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Additional Records of Clytine Species (Coleoptera, Cerambycidae) from the Ogasawara Islands (2)

Discovery of a Geographical Race of *Chlorophorus minamiiwo* from Kitaiwo-jima Island

Tatsuya NIISATO

Bioindicator Co., Ltd., Yarai-chô 126, Shinjuku-ku, Tokyo, 162–0805 Japan

and

Haruki KARUBE

Kanagawa Prefectural Museum of Natural History,
499, Iryuda, Odawara, Kanagawa, 250–0031 Japan

Abstract A new geographical race of *Chlorophorus minamiiwo* M. SATÔ et N. OHBAYASHI is described from Kitaiwo-jima Island of the Kazan-rettô (Volcano) Island-group under the name *C. m. kitaiwo* ssp. nov. This new subspecies is distinguished from the nominotypical subspecies from Minamiiwo-jima Island by the grayish pubescent body instead of yellowish one in the nominotypical subspecies, and the slightly different configuration of the male genital organ. *Chlorophorus m. minamiiwo* is supplementarily described based on the type series. Distinction and dispersal of *C. minamiiwo* is briefly discussed. *Chlorophorus kobayashii* KOMIYA is newly recorded from Ani-jima Island of the Chichi-jima group.

This is a second part of the result of survey in the clytine cerambycid fauna of the Ogasawara Islands made by the junior author, KARUBE, in 2001. In this survey, KARUBE tried to land Kitaiwo-jima Island of the northern Kazan-rettô (Volcano) Island-group where no entomologist has so far been made faunal researches at least after the World War II. Although the landing period was limited to two days due to the approach of a tropical depression, he was fortunately able to collect a short series of an unknown *Chlorophorus* species. Besides, he revisited Muko-jima Island of the Muko-jima Island-group, and several accessory islands of the island-groups of Chichi-jima and Haha-jima Islands as he did in 2000. In the following lines, we will newly describe and record several clytine species based on the material of tained by the 2001 survey.

The abbreviations used in this paper are as follows: HW – maximum width of head across eyes, FL – length of frons, FB – basal width of frons, PL – length of pronotum, PW – maximum width of pronotum, PA – apical width of pronotum, PB – basal width of pronotum, EL – length of elytra, EW – humeral width of elytra, M – arithmetic

mean; EUM – Ehime University, Matsuyama, KPMNH – Kanagawa Prefectural Museum of Natural History, NSMT – National Science Museum (Nat. Hist.), Tokyo.

We wish to express our hearty thanks to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his constant guidance, and also to Dr. Shûhei NOMURA of the same museum, Prof. Dr. Nobuo OHBAYASHI of Ehime University, and Prof. Dr. Masataka SATÔ of Nagoya Women's University for their permission to examine the type specimens of *Chlorophorus minamiiwo* preserved in their collections and/or useful suggestion for our study, and to Drs. Masatoshi TAKAKUWA and Kôichi MATSUMOTO, Mr. and Mrs. Hideaki HIRAGA, Yoshitetsu HIKAWA and Yûzô IWAMORI for their kind help in field works of the 2001 survey.

Chlorophorus minamiiwo minamiiwo M. SATÔ et N. OHBAYASHI, 1982

[Japanese name: Minamiiwo-tora-kamikiri]

(Figs. 1a–c & 3)

Chlorophorus minamiiwo M. SATÔ et N. OHBAYASHI, 1982, Elytra, Tokyo, **10**, p. 50, figs. 1–4; type locality: Minamiiwo-jima Is., Kazan-rettô Island-group. —— KUSAMA & TAKAKUWA, 1984, Longic. Beetl. Japan Col., p. 545, pl. 96, figs. 670, 670 a. —— NIISATO, 1992, Illustr. Guide Longic. Beetl. Japan, pp. 143, 524.

