

Original article

Taxonomic and Zoogeographic Notes on Japanese Orthocentrinae (Hymenoptera, Ichneumonidae), with Descriptions of Four New Species

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Abstract. Nine genera and 22 species of Japanese Orthocentrinae were taxonomically and zoogeographically studied. The genus *Apoclima* Förster, 1869, and the subgenus *Dicolus* Förster, 1869 are newly recorded from Japan. Four new species, *Apoclima brevicauda* sp. nov., *Apo. longicauda* sp. nov., *Hemiphanes japonicum* sp. nov., and *Proclitus tuberculatus* sp. nov., were described. Eight species, *Aniseres baikalensis* Humala, 2007, *H. gravator* Förster, 1871, *Megastylus* (*Dicolus*) *excubitor* (Förster, 1871), *M. (Dic.) impressor* Schiødte, 1838, *M. (Dic.) pectoralis* (Förster, 1871), *M. (Megastylus) kuslitzkii* Humala, 2007, *Pr. ganicus* Sheng & Sun, 2013, and *Pr. praetor* (Haliday, 1838), were newly recorded from Japan. In addition, the ten Japanese species were additionally recorded from several localities of Japan.

Key words: distribution, new record, new species, parasitoid wasps, standard Japanese name

Introduction

The Ichneumonid subfamily Orthocentrinae comprises 29 genera and over 470 species worldwide (Yu et al. 2016). The confirmed hosts of species in this subfamily are fungus gnats, especially Mycetophilidae (Diptera). Some species of this subfamily are known as the natural enemy of mushroom pests. Mukai & Kitajima (2019) and Watanabe et al. (2020) recorded some species of this subfamily from Japan as the parasitoids of the fungus gnats genus *Neoempheria* Osten Sacken (Diptera, Mycetophilidae) infesting edible fungi in the sawdust-based cultivation houses. Mukai & Kitajima (2019) also indicated that *Orthocentrus* sp. (= *O. brachycerus* Humala & Lee, 2020) is one of the important natural enemies of *Neoempheria* and potentially useful parasitoids of the sawdust-based cultivation houses of Shiitake mushroom. Although the taxonomy of Japanese orthocentrines is very poorly understood, it can be expected that some Japanese species may be natural enemies of mushroom pests.

Understanding this subfamily is therefore important in terms of pest control for the Japanese mushroom industry.

The taxonomic study of this subfamily in the Eastern Palearctic region is very poorly done so far. Rossem (1981, 1982, 1983a, b, 1985, 1987, 1988, 1990, 1991) studied Palearctic species of this subfamily including a few Eastern Palearctic species. The descriptions in his papers were mainly based on the measurements of the types, and the measurements for individual species may not cover the intraspecific variation. Humala (2007) provided the keys for the species of this subfamily in Asia, mainly from Far East Russia, and several new species were also described in the keys. Then he also reported several taxa from Korea (e.g., Humala et al., 2017).

The fauna of Japanese Orthocentrines is poorly understood. A total of 34 species of them have been recorded from Japan by the previous studies (Table 1). Dasch (1992) recorded 12 species of them from “Japan” without detailed locality data in his monograph on Nearctic (!) Orthocentrinae. Among them, additional materials have not been recorded in five species, *Aperileptus vanus* Förster, 1871, *Catastenus femoralis* Förster, 1871, *Eusterinx (Divinatrix) inaequalis* Rossem, 1981 (as *Pa. inaequalis*), *Pantisarthrus lubricus* (Förster, 1871), and *Proclitus fulvicornis* (Förster, 1871). Of the other 22 species, more than half (13 spp.) have been known only from the Northern

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Territories of Japan (Etorofu, Kunashiri, Shikotan, and Habomai Islands) (Kasparyan et al., 2012).

In addition, the measurements of several species in Dasch (1992) sometimes largely differ from those of the same species in other studies (e.g., Rossem (1981, 1982, 1983a, b, 1985, 1987, 1988, 1990, 1991) and Humala (2007)). Therefore, it is important to critically compare the measurements of previous studies.

Recently, I tried to identify Japanese Orthocentrinae and found some valid species and new species. The purpose of this study is to undertake a taxonomic and zoogeographic review of the Japanese Orthocentrinae.

Materials and methods

In this study, dried specimens deposited in the following collections were examined:

EUM, Ehime University Museum, Matsuyama, Japan.

KPM-NK, Insect collection, Kanagawa Prefectural Museum of Natural History, Odawara, Kanagawa, Japan.

GSFPM, General Station of Forest Pest Management, State Forestry Administration, Shenyang, China.

NARO, Institute for Plant Protection, National Agriculture and Food Research Organization, Tsukuba, Japan.

OMNH, Osaka Museum of Natural History, Osaka, Japan.

TMNH, Toyohashi Museum of Natural History, Toyohashi, Aichi, Japan.

ZISP, Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia.

ZSM, Zoologische Staatssammlung München, Germany.

A Nikon SMZ800N stereomicroscope (Nikon Co. Ltd., Japan) was used for observation. Photographs (Figs. 1–21) were taken using Olympus TG-4 digital camera (Olympus Co. Ltd., Japan) joined with the stereomicroscope. Digital images (Figs. 1–23) were edited using Adobe Photoshop® CC (Adobe Co. Ltd., USA). Morphological terminology followed Broad et al. (2018). Eady (1968) was also referred to for the description of microsculpture. The following abbreviations were used in the description: holotype (HT), segment of antennal flagellum (FL), diameter of lateral ocellus (OD), ocello-ocular line (OOL), postocellar line (POL), segment of tarsus (TS) and metasomal tergite (T). The following abbreviations were used for material data: female (F), male (M), and Malaise trap (MsT). For the new species and newly recorded species from Japan, I proposed a standard Japanese name (SJN).

Results and discussion

In this study, I classified Japanese Orthocentrinae into genus-level based on generic concepts of Townes (1971) and Humala (2007). I observed the specimens deposited in some foreign museums and Japanese specimens. By the result of the observation, the measurements given by Humala (2007) seemed to be the most accurate for the species concept, and the measurements given by Rossem (1981, 1982, 1983a, b, 1985, 1987, 1988, 1990, 1991) were usually in that range. However, the measurements given by Dasch (1992) sometimes deviated significantly from other studies. Dasch (1992) may have a rather broad definition of his "species", and it is often difficult to apply the definition of species to the taxonomic system of the Old World species. Therefore, I concluded that the classification of Japanese species should be done according to the descriptions given by Humala's and Rossem's papers, and the classification in this study was done according to these systems.

In the following taxonomic section, I studied nine genera and 22 species of Japanese Orthocentrinae including four new species and eight species new to Japan. The genus *Apoclima* Förster, 1869 and the subgenus *Dicolus* Förster, 1869 are newly recorded from Japan. A total of eight Japanese species recorded by Dasch (1992) (the localities were noted as "Japan") and/or by Kasparyan et al. (2012) are additionally recorded from several localities in Japan including the Northern Territories, namely, *Aperileptus albipalpus* (Gravenhorst, 1829), *Ape. vanus* Förster, 1871, *Eusterinx (Divinatrix) kurilensis* Humala, 2004, *E. (Ischyracis) bispinosa* (Strobl, 1901), *Hemiphanes erratum* Humala, 2007, *Megastylus (Megastylus) cruentator* Schiødte, 1838, *M. (M.) orbitator* Schiødte, 1838, and *Pantisarthrus lubricus* (Förster, 1871). By the results of this study, a total of 20 genera and 46 species of Orthocentrinae were recorded from Japan (Table 1).

Taxonomy

Subfamily Orthocentrinae Förster, 1869

[SJN: *Hae-himebachika*]

Genus *Aniseres* Förster, 1871

Aniseres Förster, 1871: 92. Type species: *Aniseres pallipes* Förster, 1871. Designated by Viereck (1914).

A single species, *An. subarcticus* Humala, 2007,

Table 1. Japanese* Orthocentrinae

Species	Distribution in Japan (literature)
<i>Aniseres baikalensis</i> Humala, 2007	Honshu: Nagano (present study)
<i>Aniseres subarcticus</i> Humala, 2007	Hokkaido (Watanabe, 2019b)
<i>Aperileptus albipalpus</i> (Gravenhorst, 1829)	Kunashiri Is. (Kasparyan et al., 2012); Hokkaido (present study)
<i>Aperileptus obscurus</i> Humala, 2007	Kunashiri Is. (Kasparyan et al., 2012)
<i>Aperileptus vanus</i> Förster, 1871	"Japan" (Dasch, 1992); Hokkaido; Honshu: Nagano, Yamanashi, Shizuoka; Yakushima Is. (present study)
<i>Apoclima brevicauda</i> sp. nov.	Hokkaido (present study)
<i>Apoclima longicauda</i> sp. nov.	Honshu: Aomori; Yakushima Is. (present study)
<i>Catastenus femoralis</i> Förster, 1871	"Japan" (Dasch, 1992)
<i>Catastenus japonicus</i> Watanabe, 2019	Hokkaido; Honshu: Yamanashi (Watanabe, 2019b)
<i>Dialipsis dissimilis</i> Dasch, 1992	"Japan" (Dasch, 1992); Kunashiri Is. (Kasparyan et al., 2012)
<i>Entypoma feralis</i> Rossem, 1988	Honshu: Nagano (Rossem, 1988)
<i>Eusterinx (Divinatrix) inaequalis</i> Rossem, 1981	"Japan" (Dasch, 1992)
<i>Eusterinx (Divinatrix) kurilensis</i> Humala, 2004	Kunashiri Is. (Kasparyan et al., 2012); Hokkaido; Honshu: Nagano (present study)
<i>Eusterinx (Holomeristus) tenuicincta</i> (Förster, 1871)	"Japan" (Dasch, 1992); Kunashiri Is. (Kasparyan et al., 2012); Honshu: Nagano (Rossem, 1982); Hokkaido (present study)
<i>Eusterinx (Ischyracis) bispinosa</i> (Strobl, 1901)	Kunashiri Is. (Kasparyan et al., 2012); Hokkaido (present study)
<i>Gnathochoris crassulus</i> (Thomson, 1888)	"Japan" (Dasch, 1992); Hokkaido; Honshu: Yamanashi, Nagano, Toyama, Tottori (Watanabe, 2020)
<i>Gnathochoris dentifer</i> (Thomson, 1888)	"Japan" (Dasch, 1992); Hokkaido; Honshu: Nagano (Watanabe, 2020)
<i>Gnathochoris flavipes</i> Förster, 1871	Hokkaido; Honshu: Ibaraki, Niigata, Toyama; Kyushu: Kagoshima; Yakushima Is. (Watanabe, 2020)
<i>Gnathochoris fuscipes</i> Humala & Lee, 2016	Honshu: Toyama (Watanabe, 2020)
<i>Gnathochoris koreensis</i> Humala & Lee, 2016	Tsushima Is. (Watanabe, 2020)
<i>Gnathochoris nipponicus</i> Watanabe, 2020	Honshu: Hyogo (Watanabe, 2020)
<i>Helictes borealis</i> (Holmgren, 1857)	Kunashiri Is. (Kasparyan et al., 2012)
<i>Helictes erythrostoma</i> (Gmelin, 1790)	Kunashiri Is. (Kasparyan et al., 2012)
<i>Hemiphanes erratum</i> Humala, 2007	Kunashiri Is. (Kasparyan et al., 2012); Hokkaido; Honshu: Tochigi, Yamanashi, Nagano, Fukui (present study)
<i>Hemiphanes flavipes</i> Förster, 1871	Kunashiri Is. (Kasparyan et al., 2012)
<i>Hemiphanes gravator</i> Förster, 1871	Hokkaido; Honshu: Tochigi, Kanagawa, Yamanashi, Toyama (present study)
<i>Hemiphanes japonicum</i> sp. nov.	Hokkaido; Honshu: Gunma, Toyama (present study)
<i>Megastylus (Dicolus) excubitor</i> (Förster, 1871)	Honshu: Yamagata, Yamanashi, Nagano, Toyama; Yakushima Is. (present study)
<i>Megastylus (Dicolus) impressor</i> Schiodte, 1838	Hokkaido; Honshu: Niigata, Tochigi, Kanagawa, Yamanashi, Shizuoka, Toyama, Ishikawa, Kyoto; Kyushu: Fukuoka (present study)
<i>Megastylus (Dicolus) pectoralis</i> (Förster, 1871)	Hokkaido; Honshu: Yamagata, Fukushima, Niigata, Tochigi, Kanagawa, Shizuoka, Nagano, Toyama; Shikoku: Tokushima; Kyushu: Saga, Oita (present study)
<i>Megastylus (Megastylus) cruentator</i> Schiodte, 1838	Kunashiri Is. (Kasparyan et al., 2012); Hokkaido; Honshu: Niigata, Yamanashi, Nagano, Toyama (present study)
<i>Megastylus (Megastylus) orbitator</i> Schiodte, 1838	"Japan" (Dasch, 1992); Shikotan Is. (Kasparyan et al., 2012); Hokkaido; Honshu: Miyagi, Tochigi, Toyama, Ishikawa; Kyushu: Fukuoka (present study)
<i>Megastylus (Megastylus) kusltziki</i> Humala, 2007	Hokkaido (present study)
<i>Neurateles asiaticus</i> Watanabe, 2016	Honshu: Tochigi (Watanabe, 2016); Honshu: Shizuoka (present study)
<i>Orthocentrus brachycerus</i> Humala & Lee, 2020	Hokkaido; Honshu: Iwate, Miyagi, Gunma, Ibaraki, Shizuoka; Kyushu: Oita; Okinawajima Is. (Watanabe et al., 2020)
<i>Orthocentrus winnertzi</i> Förster, 1869	Hokkaido (Humala et al., 2020)
<i>Pantisarthrus lubricus</i> (Förster, 1871)	"Japan" (Dasch, 1992: as <i>P. inaequalis</i>); Hokkaido; Honshu: Aomori, Iwate (present study)
<i>Plectiscidea (Fugatrix) communis</i> (Förster, 1871)	"Japan" (Dasch, 1992); Kunashiri Is. (Kasparyan et al., 2012); Hokkaido; Honshu: Nagano, Kanagawa, Gifu, Osaka; Kyushu: Fukuoka, Miyazaki (Watanabe, 2019a)
<i>Plectiscidea (Plectiscidea) collaris</i> (Gravenhorst, 1829)	Kunashiri Is.; Shikotan Is. (Kasparyan et al., 2012)
<i>Proclitus fulvicornis</i> (Förster, 1871)	"Japan" (Dasch, 1992)
<i>Proclitus ganicus</i> Sheng & Sun, 2013	Honshu: Kanagawa; Shikoku: Kagawa; Yakushima Is.; Yakushima Is.; Amamioshima Is.; Tokunoshima Is.; Okinawajima Is.; Ishigakijima Is.; Iriomotejima Is.; Yonagunijima Is. (present study)
<i>Proclitus praetor</i> (Haliday, 1838)	Hokkaido; Honshu: Gunma, Nagano (present study)
<i>Proclitus tuberculatus</i> sp. nov.	Honshu: Kanagawa, Aichi; Amamioshima Is.; Tokunoshima Is.; Okinawajima Is.; Iriomotejima Is. (present study)
<i>Stenomacrus dendrolimi</i> (Matsumura, 1926)	Etorofu Is. (Kasparyan et al., 2012)
<i>Symplecis bicingulata</i> (Gravenhorst, 1829)	"Japan" (Dasch, 1992); Kunashiri Is. (Kasparyan et al., 2012); Hokkaido; Honshu: Aomori, Iwate, Miyagi, Gunma, Hyogo; Shikoku: Tokushima; Kyushu: Oita (Watanabe et al., 2020)
<i>Terminator notabilis</i> Humala, 2007	Hokkaido (Watanabe, 2018)

* not including a species previously recorded from Sakhalin, *Orthocentrus fulvipes* Gravenhorst, 1829.

has been recorded in Japan (Watanabe, 2019b). In this study, I newly record *An. baikalensis* Humala, 2007 from Japan.

***Aniseres baikalensis* Humala, 2007**
 [New SJN: *Baikal-hae-himebachi*]
 (Figs. 1A–C)

Aniseres baikalensis Humala, 2007: 695.

Diagnosis. Clypeus tinged with yellow except for dorsal margin, its coloration clearly differed from face (Fig. 1B). Antenna with 19–20 flagellomeres. FL I 3.0 (female) and 3.3 (male) times as long as maximum depth in lateral view. Lateromedian longitudinal carina of propodeum well developed. Fore wing without vein rs-m. Distal abscissa of vein M of fore wing distinct and pigmented. Hind coxa reddish yellow (Figs. 1A, C). Ovipositor straight (Fig. 1A). Ovipositor sheath 1.0

times as long as hind tibia and ca. 0.3 times as long as fore wing. Body length 3.6–4.4 mm.

Material examined. JAPAN: KPM-NK 89765: F, Nagano Pref., Outaki Vil., Mt. Ontake-san, 25. VI. – 15. VII. 2015, S. Shimizu leg. (MsT). RUSSIA: ZISP, F (holotype), Buryatia, pos. Dungan, 13 km Kudara Somone, 9. VIII. 1970, D. R. Kasparyan leg.

Distribution. Japan (Honshu) and Far East Russia.

Remarks. This is the first record of this species from Japan. Japanese female (KPM-NK 89765) has 20 segmented flagellum (19 in holotype). In many orthocentrine species, the number of antennal segments frequently varied in number and thus I conclude that it is an intraspecific variation. This species can be easily distinguished from *An. subarcticus* by the yellowish clypeus (not yellow in *An. subarcticus*).

Genus *Aperileptus* Förster, 1869

Aperileptus Förster, 1869: 109. Type species: *Plectiscus albipalpus* Gravenhorst, 1829. Designated by Förster (1871).

Three species, *Ape. albipalpus* (Gravenhorst, 1829),

Ape. obscurus Humala, 2007, and *Ape. vanus*, have been recorded from Japan (Dasch, 1992; Kasparyan et al., 2012). In this study, I record some distribution data of *Ape. albipalpus* and *Ape. vanus*. The identification of males of this genus is difficult except for *Ape. vanus*, thus the male of *Ape. albipalpus* was not treated in this study.

Aperileptus albipalpus (Gravenhorst, 1829)
[New SJN: *Tairiku-tsuya-hae-himebachi*]
(Figs. 2A–C, 221)

Plectiscus albipalpus Gravenhorst, 1829: 986.

Aperileptus penetrans Förster, 1871: 76.

Aperileptus fungicola Förster, 1871: 77.

Aperileptus placidus Förster, 1871: 77.

Aperileptus tutorius Förster, 1871: 77.

Aperileptus vacuus Förster, 1871: 77.

Aperileptus custoditor Förster, 1871: 78.

Aperileptus euryzonus Förster, 1871: 78.

Aperileptus extirpator Förster, 1871: 78.

Aperileptus frontalis Förster, 1871: 78.

Aperileptus impacatus Förster, 1871: 78.

Aperileptus conformis Förster, 1871: 79.

