

Records of Four Xiphydriidae (Hymenoptera) Collected in Traps in Japan, with Notes on *Xiphydria melanoptera*

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Abstract Based on material obtained in Malaise traps or yellow pan traps, collection data are given for the following four species of xiphydriid woodwasps: *Hyperxiphia hirashimai* (Okutani, 1965), *Platyxiphydria tiphiiiformis* Takeuchi, 1938, *Xiphydria annulitibia* Takeuchi, 1936, and *Xiphydria melanoptera* Shinohara, Hara and Smith, 2020. *Xiphydria annulitibia* is newly recorded from Gifu Prefecture. The male of *X. melanoptera* is described for the first time and the distinction of this species from *X. kastsheevi* Ermolenko, 1979, is discussed based on the newly acquired material.

Key words: *Hyperxiphia hirashimai*, *Platyxiphydria tiphiiiformis*, *Xiphydria annulitibia*, wood-wasp, distribution record.

Introduction

In sorting a vast collection of insects made by Yamagishi and his former students in Meijo University, Nagoya, using Malaise traps and yellow pan traps set in various parts of Japan over the last three decades, eleven specimens of Xiphydriidae have recently come to our attention. In this rather small series of specimens, we have recognized four species, including an extremely rare, recently described species, *Xiphydria melanoptera* Shinohara, Hara and Smith, 2020, from Hokkaido. Here we give collection records of the four species, briefly describe the previously unknown male of *X. melanoptera* and discuss the distinction of this species from the closely related *X. kastsheevi* Ermolenko, 1979, based on the newly acquired material.

Materials and Methods

Specimens used in this work are kept in the National Museum of Nature and Science, Tsukuba. Abbreviations for the collecting methods are Malaise trap (MT) and yellow pan trap (YPT). Morphological examinations were made with an Olympus SZX7 stereo microscope. Lengths of insects were measured to the nearest 0.5 mm. For morphological terminology, we generally followed Viitasaari (2002). Photographs were taken with a digital camera, Olympus Stylus TG-4 Tough, through an Olympus SZX7 stereo binocular microscope. The digital images were processed and arranged with Adobe Photoshop Elements® 15 software.

Results and Discussion

Hyperxiphia hirashimai (Okutani, 1965)

Genaxiphia hirashimai Okutani, 1965: 74.

Hyperxiphia hirashimai: Shinohara and Yamasako, 2020:

408; Shinohara, 2022: 85.

For more synonymy and references, see Shinohara and Yamasako (2020).

Specimens examined. **KYUSHU: Kagoshima Pref.: Yakushima Island:** 1 ♀, Shiratani, 600 m, 9. VIII.–2. IX. 2000, T. Murata, MT (K. Nojima); 1 ♀ 1 ♂, Mt. Miyanoura, 28. VIII.–19. IX. 1999, T. Murata, MT (A. Hanai). **Amami-ōshima Island:** 1 ♂, Mt. Yui (400 m) (MT-B), 5. VIII.–28. IX. 2001, T. Muroi and Y. Maeda, mounted by T. Fuseya.

Distribution. Japan (Miyake-jima Island, Shikoku, Kyushu, Yakushima Island, Kuroshima Island, Amami-ōshima Island, Okinawa-jima Island).

Remarks. This species was described from Amami-ōshima Island by Okutani (1965) and already recorded from Yakushima Island by Shinohara and Yamasako (2020).

***Platyxiphydria tiphiiiformis* Takeuchi, 1938**

Platyxiphydria tiphiiiformis Takeuchi, 1938: 185; Shinohara and Matsumoto, 2019: 55.

For more synonymy and references, see Shinohara and Matsumoto (2019).

Specimens examined. **HONSHU: Aichi Pref.:** 1 ♀, Toyota, Takiwaki, 27. IV.–3. V. 2020, K. Yamagishi (MT), Kensho Nagata.

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

Remarks. Shinohara and Matsumoto (2019) already published a collection record of this species from Aichi Prefecture.

***Xiphydria annulitibia* Takeuchi, 1936**

Xiphydria annulitibia Takeuchi, 1936: 55; Shinohara *et al.*, 2020: 377.

