–2.6 (2.2), PW 2.2–3.4 (2.9), EW 3.7–6.0 (4.9), EL 4.5–6.9 (5.8), unit mm. PW/PL 1.2–1.4 (1.3), EL/EW 1.1–1.3 (1.2).

Distribution. Japan (Amami-Ôshima, Okinawa-jima).

Remarks. All specimens collected in Amami-Ôshima have three markings on pronotal disk (Figs. 2D–F), whereas three specimens in Okinawa-jima lack pronotal markings (Figs. 2G–H). There are not any other differences besides colorations in each specimen.

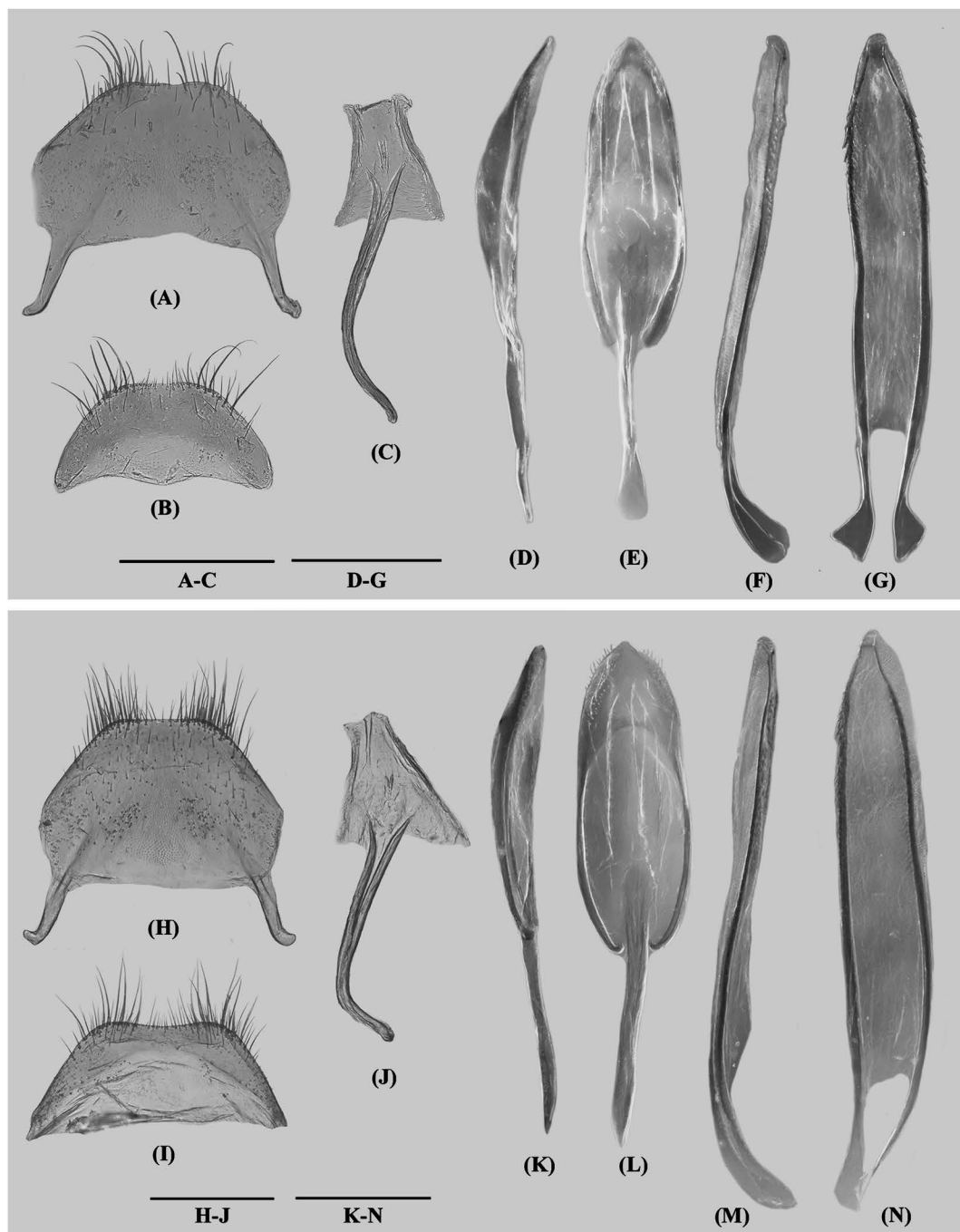


Fig. 3. Male genital organs of *Allochotes* spp. — A–G, *Allochotes sakaii* sp. n.; H–N, *A. yuwanensis*. — A & H, Pygidium in dorsal view; B & I, 8th sternite in ventral view; C & J, spicular fork in ventral view; D, E, K & L, tegmen in right lateral (D & K) and ventral (E & L) views; F, G, M & N, phallus in right lateral (F & M) and ventral (G & N) views. Scale bars: 0.5 mm.

***Allochotes dichrous* (LEWIS, 1891)**

(Figs. 1D–F, 2I, 4A–G, 5E–F, 6E–F)

Sisynophorus dichrous LEWIS, 1891: 210.*Allochotes dichroa*: SCHENKLING, 1912: 327.*Allochotes dichrous*: MURAKAMI *et al.*, 2013: 575.

Type series. Syntypes: 1 ex. (BMNH), “21. 6. 81”, “Japan. / G. Lewis. / 1910–320.”, “*Sisynophorus dichrous* Lewis / Type”, “Type”.; 1 male (TARI), “21 / 6 / 81”, “[not readable written by hand] / V”, “*Allochotes dichroa* Lewis / Det. T. Shiraki”.