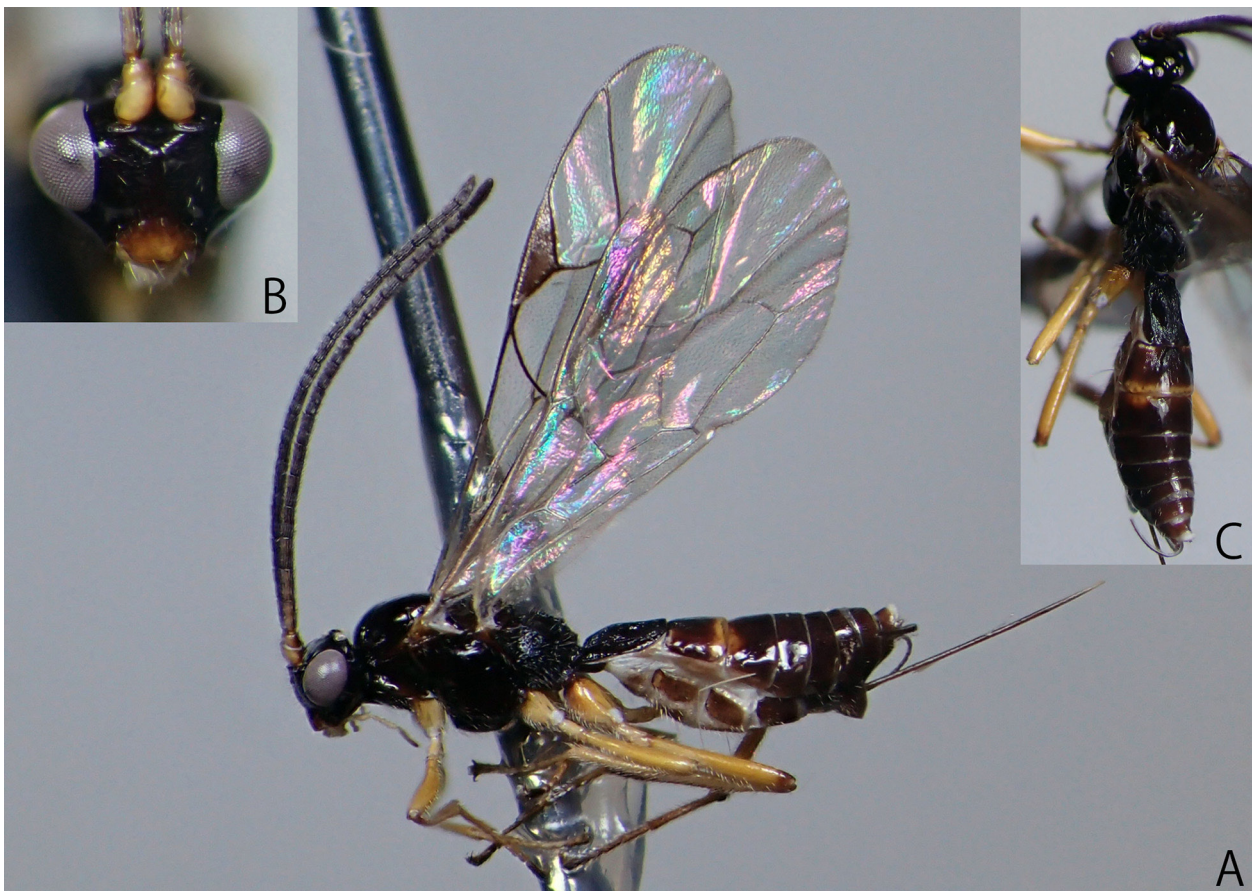


Fig. 1. *Aniseres baikalensis* Humala, 2007 (KPM-NK 89765, female) — A: lateral habitus; B: head, frontal view; C: head, mesosoma, and metasoma, dorsolateral view.

Aperileptus vittiger Förster, 1871: 79.

Phytodietus gracilis Provancher, 1875: 331.

Proedrus delicatus Ashmead, 1897 in Slosson, 1897: 237.

Catastenus valerius Davis, 1897: 243.

Aperileptus clypeatus Ashmead, 1902 in Slosson, 1902a: 6.

Aperileptus nigrovittatus Strobl, 1904: 123.

Aperileptus nigricarpus Strobl, 1904: 124.

Aperileptus clypeatus Cushman, 1922: 4.

Aperileptus delicatus Cushman, 1922: 5.

Diagnosis. Epicnemial carina absent ventrally (Fig. 221). Maximum width of face 2.7–3.3 times as long as malar space. Ovipositor sheath, 1.3–1.6 times as long as hind tibia, 0.40–0.48 times as long as fore wing. T I more or less polished. Male hind femur without a dorsolateral pit. Face usually light brown or light spots below the antenna sockets (female: Fig. 2B) or entirely yellow (male). Metasomal tergites usually with a reddish-brown area (Figs. 2A, C). Fore wing length 3.5–5.5 mm.

Materials examined. JAPAN: EUM, F, Hokkaido. Sapporo City, Hitsujigaoka, 21–28. V. 2003, K. Konishi leg. (MsT); EUM, 2 F, ditto, 11–18. VI. 2003;

EUM, F, 18–25. VI. 2003; EUM, F, ditto, 25. VI. – 2. VII. 2003; EUM, F, ditto, 2–9. VII. 2003.; EUM, 2 F, 11–18. VII. 2011; EUM, 2 F, Hokkaido, Sapporo City, Usubetsu, 29. IV. – 24. V. 2012, N. Kuhara leg. (MsT); NARO, F, Hokkaido, Kumaishi, Kenichigawa, Iwafuchi-zawa, 10–21. VIII. 1995, Y. Ito & T. Ito leg. (MsT); NARO, F, Hokkaido, Eniwa, Izari, Ichankoppe-zawa, 20–30. VI. 1995, Y. Ito leg. (MsT); KPM-NK 81184, F, Hokkaido, Sapporo City, Mt. Soranuma-dake, 14. VI. – 4. VII. 2007, A. Ueda leg. (MsT). CRIMEA: ZISP, F (det. Rossem), Mezhhirya, 9. IX. 1980, D. R. Kasparyan leg.

Bionomics. Unknown in Japan. Some *Mycetophila* species (Mycetophilidae) were recorded as hosts (Yu et al., 2016).

Distribution. Japan (Kunashiri Is. and Hokkaido); widely distributed in the Holarctic region (Yu et al., 2016).

Remarks. This is the first record of this species from Hokkaido.

Aperileptus vanus Förster, 1871

[New SJN: *Munehida-tsuya-hae-himebachi*]

(Figs. 3A–E, 22J)

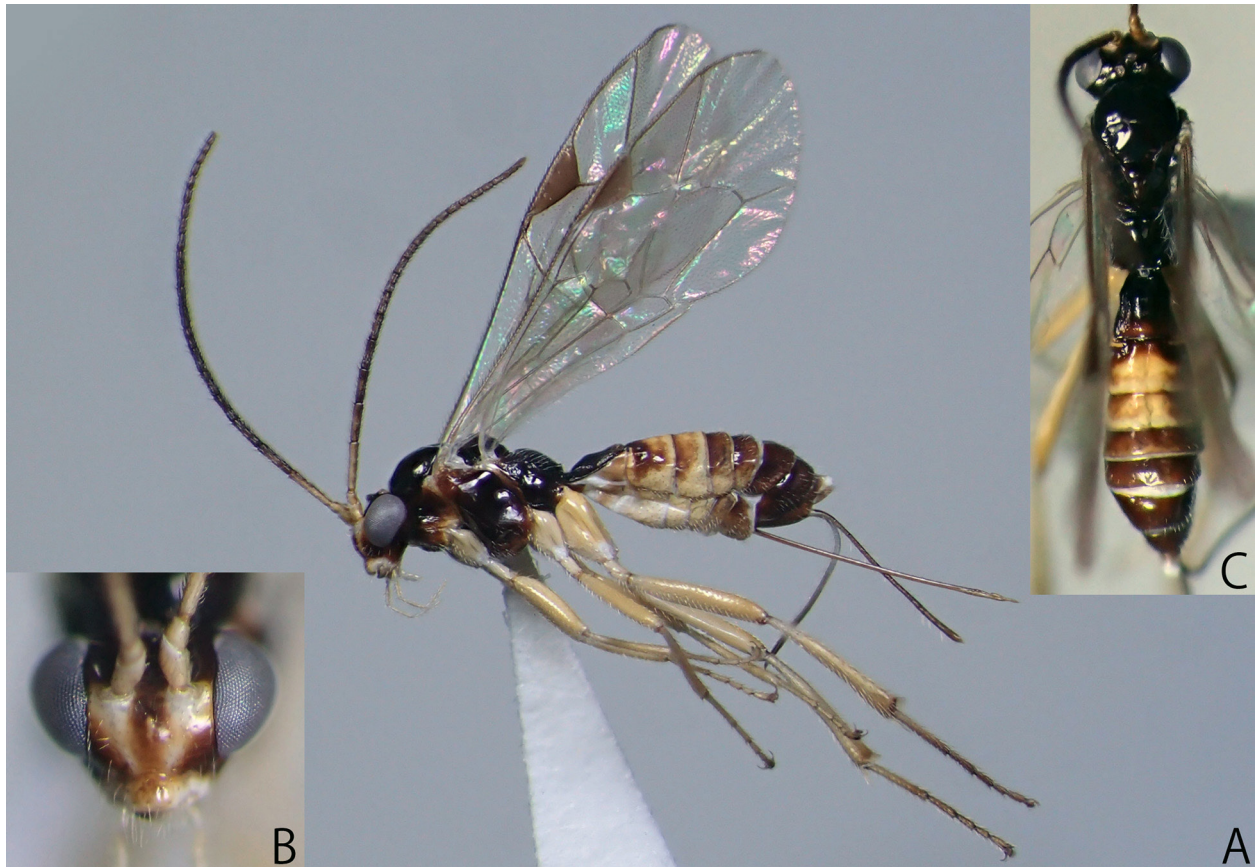


Fig. 2. *Aperileptus albipalpus* (Gravenhorst, 1829) (EUM, female) — A: lateral habitus; B: head, frontal view; C: head, mesosoma, and metasoma, dorsal view.

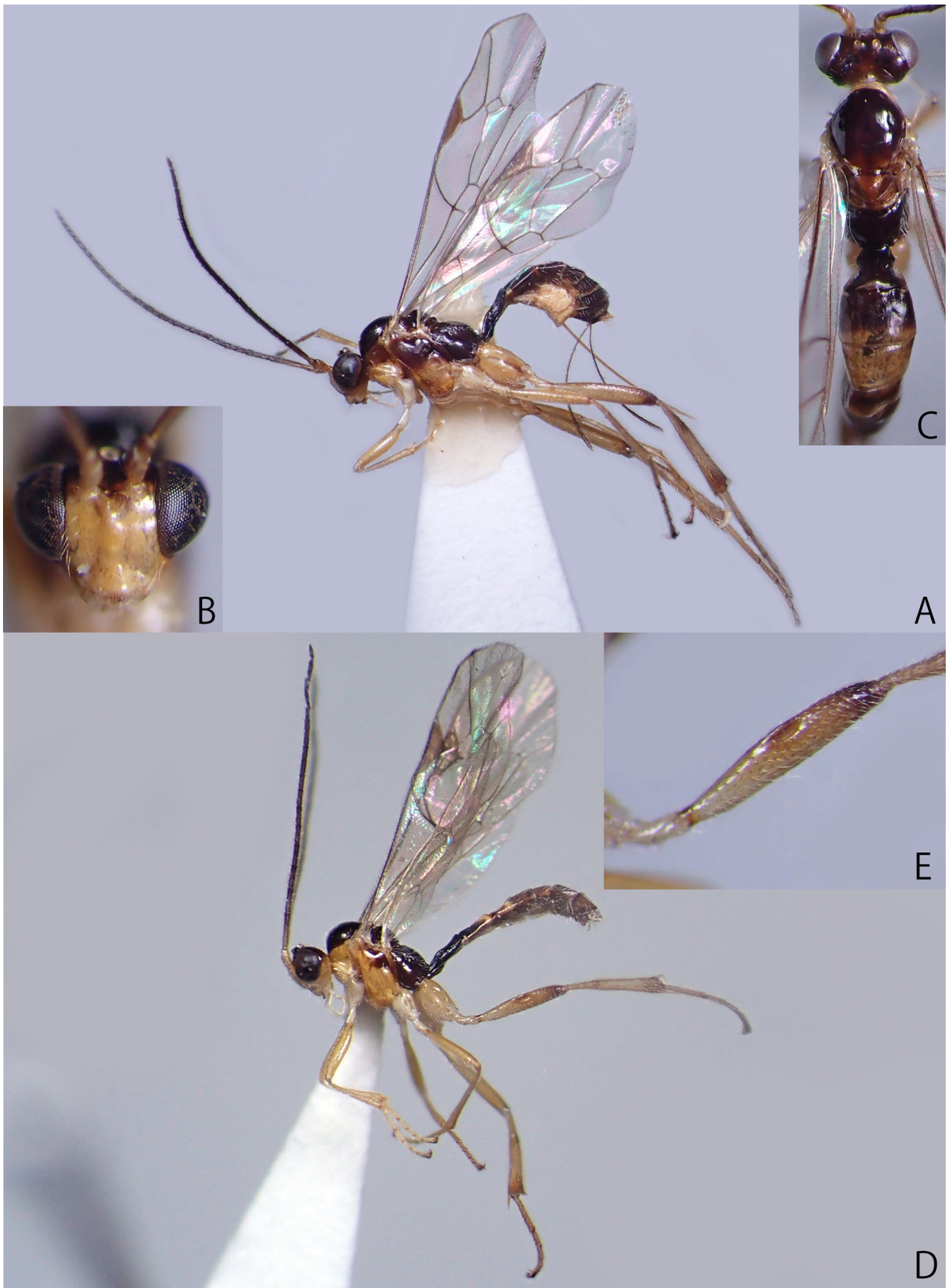


Fig. 3. *Aperileptus vanus* Förster, 1871 (A–C: KPM-NK 81109, female; D, E: EUM, male) — A, D: lateral habitus; B: head, frontal view; C: head, mesosoma, and metasoma, dorsal view; E: hind femur, lateral view.

Aperileptus vanus Förster, 1871: 78.

Plectiscus (Aperileptus) obliquus Thomson, 1888: 1295.

Diagnosis. Epicnemial carina complete (Fig. 22J). Malar space long, 1.7–2.0 times as long as basal width of mandible, 0.4 times as long as width of face. Nervellus reclivous (Figs. 3A, D). T I mat. Ovipositor sheath 0.4–0.5 times as long as fore wing, 1.2–1.4 times as long as hind tibia. Width of female face 0.45–0.5 times as wide as head. Male hind femur with a dorsolateral pit (Fig. 3E). Fore wing length 3.5–4.0 mm.

Materials examined. **JAPAN:** NARO, F, Hokkaido, Sapporo City, Jozankei, 20–29. VIII. 1989, K. Maeto & M. Sharkey leg. (MsT); NARO, 5 F & 1 M, ditto, 29. VIII. – 12. IX. 1989; NARO, 3 F & 1 M, ditto, 12–21. IX. 1989; NARO, 2 F, ditto, 21–28. IX. 1989; NARO, F, Hokkaido, Kumaishi, Kenichi-gawa, Iwafuchi-zawa, 21–29. IX. 1995, Y. Ito & T. Ito leg. (MsT); NARO, F, ditto, 10–20. X. 1995; NARO, Hokkaido, Ebetsu City, Nopporo, 29. VI. – 4. VII. 1992, K. Konishi leg. (MsT); EUM, F, Hokkaido, Yuni, Kuobetsu-gawa R., 2–12. VII. 2007, N. Kuhara leg. (MsT); EUM, F, Hokkaido. Sapporo City, Hitsujigaoka, 18–25. VI. 2003, K. Konishi leg. (MsT); EUM, M, ditto, 9–16. VII. 2003; EUM, F, ditto, 19–26. XI. 2003; EUM, F, ditto, 14–21. IX. 2010; EUM, 1 F & 1 M, Hokkaido, Bifue, Kusabue-rindo, 17. VIII. – 1. IX. 2012, N. Kuhara leg. (MsT); NARO, F, Hokkaido, Sapporo City, Misumai, Kannon-zawa, 7–21. IX. 1993, N. Kuhara leg. (MsT); NARO, F, Yamanashi Pref., Daibosatsu-toge, 16. V. 1964, T. Kikuchi leg.; KPM-NK 81109, F, Yamanashi Pref., Yamato Vil., Sagashio, 16. VI. 2007, K. Watanabe leg.; KPM-NK 81110, F, Yamanashi Pref., Enzan City., Daibosatsu, Kaminikkawa-toge, 16. VI. 2007, K. Watanabe leg.; KPM-NK 89803, F, Nagano Pref., Outaki Vil., Mt. Ontake-san, 25. VI. – 15. VII. 2015, S. Shimizu leg. (MsT); KPM-NK 89804, F, Nagano Pref., Ueda City, Sugadaira-kogen, Tsukuba University, 19. X. – 16. XI. 2014, S. Shimizu leg. (MsT); KPM-NK 81111, F, Shizuoka Pref., Kawanehoncho Town, Yamainudan, 14. VI. 2008, K. Watanabe leg.; KPM-NK 81112, F, Kagoshima Pref., Yakushima Is., Mt. Aiko-dake, 26. X. – 27. IX. 2006, T. Yamauchi leg. (MsT). **CHINA:** F (det. Sheng), Liaoning Province, Dandong, Kuandian, 23. VI. 2007, M-L. Sheng. Leg. **RUSSIA:** ZISP, F (det. by Humala), Krasnoselkup, 11. VIII. 1992, D. R. Kasparyan leg.; ZISP, F (det. by Rossem), “Тебердинский запов. дол.р.Теберда”, 8. VII. 1976, D. R. Kasparyan leg.

Distribution. Japan (Hokkaido, Honshu, and Yakushima Is.); widely distributed in the Holarctic region.

Bionomics. Unknown in Japan. Solitary parasitoid of *Mycetophila hetschkoi* Laudrock and *Exechia bincta* (Staeger) (Mycetophilidae) (Humala, 2007).

Remarks. This is the first record of this species from Hokkaido, Honshu, and Yakushima Island.

Genus *Apoclima* Förster, 1869

Apoclima Förster, 1869: 171. Type species: *Apoclima signaticorne* Förster, 1881. Designated by Förster (1871).

In this study, I newly record this genus from Japan based on two new species, *Apo. brevicauda* **sp. nov.** and *Apo. longicauda* **sp. nov.**, from Japan. Eastern Palearctic species can be distinguished by the following key.

Key to species of *Apoclima* recorded from Eastern Palearctic region

(Male of *Apo. longicauda* **sp. nov.** are unknown)

1. Female 2
- Male 4
2. Ovipositor short, its sheath 0.7–0.85 times as long as hind tibia. T II 0.55–0.6 times as long as maximum width. *Apo. brevicauda* **sp. nov.**
- Ovipositor long, its sheath more than 0.95 times as long as hind tibia. T II more than 0.7 times as long as maximum width. 3
3. Ovipositor sheath 1.25–1.3 times as long as hind tibia *Apo. longicauda* **sp. nov.**
- Ovipositor sheath 1.0 times as long as hind tibia *Apo. signaticorne* Förster, 1881 and *Apo. rossicum* Humala, 2007
4. Notch of FL III weak, with an obtuse tooth. FL I 5.0–5.5 times as long as maximum depth in lateral view *Apo. rossicum* Humala, 2007
- Notch of FL III strong, with sharply projecting tooth (Figs. 4E, 5 F). FL I shorter than 4.2 times as long as maximum depth in lateral view 5
5. Tooth of FL III with two short setae, its shorter than the height of tooth (Fig. 22F). Flagellum with 18–19 segments *Apo. brevicauda* **sp. nov.**

- . Tooth of FL III with two long setae, its longer than the height of tooth. Flagellum with 21 segments
 *Apo. signaticorne* Förster, 1881

***Apoclima brevicauda* sp. nov.**

[New SJN: *Ezo-chibi-hae-himebachi*]

(Figs. 4A–E, 22A, F)

Type series. Holotype: JAPAN: NARO, F, Hokkaido, Sapporo City, Misumai, Kannon-zawa, 17–30. VII. 1993, N. Kuhara leg. (MsT). **Paratypes:** JAPAN: NARO, 2 M, Hokkaido, Sapporo City, Misumai, Kannon-zawa, 16–27. VII. 1992, N. Kuhara leg. (MsT); NARO, 3 M, ditto, 23. VI. – 4. VII. 1993; NARO, 2 F & 9 M, same data of holotype; NARO, F, ditto, 7–21. IX. 1993; EUM, 3 F & 1 M, Hokkaido, Yuni, Kuobetsu-gawa R., 2–12. VII. 2007, N. Kuhara leg. (MsT).