Closely similar in many respects to *C. m. kitaiwo* nov., but differs from it in the following character states: 1) colour of pubescence more yellowish, greenish yellow in pronotum and elytra, yellowish gray in other parts; 2) a median black spot on pronotum divided into two small ones or interrupted at middle; elytral apices simply oblique and usually with external angles; tergite 8 trapeziform, not elongate; sternite 8 transverse quadrate, with apical margin moderately concave at middle, with a basal peduncle 1.3 times as long as the width of sternite 8; median lobe a little exposed at the extremity of ventral plate in dorsal aspect; paramere slightly broader than that of *C. m. kitaiwo* nov.

Standard ratios of body parts are as follows (3♂♂): HW/PA 1.14–1.23 (M 1.18), HW/PW 0.77–0.83 (M 0.79), FL/FB 0.71–0.77 (M 0.75), PL/PA 1.56–1.60 (M 1.58), PB/PA 1.26–1.29 (M 1.28), PL/PW 1.05–1.08 (M 1.06), PW/EW 0.78–0.84 (M 0.81), PL/EL 0.36–0.39 (M 0.38), EL/EW 2.28–2.32 (M 2.29); pronotum slightly wider than that of *C. m. kitaiwo* nov. on an average (PL/PW M 1.06, while M 1.10 in *C. m. kitaiwo* nov.), but variation of the ratios overlaps between *C. m. minamiiwo* and *C. m. kitaiwo* nov. Body length: 9.1–9.2 mm (10.1 mm in the largest specimen according to the original description).

Specimens examined. 1♂ (holotype), "Minami Iwo-Jima / 900 m / Volcano Is. / June 16, 1982 / Masataka Satô leg." "Holotype / *Chlorophorus minamiiwo* M. Satô et N. Ohbayashi / DET. M. SATÔ 1982 (red label)" (in coll. NSMT). 1♂ (paratype), same collecting data as the holotype, "Paratype / *Chlorophorus minamiiwo* M. Satô et N. Ohbayashi / DET. M. SATÔ 1982 (red label)" (in coll. NSMT); 1♂ (paratype), same locality as the holotype, "June 17, 1982 / N. Ishii leg." Same red label as the preceding