Other specimens examined. Japan: [Hokkaido] 1 female (SHJ), Mt. Maruyama, Sapporo-shi, 26–VII–2001, S. HORI leg.; 1 male (KSJ), Maruyama-chô, Sapporo-shi, 1–VIII–2002, K. ISHIDA leg.; 1 ex. (SHJ), Mt. Maruyama, Sapporo-shi, 10–VIII–2003, H. FUKUTOMI leg.; 2 exs. (HKJ), Maruyama-chô, Sapporo-shi, 14–VIII–2007, T. TOITA leg.; 1 ex. (HFJ), Mt. Maruyama, Sapporo-shi, 4–VIII–2008, H. FUKUTOMI leg. [Fukushima] 1 female (KSJ), Yunohana, 30–VII–1989, Y. KUSAKABE leg. [Yamanashi] 1 female (KSJ), Mt. Daibosatsu, Hikawa-touge, 21–VII–2004, S. TSUYUKI leg.; 1 female (KSJ), Masutomi, Sutama-chô, 23–VII–1991, Y. KUSAKABE leg. [Tottori] 1 male (AWJ), Mt. Takahachi, 28–VII–1999, A. WATANABE leg. [Okayama] 1 male (AWJ), Nechi-touge, Kamo, Tsuyama-shi, 28–VII to 8–VIII–2013, FIT, A. WATANABE leg.; 1 male (AWJ), same locality, 8 to 26–VIII–2013, FIT, A. WATANABE leg. [Ehime] 1 female (EUMJ), Odamiyama-keikoku, 15–VIII–1995, M. SHIRAIISHI leg.

Type locality. Kashiwagi, Nara-shi, Nara Pref., Japan.

Diagnosis. The species is similar to *A. sakaii* sp. n., but differs from the latter by in the following characteristics: antennomeres 7 to 10 serrate; maxillary palpi with last segment elongate; elytra round; posterior margin of pygidium almost straight; eighth sternite emarginate trapezoidal; spicular lobes faintly pigmented; spicular apodeme unconnected with spicular plates; phallobasic struts divaricated from apical 2/3 of phallobase.

Redescription. Male (Figs. 1D–F, 2I). Head, antennomeres, pronotum and legs yellowish orange; apical parts of mandibles black; pterothoraces and abdomen in ventral views yellowish orange or black. Elytra dully black purple. Head and pronotal disk with yellowish suberect setae; elytra evenly clothed with suberect black setae, mingled with yellowish setae on anterior corners; abdomen covered with suberect yellowish setae.

Antennomeres 4 to 6 weakly serrate, gradually shortened toward apical segments; 7th to 10th serrate; 7th and 8th as wide as long; 9th and 10th wider than long. Maxillary palpi with the last segment elongate. Pronotum more or less densely with setigerous punctures throughout; postcoxal projections roundly and slightly extended inwardly. Elytra oval, sparsely and finely with setigerous punctures throughout.

Pygidium (Fig. 4A) with posterior margins almost straight. Eighth sternite (Fig. 4B) semicircular; posterior margin almost straight. Spicular fork (Fig. 4C) with an elongate intraspicular plate; spicular lobes weakly pigmented and almost membranous; spicular apodeme 1/4 as long as total length of spicular fork.

Aedeagus in fully inflated condition (Fig. 5E) somewhat acutely curved at the base of CM in lateral view; CM swollen cylindrically, slightly dilated basally; phallus cylindrically swollen in basal half, thence tapered apically. Tegmen (Figs. 4D–E) with phallobase well sclerotized, in ventral view 4/5 of the total length of tegmen, almost straight toward apical 1/3 thence narrowed apically, roundly pointed at apex; phallobasic apodeme elongate, slightly sinuous in lateral view; phallobasic struts divaricated from basal 1/4 of phallobase. Phallus (Figs. 4F–G) as long as tegmen; phallic plates sparsely

