

## Original Article

## Taxonomic Study of Japanese Cryptinae (Hymenoptera, Ichneumonidae), with Descriptions of 32 New Species

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**Abstract.** This paper is the fourth part of taxonomic notes of Japanese Cryptinae (Hymenoptera, Ichneumonidae). In this study, 11 genera of tribe Aptesini Smith & Shenefelt, 1955 and six genera of tribe Cryptini Kirby, 1837 are studied. *Plectocryptus* Thomson, 1873 is new to Japan. The following 32 new species and one new subspecies are described: *Aconias fujiei* **sp. nov.**; *Ac. longisetosus* **sp. nov.**; *Aptesia albicoxalis* **sp. nov.**; *Ap. ezoensis* **sp. nov.**; *Ap. jinbensis* **sp. nov.**; *Ap. minor* **sp. nov.**; *Ap. yamauchii* **sp. nov.**; *Cubocephalus asiaticus* **sp. nov.**; *C. confusus* **sp. nov.**; *C. nanus* **sp. nov.**; *C. sapporensis* **sp. nov.**; *C. uryuensis* **sp. nov.**; *Giraudia kurenai* **sp. nov.**; *Gi. nana* **sp. nov.**; *Javra albotrochantellata* **sp. nov.**; *J. gigantea* **sp. nov.**; *J. japonica* **sp. nov.**; *J. minamiashigarensis* **sp. nov.**; *J. minuta* **sp. nov.**; *J. tenuis* **sp. nov.**; *Megaplectes bicornis* **sp. nov.**; *Meg. konishii* **sp. nov.**; *Parmortha albitarsale* **sp. nov.**; *Pa. gigantea* **sp. nov.**; *Pa. nigra* **sp. nov.**; *Plectocryptus japonicus* **sp. nov.**; *Pleolophus obtusus* **sp. nov.**; *Schenkia alpina* **sp. nov.**; *S. japonica* **sp. nov.**; *S. minuta* **sp. nov.**; *S. uryuensis* **sp. nov.**; *Goryphus albofasciatus erabu* **subsp. nov.**; *Listrognathus* (*Listrognathus*) *octoguttatus* **sp. nov.** The following three species and one subspecies are newly recorded from Japan: *Ap. flagitator* (Rossi, 1794); *Ap. melana* Li & Sheng, 2013; *Idiolispa analis analis* (Gravenhorst, 1807); *L. (L.) yunnanensis* He & Chen, 1996. The following three new synonyms are proposed: *Ac. tarsatus* (Bridgman, 1881) = *Plec. albitarsis* Uchida, 1936 **syn. nov.**; *Parmortha maruyamensis* (Uchida, 1930) = *Cratocryptus microstriatellus* Uchida, 1952 **syn. nov.**; *Nippocryptus alutaceus* (Tschek, 1871) = *Caenocryptus canaliculatus* Momoi, 1968 **syn. nov.** Furthermore, the generic position of *Aptesia opaca* (Cushman, 1937) changed to *Oresbius* Marshall, 1867 (**comb. nov.**) and a new replaced name, *O. cushmani* **nom. nov.** is proposed. Some redescriptions, new distribution records, and keys to species in 10 genera are also provided.

**Key words:** distribution, Eastern Palearctic region, new record, parasitoid wasps, taxonomy

## Introduction

The subfamily Cryptinae is the second largest subfamily of family Ichneumonidae, with 276 genera and over 3100 species of worldwide distribution (Yu *et al.*, 2016; Santos, 2017). In Japan, total of two tribes, 63 genera and 156 species of Cryptinae have been recorded (Watanabe *et al.*, 2024), while many undescribed and unrecorded species were still recognized. Recently I sorted the ichneumonid collection of Kanagawa Prefectural Museum of Natural

History and examined collections of several institutes including types. Then I found some new taxa, a new combination and new distribution records.

This paper is the fourth part (the previous three parts: Watanabe, 2019, 2020, 2022) of taxonomic and zoogeographical notes of Japanese Cryptinae (Hymenoptera, Ichneumonidae). In this study, I treat 11 genera of tribe Aptesini Smith & Shenefelt, 1955, *Aconias* Cameron, 1904, *Aptesia* Förster, 1850, *Cubocephalus* Ratzeburg, 1848, *Giraudia* Förster, 1869, *Javra* Cameron, 1903, *Megaplectes* Förster, 1869, *Oresbius* Marshall, 1867, *Parmortha* Townes, 1962, *Plectocryptus* Thomson, 1873 (new to Japan), *Pleolophus* Townes, 1962, and *Schenkia* Förster, 1869, and six genera of tribe Cryptini Kirby, 1837, *Euchalinus* Townes, 1961, *Goryphus* Holmgren, 1868, *Idiolispa* Förster, 1869, *Listrognathus* Tschek, 1871, *Menaforia* Seyrig, 1952, and *Nippocryptus*

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Uchida, 1936. Some re-descriptions of Japanese species (e.g., species described by Dr. Toichi Uchida (1898–1974)) and keys to species of some genera are also provided.

### Materials and methods

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

AEIC, the American Entomological Institute of Utah State University, Logan, Utah, USA.

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

LI, Biologiezentrum, Linz, Austria.

MNHAH, Museum of Nature and Human Activities, Sanda, Hyogo, Japan.

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

NSMT, National Museum of Nature and Science, Tsukuba, Ibaraki, Japan.

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

SEHU, Hokkaido University Museum, Sapporo, Japan.

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

A Nikon SMZ800N stereomicroscope (Nikon Co. Ltd., Japan) was used for observation. Photographs (Figs. 1–75) were taken using a Canon 7D Mark2 (Canon Co. Ltd., Japan) with Canon 100mmL IS (for the lateral habitus and Figs. 8B, 17B, 23B, 31B, 33B, 35B, 36B, 48B, 51B, 63B, 64B, C, 66A, B, 67B, 70B) and an Olympus TG-5 digital camera (Olympus Co. Ltd., Japan) connected to the stereomicroscope (for the other photographs). All figures were edited using Adobe Photoshop® CC 2024 (Adobe Co. Ltd., USA). The morphological terminology follows Broad *et al.* (2018). Eady (1968) is also used for the description of microsculpture. The following abbreviations are used in the description: holotype (HT), interspace of punctures (ISP), diameter of puncture (PD), segment of antennal flagellum (FL), diameter of lateral ocellus (OD), ocelloocular line (OOL), postocellar line (POL), segment of tarsus (TS) and metasomal tergite (T). The following abbreviations are used for material data: female (F), male (M), flight interception trap (FIT), yellow pan trap (YPT), and Malaise trap (MsT). For the new species and newly recorded species from Japan, I propose standard Japanese names (SJN). The minimum width of face measured by the transverse line just below the antennal sockets. All genera were identified based on generic concepts proposed by Townes (1970).

### Results and discussion

By the result of morphological comparison, I found one genus new to Japan, 32 new species, one new subspecies, one new replacement name, three new synonyms, three species new to Japan, and one subspecies new to Japan. In addition, in other species, many new distribution data and morphological information are also recognized. This research has greatly increased the diversity of Japanese Aptesini in particular, almost doubling the number of species.

#### Subfamily Cryptinae Kirby, 1837

##### Tribe Aptesini Smith & Shenefelt, 1955

This tribe is one of the poorly taxonomically studied groups in Japan. Previously, 13 genera and 34 species have been recorded (Watanabe *et al.*, 2024). In this study, I revised this group and found 31 new species, one newly recorded genus from Japan, two newly recorded species from Japan, one newly recorded subspecies from Japan, one new combination, and two new synonyms. Totally, 14 genera and 65 species of this tribe are recorded in Japan.

#### Genus *Aconias* Cameron, 1904

*Aconias* Cameron, 1904: 345. Type species: *Aconias spinitarsis* Cameron, 1904. Monotypic.

Three species, *Ac. albitarsis* (Uchida, 1936), *Ac. concavopropodeonus* (Uchida, 1952), and *Ac. tarsatus* (Bridgman, 1881), have been recorded from Japan. Uchida (1952) notes that the *Ac. albitarsis* (Uchida, 1936) and *Ac. concavopropodeonus* (Uchida, 1952) by the character states of propodeum, while this difference between both species is intraspecific variation. Sheng & Sun (2008) provided the key for world species and *Ac. albitarsis* is separated from *Ac. tarsatus* (Bridgeman, 1881) by the coloration of face (black in *Ac. albitarsis*; white in *Ac. tarsatus*) and hind tibia (black with pale coloured base in *Ac. albitarsis*; reddish brown with black apex in *Ac. tarsatus*). But the face of *Ac. tarsatus* is misdescription and the coloration of hind tibia of *Ac. tarsatus* is intraspecifically varied and the range of variation overlapped with *Ac. albitarsis*. Thus, I conclude that *Ac. albitarsis* is a junior synonym of *Ac. tarsatus* (**syn. nov.**).

In this study, I newly describe two new species below. Both species are identified as this genus by Townes (1970) and are well accorded the character states of this genus. While the surface sculpture of hind femur and the remarkably long setae on it are largely differed from other



species. The generic position of two new species should be reanalysed by future study.

### Key to Japanese species of *Aconias*

1. Female. .... 2
- . Male. .... 5
2. Hind femur coriaceous; punctures unclearly defined (Fig. 77D). Hind femur and tibia without long setae (Fig. 77D). Scutellum entirely black. .... 3
- . Hind femur punctate; punctures well-defined (Figs. 3H, 4H, 77E, F). Hind femur and tibia with many long setae (Figs. 77E, F). Scutellum with reddish-brown to yellow area (Figs. 3B, G, 4B, F). .... 4
3. Hind tarsus without white area (sometimes tinged with dark yellowish-brown at base) (Fig. 1A). Posterior transverse carina of propodeum complete, inverted U-shaped (Fig. 1G). Ovipositor sheath  $0.9\text{--}1.05 \times$  as long as hind tibia. Small species: body length 7.5–9.2 mm. .... *Aconias concavopropodeonus* (Uchida, 1952)
- . Hind tarsus with white area (usually TS III and IV) (Fig. 5A). Posterior transverse carina sometimes weak medially, inverted V-shaped (Fig. 5F). Ovipositor sheath  $1.1\text{--}1.25 \times$  as long as hind tibia. Large species: body length 7.4–10.3 mm. .... *Aconias tarsatus* (Bridgeman, 1881) (= *Ac. albitarsis* (Uchida, 1936) **syn. nov.**)
4. Legs black except for base of hind tibia tinged with yellowish-brown (Fig. 3A). Scutellum reddish-brown (Figs. 3B, G). Face black (Fig. 3C). T I  $2.4 \times$  as long as maximum width. Distribution: Honshu. .... *Aconias fujiei* **sp. nov.**
- . Legs reddish-brown to reddish-yellow except for fore and mid coxae, trochanters, and trochantelli white (Figs. 4A, B, H). Scutellum yellow (Figs. 4B, F). Face partly tinged with yellowish-brown (Fig. 4C). T I  $2.5\text{--}2.75 \times$  as long as maximum width. Distribution: Ryukyu Islands. .... *Aconias longisetosus* **sp. nov.**
5. Scutellum with yellow spot apically (Figs. 2B, E). Lateral section of anterior transverse carina complete (Fig. 2E). Hind femur  $6.0\text{--}6.25 \times$  as long as maximum depth in lateral view. T I  $3.85\text{--}4.15 \times$  as long as maximum width. T II  $1.8\text{--}2.0 \times$  as long as maximum width. .... *Aconias concavopropodeonus* (Uchida, 1952)
- . Scutellum without yellow spot (Fig. 6B). Lateral section of anterior transverse carina absent or incomplete. Hind femur  $7.2\text{--}8.0 \times$  as long as maximum depth in lateral view.

T I  $4.45\text{--}5.2 \times$  as long as maximum width. T II  $2.4\text{--}2.5 \times$  as long as maximum width.

..... *Aconias tarsatus* (Bridgeman, 1881)  
(= *A. albitarsis* (Uchida, 1936) **syn. nov.**)

### *Aconias concavopropodeonus* (Uchida, 1952)

[SJN: Munakubo-togari-himebachi]

(Figs. 1A–H, 2A–F, 76A, 77D, 78A)

*Plectocryptus concavopropodeonus* Uchida, 1952: 21.

### Materials examined. JAPAN: [Honshu] KPM-NK

102862, F, Tochigi Pref., Kuroiso Town, Miyama-dam, 8. IX. 2001, E. Katayama leg.; KPM-NK 102889, F, Tochigi Pref., Nasushiobara City, Hakonomori Park, 11. X. 2007, E. Katayama leg.; KPM-NK 81289, F, Tochigi Pref., Nasushiobara City, Shiobara, Oonuma, 6–15. VI. 2008, T. Matsumura leg.; KPM-NK 102888, F, Gunma Pref., Kawaba Vil., Mt. Hotaka-san, 29. VIII. 2006, H. Katahira leg.; KPM-NK 102860, F, Kanagawa Pref., Hakone Town, Mt. Komagatake, 11. VIII. 2000, H. Nagase leg.; KPM-NK 102890, F, Kanagawa Pref., Atsugi City, Funako, 21. VII. 2007, M. Irie leg.; KPM-NK 102892, 102898, F & M, Nagano Pref., Outaki Vil., Mt. Ontake-san, Hakkaisan, 7. VIII. 2010, K. Watanabe leg.; KPM-NK 102899, M, Gifu Pref., Takayama City, Takane Town, Hiwada, 6. VIII. 2010, K. Watanabe leg.; KPM-NK 102876, 102925, 1F & 1M, Toyama Pref., Nanto City, Togamura-kamimomose, 21–28. VII. 2009, M. Watanabe leg. (MsT); KPM-NK 102938, M, ditto, 4–11. VIII. 2009; KPM-NK 102939, M, ditto, 11–18. VIII. 2009; KPM-NK 102877, F, ditto, 8–15. IX. 2009; KPM-NK 102878, M, Toyama Pref., Toyama City, Kamegai, 14–21. VII. 2009, M. Watanabe leg. (MsT); KPM-NK 102879, M, ditto, 25. VIII. – 1. IX. 2009; KPM-NK 102880, M, ditto, 8–15. IX. 2009; KPM-NK 102881–102883 and OMNH, 4M, Toyama Pref., Toyama City, Arimine, Inonedani, 7–14. VII. 2009, M. Watanabe leg. (MsT); KPM-NK 102884 & 103022, 1F & 1M, ditto, 14–21. VII. 2009; KPM-NK 102885, 102886, & OMNH, 3F, ditto, 4–11. VIII. 2009; KPM-NK 102887 & 103024, 2M, ditto, 11–16. VIII. 2009; OMNH & KPM-NK 103025, 1F & 1M, ditto, 16–25. VIII. 2009; KPM-NK 102912, M, ditto, 25. VIII. – 1. IX. 2009; KPM-NK 102913, 102914, & OMNH, 1F & 2M, ditto, 1–8. IX. 2009; KPM-NK 102915–102919 & OMNH, 7M, ditto, 8–15. IX. 2009; KPM-NK 102920–102924 & TMNH, 2F & 6M, ditto, 15–22. IX. 2009; KPM-NK 102875, F, Toyama Pref., Toyama City, Arimine, Jyurodani, 14–21. VII. 2009, M. Watanabe leg. (MsT); KPM-NK 102900, F, ditto, 21–28. VII. 2009; KPM-NK 102901, M, ditto,

4–11. VIII. 2009; KPM-NK 102902, M, ditto, 11–16. VIII. 2009; KPM-NK 102904–102905, 1F & 1M, ditto, 16–25. VIII. 2009; KPM-NK 103023, M, ditto, 25. VIII. – 1. IX. 2009; KPM-NK 102906, F, ditto, 1–8. IX. 2009; KPM-NK 102907–102908 & OMNH, 1F & 2M, ditto, 8–15. IX. 2009; KPM-NK 102909–102911, 102935–102937, 6M, ditto, 15–22. IX. 2009; KPM-NK 102874, M, Fukui Pref., Mt. Kanmuri, 17. VIII. 1973, H. Kurokawa leg.; KPM-NK 102861, F, Fukui Pref., Chinabora, 30. VIII. 1981, T. Murota leg.; KPM-NK 81193, F, Fukui Pref., Mt. Kanakusa-dake, 13. IX. 1981, H. Kurokawa leg.; KPM-NK 102859, F, Fukui Pref., Izumi Vil., Kadonomaesaka, 18. X. 1981, H. Kurokawa leg.; OMNH, 1F, Nara Pref., Yamatokoriyama City, Yata Town, 13. VI. 2012, S. Fujie leg.; KPM-NK 81288, F, Wakayama Pref., Aridagawa Town, Mt. Oishigamine, 26. X. 2012, S. Fujie leg.; SEHU, 1F (holotype), Hyogo Pref., Sakazukiya, 11. X. 1951, K. Iwata leg. [Sado Is.] KPM-NK 102893–102896, 1F & 3M, Niigata Pref., Sado City, Kanaishinpo to Mt. Hakuunzan, 4. VIII. 2009, K. Watanabe leg.; KPM-NK 102897 & OMNH, 2M, ditto, 10. IX. 2010. [Shikoku] KPM-NK 102891, F, Ehime Pref., Saijo City, Nishinokawatei, Mt. Ishizuchi, Tsuchigoya, 28. VII. 2018, K. Watanabe leg.

**Description.** Female (n = 30). Body polished; covered with setae; body length 7.5–9.2 mm.

Head  $0.6\text{--}0.65 \times$  as long as wide in dorsal view. Clypeus  $3.0 \times$  as wide as long; slightly convex in lateral view; sparsely punctate dorsally, transversely rugulose ventrally; punctures partly united into groove-like foveola (Fig. 76A); lower margin subtruncate to slightly rounded; sharp and narrowly reflected in lateral view. Face  $0.38\text{--}0.4 \times$  as long as minimum width; slightly convex medially; matt; densely punctate medially; punctures partly united into groove-like foveola medially. Frons weakly concave above antennal sockets; punctate except for narrow smooth area above each antennal socket. POL  $1.6\text{--}2.0 \times$  as OD. OOL  $1.6\text{--}2.1 \times$  as OD. Gena and occiput densely punctate. Dorsal profile of gena rounded in dorsal view; width gradually narrowing posteriorly (Fig. 1D). Occipital carina complete. Malar space  $1.0\text{--}1.1 \times$  as long as basal width of mandible. Mandible flat at base; lower tooth longer than upper tooth. Antenna with 23–25 flagellomeres; not flattened and tapped. FL I  $2.1\text{--}2.3 \times$  as long as maximum depth in lateral view,  $1.1 \times$  as long as FL II.

Mesosoma. Pronotum rugulose ventrally; densely punctate dorsally. Epomia short; section on border of collar and pronotum present. Mesoscutum densely punctate; without notaulus or slightly defined as trace-like. Scutellum sparsely punctate; weakly convex in lateral view. Mesopleuron longitudinally rugulose and

punctate; punctures largely partly united into groove-like foveola (Fig. 1E); without conspicuous smooth area around speculum. Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.4 of mesopleuron. Metapleuron obliquely rugulose; without juxtacoxal carina. Propodeum rugose or rugulose except for area externa finely and sparsely punctate with smooth ISP; anterior transverse carina absent (Fig. 1G); posterior transverse carina complete, inverted U-shaped (Fig. 1G); lateromedian longitudinal carina weak and partly indistinct in front of posterior transverse carina (Fig. 1G); lateral longitudinal carina complete; pleural carina complete; area superomedia indistinct; apophysis small but pointed; spiracle elliptic. Fore wing length 5.3–7.3 mm. Areolet slightly wider than long; width slightly narrowing anteriorly; received vein 2m-cu at near or slightly beyond middle (Fig. 1F). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 1F). Nervellus subvertical; intercepted near posterior end of vein. Hind femur reticulate coriaceous; with short setae (Fig. 77D);  $4.2\text{--}4.65 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I  $2.2\text{--}2.3 \times$  as long as maximum width; longitudinally striate except for smooth area of apex (Fig. 1H); latero-median carina absent; dorso-lateral carina complete and weak. T II  $1.25\text{--}1.4 \times$  as long as maximum width; smooth; finely punctate laterally. Thyridium present; close to anterior margin of T II; slightly depressed; ca.  $2.0 \times$  as wide as length. T III to T V finely punctate. Ovipositor sheath  $0.9\text{--}1.05 \times$  as long as hind tibia,  $1.5\text{--}1.6 \times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 78A).

Colouration (Figs. 1A–H). Body (excluding wings) black to blackish-brown. Setae silver; weakly tinged with brown in head and mesoscutum. Subapical part of mandible and lower part of clypeus tinged with reddish-brown. Labrum, palpi, pair of small spots between antennal socket and eye, postero-dorsal corner of pronotum, and apex of ovipositor sheath yellowish-brown to yellow. FL VII to FL XI with white to ivory markings. Bases of each tibia and tibial spurs brown. Apex of T I narrowly tinged with yellowish-brown to reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish-brown wing base.

Male (n = 49). Similar to female (Figs. 2A–F). Body length 7.4–10.3 mm. Clypeus  $2.4\text{--}2.7 \times$  as wide as long. Face  $0.5\text{--}0.6 \times$  as long as minimum width. POL  $0.8\text{--}1.05 \times$  as OD. OOL  $1.0\text{--}1.35 \times$  as OD. Malar space  $0.45\text{--}0.6 \times$  as long as basal width of mandible. Antenna with 27–31 flagellomeres; with tyloids on FL XII (or XIII) to FL XVIII (Fig. 2D). FL I  $3.05\text{--}3.65 \times$  as long as maximum depth in



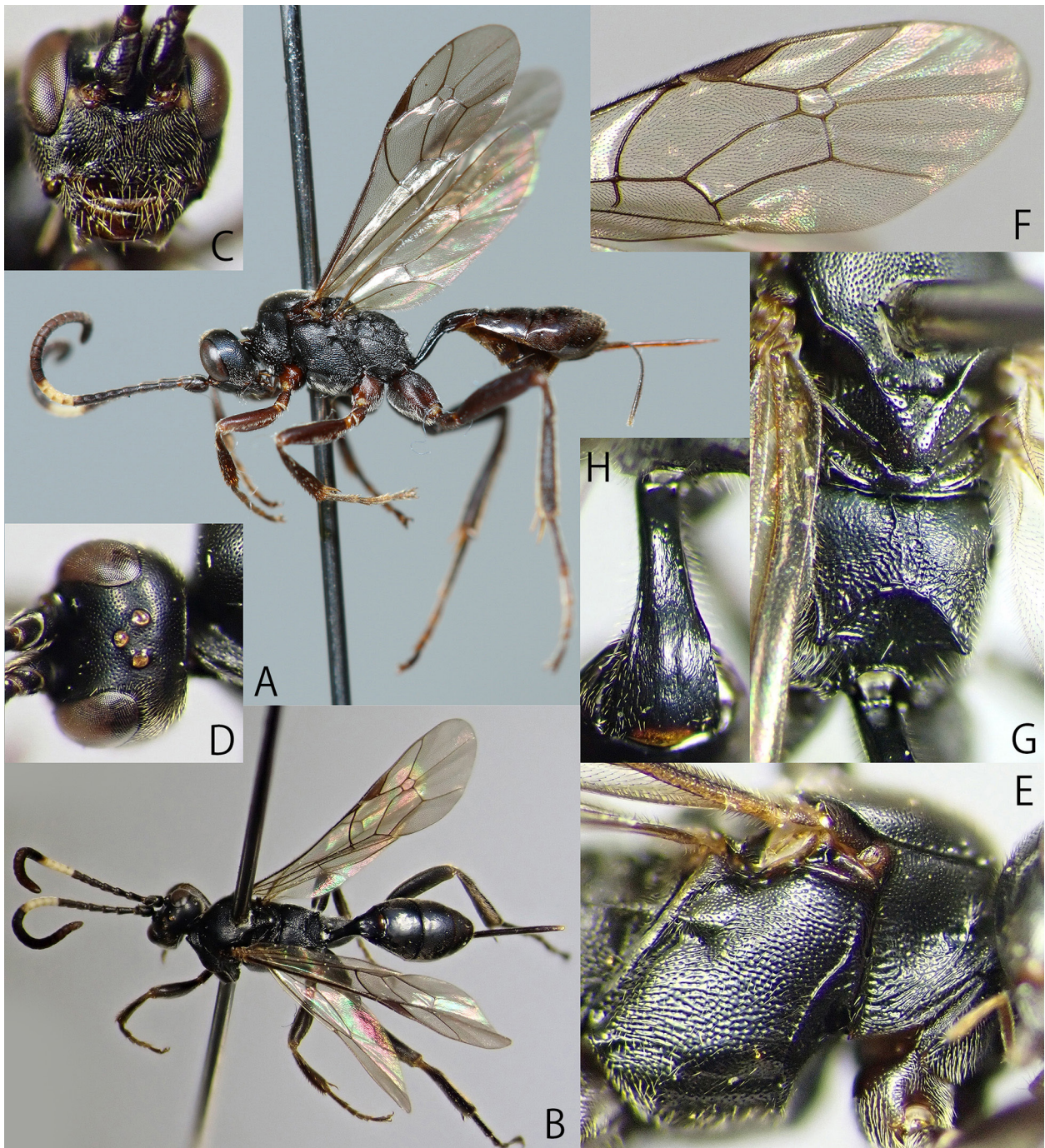


Fig. 1. *Aconias concavopropodeonius* (Uchida, 1952), female (KPM-NK 102888) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: scutellum and propodeum, dorsal view; H: T I, dorsal view.

lateral view,  $1.25\text{--}1.4 \times$  as long as FL II. Fore wing length  $6.0\text{--}7.8$  mm. Lateral section of anterior transverse carina complete (Fig. 2E). Hind femur  $6.0\text{--}6.25 \times$  as long as maximum depth in lateral view. T I  $3.85\text{--}4.15 \times$  as long as maximum width. T II  $1.8\text{--}2.0 \times$  as long as maximum width. Face, ventro-lateral sides of face, malar space, clypeus, mandible except for teeth, and palpi yellow to ivory. Ventral surface of scape usually with yellow marking. Postero-dorsal corner of pronotum, posterior part of scutellum, and subtegular ridge yellow. Fore coxa with yellow marking(s). Fore and mid legs paler than female; trochanters and

trochantelli largely yellow; fore femur and fore and mid tibiae and tarsi except for each TS V yellow to reddish-yellow. Basal part of hind tibia and tibial spurs of hind tibia brown to yellowish-brown. Posterior margins of metasomal tergites narrowly tinged with reddish-brown. Hind TS II to TS IV ivory. Yellow area of mid tarsus usually tinged with ivory. In few males shows following colour variation: fore and mid legs except for mid coxa largely yellowish to reddish-brown; tegula brown; hind trochantellus yellowish-brown; basal yellowish area of hind tibia enlarged; hind tarsus nearly entirely yellowish-brown; posterior part of T



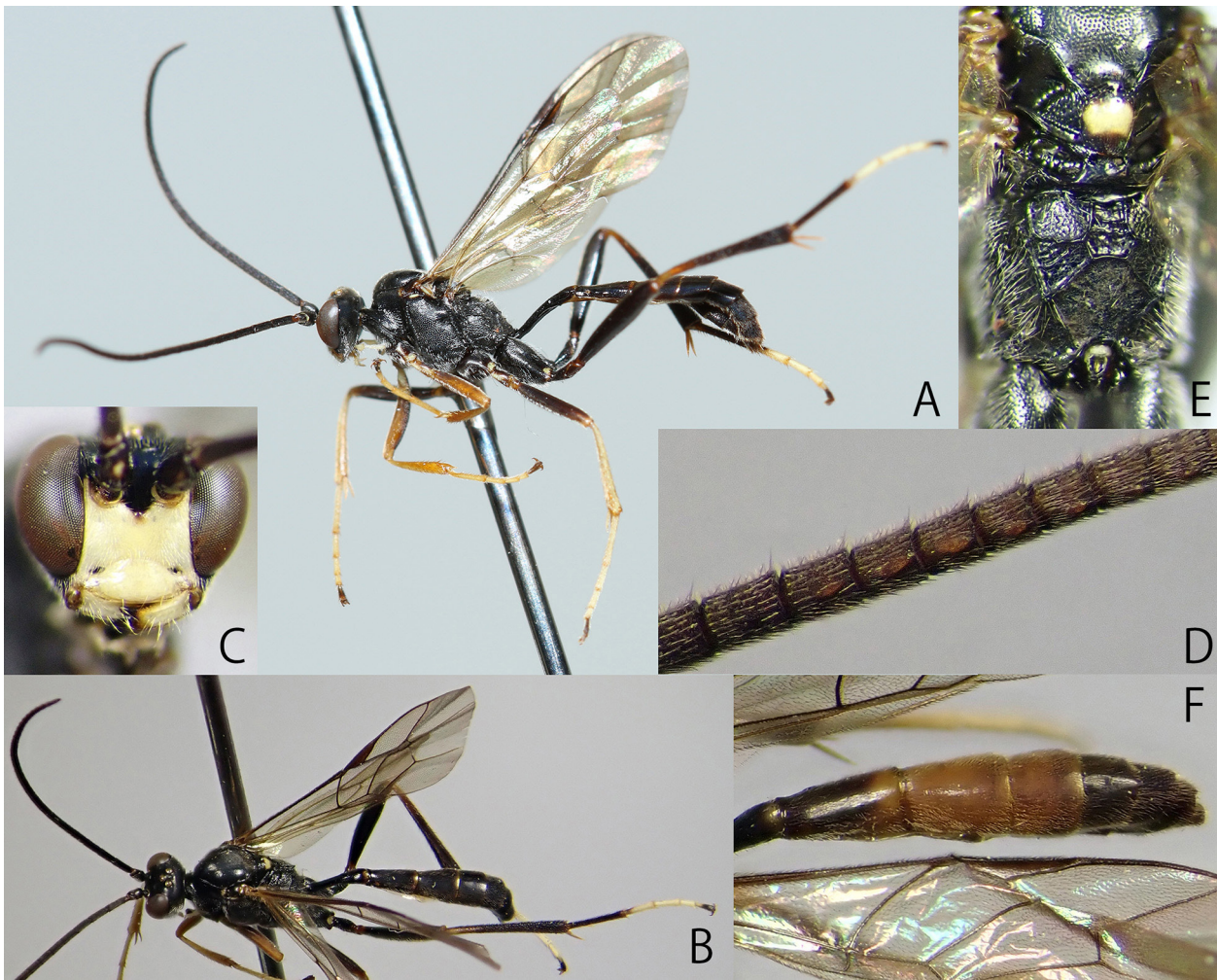


Fig. 2. *Aconias concavopropodeonus* (Uchida, 1952), males (A–E: KPM-NK 102895; F: KPM-NK 103022) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: flagellum and tyloids; E: scutellum and propodeum, dorsal view; F: metasoma, dorso-lateral view.

II, T III, and T IV reddish-brown (Fig. 2F).

**Distribution.** Japan (Hokkaido, Honshu, Sado Is., and Shikoku).

**Bionomics.** Unknown.

**Remarks.** This is the first record of male of this species. This is also the first record of this species from Sado Is. and Shikoku.

***Aconias fujiei* sp. nov.**

[New SJN: Fujie-kuro-togari-himebachi]  
(Figs. 3A–I, 77E, 78B)

**Type series.** **Holotype:** JAPAN, KPM-NK 81195, F, Hyogo Pref., Kami Town, Niiya, Mikata-kogen, 26. VI. – 18. VII. 2011, S. Fujie leg. (MsT). **Paratype:** JAPAN, KPM-NK 102903, F, Toyama Pref., Toyama City, Arimine, Jyurodani, 16–25. VIII. 2009, M. Watanabe leg. (MsT).

**Description.** Female (n =2). Body polished; covered with setae; body length 6.1–7.1 (HT: 6.1) mm.

Head  $0.65 \times$  as long as wide in dorsal view. Clypeus  $3.4\text{--}3.7$  (HT: 3.7)  $\times$  as wide as long; slightly convex in

lateral view; sparsely punctate dorsally; transversely rugulose ventrally; punctures partly united into groove-like foveola; lower margin weakly rounded; blunt in lateral view. Face  $0.35 \times$  as long as minimum width; slightly convex medially; matt; punctate medially; punctures partly united into groove-like foveola medially. Frons weakly concave above antennal sockets; punctate dorsally, transversely rugose ventrally. POL  $1.25\text{--}1.5$  (HT: 1.25)  $\times$  as OD. OOL  $1.4\text{--}1.6$  (HT: 1.4)  $\times$  as OD. Gena and occiput densely punctate. Dorsal profile of gena rounded in dorsal view; width not narrowing anteriorly, somewhat abruptly narrowing posteriorly (Fig. 3D). Occipital carina complete. Malar space  $0.7 \times$  as long as basal width of mandible. Mandible flat at base; lower tooth longer than upper tooth. Antenna with 24 flagellomeres; not flattened and tapped. FL I  $2.1 \times$  as long as maximum depth in lateral view,  $1.05\text{--}1.1$  (HT: 1.05)  $\times$  as long as FL II.

**Mesosoma.** Pronotum rugulose. Epomia absent. Mesoscutum densely punctate; punctures partly united into groove-like longitudinal foveola; with short notaulus. Scutellum sparsely punctate; flat in lateral view.



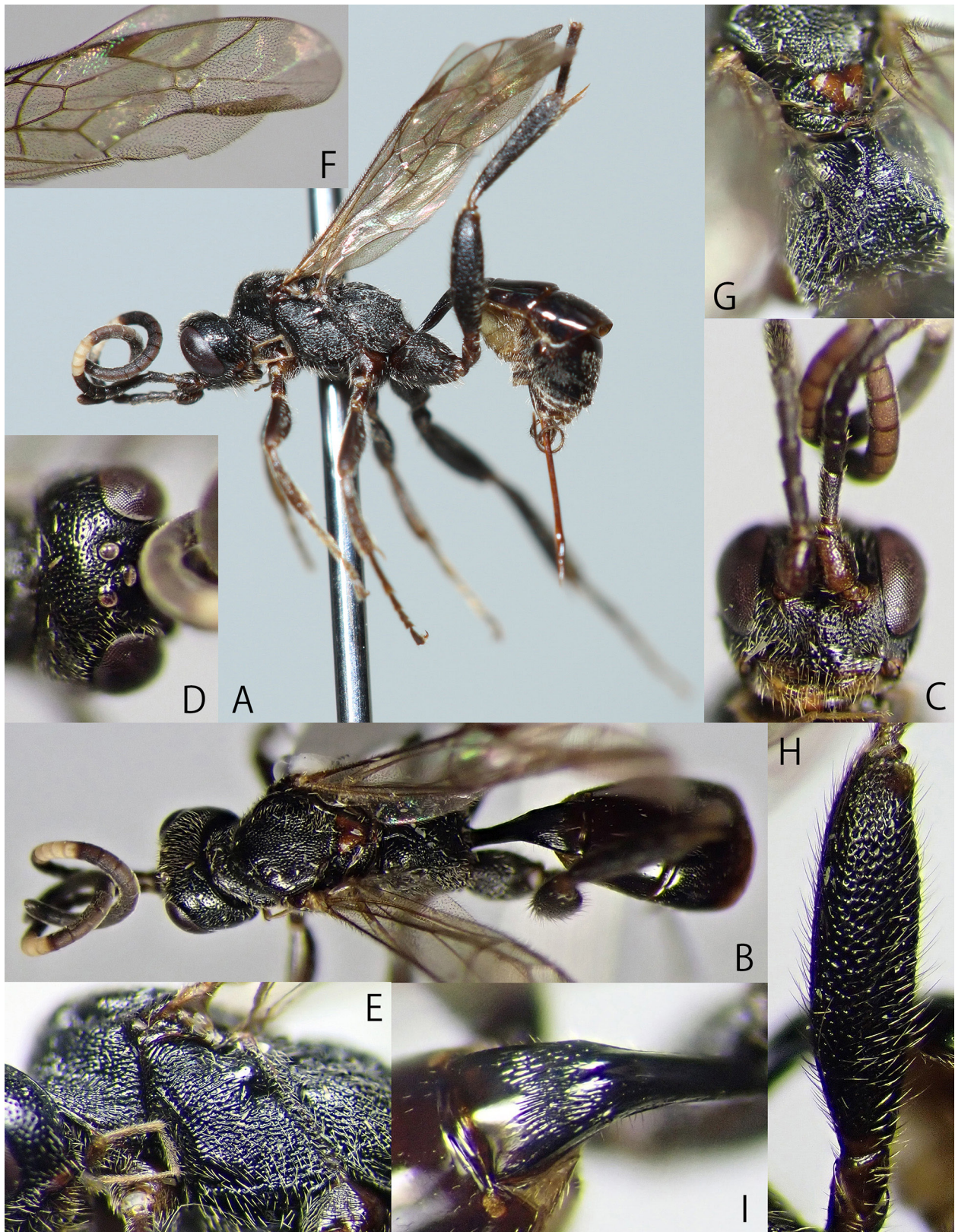


Fig. 3. *Aconias fujiei* sp. nov., female (holotype: KPM-NK 81195) — A: lateral habitus; B: head, mesosoma, and metasoma, dorsal view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: scutellum and propodeum, dorsal view; H: hind femur, lateral view; I: T I, dorsal view.



Mesopleuron longitudinally rugulose; with conspicuous smooth area around speculum (Fig. 3E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.5 of mesopleuron. Metapleuron rugulose; without juxtacoxal carina. Propodeum rugose or rugulose except for area externa and area basalis sparsely punctate with smooth ISP; anterior transverse carina absent; posterior transverse carina present, inverted U-shaped, weak and partly indistinct medially (Fig. 3G); lateromedian longitudinal carina weak and partly or largely indistinct in front of posterior transverse carina; lateral longitudinal carina complete; pleural carina complete; area superomedia partly distinct; apophysis small but pointed; spiracle round. Fore wing length 5.0–5.7 (HT: 5.0) mm. Areolet as long as wide; width gradually narrowing anteriorly; received vein 2m-cu at near or slightly beyond middle (Fig. 3F). Fore wing vein 1cu-a interstitial to vein M&RS. Nervellus subvertical; intercepted near posterior end of vein. Hind femur densely punctate; with long setae (Figs. 3H, 77E); 4.0–4.2 (HT: 4.0)  $\times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I 2.4  $\times$  as long as maximum width; smooth; longitudinally striate subapically (Fig. 3I); lateromedian carina absent; dorso-lateral carina complete. T II 0.65  $\times$  as long as maximum width; smooth; finely and sparsely punctate laterally. Thyridium present; close to anterior margin of T II; slightly depressed; ca. 2.0  $\times$  as wide as length. T III to T V finely punctate. Ovipositor sheath 0.9–1.25  $\times$  as long as hind tibia, 1.9–2.15 (HT: 1.9)  $\times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 78B).

Colouration (Figs. 3A–I). Body (excluding wings) black to blackish-brown. Setae silver. Subapical part of mandible and lower part of clypeus tinged with yellowish-brown. Palpi, membranous part of metasomal sternite, and ovipositor yellowish-brown to brown. FL VII (or VIII) to FL XI (or XII) with ivory markings. Scutellum and postscutellum reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish-brown to yellow wing base.

Male. Unknown.

**Distribution.** Japan (Honshu).

**Bionomics.** Unknown.

**Etymology.** The specific name is from the collector of holotype, Mr. Shunpei Fujie, who is a Japanese taxonomist of Braconidae and my friend.

**Remarks.** This species resembles *Ac. concavopropodeonus* in black and small-sized body but can be distinguished by the hind femur with long setae (with short setae in *Ac. concavopropodeonus*) and the reddish-brown scutellum

(entirely black in *Ac. concavopropodeonus*).

***Aconias longisetosus* sp. nov.**

[New SJN: Kenaga-togari-himebachi]

(Figs. 4A–H, 77F, 78C)

**Type series.** **Holotype:** JAPAN, KPM-NK 81196, F, Kagoshima Pref., Tokunoshima Is., Kedoku, 22. V. 2008, A. Sakai leg. **Paratype:** JAPAN: KPM-NK 81197, F, Kagoshima Pref., Amamioshima Is., Yamato Vil., Oodana, 1. VI. 2007, M. Gunji leg.; KPM-NK 81198, 103174, 103175, 3F, same locality of holotype except for 21. V. 2008, K. Watanabe leg.

**Description.** Female (n = 5). Body polished; covered with setae; body length 5.25–7.4 (HT: 7.1) mm.

Head 0.6–0.65 (HT: 0.63)  $\times$  as long as wide in dorsal view. Clypeus 3.4–3.5 (HT: 3.45)  $\times$  as wide as long; slightly convex in lateral view; sparsely punctate dorsally; smooth ventrally; punctures partly united into groove-like foveola; lower margin weakly rounded; blunt in lateral view. Face 0.38–0.4 (HT: 0.38)  $\times$  as long as minimum width; slightly convex medially; matt; densely punctate medially; punctures partly united into groove-like foveola medially. Frons weakly concave above antennal sockets; irregularly or obliquely rugose except for narrowly matt along orbits. POL 1.1–1.5 (HT: 1.2)  $\times$  as OD. OOL 0.95–1.4 (HT: 1.15)  $\times$  as OD. Gena and occiput densely punctate. Dorsal profile of gena rounded in dorsal view; width gradually narrowing posteriorly (Fig. 4D). Occipital carina complete. Malar space 0.5–0.6 (HT: 0.5)  $\times$  as long as basal width of mandible. Mandible flat at base; lower tooth longer than upper tooth. Antenna with 24 flagellomeres; not flattened and tapped. FL I 2.25–2.5 (HT: 2.5)  $\times$  as long as maximum depth in lateral view, 1.15–1.25 (HT: 1.25)  $\times$  as long as FL II.

Mesosoma. Pronotum longitudinally rugulose. Epomia absent. Mesoscutum densely punctate; punctures partly united into groove-like longitudinal foveola (Fig. 4F); with short notaulus (Fig. 4D). Scutellum sparsely punctate; flat in lateral view. Mesopleuron longitudinally rugulose dorsally and reticulate rugose ventrally; with conspicuous smooth area around speculum (Fig. 4E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.7 of mesopleuron. Metapleuron reticulate rugose; without juxtacoxal carina. Propodeum rugose or rugulose except for area externa and basalis sparsely punctate with smooth ISP; anterior transverse carina present laterally; posterior transverse carina complete, inverted U-shaped (Fig. 4F); lateromedian longitudinal carina present, usually indistinct in front of posterior transverse carina; lateral

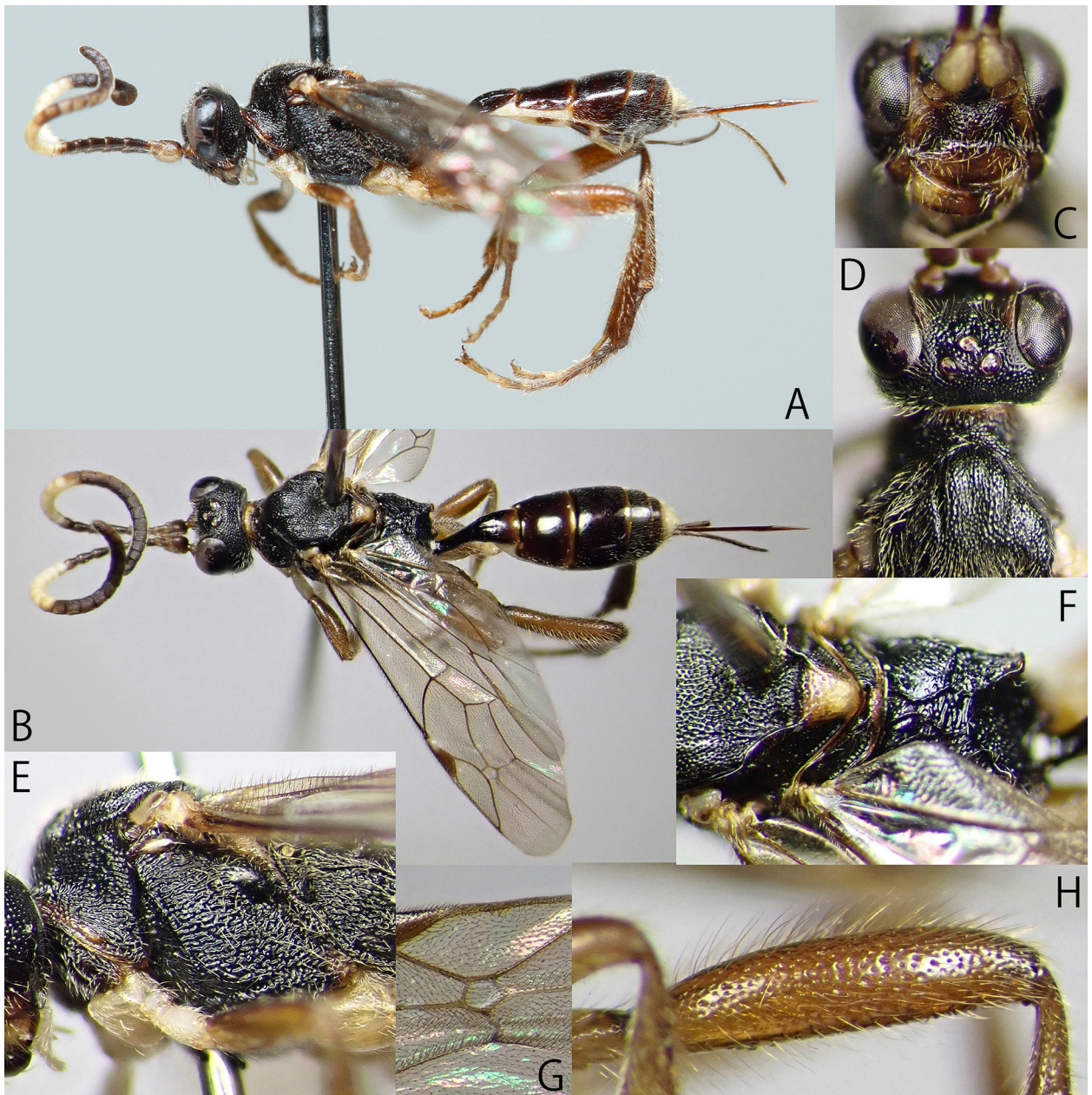


Fig. 4. *Aconias longisetosus* **sp. nov.**, female (holotype: KPM-NK 81196) — A: lateral habitus; B: dorsal habitus; C: head, frontal view; D: head and mesoscutum, dorsal view; E: pronotum and mesopleuron, lateral view; F: scutellum and propodeum, dorsal view; G: areolet; H: hind femur, lateral view.

longitudinal carina complete; pleural carina complete; area superomedia partly distinct, transversely rugose; apophysis large, wide, with obtuse apex (Fig. 4F); spiracle round to oval. Fore wing length 4.25–6.0 (HT: 5.7) mm. Areolet as long as wide; width gradually narrowing anteriorly; received vein 2m-cu at near middle (Fig. 4G). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 4B). Nervellus subvertical; intercepted posterior to middle. Hind femur densely punctate; with long setae (Figs. 4H, 77F); 4.4–4.6 (HT: 4.4)  $\times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I 2.5–2.75 (HT: 2.5)  $\times$  as long as maximum width; smooth; longitudinally striate subapically; latero-median carina absent; dorso-lateral carina present but partly

weak. T II 0.7–0.78 (HT: 0.7)  $\times$  as long as maximum width; smooth; finely and sparsely punctate laterally. Thyridium present; close to anterior margin of T II; slightly depressed; ca. 2.0  $\times$  as wide as length. T III to T V finely punctate. Ovipositor sheath 1.0–1.1 (HT: 1.05)  $\times$  as long as hind tibia, 1.5–1.6 (HT: 1.5)  $\times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 78C).

Colouration (Figs. 4A–H). Body (excluding wings) black to blackish-brown. Setae silver. Mandible except for teeth, clypeus, facial orbit, frontal orbit, anterior margin of collar, subtegular ridge, scutellum, postscutellum, posterior margins of T I to T III, and ovipositor reddish-brown to yellowish-brown. Subbasal part of mandible, ventral surfaces of scape and pedicel, palpi, tegula, apex of



scutellum, membranous part of metasomal sternites, and apex of metasoma ivory to white. FL V (or VI) to FL XII (or XIII) with white to ivory markings. Legs reddish-brown to brown except for fore and mid coxae, all trochanters, and all trochantelli ivory. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish-brown to ivory wing base.

Male. Unknown.

**Distribution.** Japan (Amamioshima Is. and Tokunoshima Is.).

**Bionomics.** Unknown. All species collected in the moist evergreen forest.

**Etymology.** The specific name is from the Latin “*longi-*” (long) plus “*setosus*” (covered with setae), referring to the long setae on the legs.

**Remarks.** This species resembles *Ac. ruficoxalis* Sheng & Sun, 2008 in the largely reddish coxae and hind leg and the yellowish face and scutellum but can be distinguished by the hind femur with long setae (with short setae in *Ac. ruficoxalis*), the T I  $2.5\text{--}2.75 \times$  as long as maximum width ( $2.2 \times$  as long as maximum width in *Ac. ruficoxalis*), and the metasoma largely black (largely reddish-brown in *Ac. ruficoxalis*). This species also resembles *Ac. fujiei* **sp. nov.** in the long setae of hind femur but can be distinguished by the body colouration etc. (see above key).

***Aconias tarsatus* (Bridgman, 1881)**

[SJN: Ashimon-kuro-togari-himebachi]

(Figs. 5A–F, 6A–D, 78D)

*Phygadeuon tarsatus* Bridgman, 1881: 150.

*Plectrocyptus pectoralis* Thomson, 1896: 2383.

*Chaeretymma lateannulata* Strobl, 1901: 192.

*Plectrocyptus digitatus* var. *nigrofemorata* Strobl, 1901: 206.

*Plectrocyptus albitarsis* Uchida, 1936a: 45. **Syn. nov.**

**Materials examined. JAPAN:** [Kunashiri Is.] SEHU, F (holotype of *Plectrocyptus albitarsis*), Furukamapu, 29. VII. 1935, T. Uchida leg. [Hokkaido] KPM-NK 102933, 102934, 102940, 3F, Tokachi, Shikaribetsuko, 25–26. VI. 1957, R. Ishikawa leg.; KPM-NK 102928, 102929, 2F, Horokanai Town, Uryu, 11. VII. 2012, M. Ito leg.; KPM-NK 102930, F, ditto, 17. VII. 2012, K. Watanabe leg. [Honshu] KPM-NK 102927 & OMNH, F (OMNH) & M (KPM-NK), Nagano Pref., Outaki Vil., Mt. Ontake-san, Hakkaisan, 16. IX. 2011, S. Fujie leg.; KPM-NK 81194, F, ditto, 22. IX. 2011, K. Watanabe leg.; KPM-NK 102926, F, Toyama Pref., Mt. Jodosan, 4. VII. 1972, M. Watanabe leg.; KPM-NK 102932, M, Toyama Pref., Toyama City, Arimine, Jyurodani, 15–22. IX. 2009, M.

Watanabe leg. (MsT); KPM-NK 102931, M, Fukui Pref., Katsuyama City, Ochozan, 5. IX. 1982, H. Kurokawa leg. **GERMANY:** SEHU, 1M (det. Heinrich; as *Ac. tarsatus*), Berchtesgaden, Jennermassiv, 13. VII. 1947. **AUSTRIA:** LI, 1F (det. Schwarz; as *Ac. tarsatus*), Hochasalm, 1935, M. Priosnor leg.; LI, 1M (det. Schwarz; as *Ac. tarsatus*), Oberösterreich, Maierleiten E Rottenegg, 11. VI. 2000, J. Gusenleitner leg.

**Description.** Female ( $n = 9$ ). Body polished; covered with setae; body length 7.4–10.3 mm.

Head  $0.6 \times$  as long as wide in dorsal view. Clypeus  $2.45\text{--}2.75 \times$  as wide as long; slightly convex in lateral view; sparsely punctate dorsally; transversely rugulose ventrally; punctures partly united into groove-like foveola; lower margin weakly rounded in frontal view, sharp and narrowly reflected in lateral view. Face  $0.45\text{--}0.48 \times$  as long as minimum width; slightly convex medially; matt; densely punctate medially; punctures partly united into groove-like foveola medially. Frons weakly concave above antennal sockets; punctate except for concavity above antennal sockets. POL  $1.4\text{--}1.6 \times$  as OD. OOL  $1.4\text{--}1.9 \times$  as OD. Gena and occiput densely punctate. Dorsal profile of gena rounded in dorsal view; width gradually narrowing posteriorly (Fig. 5C). Occipital carina complete. Malar space  $1.05\text{--}1.2 \times$  as long as basal width of mandible. Mandible flat at base; lower tooth longer than upper tooth. Antenna with 24–26 flagellomeres; not flattened and tapped. FL I  $2.5\text{--}2.6 \times$  as long as maximum depth in lateral view,  $1.2\text{--}1.3 \times$  as long as FL II.

Mesosoma. Pronotum rugulose ventrally, densely punctate dorsally. Epomia absent. Mesoscutum densely punctate; with short and indistinct notaulus (Fig. 5C). Scutellum sparsely punctate; weakly convex in lateral view. Mesopleuron longitudinally rugulose and punctate; punctures largely partly united into groove-like foveola; without conspicuous smooth area around speculum (Fig. 5D). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.5 of mesopleuron. Metapleuron obliquely rugulose; without juxtacoxal carina. Propodeum rugose or rugulose except for area externa finely and sparsely punctate with smooth ISP; anterior transverse carina absent; posterior transverse carina complete, inverted V-shaped (Fig. 5F); lateromedian longitudinal carina weak and usually partly indistinct in front of posterior transverse carina; lateral longitudinal carina complete; pleural carina complete; area superomedia indistinct; apophysis small but pointed; spiracle elliptic. Fore wing length 7.5–9.8 mm. Areolet slightly wider than long; width slightly narrowing anteriorly; received vein 2m-cu at near or slightly beyond middle (Fig. 5E).



Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 5E). Nervellus subvertical; intercepted near posterior end of vein (Fig. 5E). Hind femur reticulate coriaceous; with short setae;  $4.2\text{--}4.65 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I  $1.85\text{--}2.25 \times$  as long as maximum width; smooth and partly weakly coriaceous; latero-median carina absent; dorso-lateral carina complete and weak. T II  $1.25\text{--}1.4 \times$  as long as maximum width; smooth; finely punctate laterally. Thyridium present; close to anterior margin of T II; slightly depressed; ca.  $2.0 \times$  as wide as length. T III to T V finely punctate except for largely smooth area of middle part of T III. Ovipositor sheath  $1.1\text{--}1.25 \times$  as long as hind tibia,  $1.85\text{--}2.2 \times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 78D).

Colouration (Figs. 5A–F). Body (excluding wings) black to blackish-brown. Setae silver; weakly tinged with brown in head and mesoscutum. Subapical part of

mandible tinged with yellowish-brown. Pair of small spots between antennal socket and eye yellowish-brown to yellow. FL VII (or VIII) to FL X (or XI) with white to ivory markings. Hind TS III to TS IV ivory. Posterior margins of T I to T III narrowly tinged with reddish-brown. Thyridium and ovipositor reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish-brown wing base.