Diagnosis. FL I 4.0 (female) or 3.3–3.6 (male) times as long as maximum depth in lateral view. Ovipositor short, its sheath 0.7–0.85 times as long as hind tibia. T II 0.55–0.6 times as long as maximum width. Notch of male FL III strong, with sharply projecting tooth with two short setae, these setae shorter than the height of tooth. Male flagellum with 18–19 segments. Coxae reddish yellow to yellow.

Description. Female (n = 7). Body length 3.3–4.05 (HT: 3.7) mm, polished and covered with silver setae.

Head 0.7–0.75 (HT: 0.7) times as long as wide. Clypeus 2.2–2.3 (HT: 2.2) times as broad as high, reticulate coriaceous. Supraclypeal groove deep. Face 1.7–1.8 (HT: 1.7) times as broad as high, reticulate coriaceous, weakly convex medially in lateral view. Malar space 2.4–2.6 (HT: 2.6) times as long as basal mandibular width. POL 1.2–1.6 (HT: 1.6) times as long as OD. OOL 1.1–1.4 (HT: 1.4) times as long as OD. Inner eye orbit almost parallel. Occipital carina absent dorso-medially (Fig. 22A). Vertex reticulate coriaceous, weakly concave medially. Gena reticulate coriaceous. Mandible strongly twisted, upper tooth slightly longer than lower tooth. Flagellum with 17–18 (HT: 18) segments, all segments longer than its maximum depth in lateral view. FL I 4.0 times as long as maximum depth in lateral view and 1.2–1.25 (HT: 1.25) times as long as FL II.

Mesosoma reticulate coriaceous (sculpture on mesoscutum, metapleuron, and propodeum denser than other parts and thus these parts apparently matt). Mesoscutum with distinct notaulus, its posterior end situated near the middle of mesoscutum. Scutellum largely smooth. Speculum with a conspicuous smooth

area. Propodeum with all carinae except for anterior transverse carina. Fore wing length 3.3–3.8 (HT: 3.7) mm. Vein rs-m of fore wing short. Vein 1cu-a of fore wing slightly postfurcal. Vein 2r&RS of fore wing extends from pterostigma for its middle. Hind wing with nervellus intercepted behind or near the middle. Hind femur 4.6–5.2 (HT: 5.0) times as long as maximum depth in lateral view. Hind TS I 2.1–2.3 (HT: 2.3) times as long as TS II. Hind TS II 4.0 times as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I 1.2–1.3 (HT: 1.2) times as long as maximum width, densely reticulate coriaceous (apparently matt) (Fig. 4C), strongly convex medially. T II 0.55–0.6 (HT: 0.6) times as long as maximum width, reticulate coriaceous anteriorly, smooth posteriorly (Fig. 4C), with a pair of narrow thrydia. T II to T VII largely smooth. Ovipositor sheath 0.26–0.28 (HT: 0.28) times as long as fore wing and 0.7–0.85 (HT: 0.85) times as long as hind tibia.

Coloration (Figs. 4A–C). Body (excluding wings and legs) black to blackish brown. Mandible, basal segments of antenna, thridium, posterior part of T II, and ovipositor yellowish brown. Tegula brown. Palpi and membranous sections of metasomal sternites whitish yellow. Wings hyaline. Veins and pterostigma pale brown to brown. Legs reddish yellow to yellow. Brownish or yellowish areas of Tegula and T II sometimes indistinct.

Male (n = 15). Similar to female. Clypeus 2.05–2.2 × as broad as high. Face 1.5–1.55 × as broad as high. Malar space 0.95–1.05 × as long as basal mandibular width. Flagellum with 18–19 segments. FL I 3.3–3.6 times as long as maximum depth in lateral view and 1.1 times as long as FL II. FL III with strong notch and sharply projecting tooth (Fig. 22F). Tooth of FL III with two short setae, its shorter than the height of tooth (Fig. 22F). T I 0.7–0.75 × as long as maximum width. T II 0.75–0.85 × as long as maximum width.

Distribution. Japan (Hokkaido).

Etymology. The specific name is from the Latin *brevi-* (short) plus *cauda* (tail). This species has a short ovipositor.

Remarks. This species resembles *A. signaticorne* but can be distinguished from the ovipositor sheath distinctly shorter than the hind tibia (as long as in *A. signaticorne*) and the tooth of FL III with two short setae shorter than the height of teeth (with long setae, its longer than the height of teeth in *A. signaticorne*).



Fig. 4. *Apoclima brevicauda* **sp. nov.** (A–C: NARO, holotype, female; D, E: NARO, paratype, male) — A, D: lateral habitus; B, E: head, frontal view; C: head, mesosoma, and metasoma, dorsal view.

Apoclima longicauda sp. nov.[New SJN: *Onaga-chibi-hae-himebachi*]

(Figs. 5A–C)

Type series. Holotype: JAPAN: NARO, F, Kagoshima Pref., Yakushima Is., Mt. Aiko-dake, 11. V. 1983, K. Konishi leg. **Paratypes:** JAPAN: NARO, F, Aomori Pref., Aomori City, Moyatouge, 27. VI. – 4. VII. 1992, T. Ichita leg.; NARO, F, Aomori Pref., Aomori City, Moyasawa, 11. VII. 1992, T. Ichita leg.

Diagnosis. FL I 4.0–5.0 times as long as maximum depth in lateral view. Ovipositor sheath 0.43–0.44 times as long as fore wing and 1.25–1.3 times as long as hind tibia. Coxae reddish yellow to yellow.

Description. Female (n = 3). Body length 3.0–3.6 (HT: 3.0) mm, polished and covered with silver setae.

Head 0.7 times as long as wide. Clypeus 1.9–2.1 (HT: 2.0) times as broad as high, smooth. Supraclypeal groove deep. Face 1.7–1.8 (HT: 1.7) times as broad as high, reticulate coriaceous, weakly convex medially in lateral view. Malar space 2.0–2.2 (HT: 2.0) times as long as basal mandibular width. POL 1.2–1.4 (HT: 1.4) times as long as OD. OOL 1.4 times as long as OD. Inner eye orbit weakly divergent ventrally. Occipital carina absent dorso-medially. Vertex reticulate coriaceous, weakly concave medially. Gena reticulate

coriaceous. Mandible strongly twisted, upper tooth slightly longer than lower tooth. Flagellum with 17–18 (HT: 17) segments, all segments longer than its maximum depth in lateral view. FL I 4.0–5.0 (HT: 4.0) times as long as maximum depth in lateral view and 1.05–1.25 (HT: 1.0) times as long as FL II.

Mesosoma reticulate coriaceous (sculpture on mesoscutum, metapleuron, and propodeum denser than other parts and thus these parts apparently matt). Mesoscutum with distinct notaulus, its posterior end situated near the middle of mesoscutum. Speculum with a conspicuous smooth area. Propodeum with posterior transverse carina, pleural carina and posterior section of lateromedian longitudinal carina. Fore wing length 2.85–3.0 (HT: 2.85) mm. Vein rs-m of fore wing short. Vein 1cu-a of fore wing interstitial or slightly postfurcal. Vein 2r&RS of fore wing extends from pterostigma for its middle. Hind wing with nervellus intercepted at the middle. Hind femur 4.1–5.0 (HT: 5.0) times as long as maximum depth in lateral view. Hind TS I 2.2–2.4 (HT: 2.3) times as long as TS II. Hind TS II 4.0 times as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I 1.2–1.35 (HT: 1.2) times as long as maximum width, densely reticulate coriaceous (apparently matt) (Fig. 5 C), strongly convex medially. T



Fig. 5. *Apoclima longicauda* sp. nov. (A–C: NARO, holotype, female) — A: lateral habitus; B: head, frontal view; C: head, mesosoma, and metasoma, dorsal view.

II 0.8–0.85 (HT: 0.8) times as long as maximum width, reticulate coriaceous anteriorly, smooth posteriorly (Fig. 5 C), with a pair of narrow thrydia. T II to T VII largely smooth. Ovipositor sheath 0.43–0.44 (HT: 0.44) times as long as fore wing and 1.25–1.3 (HT: 1.3) times as long as hind tibia.

Coloration (Figs. 5A–C). Body (excluding wings and legs) black to blackish brown. Mandible, basal segments of antenna, tegula, thridium, posterior part of T II, and ovipositor yellowish brown. Palpi and membranous sections of metasomal sternites whitish yellow. Wings hyaline. Veins and pterostigma pale brown to brown. Legs reddish yellow to yellow.

Male. Unknown.

Distribution. Japan (Honshu and Yakushima Is.).

Etymology. The specific name is from the Latin *longi-* (long) plus *cauda* (tail). This species has a long ovipositor.

Remarks. This species can be distinguished from other species by the long ovipositor.

Genus *Eusterinx* Förster, 1868

Eusterinx Förster, 1869: 172. Type species: *Eusterinx oligomera* Förster, 1871. Designated by Viereck (1914).

Subgenus *Divinatrix* Rossem, 1987

Divinatrix Rossem, 1987: 95. Type species: *Eusterinx (Divinatrix) inaequalis* Rossem, 1981. Original designation.

Two species, *E. (D.) inaequalis* Rossem, 1981 and *E. (D.) kurilensis*, have been recorded in Japan (Dasch, 1992; Kasparyan et al., 2012). In this study, I record some distribution data of the latter species.

Eusterinx (Divinatrix) kurilensis Humala, 2004

[New SJN: *Kunashiri-hae-himebachi*]

(Figs. 6A–C, 22K)

Eusterinx (Divinatrix) kurilensis Humala, 2004: 67.

Diagnosis. Antenna of male with tyloids from FL VI to FL VIII (sometimes weak in FL VIII). Inner eye orbit strongly convergent ventrally (Fig. 6B). Occipital carina complete. T II and T III each divided into two parts by a transverse groove (Fig. 6C). Propodeum without a pair of spine-like apophyses (Figs. 6A, C). Fore wing with an areolet. T I 2.75–2.9 times as long as maximum width,



Fig. 6. *Eusterinx (Divinatrix) kurilensis* Humala, 2004 (A–C: NARO, female) — A: lateral habitus; B: head, frontal view; C: head, mesosoma, and metasoma, dorsolateral view.

without conspicuous median dorsal carina except for base. Posterior parts of T II and T III covered with longitudinal striae, which similar to the anterior part (or slightly weaker than anterior part in T III) (Figs. 6C, 22K). T IV with a conspicuous transverse groove, its posterior part usually covered with longitudinal striae (Figs. 6C, 22K). Hind coxa more or less darkened (Figs. 6A, C).

Material examined. JAPAN: ZISP, F (holotype), Kunashiri Is., 7 km N. of Mendelevo, 2. VIII. 1981, S. Belokobylskij leg.; NARO, 2 F & 3 M, Hokkaido, Sapporo City, Jozankei, 20–31. VII. 1989, K. Maeto & M. Sharkey leg. (MsT); NARO, F, ditto, 21–29. VIII. 1989; NARO, F, ditto, 29. VIII. – 12. IX. 1989; NARO, M, Hokkaido, Kumaishi, Kenichigawa, Iwafuchi-zawa, 20. VII. – 1. VIII. 1995, Y. Ito & T. Ito leg. (MsT); EUM, M, Hokkaido, Yuni, Kuobetsu-gawa R., 2–12. VII. 2007, N. Kuhara leg. (MsT); NARO, F, Hokkaido, Sapporo City, Misumai, Kannon-zawa, 24. VIII. – 7. IX. 1993, N. Kuhara leg. (MsT); KPM-NK 81186, F, Hokkaido, Bifue, Kusabue-rindo, 17. VIII. – 1. IX. 2012, N. Kuhara leg. (MsT); NARO, 3 M, Nagano Pref., Shiga-kogen, 26–27. VII. 1961, J. Minamikawa leg.

Distribution. Japan (Kunashiri Is., Hokkaido and Honshu), Far East Russia and Korea (Yu et al., 2016; Humala et al., 2017).

Remarks. This is the first record of this species from Hokkaido. Longitudinal striation of posterior parts of T III and T IV is sometimes reduced in Japanese specimens.

Subgenus *Holomeristus* Förster, 1869

Holomeristus Förster, 1869: 171. Type species: *Holomeristus tenuicincta* Förster, 1871. Designated by Förster (1871).

A single species, *E. (H.) tenuicincta* (Förster, 1871), has been recorded in Japan (Rossem, 1982; Kasparyan et al., 2012). In this study, I record some distribution data of this species.

***Eusterinx (Holomeristus) tenuicincta* (Förster, 1871)**
[SJN: *Jyuzuhige-hae-himebachi*]
(Figs. 7A–C, 22H, L)

Holomeristus tenuicincta Förster, 1871: 80.
Mesoleptus fungicola Ashmead, 1894: 50.

Diagnosis. Eye covered with a few indistinct setae. Inner eye orbit not strongly convergent ventrally (Fig. 7B). Malar space 0.2–0.25 times as long as basal width of mandible. Antenna with 16 flagellomeres. Notaulus sharp and distinct, reached to the centre of mesoscutum (Fig. 22H). Mesopleuron with longitudinal striae ventrally. Propodeum without a pair of spine-like apophysis (Fig. 7A). Anterior transverse carina of propodeum complete. Area superomedia of propodeum elongated and slightly narrowed posteriorly (Fig. 22L). Fore wing with an areolet (Fig. 7A). T II longitudinally striated. T II and T III each not divided into two parts by a transverse groove (Fig. 7C). Ovipositor upcurved (Fig. 7A), 0.2–0.3 times as long as hind wing. Clypeus and mandible tinged with yellow (Fig. 7B). Hind coxa and femur reddish brown (Fig. 7A). Pronotum and posterior parts of T II and T III sometimes tinged with reddish brown.

Material examined. JAPAN: EUM, 2 F, Hokkaido, Sapporo City, Hitsujigaoka, 11–18. VII. 2011, K. Konishi leg. (MsT); NARO, 2 F, Hokkaido, Sapporo City, Jozankei, 20–31. VII. 1989, K. Maeto & M. Sharkey leg. (MsT); NARO, 2 F, ditto, 21–29. VIII. 1989; NARO, 3 F, ditto, 29. VIII. – 12. IX. 1989; NARO, F, ditto, 12–21. IX. 1989; EUM, 1 M, Hokkaido, Yuni, Kuobetsu-gawa R., 2–12. VII. 2007, N. Kuhara leg. (MsT); EUM, 4 F, Hokkaido, Bifue, Kusabue-rindo, 17. VIII. – 1. IX. 2012, N. Kuhara leg. (MsT).

UNREADABLE LOCALITY DATA: ZISP, F (det. Rossem), 20. VIII. 1980, Kasparyan leg.

Distribution. Japan (Kunashiri Is., Hokkaido and Honshu); widely distributed in Holarctic region (Yu et al., 2016).

Remarks. This is the first record of this species from Hokkaido.

Subgenus *Ischyracis* Förster, 1869

Ischyracis Förster, 1869: 175. Type species: *Catomicrus alpinus* Strobl, 1904 (= *Hemiteles bispinosus* Strobl, 1901). Designated by Perkins (1962).

Strobilia Schmiedeknecht, 1911: 2182. Type species: *Catomicrus alpinus* Strobl, 1904. Monotypic. Name preoccupied.

Acanthostrobilia Roman, 1925: 21. New name for *Strobilia*. *Cymodusoides* Viereck, 1925: 74. Type species: *Cymodusoides gracilis* Viereck, 1925. Original designation.

A single species, *E. (I.) bispinosa*, has been recorded in Japan (Kasparyan et al., 2012). In this study, I

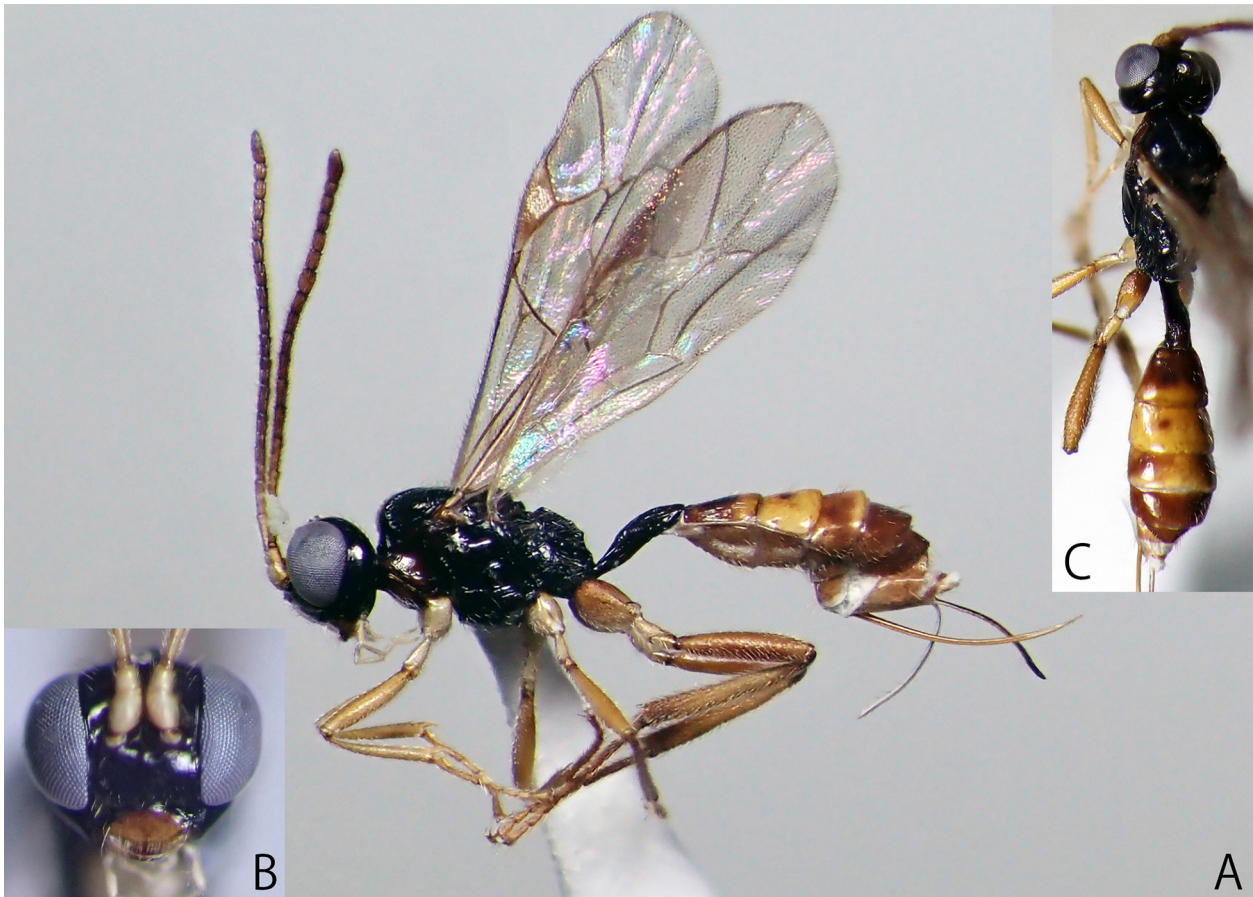


Fig. 7. *Eusterinx (Holomeristus) tenuicincta* (Förster, 1871) (A–C: EUM, female) — A: lateral habitus; B: head, frontal view; C: head, mesosoma, and metasoma, dorsolateral view.

record some distribution data of this species.