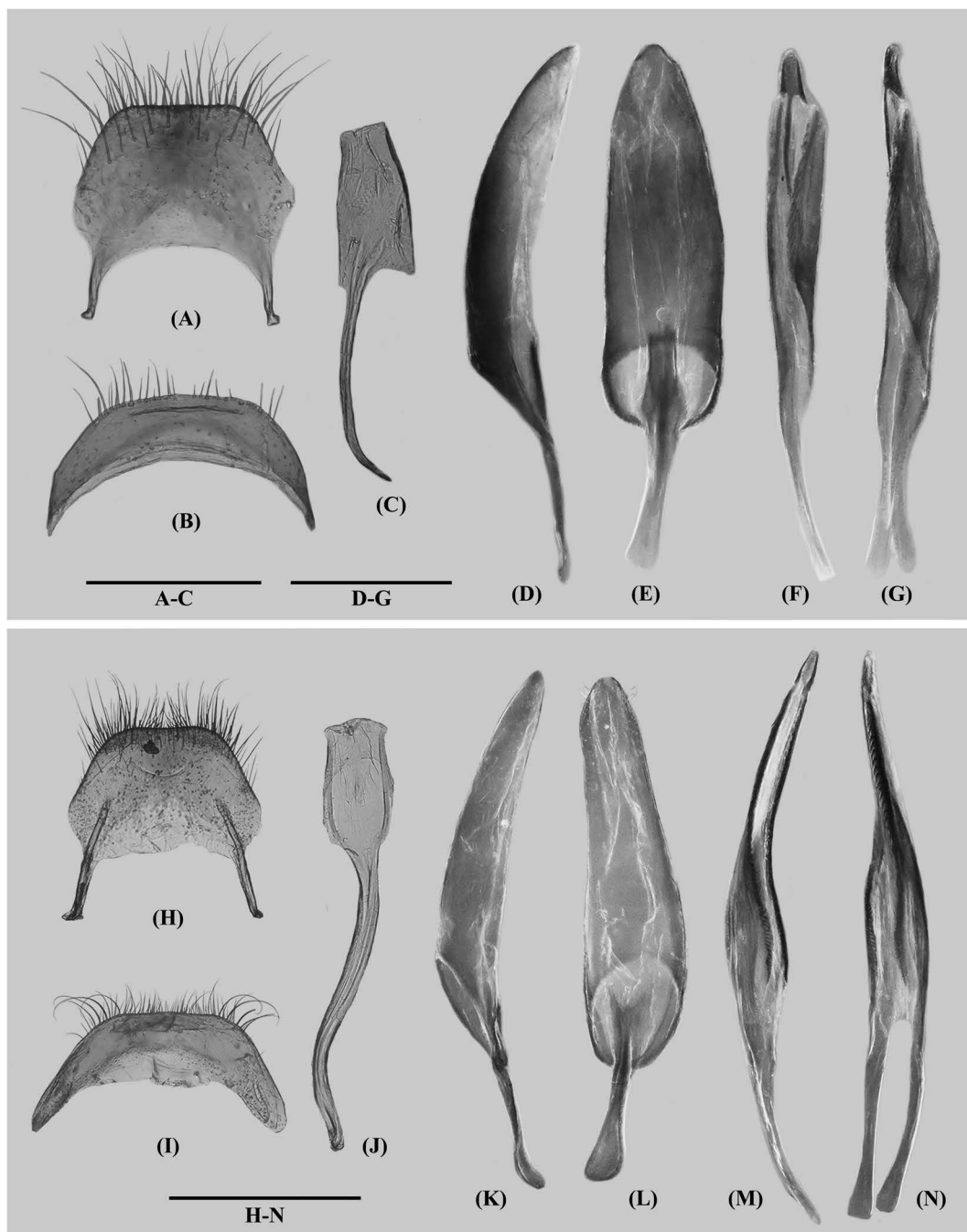


Fig. 4. Male genital organs of *Allochotes* spp. — A–G, *Allochotes dichrous*; H–N, *A. amamioshimanus*. — A & H, Pygidium in dorsal view; B & I, 8th sternite in ventral view; C & J, spicular fork in ventral view; D, E, K & L, tegmen in right lateral (D & K) and ventral (E & L) views; F, G, M & N, phallus in right lateral (F & M) and ventral (G & N) views. Scale bars: 0.5 mm.

with unidentate large denticles from middle to subapices of ventral margins; phallic ventral membrane (Fig. 5F) with a linear median sclerite.

Female. Similar to male, but apical margin of 7th sternite triangularly incised at middle. Pygidium (Fig. 6E) trapezoidal; pygidial struts stout, short. Eighth sternite (Fig. 6F) with apical margin incised at middle.

Measurements. N = 11. BL 4.2–6.4 (5.4), PL 1.2–1.8 (1.5), PW 1.5–2.4 (2.0), EW 2.5–4.0 (3.3), EL 3.0–4.6 (3.9), unit mm. PW/PL 1.3–1.4 (1.3), EL/EW 1.1–1.2 (1.2).

Distribution. Japan (Hokkaido, Honshu, Shikoku), Taiwan (known only from Kankau, Pingtung).

***Allochotes sakaii* MURAKAMI, sp. n.**

(Figs. 1A–C, 3A–G, 5A–B, 6A–B)

Allochotes dichrous: MIYATAKE, 1985: 158, pl. 25, fig. 23. [misidentification].

Type series. Holotype. 1 male (EUMJ), Mt. Saragamine, Tôon-shi, 21–VII–2012, T. OCHI leg. Paratypes. [Hokkaido] 1 ex. (HKJ), Maruyama-chô, Sapporo-shi, 14–VIII–2007, T. TOITA leg.; 1 ex. (HFJ), Mt. Maruyama, Sapporo-shi, 4–VIII–2008, H. FUKUTOMI leg.; 1 ex. (SHJ), Fujino, Minami-ku, Sapporo-shi, 25–VII–2011, S. HORI leg. [Shizuoka] 1 ex. (KSJ), Hamamatsu, Mizuoka-chô, 13–VIII–2006, T. HONGICHI leg. [Aichi] 1 male (KAJ), Dantouradani, Inabu-chô, 5–VIII–2000, N. KANIE leg. [Ishikawa] 1 male (KAJ), Shiramineshaka-rindô, 29–VIII–1992, M. NONAKA leg. [Gifu] 1 ex. (KSJ), Nukumi-touge, Neo-mura, Honsô-shi, 23–VIII–1999, H. FUKUTOMI leg. [Mie] 1 ex. (KAJ), Hirakura, Misugi-mura, Alt. ca. 550–900 m, 11–VII–1996, K. AKITA leg. [Nara] 1 male (KAJ), Ôdaigahara, Kamikitayama-mura, Alt. ca. 1,500 m, 11–VIII–2005, S. NAGAI leg. [Hyôgo] 1 ex. (SHJ), Sakanotani, Ôya-machi, Yabu-shi, 30–VII–1995, K. ITO leg.; 1 ex. (KSJ), Sakanotani-rindô, Haga-chô, Shisô-shi, 22 to 23–VII–2006, Y. HIDA leg.; 1 female (SYJ), Mt. Hyônosen, Sakanotani-rindô, 1–VIII–2009, S. KUWAHARA leg.; 1 ex. (KSJ), same locality, 6–VIII–2011, Y. HIDA leg. [Tottori] 1 male (AWJ), Mt. Daisen, Mizoguchi-chô, Hino-gun, 26–VII–1991, A. WATANABE leg. [Okayama] 1 male (AWJ), Wakasugi, Nishiawakura-son, Aida-gun, 28–VII–1990, A. WATANABE leg.; 1 female (AWJ), Mt. Shimotoku, Ôyama, Hiruzen, Maniwa-shi, 10 to 23–VII–2011, FIT, A. WATANABE leg. [Hiroshima] 1 female (HFJ), Yoshiwa, Hatsukaichi-shi, 30–VII–2002, H. FUKUTOMI leg.; 1 female (AWJ), Mt. Kakezu, Kitahiroshima-chô, 3 to 8–VIII–2009, FIT, T. NOZAKI leg.; 1 female (AWJ), same locality, 8 to 17–VIII–2009, light trap, T. NOZAKI leg. [Tokushima] 1 ex. (EUMJ), Mt. Tsurugi, Alt. ca. 1,490 m, Meoto-ike, 14 to 15–VII–1984, T. NAGATA leg. [Ehime] 1 female (EUMJ), Mt. Ishizuchi to Omogokei, 5 to 10–VIII–1969, M. SAKAI leg.; 1 male (EUMJ), Odamiyama, 9 to 10–VIII–1978, I. AMANO leg.; 1 male (EUMJ), Omogokei, 2–IX–1978, K. NUMAGUCHI leg.; 1 female (EUMJ), Omogokei, 7–IX–1978, M. KOTANI leg.; 1 female (EUMJ), Mt. Ishizuchi, 8 to 9–VIII–2005, J. YAMASAKO leg.; 1 female (EUMJ), Mt. Saragamine, Kumakôgen-chô, 12–VII–2008, Y. SATÔ leg.; 2 males (EUMJ), Ibushi, Kumakôgen-chô, 28–VII–2011, J. YAMASAKO leg.; 1 male (EUMJ), Mt. Saragamine, Ryûjindaira, 3–VIII–2011, Y. YAMAUCHI leg.; 1 male (EUMJ), Odamiyama, 24–VIII–2011, J. YAMASAKO leg.; 1 female (AWJ), Mt. Ishizuchi, Tsuchigoya, 26–VII to 3–VIII–2013, FIT, A. WATANABE leg. [Kôchi] 1 female (EUMJ), Mt. Torigatayama, Niyôdo-chô, 11–VII–2004, Y. SATO leg.; 1 male (EUMJ), same locality and date, Y. KIKUHARA leg. [Ôita] 1 male (SIJ), Mt. Kurodake, 20 to 21–VIII–1979, A. MIYATA leg. [Nagasaki] 1 male (SIJ), Mt. Gokabaru to Mt. Tara, 14–VII–1981, S. IMASAKA leg.

