

## Records of *Malthodes* Species (Coleoptera, Cantharidae, Malthiniinae) from Yaku Island, Southwestern Japan

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**Abstract** Three *Malthodes* species are recorded from Yaku Island, southwestern Japan. Female terminalia of *Malthodes takakuwai* TAKAHASHI, 2009 is described briefly and illustrated. In addition, *M. yakushimanus yakushimanus* N. TAKAHASHI, 2001 and an undetermined species are enumerated. A tentative key to species occurring on the island for their discrimination is also proposed.

**Key words:** description, female terminalia, copulatory depression, Malaise trap, Collision trap, Ryukyus

### Introduction

Among the twenty-five species of the genus *Malthodes* currently known to occur in Japan, only two species have been recorded from Yaku Island, southwestern Japan (TAKAHASHI, 2009; N. TAKAHASHI, 2001, 2008, 2010; TAKAKUWA & FUJITA, 2010). Although *Malthodes takakuwai* TAKAHASHI, 2009, which represents one of the two species from the island, was described based on a series of specimens with several females, the female description was not suitable for species identification. Our recent field surveys showed that further congeners could be found on the island. Accordingly, characteristics of the female of *M. takakuwai* are examined, supplementary notes regarding the terminalia for species diagnosis are provided, and species distributed on the island are enumerated with a key to them based on our samples in this report.

### Material and Methods

All samples examined in this study were dried specimens and collected by T. YAMAUCHI *et al.* Methods follow YAMAUCHI and HISAMATSU (2013) and YAMAUCHI (2015) for the field survey, and TAKAHASHI (2001) for the close taxonomic examination.

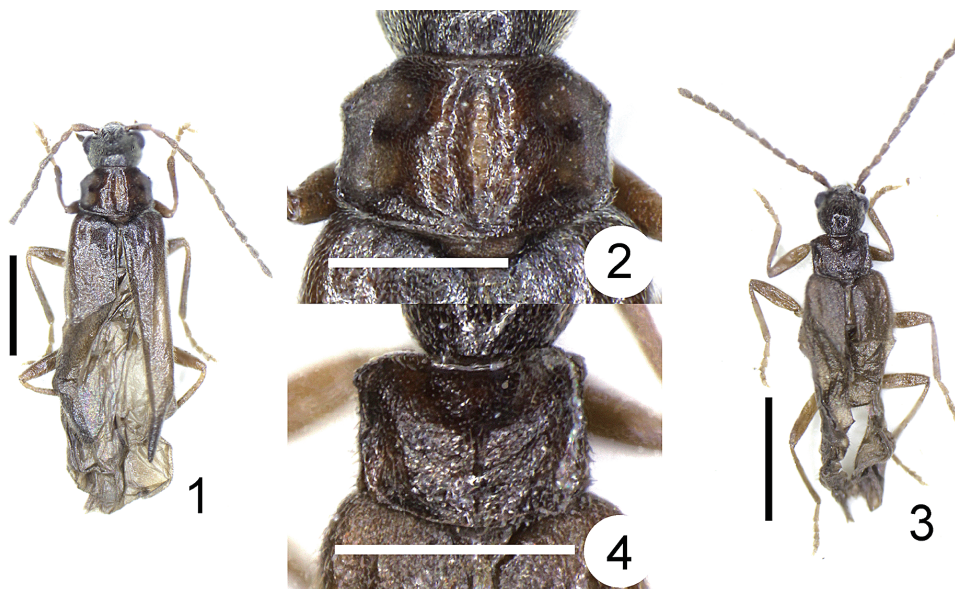
### *Malthodes takakuwai* TAKAHASHI, 2009

(Figs. 1, 2, 5)

*Malthodes takakuwai* TAKAHASHI, 2009, 284. — TAKAKUWA & FUJITA, 2010, 37 (in list).

**Additional description.** Female. Seventh abdominal tergite without remarkable copulatory depressions on surface; 8th tergite subtrapezoidal in outline, slightly narrowed posteriad, shallowly emarginate posteriad around middle at anterior margin, widely and obtusely rounded at front and hind angles, weakly emarginate anteriad at middle of posterior margin, gently convex medio-dorsad on dorsum and slightly swollen on anterior area along anterior margin though depressed just behind emargination at anterior margin.

Female terminalia somewhat robust in ventral view; coxite somewhat oval in outline, explanate and obtusely rounded at apical margin, with a small lapel along medio-basal margin, and semiglobu-



Figs. 1–4. Females of *Malthodes* spp., from Yaku Is., dorsal view. — 1 & 2, *M. takakuwai* TAKAHASHI; 3 & 4, *M. yakushmanus yakushmanus* N. TAKAHASHI. — 1 & 3, Habitus; 2 & 4, pronotum. Scales: 1.0 mm for Figs. 1 & 3; 0.5 mm for Figs. 2 & 4.

larly depressed on ventral surface except for apical portion; paraproct semicylindrical, weakly dilated basad, surrounding basal part of proctiger, extending around apices of coxites but sometimes slightly extending over coxites; proctiger semitubular, subconical and narrowed apicad in outline.