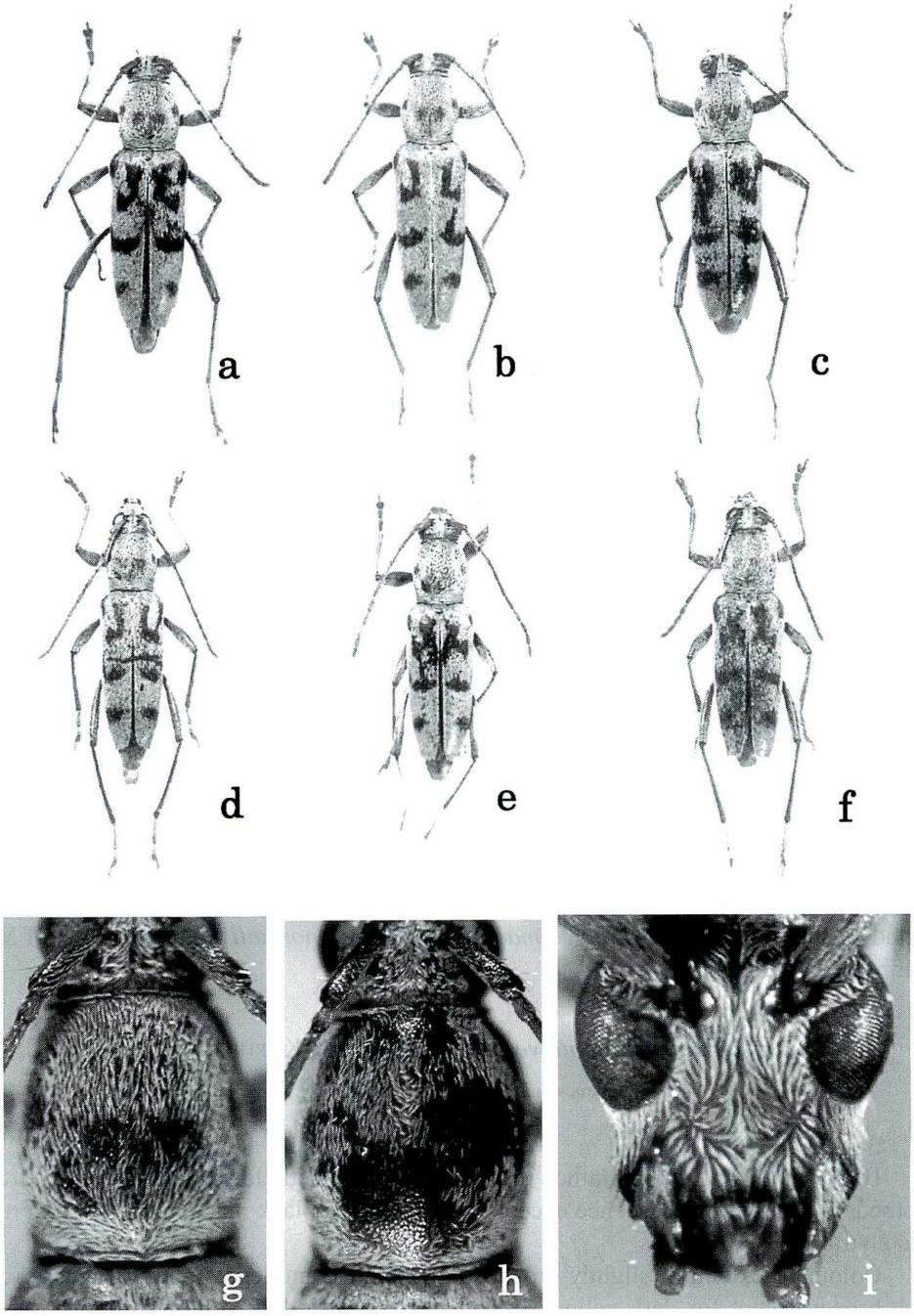


Fig. 1. Habitus of *Chlorophorus minamiiwo*. —— a, *C. m. minamiiwo* M. SATÔ et N. OHBAYASHI, holotype ♂, from Minamiiwo-jima Is., Kazan-rettô group of Ogasawara Isls.; b–c, ditto, paratype ♂; d, *C. m. kitaiwo* ssp. nov., holotype ♂, from Kitaiwo-jima Is., Kazan-rettô group of Ogasawara Isls.; e, ditto, paratype ♀; f, ditto, allotype ♀ from the same island; g, ditto, pronotum of holotype ♂; h, ditto, pronotum of allotype ♀; ditto, front view of head of holotype ♂.

(in coll. EUM). We were unable to examine the other specimens of the type series (one allotype ♀ and two paratype ♂, all of which should be preserved in their universities). According to Drs. M. SATÔ and N. OHBAYASHI, these specimens have been lost without their knowledge.

Distribution. Minamiiwo-jima Is., Kazan-rettô group of the Ogasawara Isls.

Notes. In having the small convex body with markedly reduced black maculation on the pronotum and elytra, and shortened legs, *C. minamiiwo* is a rather isolated species among the group of *C. yaeyamensis*. It may have closer relationship to *C. boninensis* (KANO) than to *C. kobayashii* KOMIYA among the Ogasawara species of *Chlorophorus* in view of the slender and subparallel paramere of the male genital organ, instead of apically broadened ones. This character state is also shared by most populations of *C. yaeyamensis* occurring on the Pacific sides of the Japanese Islands including the Ryukyus. It is, however, doubtless that the unique features of *C. minamiiwo* mentioned above is a derivative state in the species-group. We provisionally propose here the subgroup of *C. minamiiwo* endemic to the Kazan-rettô group on the peculiarities to be mentioned on later pages.

The two local populations of *C. minamiiwo* are closely related to each other. They are barely discriminated in the colour of pubescence and the conformation of male genital organ. It is a very strange and seldom encountered fact that such a similarity is observed between the widely isolated populations which are separated south to north by more than 120 km in a beeline. Besides, the two isolated islands originated from rather new submarine volcanoes, and have no history of connection with other lands. As was suggested by previous authors (GRESSITT, 1967; SATÔ, 1999), dispersal of beetles in ocean islands may have been caused by movement of host plants with larvae on the ocean current and its branching streams and/or the air current and the typhoons. It is most probable that the dispersal and colonization of *C. minamiiwo* originated by the air current of usual typhoons or the Kuroshio Current and its branching streams.