Type locality. Mt. Saragamine, Tôon-shi, Ehime Pref., Japan.

Diagnosis. This new species is easily distinguishable from the other Japanese congeners by

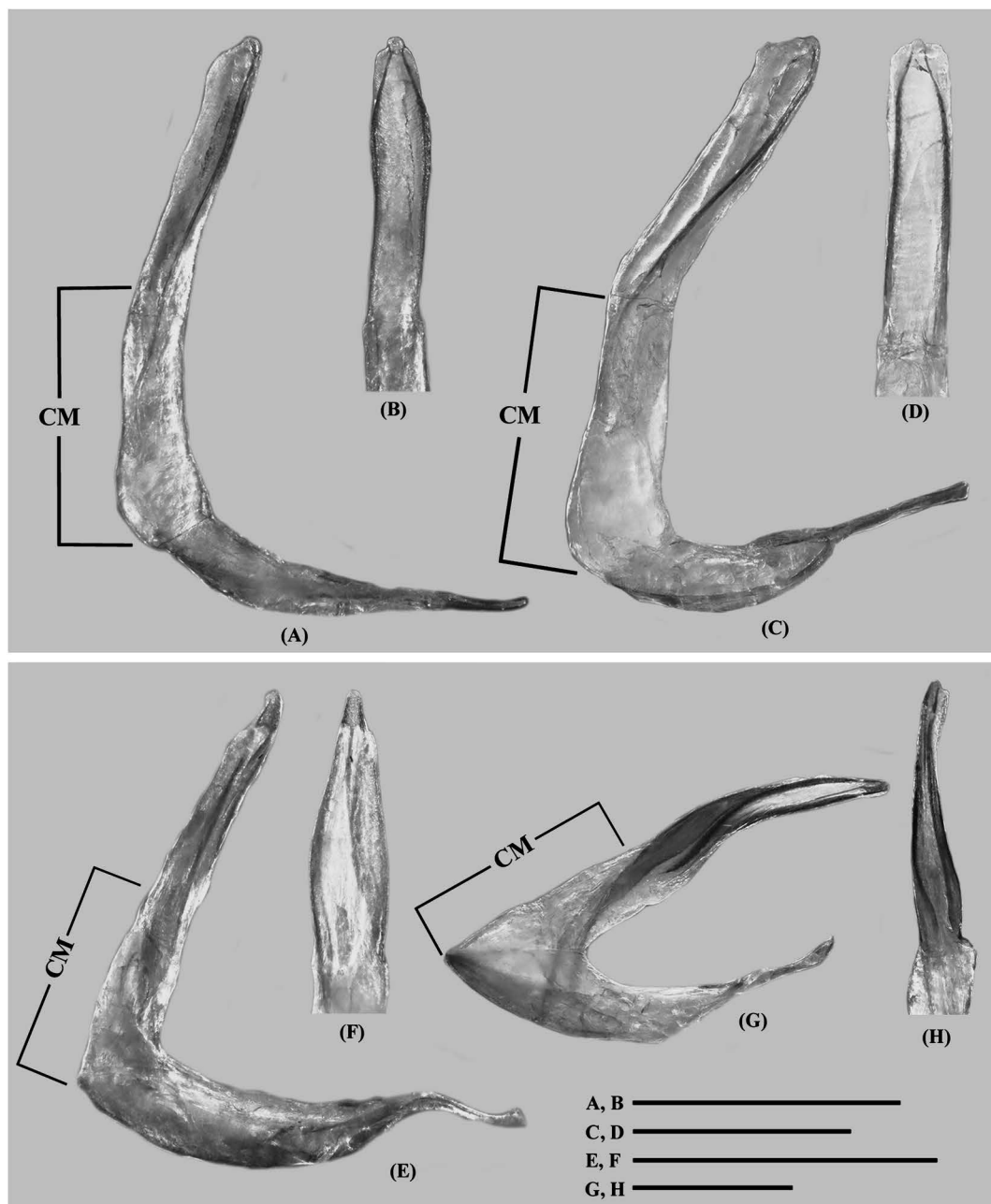


Fig. 5. Inflated aedeagi of *Allochotes* spp. — A & B, *Allochotes sakaii* sp. n.; C & D, *A. yuwanensis*; E & F, *A. dichrous*; G & H, *A. amamioshimanus*. — A, C, E & G, Fully inflated aedeagi in right view; B, D, F & H, phallic plates in ventral view. Scale bars: 0.5 mm.