***Eusterinx (Ischyracis) bispinosa* (Strobl, 1901)**

[New SJN: *Togesuji-hae-himebachi*]

(Figs. 8A–E, 22M)

Hemiteles bispinosus Strobl, 1901: 234.

Catomicrus alpigenus Strobl, 1904: 116.

Cymodusoides gracilis Viereck, 1925: 74.

Diagnosis. Inner eye orbit convergent ventrally (Figs. 8B, D). Antenna with 18–21 flagellomeres. Propodeum with a pair of spine-like apophysis (Figs. 8A, E, 22M). Fore wing without an areolet (Fig. 8A). T I, T II and base of T III finely and longitudinally striated (Fig. 8C). T II and T III each not divided into two parts by a transverse groove (Fig. 8C). Ovipositor almost straight (Fig. 8A), its apex sharply narrowed, ca. 0.2 times as long as fore wing. Mesosoma and hind leg black to blackish brown except for female trochanters and male hind leg sometimes tinged with yellowish brown (Figs. 8A, C, E).

Material examined. JAPAN: EUM, F, Hokkaido.

Sapporo City, Hitsujigaoka, 16–23. VII. 2003, K. Konishi leg. (MsT); NARO: 4 F & 3 M, Hokkaido, Sapporo City, Jozankei, 20–31. VII. 1989, K. Maeto & M. Sharkey leg. (MsT); EUM: 3 M, Hokkaido, Yuni, Kuobetsu-gawa R., 2–12. VII. 2007, N. Kuhara leg. (MsT).

Distribution. Japan (Kunashiri Is. and Hokkaido); widely distributed in Holarctic region (Yu et al., 2016).

Bionomics. Unknown in Japan. A host, *Orfelia fultoni* (Fisher) (Mycetophilidae), was recorded (Dasch, 1992).

Remarks. This is the first record of this species from Hokkaido.

Genus ***Hemiphanes*** Förster, 1869

Hemiphanes Förster, 1869: 172. Type species: *Hemiphanes flavipes* Förster, 1871. Designated by Viereck (1914).

Two species, *H. erratum* and *H. flavipes* Förster, 1871, have been recorded from Japan (Kasparyan et al., 2012). In this study, I record *H. gravator* Förster, 1871 from Japan for the first time, and some distribution data of *Hem. erratum* Humala, 2007 from Hokkaido and

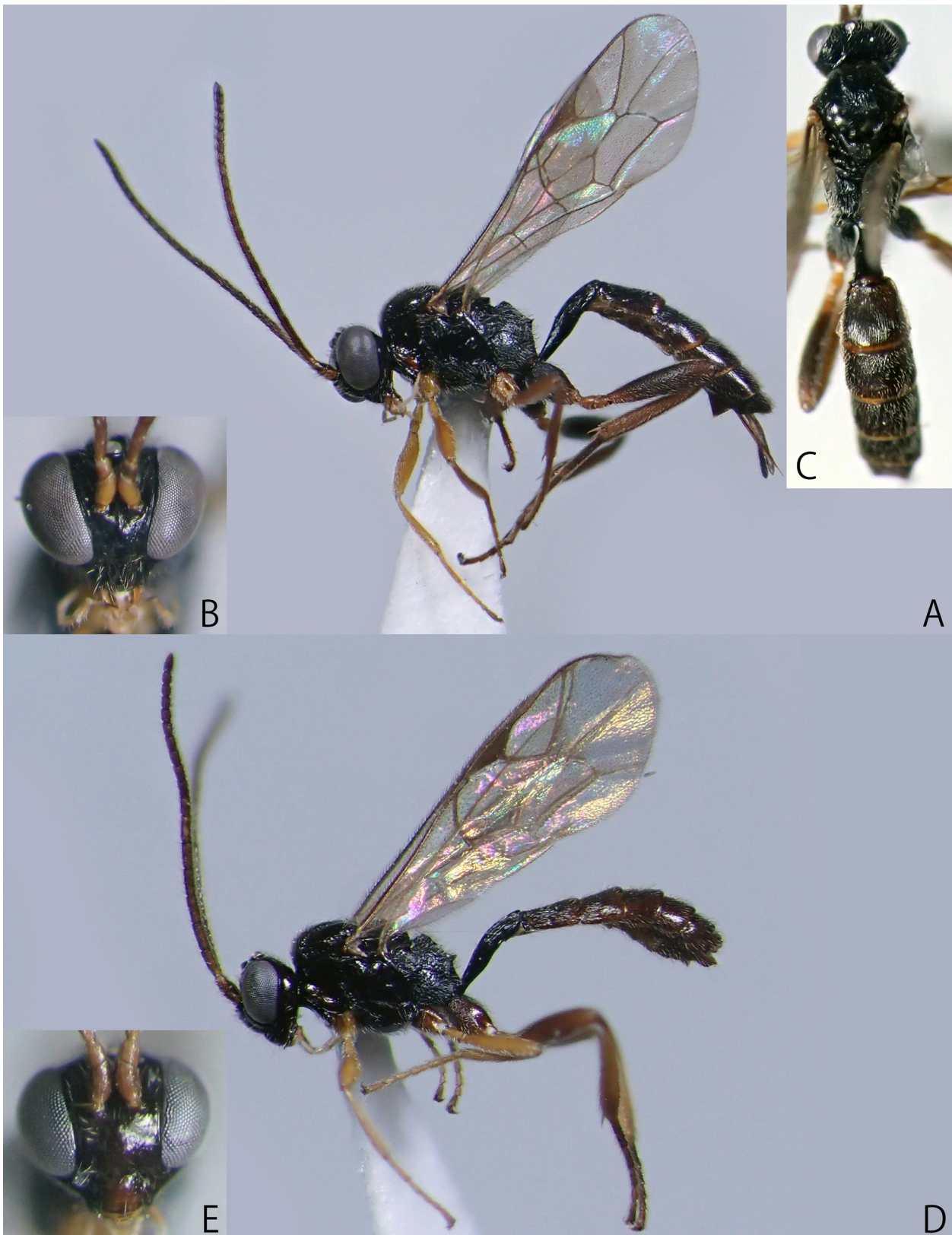


Fig. 8. *Eusterinx (Ischyracis) bispinosa* (Strobl, 1901) (A–C: EUM, female; D, E: EUM, male) — A, D: lateral habitus; B, E: head, frontal view; C: head, mesosoma, and metasoma, dorsal view.

Honshu. In addition, one new species, *H. japonicum* **sp. nov.**, is described. Although Santos (2017) treated that this genus is a member of the subfamily Cryptinae, I follows the previous system of the classification.

Key to world species of *Hemiphanes*

(Male of *H. montanum* and females of *H. hortense* and *H. inusitatum* are unknown)

1. Occiput with a median concavity (Figs. 22C, D). Occipital carina at least absent dorsally (Figs. 22C, D).
..... 2
- Occiput without a concavity (Figs. 9C, 22B). Occipital carina complete dorsally (Fig. 22B).
..... 3
2. Occipital carina present except for area near concavity (Figs. 22C, D). Tyloid of male present on FL VIII to FL XIII (usually FL IX to FL XII).
..... *H. gravator* Förster, 1871
- Occipital carina absent. Tyloid absent. Female unknown.
..... *H. hortense* Rossem, 1987
3. Clypeus with a deep median semicircular notch. Teeth of mandible equal in length. Male unknown.
..... *H. montanum* Rossem, 1987
- Clypeus without a deep notch, only slightly concave medially (Fig. 22E). Upper tooth of mandible longer than lower tooth.
..... 4
4. FL I short, 3.0 times as long as apical width. Tyloid absent. Female unknown.
..... *H. inusitatum* Rossem, 1987
- FL I longer than 5.0 times as long as apical width. Tyloid various.
..... 5
5. Lateral lobe of mesoscutum with a large smooth area except for its edges and proximal parts (Fig. 9C). Tyloid of male present on FL VIII to FL XI (Fig. 22G: absent in some Japanese males; see below).
..... *H. erratum* Humala, 2007
- Lateral lobe of mesoscutum polished but nearly entirely covered with short hairs (Fig. 11C). Tyloid of male absent or weakly present on FL IX to FL XII.
..... 6
6. T I of female 2.3 times as long as maximum width. Hind femur 4.5 times as long as maximum depth in lateral view. Malar space 1.6 times as long as basal width of mandible. Tyloid of male absent or weakly present on FL IX to FL XII.
..... *H. flavipes* Förster, 1871

- T I 1.4–1.9 of female times as long as maximum width. Hind femur more than 5.0 times as long as maximum depth in lateral view. Malar space 1.1–1.4 times as long as basal width of mandible. Tyloid of male absent.
..... 7
- 7. T I 1.4 times as long as maximum width. Propodeum without lateromedian longitudinal carinae. Hind femur 5.0 times as long as maximum depth in lateral view. Male unknown.
..... *H. performidatum* Rossem, 1988
- T I 1.7–1.9 (female) or 1.7–2.2 (male) times as long as maximum width. Propodeum with anterior section of lateromedian longitudinal carinae. Hind femur 5.2–5.7 times as long as maximum depth in lateral view.
..... *H. japonicum* **sp. nov.**

Hemiphanes erratum Humala, 2007

[New SJN: *Munetsuya-hirata-hae-himebachi*]
(Figs. 9A–D, 22G)

Hemiphanes erratum Humala, 2007: 702.

Diagnosis. Occiput without a median concavity (Fig. 9C). Occipital carina complete. Clypeus without a median deep median semicircular notch. Upper teeth of mandible longer than lower teeth. Lateral lobe of mesoscutum with a large smooth area except for its edges and proximal parts (Fig. 9C). Tyloids of male present on FL VIII – FL X and basal half of FL XI. Metasomal tergites at least partly tinged with reddish brown (Figs. 9A, D).

Material examined. JAPAN: NARO, M, Hokkaido, Mt. Tarumae-san, 11–12. VII. 1998, K. Konishi leg. (MsT); KPM-NK 81106, Hokkaido, Horokanai Town, Uryu, 17. VII. 2012, M. Ito leg.; KPM-NK 81104, 81105, 2 F, Tochigi Pref., Nasushiobara City, 1–8. X. 2010, T. Matsumura leg. (MsT); NARO, M, Yamanashi Pref., Mt. Kitadake, 28. VIII. 1980, T. Goto leg.; NARO, 2 M, Nagano Pref., Shimashimadani, 14. X. 1982, T. Goto leg.; KPM-NK 80917, F, Nagano Pref., Outaki Vil., Mt. Ontake-san, 17. VII. 2007, K. Watanabe leg.; KPM-NK 81107, Fukui Pref., Ikeda Town, Mizuumi, Mt. Heko-san, 11. VI. 2016, S. Shimizu leg. **RUSSIA:** ZISP, F (holotype), Karelia, 19–24. VIII. 1999, A. I. Humala leg. (MsT); ZISP, F (paratype), Kirovsk, Murmansk region, 1. VIII. 1974, D. R. Kasparyan leg.; ZISP, M (paratype), Kobralovo to Semrino, Leningrad region, 21. VI. 1980, D. R. Kasparyan leg.

Distribution. Japan (Kunashiri Is., Hokkaido and Honshu); widely distributed in Palaearctic region (Yu et al., 2016).



Fig. 9. *Hemiphanes erratum* Humala, 2007 (A–D: KPM-NK 81106, female) — A: lateral habitus; B: head, frontal view; C: head and mesoscutum, dorsolateral view; D: head, mesosoma, and metasoma, dorsolateral view.

Remarks. This is the first record of this species from Hokkaido and Honshu. Although two males collected from Shimashimadani have no tyloids on the flagellum, I tentatively identified as this species by other character states.

***Hemiphanes gravator* Förster, 1871**

[New SJN: *Kubomi-hirata-hae-himebachi*]
(Figs. 10A–G, 22C, D)

Hemiphanes gravator Förster, 1871: 102.

Diagnosis. Occiput with a large median concavity (Fig. 10F). Occipital carina present laterally. Clypeus without a median deep median semicircular notch. Upper teeth of mandible longer than lower teeth. Lateral lobe of mesoscutum polished but nearly entirely covered with short hairs (Fig. 10 F). Tyloids of male present on FL VIII – FL XIII. Metasomal tergites at least partly tinged with reddish brown (Figs. 10A, C, D, G).

Material examined. JAPAN: EUM, F, Hokkaido, Sapporo City, Hitsujigaoka, 21–28. V. 2003, K. Konishi leg. (MsT); NARO, M, Hokkaido, Mt. Tarumae-san, 12–21. VII. 1998, K. Konishi leg. (MsT); EUM, 3 M, Hokkaido, Yuni, Kuobetsu-gawa R., 2–12. VII. 2007, N. Kuhara leg. (MsT); EUM, M, Hokkaido, Sapporo City,

Usubetsu, 29. IV. – 24. V. 2012, N. Kuhara leg. (MsT); KPM-NK 81103, M, Hokkaido, Horokanai Town, Uryu, 11–17. VII. 2012, K. Watanabe et al. leg. (MsT); KPM-NK 81100, 81101, 2 M, Kanagawa Pref., Hadano City, Mt. Koubou-yama, 5. IV. 2007, K. Watanabe leg.; KPM-NK 81102, M, Tochigi Pref., Nasushiobara city, Shiobara, 12–19. V. 2008, T. Matsumura leg. (Malaise trap); KPM-NK 80916, M, Yamanashi Pref., Koushu City, Daibosatsu, Kaminikkawa-toge, 16. VI. 2007, K. Watanabe leg.; KPM-NK 81108, M, Toyama Pref., Toyama City, Arimine, Inonedani, 8–15. IX. 2009, M. Watanabe leg. (MsT). RUSSIA: ZISP, M (det. Rossem), Leningrad, 31. VII. 1980, V. I. Tobias leg.

Distribution. Japan (Hokkaido and Honshu); widely distributed in Palaearctic region (Yu et al., 2016).

Remarks. This is the first record of this species from Japan.

***Hemiphanes japonicum* sp. nov.**

[New SJN: *Nippon-hirata-hae-himebachi*]
(Figs. 11A–G, 22B, E)

Type series. **Holotype:** KPM-NK 81113, F, JAPAN, Toyama Pref., Toyama City, Kamegai, 15–26. IX. 2009, M. Watanabe et al. leg. (MsT). **Paratypes:** JAPAN:

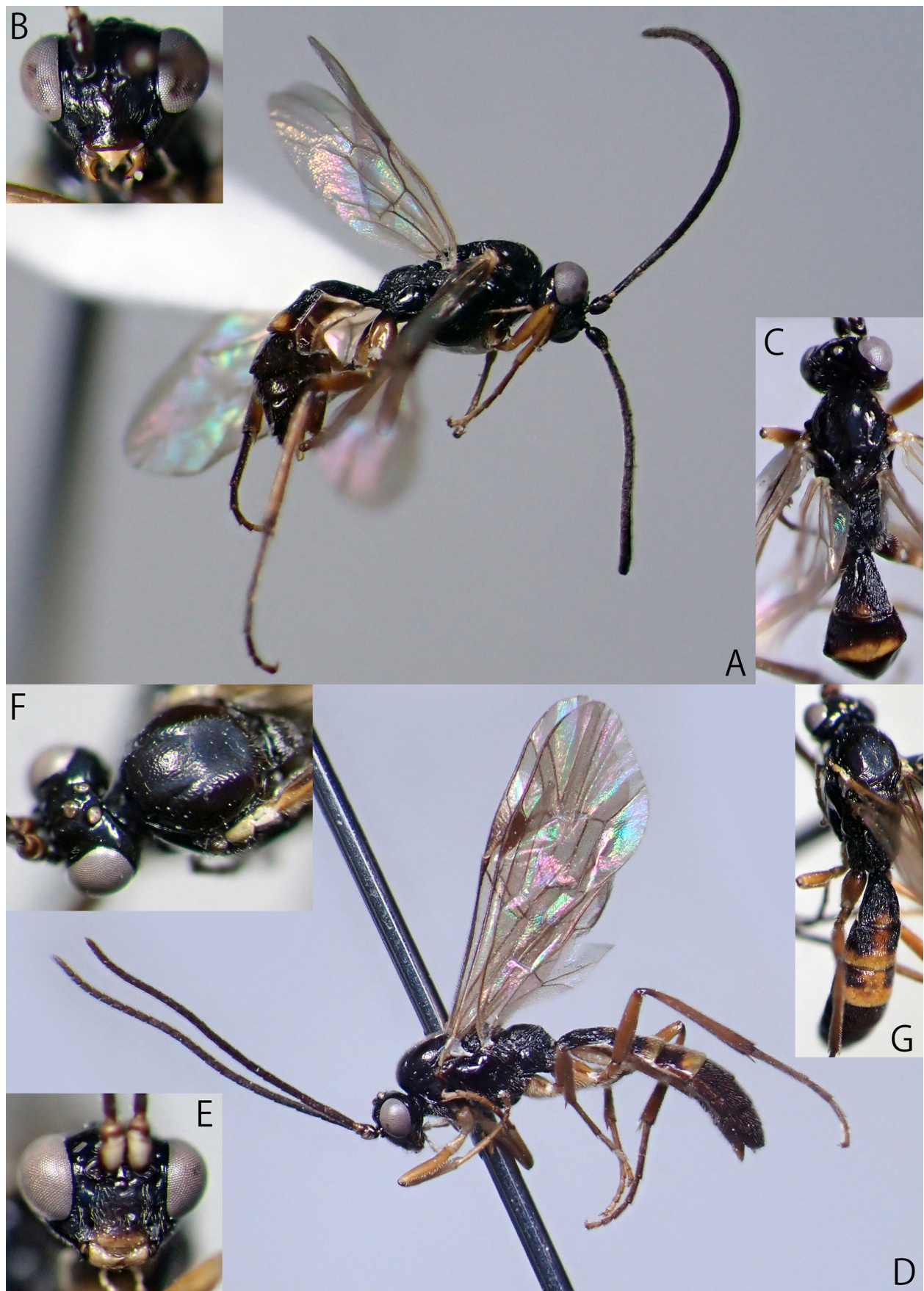


Fig. 10. *Hemiphanes gravator* Förster, 1871 (A–C: EUM, female; D–G: EUM, male) — A, D: lateral habitus; B, E: head, frontal view; C, G: head, mesosoma, and metasoma, dorsal view; F: head and mesoscutum, dorsolateral view.