This subspecies has so far been known from only the type series, which were collected on the flowers of *Hydrangea macrophylla* SER. f. *normalis* at the top area of Minamiiwo-jima Island.

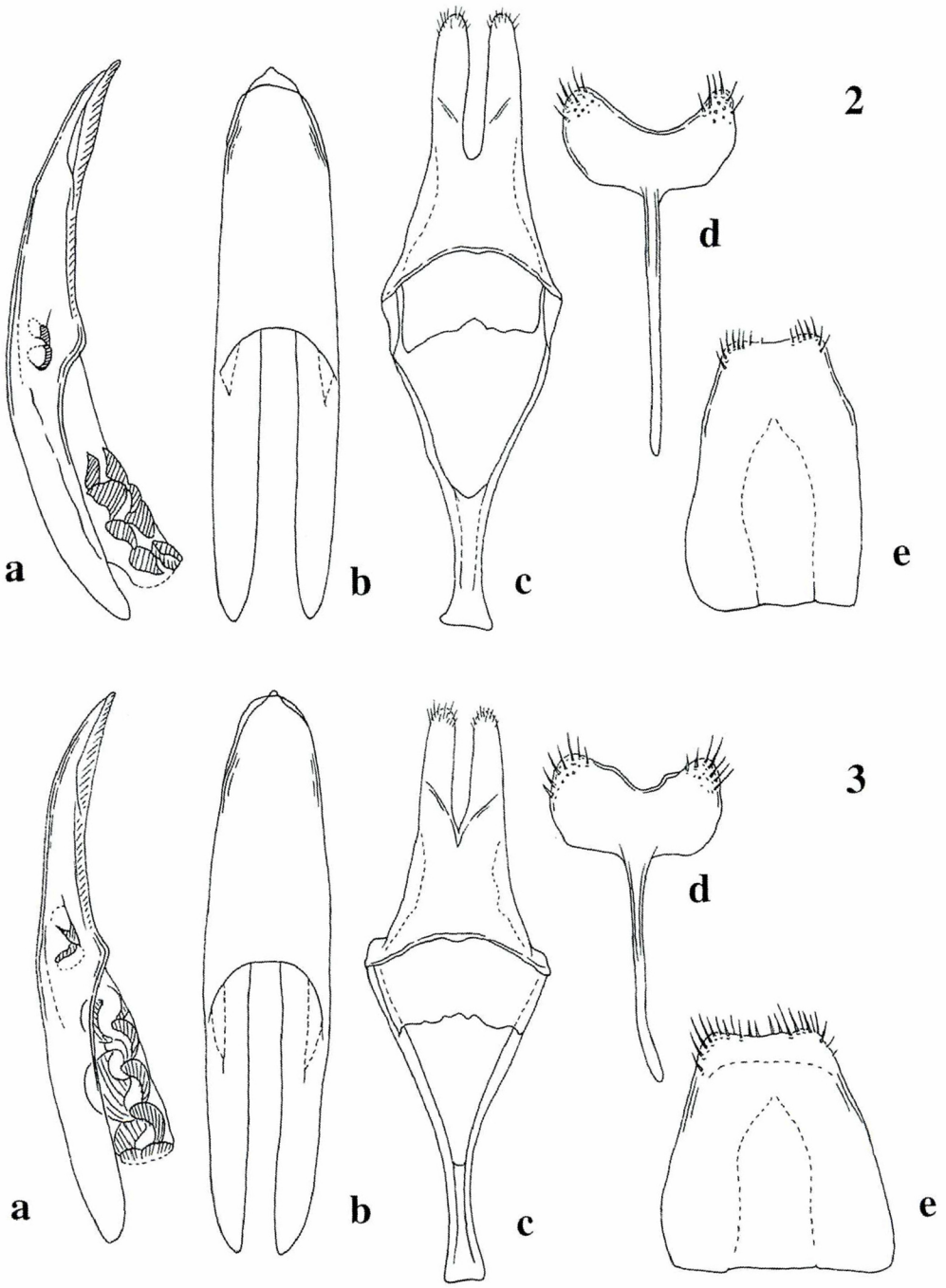
Chlorophorus minamiiwo kitaiwo NIISATO et KARUBE, ssp. nov.