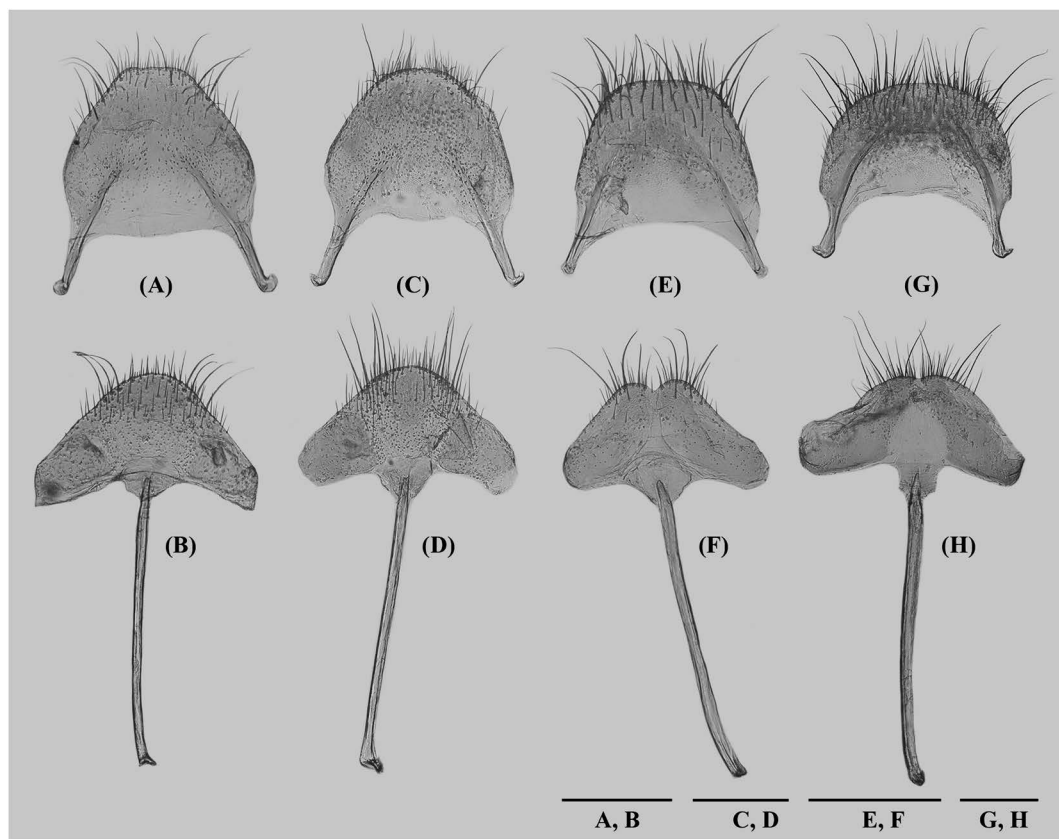


Fig. 6. Female terminal parts of *Allochotes* spp. — A & B, *Allochotes sakaii* sp. n.; C & D, *A. yuwanensis*; E & F, *A. dichrous*; G & H, *A. amamioshimanus*. — A, C, E & G, Pygidium in dorsal view; B, D, F & H, 8th sternite in ventral view. Scale bars: 0.5 mm.

having dully black purple elytra. The species is similar to *A. dichrous*, but differs from the latter in the following characteristics: antennomeres weakly serrate; maxillary palpi with last segment triangular; elytra oblong; posterior margin of pygidium faintly emarginate; eighth sternite semicircular; spicular apodeme connected with spicular plates; spicular lobes pigmented; phallobasic struts divaricated from apical 1/3 of phallobase.

Description. Male (Figs. 1A–C). Head, antennomeres, pronotum and legs yellowish orange; apical parts of mandibles black; pterothoraces and abdomen in ventral views yellowish orange or black. Elytra dully black purple. Head and pronotal disk with yellowish suberect setae; elytra evenly clothed with suberect black setae, mingled with yellowish setae on anterior corners; abdomen covered with suberect yellowish setae.

Maxillary palpi with the last segment short, nearly triangular, obliquely truncate at apex. Antennomeres 4 to 8 weakly serrate, gradually becoming shorter apically; 9th and 10th serrate, as wide as long. Pronotum more or less densely with setigerous punctures throughout; postcoxal projections roundly and slightly extended inwardly. Elytra elongate, widest near middle, sparsely and deeply with setigerous punctures throughout.

Pygidium (Fig. 3A) with posterior margin faintly emarginate at middle. Eighth sternite (Fig. 3B)

semicircular; posterior margin almost straight. Spicular fork (Fig. 3C) with an elongate intraspicular plate; spicular lobes weakly pigmented and almost membranous; spicular apodeme 2/3 as long as the total length of spicular fork, connected with spicular plate.

Aedeagus in fully inflated condition (Figs. 5A–B) nearly orthogonally curved ventrally at the base of CM in lateral view; CM cylindrically swollen, slightly dilated basally, thence constricted at base; phallus cylindrically swollen. Tegmen (Figs. 3D–E) with phallobase oblong, nearly half length of tegmen, roundly pointed at apex; phallobasic apodeme in ventral view elongate, slightly dilated apically from apical 1/3, almost straight in lateral view; ventral phallobasic plates well sclerotized; phallobasic struts divaricated from apical 1/3 of phallobase. Phallus (Figs. 3F–G) slightly longer than tegmen, with small process at basal 1/5 in dorsal view, slightly sinuous in lateral view; phallic struts broad; phallic plates uncinatate at apex, densely with bi- or tridentate denticles in the portion from apical 1/4 to subapices of ventral margins.

F e m a l e. Similar to male, but apical margin of 7th sternite triangularly incised at middle. Pygidium (Fig. 6A) with posterior margins almost straight; pygidial struts elongate. Eighth sternite (Fig. 6B) with apical margin roundly projected apically.