Male ( $n=7$ ). Similar to female (Figs. 6A–D). Body length 7.8–11.0 mm. Clypeus  $2.4\text{--}2.5 \times$  as wide as long. Face  $0.5\text{--}0.6 \times$  as long as minimum width. POL  $0.8\text{--}0.9 \times$  as OD. OOL  $0.8\text{--}0.95 \times$  as OD. Malar space  $0.45\text{--}0.55 \times$  as long as basal width of mandible. Antenna with 27–34 flagellomeres; with tyloids on FL XII (or XIII) to FL XVIII (or XIX, XX) (Fig. 6D). FL I  $2.75\text{--}3.4 \times$  as long as maximum depth in lateral view,  $1.1\text{--}1.3 \times$  as long as FL II. Fore wing length 7.8–9.9 mm. Lateral section of anterior transverse carina absent or incomplete. Hind femur 7.2–8.0

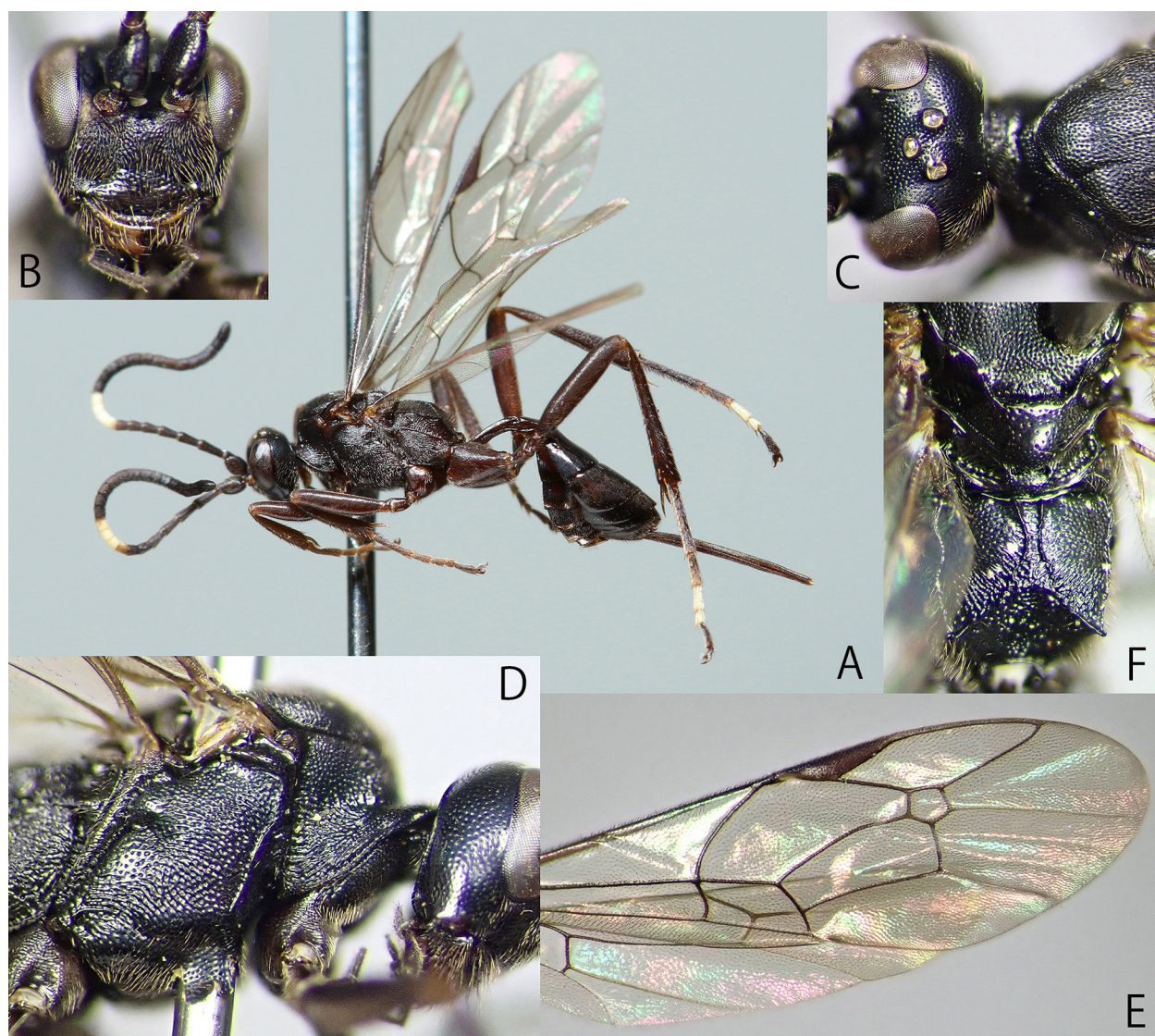


Fig. 5. *Aconias tarsatus* (Bridgman, 1881), females (A: OMNH; B–F: KPM-NK 81194) — A: lateral habitus; B: head, frontal view; C: head and mesoscutum, dorsal view; D: pronotum and mesopleuron, lateral view; E: wings; F: scutellum and propodeum, dorsal view.



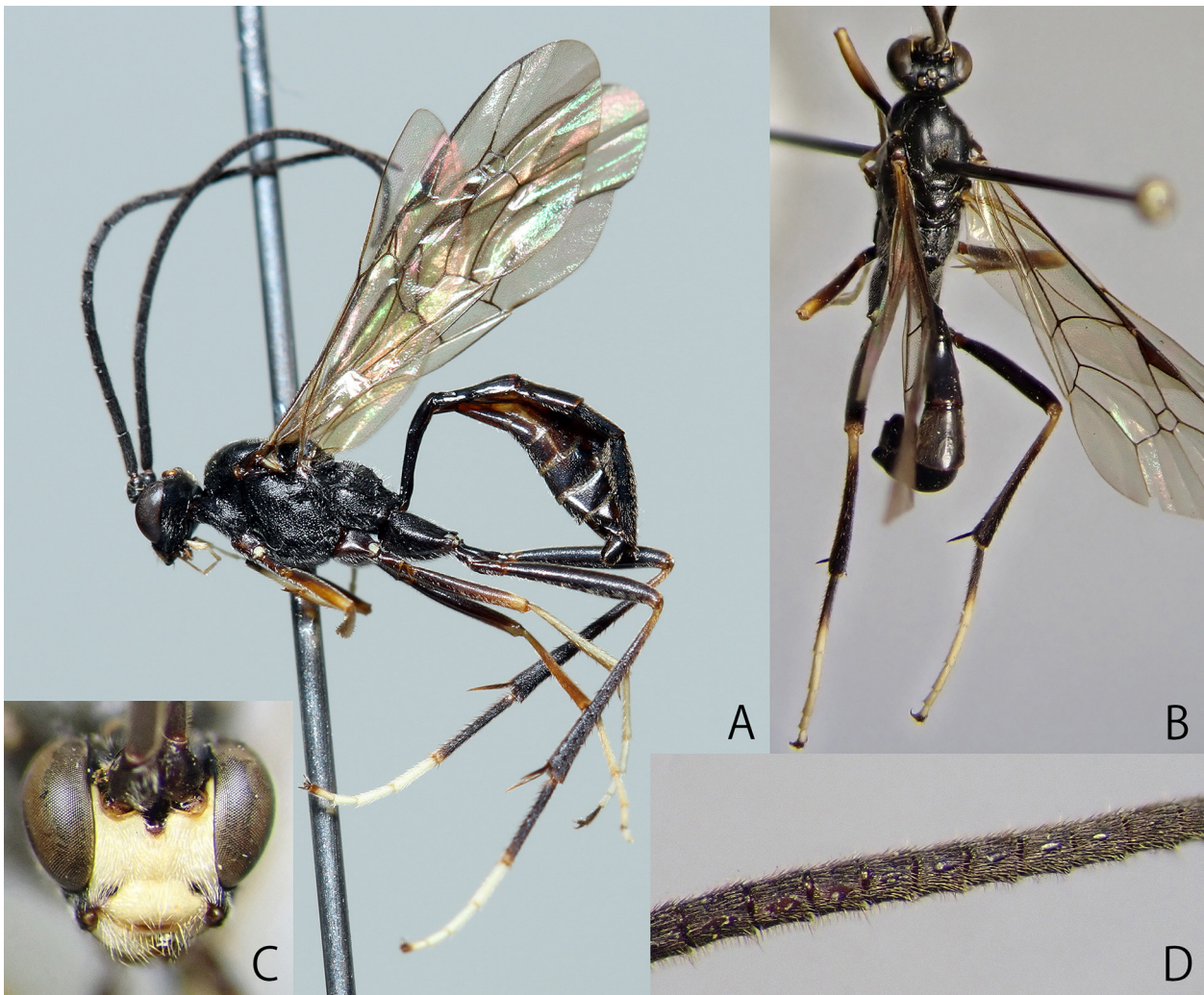


Fig. 6. *Aconias tarsatus* (Bridgman, 1881), males (A: KPM-NK 102927; B–D: KPM-NK 102940) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: flagellum and tyloids.

× as long as maximum depth in lateral view. T I 4.45–5.2 × as long as maximum width. T II 2.4–2.5 × as long as maximum width. Face, ventro-lateral sides of face, clypeus, mandible except for teeth, palpi, postero-dorsal corner of pronotum yellow. Fore and mid legs paler than female; fore femur, fore and mid tibiae, and tarsi except for each TS V ivory to reddish-yellow. Basal part of hind tibia tinged with yellowish-brown. Hind tarsus ivory except for TS I.

**Distribution.** Japan (Kunashiri Is., Hokkaido, Honshu, and Shikoku); widely distributed in Palearctic region.

**Bionomics.** Unknown.

### Genus *Aptesis* Förster, 1850

*Aptesis* Förster, 1850: 82. Type species: *Ichneumon sudeticus* Gravenhorst, 1815 (= *Ichneumon nigrocinctus* Gravenhorst, 1815). Designated by Viereck (1914).

*Pezoporus* Förster, 1869: 181. Type species: *Ichneumon nigrocinctus* Gravenhorst, 1815. Designated by Ashmead (1900). Name preoccupied.

*Clypeodiodon* Aubert, 1968: 7. Type species: *Aptesis (Clypeodiodon) flavifaciator* Aubert, 1968. Monotypic.

Four species, *Ap. albibasalis* (Uchida, 1930), *Ap. albidipes* (Walker, 1874), *Ap. flavitrochanterus* Watanabe & Taniwaki, 2018, and *Ap. opaca* (Cushman, 1937), have been recorded from Japan. Among them, *Ap. albidipes* is known only a single male holotype without apical part of antennae (Shimizu & Broad, 2020).

In this study, I newly describe five new species below. *Aptesis opaca* (Cushman, 1937) is transferred from this genus to *Oresbius*. *Aptesis* sp. C sensu Watanabe & Taniwaki (2018) is not this genus (an undetermined genus of Phygadeuontinae). *Aptesis* sp. D sensu Watanabe & Taniwaki (2018) is *Javra albotrochantellata* **sp. nov.**

### Key to Japanese species of *Aptesis* (female only)

1. Base of hind tibia with conspicuous white area (Figs. 7A,

B). Propodeal apophysis well-developed (Figs. 7A, B, G, 77G). Lateral longitudinal carina of T I weak. Ovipositor sheath  $0.95\text{--}1.0 \times$  as long as hind tibia. Punctuation of head and mesosoma denser than other species; clypeus largely covered with dense punctures ( $\text{ISP} < \text{PD}$ ) (Fig. 76B). Head and mesoscutum largely covered with black setae.

..... *Aptesis albibasalis* (Uchida, 1930)

-. Base of hind tibia at most indistinctly tinged with yellowish-brown (Figs. 10A, 13A, 15A). Propodeal apophysis well- or not developed (Figs. 77H, I). Lateral longitudinal carina of T I strong. Ovipositor sheath with various length. Clypeus at most normally punctate ( $\text{ISP} > \text{PD}$ ). Head and mesoscutum without black setae.

..... 2

2. Propodeal apophysis well-developed as teeth (Figs. 10A, B, F, I, 77I). Basal segments of antenna red (Figs. 10A, C, F). Hind femur and tibia red except for both apices blackish-brown to black (Figs. 10A, B). Ovipositor sheath  $0.7\text{--}0.75 \times$  as long as hind tibia.

..... *Aptesis flagitator* (Rossi, 1794)

-. Propodeal apophysis not developed (Figs. 12G, 14F, 15G, 77H). Other character states various.

..... 3

3. Face and frontal orbit yellow to yellowish-brown (Fig. 14D). Small species; length shorter than 4.0 mm. Ovipositor sheath  $1.0\text{--}1.05 \times$  as long as hind tibia.

..... *Aptesis minor* **sp. nov.**

-. Face largely black, yellow markings at most present on orbits (Figs. 8C, 9C, 12C, 13C, 15C). Frontal orbit with or without yellow markings (Figs. 8D, 9D, 12D, 15D). Large species; length longer than 5.0 mm. Length of ovipositor sheath various.

..... 4

4. Ovipositor sheath  $1.2\text{--}1.38 \times$  as long as hind tibia. Hind coxa, trochanter, and trochantellus ivory to yellowish-brown (Figs. 8A, B). Basal part of hind tibia tinged with yellowish-brown (Figs. 8A, B). Metasomal tergites without large red area (Figs. 8A, B). Propodeum with all carinae (Fig. 8G).

..... *Aptesis albicoxalis* **sp. nov.**

-. Ovipositor sheath shorter than  $1.05 \times$  as long as hind tibia. Hind leg largely black except for *Ap. ezoensis* **sp. nov.** (area superomedia absent and ovipositor sheath short in this species) (Figs. 12A, 13A, 15A).

..... 5

5. T II and T III entirely reddish-yellow (Figs. 9A, B, 12A, B). Ovipositor sheath  $0.8\text{--}0.85 \times$  as long as hind tibia. Basal segments of antenna yellowish-brown to ivory (Figs. 9A, C, 12B).

..... 6

-. Metasomal tergites black except for narrowly reddish-brown posterior margin of each segment (Figs. 13B, 15B). Length of ovipositor sheath various.

..... 7

6. Area superomedia of propodeum absent (Fig. 9G). Anterior section of lateromedian longitudinal carinae of propodeum nearly parallel each other (Fig. 9G). Hind femur and tibia entirely reddish-yellow to yellowish-brown (Fig. 9A).

..... *Aptesis ezoensis* **sp. nov.**

-. Area superomedia of propodeum partly defined (Fig. 12G). Anterior section of lateromedian longitudinal carinae of propodeum unparallel each other (Fig. 12G). Hind femur and tibia largely dark-brown (Fig. 12A).

..... *Aptesis jinbensis* **sp. nov.**

7. Hind trochanter and trochantellus largely white to yellow. Face  $0.4 \times$  as long as minimum width. T I  $1.4\text{--}1.85 \times$  as long as maximum width. Dorsal surface of propodeum largely rugose posteriorly. Ovipositor sheath  $0.9\text{--}1.0 \times$  as long as hind tibia. Inner orbit, coxae and base of hind tibia sometimes tinged with yellowish-brown to whitish-yellow.

..... *Aptesis flavitrochanterus* Watanabe & Taniwaki, 2018

-. Hind trochanter and trochantellus black to brown (Figs. 13A, 15A).

..... 7

8. Propodeal spiracle elongate; length ca.  $2.5\text{--}3.0 \times$  as maximum width. Postpetiole roundly margined at least anteriorly.

..... *Polytribax penetrator* (Smith, 1874) (a few specimens)

-. Propodeal spiracle round. Postpetiole sharply margined.

..... 9

9. Ovipositor sheath  $0.75 \times$  as long as hind tibia and  $1.4 \times$  as long as T I. T I  $1.3 \times$  as long as maximum width. Basal part of hind tibia sometimes tinged with reddish- or yellowish-brown (Fig. 13A).

..... *Aptesis melana* Li & Sheng, 2013

-. Ovipositor sheath  $0.9\text{--}1.0 \times$  as long as hind tibia and  $1.7\text{--}1.9 \times$  as long as T I. T I  $1.4\text{--}1.7 \times$  as long as maximum width. Basal part of hind tibia black (Fig. 15A).

..... *Aptesis yamauchii* **sp. nov.**

### *Aptesis albibasalis* (Uchida, 1930)

[SJN: Shiromon-chibi-togari-himebachi]

(Figs. 7A–G, 76B, 77G, 78E)

*Plectocryptus albibasalis* Uchida, 1930: 327.

**Materials examined. JAPAN:** [Hokkaido] SEHU, 1F (lectotype), Sapporo, 20. IX. 1929, T. Uchida leg.



[Honshu] KPM-NK 102981, F, Tochigi Pref., Ohtawara City, Shimoishigami, 22. VIII. 2000, E. Katayama leg.; KPM-NK 102985, F, Tochigi Pref., Nasushiobara City, Osonozawa, 5–14. VIII. 2013, T. Matsumura leg. (MsT); KPM-NK 102982, F, Saitama Pref., Yorii City, Gonotsubo, 6. X. 2000, T. Nambu leg.; KPM-NK 102975, F, Kanagawa Pref., Atsugi City, Funako, Campus of Tokyo University of Agriculture, 25. VI. 2010, K. Watanabe leg.; KPM-NK 102977, F, Kanagawa Pref., Fujisawa City, Ishikawa,

Maruyama-yato, 7. VI. 2001, I. Waki leg.; KPM-NK 102976, F, Kanagawa Pref., Miura City, Mito, 21. VI. 2007, K. Watanabe leg.; KPM-NK 102978, F, Kanagawa Pref., Fujino Town, Mt. Jinba-yama, 13. IX. 2009, K. Watanabe leg.; KPM-NK 102986, F, Kanagawa Pref., Odawara City, Kamisoga, 20. VI. 2020, K. Watanabe leg.; KPM-NK 102979, F, Kanagawa Pref., Hakone Town, Sengokuhara, Shissei-kaen, 29. VIII. 2014, K. Watanabe leg.; KPM-NK 81213, F, Yamanashi Pref., Koushu City, Katsunuma Town,



Fig. 7. *Aptesis albibasalis* (Uchida, 1930), females (A: KPM-NK 102976; B–G: KPM-NK 102981) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: wings; G: scutellum and propodeum, dorso-lateral view.



Ootaki-fudo, 9. VII. 2007, M. Irie leg.; KPM-NK 81296, F, Yamanashi Pref., Koushu City, Yanagisawa-toge, 5. VIII. 2008, K. Watanabe leg.; KPM-NK 81294, F, Shizuoka Pref., Higashiizu Town, Inatori, 25. VII. 2009, T. Muraki leg.; KPM-NK 102988, F, Toyama Pref., Toyama City, Arimine, Jurodani, 25. VIII. – 1. IX. 2009, M. Watanabe leg. (MsT); KPM-NK 102980, F, Fukui Pref., Sanzyusanken, 12. VIII. 1974, H. Kurokawa leg. [Kyushu] KPM-NK 102983, 102984, 2F, Kagoshima Pref., Kagoshima City, Haruyama-cho, 21–22. V. 2016, S. Yamane leg. (YPT). [Tsushima Is.] KPM-NK 102987, F, Nagasaki Pref., Kamiagata Town, Nita-Dam, 21. VII. 2003, T. Tano leg.

**Description.** Female (n = 18). Body punctate and polished; covered with setae; body length 6.1–8.8 mm.

Head  $0.6 \times$  as long as wide in dorsal view; densely punctate (ISP usually shorter than DSP); covered with long setae. Eye setose (Fig. 76B). Clypeus  $1.75\text{--}1.8 \times$  as wide as long; weakly convex in lateral view; densely punctate dorsally, transversely rugose ventrally (Fig. 76B); lower margin rounded in frontal view, sharp and narrowly reflected in lateral view. Face  $0.35\text{--}0.4 \times$  as long as minimum width; weakly convex medially; punctures partly united into groove-like foveola. Frons with area above antennal sockets narrowly smooth; with median longitudinal carina in front of median ocellus. POL  $1.4\text{--}1.8 \times$  as OD. OOL  $1.5\text{--}1.6 \times$  as OD. Dorsal profile of gena slightly rounded in dorsal view; width gradually narrowing posteriorly (Fig. 7D). Occipital carina complete. Malar space  $1.1\text{--}1.2 \times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 26–30 flagellomeres; not flattened and tapped. FL I  $1.7\text{--}1.9 \times$  as long as maximum depth in lateral view,  $1.0 \times$  as long as FL II.

Mesosoma densely punctate with long setae. Pronotum rugulose ventrally. Epomia absent. Mesoscutum with short and weak notaulus. Scutellum slightly convex in lateral view. Mesopleuron without conspicuous smooth area around speculum; punctures partly united into groove-like longitudinal foveola (Fig. 7E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.5 of mesopleuron. Metapleuron rugose or reticulate rugose; with or without juxtacoxal carina. Propodeum rugose or rugulose (Fig. 7G); with all carinae except for anterior transverse carina absent; area superomedia partly defined, about as long as maximum width; apophysis pointed and strong (Fig. 77G); spiracle elliptic. Fore wing length 4.1–6.35 mm. Areolet as long as maximum width; width gradually narrowing anteriorly; received vein 2m-cu at near middle (Fig. 7F). Fore wing vein 1cu-a interstitial to vein M&RS. Nervellus subvertical; intercepted near

posterior end of vein. Legs covered with long setae. Hind femur densely punctate;  $4.1\text{--}4.4 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I  $1.9\text{--}2.15 \times$  as long as maximum width; foveolate or longitudinally striated except for smooth base and posterior margin; latero-median carina present except for apical part; dorso-lateral carina complete but sometimes weak (Fig. 77G). T II  $0.6\text{--}0.7 \times$  as long as maximum width. Thyridium present; close to anterior margin of T II; flat to slightly depressed; ca.  $2.0 \times$  as wide as length. Ovipositor sheath  $0.95\text{--}1.05 \times$  as long as hind tibia,  $1.5\text{--}1.8 \times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 78E).

Colouration (Figs. 7A–G). Body (excluding wings) black to blackish-brown. Setae silver except for head and mesoscutum with black setae. Subapical part of mandible tinged with reddish-brown. FL VI to FL X (or XI) with white markings. Ventral surface of apical part of flagellum usually tinged with brown. Apex of scutellum sometimes with small yellow marking. Dorsal face of fore and mid tibiae with ivory marking except for apical part. Base of hind tibia ivory. Membranous part of metasomal sternites and ovipositor yellowish-brown. Posterior margins of each metasomal tergite usually narrowly tinged with red. Thyridium reddish-brown. Wings yellowish-hyaline. Veins and pterostigma blackish-brown except for yellowish-brown to yellow wing base.

Male. No specimen available.

**Distribution.** Japan (Hokkaido, Honshu, Shikoku, Kyushu, and Tsushima Is.)

**Bionomics.** Unknown in Japan. In China, *Arge pagana* (Panzer, 1798) (Hymenoptera: Argidae) is recorded as the host (Li *et al.*, 2013).

**Remarks.** This is the first record of this species from Tsushima Island.

***Aptesis albicoxalis* sp. nov.**

[New SJN: Atsugi-togari-himebachi]

(Figs. 8A–G, 78F)

*Aptesis* sp. A: Watanabe & Taniwaki, 2018: 75.

**Type series.** **Holotype:** JAPAN, KPM-NK 81204, F, Honshu, Kanagawa Pref., Atsugi City, Nakaogino, 9. V. 2007, K. Watanabe leg. **Paratype:** JAPAN: [Honshu] KPM-NK 81205, F, same data of holotype; KPM-NK 81206, F, Nagano Pref., Outaki Vil., Mt. Ontake-san, Hakkaisan, 4. VIII. 2017, K. Watanabe leg.

**Description.** Female (n = 3). Body punctate and polished; covered with setae; body length 5.75–6.2 (HT: 5.75) mm.

Head  $0.6 \times$  as long as wide in dorsal view. Clypeus  $2.0\text{--}2.15$  (HT:  $2.0$ )  $\times$  as wide as long; slightly convex in lateral view; sparsely punctate dorsally; smooth ventrally; lower margin weakly rounded in frontal view, sharp in lateral view. Face  $0.4 \times$  as long as minimum width; weakly convex medially, densely punctate; ISP smooth. Frons densely punctate, with pair of weak, smooth concavities above antennal sockets. POL  $1.6\text{--}2.0$  (HT:  $1.8$ )  $\times$  as OD. OOL  $1.4 \times$  as OD. Dorsal profile of gena rounded in dorsal view; width gradually narrowing posteriorly (Fig. 8D). Occipital carina complete. Malar space  $1.05\text{--}1.1$  (HT:  $1.05$ )  $\times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with  $22\text{--}23$  (HT:  $23$ ) flagellomeres; not flattened and tapped. FL I  $2.4\text{--}2.6$  (HT:  $2.4$ )  $\times$  as long as maximum depth in lateral view,  $0.95\text{--}1.05$  (HT:  $0.95$ )  $\times$  as long as FL II.

Mesosoma. Pronotum rugulose ventrally (Fig. 8E). Epomia absent. Mesoscutum with short and weak notaulus; densely punctate medially. Scutellum slightly convex in lateral view. Mesopleuron without conspicuous

smooth area around speculum; punctures partly united into foveola (Fig. 8E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior  $0.6$  of mesopleuron. Metapleuron rugose ventrally, with complete juxtacoxal carina. Propodeum largely rugose; with all carinae; dorsal face shorter than area postero; area superomedia defined, ca.  $1.0 \times$  as long as maximum width; apophysis weak and obtuse (Fig. 8G); spiracle round. Fore wing length  $4.4\text{--}5.2$  (HT:  $4.6$ ) mm. Areolet as long as maximum width; width gradually narrowing anteriorly; received vein  $2m\text{--}cu$  basal than middle (Fig. 8F). Fore wing vein  $1cu\text{--}a$  slightly postfurcal to vein  $M\&RS$  (Fig. 8F). Nervellus inclivous; intercepted near posterior end of vein (Fig. 8F). Hind femur reticulate coriaceous;  $4.2\text{--}4.5$  (HT:  $4.4$ )  $\times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma finely and sparsely punctate; ISP smooth. T I  $1.95\text{--}2.1$  (HT:  $1.95$ )  $\times$  as long as maximum width; latero-median carina present except for apical part; dorso-lateral carina complete. T II  $0.5\text{--}0.55$  (HT:  $0.5$ )  $\times$  as long as maximum width. Thyridium present; close to anterior

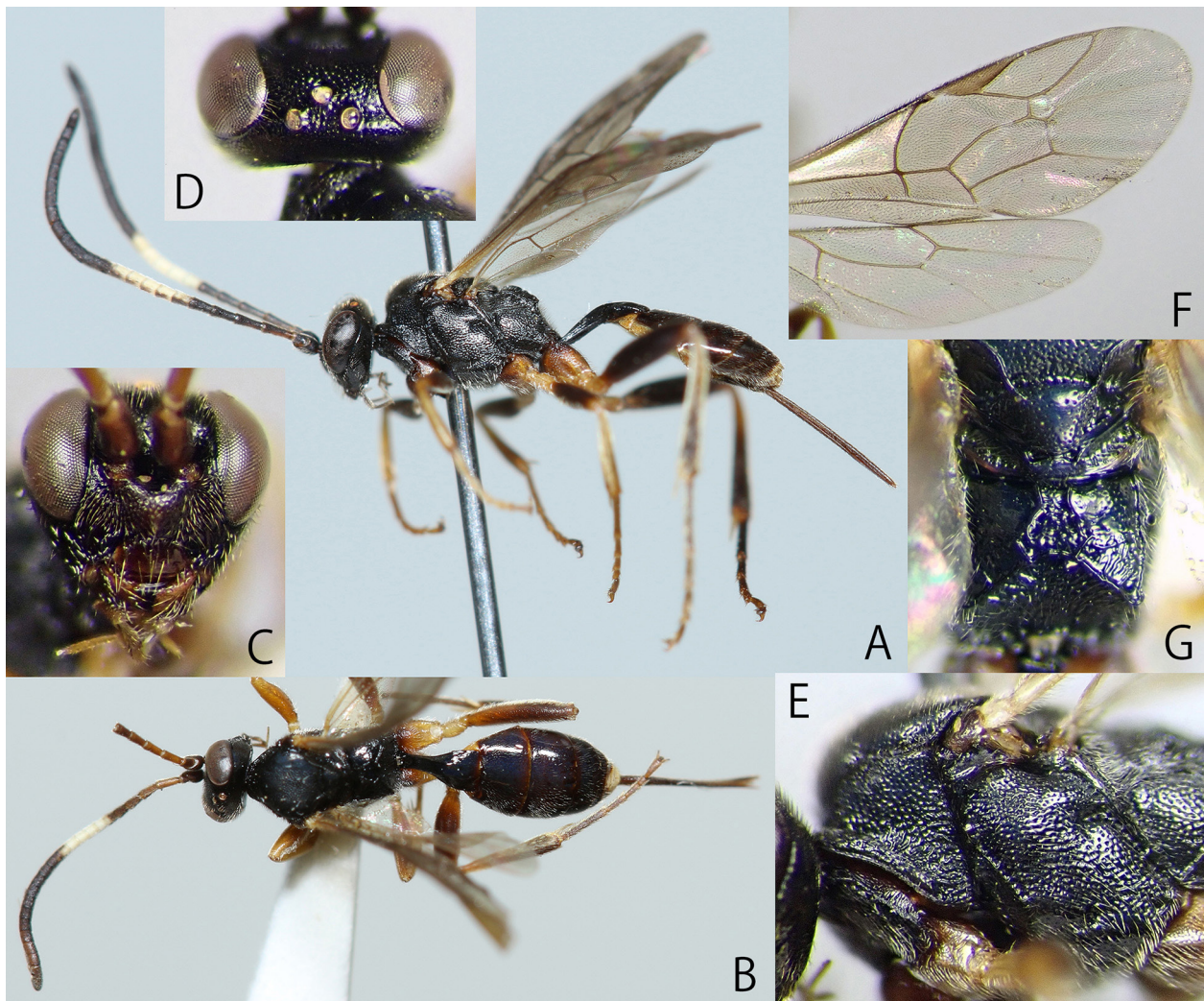


Fig. 8. *Aptesis albicoxalis* sp. nov., females (A: paratype: KPM-NK 81206; B–G: holotype: KPM-NK 81204) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: wings; G: scutellum and propodeum, dorsal view.



margin of T II; slightly depressed; ca.  $3.0 \times$  as wide as length. Ovipositor sheath  $1.2\text{--}1.38$  (HT:  $1.38$ )  $\times$  as long as hind tibia,  $1.9\text{--}2.15$  (HT:  $2.15$ )  $\times$  as long as T I. Ovipositor straight or slightly decurved; apex sharp; apex of lower valve with teeth (Fig. 78F).

Colouration (Figs. 8A–G). Body (excluding wings) black to blackish-brown. Setae silver. Mandible except for teeth, clypeus, basal and ventral parts of antenna, palpi, and tegula more or less tinged with reddish-yellow. FL V to FL X with white markings. Fore and mid legs and membranous part of metasomal sternites yellow to yellowish-brown. Hind coxa and basal part of hind femur reddish-yellow. Hind trochanter, trochantellus, and tibial spurs yellow to yellowish-brown. Median parts of T VI and T VII white. Ovipositor reddish-brown. Wings yellowish-hyaline. Veins and pterostigma yellowish-brown except for yellow wing base.

Male. Unknown.

**Distribution.** Japan (Honshu).

**Bionomics.** Unknown.

**Etymology.** The specific name is from Latin “*albi*” (white) plus “*coxalis*” (coxa), which means whitish coxa.

**Remarks.** This species resembles *Ap. corniculata* Sheng, 2003 in the colouration but can be distinguished by the face  $0.4 \times$  as long as minimum width ( $0.5 \times$  in *Ap. corniculata*) and the T I  $1.95\text{--}2.1 \times$  as long as maximum width ( $1.2 \times$  in *Ap. corniculata*).

***Aptesis ezoensis* sp. nov.**

[New SJN: Ezo-akahara-togari-himebachi]

(Figs. 9A–G, 77H, 78G)

**Type series. Holotype:** JAPAN, KPM-NK 81202, F, Hokkaido, Horokanai Town, Uryu, Research Forest of Hokkaido University, 11–17. VII. 2012, K. Watanabe *et al.* leg. (MsT). **Paratype:** JAPAN, KPM-NK 81203, F, same locality of holotype, 17. VII. 2012, M. Ito leg.; KPM-NK 84973, F, same data of holotype.

**Description.** Female ( $n = 3$ ). Body punctate and polished; covered with setae; body length  $5.4\text{--}6.2$  (HT:  $6.2$ ) mm.

Head  $0.65 \times$  as long as wide in dorsal view. Clypeus  $2.4\text{--}2.5$  (HT:  $2.5$ )  $\times$  as wide as long; slightly convex in lateral view; sparsely punctate and coriaceous dorsally, smooth ventrally; lower margin slightly rounded in frontal view, sharp in lateral view. Face  $0.3\text{--}0.35$  (HT:  $0.3$ )  $\times$  as long as minimum width; weakly convex medially; punctate; ISP matt. Frons densely punctate with coriaceous ISP; with pair of weak, smooth concavities above antennal sockets. POL  $1.5\text{--}1.6$  (HT:  $1.6$ )  $\times$  as OD. OOL  $1.1\text{--}1.4$  (HT:  $1.1$ )  $\times$  as OD. Dorsal profile of gena slightly rounded

in dorsal view; width gradually narrowing posteriorly (Fig. 9D). Occipital carina complete. Malar space  $1.2 \times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 22 flagellomeres; weakly flattened and tapered apically. FL I  $2.0 \times$  as long as maximum depth in lateral view,  $1.0 \times$  as long as FL II.

Mesosoma. Pronotum rugulose ventrally (Fig. 9E). Epomia short; section on border of collar and pronotum present. Mesoscutum with short and weak notaulus; densely punctate. Scutellum slightly convex in lateral view. Mesopleuron without conspicuous smooth area around speculum; punctures partly united into foveola (Fig. 9E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior  $0.5$  of mesopleuron. Metapleuron rugose posteriorly; with partly indistinct juxtacoxal carina. Propodeum rugose or rugulose; with all carinae except for anterior transverse carina absent; anterior section of lateromedian longitudinal carinae nearly parallel each other; area superomedia defined except for anterior margin, longer than wide; apophysis absent (Fig. 9G); spiracle oval or round (Fig. 77H). Fore wing length  $4.75\text{--}5.3$  (HT:  $5.3$ ) mm. Areolet as long as maximum width; width gradually narrowing anteriorly; received vein 2m-cu at slightly at near middle (Fig. 9F). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 9F). Nervellus slightly inclivous; intercepted posterior to middle. Hind femur reticulate coriaceous;  $4.4\text{--}4.9$  (HT:  $4.4$ )  $\times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma finely and sparsely punctate except for T I; ISP smooth or slightly coriaceous. T I  $2.0 \times$  as long as maximum width; latero-median carina present except for apical part; dorso-lateral carina complete (Fig. 77H); largely coriaceous basally and medially, smooth apically. T II  $0.75\text{--}0.85$  (HT:  $0.85$ )  $\times$  as long as maximum width. Thyridium present; close to anterior margin of T II; slightly depressed; ca.  $1.5 \times$  as wide as length. Ovipositor sheath  $0.83 \times$  as long as hind tibia,  $1.3\text{--}1.35$  (HT:  $1.3$ )  $\times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 78G).

Colouration (Figs. 9A–G). Body (excluding wings) black to blackish-brown. Setae silver. Mandible except for teeth, scape, pedicel, and legs reddish-yellow. Basal segments of flagellum tinged with brown to ivory. Clypeus and palpi partly tinged with brown. Tibial spurs ivory. Membranous part of metasomal sternites yellow to yellowish-brown. FL V to FL X with white markings. Apical part of T I, T II, and T III reddish-yellow. Posterior margins of T VI to T VIII narrowly white medially. Ovipositor reddish-brown. Wings hyaline. Veins and

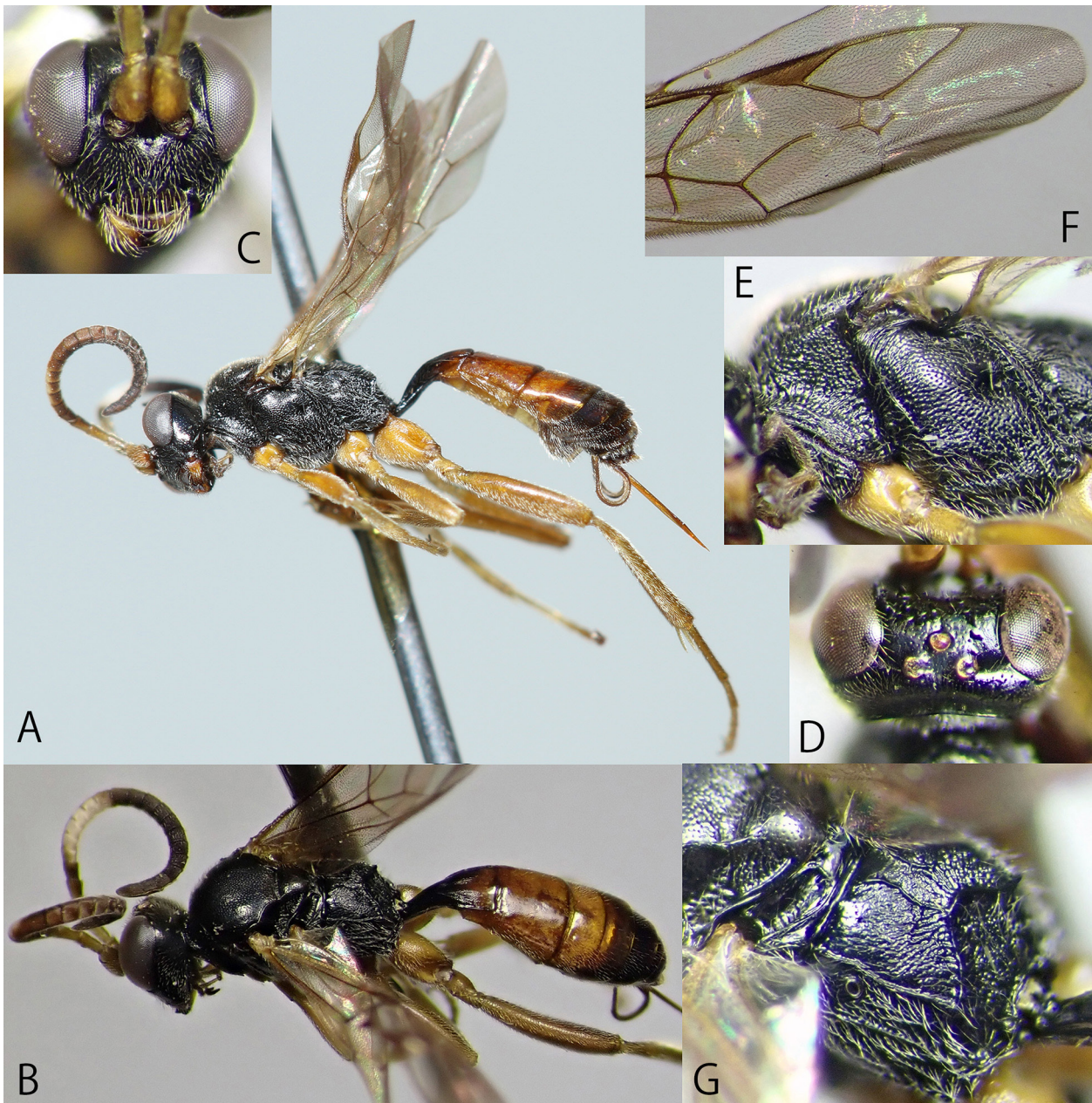


Fig. 9. *Aptesis ezoensis* sp. nov., females (A–C, E–G: holotype: KPM-NK 81202; D: paratype: KPM-NK 81203) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: scutellum and propodeum, dorso-lateral view.

pterostigma brown except for yellowish-brown to yellow wing base.

Male. Unknown.

**Distribution.** Japan (Hokkaido).

**Bionomics.** Unknown.

**Etymology.** The specific name is from the old locality name of Hokkaido, Ezo.

**Remarks.** This species resembles *Ap. improba* (Gravenhorst, 1829) in the largely red legs and metasomal tergites and the propodeum without apophysis but can be distinguished by the black base of T I, T IV, and T V (red in *Ap. improba*), the entirely reddish-yellow hind femur (with black apical part in *Ap. improba*), and the ovipositor

shorter than hind tibia (approximately as long as hind tibia in *Ap. improba*).

***Aptesis flagitator* (Rossi, 1794)**

[New SJN: Toge-hida-togari-himebachi]

(Figs. 10A–I, 11A–D, 77I, 78H)

*Ichneumon flagitator* Rossi, 1794: 108.

*Phygadeuon pumilio* Gravenhorst, 1829: 653.

*Cryptus tyrannus* Gravenhorst, 1829: 630.

*Cryptus hopei* Desvignes, 1856: 58.

*Phygadeuon proximator* Costa, 1886: 323.

*Microcryptus tricolor* Kriechbaumer, 1894a: 243.



*Acanthocryptus hopei* Morley, 1907: 56.

*Acanthocryptus feketei* Kiss, 1915: 29.

*Acanthocryptus flagitator rufipes* Obrtel, 1953: 202.

**Materials examined. JAPAN:** [Honshu] KPM-NK 102990, F, Kanagawa Pref., Yokosuka City, Nobi, 5. XI. 2012, Y. Suzuki leg.; KPM-NK 91322, F, Kanagawa Pref., Atsugi City, Funako, Campus of Tokyo University of Agriculture, 22. IV. – 16. V. 2016, Y. Kato & S. Koizumi leg. (MsT); KPM-NK 81201, F, ditto, 6. V. – 7. VI. 2016; KPM-NK 102989, F, Kanagawa Pref., Odawara City, Kuno, Suwanohara-park, 21. V. 2017, K. Watanabe leg.; KPM-NK 102991, M, Toyama Pref., Toyama City, Arimine, Inonedani, 11–16. VIII. 2009, M. Watanabe leg. (MsT); KPM-NK 103164, M, Osaka Pref., Osaka City, Taisho-Ku, Chidori-koen, 1. IX. 2019, Y. Ueyama leg.; KPM-NK 103165, M, ditto, 30. X. 2019; KPM-NK 103166, M, ditto, 3. XI. 2020; KPM-NK 103167, M, ditto, 5. XI. 2020; KPM-NK 103168, M, ditto, 3. XI. 2020; KPM-NK 103169–103173, 4F & 1M, ditto, 8. XI. 2020; OMNH, 1M, ditto, 12. XI. 2020; OMNH, 1F, ditto, 16. XI. 2020; OMNH, 1M, ditto, 4. XII. 2020; OMNH, 1M, ditto, 25. XI. 2021; KPM-NK 102992, F, Hyogo Pref., Sayo Town, Nikata, 14. V. 2011, S. Fujie leg. **AUSTRIA:** LI, F (det. M. Schwarz), Purgstall, 28. VII. 1970, Ressel leg.

**Description based on Japanese materials.** Female (n = 10). Body punctate and polished; covered with setae; body length 4.7–7.1 mm.

Head 0.55–0.6 × as long as wide in dorsal view. Clypeus 2.55–2.9 × as wide as long; slightly convex in lateral view; sparsely to densely punctate dorsally, smooth ventrally; lower margin rounded in frontal view, sharp and narrowly reflected in lateral view. Face 0.33–0.38 × as long as minimum width; weakly convex medially; densely punctate; matt along eye and antennal sockets. Frons densely punctate except for smooth area above antennal sockets; punctures partly united into foveola; POL 2.0–2.3 × as OD. OOL 1.2–1.4 × as OD. Dorsal profile of gena slightly rounded in dorsal view; width gradually narrowing posteriorly (Fig. 10E). Occipital carina complete. Malar space 1.15–1.3 × as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 24–25 flagellomeres; not flattened and tapped. FL I 1.95–2.1 × as long as maximum depth in lateral view, 0.9–1.0 × as long as FL II.

Mesosoma densely punctate. Pronotum rugulose ventrally. Epomia short; dorsal end situated between collar and dorsal margin of pronotum. Mesoscutum with short and weak notaulus. Scutellum punctate; slightly convex in lateral view. Mesopleuron with conspicuous

smooth area around speculum; punctures partly united into groove-like longitudinal foveola (especially area below speculum). Epicnemial carina present laterally and ventrally. Sternaulus deep in entire length of mesopleuron. Metapleuron irregularly rugose or reticulate rugose; with weak or indistinct juxtacoxal carina. Propodeum rugose or rugulose; with all carinae (Fig. 10I); area superomedia defined, as long as maximum width; apophysis pointed and strong (Figs. 10B, C, I, 77I); spiracle round to oval. Fore wing length 4.1–5.5 mm. Areolet as long as maximum width; width gradually narrowing anteriorly; received vein 2m-cu slightly beyond to middle (Fig. 10H). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 10H). Nervellus slightly inclivous; intercepted near posterior end of vein. Hind femur densely punctate; 4.6–5.0 × as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I 1.75–1.9 × as long as maximum width; smooth; latero-median carina present except for apical part; dorso-lateral carina complete (Fig. 77I). T II 0.5–0.55 × as long as maximum width. Thyridium present; close to anterior margin of T II; flat to slightly depressed; ca. 3.0 × as wide as length. T II to T V finely and sparsely punctate. Ovipositor sheath 0.7–0.75 × as long as hind tibia, 1.15–1.25 × as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 78H).

Colouration (Figs. 10A–I). Body (excluding wings) black to blackish-brown. Setae gold to pale yellow. Mandible more or less tinged with reddish-brown except for teeth. Clypeus, facial orbit, and frontal orbit sometimes tinged with reddish-brown. FL IV (or V, VI) to FL IX (or X) with white markings. Basal part of flagellum partly yellowish-brown to reddish-brown. Mesosoma sometimes with several red to reddish-brown area(s) on collar, mesoscutum, mesopleuron, mesosternum, metapleuron, and propodeum (Figs. 10B, F). Tegula yellowish-brown. Scutellum with reddish-brown marking. Legs reddish-brown except for apices of hind femur and tibia and hind tarsus. T I and T II reddish-brown to reddish-yellow. T III sometimes partly reddish-brown to reddish-yellow. Posterior margins of T VI to T VIII narrowly whitish medially. Ovipositor reddish-brown. Wings yellowish-hyaline. Veins and pterostigma blackish-brown except for yellowish-brown to yellow wing base.

Male (n = 10). Similar to female (Figs. 11A–D). Body length 5.6–7.5 mm. Face 0.4 × as long as minimum width. POL 1.9–2.0 × as OD. OOL 1.1–1.4 × as OD. Malar space 0.8–1.0 × as long as basal width of mandible. Flagellum with tyloids on FL X (or XI) to FL XV (XVI, or XVII) (Fig. 11D). FL I 2.0–2.1 × as long as maximum depth in lateral view. T II 0.85–0.9 × as long as maximum width. Antenna

entirely black except for ventral ivory spot of scape. Face with pair of ivory markings along each orbit. Clypeus partly tinged with yellow to ivory. Palpi ivory. Mesosoma black except for ivory areas on tegula, scutellum, and postscutellum. T I to T III with red to reddish-brown to reddish-yellow. Coxae black; fore coxa sometimes with small yellow marking. Trochanters yellow with black area. Trochantellus yellow. Fore and mid femora, tibiae, and tarsi reddish-yellow. Hind femur and tibia reddish-yellow except for darkened apices. Hind tarsus blackish-brown.

**Distribution.** Japan (Hokkaido and Honshu).

**Bionomics.** Host: *Agonopterix heracliata* (Linnaeus, 1758) (Lepidoptera, Depressariidae) (e.g. Boie, 1855); *Athalia spinarum* (Fabricius, 1793) (= *At. rosae* (Linnaeus, 1758)) (Riggert, 1939). The former host is doubtful because the host of this genus is mainly sawfly. Although no host record is recorded in Japan, *Aptesis fragitator* and *Athalia rosae* are at least sympatrically found in Atsugi, Odawara, and Osaka cities of above localities. Thus, this host is potentially the host of *A. fragitator* in Japan.

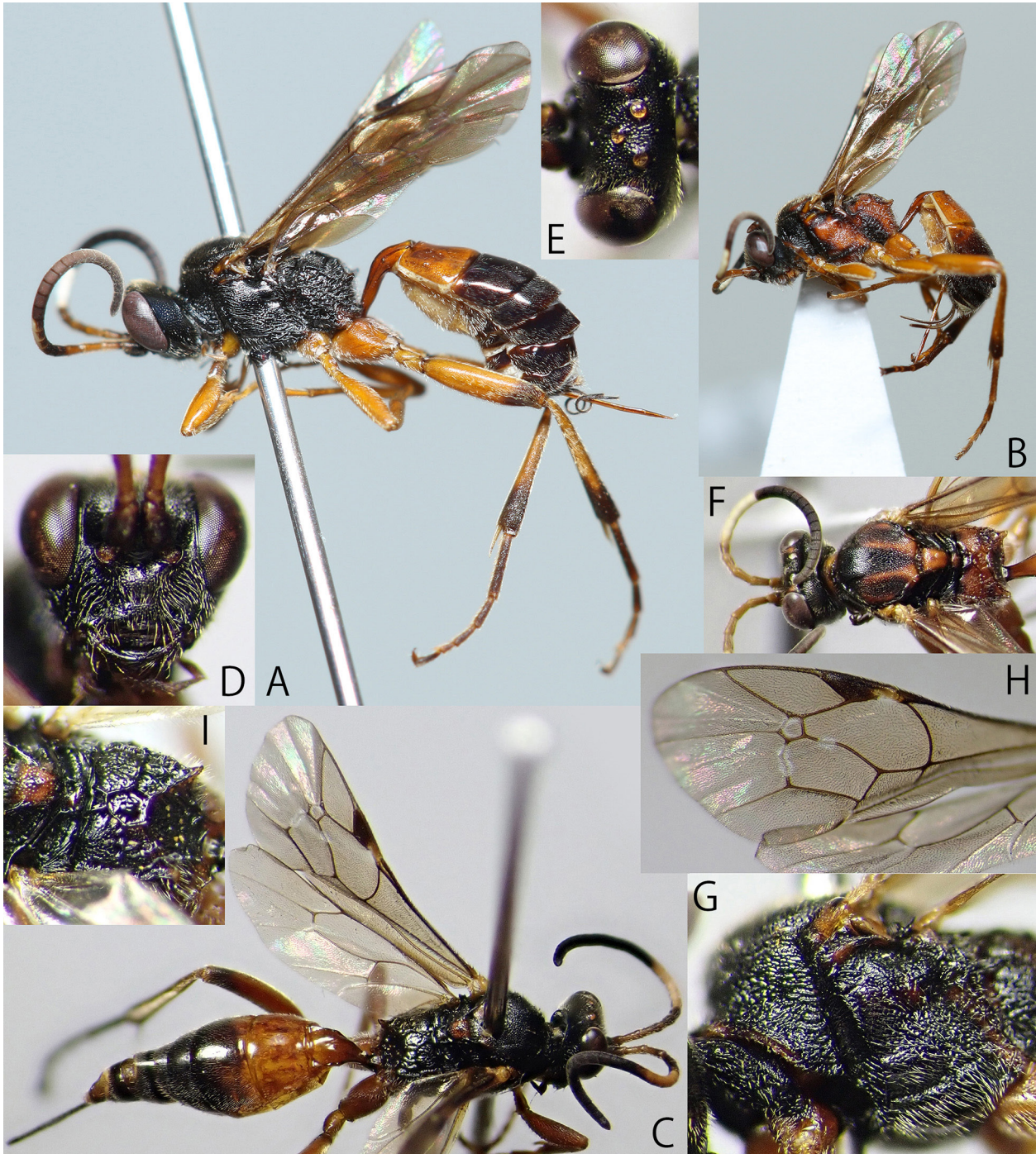


Fig. 10. *Aptesis fragitator* (Rossi, 1794), females (A: KPM-NK 81201; C–E, G–I: KPM-NK 102989; B, F: KPM-NK 91322) — A, B: lateral habitus; C: head, mesosoma, and metasoma, dorso-lateral view; D: head, frontal view; E: head, dorsal view; F: head and mesosoma, dorsal view; G: pronotum and mesopleuron, lateral view; H: fore wing; I: scutellum and propodeum, dorsal view.



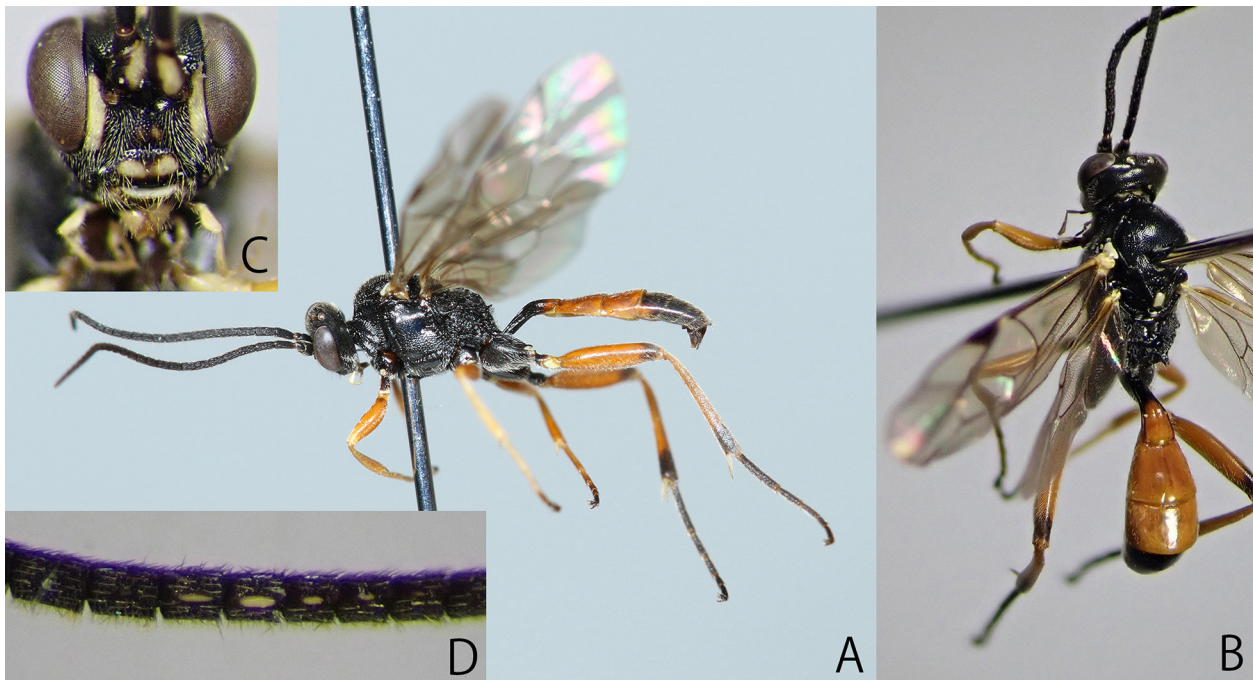


Fig. 11. *Apteris flagitator* (Rossi, 1794), males (A: KPM-NK 103168; B–D: KPM-NK 103166) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: flagellum and tyloids.

**Remarks.** Uchida (1930) recorded this species from Sapporo, Hokkaido, as *Acanthocryptus hopei*, while this datum is not mentioned by Townes *et al.* (1965) and Konishi & Matsumoto (2020). The record in this study is the first record of this species from Honshu.

***Apteris flavitrochanterus* Watanabe & Taniwaki, 2018**  
[SJN: Bunahabachi-togari-himebachi]

*Apteris* sp. A: Taniwaki & Watanabe, 2012: 6.

*Apteris flavitrochanterus* Watanabe & Taniwaki, 2018: 76

**Materials examined. JAPAN:** [Honshu] KPM-NK 102994, F, Saitama Pref., Yorii Town, Mure, 21. V. 2002, T. Nambu leg.; KPM-NK 5006655 F (holotype), Kanagawa Pref., Kiyokawa Vil., Miyagase, Mt. Tanzawa-san, Tennojone, 24. XII. 2008 (coll. cocoon of *Fagineura crenativora*), 23. II. 2009 (em. from the cocoon), T. Taniwaki leg.; KPM-NK 5006658, M, ditto, 19. II. 2009 (em. from the cocoon); KPM-NK 5006659, 5006660, 2M, ditto, 19. XI. 2008 (coll.), 16. II. 2009 (em. from the cocoon); KPM-NK 5006661, F, ditto, 9. II. 2008 (coll.), 18. III. 2009 (em. from the cocoon); KPM-NK 5006662–5006664, 1F & 2M, ditto, 23. IV. 2008 (coll.), 4 (M), 18 (M), 24 (F). V. 2009 (em. from the cocoon); KPM-NK 5006665, F, ditto, 16. III. 2009 (coll. cocoon of *F. crenativora*), 19. IV. 2009 (em. from the cocoon), T. Taniwaki leg.; KPM-NK 5006666, F, ditto, 30. IV. 2009 (coll. cocoon of *F. crenativora*), 3. V. 2009 (em. from

the cocoon); KPM-NK 5006666, M, ditto, 8. IV. 2009 (coll. cocoon of *F. crenativora*), 3. V. 2009 (em. from the cocoon); KPM-NK 5006669, F, ditto, 8. IV. 2009 (coll. cocoon of *F. crenativora*), 8. V. 2009 (em. from the cocoon); KPM-NK 5006670, M, ditto, 30. IV. 2009 (coll. cocoon of *F. crenativora*), 20. V. 2009 (em. from the cocoon); KPMNK 5004398, F, ditto, 16. V. 2013, T. Taniwaki leg. (FIT); KPM-NK 5004333, F, ditto, 31. V. 2013; KPM-NK 5004320, 5004327, 2F, ditto, 15. VI. 2013; KPM-NK 5004321, F, ditto, 20. VI. 2013; KPM-NK 5004319, F, Kanagawa Pref., Kiyokawa Vil., Miyagase, Mt. Tanzawa-san, 9. V. 2013, T. Taniwaki leg. (FIT); KPM-NK 5004324, 5004329, 5004423, 3F, ditto, 15. VI. 2013; KPMNK 5004328, 5004330, 2F, ditto, 20. VI. 2013; KPM-NK 5004323, F, ditto, 4. VII. 2013; KPM-NK 5006671, M, Kanagawa Pref., Yamakita Town, Kurokura, Mt. Hinokiboramaru, 6. II. 2008 (coll. cocoon of *F. crenativora*), 11. III. 2009 (em. from the cocoon), T. Taniwaki leg.; KPM-NK 5004332, F, ditto, 21. V. 2013, T. Taniwaki leg. (FIT); KPM-NK 5004322, F, ditto, 28. VI. 2013; KPM-NK 5004331, F, same locality and collector, 6. VII. 2013; KPM-NK 5004325, F, Kanagawa Pref., Yamakita Town, Nakagawa, Mt. Komotsurushiyama, 21. VI. 2013, Taniwaki leg. (FIT); KPM-NK 5004326, F, Kanagawa Pref., Yamakita Town, Yoduku, Mt. Mikuniyama, 21. VI. 2013, Taniwaki leg. (FIT); KPM-NK 5004385, F, ditto, 4. VII. 2013; KPM-NK 5006673, F, Yamanashi Pref., Koushu City, Mt. Daibosatsu, Kaminikkawa-toge, 16. VI. 2007, H. Katahira leg.; KPM-



NK 5006674, F, Nagano Pref., Outaki Vil., Mt. Ontakesan, Tanohara 1800 m alt., 8. VIII. 2007, K. Watanabe leg.