*Specimens examined.* [Yaku Is.] 2 ♂♂, 1 ♀, Arakawa (in mixed forest of evergreens, conifers and broad-leaves old-growth, by Malaise trap), 1,200 m alt., 2.V.–4.VI.2007; 2 ♀♀, same locality (by Malaise trap), 7–28.VI.2007; 1 ♂, Hanyama (in old-growth evergreen broadleaf forests, by Malaise trap), 250 m alt., 28–31.III.2007; 1 ♂, 1 ♀, Kankake (in *Cryptomeria japonica* plantation, by Malaise trap), 220 m alt., 28–31.III.2007; 1 ♂, 3 ♀♀, same locality (by Malaise trap), 31.III.–28.IV.2007; 1 ♀, Mt. Aiko (in old-growth evergreen broadleaf forests, by Malaise trap), 170 m alt., 30.III.–29.IV.2007; 1 ♂, same locality (by Malaise trap), 2–30.III.2008.

*Distribution.* Japan: Yaku Is. off Kyushu.

***Malthodes yakushmanus yakushmanus* N. TAKAHASHI, 2001**

[Japanese name: Yakushima-kurochibi-jōkai]

(Figs. 3 & 4)

*Malthodes yakushmanus* N. TAKAHASHI, 2001, 101, figs. 6, 10, 16, 23, 40–42, 49, 52, 56. — TAKAHASHI, 2006, 31 (in list). — TAKAHASHI, 2013, 264 (in list).

*Malthodes yakushmanus yakushmanus*: TAKAHASHI, 2008, 71 (in list). — TAKAHASHI, 2010, 3.

*Specimens examined.* [Yaku Is.] 3 ♂♂, 1 ♀, Arakawa (in mixed forest of evergreens, conifers and broad-leaves old-growth, by Malaise trap), 1,200 m alt., 7–28.VI.2007; 2 ♀♀, Hanyama (in old-growth evergreen broadleaf forests, by Malaise trap), 250 m alt., 31.III.–28.IV.2007; 1 ♀, Kankake (in *C. ja-*

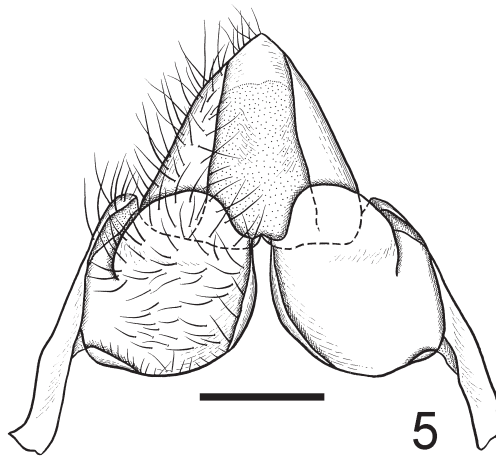


Fig. 5. Female terminalia of *Malthodes takakuwai* TAKAHASHI, ventral view (setae omitted on right side). Scale: 0.125 mm.

*ponica* plantation, by Malaise trap), 220 m alt., 31.III.–28.IV.2007.

*Distribution.* Japan: Yaku Is. off Kyushu.

*Remarks.* Material collected in Arakawa was reported with the incorrect collection date (“7–28. III.2007”) in TAKAHASHI (2010) and should be corrected as listed above.

#### *Malthodes* sp.

*Specimens examined.* [Yaku Is.] 1 ♀, Kankake (in *C. japonica* plantation, by Collision trap), 220 m alt., 28.IV.–1.V.2007; 1 ♀, same locality (by Malaise trap), 1.V.–5.VI.2007.

*Distribution.* Japan: Yaku Is. off Kyushu.

*Remarks.* Although they are similar to *M. hiranoi tokaranus* N. TAKAHASHI, 2001 from the Tokara Isls. (Is. Nakanoshima) and *M. miyamotoi* N. TAKAHASHI, 2001 from the middle Ryukyus in general appearance with a yellowish pronotum, the female specimens examined here have the 8th abdominal tergite without any remarkable copulatory depressions and the coxite of terminalia with an arcuate margin. Despite our examination showing that they appear to belong to another species, further investigation should be undertaken after more materials become available.

#### A Tentative Key to the Species of *Malthodes* on Yaku Island, Southwestern Japan

1. Pronotum yellowish. .... *M.* sp.
- Pronotum blackish. .... 2
2. Body large, 3.8–4.5 mm long; pronotum subrectangular (Fig. 2); basal piece of male genitalia without any apical projections, fully covering ventral part; female terminalia with oval coxites in ventral view (Fig. 5). .... *M. takakuwai* TAKAHASHI, 2009
- Body small, 2.2–2.6 mm long; pronotum subquadrate (Fig. 4); basal piece of male genitalia with an apical projection, partly covering ventral part; female terminalia with elongate linguiform coxites in ventral view. .... *M. yakushmanus yakushmanus* N. TAKAHASHI, 2001

## 要 約

高橋直樹・山内健生：屋久島に分布するチビジョウカイ属（鞘翅目ジョウカイボン科）の記録。——わが国に分布するチビジョウカイ属 25 種のうち、これまでに 2 種のみが鹿児島県屋久島から知られていた。著者の一人である山内らが 2007 年に屋久島で行った野外調査により既知の 2 種に加え、不明種の雌個体が見い出された。そこで同島に分布する *Malthodes takakuwai* TAKAHASHI, 2009 の雌個体の形態的特徴を一部再調査し、不明種を含む 3 種を識別するため暫定的な検索表を作成した。

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