For more synonymy and references, see Shinohara *et al.* (2020).

Specimen examined. **HONSHU: Gifu Pref.:** 1 ♀, Shirakawa-mura, Magari 700 m, 24–31. VIII. 2010, R. Sugiura, MT (5A), (M. Sumi).

Distribution. Japan (Hokkaido, Kunashiri Is., Honshu, Shikoku). Korea, Russia (Sakhalin, Pri-

morskiy kraj).

Remarks. This species is widely distributed in Honshu (Hara and Shinohara, 2018; Shinohara *et al.*, 2020; Shinohara, 2022) but has not been recorded from Gifu Prefecture.

***Xiphydria melanoptera* Shinohara,**

Hara and Smith, 2020

(Figs. 1, 2)

Xiphydria melanoptera Shinohara *et al.*, 2020: 387.

Specimens examined. **HOKKAIDO:** 2 ♀ 3 ♂, Nakasatsunai, Riv. Satsunai, 12–14. VIII. 1996, Lubomir Masner, Kenzo Yamagishi (YPT).

Distribution. Japan (Hokkaido).

Male (hitherto undescribed, Fig. 2). Length about 5–8 mm. Black; lateral part of clypeus yellow or pale brown (Fig. 2C, I, J); ventral pit of malar space and narrow ventral margin of gena obscurely marked with pale brown; lower inner orbit adjacent to clypeus yellow in one specimen (Fig. 2J); mandible yellow, apically blackish; antenna with scape and pedicel dark brown and flagellum blackish brown; legs dark brown, partly blackish; wings distinctly stained with black, apical 1/3 becoming hyaline; veins and stigma blackish brown. Antenna (Fig. 2D) with 15 or 16 antennomeres; abdominal sterna 6–8 each with group of long golden hairs on posterior part medially (hairs longer on sterna 7 and 8, Fig. 2G); tergum 9 without distinct median longitudinal keel, rounded at apex (Fig. 2F); subgenital plate broad, apical margin roundly incised at middle (Fig. 2H).

Remarks. This is an extremely rare species so far known only from the holotype from Hokkaido, Japan (Shinohara *et al.*, 2020). It is close to *X. kastsheevi* Ermolenko, 1979, which is also known only from the holotype obtained in Primorskiy kraj, Russia (Ermolenko, 1979). In the key to the species of the *Xiphydria annulitibia* group by Shinohara *et al.* (2020), the two females listed above go to couplet 4 (*X. melanoptera* and *X. kastsheevi*) but do not exactly match either of the two species. In this key, which was actually based on the examination of