**Description.** See Watanabe & Taniwaki (2018).

**Distribution.** Japan (Honshu).

**Bionomics.** Host: *Fagineura crenativora* Vikberg & Zinovjev, 2000 (Hymenoptera, Tenthredinidae) (Taniwaki & Watanabe, 2012, 2014). Adult emerged from host cocoon (Taniwaki & Watanabe, 2012, 2014).

***Aptesis jinbensis* sp. nov.**

[New SJN: Jinba-togari-himebachi]

(Figs. 12A–G, 78I)

*Aptesis* sp. B: Watanabe & Taniwaki, 2018: 75.

**Type series. Holotype:** JAPAN, KPM-NK 81207, F, Honshu, Kanagawa Pref., Fujino Town, Mt. Jinba-yama, 7. VI. 2008, K. Watanabe leg.

**Description.** Female (n = 1). Body punctate and polished; covered with setae; body length 6.8 mm.

Head  $0.65 \times$  as long as wide in dorsal view. Clypeus  $2.4 \times$  as wide as long; slightly convex in lateral view; sparsely punctate and coriaceous dorsally, smooth ventrally; lower margin subtruncate in frontal view, sharp and narrowly reflected in lateral view. Face  $0.3 \times$  as long as minimum width; weakly convex medially; punctate; ISP matt

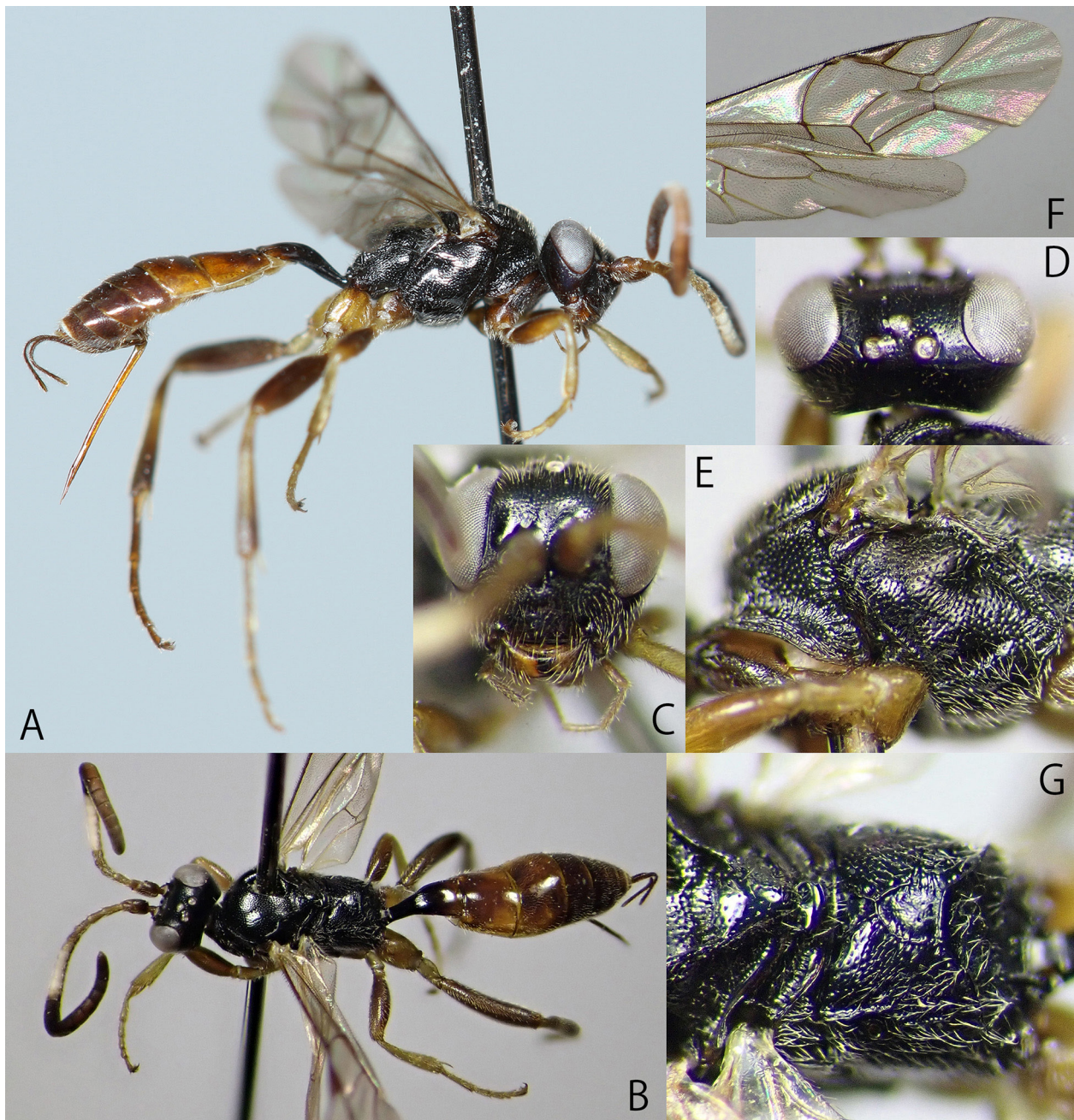


Fig. 12. *Aptesis jinbensis* sp. nov., female (holotype: KPM-NK 81207) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: wings; G: scutellum and propodeum, dorsal view.



except for median part. Frons densely punctate with coriaceous ISP; with pair of weak, smooth concavities above antennal sockets. POL  $1.5 \times$  as OD. OOL  $1.4 \times$  as OD. Dorsal profile of gena rounded in dorsal view; width gradually narrowing posteriorly (Fig. 12D). Occipital carina complete. Malar space  $1.2 \times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 23 flagellomeres; not flattened and tapped. FL I  $1.7 \times$  as long as maximum depth in lateral view,  $1.0 \times$  as long as FL II.

Mesosoma. Pronotum rugulose ventrally (Fig. 12E). Epomia absent. Mesoscutum with short and weak notaulus; densely punctate. Scutellum slightly convex in lateral view. Mesopleuron without conspicuous smooth area around speculum; punctures partly united into foveola (Fig. 12E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.6 of mesopleuron. Metapleuron rugose ventrally, with partly indistinct juxtacoxal carina. Propodeum rugose laterally and posteriorly; anterior transverse carina absent laterally, present medially; posterior transverse carina complete; lateromedian longitudinal carina present anteriorly, both carinae not parallel each other (Fig. 12G); lateral longitudinal carina present and weak; pleural carina complete; area superomedia partly defined, ca.  $1.2 \times$  as long as maximum width; apophysis weak and obtuse (Fig. 12G); spiracle oval. Fore wing length 5.1 mm. Areolet as long as maximum width; width steeply narrowing anteriorly; received vein 2m-cu at slightly beyond to middle (Fig. 12F). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 12F). Nervellus inclivous; intercepted near posterior end of vein (Fig. 12F). Hind femur reticulate coriaceous;  $4.1 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma finely and sparsely punctate except for largely smooth in T I and T II; ISP smooth. T I  $2.0 \times$  as long as maximum width; latero-median carina weak basally absent apically; dorso-lateral carina complete. T II  $0.7 \times$  as long as maximum width. Thyridium present; close to anterior margin of T II; slightly depressed; ca.  $2.0 \times$  as wide as length. Ovipositor sheath  $0.8 \times$  as long as hind tibia,  $1.2 \times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 78I).

Colouration (Figs. 12A–G). Body (excluding wings) black to blackish-brown. Setae silver. Subapical part of mandible reddish-yellow. Basal segments of flagellum, fore and mid legs except for mid femur, hind coxa, hind trochanter, hind trochantellus, and membranous part of metasomal sternites yellow to yellowish-brown. FL V to FL X with white markings. Scape, pedicel, palpi,

tegula, mid femur, hind leg except for coxa, trochanter, and trochantellus, T IV to T VIII brown. Apical part of flagellum more or less tinged with brown to reddish-brown (especially ventral surface). Apical part of T I, T II, and T III reddish-yellow. Posterior margins of T VII and T VIII narrowly whitish medially. Ovipositor reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown except for yellowish-brown to yellow wing base.

Male. Unknown.

**Distribution.** Japan (Honshu).

**Etymology.** The specific name is from the type locality, Mt. Jinba-yama, Kanagawa Prefecture.

**Bionomics.** Unknown.

**Remarks.** This species resembles *Ap. ezoensis* sp. nov. and *Ap. femoralis* (Thomson, 1883) in body colouration but can be distinguished by the well-developed propodeal carinae (less developed in *Ap. ezoensis*; see above key) and the hind femur and tibia darkened (not darkened in *Ap. ezoensis* and *Ap. femoralis*), and the apical part of metasoma black to blackish-brown (red in *Ap. femoralis*).

### *Aptesis melana* Li & Sheng, 2013

[New SJN: Chugoku-togari-himebachi]

(Figs. 13A–G, 78J)

*Aptesis melana* Li & Sheng, 2013 in Li *et al.*, 2013: 62.

**Materials examined. JAPAN:** [Hokkaido] KPM-NK 5006656, F, Tomakomai City, Uenae, 19. VI. 2006, K. Watanabe leg. [Honshu] KPM-NK 81211, F, Kanagawa Pref., Hadano City, Mt. Koubou-yama, 29. IV. 2007, G. Oishi leg.; KPM-NK 103001, F, Kanagawa Pref., Yokosuka City, Mt. Miurafuji to Mt. Takeyama, 5. V. 2007, K. Watanabe leg.; KPM-NK 91323, F, Yamanashi Pref., Hokuto City, Masutomi, Biwakubo-sawa, 24. VI. 2007, T. Ban leg.

**Description.** See Li & Sheng (2013).

**Distribution.** Japan (Hokkaido and Honshu) and China.

**Bionomics.** Unknown in Japan. In China, *Neodiprion huizeensis* G.R. Xiao & Zhou, 1984 (Hymenoptera: Diprionidae) and *Pristiphora erichsonii* (Hartig, 1837) (Hymenoptera: Tenthredinidae) are known as the host (Li *et al.*, 2013).

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

### *Aptesis minor* sp. nov.

[New SJN: Kasumi-togari-himebachi]

(Figs. 14A–G, 78K)

**Type series. Holotype:** JAPAN, KPM-NK 103003,

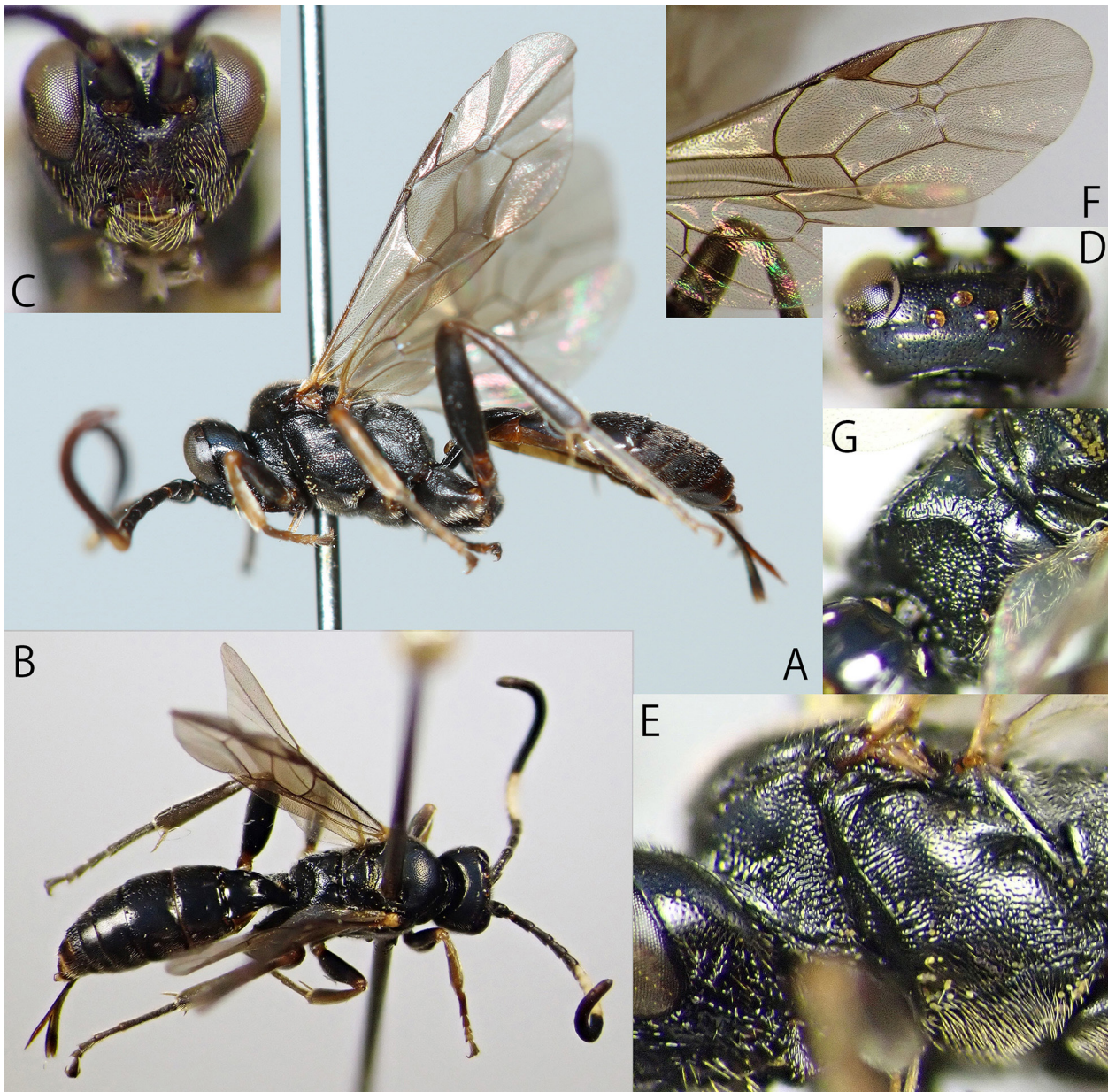


Fig. 13. *Aptesia melana* Li & Sheng, 2013, females (A, B, D–G: KPM-NK 81211; C: KPM-NK 91323) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: wings; G: scutellum and propodeum, dorsal view.

F, Hokkaido, Yubari City, Oyubari Natural Forest, 31. VIII. – 13. IX. 2007, A. Ueda leg. (MsT). **Paratype:** **JAPAN:** [Hokkaido] KPM-NK 81212, 91324, 103002, 3F, same data of holotype. [Honshu] KPM-NK 103000, F, Kanagawa Pref., Manazuru Town, Manazuru, 30. VI. 2013, K. Watanabe leg.

**Description.** Female (n = 5). Body punctate and polished; covered with setae; body length 2.6–3.5 (HT: 3.4) mm.

Head  $0.6 \times$  as long as wide in dorsal view. Clypeus  $2.05\text{--}2.4$  (HT: 2.2)  $\times$  as wide as long; slightly convex in lateral view; sparsely punctate dorsally; smooth ventrally; lower margin subtruncate in frontal view, sharp in lateral view. Face  $0.45 \times$  as long as minimum width; weakly convex medially; punctate; ISP matt. Frons sparsely punctate with

weakly coriaceous ISP; with large matt area above antennal sockets. POL  $1.4\text{--}1.8$  (HT: 1.5)  $\times$  as OD. OOL  $2.0\text{--}2.4$  (HT: 2.0)  $\times$  as OD. Dorsal profile of gena rounded in dorsal view; width gradually narrowing posteriorly (Fig. 14E). Occipital carina complete. Malar space  $1.0\text{--}1.2$  (HT: 1.0)  $\times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 18–20 (HT: 19) flagellomeres; not flattened and tapped. FL I  $1.55\text{--}2.2$  (HT: 1.55)  $\times$  as long as maximum depth in lateral view,  $1.1\text{--}1.25$  (HT: 1.25)  $\times$  as long as FL II.

Mesosoma. Pronotum nearly entirely rugulose. Epomia absent. Mesoscutum with short and weak notaulus; densely punctate; some punctures on median part united into longitudinal foveola. Scutellum flat. Mesopleuron



longitudinally reticulate rugose except for punctate area around speculum (Fig. 14F). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.3 of mesopleuron. Metapleuron rugose; with partly indistinct juxtacoxal carina. Propodeum rugose or rugulose; with all carinae except for anterior transverse carina absent; area superomedia defined except for anterior margin, ca. as long as maximum width; apophysis weak and obtuse; area postero longitudinally concave medially; spiracle round. Fore wing length 2.7–3.1 (HT: 3.1) mm. Areolet as long as maximum width; width gradually narrowing anteriorly; received vein 2m-cu at slightly at near middle (Fig. 14G). Fore wing vein 1cu-a interstitial to or slightly postfurcal to vein M&RS (Fig. 14G). Nervellus subvertical; intercepted near posterior end of vein. Hind coxa partly reticulate

rugose. Hind femur reticulate coriaceous; 3.7–4.0 (HT: 3.7)  $\times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I 1.55–2.15 (HT: 2.15)  $\times$  as long as maximum width; latero-median carina absent; dorso-lateral carina complete; smooth. T II smooth with few hairs laterally; 0.55–0.65 (HT: 0.6)  $\times$  as long as maximum width. Thyridium present; close to anterior margin of T II; slightly depressed; ca. 2.0  $\times$  as wide as length. T III and T IV largely smooth. T V and T VI finely and sparsely punctate. Ovipositor sheath 1.0–1.05 (HT: 1.0)  $\times$  as long as hind tibia, 1.55–1.8 (HT: 1.55)  $\times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 78K).

Colouration (Figs. 14A–G). Body (excluding wings) black to blackish-brown. Setae silver. Face, clypeus,

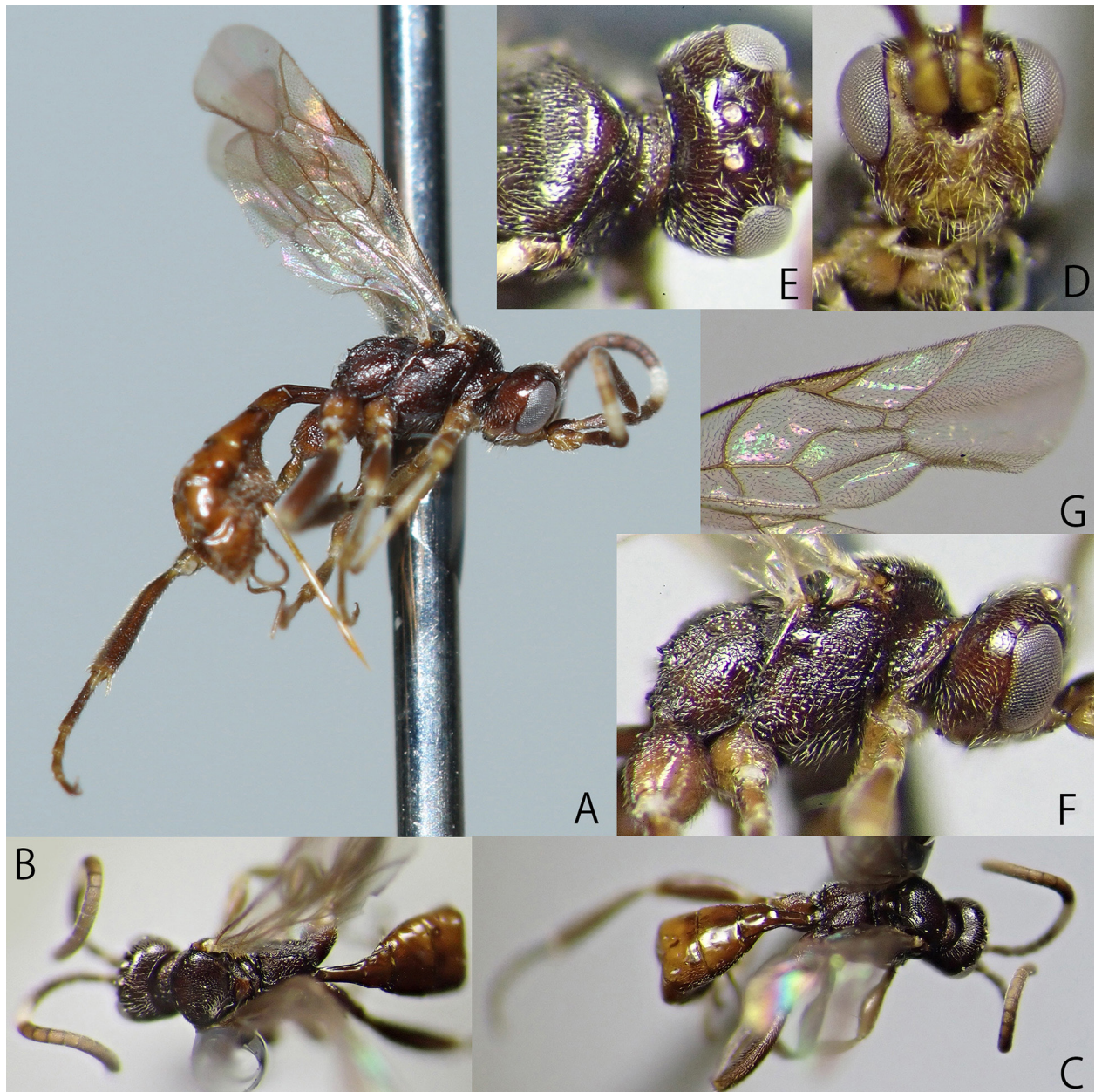


Fig. 14. *Aptesis minor* sp. nov., female (holotype: KPM-NK 103003) — A: lateral habitus; B, C: head, mesosoma, and metasoma, dorso-lateral view; D: head, frontal view; E: head and mesoscutum, dorsal view; F: mesosoma, lateral view; G: fore wing.



mandible except for teeth, malar space, frontal orbit, scape, pedicel, palpi, fore and mid tibiae and tarsi, hind tibial spurs, membranous part of metasomal sternites, and ovipositor yellow to yellowish-brown. Fore and mid legs except for tibiae and tarsi, hind leg except for tibial spurs, collar, scutellum, and metasomal tergites partly or entirely brown to reddish-brown. Base and apex of hind femur narrowly tinged with yellow. FL VI to FL IX with white markings. Wings hyaline. Veins and pterostigma brown except for yellowish-brown to yellow wing base.

Male. Unknown.

**Distribution.** Japan (Hokkaido and Honshu).

**Etymology.** The specific name is from the Latin “*minor*” (smaller), referring to the relatively smaller size of this species in the genus.

**Bionomics.** Unknown.

**Remarks.** This species resembles *Ap. minor* Aubert, 1968 in the small-sized body with polished metasomal tergites but can be distinguished by the yellow face (black in *Ap. minor*), the mesopleuron longitudinally reticulate

rugose (without such rugae in *Ap. minor*), and the reddish-brown scutellum (black in *Ap. minor*).

***Aptesis yamauchii* sp. nov.**

[New SJN: Yamauchi-togari-himebachi]

(Figs. 15A–G, 78L)

**Type series. Holotype:** JAPAN, KPM-NK 81208, F, Honshu, Toyama Pref., Toyama City, Arimine, Inonedani, 1–8. IX. 2009, M. Watanabe leg. (MsT). **Paratype:** JAPAN [Honshu] KPM-NK 102997, F, Honshu, Toyama Pref., Toyama City, Arimine, Inonedani, 4–11. VIII. 2009, M. Watanabe leg. (MsT); KPM-NK 81210, F, Toyama Pref., Toyama City, Arimine, Jyurodani, 4–11. VIII. 2009, M. Watanabe leg. (MsT); OMNH, F, 11–16. VIII. 2009; KPM-NK 102827, F, Toyama Pref., Nanto City, Togamura-kamimomose, 21–28. VII. 2009, KPM-NK 81209, F, ditto, 11–18. VIII. 2009, M. Watanabe leg. (MsT); KPM-NK 102999, F, Nagano Pref., Outaki Vil., Mt. Ontake-san, Hakkaizan, 31. VII. 2013, K. Watanabe leg.; KPM-NK

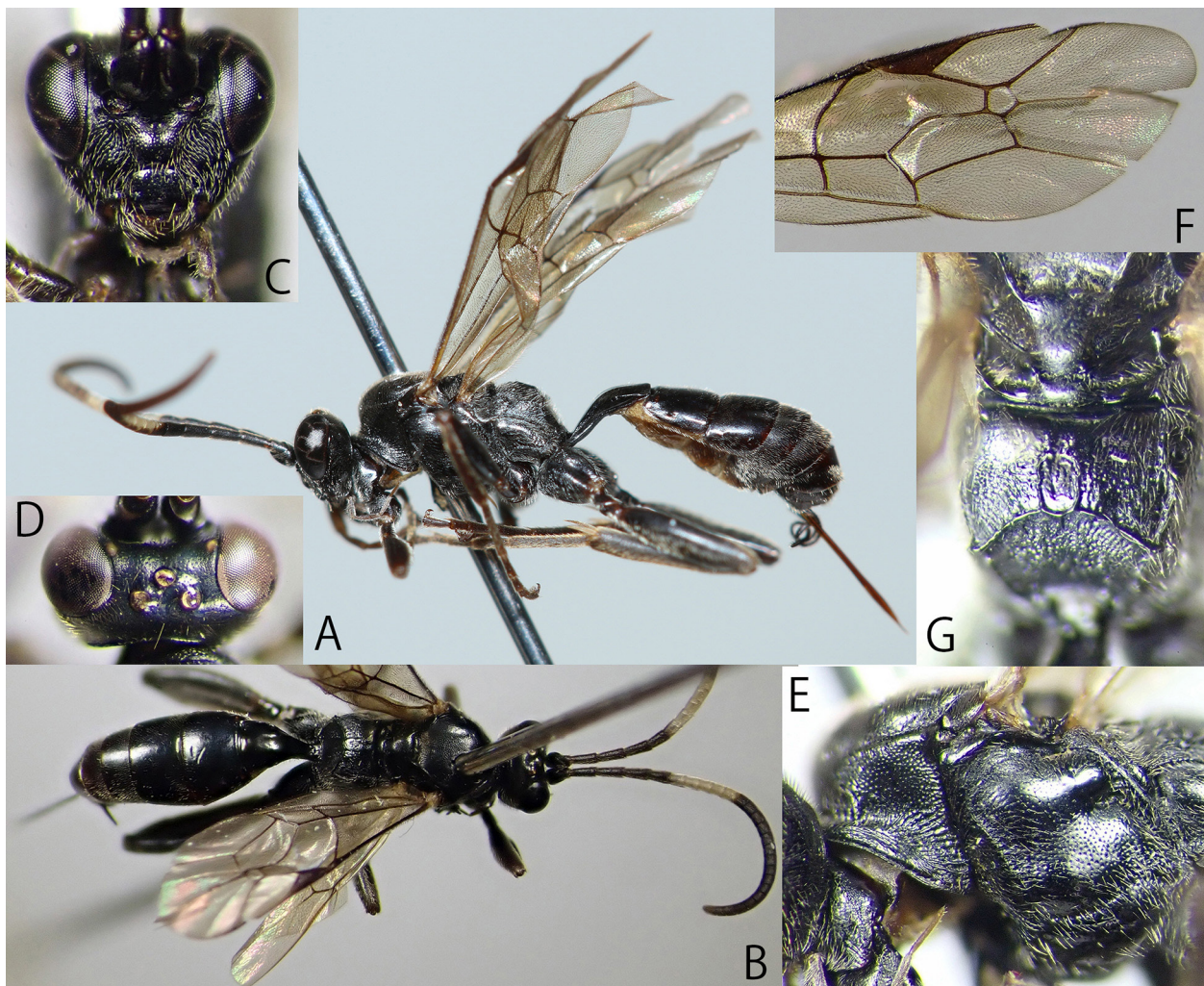


Fig. 15. *Aptesis yamauchii* sp. nov., females (A–C, E–G: holotype: KPM-NK 81208; D: paratype: KPM-NK 102998) — A: lateral habitus; B: head, mesosoma, and metasoma, dorsal view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: scutellum and propodeum, dorsal view.



102998, F, ditto, 5. VIII. 2017.

**Description.** Female (n = 7). Body punctate and polished; covered with setae; body length 5.8–7.4 (HT: 7.4) mm.

Head  $0.6 \times$  as long as wide in dorsal view. Clypeus 1.9–2.0 (HT: 2.0)  $\times$  as wide as long; weakly convex in lateral view; sparsely punctate dorsally; smooth ventrally; lower margin subtruncate in frontal view, sharp and narrowly reflected in lateral view. Face 0.4–0.45 (HT: 0.45)  $\times$  as long as minimum width; weakly convex medially; punctate; ISP coriaceous laterally, smooth medially. Frons densely punctate with coriaceous ISP; area above antennal sockets narrowly smooth. POL 1.6–2.2 (HT: 1.6)  $\times$  as OD. OOL 1.0–1.4 (HT: 1.1)  $\times$  as OD. Dorsal profile of gena slightly rounded in dorsal view; width gradually narrowing posteriorly (Fig. 15D). Occipital carina complete. Malar space 1.25–1.45 (HT: 1.3)  $\times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 26–27 (HT: 26) flagellomeres; not flattened and tapped. FL I 2.1–2.4 (HT: 2.4)  $\times$  as long as maximum depth in lateral view, 0.95–0.98 (HT: 0.95)  $\times$  as long as FL II.

Mesosoma finely punctate. Pronotum rugulose ventrally. Epomia short; section on border of collar and pronotum present. Mesoscutum with short and weak notaulus; densely punctate. Scutellum slightly convex in lateral view. Mesopleuron with conspicuous smooth area around speculum. Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.7 of mesopleuron. Metapleuron with partly indistinct or complete juxtacoxal carina. Propodeum rugose or rugulose; with all carinae except for anterior transverse carina absent; anterior section of lateromedian longitudinal carina sometimes (including holotype) absent anteriorly; area superomedia partly defined; apophysis absent (Fig. 15G); spiracle round. Fore wing length 5.0–6.2 (HT: 6.2) mm. Areolet as long as maximum width; width gradually narrowing anteriorly; received vein 2m-cu at near middle (Fig. 15F). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 15F). Nervellus subvertical; intercepted near posterior end of vein. Hind femur reticulate coriaceous; 4.6–5.0 (HT: 4.7)  $\times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma finely and sparsely punctate; ISP smooth. T I 1.4–1.7 (HT: 1.55)  $\times$  as long as maximum width; latero-median carina obtusely present except for apical part; dorso-lateral carina complete; largely slightly coriaceous. T II 0.65–0.7 (HT: 0.7)  $\times$  as long as maximum width. Thyridium present; close to anterior margin of T II; flat to slightly depressed; ca.  $3.0 \times$  as wide as length. Ovipositor sheath 0.9–1.0 (HT: 1.0)  $\times$  as long as hind tibia, 1.7–1.9 (HT: 1.9)  $\times$  as long as T I. Ovipositor straight; apex sharp;

apex of lower valve with teeth (Fig. 78L).

Colouration (Figs. 15A–G). Body (excluding wings) black to blackish-brown. Setae silver. Subapical part of mandible yellowish-brown. FL V (or VI) to FL IX (or X) with white markings. Tibial spurs and membranous part of metasomal sternites yellow to yellowish-brown. Face sometimes with pair of dark reddish-brown spots along orbit. Posterior margins of each metasomal tergite usually narrowly tinged with red. Wings brownish-hyaline. Veins and pterostigma blackish-brown except for yellowish-brown to yellow wing base.

Male. Unknown.

**Distribution.** Japan (Honshu).

**Etymology.** The specific name is from Dr. Takeo Yamauchi, who kindly offered the valuable materials collected by Dr. Mamoru Watanabe in Toyama Prefecture to me.

**Bionomics.** Unknown.

**Remarks.** This species resembles *Ap. melana* in the black body and the shape of areolet but can be distinguished by the longer ovipositor sheath and T I and the colouration of hind tibia (see above key).

### Genus *Cubocephalus* Ratzeburg, 1848

*Cubocephalus* Ratzeburg, 1848: 121. Type species: *Cryptus fortipes* Gravenhorst, 1829 (= *Ichneumon distinctor* Thunberg, 1822). Monotypic.

*Ecporthetor* Förster, 1869: 184. Type species: *Cryptus fortipes* Gravenhorst, 1829 (= *Ichneumon distinctor* Thunberg, 1822). Designated by Ashmead (1900).

*Pammachus* Förster, 1869: 185. Type species: *Stenocryptus nigriventris* Thomson, 1874. Designated by Viereck (1914).

*Chaeretymma* Förster, 1869: 187. Type species: *Cryptus anatorius* Gravenhorst, 1829. Included by Schmiedeknecht (1890).

*Stenocryptus* Thomson, 1873: 520. Type species: *Stenocryptus nigriventris* Thomson, 1874. Original designation.

*Microcryptus* Thomson, 1873: 520. Type species: *Cryptus erythrinus* Gravenhorst, 1829 (= *Ichneumon sperator* Müller, 1776). Monotypic.

*Planocryptus* Heinrich, 1949: 35. Type species: *Planocryptus mirabilis* Heinrich, 1949. Original designation.

Four species, *C. anatorius* (Gravenhorst, 1829), *C. associator* (Thunberg, 1822), *C. atrator* (Walker, 1874), and *C. nigriventris* (Thomson, 1874), have been recorded from

Japan. The generic border of this genus and *Parmortha* is problematic, and the separation of both genera are difficult in the species has intermediate characteristics. Although Townes (1970) separated both genera by the width of areolet, the convergent or parallel conditions of areolet, and the width of clypeus, all of them are somewhat overlapped both genera. In this study, I add two generic borders of them based on the ratio of length of areolet and vein 2m-cu and the length of FL I (see below key).

In this study, I newly describe six new species below and provide the key to Japanese species of *Cubocephalus* and *Parmortha* as a single key below.

### Key to Japanese species of *Cubocephalus* and *Parmortha* (female only)

1. Posterior transverse carina of mesosternum with deep notch medially and this carina divided into two teeth near notch (Fig. 77A). Flagellum with slender and long flagellomeres (Fig. 76N); FL I 3.7–4.2 × as long as maximum depth in lateral view. Body and legs nearly entirely black (fore and mid tibiae and tarsi sometimes yellowish-brown). Areolet weakly convergent (Fig. 17F). Area superomedia present, usually obtusely defined (Fig. 17G). Length of ovipositor sheath varied in length, longer than metasoma and shorter than body length (Fig. 17A). Apex of ovipositor with some minute teeth dorsally (Fig. 78N).  
..... *Cubocephalus atrator* (Walker, 1874) 3  
-. Posterior transverse carina of mesosternum without deep notch and teeth (Fig. 77B). Other characteristics various.  
..... 2
2. Flagellum with robust and short flagellomeres (Fig. 76K); FL I ca. 1.2 × as long as maximum depth in lateral view. Ovipositor strongly upcurved (Figs. 20A, 78P). Ovipositor sheath shorter than metasoma (Fig. 20A). Small species, body length shorter than 6 mm.  
..... *Cubocephalus Ratzeburg*, 1848 (in part) 3  
-. Flagellum with slender and long flagellomeres (Figs. 76M, O–Q); FL I more than 2.0 × as long as maximum depth in lateral view. Ovipositor weakly to strongly upcurved. Ovipositor sheath and body various in length.  
..... 4
3. Hind coxa, hind femur, and apical part of hind tibia blackish-brown (Fig. 20A). Ovipositor sheath 1.3 × as long as hind tibia.  
..... *Cubocephalus nanus* **sp. nov.**  
-. Legs including hind coxa, hind femur, and apical part of hind tibia entirely reddish-yellow. Ovipositor sheath 1.0 × as long as hind tibia.  
..... *Cubocephalus nigriventris* (Thomson, 1874) 4
4. Areolet small and not wide on the radial vein; both sides weakly to strongly convergent; anterior width of areolet (= section of vein RS) shorter than half length of vein 2m-cu (Figs. 16F, 19F, 21F, 22H). Clypeus various in width.  
..... *Cubocephalus Ratzeburg*, 1848 (in part) 5  
-. Areolet large and very wide on the radial vein; both sides parallel or weakly convergent; anterior width of areolet as long as or longer than half length of vein 2m-cu (Figs. 44F, 45F, 46H, 48B, 49F). Clypeus 1.9–2.1 × as wide as long.  
..... *Parmortha* Townes, 1962 10
5. Legs red.  
..... 6  
-. Legs black (Figs. 16A, 19A, 21A, 22A).  
..... 7
6. Hind femur ca. 4.0 × as long as maximum depth in lateral view. Ovipositor sheath shorter than combined length of mesosoma and metasoma.  
..... *Cubocephalus anatorius* (Gravenhorst, 1829)  
-. Hind femur ca. 5.0 × as long as maximum depth in lateral view. Ovipositor sheath ca. as long as combined length of mesosoma and metasoma.  
..... *Cubocephalus associator* (Thunberg, 1822)
7. Lower valve of ovipositor with more than 16 teeth (Fig. 78Q). Ovipositor sheath distinctly shorter than metasoma. T II and T III weakly tinged with red (Figs. 21A, B). FL I 3.15 × as long as maximum depth in lateral view.  
..... *Cubocephalus sapporensis* **sp. nov.**  
-. Lower valve of ovipositor with less than 13 teeth (Figs. 78M, O, R). Ovipositor sheath and FL I with various length. T II and T III black (Figs. 16B, 19B, 22B).  
..... 8
8. FL I 5.0–5.15 × as long as maximum depth in lateral view. Ovipositor sheath distinctly longer than metasoma (Fig. 22A). Apex of ovipositor with some minute teeth dorsally (Fig. 78R).  
..... *Cubocephalus uryuensis* **sp. nov.**  
-. FL I shorter than 3.4 × as long as maximum depth in lateral view. Ovipositor sheath as long as or shorter than metasoma (Figs. 16A, 19A). Apex of ovipositor without minute teeth dorsally (Figs. 78M, O).  
..... 9
9. FL I 3.0–3.35 × as long as maximum depth in lateral view. Ovipositor sheath 2.3–2.45 × as long as hind tibia. Clypeus 2.5–2.6 × as wide as long. Malar space 1.0–1.1 × as long as basal width of mandible.  
..... *Cubocephalus asiaticus* **sp. nov.**  
-. FL I 2.1–2.4 × as long as maximum depth in lateral view. Ovipositor sheath 1.8–2.0 × as long as hind tibia. Clypeus 2.05–2.1 × as wide as long. Malar space 1.35–1.45 × as long as basal width of mandible.



..... *Cubocephalus confusus* **sp. nov.**

10. Spiracle of T I situated near the mid-length of T I (Fig. 77J). TS III to TS V and apical part of TS II of hind tarsus white. Large species; length more than 10 mm. Areolet weakly convergent (Fig. 45F). Apex of ovipositor with some minute teeth dorsally (Fig. 79N). Hind tarsus with white parts (Fig. 45A).

..... *Parmortha gigantea* **sp. nov.**

-. Spiracle of T I situated behind the mid-length of T I (Fig. 77K). Other character states various.

..... 11

11. Base of hind tibia with white part (Figs. 46A–C). Legs various in colouration; black except for white base of hind tibia or sometimes coxae, trochanters, trochantellus, basal part of hind femur, hind tibia, and hind tarsus sometimes variously tinged with red (Figs. 46A–C). Ovipositor sheath 1.3–1.5 × as long as hind tibia. Tegula black (Fig. 46G). Ventral half of lateral part of pronotum covered with longitudinal striae (Fig. 46G). Apex of ovipositor without minute teeth dorsally (Fig. 79O).

..... *Parmortha maruyamensis* (Uchida, 1930)

(= *P. microstriatella* (Uchida, 1952) **syn. nov.**)

-. Base of hind tibia without white part (Figs. 44A, 48A, 49A). Coxae and hind femur black (Figs. 44A, 48A, 49A). Tegula black (Figs. 44E, 48E) or ivory (Fig. 49E). Ventral half of lateral part of pronotum covered with irregular rugae (Figs. 44E, 48E, 49E). Other character states various.

..... 12

12. Tegula ivory (Fig. 49E). Face without distinct punctures. Ovipositor sheath 1.5–1.8 × as long as hind tibia. Apex of ovipositor without minute teeth dorsally (Fig. 79Q).

..... *Parmortha pleuralis albomaculata* (Ashmead, 1906)

-. Tegula black or blackish-brown (Figs. 44E, 48E). Other character states various.

..... 13

13. Anterior transverse carina of propodeum present (Fig. 44H). Area superomedia well-defined (Fig. 44H). TS III, TS IV, and apical part of TS II of hind tarsus white (Fig. 44G). Face without distinct punctures. Ovipositor sheath 1.3 × as long as hind tibia. Apex of ovipositor without minute teeth dorsally (Fig. 79M).

..... *Parmortha albitarsale* **sp. nov.**

-. Anterior transverse carina of propodeum absent (Fig. 48F). Area superomedia not defined (Fig. 48F). Hind tarsus without white part (Fig. 48A). Face with distinct punctures. Ovipositor sheath 2.35–2.4 × as long as hind tibia. Apex of ovipositor with some minute teeth dorsally (Fig. 79P).

..... *Parmortha nigra* **sp. nov.**

*Cubocephalus asiaticus* **sp. nov.**

[New SJN: Asia-onaga-togari-himebachi]

(Figs. 16A–G, 76M, 78M)

**Type series. Holotype:** JAPAN, KPM-NK 91384, F, Honshu, Nagano Pref., Ueda City, Sugadaira-kogen, 13–26. VII. 2015, S. Shimizu leg. (MsT). **Paratype:** JAPAN: [Honshu] KPM-NK 102955, F, Saitama Pref., Naguri Vil., Shomaru-toge, 10–13. X. 1995, A. Shimizu leg.; KPM-NK 5004434, F, Kanagawa Pref., Yamakita Vil., Mt. Oomuro-yama, 24. VI. 2013, T. Taniwaki leg.; KPM-NK 102958, F, Nagano Pref., Ina City, Hase, Karei-kogen, 30. VII. 2013, S. Yoshizawa leg.; KPM-NK 102956, F, Niigata Pref., Myokou City, Suginosawa, Mt. Sasagamine, 20. IX. 2013, S. Shimizu leg.; KPM-NK 102959, F, Toyama Pref., Nanto City, Togamura-kamimomose, 21–28. VII. 2009, M. Watanabe leg. (MsT); KPM-NK 102960, F, ditto, 28. VII. – 4. VIII. 2009; OMNH, F, ditto, 4–11. VIII. 2009; KPM-NK 102961, F, Toyama Pref., Toyama City, Arimine, Inonedani, 21–28. VII. 2009, M. Watanabe leg. (MsT); KPM-NK 102962, F, ditto, 25. VIII. – 1. IX. 2009; KPM-NK 102963, F, Toyama Pref., Toyama City, Arimine, Jyurodani, 15–22. IX. 2009, M. Watanabe leg. (MsT); KPM-NK 102957, F, Fukui Pref., Ohno City, Kamiuchinami, 29. IX. 1982, T. Murota leg.

**Description.** Female (n = 12). Body polished; covered with setae; body length 8.9–9.8 (HT: 9.1) mm.

Head 0.6–0.65 (HT: 0.6) × as long as wide in dorsal view. Clypeus 2.5–2.6 (HT: 2.5) × as wide as long; slightly convex in lateral view; punctate dorsally, smooth ventrally; lower margin rounded in frontal view, obtuse in lateral view. Face 0.38–0.4 (HT: 0.38) × as long as minimum width; slightly convex medially; matt with punctures. Frons slightly concave above antennal sockets; coriaceous; punctate dorsally. POL 1.5–2.0 (HT: 2.0) × as OD. OOL 1.4–1.6 (HT: 1.6) × as OD. Gena and occiput finely punctate. Dorsal profile of gena rounded in dorsal view; width not narrowing anteriorly and somewhat abruptly narrowing posteriorly (Fig. 16D). Occipital carina complete. Malar space 1.0–1.1 (HT: 1.1) × as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 23–25 (HT: 25) flagellomeres; not flattened and tapped. FL I 3.0–3.35 (HT: 3.35) × as long as maximum depth in lateral view, 0.9–0.95 (HT: 0.93) × as long as FL II.

Mesosoma. Pronotum rugose ventrally; densely punctate dorsally (Fig. 16E). Epomia short; dorsal end situated on collar. Mesoscutum punctate; punctures on median part denser than outer parts. Notaulus sharp (Fig. 16D); posterior end not reaching centre of

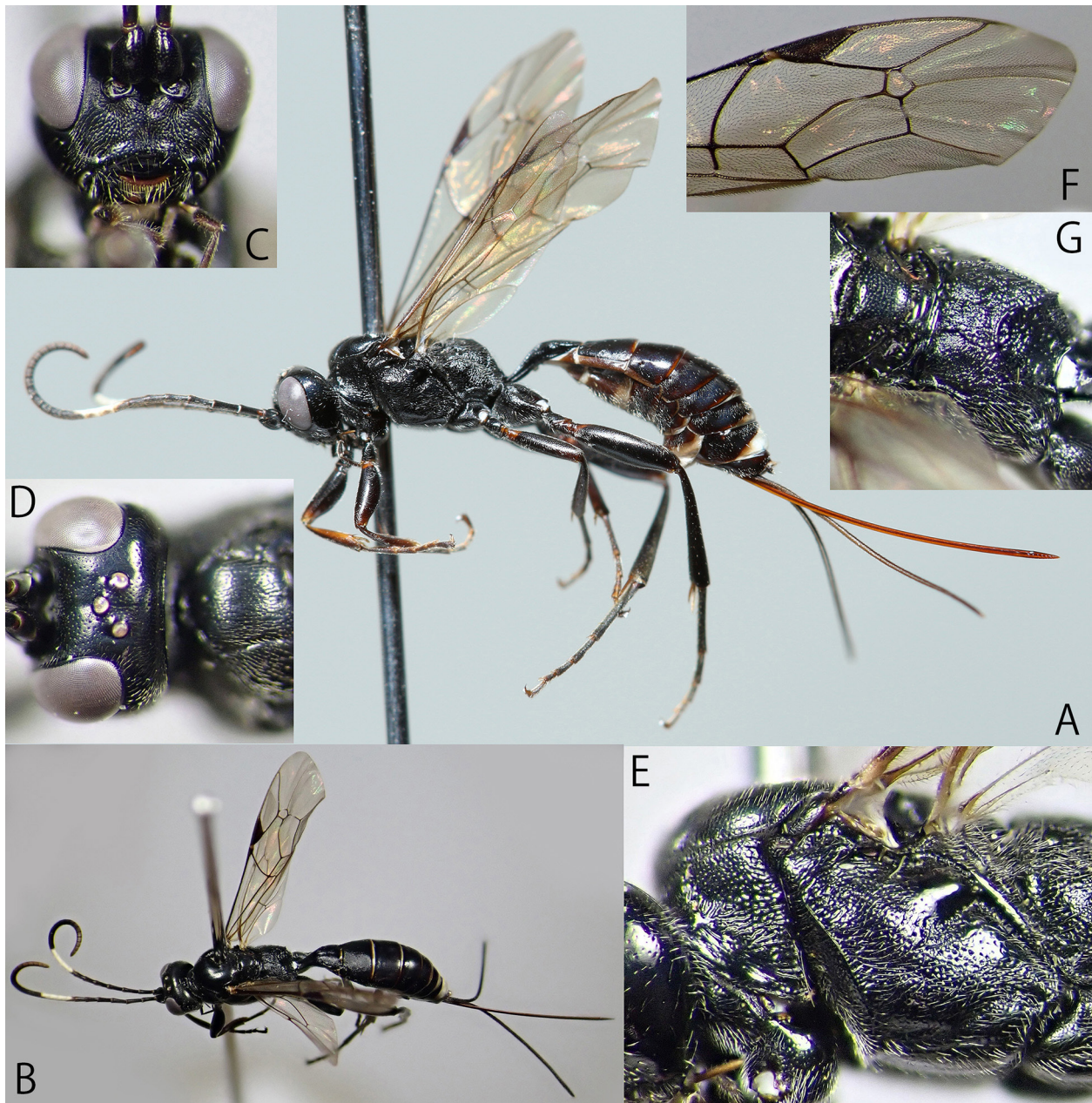


Fig. 16. *Cubocephalus asiaticus* sp. nov., female (holotype: KPM-NK 91384) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head and mesoscutum, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: scutellum and propodeum, dorso-lateral view.

mesoscutum. Scutellum punctate; flat in lateral view. Mesopleuron densely punctate and foveolate anteriorly; with conspicuous smooth area around speculum; sparsely punctate postero-ventrally (Fig. 16E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.7 of mesopleuron. Posterior transverse carina of mesosternum without deep notch and teeth. Metapleuron reticulate coriaceous anteriorly, rugulose posteriorly; with complete juxtacoxal carina. Propodeum largely irregularly rugose; anterior transverse carina absent; posterior transverse carina complete, inverted U-shaped (Fig. 16G); lateromedian longitudinal carina largely indistinct and trace-like; lateral longitudinal carina partly present anteriorly; pleural carina complete; area

superomedia indistinct; apophysis absent; spiracle oval. Fore wing length 7.0–7.75 (HT: 7.1) mm. Areolet as long as maximum width; longer than half length of vein 2m-cu; width steeply narrowing anteriorly; received vein 2m-cu at near middle; anterior width shorter than half length of vein 2m-cu (Fig. 16F). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 16F). Nervellus subvertical; intercepted near posterior end of vein. Hind femur reticulate coriaceous;  $3.8\text{--}4.2 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma matt and coriaceous. T I 1.65–1.75 (HT: 1.75)  $\times$  as long as maximum width; latero-median carina absent; dorso-lateral carina complete. Spiracle of T I behind the mid-length of T I. T II 0.7–0.8 (HT: 0.7)  $\times$  as long as



maximum width. Thyridium present; close to anterior margin of T II; flat to slightly depressed; ca.  $2.0 \times$  as wide as length. Ovipositor sheath  $2.3\text{--}2.45$  (HT:  $2.45$ )  $\times$  as long as hind tibia,  $3.85\text{--}4.25$  (HT:  $3.85$ )  $\times$  as long as T I. Ovipositor weakly upcurved; apex sharp and without minute teeth dorsally; apex of lower valve with teeth (Fig. 78M).

Colouration (Figs. 16A–G). Body (excluding wings) black to blackish-brown. Setae silver. Subapical part of mandible tinged with reddish-brown. Labrum reddish-brown. FL VI (or VII) to FL X with white markings. Bases of femora, all tibial spurs, and fore tibia more or less tinged with brown to reddish-brown. Posterior margins of metasomal tergites sometimes narrowly tinged with reddish-brown. Postero-median membranous parts of T V to T VII white. Thyridium and ovipositor reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish wing base.

Male. Unknown.

**Distribution.** Japan (Honshu).

**Bionomics.** Unknown.

**Etymology.** The specific name is from Asia, referring to the distribution of this species, Japan, is a part of Asia.

**Remarks.** This species resembles *Cu. atrator* and *Cu. confusus* **sp. nov.** in the entirely black legs and almost or entirely black metasomal tergites but can be distinguished by the posterior transverse carina of mesosternum without deep notch and teeth (with deep notch and teeth in *Cu. atrator*), FL I  $3.0\text{--}3.35 \times$  as long as maximum depth in lateral view ( $3.9 \times$  in *Cu. atrator*;  $2.1\text{--}2.4 \times$  in *Cu. confusus*) and the ovipositor sheath  $2.3\text{--}2.45 \times$  as long as hind tibia ( $1.83\text{--}2.68 \times$  in *Cu. atrator*;  $1.8\text{--}2.0 \times$  in *Cu. confusus*).

***Cubocephalus atrator* (Walker, 1874)**

[SJN: Onaga-togari-himebachi]

(Figs. 17A–H, 18A–E, 76N, 77A, 78N)

*Echthrus atrator* Walker, 1874: 306.

**Materials examined. JAPAN:** [Honshu] KPM-NK 102947, F, Kanagawa Pref., Hakone Town, Komagatake, 20. VI. 2000, H. Nagase leg.; KPM-NK 102944, F, ditto, 4. VII. 2001; KPM-NK 102941, F, ditto, 23. VIII. 2003; KPM-NK 5004439, F, Kanagawa Pref., Kiyokawa Vil., Mt. Tanzawa-san, 20. VI. 2013, T. Taniwaki leg. (FIT); KPM-NK 103204, F, Yamanashi Pref., Narusawa Vil., Kouyoudai, 13. IX. 2021, K. Watanabe leg.; KPM-NK 91385, F, Shizuoka Pref., Shizuoka City, Umegashima, Abe-toge, 15. VI. 2008, K. Watanabe leg.; KPM-NK 102943, F, Nagano Pref., Outaki Vil., Hakkaisan, 31. VII.

2013, M. Ito leg.; KPM-NK 91379, 102951, 2F, Toyama Pref., Nanto City, Togamura-kamimomose, 21–28. VII. 2009, M. Watanabe leg. (MsT); KPM-NK 102952, F, ditto, 4–11. VIII. 2009; KPM-NK 102954, F, ditto, 8–15. IX. 2009; KPM-NK 102950, F, Toyama Pref., Toyama City, Kamegai, 14–21. VII. 2009, M. Watanabe leg. (MsT); OMNH, F, Toyama Pref., Toyama City, Arimine, Inonedani, 21–28. VII. 2009, M. Watanabe leg. (MsT); KPM-NK 102949, F, Toyama Pref., Toyama City, Arimine, Jyurodani, 7–14. VII. 2009, M. Watanabe leg. (MsT); KPM-NK 102948, M, ditto, 21–28. VII. 2009; KPM-NK 102953, F, ditto, 1–8. IX. 2009; KPM-NK 81286, F, Fukui Pref., Yashagaike, 27–29. VII. 1974, H. Kurokawa leg.; KPM-NK 102945, F, Fukui Pref., Fukui City, Mt. Kunimida-ke, 13. VI. 1981, T. Murota leg.; KPM-NK 102946, F, Fukui Pref., Obama City, Kaminegori, 20. VIII. 1981, H. Kurokawa leg.; KPM-NK 102942, F, Hyogo Pref., Kami Town, Niiya, 12. VII. 2015, S. Fujie leg. [Shikoku] SEHU, 1F (det. Uchida), Ehime Pref., Sasayama, 28. VII. 1916, Matsumura leg.

**Description.** Female ( $n = 20$ ). Body polished; covered with setae; body length  $7.0\text{--}12.2$  mm.

Head  $0.6 \times$  as long as wide in dorsal view. Clypeus  $2.3\text{--}2.4 \times$  as wide as long; slightly convex in lateral view; punctate dorsally, smooth ventrally; lower margin rounded in frontal view, obtuse in lateral view. Face  $0.48 \times$  as long as minimum width; slightly convex medially; matt with punctures. Frons slightly concave above antennal sockets; coriaceous; punctate dorsally. POL  $1.2\text{--}1.6 \times$  as OD. OOL  $1.2\text{--}1.4 \times$  as OD. Gena and occiput finely punctate. Dorsal profile of gena rounded in dorsal view; width not narrowing anteriorly and somewhat abruptly narrowing posteriorly (Fig. 17D). Occipital carina complete. Malar space  $1.2\text{--}1.25 \times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 23–27 flagellomeres; not flattened and tapped. FL I  $3.7\text{--}4.2 \times$  as long as maximum depth in lateral view,  $0.9\text{--}0.95 \times$  as long as FL II.