Fig. 11. *Hemiphanes japonicum* sp. nov. (A–D: KPM-NK 81113, holotype, female; E–G: KPM-NK 81116, paratype, male) — A, E: lateral habitus; B, F: head, frontal view; C: head and mesoscutum, dorsolateral view; D, G: head, mesosoma, and metasoma, dorsal view.

NARO, 2 M, Hokkaido, Sapporo City, Misumai, Kannon-zawa, 27. VII. – 11. VIII. 1992, N. Kuhara leg. (MsT); EUM, M, Hokkaido, Yuni, Kuobetsu-gawa R., 2–12. VII. 2007, N. Kuhara leg. (MsT); NARO, 2 M, Hokkaido, Sapporo City, Jozankei, 21–29. VIII. 1989, K. Maeto & M. Sharkey leg. (MsT); NARO, 4 M, ditto, 29. VIII. – 12. IX. 1989; EUM, 4 M, Hokkaido. Sapporo City, Hitsujigaoka, 11–18. VI. 2003, K. Konishi leg. (MsT); EUM, 5 M, ditto, 18–25. VI. 2003; EUM, F, ditto, 2–9. VII. 2003; EUM, F, Hokkaido, Bifue, Kusabue-rindo, 17. VIII. – 1. IX. 2012, N. Kuhara leg. (MsT); KPM-NK 81116, 81117, 2 M, Hokkaido, Sapporo City, Mt. Soranuma-dake, 14. VI. – 4. VII. 2007, A. Ueda leg. (MsT); KPM-NK 81118, Hokkaido, Horokanai Town, Uryu, 11–17. VII. 2012, K. Watanabe et al. leg. (MsT); KPM-NK 81115, M, Gunma Pref., Katashina Vil., Marunuma, Yuzawa, 2. VII. 2008, K. Watanabe leg.; KPM-NK 81114, F, same data of holotype.

Diagnosis. Clypeus without a deep notch, only slightly concave medially. Malar space 1.1–1.4 times as long as basal width of mandible. Occiput without a concavity. Occipital carina complete dorsally. Upper tooth of mandible longer than lower tooth. FL I longer than 5.0 times as long as apical width. Tyloid of male absent. Propodeum with anterior section of lateromedian longitudinal carinae. Hind femur 5.2–5.7 times as long as maximum depth in lateral view. Lateral lobe of mesoscutum polished but nearly entirely covered with short hairs. T I 1.7–1.9 (female) or 1.7–2.2 (male) times as long as maximum width.

Description. Female (n = 4). Body length 4.1–6.1 (HT: 4.8) mm, polished and covered with silver setae.

Head 0.7 times as long as wide, punctate. Clypeus 2.1–2.2 (HT: 2.2) times as broad as high, weakly convex, its anterior margin slightly concave medially. Supraclypeal shallow and indistinct. Face 1.6–1.7 (HT: 1.6) times as broad as high, flat in lateral view. Malar space 1.3–1.4 (HT: 1.4) times as long as basal mandibular width. POL 1.1–1.4 (HT: 1.1) times as long as OD. OOL 1.4–1.5 (HT: 1.5) times as long as OD. Inner eye orbit almost parallel. Occipital carina complete. Vertex without a median concavity. Labrum exposed. Mandible not twisted, convex basally, upper tooth longer than lower tooth. Flagellum with 22–24 (HT: 23) segments, all segments longer than its maximum depth in lateral view. FL I 5.7–7.3 (HT: 5.7) times as long as maximum depth in lateral view and 1.3 times as long as FL II.

Mesosoma. Pronotum largely smooth, with sharp epomia. Mesoscutum finely punctate and finely rugulose,

entirely covered with short hairs (Fig. 11C), with weak notaulus, its posterior end situated anterior to the middle of mesoscutum. Scutellum punctate. Mesopleuron smooth except for epicnemium and mesepisternum with punctures. Propodeum rugulose, with posterior transverse carina, lateromedian longitudinal carina (anterior part absent) and pleural carina. Fore wing length 3.3–3.8 (HT: 3.7) mm. Vein 1cu-a of fore wing interstitial or slightly postfurcal. Vein 2r&RS of fore wing extends from pterostigma for its middle. Hind wing with nervellus intercepted behind the middle. Hind femur 5.2–5.7 (HT: 5.6) times as long as maximum depth in lateral view. Hind TS I 2.1–2.2 (HT: 2.1) times as long as TS II. Hind TS II 4.7–4.8 (HT: 4.8) times as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I 1.7–2.0 (HT: 2.0) times as long as maximum width, rugulose with some longitudinal striae (Fig. 11D). T II 0.85 times as long as maximum width, reticulate rugose except for smooth posterior margin. T II to T VII finely punctate. Ovipositor sheath ca. 0.07 times as long as hind tibia, its apex not exceeded beyond apex of metasoma.

Coloration (Figs. 11A–D). Body (excluding wings and legs) black to blackish brown. Mandible, clypeus except for black dorsal part, basal segments of antenna, palpi, postero-dorsal corner of pronotum, tegula, postero median spot of T II, membranous sections of metasomal sternites and ovipositor yellowish brown to yellow. T III to T IV largely yellowish brown. Wings hyaline. Veins and pterostigma blackish brown to brown. Legs reddish yellow to yellowish brown. Fore and mid coxae and trochanters whitish yellow. Hind tarsus blackish brown. Hind tibia sometimes tinged with blackish brown.

Male (n = 21). Similar to female. Body length 4.5–5.65 mm. Face 1.5–1.6 × as broad as high. Malar space 1.1–1.2 × as long as basal mandibular width. Flagellum with 21–23 segments, without tyloid. FL I 4.6–5.3 times as long as maximum depth in lateral view and 1.25–1.3 times as long as FL II. POL 1.6 times as long as OD. T I 1.7–2.2 × as long as maximum width. T II 0.9–1.0 × as long as maximum width. T I sometimes with reddish brown or yellowish brown area. Reddish brown or yellowish brown area of T II usually larger than female (Fig. 11G).

Distribution. Japan (Hokkaido and Honshu).

Etymology. The specific name is from Japan.

Remarks. This species resembles *H. flavipes* and *H. performidatum* but can be distinguished from them by the length of T I, hind femur, and malar space.

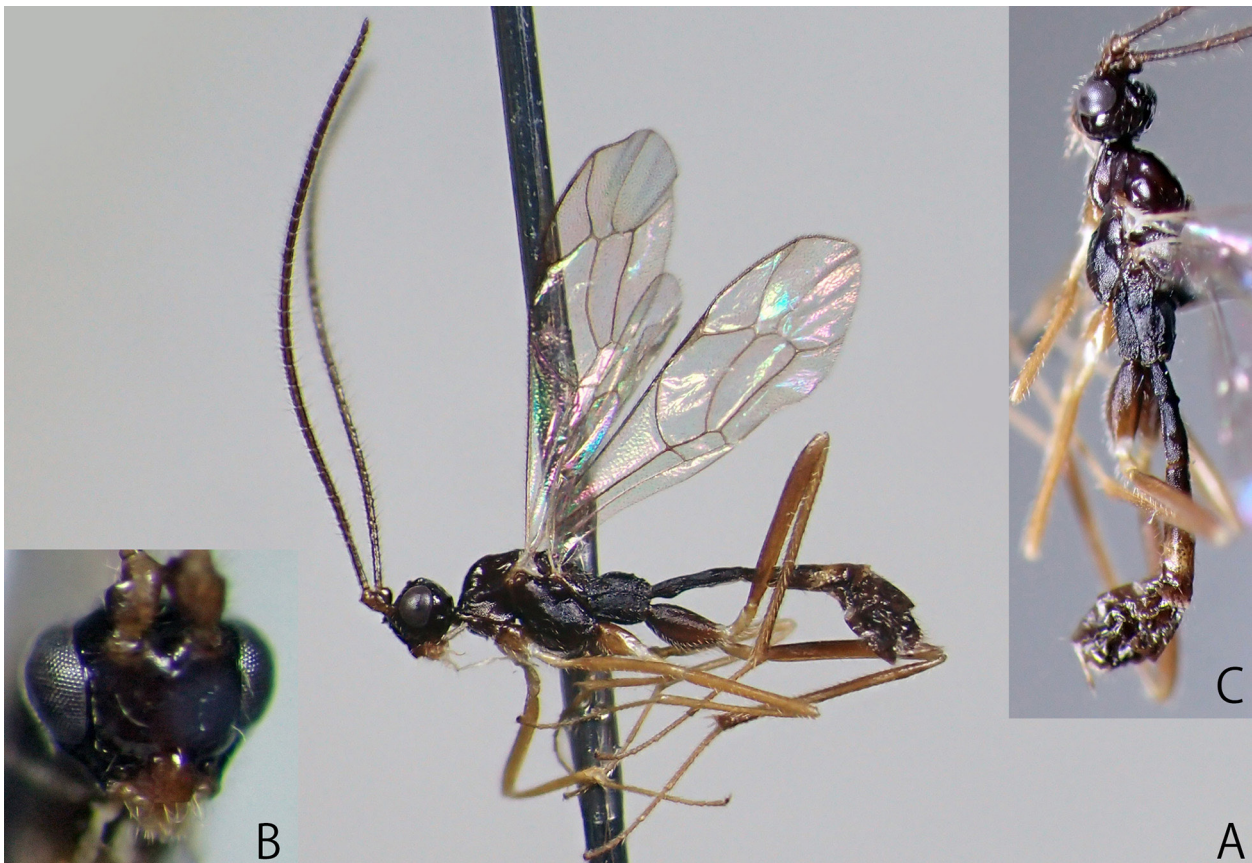


Fig. 12. *Megastylus (Dicolus) excubitor* (Förster, 1871) (A–C: KPM-NK 89787, female) — A: lateral habitus; B: head, frontal view; C: head, mesosoma, and metasoma, dorsolateral view.

Genus *Megastylus* Schiødte, 1838

Subgenus *Dicolus* Förster, 1869

Dicolus Förster, 1869: 171. Type species: *Dicolus insectator* Förster, 1871 (= *Megastylus impressor* Schiødte, 1838). Designated by Viereck (1914).

In this study, I newly record this subgenus from Japan based on three species, *M. (Dicolus) excubitor* (Förster, 1871), *M. (D.) impressor* Schiødte, 1838, and *M. (D.) pectoralis* (Förster, 1871).

Megastylus (Dicolus) excubitor (Förster, 1871)

[New SJN: *Okushi-ashinaga-hae-himebachi*]

(Figs. 12A–C, 23G, H)

Dicolus excubitor Förster, 1871: 97.

Diagnosis. Fore TS I longer than half length of fore tibia (Fig. 23G). Antennal cleaner of fore TS I large, causing conspicuous outcurving of base of TS I (Figs. 23G, H). Inner eye orbit almost parallel (Fig. 12B). Propodeum without anterior transverse carina. Hind tibia not distinctly narrowed in apical 1/3 (Fig. 12A). T I and T II without longitudinal striae. In female: fore

wing length 4.5–6.0 mm. FL I 6.0–8.5 times as long as maximum depth in lateral view. In male: T I 3.5 times as long as maximum width; FL I shorter than 7.6 times as long as maximum depth in lateral view; mesopleuron and scutellum sometimes yellow.

Material examined. JAPAN: KPM-NK 89786, F, Yamagata Pref., Nishikawa T., Shizu, Mt. Gassan, 19. VI. 2015, K. Watanabe leg.; KPM-NK 89787, F, Yamanashi Pref., Koushu City, Sagashio, 6. VIII. 2008, K. Watanabe leg.; KPM-NK 89788, F, Nagano Pref., Outaki Vil., Mt. Ontake-san, Hakkaisan, 8. VIII. 2010, K. Watanabe leg.; OMNH, F, Nagano Pref., Hara Vil., 5. IX. 2015, M. Ito leg.; KPM-NK 89789, F, Toyama Pref., Toga Vil., Kamimomose, 15–29. IX. 2009, M. Watanabe leg. (MsT); KPM-NK 89790, F, Kagoshima Pref., Yakushima Is., Kankake, 1. V. – 5. VI. 2007, T. Yamauchi et al. leg. (MsT); KPM-NK 89791, F, Kagoshima Pref., Yakushima Is., Hanyama, 2. XI. – 1. XII. 2007, T. Yamauchi et al. leg. (MsT). RUSSIA: ZISP, F (det. Rossem), Crimea, Frunzenskoye, 1. VII. 1978, D. R. Kasparyan leg.

Distribution. Japan (Honshu and Yakushima Is.); widely distributed in Palaearctic region (Yu et al., 2016).

Remarks. This is the first record of this species from Japan.

***Megastylus (Dicolus) impressor* Schiødte, 1838**[New SJN: *Futahida-ashinaga-hae-himebachi*]

(Figs. 13A–C, 23F, I, J)

Megastylus impressor Schiødte, 1838: 139.*Dicolus insectator* Förster, 1871: 97.

Diagnosis. Inner eye orbit slightly converged ventrally (Fig. 13B). FL I 9.0–11.0 (female) or 12.0 (male) times as long as maximum depth in lateral view. Fore TS I shorter than half length of fore tibia (Fig. 23I). Hind tibia not distinctly narrowed in apical 1/3 (usually slightly narrowed) (Fig. 23J). Propodeum with a distinct transverse depression anterior 0.25–0.28, with both anterior and posterior transverse carinae (Fig. 23F). T I and T II without longitudinal striae. Fore wing length 3.6–5.3 mm. In female: fore TS I 0.33–0.43 length of fore tibia; antennal cleaner of fore TS I not causing conspicuous outcurving of base of TS I. In male: face darkened, except for a narrow yellow area below antennal sockets; pronotum yellow ventrally; mesoscutum darkened; mesopleuron and scutellum reddish brown; hind femur 7.0–8.6 times as long as width in lateral view; T I 2.8–3.3 times as long as

maximum width.

Material examined. JAPAN: NARO, M, Hokkaido, Kumaishi, Kenichi-gawa, Iwafuchi-zawa, 21–29. IX. 1995, Y. Ito & T. Ito leg. (MsT); EUM, F, Hokkaido, Bifue, Kusabue-rindo, 17. VIII. – 1. IX. 2012, N. Kuhara leg. (MsT); KPM-NK 89769, F, Niigata Pref., Nagaoka City, Suyoshi Town, Mt. Nokogiri-yama, 21. VII. – 21. VIII. 2014, S. Shimizu & R. Shimizu leg. (MsT); KPM-NK 89769, F, ditto, 21. VIII. – 22. IX. 2014; KPM-NK 89770, F, Toyama Pref., Toyama City, Arimine, Inonedani, 7–14. VII. 2009, M. Watanabe leg. (MsT); KPM-NK 89771, F, ditto, 14–21. VII. 2009; KPM-NK 89772, F, ditto, 21–28. VII. 2009; KPM-NK 89773, F, Toyama Pref., Toyama City, Arimine, Jyurodani, 16–25. VIII. 2009, M. Watanabe leg. (MsT); KPM-NK 89774, F, Toyama Pref., Toyama City, Kamegai, 1–8. IX. 2009, M. Watanabe leg. (MsT); KPM-NK 89775, F, ditto, 15–26. IX. 2009; KPM-NK 89776, F, Toyama Pref., Toga Vil., Kamimomose, 18–25. Aug. 2009, M. Watanabe leg. (MsT); KPM-NK 89777, 89778, 2 F, ditto, 1–8. IX. 2009; KPM-NK 89779, 89780, 2 F, ditto, 15–29. IX. 2009; KPM-NK 89782, M, Tochigi Pref., Nasushiobara City, Shiobara, Oonuma, 6–15. VI. 2008, T. Matsumura



Fig. 13. *Megastylus (Dicolus) impressor* Schiødte, 1838 (A–C: EUM, female) — A: lateral habitus; B: head, frontal view; C: head, mesosoma, and metasoma, dorsolateral view.

leg. (MsT); KPM-NK 80781, M, Kanagawa Pref., Yamakita Town, Minasegawa, 5. V. 2008, S. Yoshizawa leg.; KPM-NK 89783, M, Yamanashi Pref., Koushu City, Sagashio, 6. VIII. 2008, K. Watanabe leg.; KPM-NK 89785, M, Nagano Pref., Tateshina Town, Ashidahakano, Mt. Tateshina, 26. VIII. 2011, S. Fujie leg.; KPM-NK 89784, M, Shizuoka Pref., Kawanehoncho, Yamainudan, 14. VI. 2008, K. Watanabe leg.; OMNH, F, Ishikawa Pref., Kaga City, Mt. Kariyasu-yama, 28. VI. – 19. VII. 2002, K. Esaki leg. (MsT); OMNH, M, Kyoto Pref., Miyadu City, Kamiseya, Seyakogen, 10. X. 2015, S. Fujie leg.; NIAES, 2 F & 3 M, Fukuoka Pref., Mt. Hiko, 2–3. XI. 1979, H. Takemoto leg. **GERMANY**: F (det. Rossem), D, BY, Starnberg, Kerschlach, 27. VII. 1927, Haeselb. leg.

RUSSIA: ZISP, M (det. Rossem), Kobralovo-Semrino, 29. VI. 1980, D. R. Kasparyan leg.

Distribution. Japan (Hokkaido, Honshu, and Kyushu); widely distributed in Holarctic region (Yu et al., 2016).

Remarks. This is the first record of this species from Japan.

Megastylus (Dicolus) pectoralis (Förster, 1871)
[New SJN: *Suneboso-ashinaga-hae-himebachi*]
(Figs. 14A–D, 23K)

Dicolus pectoralis Förster, 1871: 97.

Dicolus subtiliventris Förster, 1871: 97.

Diagnosis. Hind tibia swollen in basal 2/3 and distinctly narrowed in apical 1/3 (Fig. 23K). Propodeum with a distinct transverse depression anterior 0.25–0.28, without lateromedian longitudinal carina and anterior transverse carina. T I 3.8–4.0 times as long as maximum width. Coxae yellow to brown, usually apex of hind coxa weakly darkened (Fig. 14A). In female: clypeus, mesopleuron, and T III reddish yellow to reddish brown (Figs. 14B, C). In male: frontal orbit, face, clypeus (Fig. 14 D), mesopleuron, and T III yellow to reddish brown; pronotum and mesoscutum sometimes with yellow to brown marking. Fore wing length 3.3–5.5 mm.

Material examined. **JAPAN**: NARO, 1 F & 1 M, Hokkaido, Mt. Daisetsu, Asahidake, 10. VII. 1970, H. Hasegawa leg.; EUM, F, Hokkaido. Sapporo City,



Fig. 14. *Megastylus (Dicolus) pectoralis* (Förster, 1871) (A–C: KPM-NK 80915, female; D: KPM-NK 89799, male) — A: lateral habitus; B, D: head, frontal view; C: head, mesosoma, and metasoma, dorsolateral view.