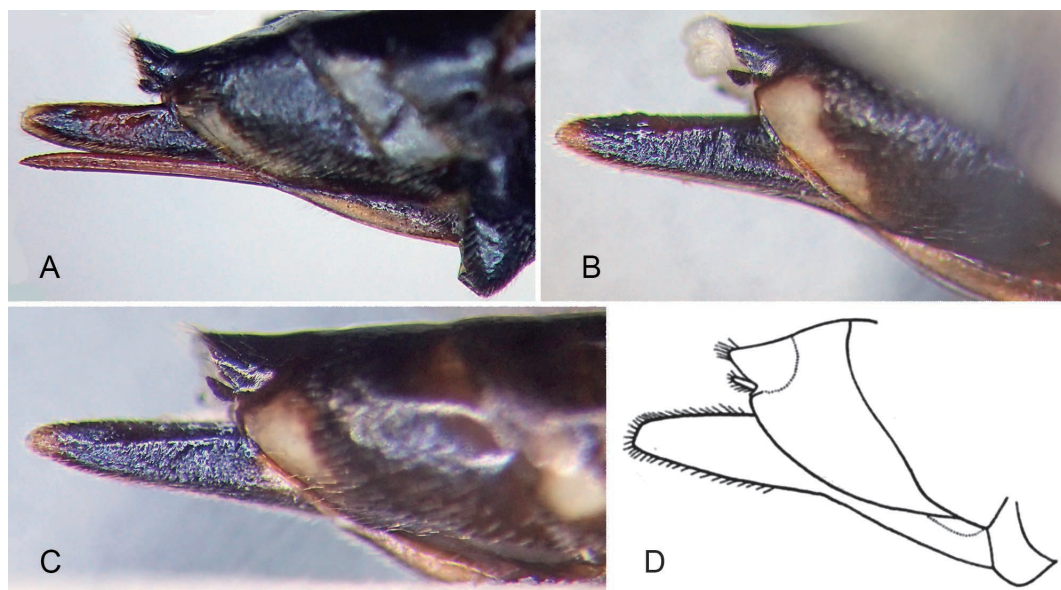


Fig. 1. Apical part of abdomen, lateral view, *Xiphydria melanoptera* (A–C) and *X. kastsheevi* (D).—A, Holotype, reproduced from Shinohara *et al.*, 2020, laterally reversed; B, C, specimens from Nakasatsunai; D, holotype, reproduced from Ermolenko (1979).

the holotype of *X. melanoptera* and the original description of *X. kastsheevi* (Ermolenko, 1979, the holotype not examined), the two species were separated by the number of antennomeres (19 or 20 in *X. melanoptera* and 15 in *X. kastsheevi*), presence or absence of white lateral spots on the abdominal terga 2 and 3 (present in *X. melanoptera* and absent in *X. kastsheevi*), and shape of the abdominal tergum 10 (distinctly directed dorsally at apex in lateral view in *X. melanoptera* and not so in *X. kastsheevi*). The two females from Nakasatsunai have 16 or 17 antennomeres and the white lateral spots are present on tergum 2 but absent on tergum 3. The difference in the shape of the abdominal tergum 10 is not clear (Fig. 1). Therefore, these two species cannot be clearly separated by these characters only. On the other hand, with the additional material, we have found a probable interspecific difference between the two taxa in the shape of the apical ovipositor sheath. It is long and slender, about 3.7–4.1 times as long as wide in *X. melanoptera* (Fig. 1A–C), whereas it is short and thick, about 2.9 times as long as wide in *X. kastsheevi* (Fig. 1D). Though we need more material and an examination of the

holotype of *X. kastsheevi* to ascertain the relationship of the two taxa, here we treat *X. melanoptera* as a distinct species.

The two females from Nakasatsunai are similar to the holotype of *X. melanoptera* except for the differences given above and smaller size. They are about 7 mm and 8.5 mm long without ovipositors, whereas the holotype is about 10.5 mm. The previously unknown male (Fig. 2) is distinguished from the related species by the black head, thorax and abdomen, with lateral part of the clypeus, malar space, ventral margin of the gena and sometimes the lower inner orbit marked with pale brown (Fig. 2C, I, J), the blackish and apically more hyaline wings (Fig. 2A), presence of groups of long setae on the abdominal sterna 6–8 (Fig. 2G), and the tergum 9 without a distinct median longitudinal keel (Fig. 2F).

It is interesting to note that all the specimens of *X. melanoptera* were collected in traps in southern Hokkaido in mid-August; the holotype was collected in a Malaise trap in Muroran during August 12–19, 2007, and the newly studied material, two females and three males, was collected in yellow pan traps in Nakasatsunai during