[Japanese name: Kitaiwo-tora-kamikiri]

(Figs. 1 d–i & 2)

Body small and short, rather distinctly convex, with fairly short legs, entirely clothed with grayish pubescence except for the reduced black maculation on pronotum and elytra.

Colour black, shiny, slightly brownish in antennae and legs, mouthparts dark reddish brown except for dark yellowish brown palpi, eyes dark yellowish brown. Body largely clothed with dense pale gray pubescence, though the pubescence is yellowish



Figs. 2–3. Male genital organ of *Chlorophorus minamiiwo kitaiwo* ssp. nov. (2) and *C. m. minamiiwo* M. SATÔ et N. OHBAYASHI (3). —— a, Median lobe, lateral view; b, ditto, dorsal view; c, tegmen, dorsal view; d, sternite 8; e, tergite 8.

gray on pronotum, scutellum and elytra, supplemented by pale long hairs near anterior part of head and sides of pronotum; antennae with dense grayish pubescence in basal four segments, the remainders with only minute grayish pubescence; pronotum provided with a somewhat transverse median blackish pubescent spot just behind middle and a pair of small rounded one at sides of the middle, though the median one usually becomes very small or disappears; elytron with blackish pubescent maculation as follows: 1) a humeral spot, 2) a J-shaped maculation starting from external part of scutellum to basal 3/10 and then arcuately bent, 3) an arcuate incomplete transverse (sometimes simply oblique) band near the middle, and 4) an oblong transverse spot at apical 7/10.

Male. Head medium-sized and moderately convex in the group of *C. yaeyamensis*, nearly flattened on occiput, rather distinctly wider than the apical width and narrower than the maximum width of pronotum, moderately and somewhat coarsely punctured, HW/PA 1.14–1.25 (M 1.16), HW/PW 0.78–0.86 (M 0.81); frons narrow and fairly long, arcuately dilated anteriad, depressed at sides and somewhat distinctly raised near the median line, punctured on basal half, FL/FB 0.76–0.94 (M 0.82); clypeus long, nearly a half the length of basal width; genae deep, 3/5–4/5 the depth of lower eye-lobes; eyes large and moderately prominent. Antennae rather long for a member of the species-group though slightly vary, reaching the middle to apical 2/5 of elytra, relatively slender; scape simply elongate, slightly arcuate, the longest, and 1.2 times as long as segment 3, segments 3 and 4 weakly thickened at apices, the former slightly longer than the latter, segment 5 nearly as long as segment 3 and slightly dilated apicad, segments 6–10 slightly decreasing in length, terminal segment blunt at the extremity.

Pronotum fairly long and hardly transverse for a member of the group of *C. yaeyamensis*, a little longer than wide, distinctly narrower than elytra, widest at middle, with sides weakly arcuate, strongly convergent to apex, hardly constricted just before base, PL/PA 1.56–1.62 (M 1.58), PB/PA 1.26–1.29 (M 1.27), PL/PW 1.05–1.15 (M 1.10), PW/EW 0.78–0.79 (M 0.79), PL/EL 0.36–0.38 (M 0.37); apex gently arcuate at margin; base almost transverse, gently produced near middle; disc weakly convex, almost flattened though weakly depressed near base, gently raised at centre just behind middle, shallowly rugosely and closely punctured. Scutellum large, nearly half the width of elytron, triangular with rounded apex, finely punctured.