Mesosoma. Pronotum rugose ventrally; densely punctate dorsally (Fig. 17E). Epomia short; dorsal end situated on or above collar. Mesoscutum punctate; punctures on median part denser than outer parts. Notaulus sharp (Fig. 17D); posterior end not reaching centre of mesoscutum. Scutellum densely punctate; weakly convex in lateral view. Mesopleuron densely punctate; punctures partly united into groove-like foveola; with conspicuous smooth area around speculum (Fig. 17E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior  $0.6$  of mesopleuron. Posterior transverse carina of mesosternum with deep notch medially; divided into two teeth near notch

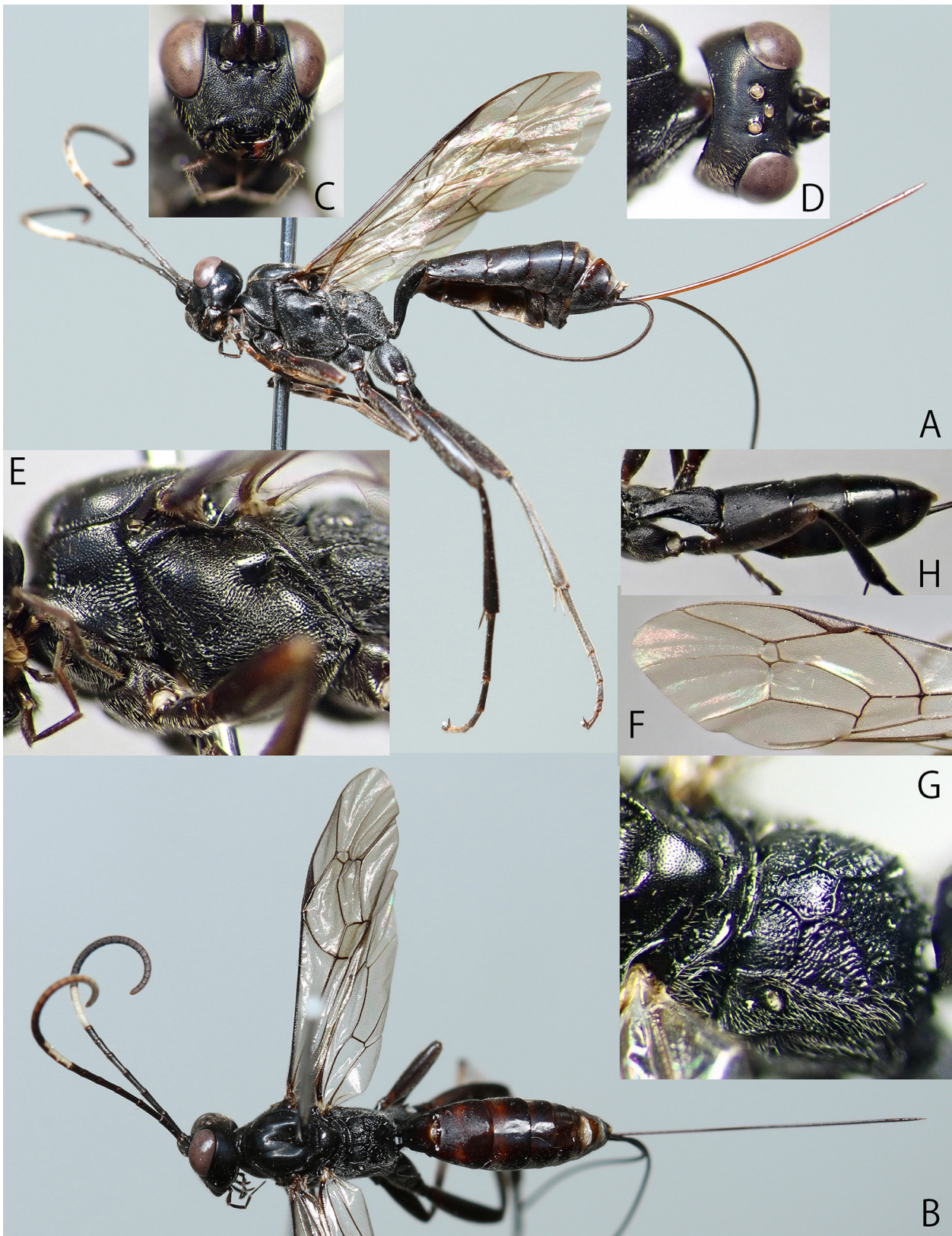


Fig. 17. *Cubocephalus atrator* (Walker, 1874), females (A: KPM-NK 102952; B–E, G: KPM-NK 91379; F, H: KPM-NK 102947) — A: lateral habitus; B: dorsal habitus; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: scutellum and propodeum, dorso-lateral view; H: metasoma, dorso-lateral view.



(Fig. 77A). Metapleuron reticulate coriaceous anteriorly, rugulose posteriorly; with complete juxtacoxal carina. Propodeum largely irregularly rugose; anterior transverse carina weakly present, sometimes trace-like and/or partly absent; posterior transverse carina complete, inverted U-shaped (Fig. 17G); lateromedian longitudinal carina present and sometimes partly indistinct; lateral longitudinal carina complete; pleural carina complete; area superomedia partly distinct, about as long as maximum width; apophysis absent; spiracle oval. Fore wing length 6.3–9.0 mm. Areolet slightly longer than maximum width; longer than half length of vein 2m-cu; width steeply narrowing anteriorly; received vein 2m-cu at near middle; anterior width shorter than half length of vein 2m-cu (Fig. 17F). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 17F). Nervellus subvertical; intercepted near posterior end of vein. Hind femur reticulate coriaceous;  $4.35\text{--}4.6 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma matt and coriaceous. T I  $1.75\text{--}2.0 \times$  as long as maximum width; latero-median carina absent; dorso-lateral carina complete. Spiracle of T I behind the mid-length of T I. T II  $0.8\text{--}0.9 \times$  as long as maximum width. Thyridium present; close to anterior margin of T II; slightly depressed;

ca.  $2.0 \times$  as wide as length. Ovipositor sheath  $1.83\text{--}2.68 \times$  as long as hind tibia,  $3.65\text{--}5.1 \times$  as long as T I. Ovipositor weakly upcurved; apex sharp and with some minute teeth dorsally; apex of lower valve with teeth (Fig. 78N).

Colouration (Figs. 17A–H). Body (excluding wings) black to blackish-brown. Setae silver. Subapical part of mandible tinged with reddish-brown. FL VI (or VII) to FL IX (or X) with white markings. Posterior margins of metasomal tergites sometimes narrowly tinged with reddish-brown. Postero-median membranous parts of T V to T VII white. Thyridium and ovipositor reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish wing base.

Male ( $n = 1$ ). Similar to female (Figs. 18A–E). Malar space  $0.9 \times$  as long as basal width of mandible. Antenna with tyloids on FL IX to FL XIV (Fig. 18D). FL I  $2.75 \times$  as long as maximum depth in lateral view,  $1.1 \times$  as long as FL II. Hind femur  $5.0 \times$  as long as maximum depth in lateral view. Anterior transverse carina of propodeum complete. T I  $2.6 \times$  as long as maximum width. T II  $1.4 \times$  as long as maximum width. Mandible except for teeth, palpi, dorsal parts of malar space and clypeus, face except for median black area, frontal orbits, ventral surfaces of scape and



Fig. 18. *Cubocephalus atrator* (Walker, 1874), male (KPM-NK 102948) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: flagellum and tyloids; E: propodeum, dorsal view.



pedicel, postero-dorsal corner of pronotum, tegula, ventral surfaces of fore and mid trochanters, and all tibial spurs yellow to ivory. Fore and mid legs paler than female.

**Distribution.** Japan (Honshu and Shikoku).

**Bionomics.** Unknown.

**Remarks.** This is the first record of the male of this species.

*Cubocephalus confusus* sp. nov.

[New SJN: Kogata-onaga-togari-himebachi]

(Figs. 19A–G, 76O, 78O)

**Type series. Holotype:** JAPAN, KPM-NK 91383, F, Honshu, Toyama Pref., Toyama City, Arimine, Inonedani, 8–15. IX. 2009, M. Watanabe leg. (MsT). **Paratype:** JAPAN: [Honshu] KPM-NK 102965, F, Saitama Pref., Ootaki Vil., Mt. Karisaka, 5–15. VI. 1998, M. Hinakura leg. (collision traps baited with chemical attractants); KPM-NK 102964, F, Nagano Pref., Ueda City, Sugadaira-kogen, 27. VII. – 13. IX. 2013, S. Shimizu leg. (MsT); KPM-NK 102974, F, Toyama Pref., Nanto City, Togamura-kamimomose, 8–15. IX. 2009, M. Watanabe leg. (MsT); KPM-NK 102966 F, Toyama Pref., Toyama City, Arimine, Inonedani, 7–14. VII. 2009, M. Watanabe

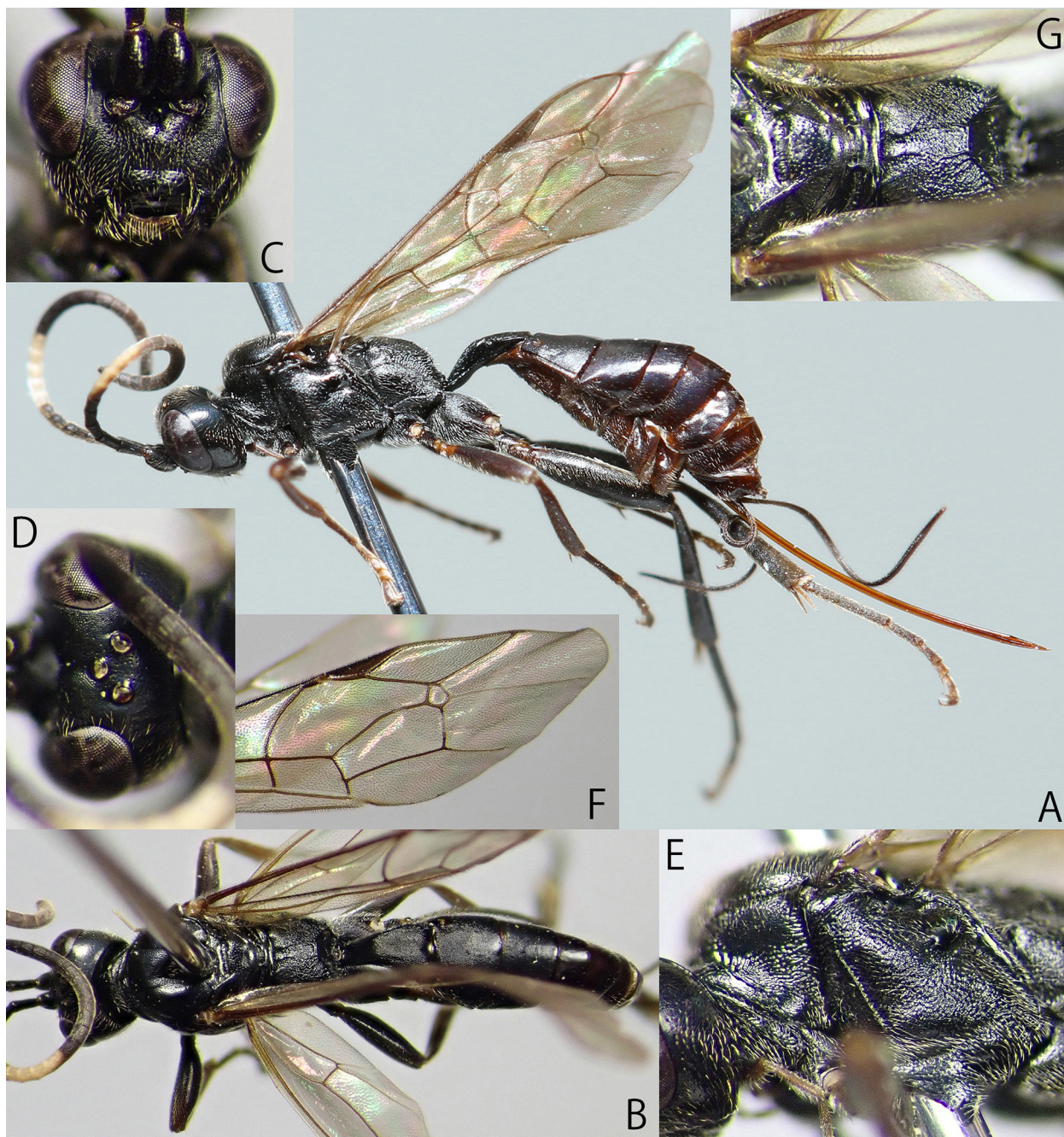


Fig. 19. *Cubocephalus confusus* sp. nov., female (holotype: KPM-NK 91383) — A: lateral habitus; B: head, mesosoma, and metasoma, dorsal view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: scutellum and propodeum, dorsal view.



leg. (MsT); KPM-NK 102967, F, ditto, 14–21. VII. 2009; KPM-NK 102968 & OMNH, 2F, ditto, 21–28. VII. 2009; KPM-NK 102969, F, ditto, 4–11. VIII. 2009; KPM-NK 102970, F, ditto, 25. VIII. – 1. IX. 2009; KPM-NK 102971 & OMNH, 2F, ditto, 1–8. IX. 2009; KPM-NK 102972, F, ditto, 8–15. IX. 2009; KPM-NK 102973, F, ditto, 15–22. IX. 2009; KPM-NK 102875, F, Toyama Pref., Toyama City, Arimine, Jyurodani, 25. VIII. – 1. IX. 2009, M. Watanabe leg. (MsT).

**Description.** Female (n = 15). Body polished; covered with setae; body length 7.0–9.0 (HT: 7.3) mm.

Head 0.6–0.65 (HT: 0.63) × as long as wide in dorsal view. Clypeus 2.05–2.1 (HT: 2.1) × as wide as long; slightly convex in lateral view; coriaceous and punctate dorsally, smooth ventrally; lower margin subtruncate in frontal view, obtuse in lateral view. Face 0.4 × as long as minimum width; matt; weakly convex medially; punctures indistinct laterally. Frons slightly concave above antennal sockets; coriaceous; sparsely punctate dorsally. POL 1.4–1.5 (HT: 1.5) × as OD. OOL 1.3–1.5 (HT: 1.5) × as OD. Gena and occiput coriaceous and finely punctate. Dorsal profile of gena rounded in dorsal view; gradually narrowing posteriorly (Fig. 19D). Occipital carina complete. Malar space 1.35–1.45 (HT: 1.35) × as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 22–23 (HT: 23) flagellomeres; not flattened and tapped. FL I 2.1–2.4 (HT: 2.4) × as long as maximum depth in lateral view, 0.95 × as long as FL II.

Mesosoma. Pronotum matt, finely rugulose. Epomia absent. Mesoscutum finely punctate with weakly coriaceous ISP. Notaulus sharp; posterior end not reaching centre of mesoscutum. Scutellum sparsely punctate; flat in lateral view. Mesopleuron finely reticulate rugulose; with conspicuous smooth area around speculum (Fig. 19E). Epicnemial carina present laterally and ventrally. Sternaulus deep in entire length of mesopleuron. Posterior transverse carina of mesosternum without deep notch and teeth. Metapleuron coriaceous; with complete juxtacoxal carina. Propodeum matt (Fig. 19G); anterior transverse carina absent (Fig. 19G); posterior transverse carina complete, inverted U-shaped (Fig. 19G); lateromedian longitudinal carina largely indistinct and trace-like; lateral longitudinal carina complete; pleural carina complete; area superomedia indistinct; apophysis absent; spiracle oval. Fore wing length 6.0–7.2 (HT: 6.4) mm. Areolet slightly longer than maximum width; as long as half-length of vein 2m-cu; width steeply narrowing anteriorly; received vein 2m-cu at near middle; anterior width shorter than half length of vein 2m-cu (Fig. 19F). Fore wing vein

1cu-a interstitial to vein M&RS. Nervellus subvertical; intercepted near posterior end of vein. Hind femur reticulate coriaceous; 4.55–5.2 (HT: 5.2) × as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma matt and coriaceous. T I 1.78–2.0 (HT: 1.78) × as long as maximum width; latero-median carina absent; dorso-lateral carina complete. Spiracle of T I behind the mid-length of T I. T II 0.75–0.8 (HT: 0.75) × as long as maximum width. Thyridium present; close to anterior margin of T II; flat to slightly depressed; ca. 2.0 × as wide as length. Ovipositor sheath 1.8–2.0 (HT: 2.0) × as long as hind tibia, 2.1–2.3 (HT: 2.1) × as long as T I. Ovipositor weakly upcurved; apex sharp and without minute teeth dorsally; apex of lower valve with teeth (Fig. 78O).

Colouration (Figs. 19A–G). Body (excluding wings) black to blackish-brown. Setae silver. Subapical part of mandible tinged with reddish-brown. Labrum reddish-brown. FL V (or VI) to FL X with white markings. Bases of femora, all tibial spurs, and fore tibia more or less tinged with brown to reddish-brown. Posterior margins of metasomal tergites sometimes narrowly tinged with reddish-brown. Postero-median membranous parts of T V to T VII white. Thyridium and ovipositor reddish-brown. Wings brownish-hyaline. Veins and pterostigma blackish-brown to brown except for yellowish wing base.

Male. Unknown.

**Distribution.** Japan (Honshu).

**Bionomics.** Unknown.

**Etymology.** The specific name is from the Latin “*confusus*”, referring to the morphological characteristics of this species is relatively obscure in the genus.

**Remarks.** This species resembles *Cu. atrator* and *Cu. asiaticus* **sp. nov.** in the entirely black legs and almost or entirely black metasomal tergites but can be distinguished by the character state of mesosternum, and the length of FL I and ovipositor sheath (see remarks of *Cu. asiaticus* and above key).

### ***Cubocephalus nanus* sp. nov.**

[New SJN: Mame-onaga-togari-himebachi]

(Figs. 20A–H, 76K, 78P)

**Type series.** **Holotype:** JAPAN, KPM-NK 91381, F, Honshu, Fukui Pref., Oono City, Koike, 31. VII. 1982, H. Kurokawa leg.

**Description.** Female (n = 1). Body polished; covered with setae; body length 5.1 mm.

Head cubic (Fig. 20A–D); 0.75 × as long as wide in dorsal view. Clypeus 3.0 × as wide as long; slightly convex in lateral view; sparsely punctate dorsally; smooth

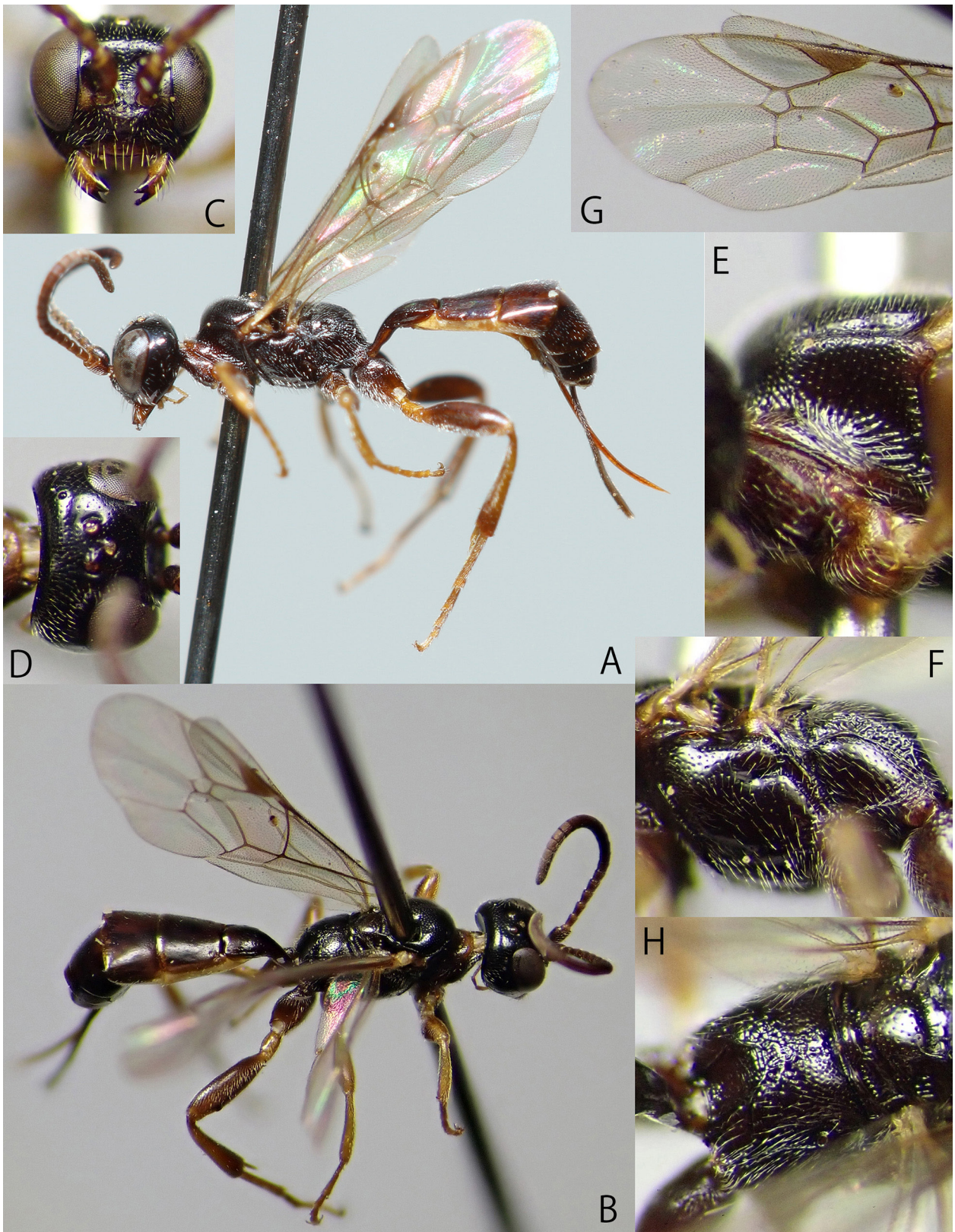


Fig. 20. *Cubocephalus nanus* **sp. nov.**, female (holotype: KPM-NK 91381) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head, dorsal view; E: pronotum, lateral view; F: mesopleuron and metapleuron, lateral view; G: fore wing; H: scutellum and propodeum, dorso-lateral view.



ventrally; lower margin subtruncate in frontal view, obtuse in lateral view. Face  $0.35 \times$  as long as minimum width; slightly convex medially; matt and sparsely punctate. Frons slightly concave above antennal sockets; punctate dorsally; ISP smooth medially, matt laterally; area above antennal sockets transversely rugose; with pair of small smooth areas between areas with punctures and transverse rugae. POL  $1.6 \times$  as OD. OOL  $1.6 \times$  as OD. Gena and occiput densely punctate. Dorsal profile of gena rounded in dorsal view; width gradually narrowing anteriorly and somewhat abruptly narrowing posteriorly (Fig. 20D). Occipital carina complete. Malar space  $0.5 \times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 20 flagellomeres; not flattened and tapped. FL I  $1.25 \times$  as long as maximum depth in lateral view,  $0.75 \times$  as long as FL II.

Mesosoma. Pronotum rugose ventrally; punctate dorsally (Fig. 20F). Epomia absent (Fig. 20F). Mesoscutum punctate. Notaulus short and weak. Scutellum punctate; flat in lateral view. Mesopleuron sparsely to moderately punctate; with conspicuous smooth area around speculum (Fig. 20F). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.3 of mesopleuron. Posterior transverse carina of mesosternum without deep notch and teeth. Metapleuron sparsely punctate (Fig. 20F); with complete juxtacoxal carina. Propodeum punctate; anterior transverse carina absent; posterior transverse carina complete, inverted U-shaped (Fig. 20H); lateromedian longitudinal carina absent; lateral longitudinal carina absent; pleural carina complete; area superomedia indistinct; apophysis absent; spiracle round. Fore wing length 4.25 mm. Areolet as long as maximum width; longer than half length of vein 2m-cu; width steeply narrowing anteriorly; received vein 2m-cu at near middle; anterior width as long as half-length of vein 2m-cu (Fig. 20G). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 20G). Nervellus subvertical; intercepted near posterior end of vein. Hind femur reticulate coriaceous;  $3.6 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma finely coriaceous. T I  $1.9 \times$  as long as maximum width; latero-median carina absent; dorso-lateral carina complete. Spiracle of T I behind the mid-length of T I. T II  $0.73 \times$  as long as maximum width; finely and sparsely punctate. Thyridium present; close to anterior margin of T II; slightly depressed; ca.  $2.0 \times$  as wide as length. Ovipositor sheath  $1.3 \times$  as long as hind tibia,  $1.8 \times$  as long as T I. Ovipositor strongly upcurved; apex sharp and without minute teeth dorsally; apex of lower valve with teeth (Fig. 78P).

Colouration (Figs. 20A–H). Body (excluding wings)

black to blackish-brown. Setae silver. Mandible except for teeth, tegula, and membranous part of metasomal sternites yellowish-brown. Clypeus, face, ventral surface of antenna, metasomal tergites more or less tinged with brown. Face with pair of yellowish-brown spots between antennal sockets and eye. Flagellum without white marking. Fore and mid legs yellowish-brown (coxae slightly darkened). Hind trochanter, trochantellus, tibia except for apical part, tibial spurs, and tarsus brown. Ovipositor reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish wing base.

Male. Unknown.

**Distribution.** Japan (Honshu).

**Bionomics.** Unknown.

**Etymology.** The specific name is from Latin “*nanus*”, which means the dwarf.

**Remarks.** This species resembles *Cu. nigriventris* in the small body with cubic head, robust antenna, and strongly upcurved ovipositor but can be distinguished by the colouration of legs and the length of the ovipositor (see above key).

***Cubocephalus sapporensis* sp. nov.**

[New SJN: Sapporo-onaga-togari-himebachi]

(Figs. 21A–G, 76P, 78Q)

**Type series. Holotype:** JAPAN, KPM-NK 91382, F, Hokkaido, Sapporo City, Mt. Maruyama, 29. VII. 2009, K. Watanabe leg.

**Description.** Female ( $n = 1$ ). Body matt; covered with setae; body length 12.4 mm.

Head  $0.63 \times$  as long as wide in dorsal view. Clypeus  $2.0 \times$  as wide as long; slightly convex in lateral view; coriaceous and densely punctate dorsally, sparsely punctate with some transverse foveae ventrally; lower margin subtruncate in frontal view, obtuse in lateral view. Face  $0.4 \times$  as long as minimum width; weakly convex and densely punctate medially. Frons slightly concave above antennal sockets; densely punctate except for smooth areas above antennal sockets. POL  $1.5 \times$  as OD. OOL  $1.5 \times$  as OD. Gena and occiput finely and densely punctate. Dorsal profile of gena rounded in dorsal view; width gradually narrowing posteriorly (Fig. 21D). Occipital carina complete. Malar space  $1.2 \times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 25 flagellomeres; not flattened and tapped. FL I  $3.15 \times$  as long as maximum depth in lateral view,  $1.1 \times$  as long as FL II.

Mesosoma. Pronotum rugose ventrally; rugulose dorsally. Epomia short; dorsal end situated slightly



Fig. 21. *Cubocephalus sapporensis* **sp. nov.**, female (holotype: KPM-NK 91382) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, latero-frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: scutellum, propodeum, and basal part of T I, dorso-lateral view.



above collar. Mesoscutum densely punctate. Notaulus sharp; posterior end not reaching centre of mesoscutum. Scutellum punctate; flat in lateral view. Mesopleuron finely and irregularly rugulose; with conspicuous smooth area around speculum (Fig. 21E). Epicnemial carina present laterally and ventrally. Sternaulus deep in entire length of mesopleuron. Posterior transverse carina of mesosternum without deep notch and teeth. Metapleuron reticulate coriaceous anteriorly, rugulose posteriorly; with complete (but weak medially) juxtacoxal carina. Propodeum rugulose to rugose; anterior transverse carina slightly present as trace-like; posterior transverse carina complete, inverted V-shaped (Fig. 21G); lateromedian longitudinal carina complete but entirely weak; lateral longitudinal carina complete; pleural carina complete; area superomedia partly defined, longer than wide; apophysis absent; spiracle oval. Fore wing length 8.5 mm. Areolet as long as maximum width; as long as half-length of vein 2m-cu; width steeply narrowing anteriorly; received vein 2m-cu at near middle; anterior width shorter than half length of vein 2m-cu (Fig. 21F). Fore wing vein 1cu-a interstitial to vein M&RS. Nervellus subvertical; intercepted near posterior end of vein. Hind femur reticulate coriaceous;  $4.6 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I  $2.2 \times$  as long as maximum width; lateromedian carina absent; dorso-lateral carina absent. Spiracle of T I behind the mid-length of T I; base convex (Fig. 21G). T II  $0.85 \times$  as long as maximum width. Thyridium present; close to anterior margin of T II; slightly depressed; ca.  $2.0 \times$  as wide as length. Ovipositor sheath  $1.65 \times$  as long as hind tibia,  $3.15 \times$  as long as T I. Ovipositor weakly upcurved; apex sharp and without minute teeth dorsally; apex of lower valve with many (more than 16) teeth (Fig. 78Q).

Colouration (Figs. 21A–G). Body (excluding wings) black to blackish-brown. Setae silver. Subapical part of mandible, lateral sides of clypeus, ventral surface of apical part of flagellum, and postero-dorsal corner of pronotum tinged with reddish-brown. FL V to FL XI with white markings. T II and T III largely tinged with dark reddish-brown. Membranous part of metasomal sternites yellowish-brown. Trochanters, trochantelli, bases of femora, fore femur, fore tibia, fore and mid femora, and fore tibial spurs partly tinged with brown. Median membranous part of T VII white. Thyridium and ovipositor reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish wing base.

**Distribution.** Japan (Hokkaido).

**Bionomics.** Unknown.

**Etymology.** The species name is from the type locality, Sapporo, a city in Hokkaido.

**Remarks.** This species resembles *Cu. atrator* and *C. uryuensis* **sp. nov.** in the largely black body colouration but can be distinguished by the short ovipositor sheath (see above key).

***Cubocephalus uryuensis* sp. nov.**

[New SJN: Uryu-onaga-togari-himebachi]

(Figs. 22A–I, 76Q, 77B, 78R)

**Type series.** **Holotype:** JAPAN, KPM-NK 75809, F, Hokkaido, Horokanai Town, Uryu, Research Forest of Hokkaido University, 17. VII. 2012, M. Ito leg. **Paratype:** JAPAN, KPM-NK 75810, F, same locality of holotype, 11–17. VII. 2012, K. Watanabe *et al.* leg. (MsT).

**Description.** Female (n = 2). Body matt; covered with setae; body length 9.0–9.3 (HT: 9.3) mm.

Head  $0.63\text{--}0.65$  (HT:  $0.65$ )  $\times$  as long as wide in dorsal view. Clypeus  $2.0 \times$  as wide as long; slightly convex in lateral view; densely punctate dorsally; sparsely punctate with some transverse foveae ventrally; smooth along lower margin; lower margin subtruncate in frontal view, obtuse in lateral view. Face  $0.45\text{--}0.48$  (HT:  $0.45$ )  $\times$  as long as minimum width; slightly convex and densely punctate medially. Frons slightly concave above antennal sockets; densely punctate except for smooth areas above antennal sockets. POL  $0.9 \times$  as OD. OOL  $1.2\text{--}1.25$  (HT:  $1.2$ )  $\times$  as OD. Gena and occiput densely and finely punctate. Dorsal profile of gena rounded in dorsal view; width gradually narrowing posteriorly (Fig. 22D). Occipital carina complete. Malar space  $0.9\text{--}1.0$  (HT:  $0.9$ )  $\times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 25–26 (HT: 25) flagellomeres; not flattened and tapped. FL I  $5.0\text{--}5.15$  (HT:  $5.0$ )  $\times$  as long as maximum depth in lateral view,  $1.0\text{--}1.05$  (HT:  $1.0$ )  $\times$  as long as FL II.

Mesosoma. Pronotum granulate and partly finely rugulose (Fig. 22E). Epomia short; dorsal end situated slightly above collar. Mesoscutum densely punctate; punctures on median part denser than outer parts. Notaulus sharp (Fig. 22E); posterior end not reaching centre of mesoscutum. Scutellum densely punctate (Fig. 22G); weakly convex in lateral view. Mesopleuron coriaceous; with conspicuous smooth area around speculum (Fig. 22F). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior  $0.6$  of mesopleuron. Posterior transverse carina of mesosternum without deep notch and teeth (Fig. 77B). Metapleuron coriaceous (Fig. 22F); with complete juxtacoxal carina. Propodeum coriaceous; anterior transverse carina absent; posterior transverse carina complete, inverted U-shaped (Fig. 22G); lateromedian



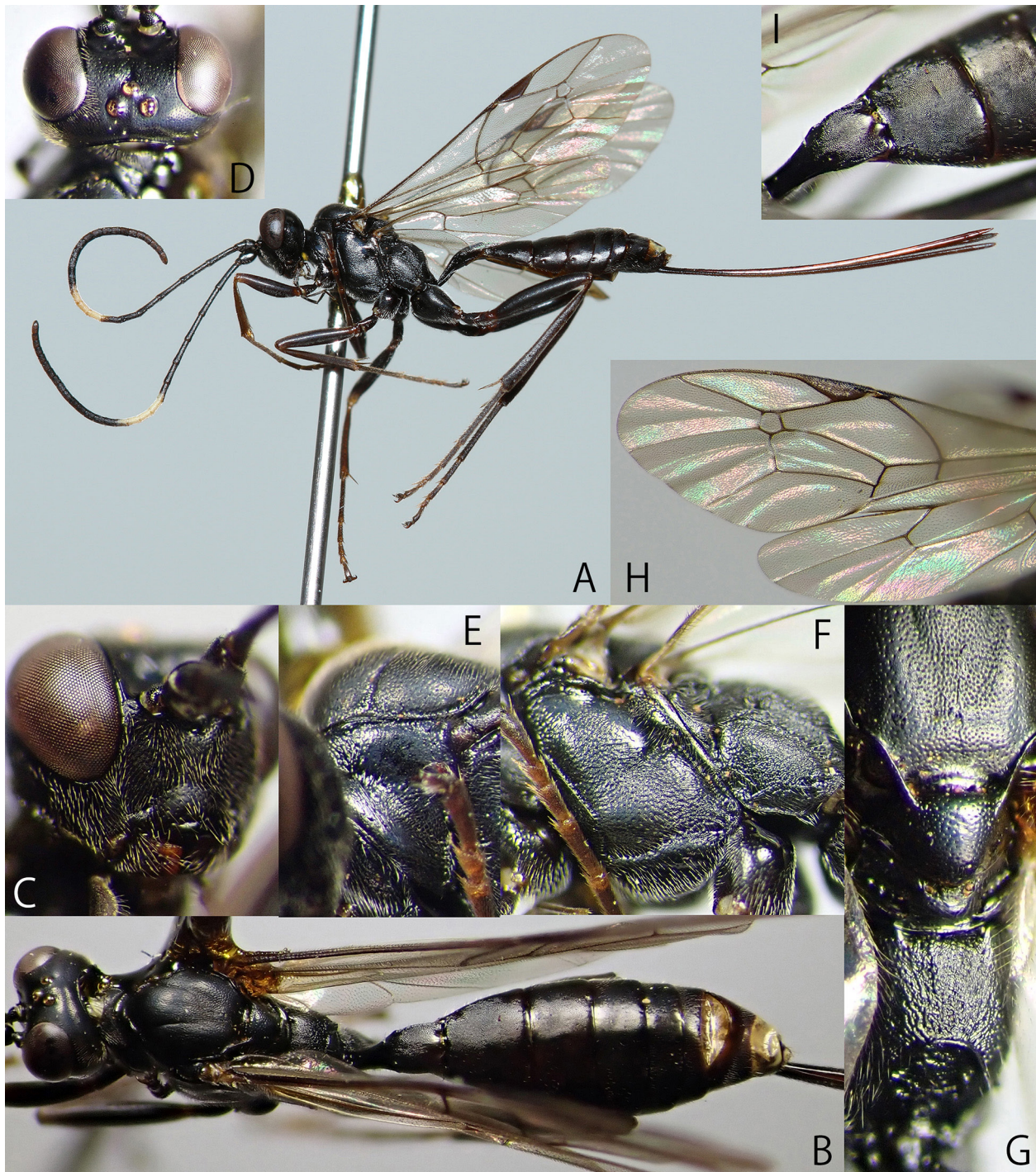


Fig. 22. *Cubocephalus uryuensis* **sp. nov.**, female (holotype: KPM-NK 75809) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, latero-frontal view; D: head, dorsal view; E: pronotum, lateral view; F: mesopleuron and metapleuron, lateral view; G: mesoscutum, scutellum and propodeum, dorso-lateral view; H: fore wing; I: T I and T II, dorsal view.

longitudinal carina absent; lateral longitudinal carina weakly present and narrowly indistinct posteriorly; pleural carina weakly present and narrowly indistinct posteriorly; area superomedia indistinct; apophysis absent; spiracle oval. Fore wing length 8.0 mm. Areolet as long as maximum width; longer than half length of vein 2m-cu; width steeply narrowing anteriorly; received vein 2m-cu at near middle; anterior width shorter than half length of vein 2m-cu. Fore wing vein 1cu-a interstitial to vein M&RS. Nervellus subvertical; intercepted near posterior end of vein. Hind

femur reticulate coriaceous; 5.3–5.6 (HT: 5.6)  $\times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I 2.1–2.3 (HT: 2.3)  $\times$  as long as maximum width; latero-median carina absent; dorso-lateral carina present basally. Spiracle of T I behind the mid-length of T I. T II 0.75  $\times$  as long as maximum width. Thyridium present; close to anterior margin of T II; slightly depressed; ca. 2.0  $\times$  as wide as length. Ovipositor sheath 2.43–2.55 (HT: 2.43)  $\times$  as long as hind tibia, 5.55–5.65 (HT: 5.55)  $\times$  as long as T I. Ovipositor weakly upcurved; apex sharp and



with some minute teeth dorsally; apex of lower valve with teeth (Fig. 78R).

Colouration (Figs. 22A–I). Body (excluding wings) black to blackish-brown. Setae silver. Subapical part of mandible tinged with reddish-brown. FL VI to FL X (or XI) with white markings. Apex and base of femora narrowly tinged with brown to reddish-brown. Fore and mid tibiae and tarsi partly tinged with brown. Tibial spurs brown. Membranous part of metasoma sternites dark yellowish-brown. Median membranous part of T VII white. Thyridium and ovipositor reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish wing base.

Male. Unknown.

**Distribution.** Japan (Hokkaido).

**Bionomics.** Unknown.

**Etymology.** The species name is from the type locality, Uryu, a place in Hokkaido with the research forest of Hokkaido University.

**Remarks.** This species resembles *Cu. atrator* in the black body with long ovipositor but can be distinguished by the posterior transverse carina of mesosternum without deep notch and teeth (with deep notch and teeth in *Cu. atrator*).

### Genus *Giraudia* Förster, 1869

*Giraudia* Förster, 1869: 184. Type species: *Cryptus congruens* Gravenhorst, 1829 (= *Ichneumon gyratorius* Thunberg, 1824). Designated by Ashmead (1900).

*Calocryptus* Thomson, 1873: 521. Type species: *Cryptus congruens* Gravenhorst, 1829 (= *Ichneumon gyratorius* Thunberg, 1824). Monotypic.

*Pseudocryptus* Kriechbaumer, 1893: 120. Type species: *Cryptus griseus* Gravenhorst, 1829. Monotypic.

In Japan, three species, *Gi. japonica*, *Gi. spinosa* Uchida, 1936, and *Gi. teranishii* Uchida, 1930, have been recorded. In this study, I newly describe two new species below.

### Key to Japanese species of *Giraudia*

(Males of *Gi. nana* **sp. nov.** and *Gi. kurenai* **sp. nov.** are unknown.)

1. Scutellum without yellow spot (Figs. 26B, H, 27B, 28B, H, 29B). Metasoma and legs largely black in female (Figs. 26B, 28B). Dorsal face of tibiae with robust, large (especially in *Gi. spinosa*), conspicuous setae (Figs. 26G, 28G).

..... 2  
-. Scutellum with yellow spot (Figs. 23B, E, 24, B, G,

25B, H). Metasoma and legs sometimes with reddish or yellowish area(s) in female (Figs. 24A, B). Dorsal face of tibiae with or without robust, large, conspicuous setae.

..... 3  
2. Body lustre dull (Figs. 26A, E, 27A, E). ISP of mesopleuron and metapleuron not polished (Fig. 26E). Malar space  $0.7\text{--}0.75 \times$  as long as basal width of mandible. Robust and large setae on hind tibia strong in female (Fig. 26G). Clypeus and mandible largely blackish-brown to reddish-brown in male (Fig. 27C). Hind tarsus without ivory band in male (Fig. 27A)

..... *Giraudia spinosa* Uchida, 1936  
-. Body lustre strong (Figs. 28A, E). ISP of punctures of mesopleuron and metapleuron polished (Fig. 28E). Malar space  $0.55\text{--}0.7 \times$  as long as basal width of mandible. Robust and large setae on hind tibia weak in female (Fig. 28G). Clypeus and mandible largely yellow in male (Fig. 29C). Hind tarsus with ivory band in male (Figs. 29A, B).

..... *Giraudia teranishii* Uchida, 1930  
3. Propodeum matt (Fig. 23E). Body length longer than 9.0 mm. Dorsal face of tibiae with robust, large, conspicuous setae.

..... *Giraudia japonica* Watanabe, 2019  
-. Propodeum polished (Figs. 24G, 25H). Body length shorter than 8.0 mm. Dorsal face of tibiae without robust, large, conspicuous setae (Fig. 25G).

..... 4  
3. T I and T II reddish yellow except for base of T I white (Fig. 24A). Coxae whitish yellow to reddish yellow (Fig. 24A). Propodeal carinae complete (Fig. 24G). Anterior tentorial pit large. Lower tooth of mandible shorter than upper tooth.

..... *Giraudia kurenai* **sp. nov.**  
-. Metasomal tergites and coxae black (Fig. 25A). Propodeal carinae absent anteriorly (Fig. 25H). Anterior tentorial pit small. Lower tooth of mandible longer than upper tooth.

..... *Giraudia nana* **sp. nov.**

### *Giraudia japonica* Watanabe, 2019

[SJN: Kimon-kuro-chibi-togari-himebachi]

(Figs. 23A–E)

*Giraudia japonica* Watanabe, 2019: 82.

**Materials examined. JAPAN:** [Honshu] KPM-NK 69947, F (paratype), Nagano Pref., Karuizawa, 8. VIII. 1952, R. Ishikawa leg.; KPM-NK 103012, F, Nagano Pref., Ueda City, Sugadaira-kogen, 19. X. – 16. XI. 2014, S. Shimizu leg. (MsT); KPM-NK 103017, M, Nagano Pref., Outaki Vil., Mt. Ontake-san, Hakkaisan, 3. VIII. 2019,



Fig. 23. *Giraudia japonica* Watanabe, 2019, males (A, C–E: KPM-NK 103017; B: KPM-NK 103015) — A: lateral habitus; B: dorsal habitus; C: head, frontal view; D: flagellum and tyloids; E: scutellum and propodeum, dorsal view.

H. Kawai leg.; KPM-NK 69946, F (holotype), **JAPAN**, Tochigi Pref., Nasushiobara City, Amayu - Shiobara, 12. X. 2009, E. Katayama leg.; KPM-NK 103015, M, Tochigi Pref., Nasu Town, Nasu-kogen, 26. VIII. 1991, H. Suda leg.; KPM-NK 103013, M, Toyama Pref., Toyama City, Arimine, Jyurodani, 16–25. VIII. 2009, M. Watanabe leg. (MsT); KPM-NK 103014, F, Toyama Pref., Toyama City, Arimine, Inone-dani, 25. VIII. – 1. IX. 2009, M. Watanabe leg. (MsT); KPM-NK 103016, M, ditto, 4–11. VIII. 2009; OMNH, M, ditto, 16–25. VIII. 2009; OMNH, F, ditto, 1–8. IX. 2009.

**Description.** Female ( $n = 5$ ). See Watanabe (2019).

Male ( $n = 5$ ). Similar to female (Figs. 23A–E). Body

length 9.9–12.4 mm. Face  $4.0\text{--}4.5 \times$  as long as minimum width. Malar space  $0.5\text{--}0.55 \times$  as long as basal width of mandible. Antenna with 22–24 flagellomeres; not flattened and tapped; with tyloids on FL XII (or XIII) to FL XIV (or XV) (Fig. 23D). FL I  $2.45\text{--}2.55 \times$  as long as maximum depth in lateral view,  $1.1\text{--}1.15 \times$  as long as FL II. Fore wing length 9.0–10.7 mm. Hind femur  $5.75\text{--}6.2 \times$  as long as maximum depth in lateral view. FL VIII to FL XV sometimes with white markings. Face, clypeus, mandible, frontal orbit, gena, collar, postero-dorsal corner of pronotum, tegula, and median spot of mesoscutum yellow. Fore and mid legs largely tinged with yellowish-brown.



Dorsal part of metapleuron, propodeum except for base, hind trochantellus, T I, and T II each with reddish-yellow part. Reddish-yellow areas of mesosoma and metasomal tergites sometimes enlarged. Basal part of antenna, occiput, mesoscutum, and mesopleuron sometimes each with reddish-brown area.

**Distribution.** Japan (Honshu).

**Bionomics.** Unknown.

**Remarks.** This is the first record of the male of this species.

***Giraudia kurenai* sp. nov.**

[New SJN: Kurenai-togari-himebachi]

(Figs. 24A–G, 78S)

**Type series.** **Holotype:** JAPAN, KPM-NK 91387, F, Honshu, Toyama Pref., Nanto City, Togamura-

kamimomose, 19–29. IX. 2009, M. Watanabe leg. (MsT).

**Paratype:** JAPAN, KPM-NK 84969, F, Honshu, Fukui Pref., Izumi Vil., Kadonomaesaka, 18. X. 1981, H. Kurokawa leg.

**Description.** Female (n = 2). Body punctate and polished; covered with setae; body length 6.6–6.8 (HT: 6.8) mm.

Head  $0.6 \times$  as long as wide in dorsal view. Clypeus  $2.1\text{--}2.35$  (HT: 2.35)  $\times$  as wide as long; slightly convex in lateral view; sparsely punctate dorsally; smooth ventrally; lower margin weakly rounded in frontal view, obtuse in lateral view. Face  $0.38\text{--}0.4$  (HT: 0.38)  $\times$  as long as minimum width; weakly convex medially; matt; sparsely punctate. Anterior tentorial pit large. Frons weakly concave above antennal sockets; matt and punctate dorsally, coriaceous to smooth ventrally except for finely rugose medially. POL  $0.9 \times$  as OD. OOL  $1.25\text{--}1.6 \times$  as OD. Gena and occiput



Fig. 24. *Giraudia kurenai* sp. nov., female (holotype: KPM-NK 91387) — A: lateral habitus; B: head, mesosoma, and metasoma, dorsal view; C: head, frontal view; D: head and mesoscutum, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: scutellum and propodeum, dorsal view.

finely punctate. Dorsal profile of gena rounded in dorsal view; width gradually narrowing posteriorly (Fig. 24D). Occipital carina complete. Malar space 1.05–1.2 (HT: 1.2)  $\times$  as long as basal width of mandible. Mandible flat at base; lower tooth shorter than upper tooth. Antenna with 24–25 (HT: 25) flagellomeres; apical part flattened below and tapped to slender apex (Fig. 24A). FL I 2.2–3.0 (HT: 2.2)  $\times$  as long as maximum depth in lateral view, 0.9–1.0 (HT: 1.0)  $\times$  as long as FL II.

Mesosoma finely punctate. Pronotum foveolate ventrally, smooth dorsally except for dorsal margin (Fig. 24E). Epomia long; dorsal end closed to dorsal margin of pronotum. Mesoscutum with short and sharp notaulus (Fig. 24D). Scutellum punctate anteriorly, smooth posteriorly; weakly convex in lateral view. Mesopleuron with small conspicuous smooth area around speculum (Fig. 24E). Epicnemial carina present laterally and ventrally. Sternaulus deep entire length of mesopleuron. Metapleuron sparsely and finely punctate; with complete juxtacoxal carina. Propodeum finely and sparsely punctate; ISP smooth; with all carinae (Fig. 24G); area superomedia clearly defined, 1.5  $\times$  as long as maximum width; apophysis small and obtuse; spiracle oval. Fore wing length 5.0–5.1 (HT: 5.0) mm. Areolet shorter than maximum width; width slightly narrowing anteriorly; received vein 2m-cu basal than middle (Fig. 24F). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 24F). Nervellus inclivous; intercepted near posterior end of vein. Hind femur reticulate coriaceous; 5.0–5.1 (HT: 5.0)  $\times$  as long as maximum depth in lateral view. Dorsal face of tibiae without robust, large, conspicuous setae. Tarsal claws simple.

Metasoma finely and densely punctate; ISP smooth. T I 3.8–5.1 (HT: 5.1)  $\times$  as long as maximum width, sparsely punctate; latero-median carina absent; dorso-lateral carina weakly and partly present. T II 0.9–0.95  $\times$  as long as maximum width. Thyridium present; close to anterior margin of T II; slightly depressed; ca. 1.0  $\times$  as wide as length. Ovipositor sheath 0.8–1.05 (HT: 1.05)  $\times$  as long as hind tibia, 1.5–1.9 (HT: 1.9)  $\times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 78S).

Colouration (Figs. 24A–G). Body (excluding wings) black to blackish-brown. Setae silver. Mandible, clypeus, and membranous part of metasomal sternites partly tinged with dark yellowish-brown except for apex of former. Median part of face slightly tinged with dark yellowish-brown. FL V (or VI) to FL X with white markings. Scutellum yellow. Postscutellum tinged with yellow to dark yellowish-brown. Subtegular ridge and tegula yellowish-brown. Legs yellowish-brown to reddish-brown;

femora, hind coxa, hind tibia, and hind tarsus sometimes darkened. Base of T I white. T I except for white base and T II red to reddish-yellow. Subapical part of T I and basal part of T II sometimes each with brownish area. T III and T IV sometimes slightly tinged with red. Median parts of T VII and T VIII white. Ovipositor reddish-brown. Wings hyaline. Veins and pterostigma yellowish-brown except for yellow wing base.

Male. Unknown.

**Distribution.** Japan (Honshu).

**Bionomics.** Unknown.

**Etymology.** The specific name is a traditional Japanese term “Kurenai”, which means red.

**Remarks.** Propodeal spiracle of the paratype is situated on the mid-length between pleural carina and lateral longitudinal carina, while the other characters of this specimen are well accorded of the character states of *Giraudia*. This species resembles *Gi. plana* (Provancher, 1874) and *Gi. nana* **sp. nov.**, in the yellow scutellum and the absence of robust, large, conspicuous setae of tibiae, but can be distinguished by the complete propodeal carinae (at least anterior transverse carina absent in *Gi. plana* and *Gi. nana*).

### *Giraudia nana* **sp. nov.**

[New SJN: Murota-togari-himebachi]

(Figs. 25A–H, 78T)

**Type series.** **Holotype:** JAPAN, KPM-NK 91388, F, Honshu, Fukui Pref., Katsuyama City, Ohara, 19. VI. 1982, T. Murota leg.

**Description.** Female (n = 1). Body punctate and polished; covered with setae; body length 7.2 mm.

Head 0.65  $\times$  as long as wide in dorsal view. Clypeus 3.8  $\times$  as wide as long; slightly convex in lateral view; transversely rugose and punctate dorsally; lower margin weakly rounded in frontal view, sharp in lateral view. Face 0.38  $\times$  as long as minimum width; weakly convex medially; matt; sparsely punctate. Anterior tentorial pit small. Frons weakly concave above antennal sockets; matt and punctate dorsally, coriaceous to smooth ventrally. POL 1.1  $\times$  as OD. OOL 1.1  $\times$  as OD. Gena and occiput densely punctate. Dorsal profile of gena rounded in dorsal view; width gradually narrowing posteriorly (Fig. 25D). Occipital carina complete. Malar space 0.8  $\times$  as long as basal width of mandible. Mandible flat at base; lower tooth longer than upper tooth. Antenna with 26 flagellomeres; apical part flattened below and tapped to slender apex (Fig. 25A). FL I 2.1  $\times$  as long as maximum depth in lateral view, 0.95  $\times$  as long as FL II.





Fig. 25. *Giraudia nana* **sp. nov.**, female (holotype: KPM-NK 91388) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: wings; G: hind tibia, lateral view; H: scutellum and propodeum, dorso-lateral view.

Mesosoma densely punctate. Epomia short; section on border of collar and pronotum present. Mesoscutum with short and weak notaulus. Scutellum punctate; weakly convex in lateral view. Mesopleuron without conspicuous smooth area around speculum (Fig. 25E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.4 of mesopleuron. Metapleuron minutely rugulose ventrally; with anterior part of juxtacoxal carina. Propodeum with long dorsal face (longer than area postero); anterior transverse carina absent (Fig.

25H); posterior transverse carina complete; lateromedian longitudinal carina absent; lateral longitudinal carina complete and weak; pleural carina complete; area supermedia not defined; apophysis absent; spiracle oval. Fore wing length 6.1 mm. Areolet as long as maximum width; width steeply narrowing anteriorly; received vein 2m-cu at near middle. Fore wing vein 1cu-a slightly antefurcal to vein M&RS (Fig. 25F). Nervellus inclivous; intercepted near posterior end of vein (Fig. 25F). Hind femur reticulate coriaceous;  $4.0 \times$  as long as maximum

depth in lateral view. Dorsal face of tibiae without robust, large, conspicuous setae (Fig. 25G). Tarsal claws simple.

Metasoma finely punctate; ISP coriaceous. T I  $2.4 \times$  as long as maximum width; latero-median carina absent; dorso-lateral carina absent. T II  $0.65 \times$  as long as maximum width. Thyridium present; close to anterior margin of T II; slightly depressed; ca.  $2.0 \times$  as wide as length. Ovipositor sheath  $0.95 \times$  as long as hind tibia,  $1.4 \times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 78T).

Colouration (Figs. 25A–H). Body (excluding wings) black to blackish-brown. Setae silver. Mandible yellowish-brown except for brown apex. Ventral part of clypeus, scape, pedicel, fore and mid coxae, trochanters, and trochantelli, postscutellum, and hind tarsus tinged with brown. Dorsal part of frons and vertex with pair of reddish-brown markings along orbits. Ventral surface of flagellum partly tinged with brown. Palpi and fore and mid tibiae, tibial spurs, and tarsi yellowish-brown. FL VI to FL XI with white markings. Scutellum yellow except for anterior part. Posterior margin of metasomal tergites narrowly tinged with reddish-brown. Thyridium and ovipositor reddish-brown. Wings hyaline. Veins and pterostigma yellowish-brown except for yellowish wing base.

Male. Unknown.

**Distribution.** Japan (Honshu).

**Bionomics.** Unknown.

**Etymology.** The specific name is from Latin “*nanus*”, which means the dwarf.

**Remarks.** This species resembles *Gi. japonica* in body coloration but can be distinguished by the polished mesosoma (matt in *Gi. japonica*), the weak notaulus (sharp and strong in *Gi. japonica*), and the small body size (large in *Gi. japonica*; see above key).

***Giraudia spinosa* Uchida, 1936**

[SJN: Niji-tsuya-togari-himebachi]

(Figs. 26A–H, 27A–E, 78U)

*Giraudia spinosa* Uchida, 1936b: 17.