Hitsujigaoka, 2–9. VII. 2003, K. Konishi leg. (MsT); EUM, F, ditto, 19–26. XI. 2003; NARO, 2 M, Hokkaido, Sapporo City, Jozankei, 29. VIII. – 12. IX. 1989, K. Maeto & M. Sharkey leg. (MsT); NARO, 2 F, ditto, 12–21. IX. 1989; NARO, 3 M, ditto, 21–28. IX. 1989; NARO, 2 M, Hokkaido, Kumaishi, Kenichi-gawa, Iwafuchizawa, 1–11. X. 1995, Y. Ito & T. Ito leg. (MsT); NARO, 1 F & 1 M, ditto, 10–20. X. 1995; NARO, F, Hokkaido, Sapporo City, Misumai, Kannon-zawa, 3–15. IX. 1992, N. Kuhara leg. (MsT); NARO, M, 4–17. VII. 1993; NARO, F, Yamagata Pref., Oguni Town, Chojagahara, 7. VI. 1980, H. Takemoto leg.; NARO, M, Fukushima Pref., Hinoemata, 1–2. VII. 1989, K. Konishi leg.; NARO, M, Tochigi Pref., Yaita, 22. VIII. – 8. IX. 1989, K. Konishi leg. (MsT); KPM-NK 89792, M, Kanagawa Pref., Atsugi City, Nakaogino, 26. IV. 2008, M. Gunji leg.; KPM-NK 89793, 89794, 2 F, Yamanashi Pref., Koushu City, Yanagisawa-toge, 5. VIII. 2008, K. Watanabe leg.; KPM-NK 89795, M, ditto, M. Gunji leg.; KPM-NK 89796, Yamanashi Pref., Koushu City, Hikawa, 15. VII. 2010, K. Watanabe leg.; NARO, 4 M, Nagano Pref., Shimashima-dani, 27. VII. 1980, K. Maeto leg.; NARO, F, ditto, H. Takemoto leg.; NARO, ditto, 28. VII. 1980; NARO, 1 F & 2 M, ditto, K. Maeto leg.; NARO, F, Nagano Pref., Norikura-kogen, 13. X. 1982, K. Konishi leg.; KPM-NK 89797, F, Nagano Pref., Ueda City, Sugadaira-kogen, Tsukuba Univ., 8. VIII. – 3. IX. 2014, S. Shimizu leg. (MsT); NARO, 4 M, Niigata Pref., Kurokawa Vil., Tainai, 3–4. VI. 1980, K. Maeto leg.; NARO, 3 M, ditto, 8. VI. 1980; KPM-NK 80915, F, Niigata Pref., Nagaoka City, Suyoshi Town, Mt. Nokogiri-yama, 21. VII. – 21. VIII. 2014, S. Shimizu & R. Shimizu leg. (MsT); KPM-NK 89798, F, Shizuoka Pref., Fujinomiya City, Nishiusuzuka, 15. X. 2006, H. Katahira leg.; KPM-NK 89799, 89800, 2 M, Shizuoka Pref., Kawanehoncho Town, Yamainudan, 14. VI. 2008, K. Watanabe leg.; KPM-NK 89801, F, Toyama Pref., Toyama City, Arimine, Jyuroudani, 8–15. IX. 2009, M. Watanabe et al. leg. (MsT); NARO, F, Tokushima Pref., Ichiu Vil., Mt. Tsurugi-san, 16. X. 1980, T. Goto leg.; KPM-NK 89802, M, Saga Pref., Tara Town, Taradake, 20. V. 2001, T. Yamauchi leg.; NARO, F, Oita Pref., Mts. Kuju, Daisen-rido, 18. VII. 1978, K. Setoya leg. **GERMANY**: ZSM, F (det. Rossem), Obbayern, Umg., Gauting, 3. VI. 1912, Haeselbarth leg.

Distribution. Japan (Hokkaido, Honshu, Shikoku, and Kyushu); widely distributed in Holarctic and Neotropical regions (Yu et al., 2016).

Remarks. This is the first record of this species from Japan.

Subgenus *Megastylus* Schiødte, 1838

Megastylus Schiødte, 1838: 139. Type species: *Megastylus cruentator* Schiødte, 1838. Designated by Förster (1871).

Idioxenus Förster, 1869: 171. Type species: *Megastylus mediator* Schiødte, 1838 (= *M. cruentator* Schiødte). Designated by Förster (1871).

Megalostylus Schulz, 1906: 94. Emendation.

Letosha Cameron, 1909: 724. Type species: *Letosha longicoxis* Cameron, 1909. Monotypic.

Myriarthridea Viereck, 1914: 97. Type species: *Myriarthrus cingulator* Förster, 1871. Original designation.

Miomeroides Kiss, 1924: 113. Type species: *Miomeroides transylvanicus* Kiss, 1924. Monotypic.

Two species, *M. (M.) cruentator* and *M. (M.) orbitator*, have been recorded in Japan (Dasch, 1992; Kasparyan et al., 2012). In this study, I record some distribution data of these species. In addition, *M. (M.) kuslitzkii* Humala, 2007 is also newly recorded from Japan.

***Megastylus (Megastylus) cruentator* Schiødte, 1838**
[New SJN: *Momoboso-ashinaga-hae-himebachi*]
(Figs. 15A–F)

Megastylus cruentator Schiødte, 1838: 139.

Megastylus mediator Schiødte, 1838: 139.

Cryptus (Helictes) cruentatus Haliday, 1838: 115.

Megastylus conformis Förster, 1871: 105.

Megastylus fuscicornis Förster, 1871: 105.

Megastylus nigriventris Förster, 1871: 105.

Hemiteles pectoralis Rudow, 1886: 27.

Helictes mediator fulvipes Constantineanu, 1939: 500.

Diagnosis. T I and T II without longitudinal striae. Hind femur 5.9–7.2 (female) or 6.0–8.3 (male) times as long as maximum depth in lateral view. Fore wing length 4.0–7.0 mm. Female: frontal orbit without yellow markings (Fig. 15B); mid femur 5.1–7.0 times as long as maximum depth in lateral view. Male: mesoscutum often with obscure brownish stripes or spots in middle; hind tibia tinged with black in the apical 1/3 (Fig. 15D); face, clypeus, mandible, palpi, ventral surface of scape and pedicel, malar space, fore and mid coxae, trochanters, propleuron, lower part and hind corner of pronotum, tegula, wing base, and sometimes frontal orbit whitish yellow (Figs. 15D–F).

Material examined. **JAPAN**: NARO, 4 M, Hokkaido, Sapporo City, Jozankei, 20–31. VII. 1989, K. Maeto & M.



Fig. 15. *Megastylus (Megastylus) cruentator* Schiödte, 1838 (A–C: NARO, female; D–F: NARO, male) — A, D: lateral habitus; B, E: head, frontal view; C, F: head, mesosoma, and metasoma, dorsal view.

Sharkey leg. (MsT); NARO, 1 F & 13 M, ditto, 21–29. VIII. 1989; NARO, 2 F & 27 M, ditto, 29. VIII. – 12. IX. 1989; NARO, 4 F & 4 M, ditto, 12–21. IX. 1989; NARO, 1 F & 4 M, ditto, 21–28. IX. 1989; EUM, F, Hokkaido. Sapporo City, Hitsujigaoka, 11–18. VI. 2003, K. Konishi leg. (MsT); EUM, 1 F & 2 M, Hokkaido, Yuni, Kuobetsugawa R., 2–12. VII. 2007, N. Kuhara leg. (MsT); EUM, M, Hokkaido, Sapporo City, Misumai, Kannon-zawa, 10–22. X. 1992, N. Kuhara leg. (MsT); KPM-NK 89805–89807, 3 M, Hokkaido, Yubari City, Oyubari, 31. VIII. – 1. IX. 2007, A. Ueda leg. (MsT); KPM-NK 89808, M, Hokkaido, Sapporo City, Mt. Soranuma-dake, 27. VII. – 21. VIII. 2007, A. Ueda leg. (MsT); KPM-NK 89809, M, Hokkaido, Horokanai Town, Uryu, 11–17. VII. 2012, K. Watanabe et al. leg. (MsT); KPM-NK 89813, Hokkaido, Okushiri Is., Mt. Kamui, T. Nambu leg. (yellow pan trap); NARO, 1 F & 2 M, Hokkaido, Kamishihoro Town, Nukabira, 30. VI. 1980, H. Takemoto leg.; NARO, F, Hokkaido, Horonobe, 25. VII. – 10. VIII. 1993, M. Inoue leg. (MsT); NARO, F, Hokkaido, Ebetsu, Nopporo, 29. VI. – 4. VII. 1992, K. Konishi le. (MsT); NARO, M, Hokkaido, Kimobetsu Town, Nakayama-toge, 15. VII. 1980, K. Maeto leg.; NARO, M, Hokkaido, Akan Town, Akan-kohan, 28–29.

VI. 1980, H. Takemoto leg.; NARO, M, Hokkaido, Toyotomi Town, Kabutonuma, 12. VII. 1980, H. Takemoto leg.; NARO, M, Hokkaido, Tomakomai Town, Hokkaido Univ. Exp. Forest, 18–20. VI. 1980, K. Maeto leg.; EUM, M, Hokkaido, Rumoi, 1–15. VII. 2007, Y. Nagayasu leg. (MsT); KPM-NK 89810, M, Niigata Pref., Nagaoka City, Suyoshi Town, Mt. Nokogiri-yama, 7–28. VI. 2014, S. Shimizu & R. Shimizu leg. (MsT); KPM-NK 89811, M, ditto, 28. VI. – 21. VII. 2014; KPM-NK 89812, M, Niigata Pref., Myokou City, Suginosawa, Sasagamine, 17. VIII. 2013, S. Shimizu leg.; NARO, M, Yamanashi Pref., Minami-Alps, Mt. Kitadake, 28. VIII. 1980, T. Goto leg.; NARO, M, Nagano Pref., Shimashimadani, 28. VII. 1980; KPM-NK 89814, M, Toyama Pref., Toyama City, Arimine, Jyurodani, 7–14. VII. 2009, M. Watanabe et al. leg. (MsT). **RUSSIA:** ZISP, F (det. Rossem), Lazarevskoe, 17. IX. 1975, D. R. Kasparyan leg.

Distribution. Japan (Kunashiri Is., Okushiri Is., Hokkaido, and Honshu); widely distributed in Palearctic and Oriental regions (Yu et al., 2016).

Remarks. This is the first record of this species from Okushiri Is., Hokkaido, and Honshu.

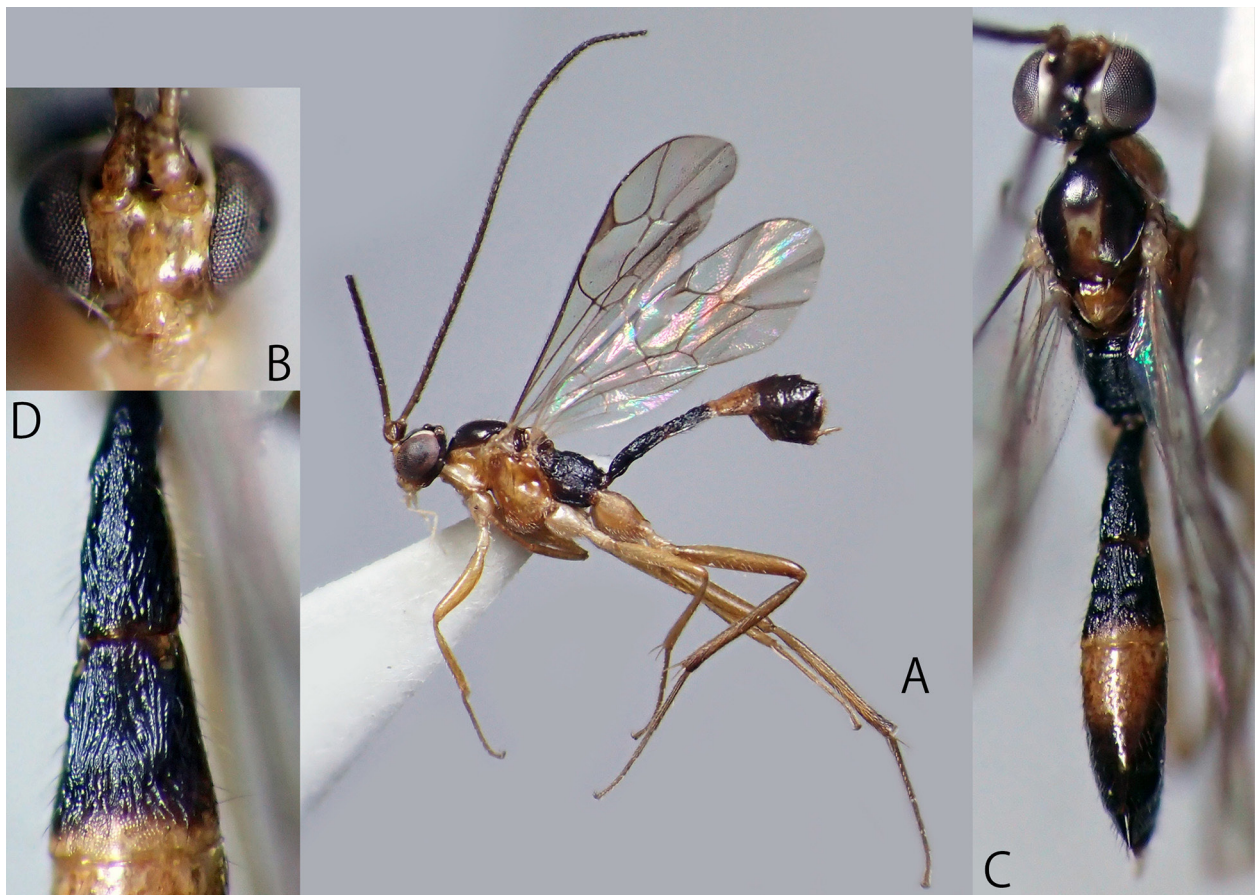


Fig. 16. *Megastylus (Megastylus) kuslitzkii* Humala, 2007 (A–C: KPM-NK 84759, female) — A: lateral habitus; B: head, frontal view; C: head, mesosoma, and metasoma, dorsal view; D: T I and T II, dorsal view.

***Megastylus (Megastylus) kuslitzkii* Humala, 2007**
 [New SJN: *Kyokutou-ashinaga-hae-himebachi*]
 (Figs. 16A–D)

Megastylus (Megastylus) kuslitzkii Humala, 2007: 699.

Diagnosis. T I and T II covered with longitudinal striae (Figs. 16C, D). Antenna with more than 35 (female) or 32 (male) flagellomeres. FL I 6.0–6.2 (female) or 6.4 (male) times as long as maximum wide. Scutellum with lateral carina from base to apex. Mesopleuron whitish yellow to brown (Fig. 16A). Hind femur in 5.8–6.2 (female) or 6.9 (male) times as long as maximum width in lateral view. Fore wing length 3.5–4.1 mm. Male: T I 3.1 times as long as maximum width. T II 1.25 times as long as maximum width. Frons and face mat and finely granulated. OOL longer than POL. Nervellus intercepted at lower 1/3.

Material examined. JAPAN: KPM-NK 84759, F, Hokkaido, Sapporo City, Maruyama, 29. VII. 2009, K. Watanabe leg.; RUSSIA: ZISP, F (paratype) and M (holotype), Primorsky Krai, Lazo Rec., Bay Tachingouz, 8. VIII. 1972. V. Kuslitzky leg.

Distribution. Japan (Hokkaido) and Far East Russia.

Remarks. This is the first record of this species from Japan.

***Megastylus (Megastylus) orbitator* Schiødte, 1838**
 [New SJN: *Momobuto-ashinaga-hae-himebachi*]
 (Figs. 17A–F)

Megastylus orbitator Schiødte, 1838: 139.

Mesoleptus maderensis Wollaston, 1858: 21.

Mesoleptus albocollaris Cresson, 1868: 100.

Myriarthrus rufipleuris Förster, 1871: 103.

Megastylus leptoderus Förster, 1871: 105.

Megastylus pauxillus Förster, 1871: 105.

Megastylus pumilio Förster, 1871: 105.

Megastylus rectoligatus Förster, 1871: 105.

Orthocentrus albofaciatus Provancher, 1883: 13.

Aperileptus pleuralis Ashmead, 1902 in Slosson, 1902b: 321.

Megastylus ashmeadi Cushman, 1922: 18.

Diagnosis. T I and T II without longitudinal striae (Figs. 17C, F). Hind femur 5.0–5.8 (female) or 5.0–5.5 (male) times as long as maximum depth in lateral view. Fore wing length 2.5–3.9 mm. Female: clypeus yellow; frons, face, and mesosoma without yellow or yellowish areas (Fig. 17B); OOL: POL = 3: 2 or 3: 3. Male: mesoscutum without light markings at

middle; hind tibia not black apically (Fig. 17D); face, frontal orbit, clypeus, palpi, ventral surface of scape and pedicel, fore and mid coxae and trochanters, propleuron, hind corner of pronotum, tegula and wing base ivory (Figs. 17D–F).

Material examined. JAPAN: EUM, 2 F, Hokkaido. Sapporo City, Hitsujigaoka, 21–28. V. 2003, K. Konishi leg. (MsT); EUM, 3 F, ditto, 11–18. VI. 2003; 5 F, ditto, 18–25. VI. 2003; EUM, 2 F, ditto, 25. VI. – 2. VII. 2003; EUM, 10 F, ditto, 2–9. VII. 2003; EUM, 2 F, ditto, 9–16. VII. 2003; EUM, F, 16–23. VII. 2003; EUM, F, ditto, 14–21. IX. 2010; EUM, 5 F, ditto, 27–28. VI. 2003 (yellow pan trap in soybean field); NARO, M, Hokkaido, Mt. Daisetsu, Asahidake, 10. VII. 1970, H. Hasegawa leg.; NARO, 3 F, Hokkaido, Ebetsu, Nopporo, 29. VI. – 4. VII. 1992, K. Konishi le. (MsT); NARO, 2 F, Hokkaido, Toyotomi Town, Kabutonuma, 12. VII. 1980, H. Takemoto leg.; NARO, F, Hokkaido, Kumaishi, Kenichi-gawa, Iwafuchi-zawa, 21–29. IX. 1995, Y. Ito & T. Ito leg. (MsT); NARO, F, ditto, 10–20. X. 1995; NARO, F, Hokkaido, Sapporo City, Misumai, Kannon-zawa, 27. VII. – 11. VIII. 1992, N. Kuhara leg. (MsT); NARO, F, Hokkaido, Sapporo City, Jozankei, 20–31. VII. 1989, K. Maeto & M. Sharkey leg. (MsT); NARO, F, Hokkaido, Kamishihoro Town, Nukabira, 30. VI. 1980, H. Takemoto leg.; KPM-NK 89815, F, Hokkaido, Horokanai Town, Uryu, 11–17. VIII. 2012, K. Watanabe et al. leg. (MsT); KPM-NK 89816, M, Hokkaido, Sapporo City, Maruyama, 29. VII. 2009, K. Watanabe leg.; OMNH, F, Miyagi Pref., Minamisanriku Town, Tokura, 6. VIII. – 4. IX. 2016, T. Suzuki leg. (MsT); NARO, F, Tochigi Pref., Yaita, 15–28. VII. 1989, K. Konishi leg. (MsT); KPM-NK 89817, F, Ishikawa Pref., Kaga City, Mt. Kariyasuyama, 18–30. VII. 2002, K. Esaki leg. (MsT); KPM-NK 89818, F, Toyama Pref., Toyama City, Arimine, Inonedani, 7–14. VII. 2009, M. Watanabe et al. leg. (MsT); KPM-NK 89819, F, Toyama Pref., Toyama City, Kamegai, 4–11. VIII. 2009, M. Watanabe et al. leg. (MsT); KPM-NK 89820, F, ditto, 11–16. VIII. 2009; KPM-NK 89821, F, Toyama Pref., Toyama City, Arimine, Jyurodani, 1–8. IX. 2009, M. Watanabe et al. leg. (MsT); NARO, M, Fukuoka Pref., Mt. Hiko, 2–3. XI. 1979, H. Takemoto leg. GERMANY: ZSM, F (det. Rossem), D, Ostfriesische Inseln, Mellum – Memmert, 11–27. VI. 1986, V. Haeseler leg. UNREADABLE LOCALITY DATA: ZISP, F (det. Rossem), 20. VIII. 1980, Kasparyan leg.