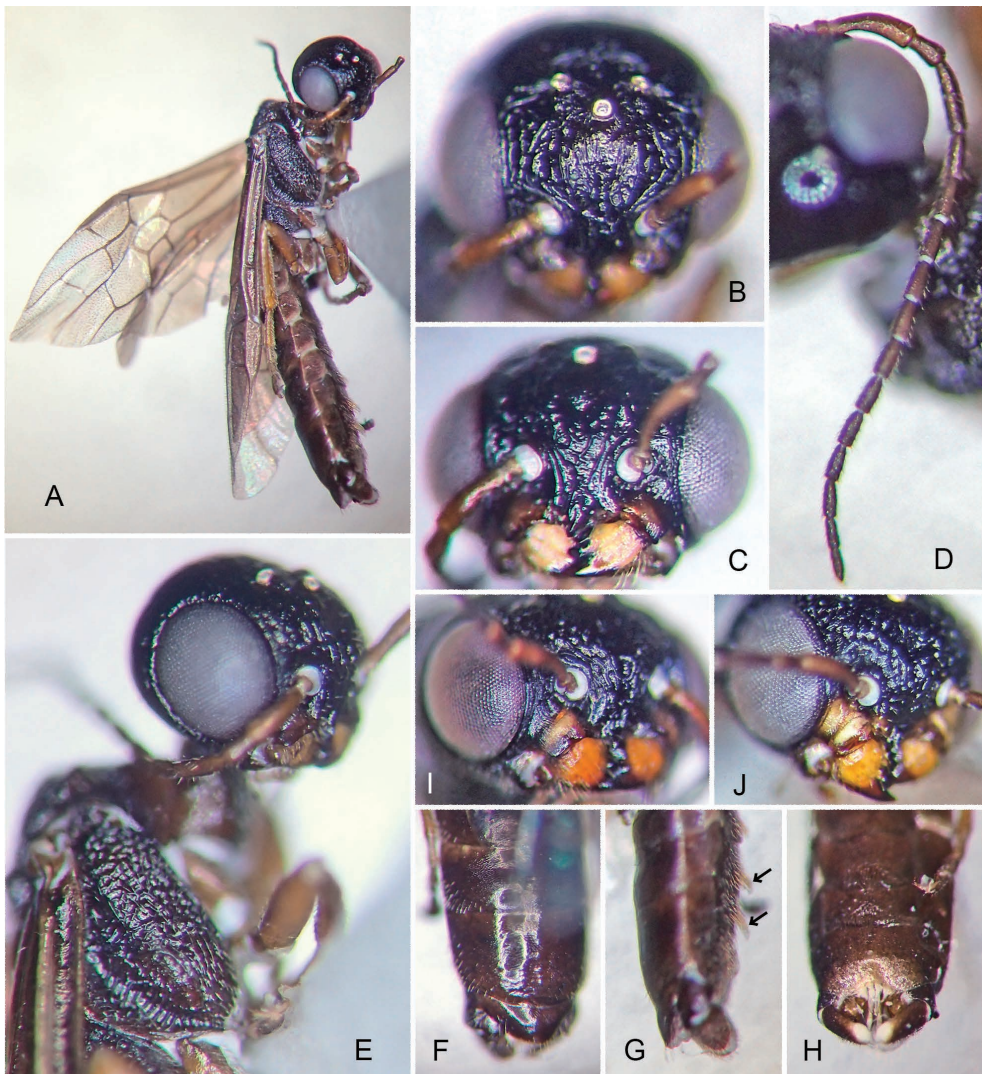


Fig. 2. *Xiphydria melanoptera*, male, three specimens (A–H, I and J) from Nakasatsunai. — A, Lateral view; B, head, dorsofrontal view; C, head, frontal view; D, antenna; E, head and thorax, lateral view; F, apex of abdomen, dorsal view; G, apex of abdomen, lateral view, arrows showing hair groups on sterna 7 and 8; H, apex of abdomen, ventral view; I, J, head, laterofrontal view.

August 12–14, 1996.

Shinohara (2022) noted that most of the known specimens of two rare southern Japanese xiphydriid woodwasps, *Indoxiphia prima* Smith, 2019, and *Lissoxiphya mitai* Shinohara, 2020, were collected in yellow pan traps. Commoner xiphydriids in northern and central Japan, e.g., *Xiphydria camelus* (Linné, 1758) and its allies (or the *X. camelus* complex), are almost exclusively found on dead wood or branches, rarely on

foliage. Males of some southern Japanese xiphydriids are collected almost exclusively by sweeping foliage, not on dead wood (Shinohara, unpublished observation). However, all those species, or Xiphydriidae in general, are seldom collected in traps, particularly in yellow pan traps; of the 964 specimens of *X. camelus* complex examined by Shinohara and Kameda (2019), only one was collected in a Malaise trap and none in yellow pan traps according to the

label data.

Xiphydria melanoptera, *I. prima* and *L. mitai* are all small-sized xiphydriids and males are unknown for the latter two species. It is quite likely that they have some peculiar biological and behavioral traits in common, which cause them almost never to be found on dead wood or on foliage, but more frequently caught in traps.

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