**Materials examined. JAPAN:** [Hokkaido] KPM-NK 102778, F, Sobetsu City, Uokyo, Orofure-pass, 11. IX. 2014, S. Shimizu leg. [Honshu] KPM-NK 81290, F, Nagano Pref., Outaki Vil., Mt. Ontake-san, Hakkaisan, 6. VIII. 2010, K. Watanabe leg.; KPM-NK 103036, F, ditto, 18. VIII. 2014, S. Shimizu leg.; KPM-NK 103034, F, Nagano Pref., Outaki Vil., Mt. Ontake-san, Tanohara, 9. VIII. 2007, K. Watanabe leg.; KPM-NK 103037, F, Nagano Pref., Komoro City, Hishidaira, Takamine-kogen,

31. VIII. 2022, K. Watanabe leg.; KPM-NK 103035, F, Yamanashi Pref., Koushu City, Yanagisawa-toge, 5. VIII. 2008, K. Watanabe leg.; KPM-NK 103038, ditto, S. Yoshizawa leg.; KPM-NK 103039, M, Toyama Pref., Toyama City, Arimine, Inone-dani, 21–28. VII. 2009, M. Watanabe leg. (MsT). [Shikoku] SEHU, 1F (holotype), Ehime Pref., Tsuchigoya, 15. VII. 1933, Y. Sugihara leg.; SEHU, 1M (allotype), Ehime Pref., Mt. Kamegamori, 17. VII. 1933, Y. Sugihara leg.

**Description.** Female ( $n = 8$ ). Body matt; lustre dull; covered with setae; body length 7.8–11.0 mm.

Head  $0.6–0.65 \times$  as long as wide in dorsal view. Clypeus  $3.0 \times$  as wide as long; slightly convex in lateral view; transversely rugose and punctate dorsally; lower margin weakly rounded in frontal view, obtuse in lateral view. Face  $0.45 \times$  as long as minimum width; weakly convex medially; matt; punctate. Anterior tentorial pit small. Frons matt; finely punctate dorsally; weakly concave above antennal sockets; with pair of small tubercles ventrolaterally. POL  $1.1–1.3 \times$  as OD. OOL  $1.3–1.5 \times$  as OD. Gena and occiput densely punctate. Dorsal profile of gena rounded in dorsal view; width gradually narrowing posteriorly (Fig. 26D). Occipital carina complete. Malar space  $0.7–0.75 \times$  as long as basal width of mandible. Mandible flat at base; lower tooth longer than upper tooth. Antenna with 30–33 flagellomeres; apical part flattened below and tapered to slender apex (Fig. 26B). FL I  $2.0–2.25 \times$  as long as maximum depth in lateral view,  $0.9–0.95 \times$  as long as FL II.

Mesosoma densely and finely punctate (Fig. 26E). Epomia short; section on border of collar and pronotum present (Fig. 26E). Mesoscutum with short and weak notaulus. Scutellum weakly convex. Mesopleuron without conspicuous smooth area around speculum; partly covered with oblique or longitudinal fine striae (Fig. 26E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.4 of mesopleuron. Metapleuron finely and sparsely punctate; with complete or partly defined juxtacoxal carina. Propodeum sparsely and finely punctate; with long dorsal face (longer than area postero); anterior transverse carina absent (Fig. 26H); posterior transverse carina largely absent medially, weak and not sharply defined laterally (Fig. 26H); lateromedian longitudinal carina absent; lateral longitudinal carina weak and largely indistinct; pleural carina complete; area superomedia not defined; apophysis absent; spiracle oval. Fore wing length 7.0–9.8 mm. Areolet as long as maximum width; width steeply narrowing anteriorly; received vein 2m-cu received vein 2m-cu at slightly beyond to middle (Fig. 26F). Fore wing vein 1cu-a slightly antefurcal to vein M&RS (Fig.



26F). Nervellus inclivous; intercepted near posterior end of vein. Hind femur reticulate coriaceous;  $4.1\text{--}4.25 \times$  as long as maximum depth in lateral view. Dorsal face of tibiae with robust, large, conspicuous setae (Fig. 26G). Tarsal claws simple.

Metasoma finely punctate; ISP weakly coriaceous. T I  $2.25\text{--}2.9 \times$  as long as maximum width; latero-median carina absent; dorso-lateral carina absent. T II  $0.6\text{--}0.75 \times$  as long as maximum width. Thyridium present; close to anterior margin of T II; slightly depressed to flat; ca.  $2.0 \times$  as wide as length. Ovipositor sheath  $1.0\text{--}1.2 \times$  as long as hind tibia,  $1.75\text{--}1.85 \times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 78U).

Colouration (Figs. 26A–H). Body (excluding wings)

black to blackish-brown. Setae silver to pale yellowish-brown. Mandible except for base and apex, clypeus, ventral surfaces of scape and apical part of flagellum, and fore tibia and tarsus partly tinged with brown to yellowish-brown. FL VI to FL X (or XI) with white markings. Posterior margin of metasomal tergites sometimes narrowly tinged with reddish-brown. Thyridium and ovipositor reddish-brown. Wings slightly brownish-hyaline. Veins and pterostigma blackish-brown except for brown wing base.

Male ( $n=2$ ). Similar to female (Figs. 27A–E). Body length 11.6 mm (in KPM-NK 103039). Head  $0.55 \times$  as long as wide in dorsal view. Clypeus  $3.4 \times$  as long as wide. OOL and POL  $1.0 \times$  as OD, respectively. Face  $0.5 \times$  as long as minimum width. Malar space  $0.3 \times$  as long as basal

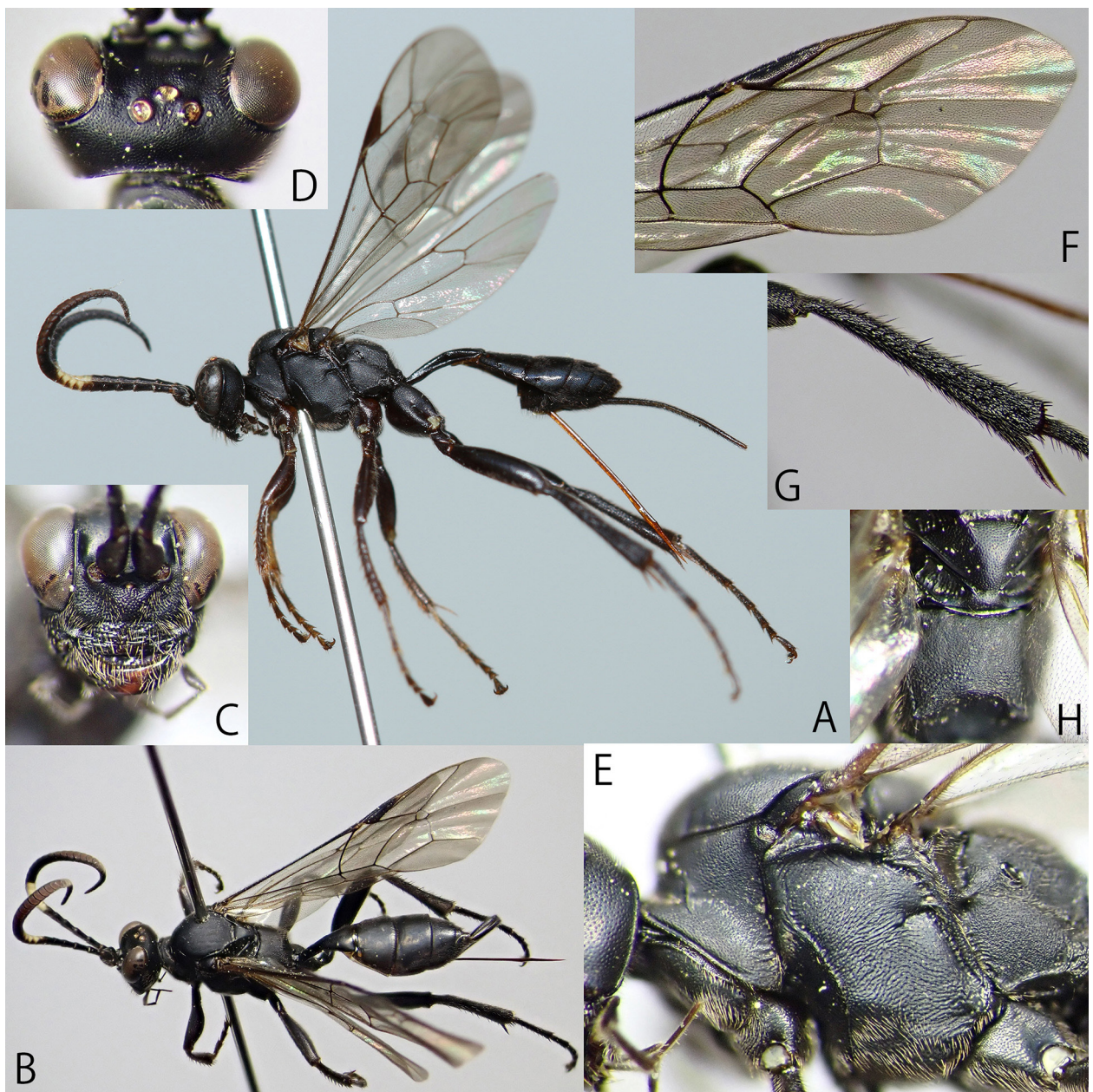


Fig. 26. *Giraudia spinosa* Uchida, 1936, females (A: KPM-NK 81290; B–H: KPM-NK 103037) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: hind tibia, lateral view; H: scutellum and propodeum, dorsal view.



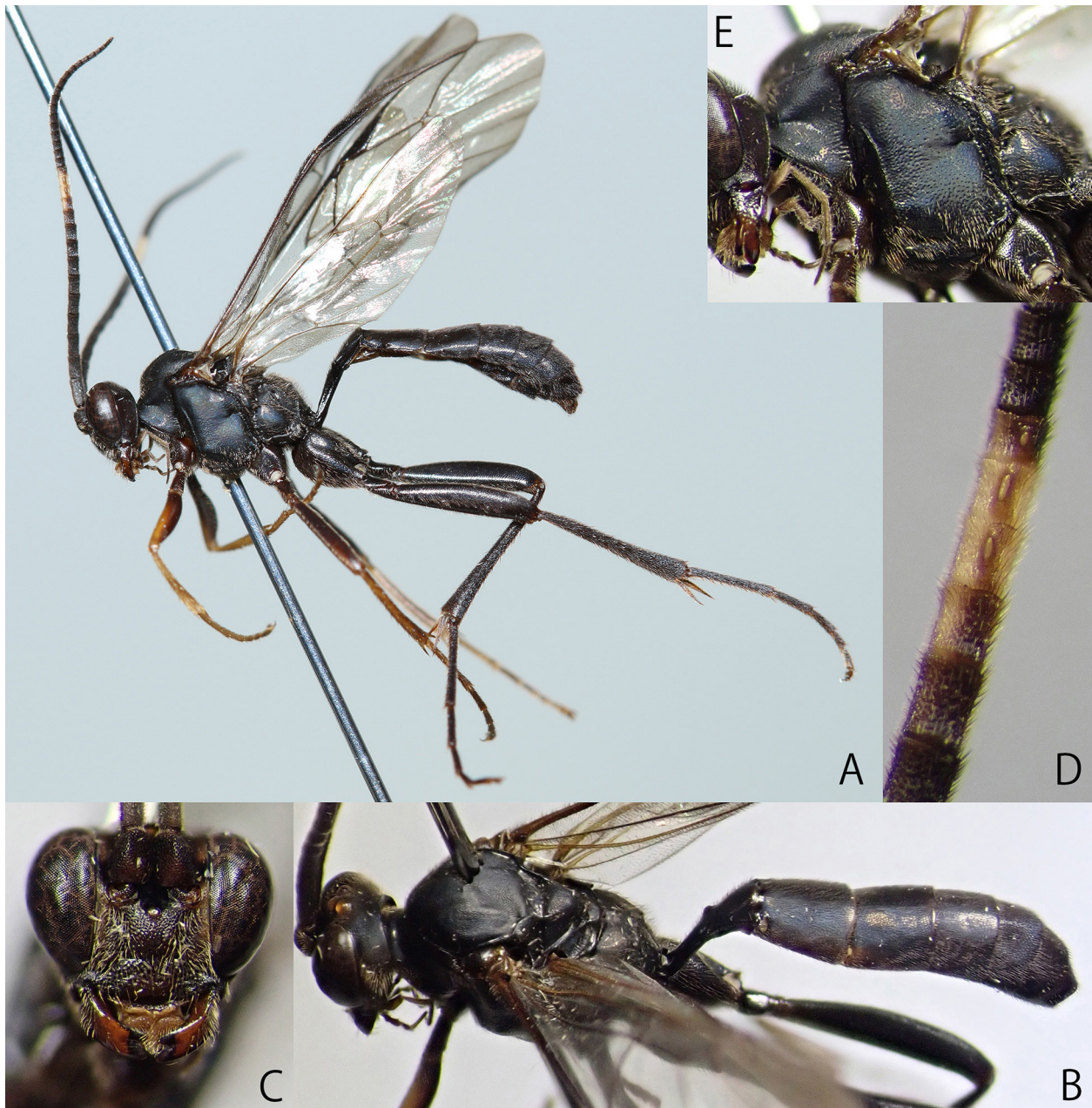


Fig. 27. *Giraudia spinosa* Uchida, 1936, male (KPM-NK 103039) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: flagellum and tyloids; E: mesosoma, lateral view.

width of mandible. Antenna not flattened below and tapered to slender apex; with tyloids on FL XII to FL XIV (Fig. 27D). FL I  $2.7 \times$  as long as maximum depth in lateral view,  $1.35 \times$  as long as FL II. Posterior transverse carina and lateral longitudinal carina of propodeum complete. Hind femur  $5.5 \times$  as long as maximum depth in lateral view. T II  $1.0 \times$  as long as maximum width. Facial and frontal orbits tinged with yellowish-brown. FL XI to FL XIV with white markings. Palpi yellowish-brown.

**Distribution.** Japan (Hokkaido, Honshu, and Shikoku).

**Bionomics.** Unknown.

#### *Giraudia teranishii* Uchida, 1930

[SJN: Teranishi-kuro-chibi-togari-himebachi]

(Figs. 28A–H, 29A–E, 78V)

*Giraudia teranishii* Uchida, 1930: 328.

**Materials examined. JAPAN:** [Honshu] KPM-NK 103033, M, Tochigi Pref., Nasu, Yumoto, 21–22. V. 1958, R. & F. Ishikawa leg.; KPM-NK 103032, F, Nagano Pref., Ueda City, Sugadaira-kogen, 22. VII. – 8. VIII. 2014, S. Shimizu leg. (MsT); KPM-NK 103030, F, Yamanashi Pref., Hokuto City, Masutomi, Biwakubo-sawa, 24. VI. 2007, H. Katahira leg.; KPM-NK 103027, ditto, 28. VII.



2007, K. Watanabe leg.; KPM-NK 103028, F, Toyama Pref., Toyama City, Kamegai, 14–21. VII. 2009, M. Watanabe leg. (MsT); KPM-NK 103029, F, Toyama Pref., Toyama City, Arimine, Jyurodani, 14–21. VII. 2009, M. Watanabe leg. (MsT); KPM-NK 91386, F, Fukui Pref., Oono City, Mt. Akausagi, 13. VI. 1980, T. Murota leg.; KPM-NK 103026, F, Fukui Pref., Oono City, Arashi, 8. VIII. 1982, T. Murota leg.; KPM-NK 103031, F, Aichi Pref., Toyota City, Nutazawa, 13. VII. 2009, A. Kawazoe leg. (MsT); SEHU, 1F (holotype), Shiga Pref., Mt. Hirasano, 30. VI. 1927, C. Teranishi leg.

**Description.** Female ( $n = 9$ ). Body punctate and polished; covered with setae; body length 7.0–10.0 mm.

Head  $0.6 \times$  as long as wide in dorsal view. Clypeus  $3.0 \times$  as wide as long; slightly convex in lateral view; transversely rugose and punctate dorsally; lower margin weakly rounded in frontal view, sharp in lateral view. Face  $0.35 \times$  as long as minimum width; strongly convex medially; matt; densely punctate medially. Anterior tentorial pit small. Frons finely and densely dorsally, coriaceous laterally; weakly concave above antennal sockets. POL  $1.3\text{--}1.65 \times$  as OD. OOL  $1.2\text{--}1.6 \times$  as OD. Gena and occiput densely punctate. Dorsal profile of gena rounded in dorsal view; width gradually narrowing posteriorly (Fig. 28D). Occipital carina complete. Malar space  $0.55\text{--}0.7 \times$  as long as basal width of mandible. Mandible flat at base; lower tooth longer than upper tooth. Antenna with 28–31 flagellomeres; apical part flattened below and tapered to slender apex (Fig. 28B). FL I  $1.9\text{--}2.0 \times$  as long as maximum depth in lateral view,  $0.9 \times$  as long as FL II.

Mesosoma densely punctate (Fig. 28E). Epomia short; section on border of collar and pronotum present. Mesoscutum with short and weak notaulus. Scutellum weakly convex. Mesopleuron with small, conspicuous smooth area around speculum; sometimes partly covered with oblique or longitudinal fine striae. Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior  $0.4$  of mesopleuron. Metapleuron finely and densely punctate; juxtacoxal carina complete to largely absent. Propodeum with long dorsal face (longer than or as long as area postero); anterior transverse carina absent (Fig. 28H); posterior transverse carina largely absent latero-medially, weak and not sharply defined laterally and medially; lateromedian longitudinal carina absent; lateral longitudinal carina complete and weak; pleural carina complete; area superomedia not defined; apophysis absent; spiracle oval; some fine, transverse striae present on area along posterior transverse carina; area postero with oblique or longitudinal fine striae. Fore wing length 6.6–7.8 mm. Areolet as long

as maximum width; width steeply narrowing anteriorly; received vein 2m-cu received vein 2m-cu at middle or slightly beyond to middle (Fig. 28F). Fore wing vein 1cu-a slightly antefurcal to vein M&RS (Fig. 28F). Nervellus inclivous; intercepted near posterior end of vein. Hind femur reticulate coriaceous;  $4.0\text{--}4.5 \times$  as long as maximum depth in lateral view. Dorsal face of tibiae with robust, large, conspicuous setae (weaker than *Gi. spinosa*) (Fig. 28G). Tarsal claws simple.

Metasoma finely punctate; ISP smooth. T I  $1.9\text{--}2.4 \times$  as long as maximum width; latero-median carina absent; dorso-lateral carina absent. T II  $0.6\text{--}0.7 \times$  as long as maximum width. Thyridium present; close to anterior margin of T II; slightly depressed to flat; ca.  $2.0 \times$  as wide as length. Ovipositor sheath  $1.0\text{--}1.15 \times$  as long as hind tibia,  $1.6\text{--}1.75 \times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 28V).

Colouration (Figs. 28A–H). Body (excluding wings) black to blackish-brown. Setae silver. Mandible, ventral surface of apical part of flagellum, and fore and mid tibiae and tarsi partly tinged with brown to yellowish-brown. FL V (or VI) to FL X with white markings. Posterior margin of metasomal tergites sometimes narrowly tinged with reddish-brown. Thyridium and ovipositor reddish-brown. Wings slightly brownish-hyaline. Veins and pterostigma blackish-brown except for brown wing base.

Male ( $n = 1$ ). Similar to female (Figs. 29A–E). POL  $1.2 \times$  as OD. Face  $0.4 \times$  as long as minimum width. Antenna not flattened below and tapered to slender apex; with tyloids on FL XI to FL XVII (XVI and XVII small) (Fig. 29D). FL I  $2.55 \times$  as long as maximum depth in lateral view,  $1.3 \times$  as long as FL II. Propodeal carinae present except for lateral sides of anterior transverse carina. Area superomedia of propodeum present (Fig. 29E). Hind femur  $5.6 \times$  as long as maximum depth in lateral view. T I  $3.1 \times$  as long as maximum width. T II  $1.0 \times$  as long as maximum width. Clypeus, facial orbit, labrum, mandible except for teeth, palpi. and postero-dorsal corner of pronotum yellow. Subtegular ridge, tegula, and fore and mid coxae each with yellow marking. Tibiae reddish-brown except for apical part of hind tibia. Fore and mid tarsi except for each TS V ivory. Hind ivory on apex of TS I, TS II to IV, and basal half of TS V.

**Distribution.** Japan (Honshu).

**Bionomics.** Unknown.

**Remarks.** This is the first record of the male of this species.



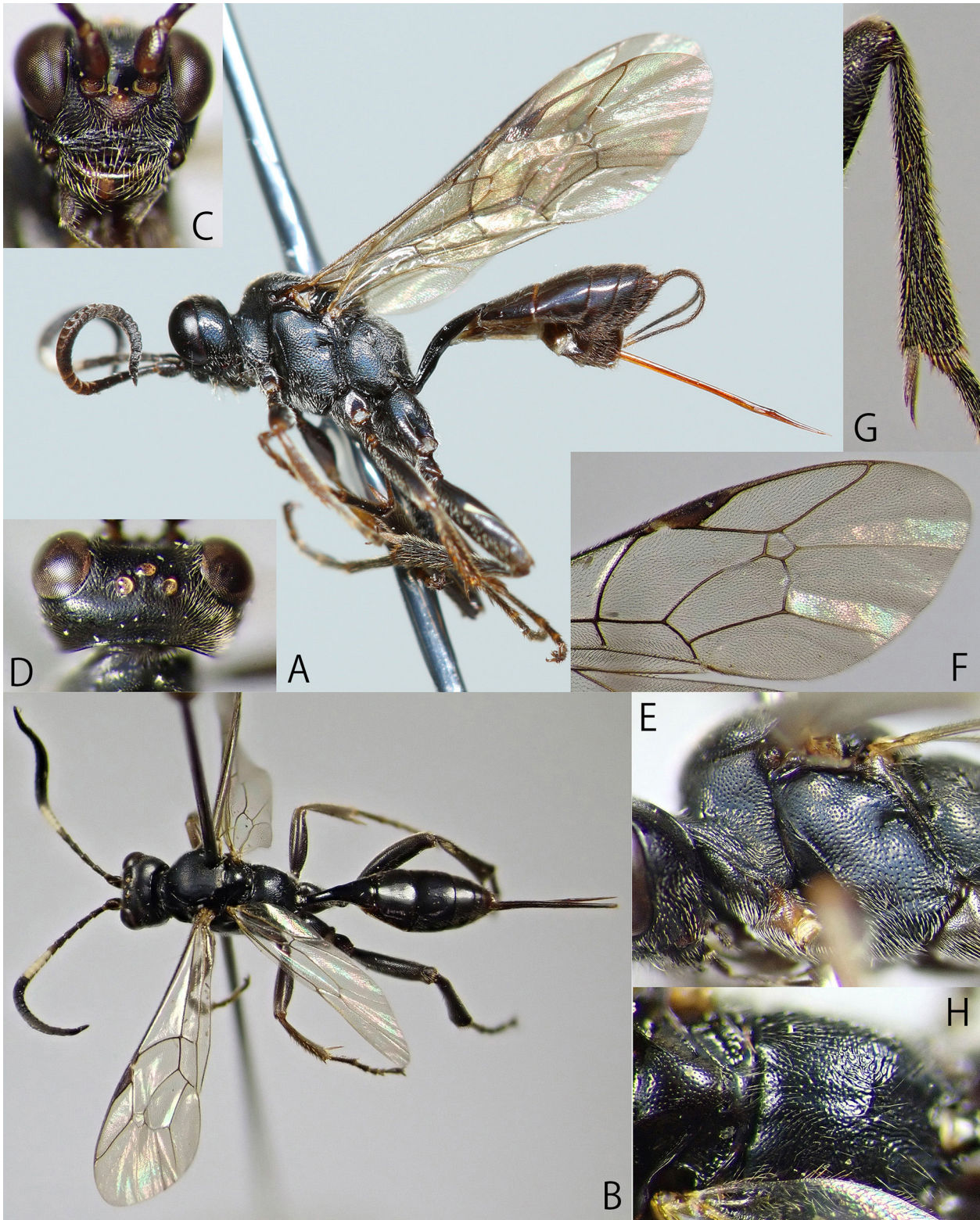


Fig. 28. *Giraudia teranishii* Uchida, 1930, females (A, G: KPM-NK 103032; B–H: KPM-NK 103027) — A: lateral habitus; B: dorsal habitus; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: hind tibia, lateral view; H: scutellum and propodeum, dorsal view.





Fig. 29. *Giraudia teranishii* Uchida, 1930, male (KPM-NK 103033) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: flagellum and tyloids; E: scutellum and propodeum, dorso-lateral view.

### Genus *Javra* Cameron, 1903

*Javra* Cameron, 1903: 47. Type species: *Javra parviceps* Cameron, 1903. Monotypic.

*Cnemocryptus* Cameron, 1903: 38. Type species: *Cnemocryptus validicornis* Cameron, 1903 (= *Javra praviceps* Cameron, 1903). Monotypic.

*Finchra* Cameron, 1907: 463. Type species: *Finchra gracilis* Cameron, 1907. Monotypic.

*Diadegma* Morley, 1908: 274. Type species: *Diadegma anomala* Morley, 1908. Monotypic. Name preoccupied.

*Monocryptus* Hellén, 1957: 135. Type species: *Cratocryptus opacus* Thomson, 1873. Monotypic.

Three species, *J. coreensis* (Uchida, 1930), *J. taniguchiae* (Uchida, 1956), and *J. teranishii* (Uchida, 1952), have been recorded from Japan. In this study, I newly describe seven new species below. *Javra* sp. A & E sensu Watanabe & Taniwaki (2018) are *J. japonica* **sp. nov.** *Javra* sp. B and

*Aptesis* sp. D sensu Watanabe & Taniwaki (2018) are *J. albotrochantellata* **sp. nov.** *Javra* sp. C sensu Watanabe & Taniwaki (2018) is *J. tenuis* **sp. nov.** *Javra* sp. D sensu Watanabe & Taniwaki (2018) is *J. minamiashigarensis* **sp. nov.** *Javra* sp. F sensu Watanabe & Taniwaki (2018) is a variation of *J. coreensis*.

### Key to Japanese species of *Javra* (female only)

1. Scutellum with conspicuous yellow to ivory marking (Figs. 32B, H, 34B, H, 37D, G). Lateral sides of areolet (= veins 2rs-m and 3rs-m) convergent anteriorly (Figs. 32F, G, 34G, 37F).

..... 2  
- Scutellum black (Figs. 30B, 31B, H, 32I, J, 33B, G, 35B, G, 36B, G) or weakly tinged with reddish-brown (Fig. 32I). Lateral sides of areolet parallel or convergent.

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2. Fore and mid coxae, trochanters, and trochantelli white (Fig. 34A). Small species: body length 4.55–4.75 mm. Mesosoma largely polished; finely and sparsely punctate with smooth ISP (Figs. 34E, F, H). T I  $2.95 \times$  as long as maximum width. Hind tarsus without white parts (Fig. 34A).

..... *Javra minuta* **sp. nov.**

-. Fore and mid coxae, trochanters, and trochantelli largely blackish brown to black (Figs. 32A, 37A). Large species: body length longer than 5.0 mm. Mesosoma largely matt (Figs. 37E, G) or densely rugulose (Figs. 32E, H). T I less than  $2.65 \times$  as long as maximum width. Hind tarsus with or without white parts.

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3. Body more or less polished (Figs. 32A, E, H). Lateral section of anterior transverse carina of propodeum indistinct (Fig. 32H). Apex of propodeal apophysis not tinged with yellow (Fig. 32H). Hind tarsus without white parts (Fig. 32A).

..... *Javra japonica* **sp. nov.** (in part)

-. Body largely matt (Figs. 37A, E, G). Lateral section of anterior transverse carina of propodeum complete (Fig. 36G). Apex of propodeal apophysis tinged with yellow (Fig. 36G). Hind tarsus with white parts (Fig. 36A).

..... *Javra teranishii* (Uchida, 1952)

4. Hind trochanter and trochantellus ivory to white (Figs. 30A, B). Lateral section of anterior transverse carina of propodeum sometimes largely indistinct (Fig. 30G). Lateral sides of areolet convergent anteriorly (Fig. 30F). Mesopleuron largely longitudinally rugulose (Fig. 30E). Ovipositor sheath  $0.85\text{--}1.1 \times$  as long as hind tibia.

..... *Javra albotrochantellata* **sp. nov.**

-. Hind trochanter and trochantellus blackish-brown to black (Figs. 31A, B, 32A, 33A, 35A, 36A, B). Other character states various.

..... 5

5. Hind tarsus with white parts (Figs. 31A, 36A). FL I more than  $4.6 \times$  as long as maximum depth in lateral view. Ovipositor sheath more than  $1.15 \times$  as long as hind tibia. Body relatively slender and larger: length more than 8.0 mm.

..... 6

-. Hind tarsus entirely black (Figs. 32A, 33A, 35A). FL I less than  $4.5 \times$  as long as maximum depth in lateral view except for some specimens of *J. japonica* **sp. nov.** Ovipositor sheath with various length. Body relatively robust and smaller: length less than 8.5 mm.

..... 7

6. Areolet slightly longer than wide; lateral sides convergent anteriorly (Fig. 31G). Mesoscutum matt. Malar space  $1.1\text{--}1.2 \times$  as long as basal width of mandible. T I  $2.0\text{--}2.2 \times$  as long as maximum width.

..... *Javra gigantea* **sp. nov.**

-. Areolet slightly wider than long; lateral sides parallel (Fig. 36F). Mesoscutum polished (Fig. 36D). Malar space  $0.8\text{--}0.9 \times$  as long as basal width of mandible. T I  $2.5\text{--}2.65 \times$  as long as maximum width.

..... *Javra tenuis* **sp. nov.**

7. Ovipositor sheath  $1.43 \times$  as long as hind tibia. Base of hind tibia white (Figs. 35A, B).

..... *Javra taniguchiae* (Uchida, 1956)

-. Ovipositor sheath less than  $1.1 \times$  as long as hind tibia. Hind tibia entirely black or sometimes with a white base in *J. japonica* **sp. nov.**

..... 8

8. Ovipositor sheath  $0.95 \times$  as long as hind tibia. T I  $1.8 \times$  as long as maximum width.

..... *Javra minamiashigarensis* **sp. nov.**

-. Ovipositor sheath at most  $1.0 \times$  as long as hind tibia. T I longer than  $2.45 \times$  as long as maximum width.

..... 9

9. Ovipositor sheath  $0.65\text{--}0.8 \times$  as long as hind tibia. Lateral section of anterior transverse carina of propodeum complete or partly present. Lateral sides of areolet parallel or convergent. Apex of metasoma without conspicuous white area. Base of hind tibia always black.

..... *Javra coreensis* (Uchida, 1930)

-. Ovipositor sheath  $0.88\text{--}1.03 \times$  as long as hind tibia. Lateral section of anterior transverse carina of propodeum indistinct (Figs. 32I, J). Lateral sides of areolet convergent anteriorly (Figs. 32F, G). Apex of metasoma with conspicuous white area (Figs. 32A, B). Scutellum sometimes tinged with reddish-brown (Fig. 32I). Base of hind tibia sometimes white.

..... *Javra japonica* **sp. nov.** (in part)

#### *Javra albotrochantellata* **sp. nov.**

[New SJN: Ashi-shiromon-togari-himebachi]

(Figs. 30A–H, 79A)

*Aptesis* sp. D: Watanabe & Taniwaki, 2018: 75.

*Javra* sp. B: Watanabe & Taniwaki, 2018: 80.

**Type series.** **Holotype:** JAPAN, KPM-NK 102847, F, Honshu, Saitama Pref., Hanno City, Naguri Vil., Shomaru-toge, 10–13. X. 1995, A. Shimizu leg. **Paratype:** JAPAN: [Hokkaido] OMNH, KPM-NK 102823, and 102850, 3F, Horokanai Town, Uryu, 11–17. VII. 2012, K. Watanabe leg. (MsT). [Honshu] KPM-NK 102848, F, Yamanashi Pref., Koushu City, Sagashio, 16. VI. 2007, K. Watanabe leg.; KPM-NK 102849, F, Nagano Pref., Neba Vil., Chayagawa, 19. IX. 2014, M. Takakuwa leg.; KPM-NK 102822, F,



Toyama Pref., Toyama City, Kamegai, 28. VII. – 4. VIII. 2009, M. Watanabe leg. (MsT).

**Description.** Female (n = 7). Body polished; covered with setae; body length 5.0–9.8 (HT: 9.8) mm.

Head 0.58–0.6 (HT: 0.58) × as long as wide in dorsal view. Clypeus 1.8–2.0 (HT: 1.9) × as wide as long; slightly

convex in lateral view; sparsely punctate; lower margin subtruncate or slightly concave medially; with transverse shallow groove along lower margin; sharp in lateral view. Face 0.4 × as long as minimum width; matt; finely punctate medially; slightly convex medially. Anterior tentorial pit small. Frons slightly concave above antennal sockets;

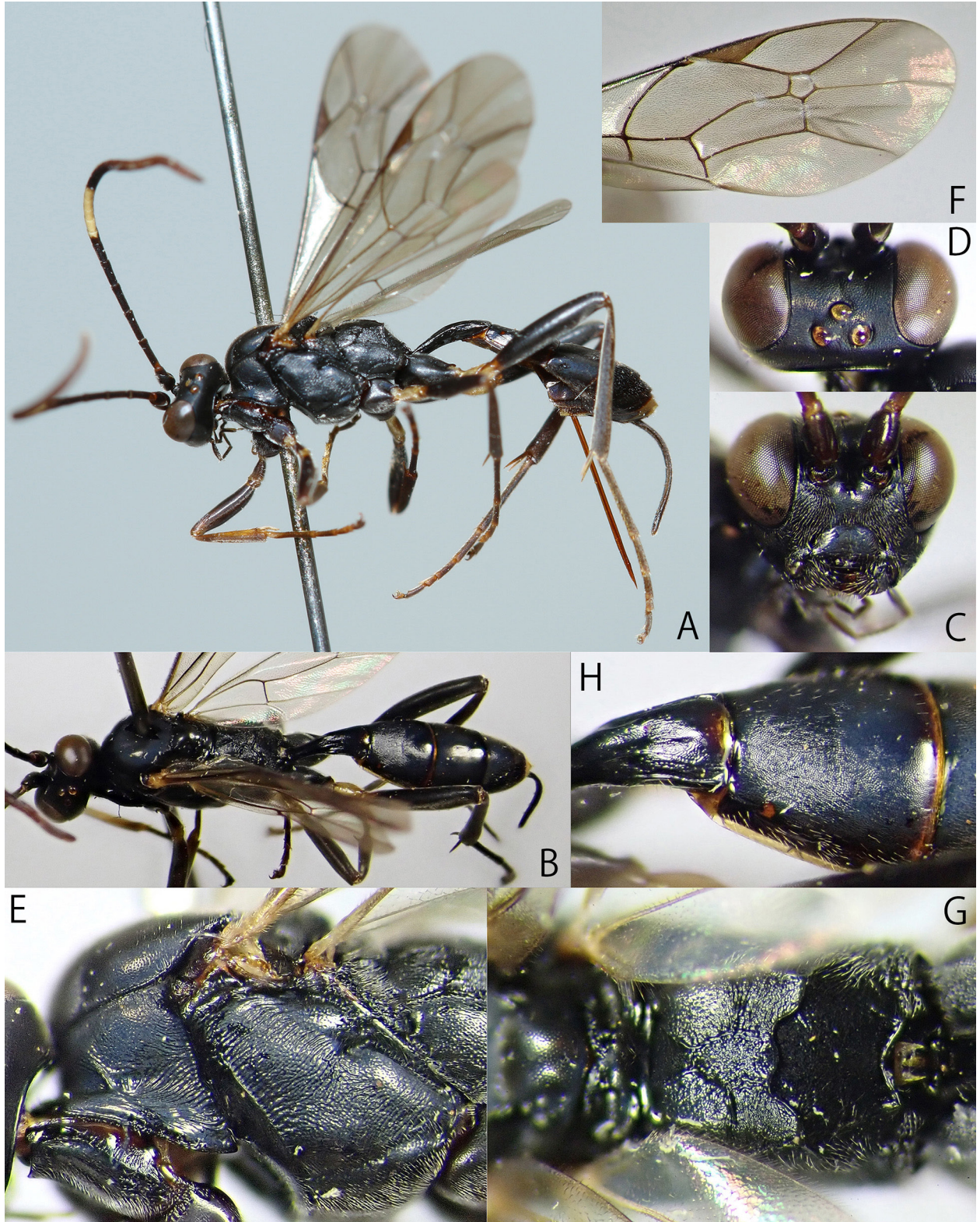


Fig. 30. *Javra albotrochantellata* sp. nov., female (holotype: KPM-NK 102847) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: scutellum and propodeum, dorsal view; H: T I and T II, dorso-lateral view.



coriaceous; sparsely punctate dorsally; area above antennal sockets smooth. POL 0.9–1.0 (HT: 0.95)  $\times$  as OD. OOL 1.0–1.5 (HT: 1.1)  $\times$  as OD. Occiput and vertex finely and densely punctate. Dorsal profile of gena straight in dorsal view; width gradually narrowing posteriorly (Fig. 30D). Occipital carina complete. Malar space 1.0–1.2 (HT: 1.2)  $\times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 23–27 (HT: 27) flagellomeres; not flattened and tapped. FL I 3.65–4.0 (HT: 3.65)  $\times$  as long as maximum depth in lateral view, 1.0–1.1 (HT: 1.0)  $\times$  as long as FL II.

Mesosoma. Pronotum rugulose ventrally; finely and densely punctate dorsally. Epomia short; dorsal end situated slightly above collar. Mesoscutum densely punctate. Notaulus sharp; posterior end not reaching centre of mesoscutum. Scutellum densely punctate; weakly convex in lateral view. Mesopleuron finely punctate; largely longitudinally rugulose; with conspicuous smooth area around speculum (Fig. 30E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.6 of mesopleuron. Metapleuron densely punctate anteriorly, coriaceous posteriorly; with complete juxtacoxal carina. Propodeum coriaceous (Fig. 30G); with all carinae but anterior transverse carina, lateromedian longitudinal carina, and lateral longitudinal carina weak and sometimes partly indistinct (anterior transverse carina sometimes largely absent in small specimens); area superomedia at least partly defined, longer than maximum width; apophysis short; apex obtuse; spiracle oval. Fore wing length 4.1–7.8 (HT: 7.8) mm. Areolet as long as maximum width; width gradually to steeply narrowing anteriorly; received vein 2m-cu at near middle (Fig. 30F). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 30F). Nervellus subvertical; intercepted near posterior end of vein. Hind femur reticulate coriaceous; 4.6–5.1 (HT: 5.1)  $\times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I 1.95–2.4 (HT: 2.35)  $\times$  as long as maximum width; largely matt (Fig. 30H); latero-median carina obtusely present except for apical part; dorso-lateral carina complete. T II 0.85–0.95 (HT: 0.95)  $\times$  as long as maximum width; matt. Thyridium present; somewhat distant from (by more than length of thyridium) anterior margin of T II (Fig. 30H); flat to slightly depressed; ca. 1.0  $\times$  as wide as length. T III to T V slightly coriaceous to smooth; finely punctate. Ovipositor sheath 0.85–1.1 (HT: 0.85)  $\times$  as long as hind tibia, 1.6–2.25 (HT: 1.6)  $\times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 79A).

Colouration (Figs. 30A–H). Body (excluding wings) black to blackish-brown. Setae silver. Subapical part

of mandible and posterior margins of each metasomal tergite tinged with reddish-brown. FL VI to FL X (or IX) with white markings. Trochanters, trochantelli, and apex of metasoma ivory; sometimes fore trochanter weakly darkened. Membranous part of metasomal sternites dark yellowish-brown. Thyridium and ovipositor reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish-brown to yellow wing base.

Male. Unknown.

**Distribution.** Japan (Hokkaido and Honshu).

**Bionomics.** Unknown.

**Etymology.** The specific name is from Latin “*albi*” (white) plus “*trochantellata*” (trochantellus), referring to the white trochantelli of all legs.

**Remarks.** This species resembles *J. coreensis* and *J. taniguchiae* in the black body but can be distinguished by the whitish hind trochanter and trochantellus (black in *J. coreensis* and *J. taniguchiae*) and the ovipositor sheath 0.85–1.1  $\times$  as long as hind tibia (0.65–0.8  $\times$  in *J. coreensis*; 1.43  $\times$  in *J. taniguchiae*) (see above key).

### *Javra coreensis* (Uchida, 1930)

[SJN: Chosen-kuro-togari-himebachi]

*Acanthocryptus coreensis* Uchida, 1930: 330.

*Javra* sp. Taniwaki & Watanabe, 2012: 6. In part (female).

*Javra* sp. F: Watanabe & Taniwaki, 2018: 80.

**Materials examined. JAPAN:** [Honshu] KPM-NK 102808, F, Gunma Pref., Minakami Town, Yunokawa-rindo, 13. VI. 1999, U. Jimbo leg.; KPM-NK 5006654, F, Kanagawa Pref., Kiyokawa Vil., Miyagase, Mt. Tanzawasan, Tennojione, 8. IV. 2009 (coll. cocoon of *Fagineura crenativora*), 1. V. 2009 (em. from the cocoon), T. Taniwaki leg.; KPM-NK 5004376, F, ditto, 15. VI. 2013 (FIT); KPM-NK 5004356, 5004358, 5004377, 3F, ditto, 20. VI. 2013; KPM-NK 5004365, F, ditto, 29. VI. 2013; KPM-NK 5004361, 5004380, 5004382, 3F, Kanagawa Pref., Kiyokawa Vil., Miyagase, Mt. Tanzawasan, 20. VI. 2013, T. Taniwaki leg. (FIT); KPM-NK 5004357, 5004360, 5004364, 5004381), 4F, ditto, 29. VI. 2013; KPM-NK 5004359, 5004373, 5004375, 3F, ditto, 29. VI. 2013; KPM-NK 5004353, 5004354, 5004367, 5004370, 5004372, 5004374, 6F, Kanagawa Pref., Yamakita Town, Kurokura, Mt. Hinokiboramaru, 23. V. 2013, T. Taniwaki leg. (FIT); KPM-NK 5004369, F, same locality and collector, 14. VI. 2013; NARO, 2F, ditto, 23. VI. 2013; KPM-NK 5004366, 5004368, 2F, ditto, 28. VI. 2013; KPM-NK 5004350–5004352, 5004362, 5004363,



5004371, 6F, ditto, 6. VII. 2013; KPM-NK 102837, F, Nagano Pref., Outaki Vil., Mt. Ontake-san, Hakkaisan, 4. VIII. 2017, K. Watanabe leg.; OMNH, 1F, ditto, 16. IX. 2011, S. Fujie leg.; KPM-NK 102809, 102836, 2F, Nagano Pref., Outaki Vil., Mt. Ontake-san, Tanohara, 17. VII. 2007, K. Watanabe leg.; KPM-NK 102840, F, ditto, 8. VIII. 2007; KPM-NK 102838, 102839, 2F, ditto, 9. VIII. 2007; OMNH, F, Toyama Pref., Toyama City, Arimine, Inone-dani, 14–21. VII. 2009, M. Watanabe leg. (MsT); KPM-NK 102845, F, ditto, 25. VIII. – 1. IX. 2009; KPM-NK 102842, F, ditto, 1–8. IX. 2009; KPM-NK 102843, 102844, 2F, ditto, 15–22. IX. 2009; KPM-NK 102846, F, Toyama Pref., Toyama City, Arimine, Jyurodani, 15–22. IX. 2009, M. Watanabe leg. (MsT); KPM-NK 102807, Fukui Pref., Katsuyama City, Ochozan, 5. IX. 1982, H. Kurokawa leg.; TMNH, F, Fukui Pref., Ikeda Town, Mt. Heko-san, 5. IX. 2019, S. Morishita leg. [Shikoku] KPM-NK 102841, Ehime Pref., Saijyo City, Nishinokawatei, Mt. Ishizuchi, Tsuchigoya, 28. VII. 2018, K. Watanabe leg. **KOREA:** SEHU, 1F (lectotype), Sambo, 29. VII. 1922, T. Uchida leg.

**Description.** See Watanabe & Taniwaki (2018).

**Distribution.** Japan (Honshu and Shikoku) and Korea.

**Bionomics.** Host: *Fagineura crenativora* (Taniwaki & Watanabe, 2012). Adult emerged from host cocoon (Taniwaki & Watanabe, 2012).

**Remarks.** This is the first record of this species from Shikoku. *Javra* sp. F sensu Watanabe & Taniwaki (2018) is identified as this species in this study.

***Javra gigantea* sp. nov.**

[New SJN: Katayama-togari-himebachi]  
(Figs. 31A–H, 79B)

**Type series.** **Holotype:** JAPAN, KPM-NK 102819, F, Honshu, Tochigi Pref., Nasushiobara City, Komakigawarindo, 7. IX. 2021, E. Katayama leg. **Paratype:** JAPAN, KPM-NK 102820, F, Honshu, Fukui Pref., Ohno City, Dosai-zan, 23. V. 1982, T. Murota leg.

**Description.** Female (n = 2). Body matt; covered with setae; body length 9.25–11.3 (HT: 11.3) mm.

Head  $0.6 \times$  as long as wide in dorsal view. Clypeus 2.1–2.2 (HT: 2.1)  $\times$  as wide as long; slightly convex in lateral view; smooth; sparsely punctate; lower margin subtruncate; sharp in lateral view. Face  $0.4 \times$  as long as minimum width; slightly convex medially. Anterior tentorial pit small. Frons slightly concave above antennal sockets; transversely rugulose above antennal sockets; with pair of slight convexities just above mid-height (Fig. 31E). POL 1.3–1.35 (HT: 1.3)  $\times$  as OD. OOL 1.3–1.5

(HT: 1.3)  $\times$  as OD. Occiput and vertex finely and densely punctate. Dorsal profile of gena weakly rounded in dorsal view; width gradually narrowing posteriorly (Fig. 31D). Occipital carina complete. Malar space 1.1–1.2 (HT: 1.2)  $\times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 26–28 (HT: 28) flagellomeres; not flattened and tapped. FL I  $5.25 \times$  as long as maximum depth in lateral view,  $1.05 \times$  as long as FL II.

**Mesosoma.** Pronotum rugulose and rugose. Epomia short; dorsal end situated slightly above collar. Mesoscutum densely punctate. Notaulus sharp; posterior end reaching centre of mesoscutum. Scutellum punctate; weakly convex in lateral view. Mesopleuron rugulose (Fig. 31F); with conspicuous smooth area around speculum. Epicnemial carina present laterally and ventrally. Sternaulus deep in entire length of mesopleuron. Metapleuron rugose; with complete juxtacoxal carina. Propodeum rugose except for area basalis and area externa coriaceous; rugose or rugulose posteriorly; with all carinae (Fig. 31H); lateral longitudinal carina partly indistinct; area superomedia defined, slightly longer than maximum width; median part of posterior transverse carina higher than other parts and strongly raised; area postero and area dentipara largely covered with oblique rugae; apophysis short; apex obtuse; spiracle oval. Fore wing length 7.4–9.8 (HT: 9.8) mm. Areolet longer than maximum width; width gradually narrowing anteriorly; received vein 2m-cu at near middle (Fig. 31G). Fore wing vein 1cu-a slightly antefurcal to vein M&RS (Fig. 31G). Nervellus subvertical; intercepted near posterior end of vein. Hind femur reticulate coriaceous;  $6.0\text{--}6.2$  (HT: 6.2)  $\times$  as long as maximum depth in lateral view. Tarsal claws simple.

**Metasoma.** T I  $2.0\text{--}2.2$  (HT: 2.2)  $\times$  as long as maximum width; latero-median carina indistinct; dorso-lateral carina absent or partly present posteriorly. T II  $0.75 \times$  as long as maximum width; thyridium indistinct. Ovipositor sheath 1.18–1.23 (HT: 1.23)  $\times$  as long as hind tibia, 2.4–2.5 (HT: 2.4)  $\times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 79B).

**Colouration** (Figs. 31A–H). Body (excluding wings) black to blackish-brown. Setae silver. Subapical part of mandible weakly tinged with reddish-brown. Face with pair of yellow markings between antennal sockets and eye. FL VI (or VII) to FL IX with white markings. Hind second to fourth tarsomeres ivory. Ovipositor reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish-brown wing base.

Male. Unknown.

**Distribution.** Japan (Honshu).

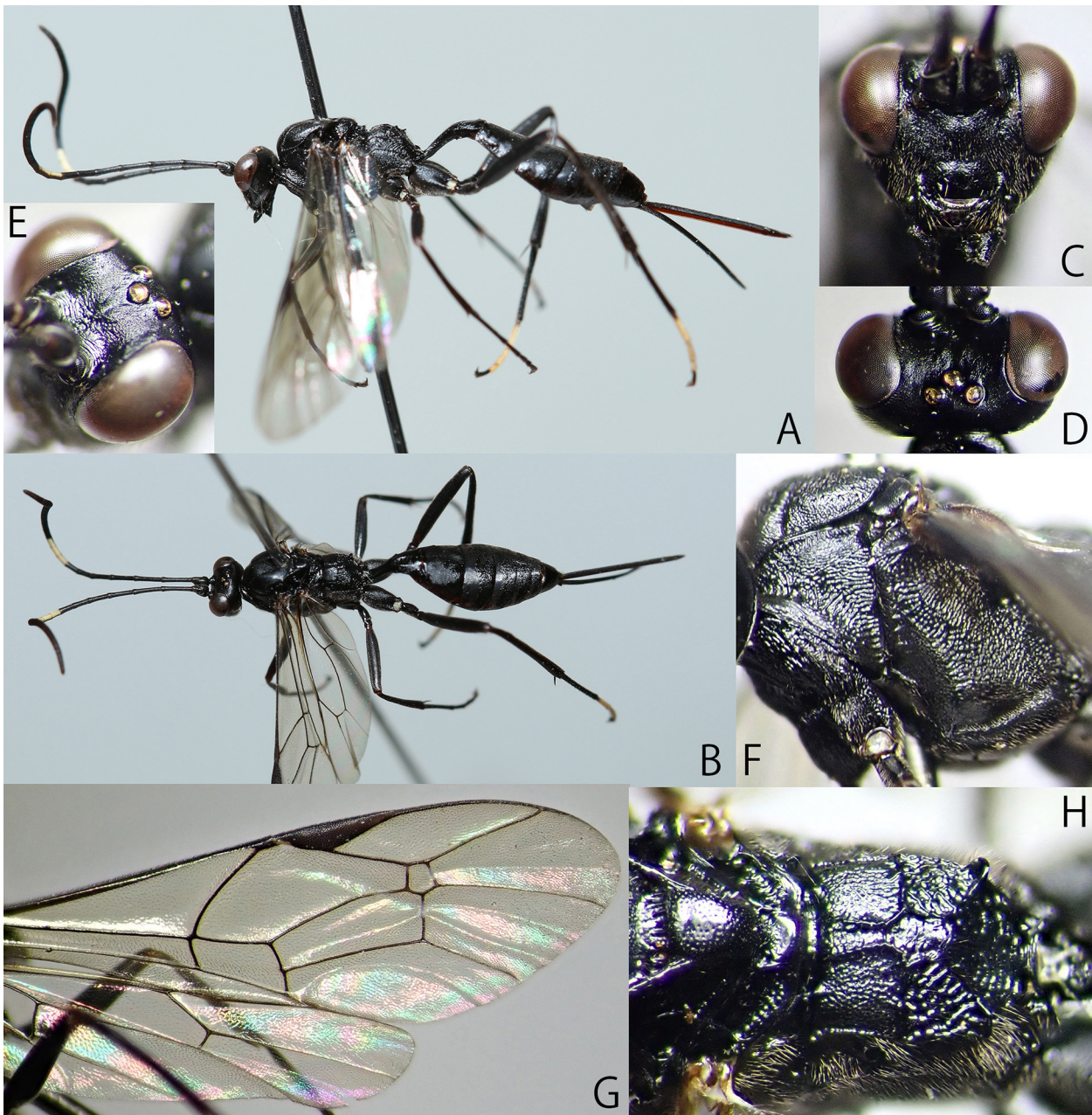


Fig. 31. *Javra gigantea* sp. nov., female (holotype: KPM-NK 102819) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head, dorsal view; E: head, dorso-lateral view; F: pronotum and mesopleuron, lateral view; G: wings; H: scutellum and propodeum, dorsal view.

**Bionomics.** Unknown.

**Etymology.** The specific name is from the Latin “*giganteus*” (giant), referring to the largest body size in Japanese species.

**Remarks.** This species resembles *J. tenuis* sp. nov. in the large body with white banded hind tibia but can be distinguished by the shape of areolet and the surface of mesoscutum (see above key). This species also resembles *J. coreensis* and *J. taniguchiae* in the black body but can be distinguished by the large body size (more than 9.0 mm in this species; less than 8.0 mm in *J. coreensis* and *J. taniguchiae*) and the hind tibia without white base (with white base in *J. taniguchiae*).

***Javra japonica* sp. nov.**

[New SJN: Nippon-kuro-togari-himebachi]  
(Figs. 32A–K, 79C)

*Javra* sp. A & E: Watanabe & Taniwaki, 2018: 80.

**Type series.** **Holotype:** JAPAN, KPM-NK 102795, F, Honshu, Toyama Pref., Toyama City, Arimine, Jyurodani, 21–28. VII. 2009, M. Watanabe leg. (MsT). **Paratype:** JAPAN [Honshu] KPM-NK 102813, F, Saitama Pref., Tokigawa Town, Oono-toge, 15. X. 2006, T. Mita leg.; KPM-NK 102814, F, Nagano Pref., Ina City, Hase, Karei-kogen, 30. VII. 2013, S. Yoshizawa leg.; OMNH,



1F, Toyama Pref., Nanto City, Togamura-kamimomose, 11–16. VIII. 2009, M. Watanabe leg. (MsT); KPM-NK 102812, ditto, 11–18. VIII. 2009; KPM-NK 102796, F, Toyama Pref., Toyama City, Arimine, Jyurodani, 11–16. VIII. 2009, M. Watanabe leg. (MsT); KPM-NK 102797, F, ditto, 16–25. VIII. 2009; KPM-NK, F, 102810, ditto, 25. VIII. – 1. IX. 2009; KPM-NK 102811, F, ditto, 15–22. IX. 2009; KPM-NK 102817, F, Toyama Pref., Toyama City, Arimine, Inone-dani, 7–14. VII. 2009, M. Watanabe leg. (MsT); KPM-NK 102816, F, Toyama Pref., Toyama City, Kamegai, 28. VII. – 4. VIII. 2009, M. Watanabe leg. (MsT); KPM-NK 102818, F, Fukui Pref., Ikeda Town, Kouchi, 17. VI. 1981, H. Kurokawa leg.

**Description.** Female (n = 12). Body polished; covered with setae; body length 6.0–8.4 (HT: 7.1) mm.

Head 0.6–0.65 (HT: 0.62) × as long as wide in dorsal view. Clypeus 1.8–1.9 (HT: 1.9) × as wide as long; slightly convex in lateral view; sparsely punctate; lower margin subtruncate; sharp in lateral view. Face 0.5 × as long as minimum width; matt; slightly convex medially. Anterior tentorial pit small. Frons slightly concave above antennal sockets; coriaceous; sparsely punctate except for area above antennal sockets. POL 0.9–1.0 (HT: 0.9) × as OD. OOL 1.0–1.1 (HT: 1.0) × as OD. Dorsal profile of gena straight in dorsal view; width abruptly narrowing posteriorly (Fig. 32D). Occipital carina complete. Malar space 1.2–1.3 (HT: 1.2) × as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 26–28 (HT: 27) flagellomeres; not flattened and tapped. FL I 4.35–5.0 (HT: 5.0) × as long as maximum depth in lateral view, 1.15–1.25 (HT: 1.25) × as long as FL II.