Distribution. Japan (Shikotan Is., Hokkaido,



Fig. 17. *Megastylus (Dicolus) orbitator* Schiødte, 1838 (A–C: EUM, female; D–F: NARO, male) — A, D: lateral habitus; B, E: head, frontal view; C, F: head, mesosoma, and metasoma, dorsolateral view.

Honshu, and Kyushu); widely distributed in Holarctic and Neotropical regions (Yu et al., 2016).

Remarks. This is the first record of this species from Hokkaido, Honshu, and Kyushu.

Genus *Neurateles* Ratzeburg, 1848

Neurateles Ratzeburg, 1848: 86. Type species: *Neurateles papyraceus* Ratzeburg, 1848. Monotypic

A single species, *N. asiaticus* Watanabe, 2016, has been recorded in Japan based on the type series collected from Tochigi Prefecture (Watanabe, 2016). In this study, I record an additional distribution datum of this species from Shizuoka Prefecture.

Neurateles asiaticus Watanabe, 2016
[SJN: *Haraboso-hae-himebachi*]

Neurateles asiaticus Watanabe, 2016: 82.

Material examined. JAPAN: KPM-NK 81060, F, Shizuoka Pref., Shizuoka City, Umegashima, Abetoge, 15. VI. 2008, K. Watanabe leg.

Distribution. Japan (Honshu).

Genus *Pantisarthrus* Förster, 1871

Pantisarthrus Förster, 1871: 109. Type species: *Pantisarthrus inaequalis* Förster, 1871 (= *P. lubricus* Förster, 1871). Designated by Viereck (1914).

A single species, *Pa. lubricus*, has been recorded in Japan (Dasch, 1992). In this study, I record some distribution data of this species.

Pantisarthrus lubricus (Förster, 1871)
[New SJN: *Tuyahara-ko-hae-himebachi*]
(Figs. 18A–G)

Aniseres lubricus Förster, 1871: 93.

Pantisarthrus inaequalis Förster, 1871: 110.

Pantisarthrus ochropus Förster, 1871: 110.

Bassus dorsalis Provancher, 1886: 112.

Pantisarthrus pseudochorpus Strobl, 1904: 137.

Aniseres subalpinus Strobl, 1904: 138.

Diagnosis. T I 1.8–2.3 times as long as maximum width. T II and following tergites smooth, without conspicuous punctures (Figs. 18C, D). Notaulus

slightly present. Distal section of vein Rs of hind wing present, equal or slightly shorter than basal section of vein Rs (Fig. 18G). Ovipositor sheath 0.2 times as long as hind tibia.

Material examined. JAPAN: NARO, 1 F & 1 M, Hokkaido, Sapporo City, Jozankei, 20–31. VII. 1989, K. Maeto & M. Sharkey leg. (MsT); NARO, F, ditto, 29. VIII. – 12. IX. 1989; NARO, F, Hokkaido, Kumaishi, Kenichi-gawa, Iwafuchi-zawa, 21–29. IX. 1995, Y. Ito & T. Ito leg. (MsT); EUM, M, Hokkaido, Yuni, Kuobetsu-gawa R., 2–12. VII. 2007, N. Kuhara leg. (MsT); EUM, F, Hokkaido. Sapporo City, Hitsujigaoka, 7–14. V. 2003, K. Konishi leg. (MsT); EUM, F, ditto, 16–23. VII. 2003; EUM, M, ditto, 9–16. VII. 2003; NARO, M, ditto, 5–12. XI. 2003; NARO, F, Hokkaido, Horonobe, Kamikoitan, Iwananosawa, 12–25. VII. 1993, M. Inoue leg. (MsT); NARO, M, ditto, 25. VII. – 10. VIII. 1993; NARO, M, ditto, 25. VIII. – 14. IX. 1993; NARO, 1 F & 1 M, 15–27. IX. 1993; NARO, M, Hokkaido, Ebetsu City, Nopporo, 29. VI. – 4. VII. 1992, K. Konishi leg. (MsT); NARO, F, Hokkaido, Sapporo City, Misumai, Kannon-zawa, 24–30. V. 1992, N. Kuhara leg. (MsT); NARO, M, ditto, 3–15. IX. 1992; NARO, M, ditto, 17–30. VII. 1993; EUM, 1 F & 11 M, Hokkaido, Bifue, Kusabue-rindo, 17. VIII. – 1. IX. 2012, N. Kuhara leg. (MsT); KPM-NK 89766, 89767, 2 M, ditto; EUM, M, Aomori Pref., Nishimeya Vil., Kawaratai, 6–12. VI. 2013, T. Nakamura leg. (MsT); NARO, F, Iwate Pref., Mt. Hayachine, 2–8. VIII. 1989. M. Sharkey & H. Makiyama leg. (MsT).

Distribution. Japan (Hokkaido and Honshu); widely distributed in Holarctic region (Yu et al., 2016).

Remarks. This is the first record of this species from Hokkaido and Honshu.

Genus *Proclitus* Förster, 1868

Clepticus Haliday, 1838: 116. Type species: *Clepticus praetor* Haliday, 1838. Designated by Westwood (1840). Name preoccupied.

Proclitus Förster, 1869: 172. Type species: *Proclitus grandis* Förster, 1871. Designated by Viereck (1914).

Aclastoneura Kriechbaumer, 1896: 359. Type species: *Aclastoneura tricolor* Kriechbaumer, 1896. Monotypic.

Mischoxorides Ashmead, 1900: 368. New name for *Clepticus*.

A single species, *Pr. fulvicornis* (Förster, 1871), has



Fig. 18. *Pantisarthrus lubricus* (Förster, 1871) (A–D: EUM, female; E, F: EUM, male) — A, E: lateral habitus; B, F: head, frontal view; C: head, mesosoma, and metasoma, dorsal view; D: T II–T IV, dorsal view; G: hind wing. The body coloration of A–D may have been faded by alcohol.

been recorded in Japan (Dasch, 1992). In this study, I describe a new species, *Pr. tuberculatus* **sp. nov.**, and record two species, *Pr. ganicus* Sheng & Sun, 2013, and *Pr. praetor* (Haliday, 1838) from Japan for the first time.

***Proclitus ganicus* Sheng & Sun, 2013**

[New SJN: *Motoguro-onaga-hae-himebachi*]

(Figs. 19A–C, 23A, C)

Proclitus ganicus Sheng & Sun, 2013 in Sheng et al., 2013: 360.

Diagnosis. Anterior tentorial pit invisible (Fig. 19B). Mesoscutum with a median longitudinal groove, without a pair of strong tubercles near anterior ends of each notaulus (Figs. 23A, C). Mesosoma without large reddish areas (Figs. 19A, C). Coxae black (Figs. 19A, C). Hind tibia with basal and apical broad black bands (Fig. 19A). Ovipositor sheath 0.6–0.75 times as long as hind tibia. Fore wing length 2.7–3.8 mm.

Material examined. JAPAN: KPM-NK 81119, F, Kanagawa Pref., Odawara City, Iriuda, 22. XII. 2016, K. Watanabe leg.; OMNH, F, Kagawa Pref., Takamatsu City, Nishiueta Town, 29. IX. 2013, S. Fujie leg.; KPM-NK 81120, F, Kagoshima Pref., Yakushima Is., Kankake, 28. IV. – 1. V. 2007, T. Yamauchi et al. leg. (MsT); KPM-NK 81121, F,

Kagoshima Pref., Yakushima Is., Arakawa, 25. VIII. – 22. IX. 2006, T. Yamauchi et al. leg. (MsT); KPM-NK 81122, M, Kagoshima Pref., Amamioshima Is., Mt. Yui-dake, 14. X. 2004, H. Makihara leg. (MsT); KPM-NK 81123, F, Kagoshima Pref., Amamioshima Is., Uken Vil., Yuwan, 6. VI. 2007, K. Watanabe leg.; KPM-NK 81124, F, Kagoshima Pref., Amamioshima Is., Sumiyou, Gusuku, 29. VI. 2013, S. Yoshizawa leg.; KPM-NK 81125, F, ditto, 5. VII. 2013; KPM-NK 81126, F, Kagoshima Pref., Amamioshima Is., Amami City, Nase, Chuo-rindo, 8. VII. 2014, S. Shimizu leg.; KPM-NK 81127, F, Kagoshima Pref., Tokunoshima Is., Kedoku, 21. V. 2008, A. Sakai leg.; KPM-NK 81128, M, Okinawa Pref., Okinawajima Is., Nago City, Mt. Nago-dake, 13. V. 2002, H. Irei & H. Makihara leg. (MsT); KPM-NK 81129, M, ditto, 27. V. 2002; NARO, F, Okinawa Pref., Okinawajima Is., Kunigami Vil., 30. III. – 3. IV. 1999, K. Konishi leg. (yellow pan trap); KPM-NK 81130–81132, 2 F & 1 M, Okinawa Pref., Okinawajima Is., Kunigami Vil., Yona, 21. V. 2007, K. Watanabe leg.; NARO, 1 F & 1 M, Okinawa Pref., Okinawajima Is., Kunigami Vil., Ura, 2. X. 1991, M. Hiratate leg. (Light trap); OMNH, 2 F & 2 M, Okinawa Pref., Okinawajima Is., Kunigami Vil., Aha, 26. XII. 2016, S. Fujie leg.; NARO, 1 F & 1 M, Okinawa Pref., Ishigakijima Is., Banna Park, 7–13. III. 1995, T. Matsumura leg. (MsT); NARO, 2 F & 1



Fig. 19. *Proclitus ganicus* Sheng & Sun, 2013 (A–C: KPM-NK 81127, female) — A: lateral habitus; B: head, frontal view; C: head, mesosoma, and metasoma, dorsal view.

M, ditto, 13–20. III. 1995; OMNH, F, Ishigakijima Is., Ishigaki City, Mt. Buzama-dake, 20. VI. 2013, S. Fujie leg.; KPM-NK 81133, F, Okinawa Pref., Iriomotejima Is., Riverside of Urauchigawa, 13. V. 2008, K. Watanabe leg.; KPM-NK 81134, M, ditto, 14. V. 2008; KPM-NK 81135–81141, 2 F & 4 M, Okinawa Pref., Yonagunijima Is., Mt. Kubura-dake, 22. VII. 2013, M. Ito leg.; KPM-NK 81142–81145, 3 F & 1 M, ditto, 25. VI. 2013; TMNH, 1 F & 1 M, ditto. **CHINA:** GSFP, F (holotype), Quannan County, Jiangxi Province, 13. IX. 2010, standardized interception trap; GSFP, M (paratype), ditto, 30. IX. 2010; GSFP, F (paratype), Jiulianshan National Natural Reserve, Jiangxi Province, 11. IX. 2011, standardized interception trap.

Distribution. Japan (Honshu, Shikoku, Yakushima Is., Amamioshima Is., Tokunoshima Is., Okinawajima Is., Ishigakijima Is., Iriomotejima Is. and Yonagunijima Is.) and China.

Bionomics. Host is unknown. In Japan, adults are collected in broadleaf forests and can be collected in winter.

Remarks. In Eastern Palearctic species of this genus, this species is unique in several character states. Namely, the coxae black (largely yellow in other species), the hind tibia with conspicuous basal and apical black bands (usually indistinct or weak in other species), and the ovipositor sheath distinctly shorter than hind tibia (usually longer than hind tibia in other species).

***Proclitus praetor* (Haliday, 1838)**

[New SJN: *Miyama-onaga-hae-himebachi*]

(Figs. 20A–C)

Cryptus (Cryptus) praetor Haliday, 1838: 116.

Proclitus grandis Förster, 1871: 116.

Cramastus longicaudus Provancher, 1882: 367.

Diagnosis. Anterior tentorial pit invisible (Fig. 20B). T I more or less straight, long, 3.5–4.5 (female) or 4.0–5.0 (male) times as long as apical width, not coriaceous. Length of ovipositor 0.6–0.7 times as long as fore wing, 2.1–2.4 times as long as hind tibia, dorsal part of ventral lobe not expanded beyond upper valve. Hind femur slender and club-shaped (Fig. 20A). Antenna with 21–26 flagellomeres. Clypeus tinged with yellowish brown to yellow (Fig. 20B). Fore wing length 4.7–5.6 mm. Pterostigma received vein 2r&RS slightly anterior to the middle. Mesoscutum with a median longitudinal shallow groove, without a pair of tubercles on each anterior end of notaulus. Coxae yellow to yellowish brown (Fig. 20A).

Material examined. **JAPAN:** NARO, 4 F, Hokkaido, Sapporo City, Jozankei, 29. VIII. – 12. IX. 1989, K. Maeto & M. Sharkey leg. (MsT); NARO, F, ditto, 12–21. IX. 1989; NARO, F, ditto, 21–28. IX. 1989; NARO, F, Gunma Pref., Katashina Vil., Mt. Hotaka-



Fig. 20. *Proclitus praetor* (Haliday, 1838) (A–C: NARO, female) — A: lateral habitus; B: head, frontal view; C: head, mesosoma, and metasoma, dorsal view.

san, 12. VII. 1988, H. Makihara leg.; KPM-NK 89764, F, same locality, 1. VIII. 2007, T. Ishizaki leg.; NARO, 2 F, Nagano Pref., Shiga-kogen, 26–27. VII. 1961, J. Minamikawa leg. **CRIMEA**, F (det. Rossem), command Asport of Alma's floodplain, 19. VI. 1978, D. R. Kasparyan leg.

Distribution. Japan (Hokkaido and Honshu); widely distributed in Holarctic region (Yu et al., 2016).

Bionomics. Unknown in Japan. Five species of Mycetophilidae have been recorded as the hosts (Jonaitis & Rimsaite, 2000; Sedivy & Sevcik, 2003).

Remarks. This is the first record of this species from Hokkaido and Honshu.

***Proclitus tuberculatus* sp. nov.**

[New SJN: *Munakobu-onaga-hae-himebachi*]

(Figs. 21A–G, 23B, D, E)

Type series. Holotype: JAPAN: KPM-NK 81149, F, Kagoshima Pref., Tokunoshima Is., Kedoku, 21. V. 2008, K. Watanabe leg. **Paratypes:** JAPAN: KPM-NK 81185, F, Kanagawa Pref., Odawara City, Iriuda, 15. II. 2013, K. Watanabe leg.; TMNH, F, Aichi Pref., Toyohashi City, Unoya Town, Nabeyamashita, 3. X. 2017, S. Morishita leg.; TMNH, F, ditto, 1. XI. 2017; TMNH, 1 F & 1 M, ditto, 20. IV. 2018; NARO, F, Kagoshima Pref., Amamioshima Is., Yuwan, 3. V. 1953, T. Shiraki leg.; KPM-NK 81150, F, Kagoshima Pref., Amamioshima Is., Sumiyu, Santaro-toge, 12–14. IV. 2007, T. Ishizaki leg.; KPM-NK 81151, F, Kagoshima Pref., Amamioshima Is., Sumiyu, Gusuku, 29. VI. 2013, S. Yoshizawa leg.; KPM-NK 81154–81162, 4 F & 5 M, same locality and collector of holotype, 20. V. 2008; OMNH, 1 F & 1 M, ditto; TMNH, 1 F & 1 M, ditto; KPM-NK 81152, 81153, 2 M, same data of holotype; KPM-NK 81163, M, Kagoshima Pref., Tokunoshima Is., San, Mt. Amagi-dake, Tete-rindo, 31. V. 2007, M. Gunji leg.; KPM-NK 81164–81168, 1 F & 4 M, Kagoshima Pref., Tokunoshima Is., San, Mt. Amagi-dake, 18. V. 2008, K. Watanabe leg.; KPM-NK 81169, M, Kagoshima Pref., Tokunoshima Is., Isen Town, Nakayama, 21. V. 2008, K. Watanabe leg.; KPM-NK 81174, 81175, 2 F, Kagoshima Pref., Tokunoshima Is., Amagi Town, Mt. Yamatogusukuyama, 30. V. 2007, K. Watanabe leg.; KPM-NK 81170–81173, 2 F & 2 M, ditto, 31. V. 2007; KPM-NK 81176–81181, 4 F & 2 M, Kagoshima Pref., Tokunoshima Is., Amagi Town, Amagi, 25. V. 2007, K. Watanabe leg.; NARO, 25 F & 9 M, Okinawa Pref., Okinawajima Is., Kunigami Vil., 30. III. – 3. IV. 1999, K. Konishi leg. (yellow pan trap); KPM-NK 81182, M,

Okinawa Pref., Okinawajima Is., Kunigami Vil., Yona, 21. V. 2007, K. Watanabe leg.; NARO, F, Okinawa Pref., Iriomotejima Is., Shirahama, Ushikunomori, 3. XI. 1963, H. Hasegawa leg.; KPM-NK 81183, M, Riverside of Urauchigawa, 14. V. 2008, K. Watanabe leg.

Diagnosis. Anterior tentorial pit invisible. Antenna with 18 flagellomeres. Mesoscutum with a pair of strong tubercles near the anterior ends of each notaulus. Coxae yellow to yellowish brown. T I 2.85–3.4 (female) or 3.2–3.8 (male) times as long as apical width. Ovipositor sheath 1.5–1.85 times as long as hind tibia.

Description. Female (n = 49). Body length 3.2–4.8 (HT: 4.3) mm, polished, smooth and covered with silver setae.

Head 0.7–0.75 (HT: 0.7) times as long as wide. Clypeus 1.9–2.0 (HT: 1.9) times as broad as high, weakly convex in lateral view, its anterior margin simply arched. Anterior tentorial pit invisible. Face 1.0–1.05 (HT: 1.0) times as broad as high, flat, with a pair of longitudinal shallow concavities. Malar space 0.9–1.3 (HT: 0.9) times as long as basal mandibular width. POL 0.9–1.3 (HT: 1.0) times as long as OD. OOL 0.8–1.2 (HT: 0.8) times as long as OD. Inner eye orbit almost parallel. Occipital carina complete. Mandible not twisted, flat basally, upper tooth longer than lower tooth. Flagellum with 18 segments, all segments longer than its maximum depth in lateral view. FL I 5.0–5.7 (HT: 5.7) times as long as maximum depth in lateral view and 1.2–1.3 (HT: 1.2) times as long as FL II.