Elytra fairly short, distinctly wider than pronotum, and distinctly narrowed apicad, EL/EW 2.23–2.41 (M 2.31); sides with obliquely rounded humeri, slightly and almost straightly convergent towards just behind middle, then arcuately and moderately convergent to apices, which are strongly oblique with rather distinct external teeth; disc weakly convex, only slightly impressed near suture just behind scutellum, punctured as on pronotum though finer, above all on apical parts.

Ventral surface finely and closely punctate throughout; prosternum distinctly raised towards the anterior margins of coxal cavities; abdomen distinctly narrowed apicad, nearly twice the length of the basal width, with last ventrite 9/10 the length of

apical width and subtruncate at apical margin.

Legs relatively stout and fairly short, with hind femora barely reaching or a little exceeding the elytral apices, moderately compressed; 1st segment of hind tarsus 1.3 times as long as the following two segments combined.

Male genital organ fairly large, with median lobe nearly a half the length of elytra. Sternite 8 strongly transverse, widely and deeply emarginate at apical margin, with sides distinctly produced and provided with short setae, and also with a very long basal peduncle whose length is 1.5 times as long as the width of sternite 8. Tergite 8 somewhat elongate trapezoidal, very slightly emarginate at apical margin, which is provided with setae at sides. Median lobe moderately elongate, not so convex, gently arcuate in profile; dorsal plate weakly arcuately narrowed to broadly rounded apex; ventral plate slightly exposing the apical part which is bluntly pointed; median struts a little less than a half the length of median lobe, slightly arcuate in profile. Tegmen longer than median lobe; paramere arcuately narrowed apicad in basal half, almost parallel and divided to half the length measured along the midline, with each lobe simply elongate and quite parallel-sided, with rounded apex which is provided with very short setae.

Body length 8.2–10.5 mm.

Female. Basically similar to male though broader in general; antennae short, reaching basal 1/3 of elytra; pronotum and elytra broad, the former with moderately arcuate sides; legs slightly shorter than in male, with hind femora not attaining to elytral apices; last ventrite as long as apical width, with weakly rounded margin. Standard ratios of body parts as follows: HW/PA 1.14, HW/PW 0.77, FL/FB 0.71, PL/PA 1.60, PB/PA 1.28, PL/PW 1.08, PW/EW 0.80, PL/EL 0.38, EL/EW 2.28. Body length 8.1 mm.

Type series. Holotype ♂, Ishino-mura, Kitaiwo-jima Is., Kazan-rettô group of Ogasawara Isls., Tokyo, Japan, 21–VI–2001, H. KARUBE leg. Allotype ♀, almost of the same data as the holotype but 20–VI–2001. Paratypes: 1♂, same locality and collector as the holotype, 20~21–VI–2001; 1♂, same collecting data except that the collector is K. MATSUMOTO. All the specimens of the type series are preserved in KPMNH.

Distribution. Kitaiwo-jima Is., Kazan-rettô group of the Ogasawara Isls.

Notes. The race of Kitaiwo-jima Island shows a slight geographical variation, and is different from the Minamiiwo-jima one in the following points: 1) colour of pubescence more grayish, yellowish gray in pronotum and elytra, pale gray in the other parts; 2) a median black spot on pronotum transverse or usually obsolete; elytral apex with a brief but distinct external tooth; tergite 8 elongate trapeziform; sternite 8 distinctly produced at sides of anterior margin, which are widely distinctly emarginate, with a very long basal peduncle, 1.5 times as long as the width of sternite 8; median lobe moderately exposing ventral plate at apex in dorsal aspect; paramere fairly slender, quite parallel-sided.

The type locality of *C. m. kitaiwo* ssp. nov., Ishino-mura, is an abandoned village behind the seashore located in the northeastern part of Kitaiwo-jima Island. The collecting site in a forest is less than 50 m in altitude and about 150 m from the beach in a

beeline, and the environment is not good due to high temperature and dry ground. All the type specimens were found on the full-blooms of *Terminalia catappa* at nearly the midday. According to the experience of field survey in Minamiiwo-jima Island, the southernmost island of the Kazan-rettô (SATÔ, 1983), the insects were mostly seldom found, and *C. minamiiwo* only lives near the top area of the island. Though very similar situation was observed in Kitaiwo-jima Island, *Chlorophorus* was found in lower places and may be rather common and widespread in the island.