Mesosoma. Pronotum rugulose ventrally; sparsely punctate dorsally. Epomia short; dorsal end situated slightly above collar. Mesoscutum densely punctate. Notaulus sharp; posterior end reaching centre of mesoscutum or slightly shorter. Scutellum densely punctate; weakly convex in lateral view. Mesopleuron longitudinally rugulose dorsally, irregularly rugulose ventrally; with conspicuous small smooth area around speculum (Fig. 32E). Epicnemial carina present laterally and ventrally. Sternaulus deep in entire length of mesopleuron. Metapleuron largely punctate; with partly indistinct or complete juxtacoxal carina. Propodeum punctate anteriorly; rugose or rugulose posteriorly (Figs. 32H–J); with all carinae except for anterior transverse carina largely indistinct; lateral section of anterior transverse carina weak and not clearly defined by transverse rugae on area dentipara; area superomedia defined, slightly longer than maximum width; area superomedia and dentipara largely

covered with transverse rugae; apophysis short; apex obtuse; spiracle oval. Fore wing length 5.1–7.0 (HT: 6.35) mm. Areolet as long as maximum width or sometimes wider than long; width steeply narrowing anteriorly; received vein 2m-cu at near middle (Figs. 32F, G). Fore wing vein 1cu-a interstitial to vein M&RS. Nervellus subvertical; intercepted near posterior end of vein. Hind femur reticulate coriaceous; 5.1–5.5 (HT: 5.2) × as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma coriaceous (Fig. 32K). T I 2.45–2.5 (HT: 2.45) × as long as maximum width; latero-median carina obtusely present except for apical part; dorso-lateral carina complete. T II 0.95–1.0 (HT: 0.95) × as long as maximum width. Thyridium present; somewhat distant from (by more than length of thyridium) anterior margin of T II; flat to slightly depressed; ca. 2.0 × as wide as length. Ovipositor sheath 0.88–1.03 (HT: 0.95) × as long as hind tibia, 1.6–2.05 (HT: 1.9) × as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 79C).

Colouration (Figs. 32A–K). Body (excluding wings) black to blackish-brown. Setae silver. Mandible except for teeth, clypeus, and posterior margins of each metasomal tergite tinged with reddish-brown. Ventral surface of scape, pedicel, and apical part of flagellum and tegula sometimes tinged with brown to reddish-brown. FL VI to FL IX with white markings. Scutellum and postscutellum usually each with ivory to yellow marking; marking sometimes changed as reddish-brown marking or reduced. Trochanters, trochantelli, and base of femora sometimes narrowly tinged with yellow. Fore and mid legs except for coxa usually partly tinged with brown. Base of hind tibia brown to ivory. Membranous part of metasomal sternites yellow to yellowish-brown. Thyridium and ovipositor reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish-brown to yellow wing base.

Male. Unknown.

**Distribution.** Japan (Honshu).

**Bionomics.** Unknown.

**Etymology.** The specific name is from Japan.

**Remarks.** This species has the scutellum with or without ivory to yellow marking. While I found intermediate condition of both character states, reddish-brown coloured marking on scutellum in KPM-NK 102796. I also found no morphological difference between them and thus, I conclude that it is intraspecific variation of this species. This species resembles *J. jemilleri* (Kriechbaumer, 1893) in the body colouration and the length of ovipositor sheath but can be distinguished the anterior transverse carina of propodeum largely absent (present its lateral section in *J.*





Fig. 32. *Javra japonica* **sp. nov.**, females (A–F, H, K: holotype: KPM-NK 102795; G, J: paratype: KPM-NK 102817; I: paratype: KPM-NK 102796) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: areolet (variation); H–J: scutellum and propodeum, dorsal (H and I) and dorso-lateral (J) view; K: T I and T II, dorso-lateral view.

*jemilleri*) and the mesopleuron largely rugulose (largely granulate in *J. jemilleri*).

***Javra minamiashigarensis* sp. nov.**  
[New SJN: Ashigara-togari-himebachi]  
(Figs. 33A–G, 79D)

*Javra* sp. D: Watanabe & Taniwaki, 2018: 80.

**Type series.** **Holotype:** JAPAN, KPM-NK 102821, F, Honshu, Kanagawa Pref., Minamiashigara City, Ashigarashinrinkoen, 26. V. 2004, H. Nagase leg. **Paratype:** JAPAN, [Honshu] KPM-NK 102798, F, Tochigi Pref., Ohtawara City, Ohtawara Jinja, 8. VI. 2000, E. Katayama leg.



**Description.** Female (n = 2). Body matt; covered with setae; body length 7.1–7.6 (HT: 7.6) mm.

Head  $0.6 \times$  as long as wide in dorsal view. Clypeus  $2.0 \times$  as wide as long, slightly punctate; lower margin subtruncate; sharp in lateral view. Face  $0.35 \times$  as long as minimum width; slightly convex medially. Anterior tentorial pit small. Frons slightly concave above antennal sockets; sparsely punctate dorsally; transversely rugulose above antennal sockets. POL  $1.3 \times$  as OD. OOL  $1.3\text{--}1.4$  (HT:  $1.3$ )  $\times$  as OD. Occiput and vertex finely and densely punctate. Dorsal profile of gena weakly rounded in dorsal view; width gradually narrowing posteriorly (Fig. 33D). Occipital carina complete. Malar space  $1.0\text{--}1.1$  (HT:  $1.0$ )  $\times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 21–22 (HT: 22) flagellomeres; not flattened and tapped. FL I  $3.2 \times$  as long as maximum depth in lateral view,  $0.8 \times$  as long as FL II.

Mesosoma. Pronotum coriaceous ventrally; punctate dorsally. Epomia short; dorsal end situated slightly above collar. Mesoscutum densely punctate. Notaulus weak; posterior end not reaching centre of mesoscutum. Scutellum punctate; convex in lateral view. Mesopleuron punctate; punctures partly united into groove-like foveola; with conspicuous small smooth area around speculum (Fig. 33E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.6 of mesopleuron. Metapleuron punctate; with complete juxtacoxal carina. Propodeum coriaceous with fine and sparse punctures; anterior transverse carina absent (Fig. 33G); posterior transverse carina complete; lateromedian longitudinal carina weakly present, sometimes partly absent; lateral longitudinal carina weakly present to complete; pleural carina complete; area superomedia weakly defined, more or less triangular-shape; apophysis absent; spiracle round. Fore wing length 5.6–5.9 (HT: 5.9) mm. Areolet slightly



Fig. 33. *Javra minamiashigarensis* sp. nov., female (holotype: KPM-NK 102821) — A: lateral habitus; B: dorsal habitus; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: scutellum and propodeum, dorso-lateral view.

shorter than long; width steeply narrowing anteriorly; received vein 2m-cu basal than middle (Fig. 33F). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 33F). Nervellus subvertical; intercepted near posterior end of vein (Fig. 33F). Hind femur reticulate coriaceous; 4.3–4.4 (HT: 4.4)  $\times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I 1.8  $\times$  as long as maximum width; latero-median carina absent; dorso-lateral carina complete. T II 0.75–0.85 (HT: 0.85)  $\times$  as long as maximum width. Thyridium present; somewhat distant from (by more than length of thyridium) anterior margin of T II; flat to slightly depressed; ca. 1.0  $\times$  as wide as length. Ovipositor sheath 0.95  $\times$  as long as hind tibia, 1.7–1.75 (HT: 1.7)  $\times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 79D).

Colouration (Figs. 33A–G). Body (excluding wings) black to blackish-brown. Setae silver. Subapical part of mandible, lower part of clypeus, ventral surface of apical part of flagellum, posterior margins of T I and T II tinged with brown to reddish-brown. FL VI to FL X with white markings. Apical parts of fore and mid legs more or less tinged with brown. Tibial spurs of all legs yellow to yellowish-brown. Base of each hind tarsomere narrowly tinged with yellowish-brown. Membranous part of metasomal sternites yellow to ivory. Apex of metasoma with ivory marking. Thyridium and ovipositor reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish-brown to yellow wing base.

Male. Unknown.

**Distribution.** Japan (Honshu).

**Bionomics.** Unknown.

**Etymology.** The specific name is from the type locality and my hometown, Minami-ashigara City, a city of Kanagawa Prefecture.

**Remarks.** This species resembles *J. coreensis* and *J. taniguchiae* in the black body but can be distinguished by the ovipositor sheath 1.1  $\times$  as long as hind tibia (0.65–0.8  $\times$  in *J. coreensis*; 1.43  $\times$  in *J. taniguchiae*), the T I 1.8  $\times$  as long as maximum width (2.05–2.35  $\times$  in *J. coreensis*), and the hind tibia without white base (with white base in *J. taniguchiae*).

***Javra minuta* sp. nov.**

[New SJN: Toyama-kuro-togari-himebachi]

(Figs. 34A–H, 79E)

**Type series.** **Holotype:** JAPAN, KPM-NK 102805, F, Honshu, Toyama Pref., Nanto City, Togamura-

kamimomose, 15–29. IX. 2009, M. Watanabe leg. (MsT).

**Paratype:** JAPAN, KPM-NK 84975, F, Honshu, Toyama Pref., Toyama City, Arimine, Jurodani, 15–22. IX. 2009, M. Watanabe leg. (MsT).

**Description.** Female (n = 2). Body polished (Figs. 34A, E, F, H); covered with setae; body length 4.55–4.75 (HT: 4.55) mm.

Head 0.6–0.63 (HT: 0.63)  $\times$  as long as wide in dorsal view. Clypeus 2.0–2.1 (HT: 2.0)  $\times$  as wide as long; slightly convex in lateral view; sparsely punctate; lower margin slightly rounded in frontal view, sharp in lateral view. Face 0.5  $\times$  as long as minimum width; coriaceous; nearly flat medially. Anterior tentorial pit large. Frons slightly concave above antennal sockets; slightly coriaceous and sparsely punctate except for area above antennal sockets. POL 1.2–1.4 (HT: 1.2)  $\times$  as OD. OOL 1.4–1.5 (HT: 1.5)  $\times$  as OD. Gena and vertex finely punctate. Dorsal profile of gena straight in dorsal view; width abruptly narrowing posteriorly (Fig. 34D). Occipital carina complete. Malar space 1.1–1.2 (HT: 1.1)  $\times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 23–24 (HT: 23) flagellomeres; not flattened and tapped. FL I 4.6–5.45 (HT: 5.45)  $\times$  as long as maximum depth in lateral view, 1.25–1.4 (HT: 1.25)  $\times$  as long as FL II.

Mesosoma. Pronotum sparsely and finely punctate; rugulose ventrally in paratype; ISP smooth. Epomia short; dorsal end situated slightly above collar. Mesoscutum sparsely and finely punctate; ISP smooth. Notaulus weak; posterior end not reaching centre of mesoscutum. Scutellum largely smooth; convex in lateral view. Mesopleuron largely smooth with fine and sparse punctures; partly obliquely striate in paratype; with conspicuous small smooth area around speculum (Fig. 34E); sometimes largely striate (Fig. 34F; in paratype). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.8 of mesopleuron. Metapleuron largely smooth with fine and sparse punctures; with complete juxtacoxal carina. Propodeum largely smooth with fine and sparse punctures (Fig. 34H); with all carinae except for lateromedian longitudinal carina weak and partly indistinct; area superomedia partly defined, longer than wide; apophysis short; apex obtuse; spiracle oval. Fore wing length 4.7 mm. Areolet wider than long; width gradually narrowing anteriorly; received vein 2m-cu basal to middle (Fig. 34G). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 34G). Nervellus subvertical; intercepted posterior to middle. Hind femur reticulate coriaceous; 5.1–5.2 (HT: 5.2)  $\times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma finely and sparsely punctate; ISP smooth.



T I  $2.95 \times$  as long as maximum width; longitudinally shallowly foveolate partly; latero-median carina absent; dorso-lateral carina present but obscured posteriorly. T II  $0.9 \times$  as long as maximum width. Thyridium present; somewhat distant from (by more than length of thyridium) anterior margin of T II; flat to slightly depressed; ca.  $1.0 \times$  as wide as length. Ovipositor sheath  $0.88\text{--}0.93$  (HT:  $0.93$ )  $\times$  as long as hind tibia,  $1.66\text{--}1.75$  (HT:  $1.75$ )  $\times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 79E).

Colouration (Figs. 34A–H). Body (excluding wings) black to blackish-brown. Setae silver. Mandible except for teeth, clypeus, ventral surfaces of scape and pedicel, ventral surface of apical part of flagellum, postscutellum, and metasomal tergites except for T I tinged with brown to reddish-brown. Palpi, scutellum, and membranous part

of metasomal sternites ivory. FL VII to FL X with white markings. Tegula and posterior margins of T II and T III yellowish-brown. Fore and mid legs reddish-yellow except for ivory coxae, trochanters, and trochantelli. Hind leg blackish-brown; trochanter, trochantellus, tibia except for apical part, and tibial spurs paler than other part. Thyridium and ovipositor reddish-brown. Wings hyaline. Veins and pterostigma brown except for yellowish-brown to yellow wing base.

Male. Unknown.

**Distribution.** Japan (Honshu).

**Bionomics.** Unknown.

**Etymology.** The specific name is from the Latin “*minuta*” (small), referring to the relatively small body size in Japanese species.

**Remarks.** This species resembles *J. teranishii* in the



Fig. 34. *Javra minuta* sp. nov., females (A–E, G, H: holotype: KPM-NK 102805; F: paratype: KPM-NK 84975) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head, dorsal view; E, F: pronotum and mesopleuron, lateral view; G: fore wing; H: scutellum and propodeum, dorsal view.



yellow scutellum but can be distinguished by the polished body (body largely matt in *J. teranishii*) and the fore and mid coxae, trochanters, and trochantelli white (blackish-brown to black in *J. teranishii*). The character states of holotype and a paratype relatively large in the genus especially FL I and mesopleuron, but I conclude that is intraspecific variation based on the collecting data and other character states.

***Javra taniguchiae* (Uchida, 1956)**

[SJN: Tokunoshima-togari-himebachi]

(Figs. 35A–H, 79F)

*Microcryptus taniguchiae* Uchida, 1956: 90

**Materials examined.** JAPAN: [Amamioshima Is.] KPM-NK 102806, F, Kagoshima Pref., Uken Vil., Mt. Yuwan-dake, 26. VI. 2014, K. Watanabe leg. [Tokunoshima Is.] SEHU, 1M (holotype), Sikaura, 18. V. 1954, S. Taniguchi leg.

**Description.** Female (n = 1). Body polished; covered with setae; body length 7.4 mm.

Head  $0.57 \times$  as long as wide in dorsal view. Clypeus  $1.9 \times$  as wide as long; slightly convex in lateral view; sparsely punctate; lower margin subtruncate; sharp in lateral view. Face  $0.4 \times$  as long as minimum width; matt; slightly convex medially; densely punctate medially. Anterior tentorial pit small. Frons slightly concave above antennal sockets; finely and densely punctate dorsally. POL  $1.25$

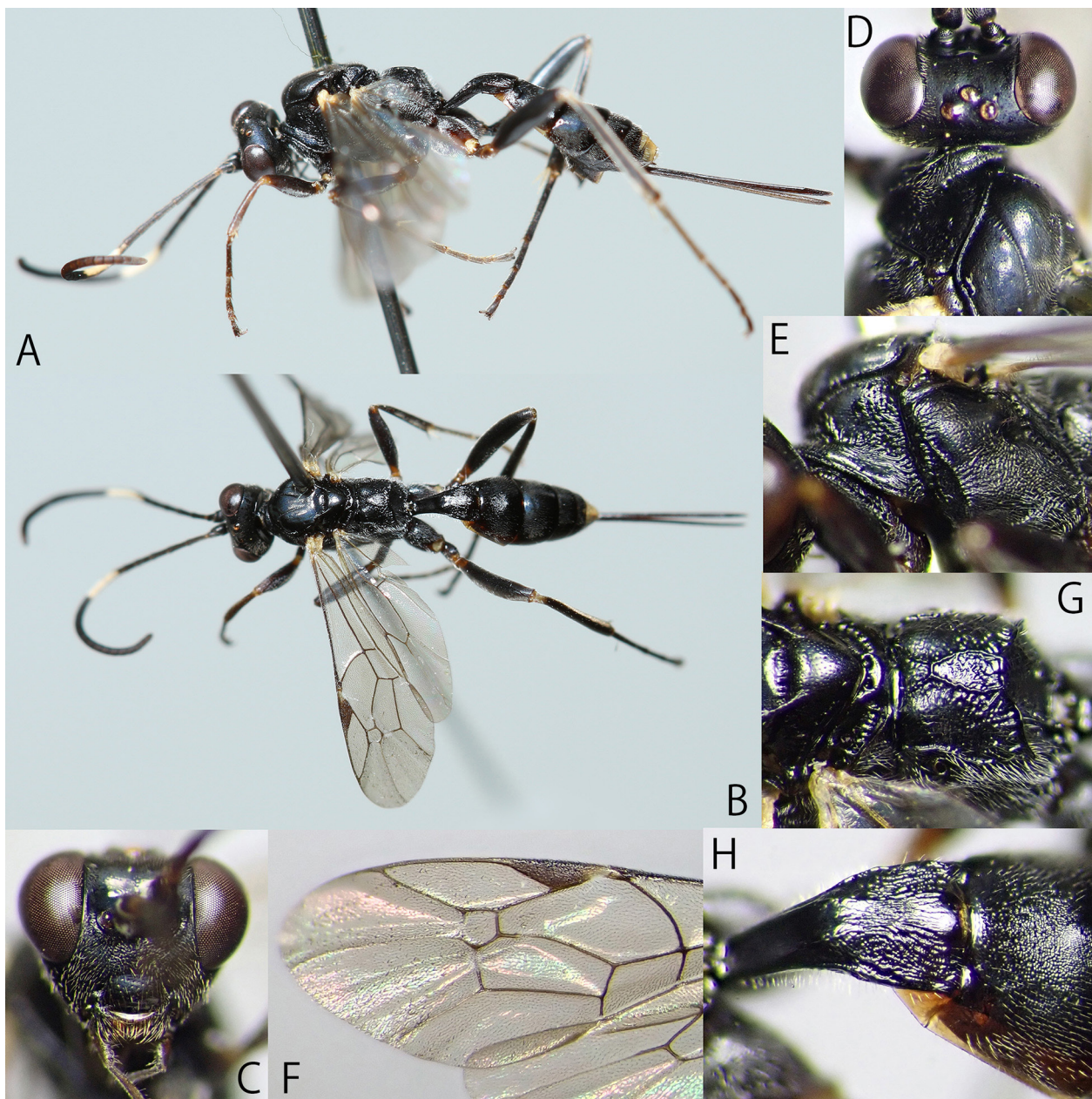


Fig. 35. *Javra taniguchiae* (Uchida, 1956), female (KPM-NK 102806) — A: lateral habitus; B: dorsal habitus; C: head, frontal view; D: head and mesoscutum, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: scutellum and propodeum, dorso-lateral view; H: T I and T II, dorso-lateral view.



$\times$  as OD. OOL  $1.0 \times$  as OD. Gena and vertex finely and densely punctate. Dorsal profile of gena slightly convex; width abruptly narrowing posteriorly (Fig. 35D). Occipital carina complete. Malar space  $1.4 \times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 24 flagellomeres; not flattened and tapped. FL I  $4.2 \times$  as long as maximum depth in lateral view,  $1.05 \times$  as long as FL II.

Mesosoma. Pronotum rugulose ventrally; finely punctate dorsally (Fig. 35E). Epomia long; dorsal end situated between collar and dorsal margin of pronotum. Mesoscutum densely and finely punctate. Notaulus sharp (Fig. 35D); posterior end reaching centre of mesoscutum. Scutellum densely punctate; convex in lateral view. Mesopleuron punctate dorsally, irregularly rugulose ventrally; with conspicuous smooth area around speculum. Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.6 of mesopleuron. Metapleuron rugose to rugulose; with complete juxtacoxal carina. Propodeum punctate anteriorly; rugose or rugulose posteriorly; with all carinae except for anterior transverse carina absent; area superomedia defined (Fig. 35G), longer than maximum width; apophysis absent; spiracle oval. Fore wing length 5.4 mm. Areolet as long as maximum width; width not narrowing anteriorly; received vein 2m-cu at near middle (Fig. 35F). Fore wing vein 1cu-a slightly antefurcal to vein M&RS. Nervellus subvertical; intercepted near posterior end of vein. Hind femur reticulate coriaceous;  $4.6 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma matt. T I  $1.85 \times$  as long as maximum width; postpetiole partly irregularly rugulose (Fig. 35H); latero-median carina absent; dorso-lateral carina complete. T II  $0.8 \times$  as long as maximum width; largely matt (Fig. 35H); thyridium indistinct. T III to T V coriaceous and finely punctate anteriorly, smooth posteriorly. Ovipositor sheath  $1.43 \times$  as long as hind tibia,  $2.7 \times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 79F).

Colouration (Figs. 35A–H). Body (excluding wings) black to blackish-brown. Setae silver. Subapical part of mandible, labrum, and posterior margin of T II tinged with reddish-brown. FL VI to FL X with white markings. Wing base, base of hind tibia, tibial spurs of all legs, and apex of metasoma ivory. Trochantelli paler than other parts of each leg. Ovipositor reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown to brown except for ivory wing base.

Male. No additional specimen available. Malar space  $1.0 \times$  as long as basal width of mandible. Antenna with 27 flagellomeres. T I  $2.3 \times$  as long as maximum width. FL I slightly longer than FL II. Face with pair of large yellow

markings laterally. Clypeus yellow. Ventral surface of scape and mandible except teeth both largely yellow. Fore and mid trochanter and trochantelli ivory. Base of tibiae ivory.

**Distribution.** Japan (Amamioshima Is. and Tokunoshima Is.).

**Bionomics.** Unknown.

**Remarks.** Momoi (1970) described the female of this species briefly. I could not find the voucher specimen of this species in MNHAH. The following two character states of KPM-NK 102806 described above are largely differed from the description by Momoi (1970): T I  $1.85 \times$  as long as maximum width ( $1.5 \times$  as long as wide at apex in Momoi's description); ovipositor sheath  $2.7 \times$  as long as T I (about  $2.0 \times$  in Momoi's description). These may be the intraspecific variation of this species.

***Javra tenuis* sp. nov.**

[New SJN: Hosomi-kuro-togari-himebachi]

(Figs. 36A–H, 79G)

*Javra* sp. C: Watanabe & Taniwaki, 2018: 80.

**Type series. Holotype:** JAPAN, KPM-NK 102799, F, Honshu, Tokyo, Hachioji City, Uratakaomachi, Kogesawa, 12. IX. 2020, Y. Kato leg. **Paratype:** JAPAN, [Honshu] KPM-NK 102802, F, Saitama Pref., Yorii Town, Gonotsubo, 6. X. 2000, T. Nambu leg.; KPM-NK 102800, F, Toyama Pref., Nanto City, Togamura-kamimomose, 4–11. VIII. 2009, M. Watanabe leg. (MsT); KPM-NK 102801, ditto, 15–29. IX. 2009; KPM-NK 102803, F, Toyama Pref., Toyama City, Arimine, Inone-dani, 15–22. IX. 2009, M. Watanabe leg. (MsT); KPM-NK 102804, F, Toyama Pref., Toyama City, Kamegai, 15–26. IX. 2009, M. Watanabe leg. (MsT).

**Description.** Female ( $n = 6$ ). Body polished; covered with setae; body length 8.1–10.4 (HT: 9.1) mm.

Head  $0.6 \times$  as long as wide in dorsal view. Clypeus  $1.8$ – $1.95$  (HT:  $1.8$ )  $\times$  as wide as long; weakly convex in lateral view; sparsely punctate; lower margin subtruncate; sharp in lateral view. Face  $0.5 \times$  as long as minimum width; matt; slightly convex medially; finely punctate medially. Anterior tentorial pit small. Frons weakly concave above antennal sockets; coriaceous; concavities above antennal sockets smooth. POL  $0.9$ – $1.2$  (HT:  $1.05$ )  $\times$  as OD. OOL  $1.1$ – $1.35$  (HT:  $1.2$ )  $\times$  as OD. Dorsal profile of gena slightly convex; width abruptly narrowing posteriorly (Fig. 36D). Occipital carina complete. Malar space  $0.8$ – $0.9$  (HT:  $0.9$ )  $\times$  as long as basal width of mandible. Mandible flat at base; lower tooth slightly longer than upper tooth. Antenna with 29–30 (HT: 30) flagellomeres; not flattened and tapped. FL

I 4.68–5.1 (HT: 5.1)  $\times$  as long as maximum depth in lateral view, 1.05–1.15 (HT: 1.15)  $\times$  as long as FL II.

Mesosoma. Pronotum rugulose ventrally; densely punctate dorsally. Epomia long; dorsal end situated slightly below dorsal margin of pronotum. Mesoscutum densely punctate. Notaulus weak and not sharp; posterior end not reaching centre of mesoscutum (Fig. 36D). Scutellum densely punctate; weakly convex in lateral

view. Mesopleuron obliquely to irregularly rugulose anteriorly, finely and densely punctate posteriorly; without conspicuous smooth area around speculum (Fig. 36E). Epicnemial carina present laterally and ventrally. Sternaulus deep in entire length of mesopleuron. Metapleuron finely punctate anteriorly; weakly rugulose posteriorly; with complete juxtacoxal carina. Propodeum finely and sparsely punctate anteriorly; rugose or rugulose

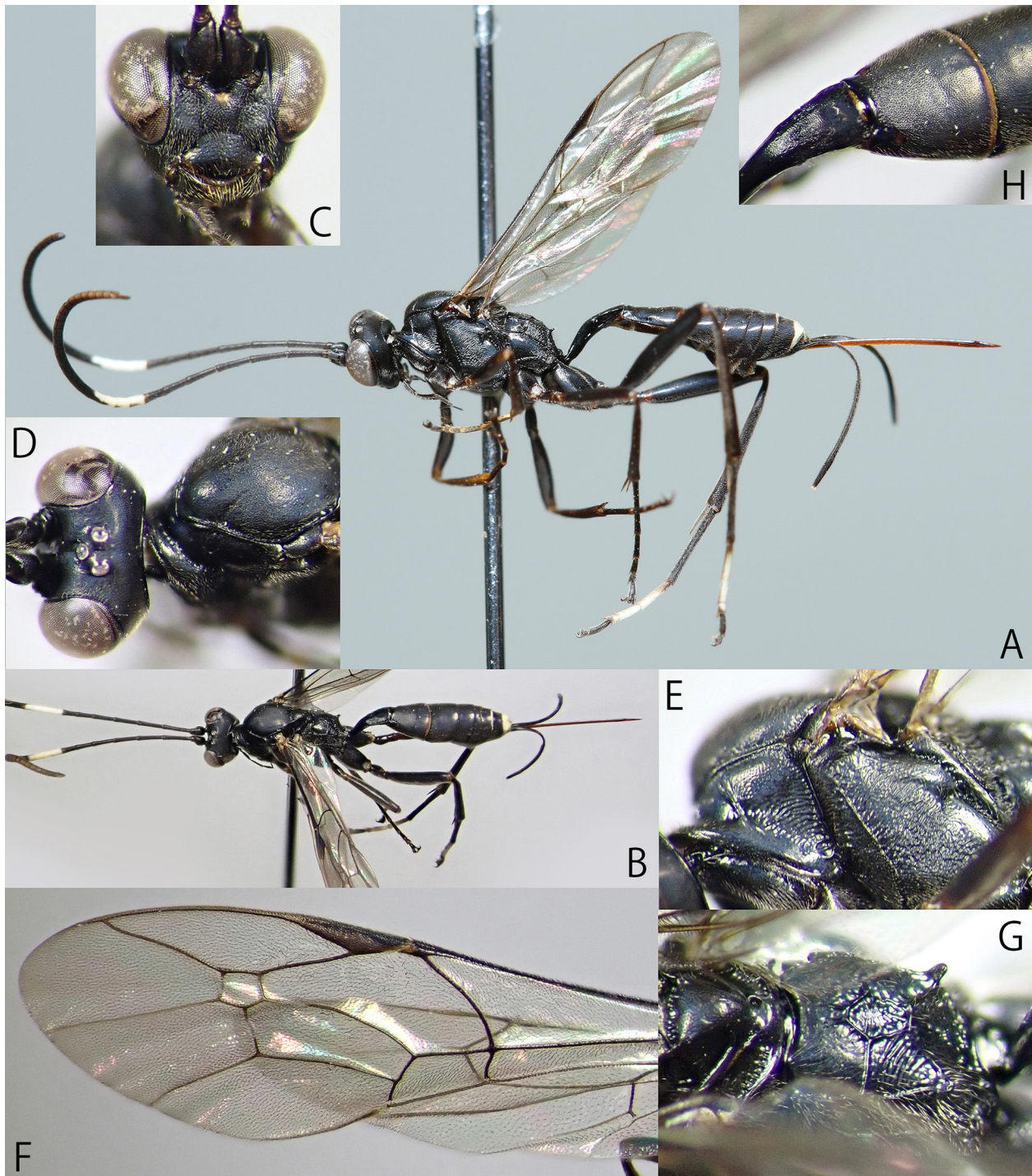


Fig. 36. *Javra tenuis* sp. nov., female (holotype: KPM-NK 102799) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head and mesoscutum, dorsal view; E: pronotum and mesopleuron, lateral view; F: wings; G: scutellum and propodeum, dorso-lateral view; H: T I and T II, dorso-lateral view.



posteriorly; with all carinae (Fig. 36G); lateromedian longitudinal carina sometimes partly indistinct between both transverse carinae; area superomedia at least partly defined, longer than maximum width; area dentipara transversely to obliquely rugose; apophysis long; apex somewhat sharp; spiracle oval. Fore wing length 6.8–8.1 (HT: 7.5) mm. Areolet slightly wider than long; width slightly narrowing anteriorly; received vein 2m-cu basal than middle (Fig. 36F). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 36F). Nervellus subvertical; intercepted near posterior end of vein (Fig. 36F). Hind femur reticulate coriaceous; 5.2–5.8 (HT: 5.7)  $\times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma matt (Fig. 36H). T I 2.5–2.65 (HT: 2.63)  $\times$  as long as maximum width; latero-median carina absent; dorso-lateral carina complete. T II 1.0–1.05 (HT: 1.0)  $\times$  as long as maximum width. Thyridium present; somewhat distant from (by more than length of thyridium) anterior margin of T II; flat to slightly depressed; ca. 2.0  $\times$  as wide as length. Ovipositor sheath 1.25–1.33 (HT: 1.3)  $\times$  as long as hind tibia, 2.5–2.7 (HT: 2.6)  $\times$  as long as T I. Ovipositor straight to slightly decurved; apex sharp; apex of lower valve with teeth (Fig. 79G).

Colouration (Figs. 36A–H). Body (excluding wings) black to blackish-brown. Setae silver. Subapical part of mandible and posterior margins of metasomal tergites (especially T II) weakly tinged with reddish-brown. Face with median small yellow marking below antennal sockets. FL VII to FL X with white markings. Hind second to fourth tarsomeres ivory. Membranous part of metasomal sternites dark yellowish-brown. Apex of metasoma white. Ovipositor reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish-brown wing base.

Male. Unknown.

**Distribution.** Japan (Honshu).

**Bionomics.** Unknown.

**Etymology.** The specific name is from the Latin “*tenuis*” (slender), referring to the slender species.

**Remarks.** This species resembles *J. gigantea* sp. nov. in the large body with white banded hind tibia but can be distinguished by the shape of areolet and the surface of mesoscutum (see above key). This species also resembles *J. coreensis* and *J. taniguchiae* in the black body but can be distinguished by the large body size (more than 8.0 mm in this species; less than 8.0 mm in *J. coreensis* and *J. taniguchiae*), ovipositor sheath 1.25–1.33  $\times$  as long as hind tibia (0.65–0.8  $\times$  in *J. coreensis*; 1.43  $\times$  in *J. taniguchiae*), and the hind tibia without white base (with white base in *J. taniguchiae*).

### *Javra teranishii* (Uchida, 1952)

[SJN: Teranishi-kimon-togari-himebachi]

(Figs. 37A–G, 79H)

*Habrocryptoides teranishii* Uchida, 1952: 19.

**Materials examined.** [Hokkaido] KPM-NK 81397, F, Horokanai Town, Uryu, 16. VII. 2012, M. Ito leg. [Honshu] KPM-NK 81293, F, Tochigi Pref., Ohtawara City, Shimoishigami, 4. XI. 2000, E. Katayama leg.; KPM-NK 102793, F, Tochigi Pref., Kuroiso Town, Ohsabigawa F. R., 29. VI. 2000, E. Katayama leg.; KPM-NK 102792, F, Kanagawa Pref., Kiyokawa Vil., Doudaira, 18. VII. 1993, T. Kinoshita leg.; KPM-NK 102794, F, Yamanashi Pref., Hokuto City, Kanayamadaira, 27. IX. 2007, K. Watanabe leg.; SEHU, 1F (holotype), Shiga Pref., Mt. Hira-san, 18. VI. 1929, C. Teranishi leg.

**Description.** Female (n = 6). Body matt (Figs. 37A, B, E, G); covered with setae; body length 6.3–8.7 mm.

Head 0.6–0.65  $\times$  as long as wide in dorsal view. Clypeus 2.0  $\times$  as wide as long; weakly convex in lateral view; punctate dorsally; smooth ventrally; lower margin weakly rounded in frontal view, sharp in lateral view. Face 0.45–0.5  $\times$  as long as minimum width; matt; slightly convex medially; densely punctate. Anterior tentorial pit small. Frons weakly concave above antennal sockets; coriaceous on concavities weaker than dorsal part. POL 0.9–1.1  $\times$  as OD. OOL 1.05–1.1  $\times$  as OD. Dorsal profile of gena straight in dorsal view; width abruptly narrowing posteriorly (Fig. 37D). Occipital carina complete. Malar space 1.0–1.1  $\times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 27–28 flagellomeres; not flattened and tapped. FL I 3.65–4.6  $\times$  as long as maximum depth in lateral view, 1.0–1.15  $\times$  as long as FL II.

Mesosoma. Pronotum rugulose ventrally. Epomia short; dorsal end situated slightly above collar. Notaulus sharp and short (Fig. 37D); posterior end not reaching centre of mesoscutum. Scutellum densely punctate; weakly convex in lateral view. Mesopleuron largely irregularly rugulose; without conspicuous smooth area around speculum (Fig. 37E). Epicnemial carina present laterally and ventrally. Sternaulus deep in entire length of mesopleuron. Metapleuron rugulose; juxtacoxal carina largely indistinct by rugae. Propodeum rugose to rugulose; with all carinae (Fig. 37G); area superomedia defined, slightly longer than maximum width; apophysis strong; apex obtuse; spiracle elliptic. Fore wing length 5.8–7.0 mm. Areolet as long as maximum width; width steeply narrowing anteriorly; received vein 2m-cu at slightly beyond to middle (Fig.



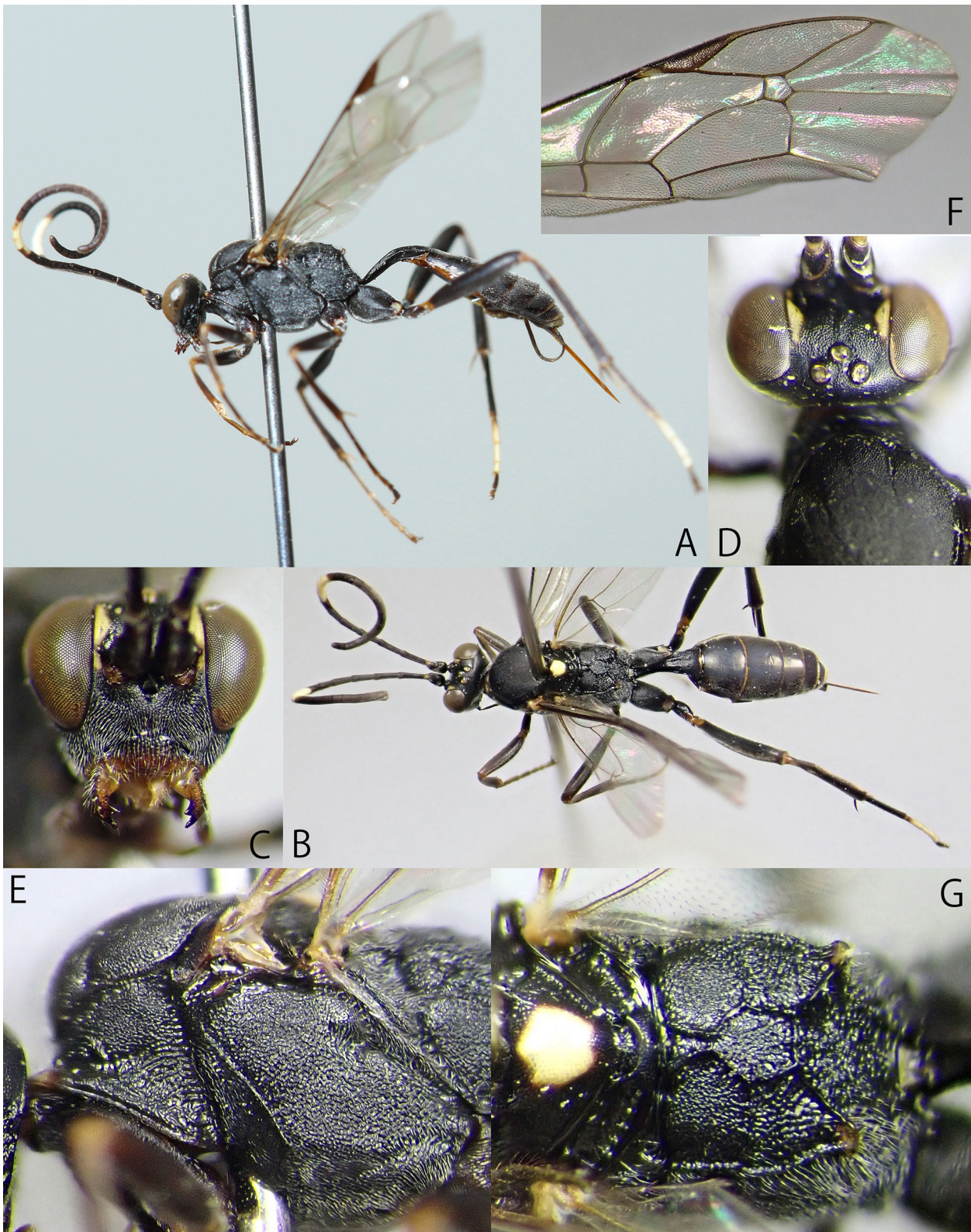


Fig. 37. *Javra teranishii* (Uchida, 1952), female (KPM-NK 81293) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head and mesoscutum, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: scutellum and propodeum, dorsal view.



37F). Fore wing vein 1cu-a interstitial to or slightly antefurcal to vein M&RS (Fig. 37F). Nervellus subvertical; intercepted near posterior end of vein. Hind femur reticulate coriaceous;  $5.0\text{--}5.6 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I  $2.5\text{--}2.6 \times$  as long as maximum width; latero-median carina absent; dorso-lateral carina complete. T II  $0.75\text{--}0.85 \times$  as long as maximum width. Thyridium present; somewhat distant from (by more than length of thyridium) anterior margin of T II; flat to slightly depressed; ca.  $2.0 \times$  as wide as length. Ovipositor sheath  $0.85\text{--}0.9 \times$  as long as hind tibia,  $1.4\text{--}1.65 \times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 79H).

Colouration (Figs. 37A–G). Body (excluding wings) black to blackish-brown. Setae silver. Subapical part of mandible, clypeus, and posterior margins of each metasomal tergite tinged with reddish-brown to brown. Frons with pair of yellow marking along each orbit. Scutellum with yellow marking. FL VII to FL XI with white markings. Median part of collar, apex of propodeal apophysis, and apex of ovipositor sheath tinged with yellow to yellowish-brown. Bases and apices of femora and tibiae narrowly tinged with yellowish-brown. Tibial spurs of all legs yellowish-brown. Hind TS II to IV (base of TS II usually darkened) ivory to white. Membranous part of metasomal sternites yellow to yellowish-brown. Apex of metasoma white. Thyridium and ovipositor reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish-brown to yellow wing base.

Male. Unknown.

**Distribution.** Japan (Hokkaido and Honshu).

**Bionomics.** Unknown.

### Genus *Megaplectes* Förster, 1869

*Megaplectes* Förster, 1869: 186. Type species: *Ichneumon monticola* Gravenhorst, 1829. Included by Schmiedeknecht (1890).

*Iocryptus* Thomson, 1873: 472. *Phygadeuon regius* Taschenberg, 1865 (= *Ichneumon monticola* Gravenhorst, 1829). Monotypic.

*Megaloplectes* Schulz, 1906: 124. Emendation.

A single species including two subspecies, *Meg. monticola monticola* (Gravenhorst, 1829) and *Meg. monticola dentatus* Uchida, 1930, have been recorded from Japan. Uchida (1936b) recorded *Meg. monticola* (Gravenhorst, 1829) and noted that the specimens from Shikoku have no horn of head. Townes & Gupta (1962)

reviewed the subspecies of this species and noted that the subspecies, *Meg. monticola dentatus* Uchida, 1930, has an intraspecific variation, i.e. horn of frons sometimes absent. According to Townes & Gupta (1962), all Japanese specimens of *Meg. monticola* should be treated as *Meg. monticola dentatus*. Thus, I delete the distribution of *Meg. monticola monticola* from Japanese fauna. In this study, I newly describe two new species and redescribe *Meg. monticola dentatus* below.

### Key to Japanese species of *Megaplectes*

(Male of *Meg. konishii* sp. nov. is unknown)

1. Basal part of hind tibia and hind tarsus each with white area (Fig. 40A). Tegula yellow (Fig. 40A). Body with strong blue reflection (Fig. 40A–E). Frons with a pair of large concavities (Figs. 76D, I).

..... *Megaplectes konishii* sp. nov.

-. Body and legs nearly entirely black; at most metasomal tergites slightly tinged with dark blue reflection (Figs. 38A, B, 39A, B, 41A, 43A, B). Tegula black to blackish-brown (Figs. 38A, 39A, 41A, 43A). Frons with horn(s) (Figs. 76C, E, H, J), or if without horn; without pair of large concavities.

..... 2

2. Frons with pair of horns (Figs. 76C, H). Face  $0.25 \times$  as high as minimum width. Juxtacoxal carina complete. Propodeal apophysis obtusely produced. Smaller species; body length ca. 12–14 mm. Wings brownish-hyaline. Apex of ovipositor without minute teeth dorsally (Fig. 79I).

..... *Megaplectes bicornis* sp. nov.

-. Frons with (Figs. 76E, J) or without single median horn. Face  $0.4\text{--}0.45 \times$  as high as minimum width. Juxtacoxal carina absent. Propodeal apophysis sharply produced. Larger species; body length 13.5–20 mm. Wings dark brownish-hyaline. Apex of ovipositor with some minute teeth dorsally (Fig. 79K).

..... *Megaplectes monticola dentatus* Uchida, 1930

### *Megaplectes bicornis* sp. nov.

[New SJN: Futakobu-oo-togari-himebachi]

(Figs. 38A–I, 39A–D, 76C, H, 79I)

**Type series. Holotype:** JAPAN, KPM-NK 103052, F, Honshu, Tochigi Pref., Nasushiobara City, Amayu, 2. XI. 2011, E. Katayama leg. **Paratype:** JAPAN: KPM-NK 103053, F, Nagano Pref., Ueda City, Sugadaira-kogen, 3–26. IX. 2014, S. Shimizu leg. (MsT); KPM-NK 103054, M, ditto, 1–23. VIII. 2015.

**Description.** Female (n = 2). Body punctate and polished; covered with setae; body length 13.7 mm.

Head 0.6–0.65 (HT: 0.6) × as long as wide in dorsal view. Clypeus 2.5–2.55 (HT: 2.5) × as wide as long; slightly convex in lateral view; densely punctate; punctures partly united into groove-like foveola; lower margin subtruncate or sometimes slightly concave medially in frontal view, blunt in lateral view. Face 0.25 × as long as minimum width; weakly convex medially; densely punctate; punctures large, ISP shorter than PD. Frons largely concave above antennal sockets; with pair of horns; largely irregularly rugose except for smooth area just above

antennal sockets and median longitudinal groove; horns projected upwards (Figs. 38D, 76C, H). POL 0.8–1.0 (HT: 1.0) × as OD. OOL 1.3–1.5 (HT: 1.5) × as OD. Gena and occiput densely punctate. Dorsal profile of gena slightly convex; width gradually narrowing posteriorly (Fig. 38E). Occipital carina complete. Malar space 1.0–1.1 (HT: 1.1) × as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 34–35 (HT: 35) flagellomeres; apical part flattened below and tapered to slender apex. FL I 1.6–1.7 (HT: 1.7) × as long as maximum depth in lateral view, 0.8–0.85 (HT: 0.85) × as long as FL II.

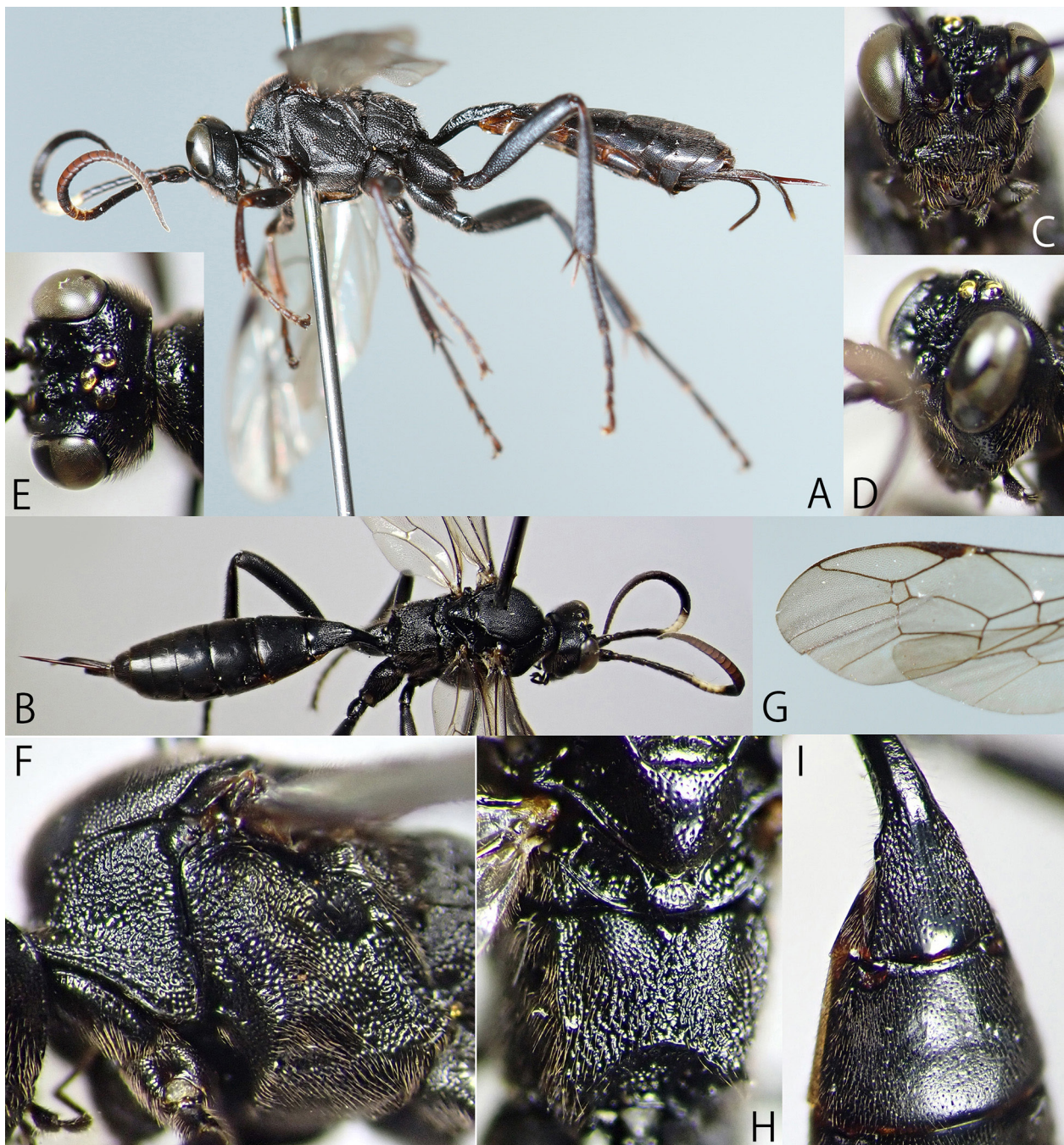


Fig. 38. *Megaplectes bicornis* sp. nov., female (holotype: KPM-NK 103052) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head, lateral view; E: head, dorsal view; F: pronotum and mesopleuron, lateral view; G: fore wing; H: scutellum and propodeum, dorsal view; I: T I and T II, dorso-lateral view.



Mesosoma densely punctate (Fig. 38F). Epomia short; dorsal end situated on collar. Mesoscutum with short and weak notaulus. Mesopleuron with smooth area around speculum; punctures partly united into groove-like foveola. Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.5 of mesopleuron. Metapleuron reticulate rugose; with complete juxtacoxal carina. Propodeum largely irregularly rugose; anterior transverse carina absent; posterior transverse carina complete; lateromedian longitudinal carina largely indistinct; lateral longitudinal carina partly present; pleural carina complete; area superomedia indistinct; apophysis weak and obtusely projected (Fig. 38H); spiracle oval. Fore wing length 11.2–11.3 (HT: 11.2) mm. Areolet as long as maximum width; width gradually narrowing anteriorly; received vein 2m-cu at slightly beyond to middle (Fig. 38G). Fore wing vein 1cu-a antefurcal to vein M&RS (Fig. 38G). Nervellus subvertical; intercepted posterior to middle. Hind femur densely punctate;  $5.3\text{--}5.4$  (HT: 5.3)  $\times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma finely punctate. T I  $1.55\text{--}1.6$  (HT: 1.6)  $\times$  as long as maximum width; smooth and finely rugose basally and laterally; apical area densely punctate except for smooth area of postero-median part; punctures of this area partly united into longitudinal or oblique groove-like foveola (Fig. 38I); latero-median carina largely absent except for basal part; dorso-lateral carina largely indistinct. T II  $0.65 \times$  as long as maximum width. Thyridium present; close to anterior margin of T II; depressed; ca.  $2.0 \times$  as wide as length. Ovipositor sheath  $0.8 \times$  as long as hind tibia,  $1.35\text{--}1.45$  (HT: 1.35)  $\times$  as long as T I. Ovipositor straight; apex sharp and without minute teeth dorsally; apex of lower valve with teeth (Fig. 79I).

Colouration (Figs. 38A–I). Body (excluding wings) black to blackish-brown. Setae brown to blackish-brown. Subapical part of mandible tinged with reddish-brown. FL VI to FL X (or XI) with white markings. Ventral surface of flagellum, fore and mid legs, membranous parts of metasomal sternites partly tinged with reddish-brown. Apex of ovipositor sheath yellowish-brown. Ovipositor



Fig. 39. *Megaplectes bicornis* sp. nov., male (paratype: KPM-NK 103054) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: flagellum and tyloids.

reddish-brown. Wings brownish-hyaline. Veins and pterostigma blackish-brown except for yellowish-brown wing base.

Male ( $n = 1$ ). Similar to female (Figs. 39A–D). Body length 12.4 mm. Clypeus  $2.9 \times$  as wide as long. Malar space  $0.55 \times$  as long as basal width of mandible. Antenna not flattened below and tapped; with tyloids on FL X to FL XIV (Fig. 39D). Lateromedian longitudinal carina of propodeum distinct between base of propodeum and posterior transverse carina; area superomedia with parallel sides. OOL  $1.25 \times$  as OD. T I  $2.35 \times$  as long as maximum width. T II  $0.8 \times$  as long as maximum width. FL IX to FL XII with white markings.

**Distribution.** Japan (Honshu).

**Bionomics.** Unknown.

**Etymology.** The specific name is Latin “*bī*” (two) plus “*cornis*” (horn), referring to a pair of frontal horn.

**Remarks.** This species can be easily distinguished from other species by the frons with a pair of horns.

***Megaplectes konishii* sp. nov.**

[New SJN: Konishi-oo-ruri-togari-himebachi]

(Figs. 40A–F, 76D, I, 79J)

**Type series. Holotype:** JAPAN, KPM-NK 103050, F, Honshu, Nagano Pref., Outaki Vil., Mt. Ontake-san, Hakkaizan, 5. VIII. 2010, K. Watanabe leg.

**Description.** Female ( $n = 1$ ). Body punctate and polished; covered with setae; body length 16.0 mm.

Head  $0.63 \times$  as long as wide in dorsal view. Clypeus  $2.2 \times$  as wide as long; slightly convex in lateral view; densely punctate; with transverse convexity along lower margin; lower margin subtruncate in frontal view, blunt in lateral view. Face  $0.3 \times$  as long as minimum width; weakly convex medially; matt; densely punctate medially, sparsely and shallowly punctate laterally. Frons largely strongly concave above antennal sockets; without horn; with pair of large, deep, margined concavities (Figs. 40D, 76D, I); largely smooth medially, matt laterally. POL  $0.8 \times$  as OD. OOL  $1.4 \times$  as OD. Gena and occiput densely punctate. Dorsal profile of gena nearly straight in dorsal view; width gradually narrowing posteriorly (Fig. 40D). Occipital carina complete. Malar space  $1.2 \times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 40 flagellomeres; apical part flattened below and tapped to slender apex. FL I  $3.4 \times$  as long as maximum depth in lateral view,  $1.45 \times$  as long as FL II.

Mesosoma finely and densely punctate. Epomia short; dorsal end situated between collar and dorsal margin of

pronotum. Mesoscutum with short and sharp notaulus. Mesopleuron with smooth area around speculum (Fig. 40E); punctures partly united into groove-like foveola. Epicnemial carina present laterally and ventrally. Sternaulus deep in entire length of mesopleuron. Metapleuron reticulate rugose; with complete juxtacoxal carina. Propodeum largely reticulate rugose; anterior transverse carina absent; posterior transverse carina weak, indistinct medially; lateromedian longitudinal carina largely indistinct; lateral longitudinal carina complete but weak; pleural carina complete; area superomedia indistinct; apophysis weak and obtusely pointed; spiracle oval. Fore wing length 14.5 mm. Areolet as long as maximum width; width steeply narrowing anteriorly; received vein 2m-cu at near middle (Fig. 40F). Fore wing vein 1cu-a slightly postfurcal to vein M&RS (Fig. 40F). Nervellus subvertical; intercepted slightly posterior to middle. Hind femur densely punctate;  $7.2 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma finely punctate. T I  $2.45 \times$  as long as maximum width; smooth basally and laterally, canaliculate laterally; apical area densely punctate except for smooth area along posterior margin; latero-median carina largely absent except for basal part; dorso-lateral carina largely weak and partly indistinct. T II  $0.87 \times$  as long as maximum width. Thyridium present; close to anterior margin of T II; weakly depressed; ca.  $2.0 \times$  as wide as length. Ovipositor sheath  $0.55 \times$  as long as hind tibia,  $1.05 \times$  as long as T I. Ovipositor straight; apex sharp and with some minute teeth dorsally; apex of lower valve with teeth (Fig. 79J).

Colouration (Figs. 40A–F). Body (excluding wings) metallic blue. Setae goldish-brown. Subapical part of mandible tinged with reddish-brown. Labrum and palpi ivory except for small brown spot of second segment of maxillary palpus. Frontal and facial orbits with pair of longitudinal yellow markings. FL VII to FL XII with white markings. Ventral surface of flagellum and membranous parts of metasomal sternites partly tinged with reddish-brown. Tegula yellow. Apical part of femora tinged with reddish-brown. Apices of femora, bases of tibiae, TS II to TS IV of all legs, and basal part of hind TS V ivory. Tibiae and tarsi blackish-brown to yellowish-brown except for ivory areas. Posterior margins of T I and T II narrowly tinged with reddish-brown. Ovipositor reddish-brown. Wings dark brownish-hyaline. Veins and pterostigma blackish-brown except for yellowish-brown wing base.

Male. Unknown.

**Distribution.** Japan (Honshu).

**Bionomics.** Unknown.

**Etymology.** The specific name is from Dr. Kazuhiko





Fig. 40. *Megaplectes konishii* **sp. nov.**, female (holotype: KPM-NK 103050) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing.

Konishi, a Japanese ichneumonologist and one of my teachers of ichneumonology.

**Remarks.** This is a remarkable species with blue metallic body, and there are many dissimilarities, such as sculpture, compared with other species in the genus, so the generic position may need to be reanalysed in future study.

***Megaplectes monticola dentatus* Uchida, 1930**

[SJN: Futotsuno-togari-himebachi]

(Figs. 41A–G, 42A–D, 76E, J, 79K)

*Megaplectes monticola* var. *dentatus* Uchida, 1930: 304.

*Megaplectes monticola dentatus*: Townes & Gupta, 1962: 222.

*Megaplectes monticola*: Uchida, 1936b: 1.