Mesosoma 1.3–1.4 (HT: 1.3) times as long as maximum depth in lateral view. Epomia present but short. Mesoscutum with a median longitudinal shallow groove, with a pair of tubercles on each anterior end of notaulus. Scutellum with lateral carinae at base. Epicnemial carina present laterally and ventrally. Propodeum with posterior transverse carina, posterior section of lateral longitudinal carina and pleural carina. Base of both the anterior sections of lateromedian longitudinal carina and lateral longitudinal carina usually present as short carinae. Fore wing length 2.9–4.5 (HT: 4.2) mm. Vein 1cu-a of fore wing interstitial. Pterostigma received vein 2r&RS slightly anterior to the middle. Hind wing with nervellus not intercepted, reclivous. Hind femur 4.4–5.3 (HT: 4.8) times as long as maximum depth in lateral view, club-shaped. Hind TS I 2.0–2.1 (HT: 2.1) times as long as TS II. Hind TS II 3.3–5.0 (HT: 5.0) times as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I 2.85–3.4 (HT: 3.3) times as long as maximum width, with a pair of longitudinal ridges posteriorly. T II 1.0–1.2 (HT: 1.0) times as long as maximum width, with tyridium and a few punctures. T

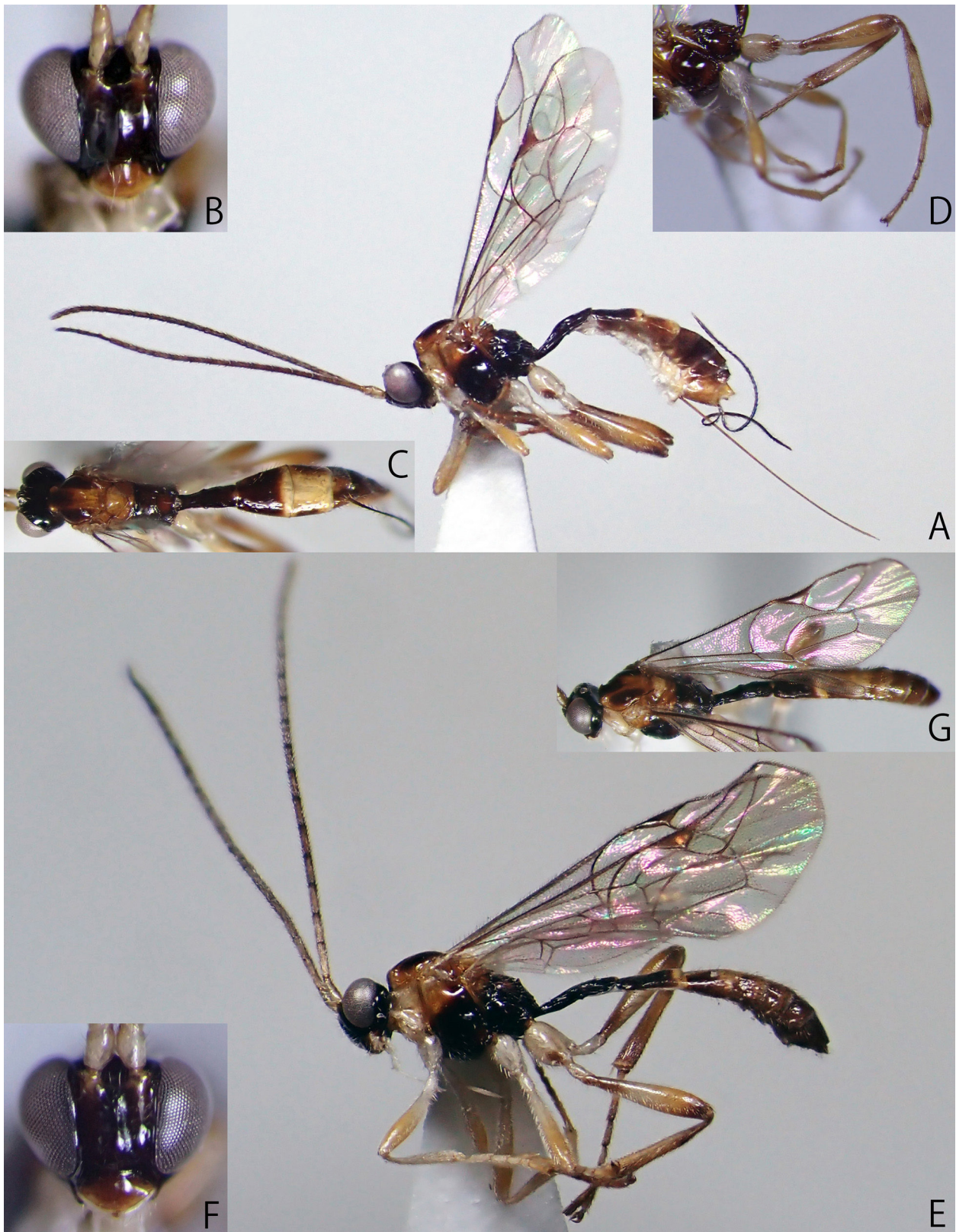


Fig. 21. *Proclitus tuberculatus* sp. nov. (A–C: KPM-NK 81149, holotype; D: KPM-NK 81181, paratype, female; E–G: KPM-NK 81153, paratype, male) — A, E: lateral habitus; B, F: head, frontal view; C, G: head, mesosoma, and metasoma, dorsolateral view; D: hind leg, lateral view.

II to T VII with a few punctures. Ovipositor sheath 1.5–1.85 (HT: 1.7) times as long as hind tibia and 0.5–0.6 (HT: 0.6) times as long as fore wing. Apex of ovipositor with a conspicuous nodus.

Coloration (Figs. 21A–D). Body (excluding wings and legs) black to blackish brown. Mandible except for apex, basal segments of antenna, palpi, and membranous part of metasomal sternum whitish yellow. Clypeus,

pronotum, propleuron, mesoscutum except for three longitudinal blackish stripes, upper part of mesopleuron, scutellum, axillae, postscutellum, posterior part of T II, T III, and apex of metasoma yellowish brown to reddish brown. T III usually more or less tinged with blackish brown to brown. T IV and T V usually paler than T I. Wings hyaline. Veins and pterostigma blackish brown to brown. Legs reddish yellow to yellowish brown. Fore and mid coxae and trochanters whitish yellow. Hind coxa and trochantellus partly and narrowly darkened. Base and apex of hind femur and tibia darkened.

Male (n = 31). Similar to female. Body length 2.8–5.0 mm. Malar space 0.6–0.8 × as long as basal mandibular width. Flagellum without tyloid. FL I 4.4–5.0 times as long as maximum depth in lateral view. Hind TS II

2.85–3.3 times as long as maximum depth in lateral view. T I 3.2–3.8 × as long as maximum width. T II 1.25–1.5 × as long as maximum width.

Distribution. Japan (Honshu, Amamioshima Is., Tokunoshima Is., Okinawajima Is. and Iriomotejima Is.).

Etymology. The specific name is from the Latin *tuberculum* (tubercle). This species has a pair of distinct tubercles on the mesoscutum.

Bionomics. Host is unknown. In Japan, adults are collected in broadleaf forests and can be collected in winter.

Remarks. In the Oriental part of the Ryukyu Islands, only *Pr. tuberculatus* **sp. nov.** and *Pr. ganicus* have been found. *Proclitus tuberculatus* and *Pr. wuyiensis* Sheng & Sun, 2013 (male unknown) can be grouped together in one group in the mesoscutum with a pair of strong

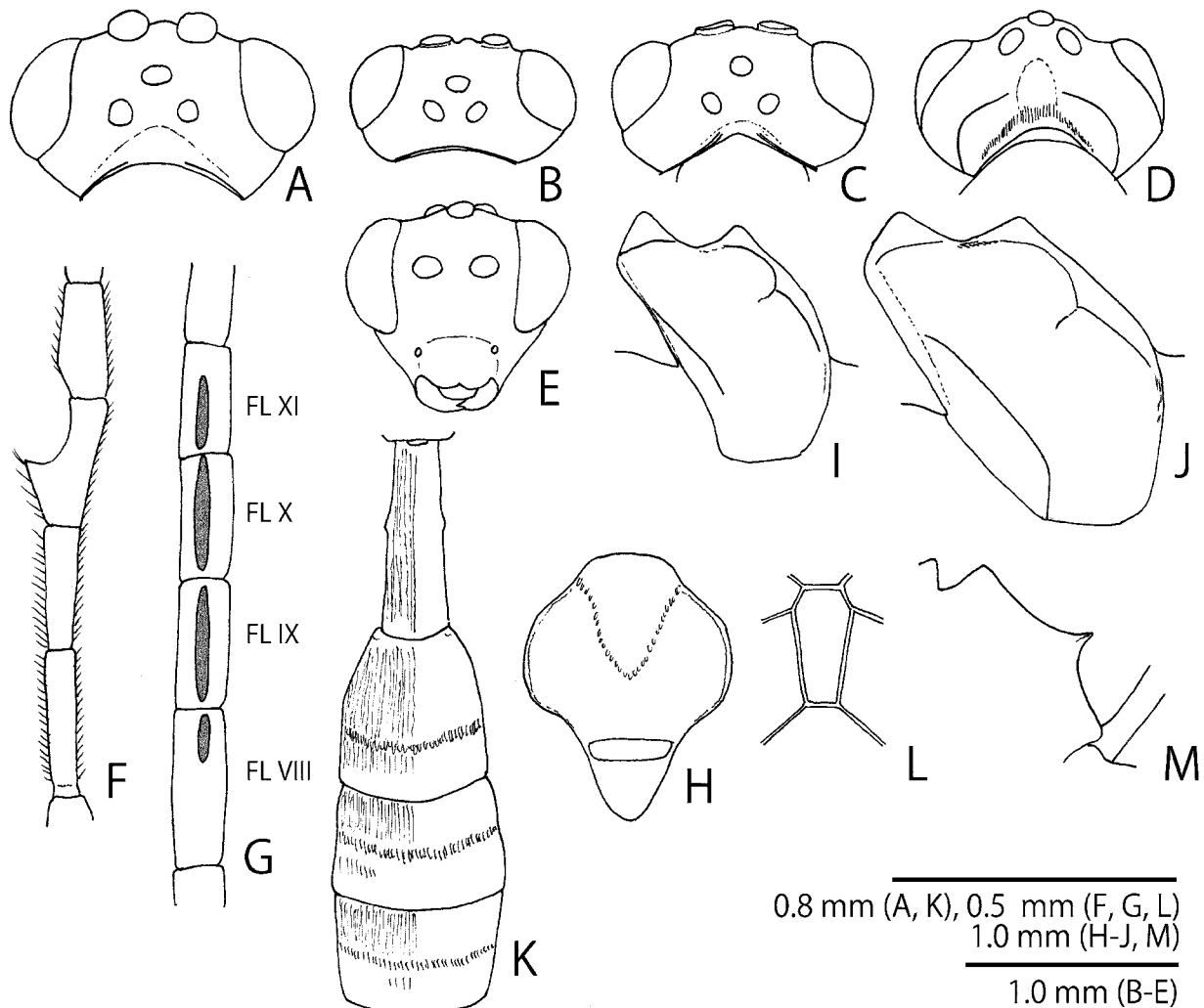


Fig. 22. A, F: *Apoclima brevicauda* **sp. nov.** (A: NARO, holotype, female; F: NARO, paratype, male); B, F: *Hemiphanes japonicum* **sp. nov.** (B, E: NARO, paratype, female); C, D: *H. gravator* Förster, 1871 (KPM-NK 81100, female); G: *H. erratum* Humala, 2007 (NARO, male); H, L: *Eusterinx* (*Holomeristus*) *tenuicincta* (Förster, 1871) (EUM, female); I: *Aperileptus albipalpus* (Gravenhorst, 1829) (KPM-NK 81184, female); J: *Ape. vanus* Förster, 1871 (KPM-NK 81109, female); K: *E. (Divinatrix) kurilensis* Humala, 2004 (NARO, female); M: *E. (Ischyraxis) bispinosa* (Strobl, 1901) (EUM, female) — A–C: head, dorsal view; D: head, posterodorsal view; E: head, frontal view; F: flagellum, lateral view; G: flagellum, ventral view; H: mesoscutum and scutellum, dorsal view; I, J: mesopleuron, lateral view; K: T I–T IV, dorsal view; L: area superomedia of propodeum; M: propodeum, lateral view.

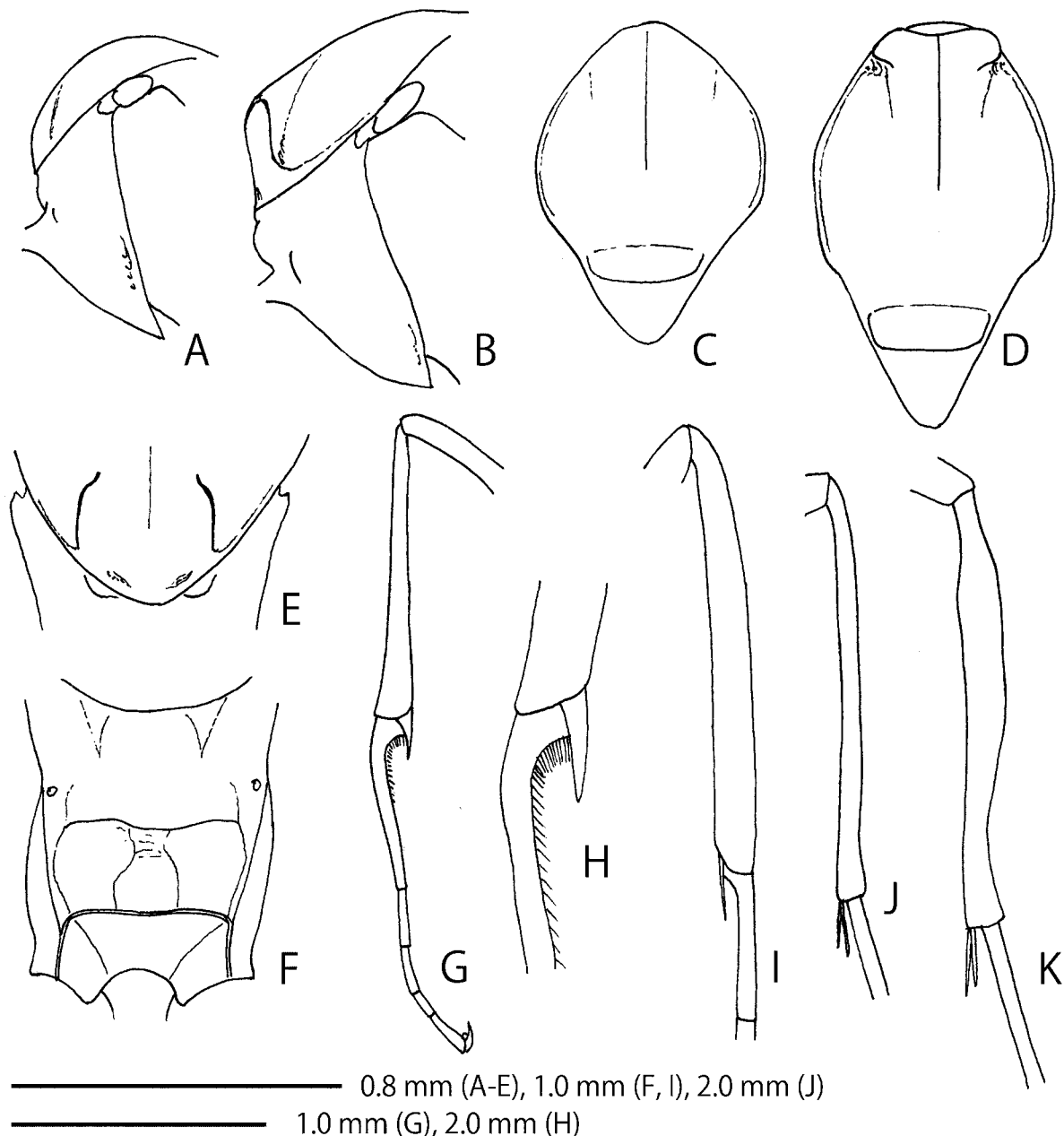


Fig. 23. A, C: *Proclitus ganicus* Sheng & Sun, 2013 (KPM-NK 81123, female); B, D, E: *Pr. tuberculatus* sp. nov. (KPM-NK 81149, holotype, female); F, I, J: *Megastylus (Dicolus) impressor* Schiödte, 1838 (EUM, female); G, H: *M. (Dic.) excubitor* (Förster, 1871) (KPM-NK 89786, female); K: *M. (Dic.) pectoralis* (Förster, 1871) (KPM-NK 89793, female) — A, B: pronotum and mesoscutum, lateral view; C, D: mesoscutum and scutellum, dorsal view; E: mesoscutum, anterior view; F: propodeum, dorsal view; G, I: fore tibia and tarsus, lateral view; H: base of fore TS I, lateral view; J, K: hind tibia, lateral view.

tubercles near the anterior ends of each notaulus. This species can be easily distinguished from *Pr. wuyiensis* by the length of ovipositor sheath 1.5–1.85 times as long as hind tibia (2.6 times as long as hind tibia in *Pr. wuyiensis*).

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摘 要

渡辺恭平, 2023. 日本産ハエヒメバチ亜科 (ハチ目, ヒメバチ科) の 4 新種の記載を含む分類学および動物地理学的記録. 神奈川県立博物館研究報告 (自然科学), (52): 7–44. [Watanabe, K., 2023. Taxonomic and Zoogeographic Notes on Japanese Orthocentrinae (Hymenoptera, Ichneumonidae), with Descriptions of Four New Species. Bull. Kanagawa Pref. Mus. (Nat. Sci.), (52): 7–44.]

日本産のハエヒメバチ亜科 Orthocentrinae の 9 属 22 種について、分類学および動物地理学的研究をおこなった。Apoclima Förster, 1869 と亜属 Dicolus Förster, 1869 をそれぞれ日本新産属および亜属として記録した。4 新種、エゾチビハエヒメバチ *Apoclima brevicauda* sp. nov.、オナガチビハエヒメバチ *Apo. longicauda* sp. nov.、ニッポンヒラタハエヒメバチ *Hemiphanes japonicum* sp. nov.、ムナコブオナガハエヒメバチ *Proclitus tuberculatus* sp. nov. を記載し、学名と標準和名を命名した。8 日本新産種、バイカルハエヒメバチ *Aniseres baikalensis* Humala, 2007、クボミヒラタハエヒメバチ *H. gravator* Förster, 1871、オオクシアシナガハエヒメバチ *Megastylus (Dicolus) excubitor* (Förster, 1871)、フタヒダアシナガハエヒメバチ *M. (Dic.) impressor* Schiødte, 1838、スネボソアシナガハエヒメバチ *M. (Dic.) pectoralis* (Förster, 1871)、キョクトウアシナガハエヒメバチ *M. (Megastylus) kuslitzkii* Humala, 2007、モトグロオナガハエヒメバチ *Proclitus ganicus* Sheng & Sun, 2013、ミヤマオナガハエヒメバチ *Pr. praetor* (Haliday, 1838) を記録し、標準和名を命名した。これらに加えて、既知の 10 種、タイリクツヤハエヒメバチ (標準和名新称) *Aperileptus albipalpus* (Gravenhorst, 1829)、ムネヒダツヤハエヒメバチ (標準和名新称) *Ape. vanus* Förster, 1871、クナシリハエヒメバチ (標準和名新称) *Eusterinx (Divinatrix) kurilensis* Humala, 2004、ジュズヒゲハエヒメバチ *E. (Holomeristus) tenuicincta* (Förster, 1871)、トゲスジハエヒメバチ (標準和名新称) *E. (Ischyracis) bispinosa* (Strobl, 1901)、ムネツヤヒラタハエヒメバチ (標準和名新称) *H. erratum* Humala, 2007、モモボソアシナガハエヒメバチ (標準和名新称) *M. (M.) cruentator* Schiødte, 1838、モモブトアシナガハエヒメバチ (標準和名新称) *M. (M.) orbitator* Schiødte, 1838、ハラボソハエヒメバチ *Neurateles asiaticus* Watanabe, 2016、ツヤハラコハエヒメバチ (標準和名新称) *Pantisarthrus lubricus* (Förster, 1871) についても新分布記録を報告した。旧北区東部産 *Apoclima* と全世界産の *Hemiphanes* の種への検索表を提供した。