Chlorophorus kobayashii KOMIYA, 1976

[Japanese name: Ogasawarakiiro-tora-kamikiri]

Specimens examined. 4♂♂, Ani-jima Is., Chichi-jima group of Ogasawara Isls., Tokyo, Japan, 15–VI–2001, H. KARUBE leg. (in coll. KPMNH). New record from Ani-jima Island.

Chlorophorus kusamai M. SATÔ, 1999

[Japanese name: Mukojima-tora-kamikiri]

Specimens examined. 6♂♂, 1♀, Muko-jima Is., Muko-jima group of Ogasawara Isls., Tokyo, Japan, 27–VI–2001, H. KARUBE leg. (in coll. KPMNH).

Reconsideration of the Group of *C. yaeyamensis* Occurring in the Ogasawara Islands

The group of *C. yaeyamensis* occurring on the Ogasawara Islands comprises three species and one subspecies, and is classified into the following three subgroups.

1) Subgroup of *C. ogasawarensis*

Chlorophorus ogasawarensis (KANO): Muko-jima group (Muko-jima Is.), Chichi-jima group (Ani-jima Is. and Chichi-jima Is.), Haha-jima group (Haha-jima Is. and Ane-jima Is.).

2) Subgroup of *C. mimamiiwo*

Chlorophorus minamiiwo minamiiwo M. SATÔ et N. OHBAYASHI: Kazan-rettô group (Minamiiwo-jima Is.); *C. m. kitaiwo* ssp. nov.: Kazan-rettô group (Kitaiwo-jima Is.).

3) Subgroup of *C. kobayashii*

Chlorophorus kobayashii KOMIYA: Chichi-jima group (Otôto-jima Is., Ani-jima Is., Higashi-jima Is. and Chichi-jima Is.), Haha-jima group (Haha-jima Is.); *C. kusamai* M. SATÔ: Muko-jima group (Muko-jima Is.).

Although closely similar in external appearance to one another, these groups are divided into two groups, a combined group of the first and second, and the isolated third, subgroup of *C. kobayashii*. The subgroups of *C. ogasawarensis* and *C. mimamiiwo* may have a direct relationship with *C. yaeyamensis* widely distributed on the Pa-