**Materials examined. JAPAN:** [Hokkaido] KPM-NK 103056, M, Sapporo City, Teinekanayama, 19. VII. 2012, M. Ito leg.; KPM-NK 103057, F, ditto, 27. VIII. 2010; KPM-NK 103058, F, Engaru Town, Urashimanai path, 13. VII. 2012, M. Ito leg. [Honshu]: KPM-NK 91325, F, Shizuoka Pref., Shizuoka City, Umegashima, Abetoge, 3. VIII. 2015, T. Sasai leg.; KPM-NK 103055, M, Toyama Pref., Toyama City, Arimine, Inonedani, 14–21. VII. 2009, M. Watanabe leg. (MsT); KPM-NK 103059, M, Nagano Pref., Kamikochi, 24–25. VII. 1957, R. Ishikawa leg.; KPM-NK 81279, F, ditto, 4. VIII. 1957; KPM-NK 103060, F, Nagano Pref., Ueda City, Sugadaira-kogen, 22. VII. – 8. VIII. 2014, S. Shimizu leg. (MsT); KPM-NK 103061–103065, 1 F & 4 M, Tochigi Pref., Kuriyama

Vil., Kinunuma, 19. VII. – 1. VIII. 2004, H. Makihara leg. (MsT). **RUSSIA:** SEHU, 1F (lectotype), Sachalin, Ichinosawa, 12. VIII. 1928, H. Furukawa leg.

**Description.** Female (n = 7). Body punctate and polished; covered with setae; body length 13.5–20.0 mm.

Head 0.6–0.65 (HT: 0.6) × as long as wide in dorsal view. Clypeus 2.25–2.4 × as wide as long; slightly convex in lateral view; densely punctate; punctures partly united each other; lower margin subtruncate or sometimes slightly concave medially in frontal view, blunt in lateral view. Face 0.4 × as long as minimum width; weakly convex medially; densely punctate, ISP matt; punctures large and shallow, its margin not clearly defined. Frons largely weakly concave above antennal sockets; usually with single median horn



Fig. 41. *Megaplectes monticola dentatus* Uchida, 1930, females (A: KPM-NK 81279; B–G: KPM-NK 91325) — A: lateral habitus; B: head, frontal view; C: head, dorsal view; D: pronotum and mesopleuron, lateral view; E: wings; F: scutellum and propodeum, dorsal view; G: T I and T II, dorso-lateral view.



(Figs. 76E, J); largely irregularly rugose medially, punctate laterally; horn projected frontwards. POL  $0.8\text{--}1.1 \times$  as OD. OOL  $1.25\text{--}1.6 \times$  as OD. Gena and occiput densely punctate. Dorsal profile of gena nearly straight in dorsal view; width gradually narrowing posteriorly (Fig. 41C). Occipital carina complete. Malar space  $1.1\text{--}1.25 \times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 37–42 flagellomeres; apical part flattened below and tapered to slender apex. FL I  $2.9\text{--}3.15 \times$  as long as maximum depth in lateral view,  $1.45\text{--}1.5 \times$  as long as FL II.

Mesosoma densely punctate (Fig. 41D). Epomia short; dorsal end situated between collar and dorsal margin of pronotum. Mesoscutum with short and weak notaulus. Mesopleuron with smooth area around speculum; punctures partly united into groove-like foveola. Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior  $0.66$  of mesopleuron. Metapleuron reticulate rugose; without juxtacoxal carina. Propodeum largely reticulate rugose; anterior transverse carina absent (Fig. 41F); posterior transverse carina largely absent or partly present; lateromedian longitudinal carina largely indistinct or partly present; lateral longitudinal carina partly present or complete; pleural carina complete; area superomedia indistinct or obtusely defined; apophysis strong and sharply pointed; spiracle oval. Fore wing length

$12.5\text{--}16.0$  mm. Areolet as long as maximum width; width gradually narrowing anteriorly; received vein 2m-cu at near middle (Fig. 41E). Fore wing vein 1cu-a interstitial to or slightly postfurcal to vein M&RS (Fig. 41E). Nervellus subvertical; intercepted near posterior to middle (Fig. 41E). Hind femur densely punctate;  $5.7\text{--}6.7 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma finely punctate. T I  $1.8\text{--}2.1 \times$  as long as maximum width; smooth anteriorly, matt medially, densely punctate and foveolate posteriorly (Fig. 41G); latero-median carina largely present except for apical part indistinct; dorso-lateral carina present except for apex. T II  $0.65 \times$  as long as maximum width. Thyridium present; close to anterior margin of T II; depressed; ca.  $3.0 \times$  as wide as length. Ovipositor sheath  $0.6\text{--}0.7 \times$  as long as hind tibia,  $1.1\text{--}1.3 \times$  as long as T I. Ovipositor straight or slightly decurved; apex sharp and with some minute teeth dorsally; apex of lower valve with teeth (Fig. 79K).

Colouration (Figs. 41A–G). Body (excluding wings) black to blackish-brown. Setae brown to blackish-brown. Subapical part of mandible tinged with reddish-brown. FL VI to FL X (or XI or XII) with white markings. Ventral surface of flagellum, fore and mid legs, membranous parts of metasomal sternites partly tinged with reddish-brown. Metasomal tergites sometimes slightly tinged with dark blue reflection. Apex of ovipositor sheath dark brown.



Fig. 42. *Megaplectes monticola dentatus* Uchida, 1930, male (KPM-NK 103059) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: flagellum and tyloids.

Ovipositor reddish-brown. Wings dark brownish-hyaline. Veins and pterostigma blackish-brown.

Male ( $n = 7$ ). Similar to female (Figs. 42A–D). Clypeus  $2.4\text{--}2.6 \times$  as wide as long. Face  $0.4\text{--}0.45 \times$  as long as minimum width. Malar space  $0.8\text{--}0.9 \times$  as long as basal width of mandible. Antenna not flattened below and tapped; with tyloids on FL XIII to FL XXII (Fig. 42D). FL I  $2.4\text{--}2.7 \times$  as long as maximum depth in lateral view,  $1.15\text{--}1.35 \times$  as long as FL II. Propodeal carinae partly present. OOL  $1.0\text{--}1.5 \times$  as OD. T I  $1.95\text{--}2.85 \times$  as long as maximum width. T II  $0.9\text{--}1.05 \times$  as long as maximum width. Face with a pair of yellow markings along orbit. FL IX (or X) to FL XIV (or XV) with white markings.

**Distribution.** Japan (Hokkaido, Honshu, and Shikoku), China, Korea, Russia, Canada, and USA.

**Bionomics.** Unknown.

### Genus *Oresbius* Marshall, 1867

*Oresbius* Marshall, 1867: 193. Type species: *Oresbius castaneus* Marshall, 1867. Monotypic.

*Opidnus* Förster, 1869: 185. Type species: *Aptesis tsugae* Cushman, 1939. Designated by Townes & Townes (1951).

A single species, *O. leucopsis* (Gravenhorst, 1829), has been recorded from Japan. The generic position of *Aptesis opaca* (Cushman, 1937) is clearly accorded with this genus. Thus, I change the generic position of this species from *Aptesis* to this genus (**comb. nov.**). The specific name “*opaca*, -um, -us” is preoccupied by *O. opacus* Taschenberg, 1865. Thus, I propose a new replaced name for this species.

### *Oresbius cushmani* nom. nov.

[SJN: Matsunokurohosi-habachi-togari-himebachi]  
(Figs. 43A–G, 76F, 79L)

*Pezoporus opaca* Cushman, 1937: 33.

*Aptesis? opaca*: Townes *et al.*, 1965: 165.

**Materials examined. JAPAN:** [Honshu] NSMT, 4F, Shizuoka Pref., Nagaizumi, 25. III. 1937 (cocoon of *Diprion nipponicus* coll.), IV. 1937 (em.); NSMT, 1F, ditto, no collecting data; KPM-NK 81199, F, Nagano Pref., Ueda City, Takeishi-toge to Utsukushigahara-road, 25. IX. 2011, M. Takakuwa leg.; KPM-NK 81200, F, Gunma Pref., Tsumagoi Vil., Kanbara, Takamine-kogen, 3. IX. 2015, K. Watanabe leg.

**Description.** Female ( $n = 7$ ). Body polished; covered with setae; body length  $8.0\text{--}9.3$  mm.

Head  $0.55 \times$  as long as wide in dorsal view. Clypeus  $2.0\text{--}2.1 \times$  as wide as long; weakly convex in lateral view; sparsely punctate; ISP partly coriaceous; with transverse convexity; lower margin truncate in frontal view, sharp in lateral view (Fig. 76F). Face  $0.4 \times$  as long as minimum width; weakly convex medially; matt; densely punctate except for lateral sides. Frons weakly concave above antennal sockets; matt and punctate except for concavities smooth. POL  $1.6\text{--}1.7 \times$  as OD. OOL  $1.0\text{--}1.3 \times$  as OD. Gena and occiput densely punctate. Dorsal profile of gena rounded in dorsal view; width gradually narrowing posteriorly (Fig. 43D). Occipital carina complete. Malar space  $1.45\text{--}1.55 \times$  as long as basal width of mandible. Mandible weakly convex at base; lower tooth equal in length of upper tooth. Antenna with 30–34 flagellomeres; not flattened and tapped. FL I  $2.9\text{--}3.5 \times$  as long as maximum depth in lateral view,  $1.15 \times$  as long as FL II.

Mesosoma reticulate rugose (Fig. 43E). Epomia absent. Mesoscutum densely punctate. Notaulus short and weak. Scutellum sparsely punctate anteriorly, densely punctate posteriorly. Mesopleuron with smooth area around speculum (Fig. 43E). Epicnemial carina present laterally and ventrally. Sternaulus shallow in entire length of mesopleuron. Metapleuron with largely indistinct juxtacoxal carina. Propodeum with short dorsal face, ca.  $0.4 \times$  as long as area postero; anterior transverse carina partly present, weakly defined by rugae; posterior transverse carina complete; lateromedian longitudinal carina largely indistinct (Fig. 43G); lateral longitudinal carina complete; pleural carina complete; area superomedia indistinct; apophysis weak and small; spiracle oval. Fore wing length  $7.1\text{--}8.2$  mm. Areolet as long as maximum width; width steeply narrowing anteriorly; received vein 2m-cu slightly basal than middle (Fig. 43F). Fore wing vein 1cu-a slightly antefurcal to or interstitial to vein M&RS (Fig. 43F). Nervellus subvertical; intercepted posterior to middle. Hind femur reticulate coriaceous;  $5.0\text{--}5.6 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma matt. T I  $1.95\text{--}2.1 \times$  as long as maximum width; apico-median area flat or slightly concave; latero-median carina present except for apical part; dorso-lateral carina complete. T II  $0.6\text{--}0.65 \times$  as long as maximum width; sparsely punctate posteriorly. Thyridium present; close to anterior margin of T II; not depressed; ca.  $2.0 \times$  as wide as length. T III and T IV finely and densely punctate posteriorly. Ovipositor sheath  $0.5 \times$  as long as hind tibia,  $0.8\text{--}0.9 \times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 79L).

Colouration (Figs. 43A–G). Body (excluding wings) black to blackish-brown. Setae silver. Subapical part of



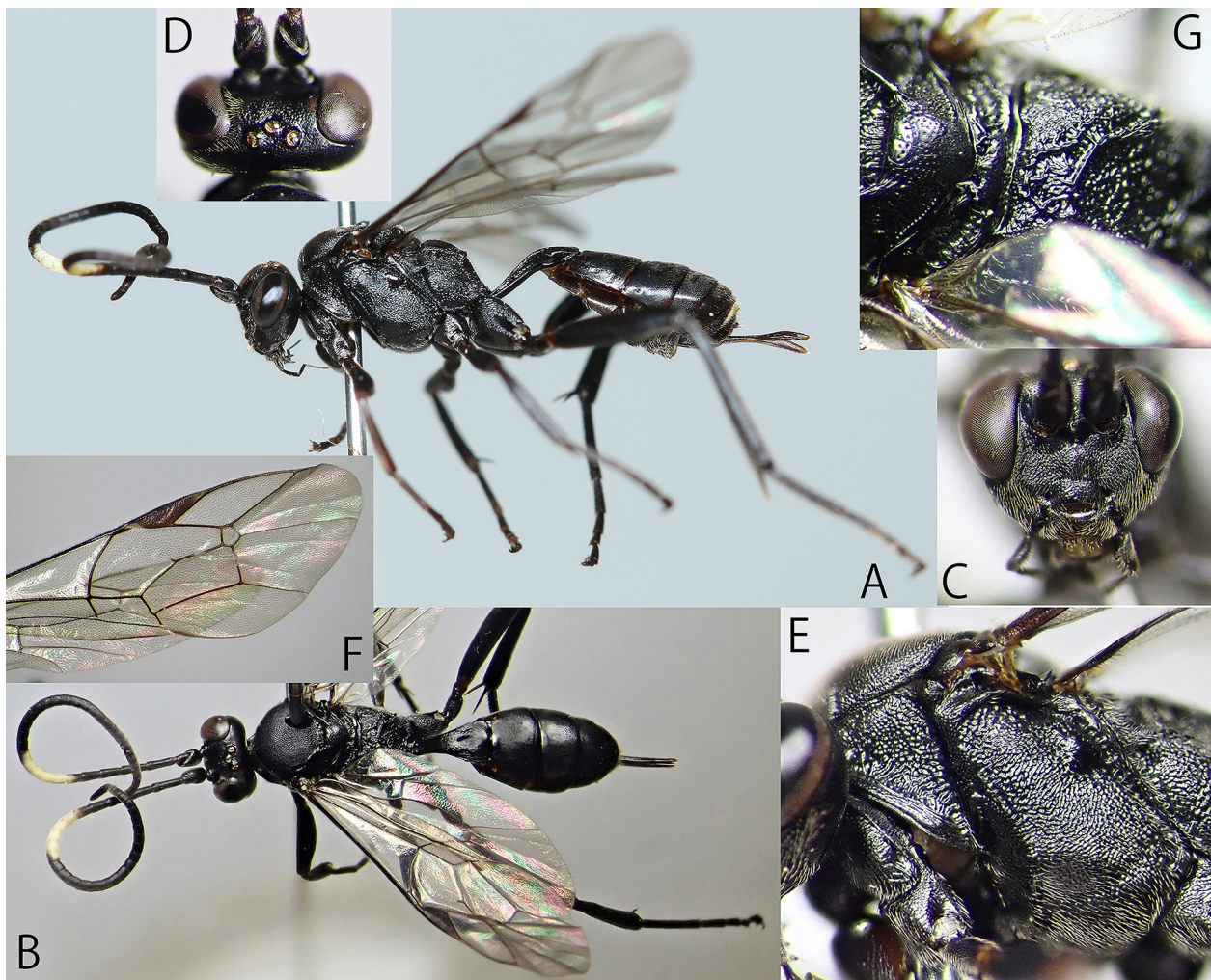


Fig. 43. *Oresbius cushmani* **nom. nov.**, female (KPM-NK 81200) — A: lateral habitus; B: dorsal habitus; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: wings; G: scutellum and propodeum, dorsal view.

mandible, lower margin of clypeus, and labrum weakly tinged with reddish-brown. Frontal orbits sometimes with pair of dark reddish-brown markings. FL V to FL X with white markings. Apical parts of trochanters and trochantelli and base of femora narrowly tinged with reddish-brown. Posterior margin of T II narrowly tinged with reddish-brown. T VII with ivory marking medially. Thyridium and ovipositor reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown except for brown wing base.

Male. Unknown.

**Distribution.** Japan (Honshu).

**Etymology.** The specific name is from Dr. Robert Asa Cushman (1880–1957), who is a taxonomist of Ichneumonidae in USA and described this species firstly.

**Bionomics.** Host: *Diprion nipponicus* Rohwer, 1910 (Hymenoptera, Diprionidae) (Cushman, 1937).

**Remarks.** This species can be easily distinguished from other Japanese species, *O. leucopsis*, by the completely black legs (coxae and hind femur except for apex red in *O. leucopsis*).

### Genus *Parmortha* Townes, 1962

*Parmortha* Townes, 1962 in Townes & Gupta, 1962: 14.

Type species: *Parmortha pleuralis atripes* Townes, 1962 (= *Scinacopus albomaculatus* Ashmead, 1906). Original designation.

Three species, *Pa. maruyamensis* (Uchida, 1930), *Pa. microsriatella* (Uchida, 1952), and *Pa. pleuralis albomaculata* (Ashmead, 1906), have been recorded from Japan. In this study, I newly describe two new species below. Key to Japanese species is see *Cubocephalus*.

### *Parmortha albitarsale* sp. nov.

[New SJN: Koushu-onaga-togari-himebachi]

(Figs. 44A–H, 79M)

**Type series.** **Holotype:** JAPAN, KPM-NK 75812, F, Yamanashi Pref., Koushu City, Hikawa, 22. V. 2010, M. Gunji leg.



**Description.** Female (n= 1). Body matt; covered with setae; body length 7.4 mm.

Head  $0.57 \times$  as long as wide in dorsal view. Clypeus  $1.9 \times$  as wide as long; slightly convex in lateral view; coriaceous and punctate dorsally, smooth ventrally; lower margin weakly rounded in frontal view, obtuse in lateral view. Face  $0.45 \times$  as long as minimum width; weakly convex medially; punctures indistinct. Frons slightly concave above antennal sockets; matt except for smooth areas above antennal sockets. POL  $1.2 \times$  as OD. OOL  $1.7 \times$  as OD. Gena and occiput densely punctate. Dorsal profile of gena rounded in dorsal view; width gradually narrowing anteriorly and somewhat abruptly narrowing

posteriorly (Fig. 44D). Occipital carina complete. Malar space  $1.4 \times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 24 flagellomeres; not flattened and tapped. FL I  $4.4 \times$  as long as maximum depth in lateral view,  $1.1 \times$  as long as FL II.

Mesosoma irregularly reticulate rugose (Fig. 44E). Epomia absent. Mesoscutum densely punctate except for median area reticulate rugose. Notaulus long and sharp; posterior end reaching centre of mesoscutum (Fig. 44D). Scutellum punctate; weakly convex in lateral view. Mesopleuron with conspicuous smooth area around speculum. Epicnemial carina present laterally and

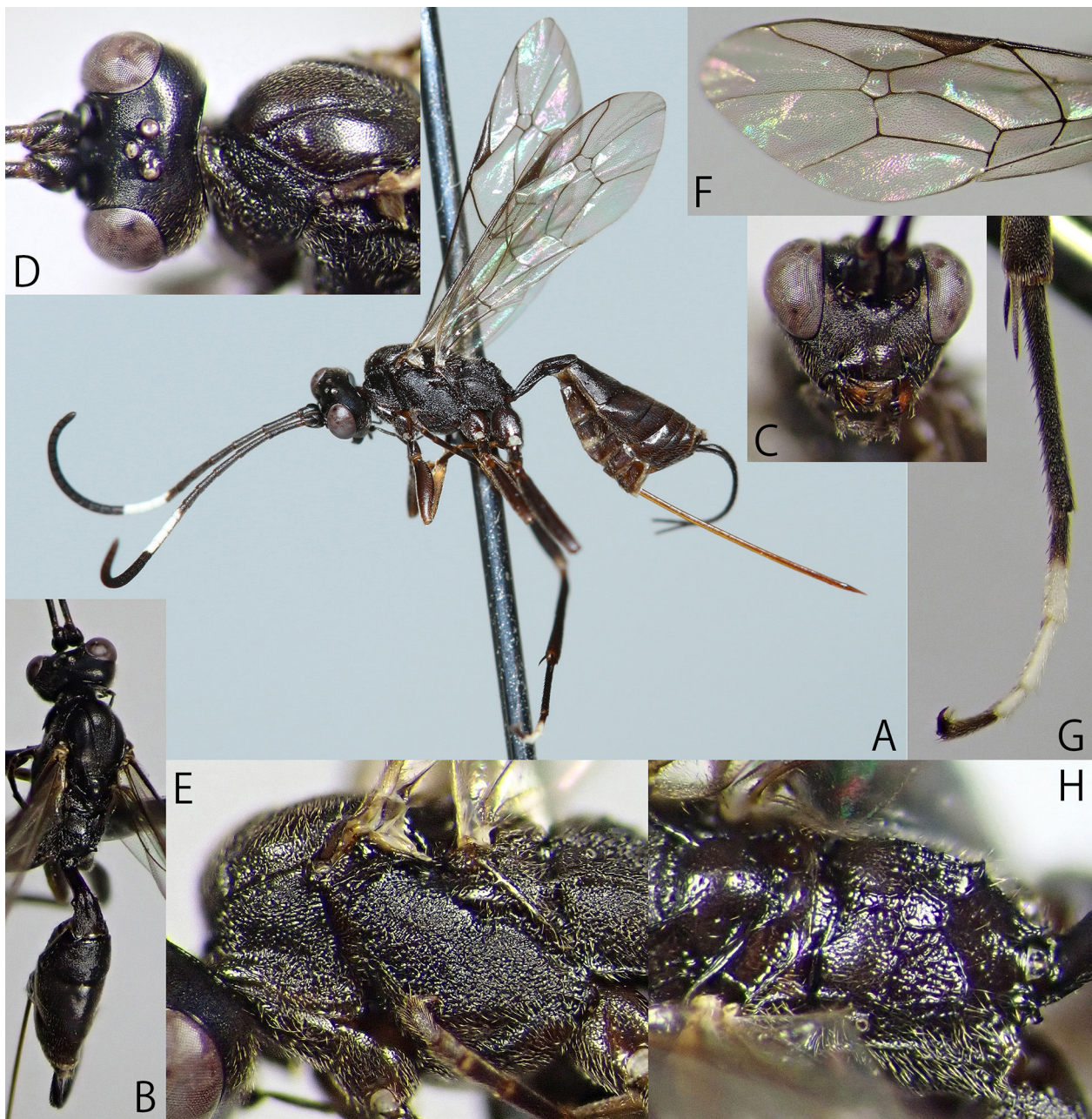


Fig. 44. *Parmortha albitarsale* sp. nov., female (holotype: KPM-NK 75812) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head and mesoscutum, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: hind tarsus, lateral view; H: scutellum and propodeum, dorso-lateral view.



ventrally. Sternaulus deep in entire length of mesopleuron. Metapleuron without juxtacoxal carina. Propodeum with all carinae; area superomedia defined, as long as maximum width; apophysis weak and obtuse; spiracle round. Fore wing length 6.5 mm. Areolet as long as maximum width; longer than half length of vein 2m-cu; width gradually narrowing anteriorly; received vein 2m-cu at near middle; anterior width longer than half length of vein 2m-cu (Fig. 44F). Fore wing vein 1cu-a interstitial to vein M&RS. Nervellus subvertical; intercepted near posterior end of vein. Hind femur reticulate coriaceous;  $5.6 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I  $2.35 \times$  as long as maximum width; latero-median carina absent; dorso-lateral carina absent. Spiracle of T I behind the mid-length of T I. T II  $0.9 \times$  as long as maximum width. Thyridium present; close to anterior margin of T II; slightly depressed; ca.  $3.0 \times$  as wide as length. Ovipositor sheath  $1.3 \times$  as long as hind tibia,  $2.55 \times$  as long as T I. Ovipositor slightly upcurved (Fig. 44A); apex sharp and without minute teeth dorsally; apex of lower valve with teeth (Fig. 79M).

Colouration (Figs. 44A–H). Body (excluding wings) black to blackish-brown. Setae silver. Subapical part of mandible tinged with reddish-brown. Face with pair of dark yellowish-brown spots between antennal sockets and eye. FL VI to FL IX with white markings. Fore and mid tibiae and tarsi partly tinged with brown. Apical half of hind TS II, hind TS III, and hind TS IV white. Median membranous part of T VII white. Ovipositor reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish wing base.

Male. Unknown.

**Distribution.** Japan (Honshu).

**Bionomics.** Unknown.

**Etymology.** The specific name is from Latin “*albi*” plus “*tarsale*”, referring to the white tarsal segment of hind tarsus.

**Remarks.** This species resembles *Pa. pleuralis albomaculata* and *Pa. nigra* **sp. nov.** but can be distinguished by the well-developed propodeal carinae (anterior transverse carina absent in *Pa. nigra*), the punctures on face indistinct (distinct in *Pa. nigra*), the ovipositor sheath  $1.3 \times$  as long as hind tibia (longer than  $1.5 \times$  in *Pa. pleuralis albomaculata* and *Pa. nigra*), the black tegula (ivory in *Pa. pleuralis albomaculata*), and the hind tarsus with white band (entirely black in *Pa. pleuralis albomaculata* and *Pa. nigra*).

***Parmortha gigantea* sp. nov.**

[New SJN: Ito-onaga-togari-himebachi]

(Figs. 45A–G, 77C, J, 79N)

**Type series.** **Holotype:** JAPAN, KPM-NK 75808, F, Hokkaido, Sapporo City, Teinekanayama, 18. VII. 2012, M. Ito leg. **Paratype:** JAPAN, KPM-NK 103049, F, Honshu, Toyama Pref., Nanto City, Togamura-kamimomose, 28. VII. – 4. VIII. 2009, M. Watanabe leg. (MsT).

**Description.** Female (n = 2). Body matt; lustre dull; covered with setae; body length 10.5–13.9 (HT: 13.9) mm.

Head  $0.6 \times$  as long as wide in dorsal view. Clypeus  $2.1 \times$  as wide as long; slightly convex in lateral view; punctate dorsally, sparsely punctate ventrally, ISP smooth; lower margin subtruncate in frontal view, obtuse in lateral view. Face  $0.45 \times$  as long as minimum width; slightly convex medially (Fig. 45C); finely and densely punctate. Frons slightly concave above antennal sockets; finely and densely punctate except for smooth areas above antennal sockets. POL 1.0–1.15 (HT: 1.0)  $\times$  as OD. OOL 1.3–1.5 (HT: 1.3)  $\times$  as OD. Gena and occiput finely punctate. Dorsal profile of gena rounded in dorsal view; width not narrowing anteriorly and somewhat abruptly narrowing posteriorly (Fig. 45D). Occipital carina complete. Malar space 1.0–1.05 (HT: 1.0)  $\times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 29 flagellomeres; not flattened and tapped. FL I 5.0–5.7 (HT: 5.0)  $\times$  as long as maximum depth in lateral view,  $1.0 \times$  as long as FL II.

Mesosoma. Pronotum striate ventrally, finely and densely punctate dorsally (Fig. 45E). Epomia short; section on border of collar and pronotum present. Mesoscutum densely and finely punctate, ISP largely smooth. Notaulus long and sharp; posterior end close to centre of mesoscutum. Scutellum punctate; weakly convex in lateral view. Mesopleuron with conspicuous smooth area around speculum; obliquely or longitudinally striate (Fig. 45E). Epicnemial carina present laterally and ventrally. Sternaulus deep in entire length of mesopleuron. Metapleuron with complete, weak juxtacoxal carina. Propodeum irregularly rugae and reticulate rugulose; anterior transverse carina present as trace-like by rugae; posterior transverse carina complete (Fig. 45G); lateromedian longitudinal carina as trace-like by rugae; lateral longitudinal carina present, weak anteriorly; pleural carina complete; area superomedia defined but partly indistinct; apophysis absent; spiracle oval. Fore wing length 8.5–10.8 (HT: 10.8) mm. Areolet slightly shorter than maximum width; longer than half length of vein 2m-cu; width gradually narrowing anteriorly; received vein 2m-cu basal than middle; anterior width longer than half length of vein 2m-cu (Fig. 45F). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 45F). Nervellus subvertical; intercepted posterior to middle (Fig. 45F). Hind femur reticulate coriaceous;  $5.2$ – $5.4$  (HT: 5.2)  $\times$  as long as

maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I 1.9–2.0 (HT: 2.0)  $\times$  as long as maximum width; latero-median carina absent; dorso-lateral carina partly and weakly present. Spiracle of T I situated near the mid-length of T I (Fig. 77J). T II 0.75–0.9 (HT: 0.9)  $\times$  as long as maximum width. Thyridium present; close to anterior margin of T II; flat; ca. 2.0  $\times$  as wide as length. Ovipositor sheath 2.6–2.8 (HT: 2.8)  $\times$  as long as hind tibia, 5.9–6.4 (HT: 6.4)  $\times$  as long as T I. Ovipositor upcurved; apex sharp and with some minute teeth dorsally; apex of lower valve with teeth (Fig. 79N).

Colouration (Figs. 45A–G). Body (excluding wings) black to blackish-brown. Setae silver. FL VI to FL IX (or X) with white markings. Fore and mid tibiae and tarsi partly tinged with dark brown. Apical half of hind TS II, hind TS III, and hind TS IV ivory to white. Posterior margins of T V and T VI each narrowly tinged with ivory to white. Postero-median membranous part of T VII ivory to white. Ovipositor reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown to brown.

Male. Unknown.

**Distribution.** Japan (Hokkaido and Honshu).

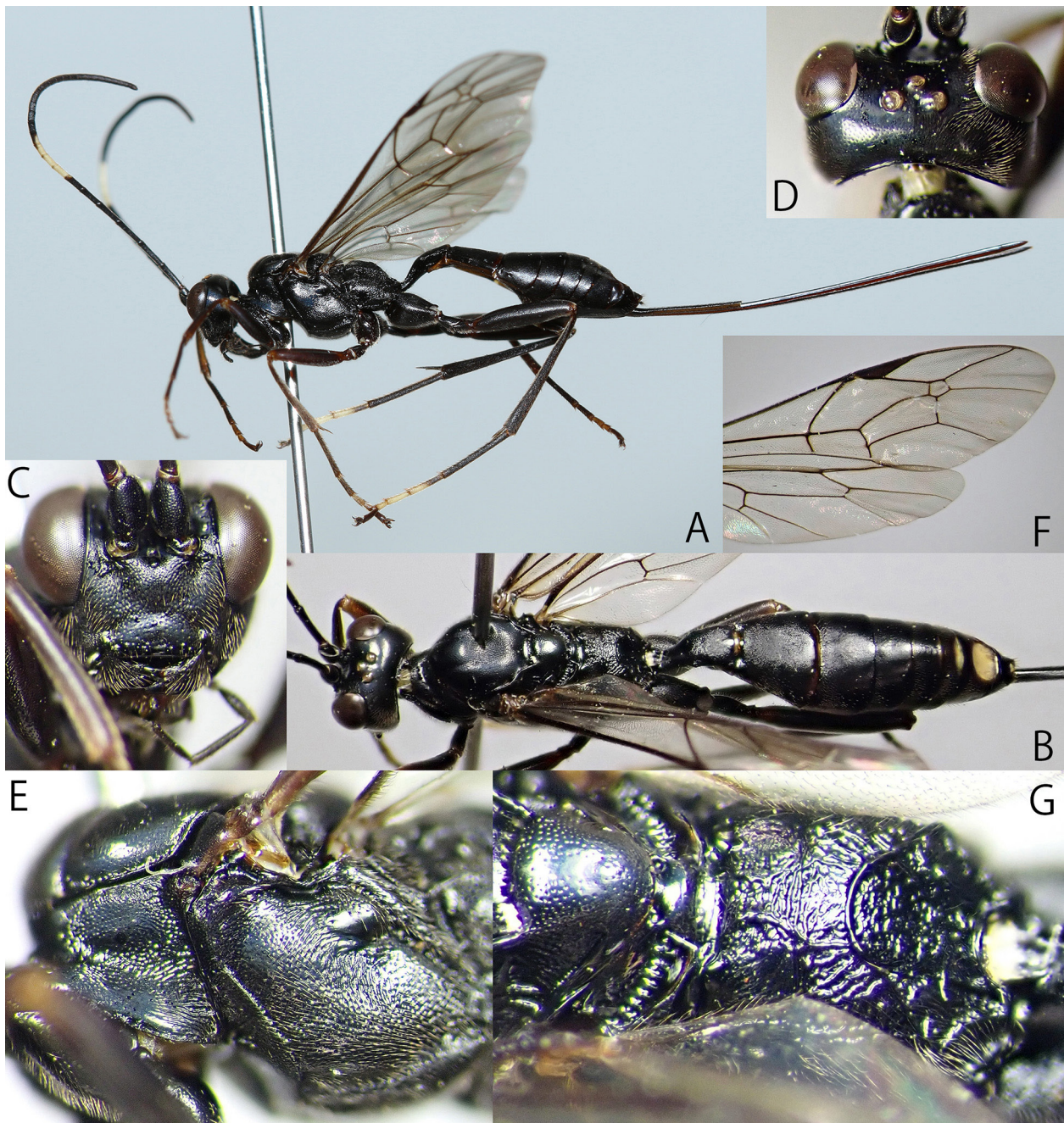


Fig. 45. *Parmortha gigantea* sp. nov., female (holotype: KPM-NK 75808) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: wings; G: scutellum and propodeum, dorso-lateral view.



**Bionomics.** Unknown.

**Etymology.** The specific name is from the Latin “*giganteus*” (giant), referring to the largest body size in Japanese species.

**Remarks.** This species resembles *Pa. nigra* **sp. nov.** (see remarks of *Pa. nigra*). This species also resembles *Echthrus* species in the spiracle of T I but can be easily distinguished by the normal shaped fore tibia (Fig. 77C) (fore tibia significantly enlarged in *Echthrus*).

***Parmortha maruyamensis* (Uchida, 1930)**

[SJN: Maruyama-hime-togari-himebachi]

(Figs. 46A–I, 47A–D, 79O)

*Microcryptus maruyamensis* Uchida, 1930: 330.

*Cratocryptus microstriatellus* Uchida, 1952: 21. **Syn. nov.**

**Materials examined. JAPAN:** [Hokkaido] SEHU, 1F (holotype of *Mi. maruyamensis*), Sapporo, 6. VIII. 1928, T. Uchida leg.; KPM-NK 91326, F, 15. VI. 2023, K. Watanabe leg. [Honshu] KPM-NK 103091, F, Tochigi Pref., Nasushiobara City, Osonozawa, 13–21. IV. 2011, T. Matsumura leg. (MsT); KPM-NK 103081, Ibaraki Pref., Goka, Riverside of Tonegawa, 12. IV. 1999, M. Uchida leg.; KPM-NK 81285, F, Saitama Pref., Ogano Town, Iida, 28. V. 2006, K. Watanabe leg.; KPM-NK 103074, F, Kanagawa Pref., Ebina City, riverside of Sagami-gawa, 20. IX. 1992, H. Nagase leg.; KPM-NK 103077, F, Kanagawa Pref., Hadano City, Mt. Koubou-yama, 6. IV. 2008, H. Katahira leg.; KPM-NK 103078, M, ditto, 1. V. 2016, K. Watanabe & H. Utsugi leg.; KPM-NK 103079, F, Kanagawa Pref., Hadano City, Chimura, Mt. Zukko-yama, 16. IV. 2017, K. Watanabe leg.; KPM-NK 103087, F, Kanagawa Pref., Atsugi City, Nakaogino, 20. IV. 2008, H. Katahira leg.; KPM-NK 103088, 103089, 1 F & 1 M, ditto, 26. IV. 2008, M. Gunji leg.; KPM-NK 103086, F, ditto, 8. V. 2008, H. Katahira leg.; KPM-NK 103080, Kanagawa Pref., Yokosuka City, Mt. Miurafuji to Mt. Takeyama, 5. V. 2007, K. Watanabe leg.; KPM-NK 81284, F, ditto, 13. VII. 2008; KPM-NK 103072, F, Kanagawa Pref., Fujino Town, Tochtani-rindo, 8. VI. 2008, K. Watanabe leg.; KPM-NK 103092, M, Kanagawa Pref., Kaisei Town, Kanaishima, 22. III. 2016, K. Watanabe leg.; KPM-NK 103082, F, Niigata Pref., Myokou City, Suginosawa, Sugadaira, 19. IX. 2013, S. Shimizu leg.; TMNH, F, Aichi Pref., Toyohashi City, Imure Town, Takayama, 13. V. 2019, S. Morishita leg.; KPM-NK 103093, F, Toyama Pref., Nanto City, Togamura-kamimomose, 11–18. VIII. 2009, M. Watanabe leg. (MsT); KPM-NK 103094 & OMNH, 2 F, ditto, 4–11. VIII. 2009; KPM-NK 103095, 103096,

1 F & 1 M, ditto, 18–25. VIII. 2009; KPM-NK 103097, F, ditto, 1–8. IX. 2009; KPM-NK 103098, F, ditto, 8–15. IX. 2009; KPM-NK 103075, Fukui Pref., Imajo Town, Hachibuse-yama, 14. VIII. 1981, T. Murota leg.; KPM-NK 103076, Fukui Pref., Izumi Vil., Kadonomaesaka, 18. X. 1981, H. Kurokawa leg.; SEHU, 1F (holotype of *Cr. microstriatellus*), Hyogo Pref., Sasayama, 24. XI. 1950, K. Iwata leg.; KPM-NK 103090, F, Hyogo Pref., Sayo Town, Funakoshi, 17–24. IV. 2010 (MsT); KPM-NK 103083, F, Hyogo Pref., Sanda City, Fukushima, Arima-fuji park, 16. V. 2017, K. Watanabe leg. [Hachiojima Is.] KPM-NK 103085, F, Tokyo, Hachio Town, Mitsune, Fujikanjorindo, 18. V. 2012, K. Tsujii leg. [Shikoku] KPM-NK 103084, F, Ehime Pref., Saijo City, Teizui, Kamo-jinja, 4. V. 2012, S. Fujie leg.

**Description.** Female (n = 30). Body polished; covered with setae; body length 5.5–8.5 mm.

Head 0.55–0.6 (HT: 0.6) × as long as wide in dorsal view. Clypeus 1.9–2.0 × as wide as long; slightly convex in lateral view; punctate dorsally, smooth ventrally; lower margin weakly rounded in frontal view, sharp and narrowly reflecting in lateral view. Face 0.35–0.4 × as long as minimum width; weakly convex medially; matt and punctate. Frons slightly concave above antennal sockets; finely punctate except for smooth areas above antennal sockets. POL 1.5–1.8 × as OD. OOL 1.05–1.6 × as OD. Gena and occiput finely punctate. Dorsal profile of gena rounded in dorsal view; width gradually narrowing posteriorly (Fig. 46F). Occipital carina complete. Malar space 1.2–1.5 × as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 22–24 flagellomeres; not flattened and tapped. FL I 3.8–4.1 × as long as maximum depth in lateral view, 1.05–1.15 × as long as FL II.

Mesosoma. Pronotum longitudinally striate except for finely and densely punctate area along dorsal margin and smooth area of collar (Fig. 46G). Epomia short and indistinct. Mesoscutum finely punctate except for median area densely punctate. Notaulus long and sharp; posterior end reaching centre of mesoscutum. Scutellum punctate (Fig. 46I); weakly convex in lateral view. Mesopleuron obliquely or longitudinally striate or foveolate; with conspicuous smooth area around speculum. Epicnemial carina present laterally and ventrally. Sternaulus deep in entire length of mesopleuron. Metapleuron with complete juxtacoxal carina. Propodeum largely irregularly rugulose; with all carinae; anterior transverse carina sometimes partly indistinct; area superomedia defined (Fig. 46I), ca. 1.5 × as long as maximum width; apophysis absent; spiracle round. Fore wing length 4.75–6.3 mm. Areolet as long as



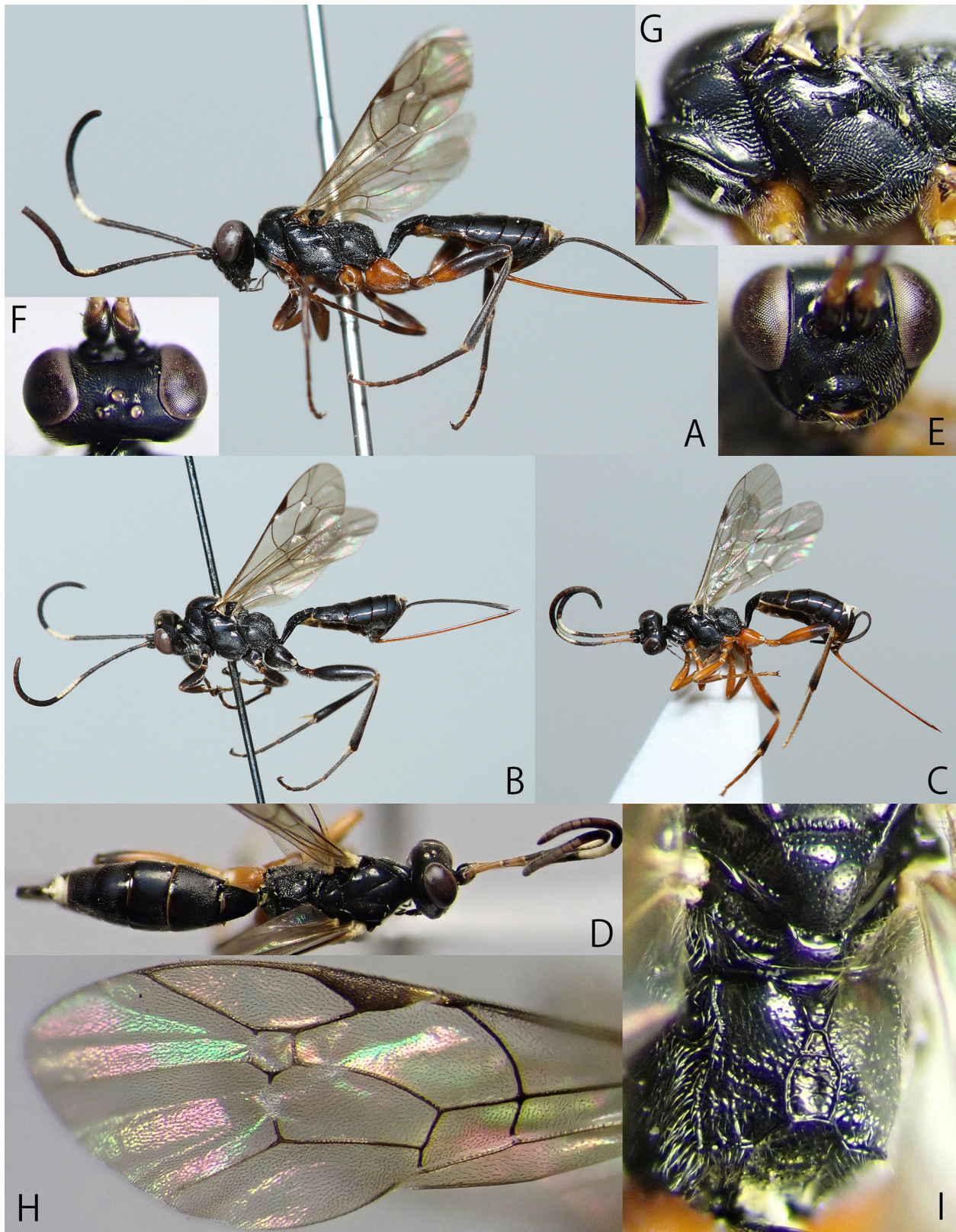


Fig. 46. *Parmortha maruyamensis* (Uchida, 1930), females (A: KPM-NK 81284; B: KPM-NK 103072; C–I: KPM-NK 91326) — A–C: lateral habitus; D: head, mesosoma, and metasoma, dorso-lateral view; E: head, frontal view; F: head, dorsal view; G: pronotum and mesopleuron, lateral view; H: fore wing; I: scutellum and propodeum, dorso-lateral view.



maximum width; longer than half length of vein 2m-cu; width slightly narrowing anteriorly; received vein 2m-cu at near middle; anterior width longer than half length of vein 2m-cu (Fig. 46H). Fore wing vein 1cu-a interstitial to vein M&RS. Nervellus subvertical; intercepted near posterior end of vein. Hind femur reticulate coriaceous;  $5.25\text{--}5.8 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I  $2.0\text{--}2.25 \times$  as long as maximum width; largely coriaceous with longitudinal striae on postpetiole; latero-median carina weakly and partly present; dorso-lateral carina present, section above spiracle indistinct. Spiracle of T I behind the mid-length of T I. T II  $0.8\text{--}0.9 \times$  as long as maximum width; matt. Thyridium present; close to anterior margin of T II; slightly depressed; ca.  $2.0 \times$  as wide as length. T III to T VII weakly to slightly coriaceous. Ovipositor sheath  $1.3\text{--}1.5 \times$  as long as hind tibia,  $2.25\text{--}2.6 \times$  as long as T I. Ovipositor upcurved; apex sharp and without minute teeth dorsally; apex of lower valve with teeth (Fig. 79O).

Colouration (Figs. 46A–I). Body (excluding wings) black to blackish-brown. Setae silver. Subapical part of mandible tinged with reddish-brown. FL VI to FL IX (or X) with white markings. Basal part of antenna (baseward than white band; especially from scape to FL II) sometimes tinged with reddish-brown. Tibial spurs of all legs ivory. Fore and mid legs except for tibial spurs sometimes changed colouration; partly/entirely black, brown, reddish-

brown, or reddish-yellow. Hind leg except for tibial spurs also changed colouration like as fore and mid legs but apical parts of femur and tibia always blackish-brown to black, base of tibia always white, and tarsus always darkened. Median part of T VI to T VIII white to ivory. Ovipositor reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish wing base.

Male ( $n = 4$ ). Similar to female except for colouration (Figs. 47A–D). Clypeus  $2.0\text{--}2.2 \times$  as wide as long. Face  $0.5 \times$  as long as minimum width. Malar space  $1.0 \times$  as long as basal width of mandible. Antenna with 26–27 flagellomeres; tyloids on FL X to FL XIV (Fig. 47D). FL I  $2.8\text{--}2.95 \times$  as long as maximum depth in lateral view,  $1.05\text{--}1.2 \times$  as long as FL II. Fore wing length  $5.1\text{--}5.8$  mm. T I  $2.4\text{--}2.55 \times$  as long as maximum width. T II  $0.9\text{--}1.0 \times$  as long as maximum width. Antenna without white band. Clypeus except for apico-median black area, mandible except for teeth, pair of markings along facial orbit, ventral spot of scape, basal segments of palpi and tegula ivory. Posterior margins of each metasomal tergite narrowly tinged with ivory. Legs black; trochanter and trochantellus partly tinged with yellowish-brown to ivory; fore femur more or less tinged with brown to yellowish-brown; bases of femora and tibiae yellowish-brown to ivory; each tarsal segment of all leg narrowly tinged with brown to yellowish-brown.

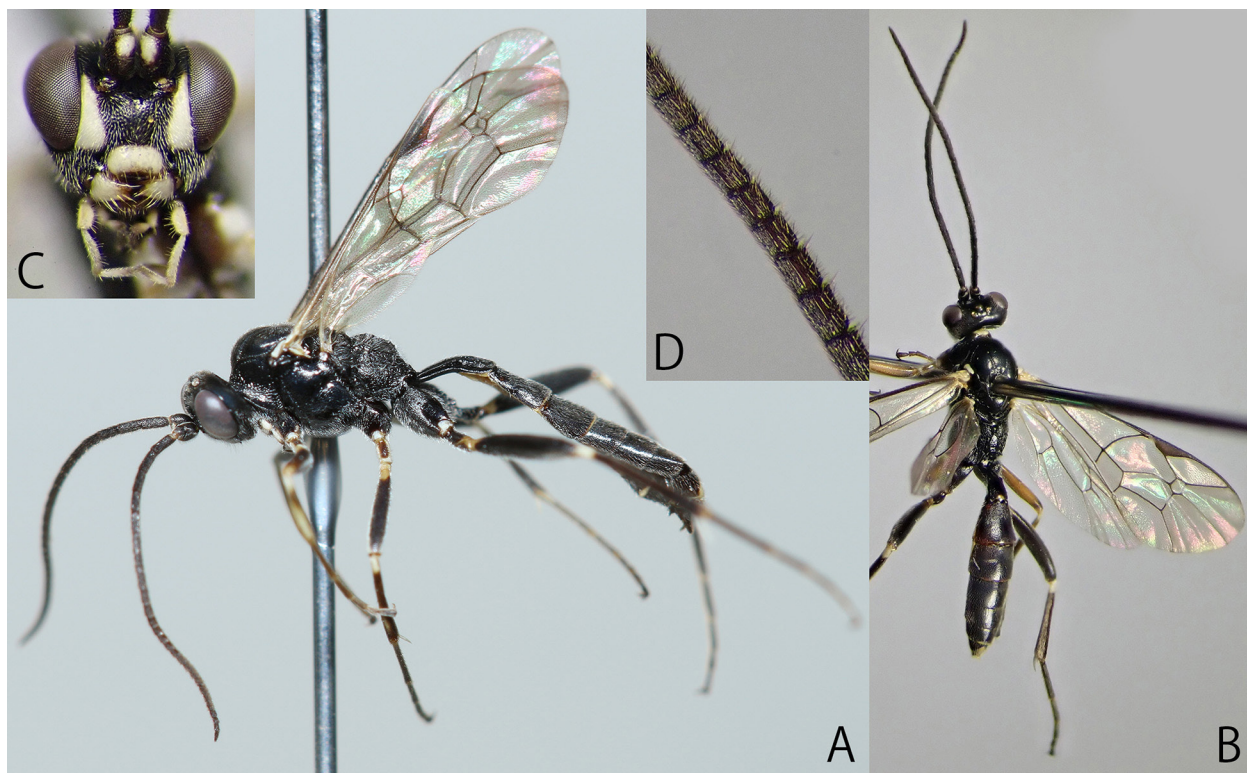


Fig. 47. *Parmortha mariyamensis* (Uchida, 1930), males (A: KPM-NK 103088; B–D: KPM-NK 103078) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: flagellum and tyloids.

**Distribution.** Japan (Hokkaido, Honshu, Hachijojima Is., and Shikoku).

**Bionomics.** Host unknown. Adult wasps usually collected grassland in open-habitat.

**Remarks.** This is the first description of the male of this species. The colouration of female legs in *Pa. microstriatella* shows relatively large intraspecific variation in this group, i.e., largely red to largely black. Both specimens with red legs and with black legs are inseparable based on other characters and the colour variation are gradually changed from red to black. Species exhibiting such colour variation are often known to be found in open-habitat (e.g., *Itopectis naranyae* (Ashmead, 1906) and *Thrybius togashii* Kusigemati, 1982) (Shin & Yasumatsu, 1970; Matsumoto & Saigusa, 2001), which may be related to the fact that this species is found in grassland. In addition, the character states of this species with red legs are completely same to that of *Pa. maruyamensis*. Thus, I conclude that *Cratocryptus microstriatellus* Uchida, 1952 under *Microcryptus maruyamensis* Uchida, 1930 (= *Pa. maruyamensis*) (**syn. nov.**).

***Parmortha nigra* sp. nov.**

[New SJN: Miyama-onaga-togari-himebachi]  
(Figs. 48A–F, 77K, 79P)

**Type series. Holotype:** JAPAN, KPM-NK 75811, F, Honshu, Nagano Pref., Outaki Vil., Mt. Ontake-san, Hakkaisan, 8. VIII. 2010, K. Watanabe leg. **Paratype:** JAPAN: [Honshu] KPM-NK 103043, F, Gunma Pref., Katashina Vil., Mt. Hotaka-san, 1. VIII. 2007, M. Irie leg.; KPM-NK 103042, F, Yamanashi Pref., Hokuto City, Masutomi, Biwakubo-sawa, 28. VII. 2007, K. Watanabe leg.; KPM-NK 103040, F, Yamanashi Pref., Koushu City, Yanagisawa-toge, 5. VIII. 2008, M. Gunji leg.; KPM-NK 103041, F, ditto, K. Watanabe leg.; KPM-NK 103044, F, Aichi Pref., Shitara Town, Nishinagura, 26. VII. – 1. VIII. 2015, J. Imura leg. (FIT); KPM-NK 103047 & OMNH, 2F, Toyama Pref., Nanto City, Togamura-kamimomose, 21–28. VII. 2009, M. Watanabe leg. (MsT); KPM-NK 103048, F, ditto, 18–25. VIII. 2009; KPM-NK 103045, F, Toyama Pref., Toyama City, Arimine, Inonedani, 4–11. VIII. 2009, M. Watanabe leg. (MsT); KPM-NK 103046, F, ditto, 11–16. VIII. 2009.

**Description.** Female (n = 11). Body matt; lustre dull; covered with setae; body length 7.35–10.3 (HT: 10.3) mm.

Head 0.6–0.65 (HT: 0.61) × as long as wide in dorsal view. Clypeus 2.0–2.1 (HT: 2.0) × as wide as long; slightly convex in lateral view; punctate dorsally, sparsely punctate ventrally, ISP smooth; lower margin weakly rounded in

frontal view, obtuse in lateral view. Face 0.45 × as long as minimum width; slightly convex medially; finely and densely punctate. Frons slightly concave above antennal sockets; finely punctate; matt except for smooth areas above antennal sockets. POL 0.8–1.3 (HT: 0.8) × as OD. OOL 1.0–1.4 (HT: 1.1) × as OD. Gena and occiput finely punctate. Dorsal profile of gena rounded in dorsal view; width gradually narrowing anteriorly and somewhat abruptly narrowing posteriorly (Fig. 48D). Occipital carina complete. Malar space 1.0–1.1 (HT: 1.1) × as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 24–27 (HT: 27) flagellomeres; not flattened and tapped. FL I 5.0–5.7 (HT: 5.0) × as long as maximum depth in lateral view, 1.0 × as long as FL II.

Mesosoma. Pronotum striate ventrally, finely punctate dorsally; collar with smooth area (Fig. 48E). Epomia absent. Mesoscutum densely and finely punctate, ISP largely smooth. Notaulus long and sharp (Fig. 48D); posterior end close to centre of mesoscutum. Scutellum punctate; weakly convex in lateral view. Mesopleuron with conspicuous smooth area around speculum; punctures partly united into groove-like foveola (Fig. 48E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.75 of mesopleuron. Metapleuron with complete juxtacoxal carina. Propodeum irregularly rugae and reticulate rugulose; anterior transverse carina absent; posterior transverse carina complete (Fig. 48F); lateromedian longitudinal carina absent or slightly present; lateral longitudinal carina present and weak; pleural carina complete; area superomedia not defined; apophysis absent; spiracle oval. Fore wing length 6.5–8.75 (HT: 8.75) mm. Areolet as long as maximum width; longer than half length of vein 2m-cu; width gradually narrowing anteriorly; received vein 2m-cu at near middle; anterior width longer than half length of vein 2m-cu (Fig. 48B). Fore wing vein 1cu-a slightly interstitial to vein M&RS (Fig. 48B). Nervellus subvertical; intercepted near posterior end of vein (Fig. 48B). Hind femur reticulate coriaceous; 4.9–5.4 (HT: 5.4) × as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I 2.0–2.1 (HT: 2.1) × as long as maximum width; latero-median carina absent; dorso-lateral carina partly and weakly present. Spiracle of T I behind the mid-length of T I (Fig. 77K). T II 0.75–0.9 (HT: 0.9) × as long as maximum width. Thyridium present; close to anterior margin of T II; slightly depressed; ca. 3.0 × as wide as length. Ovipositor sheath 2.35–2.4 (HT: 2.35) × as long as hind tibia, 4.9–5.2 (HT: 5.2) × as long as T I. Ovipositor upcurved; apex sharp and with some minute teeth dorsally;





Fig. 48. *Parmortha nigra* sp. nov., females (A: paratype: KPM-NK 103043; B–F: holotype: KPM-NK 75811) — A: lateral habitus; B: dorsal habitus; C: head, frontal view; D: head and mesoscutum, dorsal view; E: pronotum and mesopleuron, lateral view; F: scutellum and propodeum, dorso-lateral view.

apex of lower valve with teeth (Fig. 79P).

**Colouration** (Figs. 48A–F). Body (excluding wings) black to blackish-brown. Setae silver. Subapical part of mandible tinged with reddish-brown. FL VII to FL X with white markings. Fore and mid tibiae and tarsi partly tinged with dark brown. Median membranous part of T VII white. Ovipositor reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish wing base.

**Male.** Unknown.

**Distribution.** Japan (Honshu).

**Bionomics.** Unknown.

**Etymology.** The specific name is from Latin “*nigra*”, referring to the black body colouration.

**Remarks.** This species resembles *Pa. albitarsale* sp. nov. (see remarks of *Pa. albitarsale*) and *Pa. gigantea* sp. nov. but can be distinguished from the latter species by the spiracle of T I situated behind the mid-length of T I (near the mid-length of T I in *Pa. gigantea*) and the ovipositor sheath  $2.35\text{--}2.4\times$  as long as hind tibia ( $2.6\text{--}2.8\times$  in *Pa. gigantea*).