Measurements. N = 26. BL 5.4–7.8 (6.6), PL 1.4–2.0 (1.7), PW 2.0–2.9 (2.4), EW 2.8–4.0 (3.3), EL 4.0–5.8 (4.9), unit mm. PW/PL 1.3–1.5 (1.4), EL/EW 1.1–1.6 (1.5).

Etymology. The specific name is dedicated to Mr. Kaoru SAKAI, who gave the author the motive information to investigate this new species.

Distribution. Japan (Hokkaido, Honshu, Shikoku, Kyushu).

Allochotes yuwanensis YAJIMA & NAKANE, 1969

(Figs. 2A–C, 3H–N, 5C–D, 6C–D)

Allochotes yuwanensis YAJIMA & NAKANE, 1969: 6, figs. 4, 6; MIYATAKE, 1985: 158, pl. 25, fig. 24.

Type series. Holotype. 1 male (NSMT), “Mt. Yuwandake / Amami-Oshima / vii-16, 1963 / Y. Kurosawa”, “HOLOTYPE”, “Japan-U.S. / Co-operative / Sci. Program”, “NSMT-I-C / 04170”, “Allochotes / yuwanensis / Yajima et Nakane / Det. T. Nakane”. Paratype. 1 female (NSMT), “Mt. Yuwandake / Amami-Oshima / vii-17, 1963 / Y. Kurosawa”, “ALLOTYPE”, “Japan-U.S. / Co-operative / Sci. Program”, “NSMT-I-C / 31746”, “Allochotes / yuwanensis / Yajima et Nakane / Det. T. Nakane”.

Specimens examined. Japan: [Kagoshima] 1 female (EUMJ), Satamisaki, 13–VII–1969, M. SAKAI leg.; 1 male & 1 female (SYJ), Mt. Shisakadake, Kimotsuki-gun, 3–IV–2003, Y. OGATA leg.; 1 female (KAJ), Sugiyamadani, Sata-chô, 5–VIII–2004, R. NODA leg.; 1 male (KAJ), Mt. Hoyoshidake, Ushiroda, Kimotsuki-chô, 30–VII–2011, R. NODA leg.; 1 male (KAJ), Hetsuka, Minamiôsumi-chô, Sugiyamadani, 31–VII–2011, R. NODA leg. <Yakushima> 1 male (KSJ), Segiri, 30–VI–1982, M. TAKEDA leg.; 1 female (AWJ), Miyanoura-rindô, 8–VI–1988, S. IMASAKA leg.; 1 male (KAJ), Issô, 2–VII–1992, N. KOBAYASHI leg.; 1 ex. (SYJ), Shiratani, 14–VII–1997, K. OKADA leg.; 1 female (EUMJ), Kurio, 17–VII–1997, H. YOSHITOMI leg.; 1 ex. (KAJ), Koyoji-chô, 29 to 30–VI–1998, T. MIYAGAWA leg.; 4 exs. (SHJ), Nakama, Yaku-chô, 2–VII–2000, T. KOUYAMA leg.; 3 exs. (SHJ), same locality, 30–VI–2001, T. KOUYAMA leg.; 2 males & 2 females (KSJ), Yudomari-rindô, 27–V–2003, T. NAKATA leg.; 3 males & 3 females (KSJ), Kurio-rindô, 1–VI–2003, T. NAKATA leg.; 1 male (KSJ) Nakasegawa-rindô, 28–V–2006, S. FUKUDA leg.; 1 male (KSJ), Toimo-dake, same date, S. FUKUDA leg.; 8 males & 6 females (KSJ), Nakama-rindô, 31–V–2006, S. FUKUDA leg.; 1 ex. (SHJ), Kurio, Yaku-chô, 10–VI–2009, T. KOUYAMA leg.; 2 females (KSJ), Seibu-rindô, 10–VII–2009, H. NISHINO leg.; 1 female (KSJ), Shiratani, 12–VII–2010, H. NISHINO leg. <Amami-Ôshima> 1 female (EUMJ), Chûrindô, Naze-shi, 25–VII–1974, M. KUBOTA leg.; 1 female (SIJ), Mt. Yuwan, 20–VI–1980, S. IMASAKA

leg.; 2 females (AWJ), Fukumoto, 7–VII–1992, T. WAKASHIMA leg.; 1 male (KSJ), Mt. Akatsuchiya-
ma, 27–VI–1994, M. ITO leg.; 1 ex. (AWJ), Mt. Yuwandake, 26–VI–1998, A. WATANABE leg.; 1 fe-
male (KSJ), same locality, 26–VI–1998, M. ITO leg.; 1 male & 1 female (EUMJ), Chûô-rindô, Naze-
shi, 29–VI–2001, T. KURIHARA leg.; 4 exs. (SHJ), same locality, 30–VI–2002, A. IDEGUCHI leg.; 1
female (KAJ), same locality, 2–VII–2002, S. KUWAHARA leg.; 1 male (KSJ), Ôbatake, Uken-mura, 4–
V–2003, S. FUKITA leg.; 4 males & 6 females (KSJ), Kinsakubaru, Naze-shi, 20 to 27–VI–2004, S.
FUKITA leg.; 1 male & 1 female (KSJ), Chûô-rindô, Naze-shi, 2–VII–2004, S. FUKITA leg.; 2 males &
1 female (EUMJ), same locality, 5–VI–2005, T. KURIHARA leg.; 3 exs. (HFJ), Yuwangama, Yama-
to-mura, 28–VI–2006, H. FUKUTOMI leg.; 1 female (SYJ), Yamato, Kuninao, 24–V–2007, S. FUKUDA
leg.; 1 male & 3 females (SYJ), Chûô-rindô, Naze-shi, 27–VI to 13–VII–2007, S. FUKUDA leg.; 1
male (KSJ), Yamato-son, 28–VI–2009, H. NISHINO leg. [Okinawa] 〈Okinawa-jima〉 1 female
(EUMJ), Eigai-rindô, Ôgimi-son, 3–VI–2000, N. OHBAYASHI leg.; 1 male & 1 female (KSJ), same lo-
cality, 18–V–2004, S. INADA leg.; 4 exs. (HFJ), Makiya-rindô, Nago-shi, 29–V–2007, H. FUKUTOMI
leg.; 2 males (SYJ), Inamine, Nago-shi, 21–V–2009, S. TSUHA leg. 〈Ishigaki-jima〉 1 male (KSJ),
Arakawa, 10–VI–1977, J. OKUMA leg.; 1 male (EUMJ), Mt. Omotodake, 3–V–1989, Y. OKUSHIMA
leg. 〈Iriomote-jima〉 2 females (AWJ), Taketomi-chô, 16 to 17–V–2010, A. WATANABE leg.