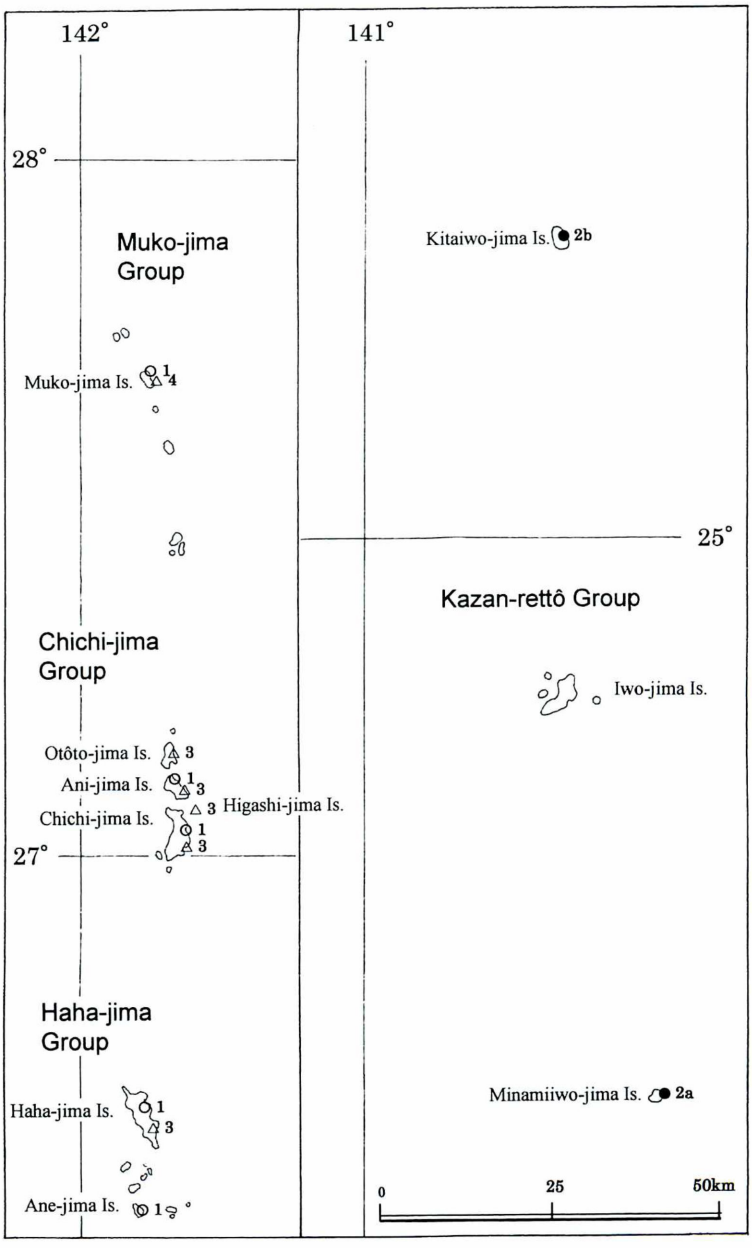


Fig. 4. Distributional map of the group of *Chlorophorus yaeyamensis* in the Ogasawara Islands. —— 1, *C. ogasawarensis* (KANO); 2 a, *C. minamiiwo minamiiwo* M. SATÔ et N. OHBAYASHI; 2 b, *C. m. kitaiwo* ssp. nov.; 3, *C. kobayashii* KOMIYA; 4, *C. kusamai* M. SATÔ. —— Symbols show subgroups: ○, *C. ogasawarensis* subgroup; ●, *C. minamiiwo* subgroup; △, *C. kobayashii* subgroup.

cific coast of West Japan and the Ryukyus, sharing more or less constricted basal portion and the slender subparallel-sided paramere of tegmen of the male genital organ. The subgroup of *C. kobayashii* is relatively derivative and may originate in the Ogasawara Islands. The members of the subgroup have apically thickened paramere which is unique in the group of *C. yaeyamensis*.

要　　約

新里達也・苅部治紀：小笠原諸島におけるトラカミキリの記録 (2). ミナミイオウトラカミキリ新亜種の北硫黄島からの発見. ——本表題の第1報に引き続き，苅部らの2001年の調査により得られた火山列島（硫黄列島）北硫黄島などの資料に基づき，同表題の第2報を報告する．今回の調査で得られた新知見は，北硫黄島（火山列島）からミナミイオウトラカミキリ新亜種の発見ならびにオガサワキイロトラカミキリの兄島（父島列島）からの新記録である．

1) キタイオウトラカミキリ（新称）：火山列島南硫黄島を基準産地とするミナミイオウトラカミキリの北硫黄島産の新亜種を記載した．基準亜種とは，体全体が灰色に被毛され，前胸背板の中央黒色紋が単純な横長紋を形成あるいは消失するほか，雄交尾器の形状によっても区別することができる．興味深いことには，北硫黄島と南硫黄島は洋上で南北120 km以上隔てられ，両亜種の孤立性は疑いがないにもかかわらず，その形態差が軽微なことである．ヤエヤマトラカミキリ種群のなかでもミナミイオウトラカミキリは，火山列島に固有で独自の亜群を形成するものと考えられるが，火山起源で歴史の新しく，過去に陸域として連続した経緯がない両島におけるミナミイオウトラ2亜種の形態類似性は，列島内において海流やとくに風による昆虫類の拡散が頻繁に行われていることを示唆するものといえよう．

2) オガサワラキイロトラカミキリ：父島列島兄島から新記録となる．父島産との変異差はとくに認められない．

3) ムコジマトラカミキリ：前報告に引き続き，本年の調査でも新たに7個体が追加採集された．

References (Additions)

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