Type locality. Mt. Yuwandake, Amami-Ôshima, Kagoshima Pref., Japan.

Diagnosis. This species is distinguishable from the other Japanese congeners by having brown-
ish orange antennae and metallic blue elytra. This species is very similar to *A. sauteri* from Taiwan,
but differs from the latter in denser punctures on pronotal disk.

Redescription. M a l e (Figs. 2A–B). Head, antennomeres, pronotum, legs and abdomen
brownish orange, but becoming lighter in some specimens. Elytra varied from metallic blue to metal-
lic purple. Head clothed with brownish suberect setae on the area from frons to vertex and yellowish
setae on occiput; pronotal disk with yellowish and brownish suberect setae; elytra clothed with black
suberect setae, mingled with yellowish setae near humeri; legs and abdomen with yellowish suberect
setae.

Maxillary palpi with the last segment elongate, obliquely truncate at apex. Antennomeres 4 to 8
weakly serrate, gradually becoming shorter toward apical segments; 9th and 10th serrate, as wide as
long. Pronotum densely with setigerous punctures throughout; postcoxal projections roundly and
slightly extended inwardly. Elytra oblong, densely and finely with setigerous punctures throughout.

Pygidium (Fig. 3H) with posterior margin almost straight. Eighth sternite (Fig. 3I) trapezoidal;
posterior margin emarginate at middle. Spicular fork (Fig. 3J) with short intraspicular plate; spicular
lobes weakly pigmented and almost membranous; spicular apodeme 2/3 as long as the total length of
spicular fork, unconnected with spicular plate.

Aedeagus in fully inflated condition (Figs. 5C–D) orthogonally curved ventrally at the base of
CM in lateral view; CM cylindrically swollen, slightly dilated basally thence constricted at base; phal-
lus cylindrically swollen. Tegmen (Figs. 3K–L) with phallobase oblong, nearly 2/3 length of tegmen,
roundly pointed at apex; phallobasic apodeme in ventral view elongate, slightly dilated apically from
basal 1/3 and incised at apex, almost straight in lateral view; ventral phallobasic plates sclerotized;
phallobasic struts divaricated from apical 1/4. Phallus (Figs. 3M–N) longer than tegmen, sinuous in
lateral view; phallic plates uncinatate at apex, densely with bi- or trifid denticles from middle to subapi-
ces of ventral margins.

F e m a l e. Similar to male, but the apical margin of 7th sternite slightly and triangularly in-
cised at middle. Pygidium (Fig. 6C) with posterior margins roundly projected posteriorly; pygidial
struts elongate. Eighth sternite (Fig. 6D) with apical margin roundly projected apically.

Measurements. N = 70. BL 5.8–10.5 (8.1), PL 1.6–2.9 (2.2), PW 2.2–4.0 (3.0), EW 3.3–6.1

(4.6), EL 4.2–7.7 (5.9), unit mm. PW/PL 1.1–1.6 (1.4), EL/EW 1.2–1.4 (1.3).

Distribution. Japan (Kyushu, Yakushima, Amami-Ōshima, Okinawa-jima, Ishigaki-jima, Iriomote-jima).

Biological notes. Some specimens of this species were collected from the flowers of *Schima liukiensis* NAKAI.

Discussion

MURAKAMI *et al.* (2013) separated the Taiwanese species of the genus *Allochotes* into three species groups by the male genital structures with inflated aedeagus. In the present study, the Japanese species are classified into two of them, the *sauteri* group and the *choui* group.

The *sauteri* group comprising Taiwanese *A. sauteri* and *A. piceus* shares the following characteristics: aedeagus in fully inflated condition orthogonally curved ventrally at the base of CM in lateral view; tegmen shorter than phallus; ventral phallobasic plates well sclerotized; phallobasic struts long; CM cylindrically swollen and getting thicker basally thence constricted at base; phallus cylindrically swollen; phallic plates fine (MURAKAMI *et al.*, 2013). *Allochotes sakaii* sp. n. and *A. yuwanensis* are newly included into this group by these shared characters (Figs. 5A–D).

The *choui* group comprising Taiwanese *A. choui* and *A. yichei* is characterized by the following structures: aedeagus in fully inflated condition acutely curved in lateral view; tegmen almost same length as phallus; ventral phallobasic plates weakly sclerotized; phallobasic struts short; CM cylindrically swollen; phallus cylindrically swollen in basal half, thence tapered apically; phallic plates dilated inwardly in basal half, but fine in apical half; phallic ventral membrane with a linear median sclerite (MURAKAMI *et al.*, 2013). *Allochotes dichrous* and *A. amamioshimanus* are admitted as new members of this group by the male genital features (Figs. 5E–H).

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要 約

村上広将：日本産マルカッコウムシ属（コウチュウ目カッコウムシ科）の分類学的再検討。—— 日本産マルカッコウムシ属について、雄交尾器の硬化部と膜質部の構造に注目して再検討した結果、1新種を見出し、*Allochotes sakaii* sp. n. を命名記載した。また、既知の3種 *A. amamioshimanus*, *A. yuwanensis* および *A. dichrous* を再記載した。これらは、Murakami *et al.* (2013) が台湾産種で認めた3種群のうちの2種群に分類された。また、本属の既知種のリストを添付した。

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Appendix

Species List of the Genus *Allochotes* with Zoobank LSID

Allochotes WESTWOOD, 1875

- urn:lsid:zoobank.org:act:06564B03-904C-42E6-AF96-9169820159C6
1. *Allochotes amamioshimanus* MIYATAKE, 1965 Japan (Amami-Ōshima, Okinawa-jima)
urn:lsid:zoobank.org:act:525ED14F-07CB-4EE2-B341-EF517820D55D
 2. *Allochotes apicalis* WESTWOOD, 1875 New Guinea
urn:lsid:zoobank.org:act:F7FC5250-BEEB-47AD-8969-027BD6ADBA73
 3. *Allochotes bakeri* CHAPIN, 1924 Philippines (Mindanao Is.)
urn:lsid:zoobank.org:act:36D50EC6-907D-4EA8-9BD9-7BCB3E61289E
 4. *Allochotes bicolor* WESTWOOD, 1875 Indonesia (Sulawesi Is.), New Guinea
urn:lsid:zoobank.org:act:CCD6A573-0ADF-43D3-B61C-3738BF657E9C
 5. *Allochotes birmanicus* (GORHAM, 1893) Myanmar
urn:lsid:zoobank.org:act:27E070F2-CC17-40F4-902C-508EDFF33B7D
 6. *Allochotes bowringii* (WATERHOUSE, 1876) Malaysia (Penang Is.)
urn:lsid:zoobank.org:act:32022DA6-4B37-4ACE-B73E-5503E9B88760
 7. *Allochotes choui* MURAKAMI & YAMASAKO, 2012 Taiwan
urn:lsid:zoobank.org:act:F90F310C-4A01-44CE-AF10-04293ABF681A
 8. *Allochotes chrysolina* WESTWOOD, 1875 Indonesia (Maknokwari), Myanmar
urn:lsid:zoobank.org:act:49BC741A-FFCF-40D6-9120-9ED218642FD1

9. *Allochotes coccinella* WESTWOOD, 1875 Indonesia (Seram)
urn:lsid:zoobank.org:act:9713F351-89AE-45CB-8821-4A52C337E511
10. *Allochotes dichrous* (LEWIS, 1891) Japan (Hokkaido, Honshu, Shikoku), Taiwan
urn:lsid:zoobank.org:act:B81AAB20-7880-4291-B3B4-1118C3CB322B
11. *Allochotes eubrioides* WESTWOOD, 1875 Indonesia (Sumatra Is.)
urn:lsid:zoobank.org:act:18727DEE-719D-4ADE-928A-77E7F4530888
12. *Allochotes forniculatus* MURAKAMI, YAMASAKO, CHOU & YANG, 2013 Taiwan
urn:lsid:zoobank.org:act:5AC0C4D0-AAB0-406B-9942-12B9F56CFBE5
13. *Allochotes fryi* (GORHAM, 1893) Myanmar
urn:lsid:zoobank.org:act:25C489C2-0FC3-43A0-B14C-A0B3F1DDF6C1
14. *Allochotes fulvescens* WESTWOOD, 1875 Indonesia (Bacan Is.)
urn:lsid:zoobank.org:act:E2E39FC7-2358-418E-A96C-45971906C517
15. *Allochotes maculatus* (WATERHOUSE, 1876) Philippines
urn:lsid:zoobank.org:act:E26D95FC-72F9-4E01-BDD5-C4D918DD2492
16. *Allochotes oblongus* PIC, 1940 Indochina
urn:lsid:zoobank.org:act:907CEA3C-8758-4368-806C-FD09991E7FB6
17. *Allochotes pallidus* CHAPIN, 1924 Philippines (Luzon Is.)
urn:lsid:zoobank.org:act:73AC2A09-C104-43B5-9BBA-69FBD6CC6BA9
18. *Allochotes piceus* MURAKAMI, YAMASAKO, CHOU & YANG, 2013 Taiwan
urn:lsid:zoobank.org:act:A8D8DA98-F421-4A12-A9F9-EAAFABC42A45
19. *Allochotes praslinensis* CHAMPION, 1924 Seychelles (Praslin Is.)
urn:lsid:zoobank.org:act:3DE10838-C87A-4689-81C4-272BF91E9E4F
20. *Allochotes punctipennis* CHAMPION, 1923 India
urn:lsid:zoobank.org:act:FA98614F-692D-4454-A872-938B35A1E445
21. *Allochotes sakaii* sp. n. Japan (Hokkaidō, Honshu, Shikoku, Kyushu)
urn:lsid:zoobank.org:act:...
22. *Allochotes sauteri* SCHENKLING, 1912 Taiwan
urn:lsid:zoobank.org:act:A1103CB3-0FA4-4927-B6E9-0B94CAE5A3F0
23. *Allochotes scymnoides* WESTWOOD, 1875 Singapore
urn:lsid:zoobank.org:act:5ADC9595-B7D6-4E54-9FDE-60E285F10BCF
24. *Allochotes tonkineus* PIC, 1940 Vietnam
urn:lsid:zoobank.org:act:CCBF335D-B26C-4155-9685-A61944FE9814
25. *Allochotes variabilis* (GORHAM, 1903) India
urn:lsid:zoobank.org:act:628C340A-0603-4B9C-ACBB-C23CD9884A21
26. *Allochotes yichei* MURAKAMI & YAMASAKO, 2012 Taiwan
urn:lsid:zoobank.org:act:53780DB9-62D5-4E1A-956B-C88A5426821A
27. *Allochotes yunnensis* SCHENKLING, 1908 China (Yunnan)
urn:lsid:zoobank.org:act:D2CCB681-6678-4D93-BF5A-8097C749012A
28. *Allochotes yuwanensis* YAJIMA & NAKANE, 1969 Japan (Kyushu, Ryukyu)
urn:lsid:zoobank.org:act:F90F310C-4A01-44CE-AF10-04293ABF681A