***Parmortha pleuralis albomaculata* (Ashmead, 1906)**

[SJN: Kuro-hime-togari-himebachi]

(Figs. 49A–G, 79Q)

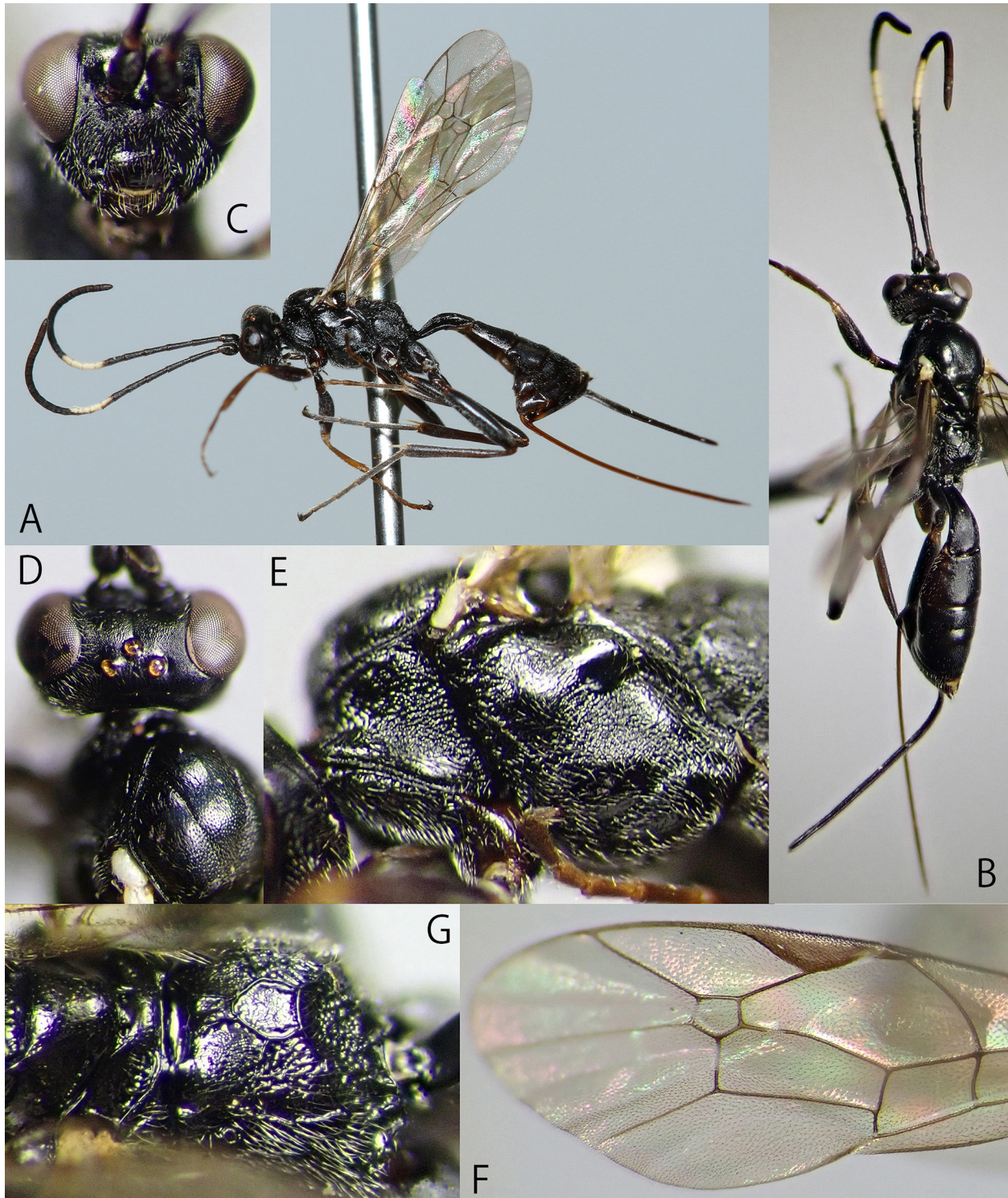
*Scinascopus albomaculatus* Ashmead, 1906: 173.*Parmortha pleuralis atripes* Townes, 1962 in Townes & Gupta, 1962: 22.*Parmortha pleuralis albomaculata*: Townes *et al.*, 1965: 155.**Materials examined.** JAPAN: [Honshu] OMNH, F, Nagano Pref., Outaki Vil., Mt. Ontake-san, Hakkaisan, 16. IX. 2011, S. Fujie leg.; TMNH, F, Aichi Pref., Toyone Vil., Tsuguhonsawa, 4. VI. – 24. VII. 2020, S. Morishita leg. (MsT); AEI, 1F (holotype of *P. pleuralis atripes*), Nagano

Fig. 49. *Parmortha pleuralis albomaculata* (Ashmead, 1906), female (KPM-NK 91389) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head and mesoscutum, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: scutellum and propodeum, dorso-lateral view.



Pref., Kamikochi, 23. VII. 1954, Townes family leg.; KPM-NK 103071, F, Toyama Pref., Toyama City, Arimine, Jurodani, 4–11. VIII. 2009, M. Watanabe leg. (MsT). [Sado Is.] KPM-NK 91389, 103066, & 103067, 3F, Niigata Pref., Sado City, Kanaishinpo, Hakuundai to Mt. Myokenzan, 4. VIII. 2009, K. Watanabe leg.; KPM-NK 103068–103070, 3F, ditto, 10. IX. 2010.

**Description.** Female ( $n = 10$ ). Body matt; covered with setae; body length 6.0–7.9 mm.

Head  $0.6 \times$  as long as wide in dorsal view. Clypeus  $1.9\text{--}2.0 \times$  as wide as long; slightly convex in lateral view; punctate dorsally, smooth ventrally; lower margin weakly rounded in frontal view, obtuse in lateral view. Face  $0.4 \times$  as long as minimum width; slightly convex medially; punctures indistinct. Frons slightly concave above antennal sockets; matt except for smooth areas above antennal sockets. POL  $1.5\text{--}1.6 \times$  as OD. OOL  $1.4\text{--}1.6 \times$  as OD. Gena and occiput finely punctate. Dorsal profile of gena rounded in dorsal view; width gradually narrowing posteriorly (Fig. 49D). Occipital carina complete. Malar space  $1.35\text{--}1.4 \times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 23–24 flagellomeres; not flattened and tapped. FL I  $4.5\text{--}4.9 \times$  as long as maximum depth in lateral view,  $1.05\text{--}1.15 \times$  as long as FL II.

Mesosoma irregularly reticulate rugose. Epomia short; section on border of collar and pronotum present. Mesoscutum densely punctate; ISP smooth except for median area reticulate coriaceous. Notaulus long and sharp (Fig. 49D); posterior end close to centre of mesoscutum. Scutellum punctate; weakly convex in lateral view. Mesopleuron partly longitudinally striate; with conspicuous smooth area around speculum (Fig. 49E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.7 of mesopleuron. Metapleuron with complete or partly indistinct juxtacoxal carina. Propodeum with all carinae; area superomedia defined (Fig. 49G), as long as maximum width; apophysis absent; spiracle round. Fore wing length 5.7–7.2 mm. Areolet as long as maximum width; longer than half length of vein 2m-cu; width slightly narrowing anteriorly; received vein 2m-cu at near middle; anterior width longer than half length of vein 2m-cu (Fig. 49F). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 49F). Nervellus subvertical; intercepted near posterior end of vein. Hind femur reticulate coriaceous;  $4.8\text{--}5.2 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I  $1.8\text{--}1.95 \times$  as long as maximum width; latero-median carina absent; dorso-lateral carina present except for section near spiracle. Spiracle of T I behind the mid-length of T I. T II  $0.8\text{--}0.85 \times$  as long as maximum

width. Thyridium present; close to anterior margin of T II; slightly depressed; ca.  $2.0 \times$  as wide as length. Ovipositor sheath  $1.5\text{--}1.8 \times$  as long as hind tibia,  $2.7\text{--}3.3 \times$  as long as T I. Ovipositor upcurved; apex sharp and without minute teeth dorsally; apex of lower valve with teeth (Fig. 79Q).

Colouration (Figs. 49A–G). Body (excluding wings) black to blackish-brown. Setae silver. Subapical part of mandible usually tinged with reddish-brown. FL VI to FL IX with white markings. Fore and mid tibiae and tarsi partly tinged with brown. Tegula, wing base, and tibial spurs of all legs ivory. Posterior margin of metasomal tergites usually narrowly tinged with reddish-brown. Median membranous part of T VII white to ivory. Ovipositor reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown to brown except for ivory wing base.

Male. Unknown.

**Distribution.** Japan (Hokkaido, Honshu, and Sado Is.).

**Bionomics.** Unknown.

**Remarks.** This is the first record of this species from Sado Island.

### Genus *Plectocryptus* Thomson, 1873

*Plectocryptus* Thomson, 1873: 599. Type species: *Phygadeuon digitatus* Gravenhorst, 1829 (= *Phygadeuon digitatus* Gmelin, 1790). Designated by Viereck (1914).

In this study, I newly record this genus based on a new species, *Plec. japonicus* **sp. nov.** described below.

#### *Plectocryptus japonicus* **sp. nov.**

[New SJN: Taniwaki-togari-himebachi]

(Figs. 50A–I, 76L, 79R)

**Type series. Holotype:** JAPAN, KPM-NK 5004410, F, Honshu, Kanagawa Pref., Yamakita Town, Mt. Hinokiboramaru, 28. VI. 2013, T. Taniwaki leg. (FIT). **Paratype:** JAPAN: [Honshu] KPM-NK 5004400, 5004430, 2F, Kanagawa Pref., Kiyokawa Vil., Mt. Tanzawa-san, 20. VI. 2013, T. Taniwaki leg. (FIT); KPM-NK 5004392, 5004409, 5004427, 5004431, 4F, ditto, 29. VI. 2013; KPM-NK 5004389, F, ditto, 4. VII. 2013; KPM-NK 5004416, F, Kanagawa Pref., Kiyokawa Vil., Mt. Tanzawa-san, Tennojione, 15. VI. 2013, T. Taniwaki leg. (FIT); KPM-NK 5004386, 5004415, 2F, ditto, 29. VI. 2013; KPM-NK 5004399, F, Kanagawa Pref., Sagami-hara City, Midori-Ku, Mt. Oomuro-yama, 16. VI. 2013, T. Taniwaki leg. (FIT); KPM-NK 5004388, 5004396, 5004412, 3F, same data of holotype; KPM-NK 5004384, 5004390,



5004422, 5004426, 4F, Kanagawa Pref., Yamakita Town, Mt. Hinokibora-maru, 23. V. 2013, T. Taniwaki leg. (FIT); KPM-NK 5004407, 5004421, 2F, ditto, 14. VI. 2013; KPM-NK 5004387, 5004405, 5004408, 5004424, 5004432, 5F, ditto, 23. VI. 2013; KPM-NK 5004401–5004404, 5004406, 5004414, 5004428, 5004429, 8F, ditto, 6. VII. 2013; KPM-NK 103011, F, same locality, 16. VI. 2015, K. Watanabe leg.; KPM-NK 103004–103008, OMNH, 6F, Niigata Pref., Nagaoka City, Suyoshi Town, Mt. Nokogiri-yama, 25. V. – 7. VI. 2014, S. Shimizu &

R. Shimizu leg. (MsT); KPM-NK 103009, F, Shizuoka Pref., Fujinomiya City, Mt. Fujisan, Nishiusuzuka, 15. X. 2006, H. Katahira leg.; KPM-NK 103010, F, Fukui Pref., Katsuyama City, Ohara, 5. VI. 1982, T. Murota leg.; KPM-NK 5004393–5004395, 5004419, 4F, Kanagawa Pref., Yamakita Town, Mt. Komotsurushi-yama, 16. VI. 2013, T. Taniwaki leg. (FIT); KPM-NK 5004383, 5004397, 5004411, 5004417, 5004420, 5004433, 6F, ditto, 21. VI. 2013; KPM-NK 5004391, 5004418, 5004425, 3F, ditto, 28. VI. 2013; KPM-NK 5004413, F, ditto, 4. VII. 2013.

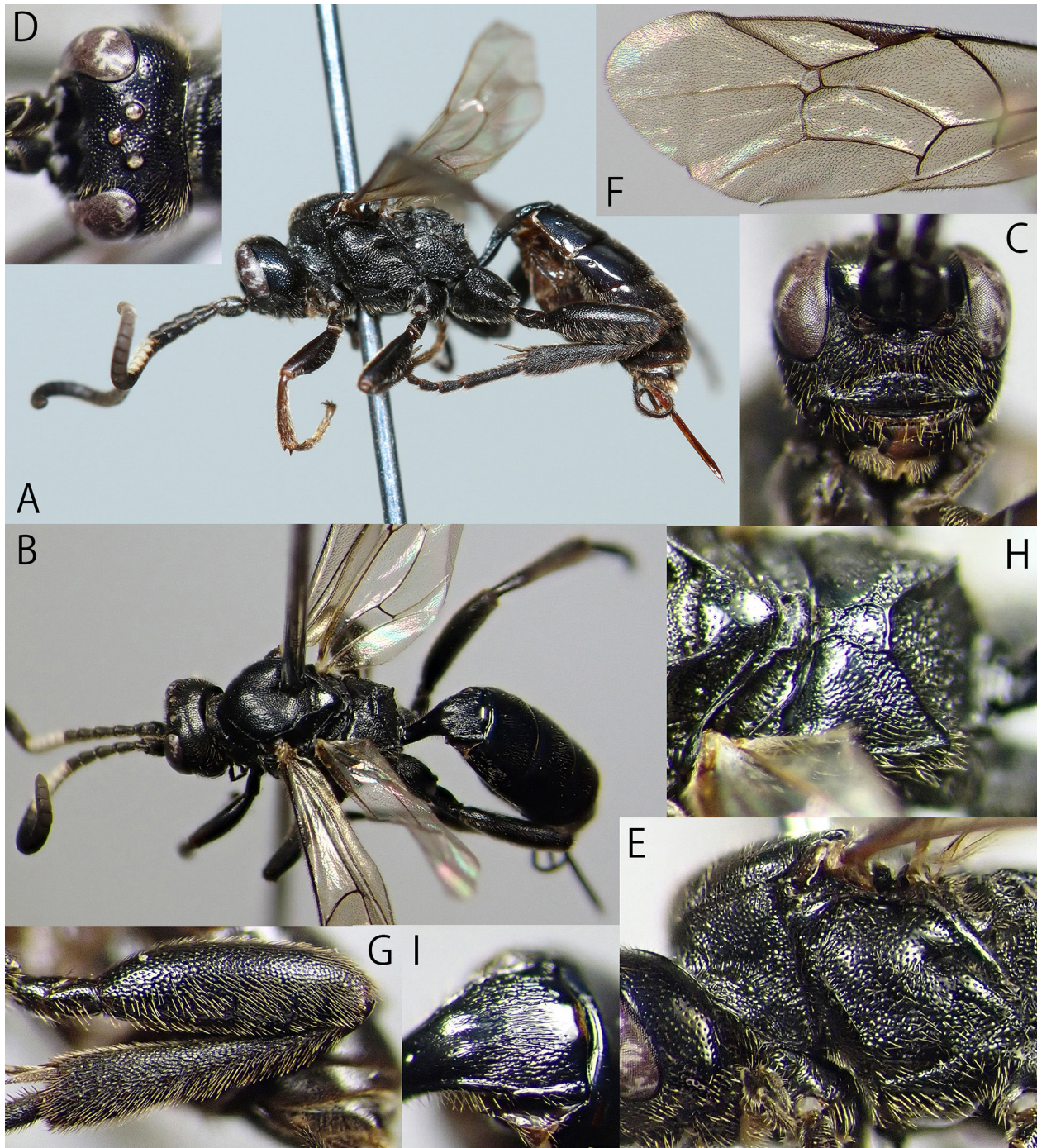


Fig. 50. *Plectocryptus japonicus* sp. nov., female (holotype: KPM-NK 5004410) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: hind femur and tibia, lateral view; H: scutellum and propodeum, dorso-lateral view; I: T I, dorso-lateral view.



**Description.** Female ( $n = 57$ ). Body punctate and polished; covered with setae; body length 4.5–8.3 (HT: 8.3) mm.

Head 0.6–0.65 (HT: 0.6)  $\times$  as long as wide in dorsal view. Clypeus 2.9–3.0  $\times$  as wide as long; weakly convex in lateral view; transversely rugose and sparsely punctate dorsally (Fig. 76G); with transverse convexity; lower margin weakly rounded in frontal view, sharp in lateral view. Face 0.25–0.3 (HT: 0.28)  $\times$  as long as minimum width; weakly convex medially; densely punctate, ISP matt. Frons weakly concave above antennal sockets; densely punctate dorsally, smooth ventrally except for irregularly rugose medially. POL 1.8–2.2 (HT: 2.0)  $\times$  as OD. OOL 1.5–1.8 (HT: 1.5)  $\times$  as OD. Gena and occiput densely punctate. Dorsal profile of gena rounded in dorsal view; width not narrowing anteriorly and somewhat abruptly narrowing posteriorly (Fig. 50D). Occipital carina complete. Malar space 0.8–0.95 (HT: 0.95)  $\times$  as long as basal width of mandible. Mandible flat at base; lower tooth longer than upper tooth and wider than upper tooth (Fig. 76G, L). Antenna with 22–23 (HT: 23) flagellomeres; not flattened and tapped. FL I 1.5  $\times$  as long as maximum depth in lateral view, 0.9  $\times$  as long as FL II.

Mesosoma densely punctate. Epomia absent. Mesoscutum with short and weak notaulus. Scutellum sparsely punctate (Fig. 50H) and flat. Mesopleuron obliquely rugose anteriorly, longitudinally rugose postero-ventrally; with smooth area around speculum (Fig. 50E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.4 of mesopleuron. Metapleuron reticulate rugose except for anterior part punctate; without juxtacoxal carina. Propodeum reticulate rugose except for median part of area externa, area superomedia, and area basalis largely smooth and lateral part of area externa largely punctate (Fig. 50H); anterior transverse carina partly definable by rugae; posterior transverse carina complete (Fig. 50H); lateromedian longitudinal carina weakly present (Fig. 50H); lateral longitudinal carina complete; pleural carina complete; area superomedia present, as long as maximum width; apophysis weak and small; spiracle oval. Fore wing length 4.3–6.7 (HT: 6.4) mm. Areolet longer than maximum width; width gradually narrowing anteriorly; received vein 2m-cu at slightly beyond to middle (Fig. 50F). Fore wing vein 1cu-a slightly postfurcal to vein M&RS (Fig. 50F). Nervellus slightly inclivous; intercepted posterior to middle. Hind femur densely punctate (Fig. 50G); 3.5–3.8 (HT: 3.6)  $\times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I 1.6–1.75 (HT: 1.65)  $\times$  as long as maximum width; covered with fine longitudinal striae except for narrow, transverse smooth area along posterior

margin (Fig. 50I); latero-median carina indistinct; dorso-lateral carina complete (area above spiracle usually weak). T II 0.5–0.95 (HT: 0.9)  $\times$  as long as maximum width; finely and sparsely punctate. Thyridium weakly present close to anterior margin of T II; slightly or not depressed; ca. 2.0  $\times$  as wide as length. T III to T VII finely and sparsely punctate. Ovipositor sheath 0.9–1.0 (HT: 0.9)  $\times$  as long as hind tibia, 1.4–1.65 (HT: 1.4)  $\times$  as long as T I. Ovipositor straight, shorter than half length of metasoma; apex sharp; apex of lower valve with teeth (Fig. 79R).

Colouration (Figs. 50A–I). Body (excluding wings) black to blackish-brown. Setae yellowish-brown to brown. Subapical part of mandible tinged with reddish-brown. FL V to FL IX (or X) with white markings. Fore and mid tibiae and tarsi tinged with brown. Posterior margin of metasomal tergites usually narrowly tinged with reddish-brown. T VII and T VIII each with ivory marking medially. Thyridium and ovipositor reddish-brown. Wings hyaline. Veins and pterostigma blackish-brown except for brown to yellowish-brown wing base.

Male. Unknown.

**Distribution.** Japan (Honshu).

**Etymology.** The specific name is from Japan.

**Bionomics.** Unknown.

**Remarks.** This species resembles *Plec. digitatus* (Gmelin, 1790) in the black and polished metasomal tergites, but can be distinguished by the completely black legs (largely red except for black coxae and trochanters in *Plec. digitatus*) and the ovipositor shorter than half length of metasoma (rather longer than half length of metasoma in *Plec. digitatus*).

### Genus *Pleolophus* Townes, 1962

*Pleolophus* Townes, 1962 in Townes & Gupta, 1962: 223.

Type species: *Phygadeuon basizonus* Gravenhorst, 1829. Original designation

Four species, *Pleo. basizonus* (Gravenhorst, 1829), *Pleo. funereoides* (Uchida, 1952), *Pleo. sapporensis* (Uchida, 1930), and *Pleo. setiferae* (Uchida, 1936), have been recorded from Japan. In this study, I describe a new species below.

### Key to Japanese species of *Pleolophus* (female only)

1. Hind femur largely reddish-brown to red. Posterior part of T I, T II, and T III largely red. Ovipositor sheath slightly shorter than hind tibia.

..... *Pleolophus basizonus* (Gravenhorst, 1829)

-. Hind femur black (Figs. 51A, 52A, 53A, 55A). Metasomal tergites without red area(s) or with narrow or weak red tinges (Figs. 51B, 52B, 53B, I, 55B).

..... 2

2. Metasomal tergites matt (Figs. 51G, 52H). Body sometimes larger than 9.0 mm. Tibiae and trochanters without white areas (Figs. 51A, 52A). Lateromedian longitudinal carina of propodeum at least partly present in front of posterior transverse carina (Figs. 51F, 52G).

..... 3

-. Metasomal tergites polished (Figs. 53H, I, 55G). Body length usually less than 8.0 mm. Tibiae and/or trochanters sometimes with white areas (Figs. 53A, B, 55A, B). Lateromedian longitudinal carina of propodeum present or absent.

..... 4

3. Apex of ovipositor sharply pointed (Fig. 79S). Ovipositor sheath shorter than hind tibia (Fig. 51A). Metasomal tergites black (Fig. 51B).

..... *Pleolophus funereoides* (Uchida, 1952)

-. Apex of ovipositor obtusely pointed (Fig. 79T). Ovipositor sheath as long as or longer than hind tibia (Fig. 52A). Metasomal tergites partly tinged with red (Fig. 52B).

..... *Pleolophus obtusus* **sp. nov.**

4. Base of hind tibia without white area; black or at most tinged with yellowish-brown (Figs. 53A, B). Hind trochanter and trochantellus usually ivory (especially dorso-lateral view) (Figs. 53A, B). Lateromedian longitudinal carina of propodeum at least distinct anteriorly (Fig. 53G). Antero-lateral part of area basalis of propodeum with conspicuous smooth area (Fig. 53G). FL I  $\geq$  FL II. Ovipositor sheath 0.75–0.8  $\times$  as long as hind tibia.

..... *Pleolophus sapporensis* (Uchida, 1930)

-. Base of hind tibia with conspicuous white band (Figs. 55A, B). Hind trochanter and trochantellus brown to black (Figs. 55A, B). Lateromedian longitudinal carina of propodeum indistinct (Fig. 55F). Antero-lateral part of area basalis of propodeum without conspicuous smooth area (Fig. 55F). FL I < FL II. Ovipositor sheath 0.65–0.7  $\times$  as long as hind tibia.

..... *Pleolophus setiferae* (Uchida, 1936)

### ***Pleolophus basizonus* (Gravenhorst, 1829)**

[SJN: Habachi-futo-togari-himebachi]

*Phygadeuon basizonus* Gravenhorst, 1829: 748.

*Ichneumon larvincola* Scharfenberg, 1805 in Bechstein & Scharfenberg, 1805: 962.

*Cryptus varicolor* Gravenhorst, 1829: 603.

*Phygadeuon pteronum* Hartig, 1838: 273.

*Microcryptus basizonus obscurus* Ulbricht, 1913: 5.

*Spilocryptus cimbicis nigrinus* Fahringer, 1941 in Schimitschek, 1941: 268.

**Material examined.** No Japanese material is available.

**Distribution.** Japan? (Honshu); widely distributed in Palearctic region.

**Bionomics.** The host is *Neodiprion sertiferae* in Japan (Ikuno, 1936).

**Remarks.** Ikuno (1936) recorded this species from Japan based on the specimens collected from *Neodiprion sertiferae* in “Hino-Goryorin” (Hino, Tokyo). The identification of this study was taken by Dr. T. Uchida while I could not find the voucher specimen of this species anywhere. Uchida (1936c) described *Pleo. setiferae* based on the specimens collected from *N. sertiferae* in Tokyo. According to Ikuno (1936), Uchida identified the materials from his as *Microcryptus basizonus* var. Uchida did not record this species after Ikuno (1936). I consider *Microcryptus basizonus* var. and *Pleo. setiferae* to be same species, but as I cannot be certain without confirming the voucher specimen, I reserve judgement on the records of this species from Japan.

### ***Pleolophus funereoides* (Uchida, 1952)**

[SJN: Kuro-futo-togari-himebachi]

(Figs. 51A–G, 79S)

*Microcryptus funereoides* Uchida, 1952: 20.

**Materials examined. JAPAN:** [Hokkaido] KPM-NK 102832, F, Horokanai Town, Uryu, 11. VII. 2012, M. Ito leg. [Honshu] KPM-NK 81298, F, Kanagawa Pref., Yokosuka City, Mt. Miurafuji, 16. V. 1997, K. Kubo leg.; KPM-NK 91378, F, Osaka Pref., Takatsuki City, Niryou, 9–26. V. 2013, S. Fujie leg.; OMNH, F, Nara Pref., Nara City, Obuchi Town, Obuchiike Park, 13. V. 2012, S. Fujie leg.; SEHU, 1F (holotype), Hyogo Pref., Mitake, 13. V. 1950, K. Iwata leg.

**Description.** Female (n = 5). Body punctate and polished; covered with setae; body length 7.7–10.4 mm.

Head 0.6  $\times$  as long as wide in dorsal view. Clypeus 2.0  $\times$  as wide as long; slightly convex in lateral view; lower margin slightly rounded; blunt in lateral view. Face 0.4  $\times$  as long as minimum width; weakly convex medially, densely punctate medially; ISP largely coriaceous. Frons densely punctate; with pair of large smooth areas above antennal sockets. POL 1.9–2.0  $\times$  as OD. OOL 1.7–1.9  $\times$  as OD. Dorsal profile of gena slightly rounded in dorsal view; width gradually narrowing posteriorly (Fig. 51D). Occipital





Fig. 51. *Pleolophus funereoides* (Uchida, 1952), females (A: KPM-NK 102832; B–G: KPM-NK 81298) — A: lateral habitus; B: dorsal habitus; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: scutellum and propodeum, dorsal view; G: T I and T II, dorsal view.

carina complete. Malar space  $1.55\text{--}1.6 \times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 26–28 flagellomeres; not flattened and tapped. FL I  $2.2 \times$  as long as maximum depth in lateral view,  $1.0\text{--}1.05 \times$  as long as FL II.

Mesosoma densely punctate. Pronotum rugulose ventrally (Fig. 51E). Epomia absent. Mesoscutum without notaulus (only visible as trace-like depression

anteriorly). Scutellum sparsely punctate; slightly convex in lateral view. Mesopleuron with or without conspicuous smooth area around speculum; punctures partly united into groove-like foveola (Fig. 51E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.6 of mesopleuron. Metapleuron reticulate rugose; with complete juxtacoxal carina. Propodeum rugose or rugulose; with all carinae except for anterior transverse

carina absent; lateromedian longitudinal carina weak and partly obscured; area superomedia partly defined; posterior transverse carina reverse-V shaped in dorsal view (Fig. 51F); apophysis absent; spiracle oval. Fore wing length 6.1–8.0 mm. Areolet as long as maximum width; width gradually narrowing anteriorly; received vein 2m-cu at near middle (Fig. 51B). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 51B). Nervellus subvertical; intercepted near posterior end of vein (Fig. 51B). Hind femur reticulate coriaceous;  $4.0\text{--}4.35 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma largely matt (Fig. 51G). T I  $1.2\text{--}1.45 \times$  as long as maximum width; latero-median carina present except for apical part; dorso-lateral carina complete; finely rugulose posteriorly except for smooth area along posterior margin. T II  $0.55\text{--}0.65 \times$  as long as maximum width. Thyridium present; close to anterior margin of T II; flat to slightly depressed; ca.  $2.0 \times$  as wide as length. Ovipositor sheath  $0.78\text{--}0.9 \times$  as long as hind tibia,  $1.4\text{--}1.65 \times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 79S).

Colouration (Figs. 51A–G). Body (excluding wings) black to blackish-brown. Setae brown to blackish-brown. FL V (or VI) to FL IX (or XI) and middle part of T VII with white marking. Wing yellowish-hyaline. Veins and pterostigma blackish brown to brown. Tibiae and fore and mid tarsi sometimes tinged with brown. Ovipositor brown.

Male. Unknown.

**Distribution.** Japan (Hokkaido and Honshu).

**Bionomics.** Unknown.

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

***Pleolophus obtusus* sp. nov.**

[New SJN: Sakimaru-futo-togari-himebachi]  
(Figs. 52A–H, 79T)

**Type series.** **Holotype:** JAPAN, KPM-NK 91376, F, Honshu, Gunma Pref., Tsumagoi Vil., Kanbara, Takaminekogen, 3. IX. 2015, K. Watanabe leg. **Paratype:** JAPAN, KPM-NK 84972, F, Honshu, Nagano Pref., Outaki Vil., Mt. Ontake-san, Tanohara, 8. VIII. 2007, K. Watanabe leg.

**Description.** Female (n = 2). Body punctate and polished; covered with setae; body length 5.9–7.0 (HT: 7.0) mm.

Head  $0.6 \times$  as long as wide in dorsal view. Clypeus  $2.3 \times$  as wide as long; slightly convex in lateral view; lower margin subtruncate; blunt in lateral view. Face  $0.4\text{--}0.45$  (HT: 0.4)  $\times$  as long as minimum width; weakly convex medially; sparsely punctate laterally; ISP largely coriaceous. Frons coriaceous; shallowly concave above

each antennal socket. POL  $1.8\text{--}2.0$  (HT: 1.8)  $\times$  as OD. OOL  $1.5 \times$  as OD. Dorsal profile of gena slightly rounded in dorsal view; width gradually narrowing posteriorly (Fig. 52D). Occipital carina complete. Malar space  $1.35\text{--}1.4$  (HT: 1.35)  $\times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 21–23 (HT: 23) flagellomeres; not flattened and tapped. FL I  $2.1\text{--}2.25$  (HT: 2.25)  $\times$  as long as maximum depth in lateral view,  $0.95 \times$  as long as FL II.

Mesosoma densely and finely punctate (Fig. 52E). Pronotum rugulose ventrally (Fig. 52E). Epomia present; short, obscured and indistinguishable from rugae. Mesoscutum without notaulus (only visible as trace-like depression anteriorly). Scutellum flat in lateral view. Mesopleuron without conspicuous smooth area around speculum (Fig. 52E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.6 of mesopleuron. Metapleuron with complete juxtacoxal carina. Propodeum rugose or rugulose except for weakly coriaceous anterior part; with all carinae except for anterior transverse carina absent; lateromedian longitudinal carina weak and partly obscured; area superomedia partly undefined; posterior transverse carina reverse-U shaped in dorsal view (Fig. 52G); apophysis absent; spiracle round. Fore wing length 5.1–5.8 (HT: 5.8) mm. Areolet as long as maximum width; width gradually narrowing anteriorly; received vein 2m-cu at near middle (Fig. 52F). Fore wing vein 1cu-a slightly postfurcal to vein M&RS (Fig. 52F). Nervellus inclivous; intercepted near posterior end of vein. Hind femur reticulate coriaceous;  $4.0\text{--}4.2$  (HT: 4.0)  $\times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma largely matt (Fig. 52H). T I  $1.5 \times$  as long as maximum width; latero-median carina present except for apical part; dorso-lateral carina complete. T II  $0.7\text{--}0.95$  (HT: 0.7)  $\times$  as long as maximum width. Thyridium present; close to anterior margin of T II; flat; ca.  $2.0 \times$  as wide as length. Ovipositor sheath  $1.05 \times$  as long as hind tibia,  $1.6\text{--}1.85$  (HT: 1.6)  $\times$  as long as T I. Ovipositor straight; apex obtuse; apex of lower valve with teeth (Fig. 79T).

Colouration (Figs. 52A–H). Body (excluding wings) black to blackish-brown. Setae silver to brown. Frons with a pair of yellow spots. FL V (HT) or VI to FL IX with white markings. Middle parts of T VI and T VII white. Wing slightly yellowish-brown hyaline. Veins and pterostigma blackish brown to brown except for yellow wing base. Ventral surface of flagellum, tibiae and fore and mid tarsi more or less tinged with dark brown. Tibial spurs ivory. T II tinged with dark reddish brown except for median part. Ovipositor brown.

Male. Unknown.



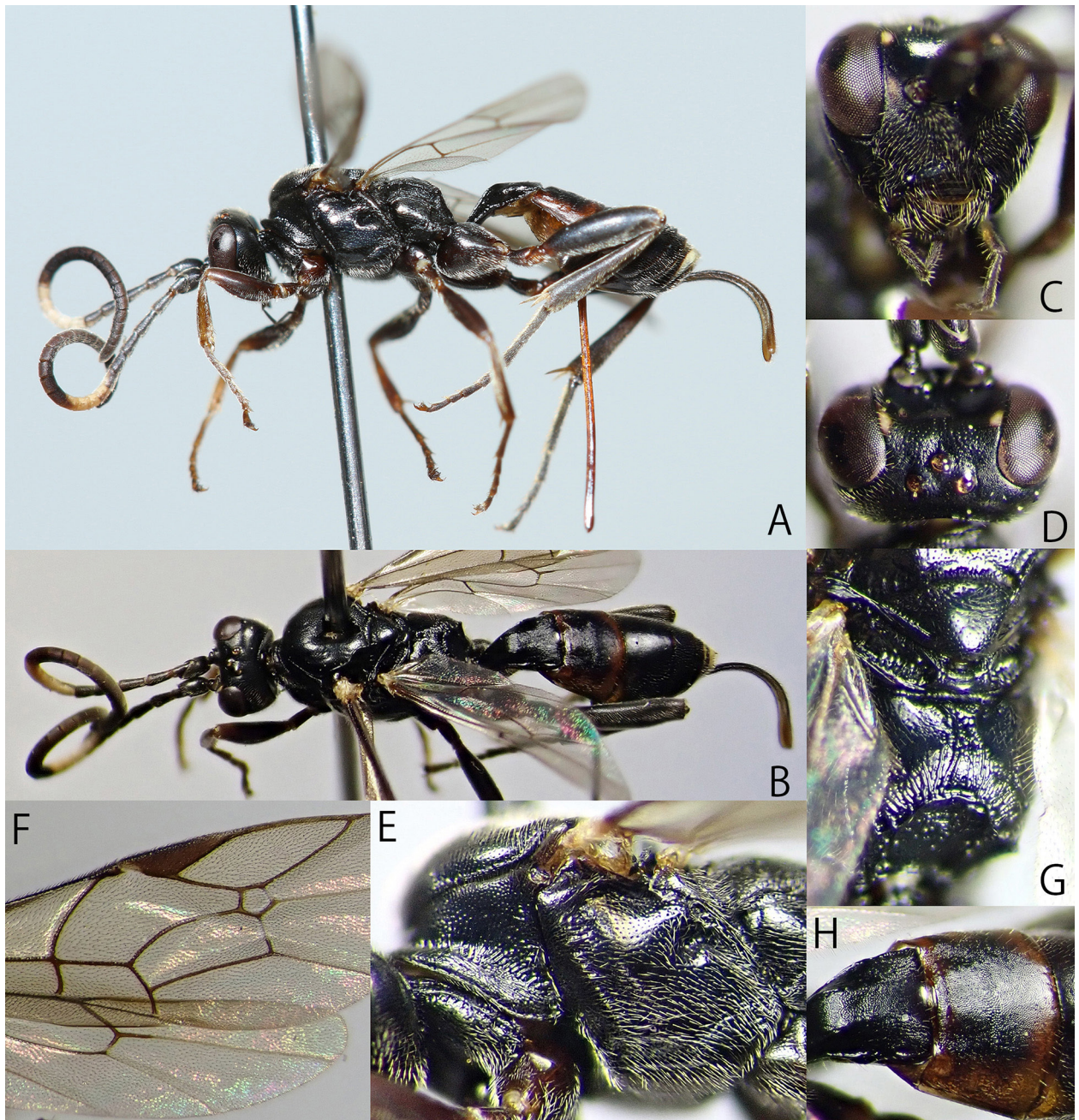


Fig. 52. *Pleolophus obtusus* sp. nov., female (holotype: KPM-NK 91376) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: scutellum and propodeum, dorso-lateral view; H: T I and T II, dorso-lateral view.

**Distribution.** Japan (Honshu).

**Bionomics.** Unknown.

**Etymology.** The specific name is from the Latin “*obtusus*” (obtuse), referred to the obtusely pointed apex of ovipositor.

**Remarks.** This species is rather unusual species from other species by the obtuse apex of ovipositor. This character state is frequently found in *Schenkia* while the antennal shape of this species is largely differed from them. The generic position of this species should be reanalysed in future study. The shape of ovipositor apex rather resembles *Pleo. astrictus* Townes, 1962 but can be distinguished by the slightly convex clypeus (strongly

convex in *Pleo. astrictus*), the fore wing length 5.1–5.8 mm (4.3 mm in *Pleo. astrictus*), and the largely black legs (“fulvoferruginous” in *Pleo. astrictus*).

***Pleolophus sapporensis* (Uchida, 1930)**

[New SJN: Kogata-futo-togari-himebachi]  
(Figs. 53A–I, 54A–D, 79U)

*Microcryptus sapporensis* Uchida, 1930: 329.

*Microcryptus pristiphora* Uchida, 1955: 2.



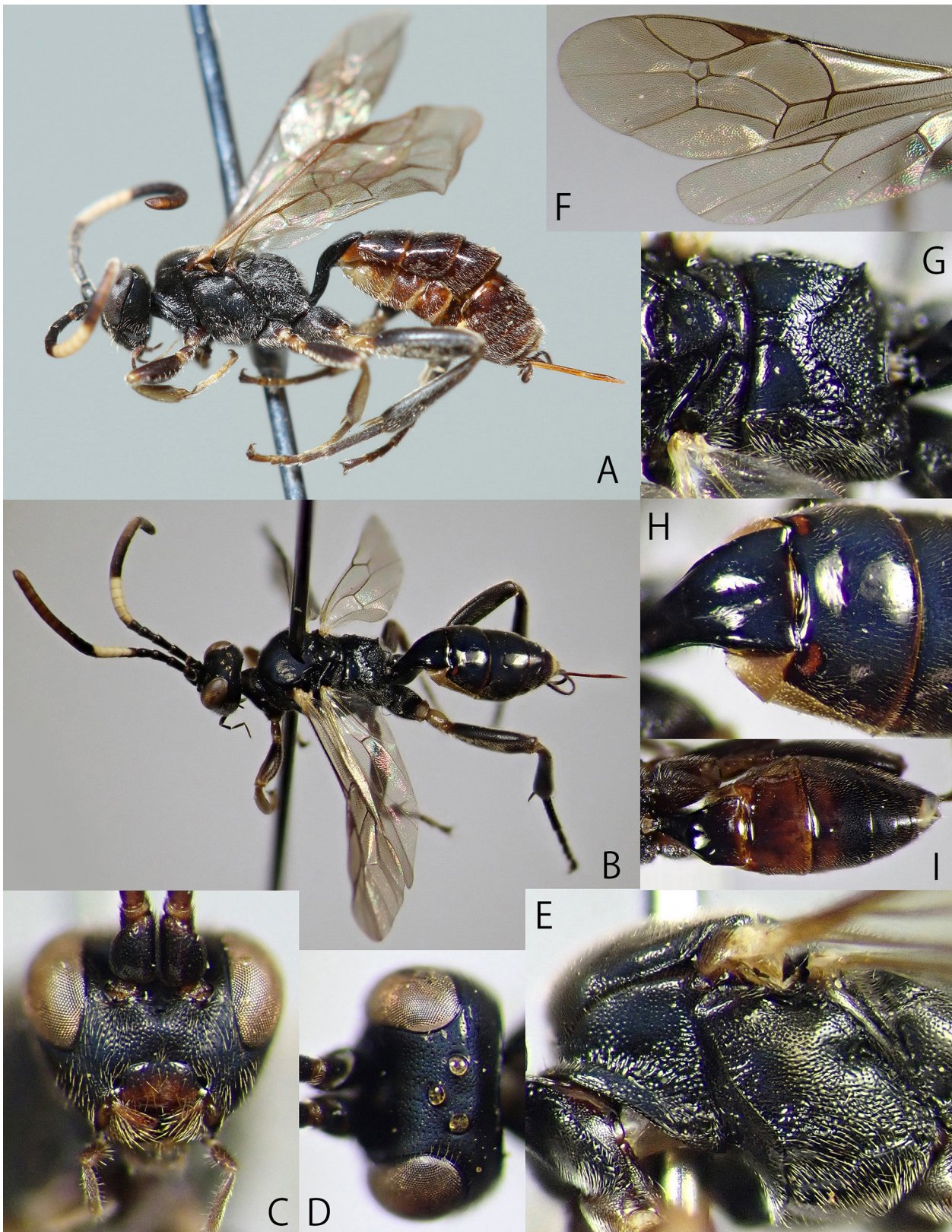


Fig. 53. *Pleolophus sapporensis* (Uchida, 1930), females (A: KPM-NK 102869; B–H KPM-NK 5006657; I: OMNH) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: wings; G: scutellum and propodeum, dorso-lateral view; H: T I and T II, dorso-lateral view; I: metasoma, dorsal view.



**Materials examined. JAPAN:** [Hokkaido] SEHU, 1F (lectotype of *Mi. sapporensis*), Sapporo, 7. VII. 1925, T. Uchida leg.; SEHU, 1F (holotype of *Mi. pristiphorae*), Tomakomai, 24. VI. 1935, E. Kinoshita leg. (host: *Pristiphora politivaginata* (Takeuchi, 1933) on *Larix kaempferi*); KPM-NK 102835, F, Chitose City, Bibi, Bibi Park, 26. VI. 2017, K. Watanabe leg.; KPM-NK 102995, F, Horokanai Town, Uryu, 17. VII. 2012, M. Ito leg.; KPM-NK 102824, F, ditto, 11–17. VII. 2012, K. Watanabe *et al.* leg. (MsT); KPM-NK 102829, F, same locality, 17. VII. 2012, K. Watanabe leg. [Honshu] KPM-NK 102866, F, Iwate Pref., Yobesawa-rindo, 11. VII. 2007, T. Ishizaki leg.; KPM-NK 102869, F, Fukushima Pref., Hinoemata Vil., Hirosawa-rindo, 19. VII. 2006, T. Ishizaki leg.; KPM-NK 5006657, F, Tochigi Pref., Kuroiso Town, Miyamadam, 8. IX. 2001, E. Katayama leg.; KPM-NK 102851, 102867, 2F, Gunma Pref., Tsumagoi Vil., Kanbara, Takamine-kogen, 3. IX. 2015, K. Watanabe leg.; KPM-NK 102828, F, Saitama Pref., Okaki, Okuchichibu-rindo, 30. VII. – 7. VIII. 2005, K. & S. Arai leg.; KPM-NK 5006672, F, Yamanashi Pref., Koushu City, Sagashio, 16. VI. 2007, K. Watanabe leg.; KPM-NK 102834, F, Yamanashi Pref., Koushu City, Katsunuma Town, Ootaki-fudo, 4. VIII. 2008, K. Watanabe leg.; KPM-NK 102863, F, Yamanashi Pref., Koushu City, Yanagisawa-toge, 5. VIII. 2008, K. Watanabe leg.; KPM-NK 102833, F, Yamanashi Pref., Hokuto City, Masutomi, Biwakubo-sawa, 28. VII. 2007, T. Ban leg.; KPM-NK 91377, 102831, 2F, Honshu, Tokyo, Okutama Town, Hikawa, 30. VI. 2007, K. Watanabe leg.; KPM-NK 102873, F, Kanagawa Pref., Yokosuka City, Mt. Miurafuji to Mt. Takeyama, 5. V. 2007, K. Watanabe leg.; KPM-NK 102865, F, ditto, 4. V. 2013; KPM-NK 5004344, F, Kanagawa Pref., Kiyokawa Vil., Mt. Tanzawa-san, Tennojione, 29. VI. 2013, T. Taniwaki leg. (FIT); KPM-NK 5004343, F, Kanagawa Pref., Yamakita Town., Mt. Mikuniyama, 4. VII. 2013, T. Taniwaki leg. (FIT); KPM-NK 102852, F, Shizuoka Pref., Izu City, Mt. Amagi-san, 2. VI. 2007, G. Oishi leg.; KPM-NK 102868, F, Nagano Pref., Outaki Vil., Mt. Ontake-san, Hakkaisan, 31. VII. 2013, K. Watanabe leg.; KPM-NK 102825, F, ditto, 5. VIII. 2017, K. Watanabe leg.; KPM-NK 102830, F, ditto, Mt. Ontake-san, Tanohara, 17. VII. 2007; KPM-NK 102853, F, Nagano Pref., Kawakami Vil., Azusayama, 14. VI. 2015, K. Watanabe leg.; KPM-NK 102826, F, Toyama Pref., Nanto City, Togamura-kamimomose, 21–28. VII. 2009, M. Watanabe leg. (MsT); KPM-NK 102854, F, ditto, 11–18. VIII. 2009, M. Watanabe leg. (MsT); KPM-NK 102855, F, ditto, 15–29. IX. 2009; KPM-NK 102856 and OMNH, 2F, Toyama Pref., Toyama City, Arimine, Jyurodani, 21–28. VII. 2009, M. Watanabe leg. (MsT);

KPM-NK 102858, F, Toyama Pref., Toyama City, Arimine, Inone-dani, 1–8. IX. 2009, M. Watanabe leg. (MsT); KPM-NK 102857, F, ditto, 8–15. IX. 2009; KPM-NK 102870, F, Ishikawa Pref., Ichinose, 7. IX. 1982, T. Murota leg.; KPM-NK 102871, F, Fukui Pref., Arashi, 26. VIII. 1975, H. Kurokawa leg.; KPM-NK 102872, F, Fukui Pref., Izumi Vil., Asahimaesaka, 29. VI. 1982, T. Murota leg.; OMNH, 2F & 1M, Nara Pref., Ikoma City, Higashinabata, 17. VI. 2016 (host cocoon coll.), R. Matsumoto leg.; KPM-NK 103099, M, ditto. [Iki Island] KPM-NK 102864, 102993, 2F, Nagasaki Pref., Iki City, Gounoura Town, Komakinishifure, 20. VI. 2021, K. Otsui leg.

**Description.** Female ( $n = 33$ ). Body densely punctate and polished; covered with setae; body length 4.2–8.7 mm.

Head  $0.55\text{--}0.6 \times$  as long as wide in dorsal view. Clypeus  $1.8\text{--}2.1 \times$  as wide as long; slightly convex in lateral view; punctate dorsally, smooth ventrally; lower margin slightly rounded; blunt in lateral view. Face  $0.38\text{--}0.45 \times$  as long as minimum width; weakly convex medially; sparsely punctate laterally; ISP largely smooth. Frons with pair of large smooth areas above each antennal socket. POL  $1.6\text{--}2.0 \times$  as OD. OOL  $1.4\text{--}2.0 \times$  as OD. Dorsal profile of gena slightly rounded to nearly straight in dorsal view; width gradually narrowing posteriorly (Fig. 53D). Occipital carina complete. Malar space  $1.1\text{--}1.5 \times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 19–24 flagellomeres; not flattened and tapped. FL I  $2.0\text{--}2.25 \times$  as long as maximum depth in lateral view,  $1.0\text{--}1.1 \times$  as long as FL II.

Mesosoma. Pronotum rugulose ventrally (Fig. 53E). Epomia absent. Mesoscutum finely and sparsely laterally and posteriorly; with short and weak notaulus. Scutellum sparsely punctate (punctures on median part sparser than lateral parts); flat to slightly convex in lateral view. Mesopleuron without conspicuous smooth area around speculum; punctures largely or partly united into groove-like longitudinal foveola (Fig. 53E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.5 of mesopleuron. Metapleuron densely punctate to rugulose; with partly indistinct juxtacoxal carina. Propodeum rugose or rugulose except for area externa finely and sparsely punctate with smooth ISP; area externa sometimes partly granulate; anterior transverse carina absent; posterior transverse carina complete, inverted U-shaped (Fig. 53G); lateromedian longitudinal carina present anteriorly but largely indistinct in front of posterior transverse carina; lateral longitudinal carina complete, sometimes indistinct posteriorly; pleural carina complete; antero-lateral part of area basalis of propodeum with conspicuous smooth area (Fig. 53G); area superomedia

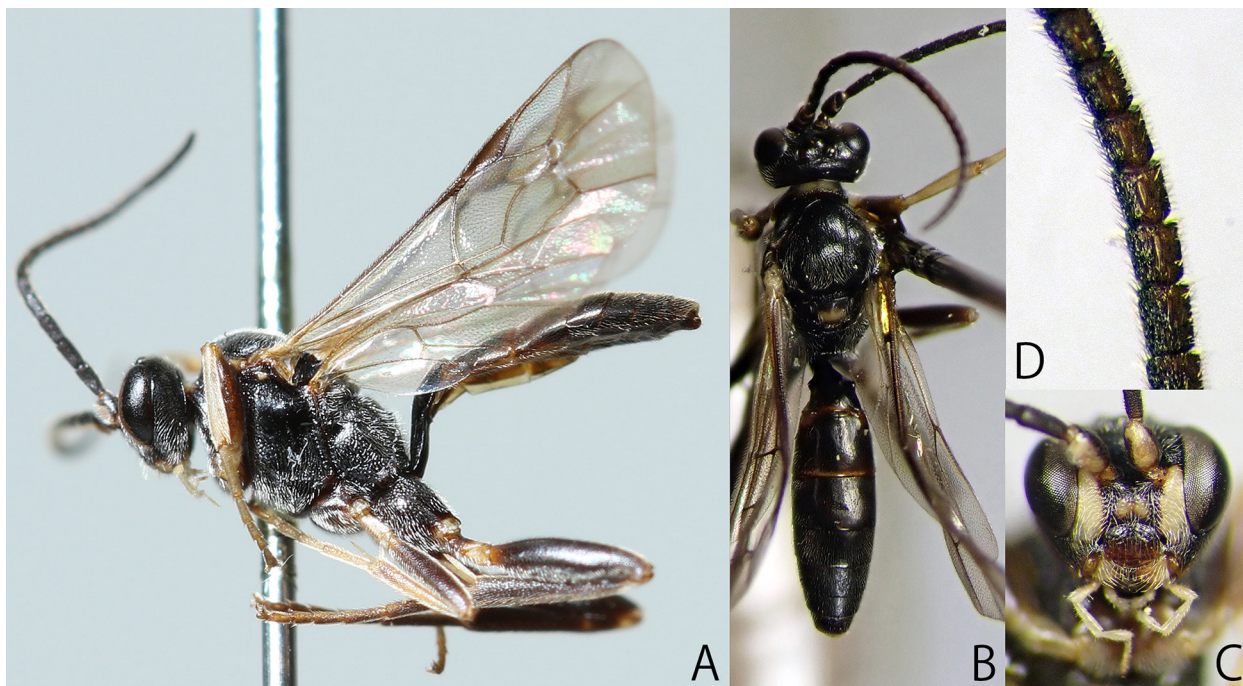


Fig. 54. *Pleolophus sapporensis* (Uchida, 1930), male (KPM-NK 103099) — A: lateral habitus; B: head, mesosoma, and metasoma, dorsal view; C: head, frontal view; D: flagellum and tyloids.

indistinct; apophysis weak and obtusely projected; spiracle round to oval. Fore wing length 3.4–6.6 mm. Areolet as long as maximum width; width gradually narrowing anteriorly; received vein 2m-cu at near middle (Fig. 53F). Fore wing vein 1cu-a postfurcal to vein M&RS. Nervellus subvertical; intercepted near posterior end of vein. Hind femur reticulate coriaceous;  $3.9\text{--}4.6 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma largely smooth. T I  $1.35\text{--}1.8 \times$  as long as maximum width; latero-median carina absent; dorso-lateral carina complete; postpetiole sometimes with some longitudinal striae. T II  $0.5\text{--}0.6 \times$  as long as maximum width. Thyridium present; close to anterior margin of T II; flat to slightly depressed; ca.  $2.0 \times$  as wide as length. T II to T VI sparsely punctate. Ovipositor sheath  $0.75\text{--}0.8 \times$  as long as hind tibia,  $1.3\text{--}1.5 \times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 79U).

Colouration (Figs. 53A–I). Body (excluding wings) black to blackish-brown. Setae silver except for some blackish-brown setae on head and mesoscutum. Clypeus tinged with reddish-brown. FL V to FL IX or FL X with white marking. Posterior part of T I, T II, and T III sometimes weakly tinged with dark reddish-brown. Middle part of T VII with a white to yellowish brown marking. Wing slightly yellowish-brown hyaline to brownish-hyaline. Veins and pterostigma blackish-brown to brown except for yellow wing base. Ventral surface of flagellum, tibiae and fore and mid tarsi usually tinged with brown. Hind trochanter and trochantellus usually whitish-yellow (but black in a

few specimens). Base of hind tibia sometimes tinged with yellowish-brown. Ovipositor brown.

Male ( $n = 2$ ). Similar to female (Figs. 54A–D). POL  $1.2\text{--}1.5 \times$  as OD. OOL  $1.4\text{--}1.9 \times$  as OD. Malar space  $0.95\text{--}1.0 \times$  as long as basal width of mandible. Antenna with 24–25 flagellomeres; with tyloids on FL X to FL XV (Fig. 54D). FL I  $2.25\text{--}2.5 \times$  as long as maximum depth in lateral view,  $1.15 \times$  as long as FL II. T I  $1.4\text{--}1.75 \times$  as long as maximum width. T II  $0.85 \times$  as long as maximum width. Scape and pedicel each with ventral yellow marking. Clypeus tinged with reddish-brown ventrally. Face with pair of yellow markings along orbit and median small yellow marking(s). Mandible tinged with yellowish-brown except for teeth. Palpi ivory. Postero-dorsal corner of pronotum, tegula, and scutellum each with yellow marking. Postscutellum and posterior margins of T I and T II tinged with reddish-brown. Membranous part of metasomal sternites yellowish-brown to brown. Fore and mid trochanters, trochantelli, tibiae except for apical part of mid tibia, and tarsi yellow to yellowish-brown. Fore femur partly tinged with yellow. Bases of each mid tarsal segments weakly tinged with brown. Apices of hind coxa and trochanter, hind trochantellus, base of hind tibia, and tibial spurs yellow to yellowish-brown.

**Distribution.** Japan (Kunashiri Is., Hokkaido, Honshu, and Iki Is.).

**Bionomics.** Host: *Pristiphora politivaginata* (Takeuchi, 1933) (Hymenoptera, Tenthredinidae) (Uchida, 1955a); *Aporia crataegi* (Linnaeus, 1758) (Lepidoptera, Pieridae)



(Uchida, 1955b). The letter host is doubtful.

**Remarks.** Japanese name of this species, Ezoshiro-futo-togari-himebachi, is based on doubtful host record from “Ezoshiro butterfly”, *Aporia crataegi* (Lepidoptera, Pieridae) (Uchida, 1955b). Thus, I propose new SJN of this species in this study. This species has relatively larger intraspecific variation of the body sculptures (e.g., mesopleuron, metapleuron, area externa of propodeum, and T I) and the colouration (e.g., hind trochanter) than other species. In this study I have treated them as a single species, but they need to be re-examined in detail, combining both morphological and molecular information.

***Pleolophus setiferae* (Uchida, 1936)**

[SJN: Matsunoki-futo-togari-himebachi]

(Figs. 55A–G, 56A–E, 79V)

*Microcryptus setiferae* Uchida, 1936c: 118.

*Microcryptus annulaticrus* Cushman, 1937: 32.

**Materials examined. JAPAN:** [Honshu] SEHU, 1F (holotype), Tokyo, 19. X. 1935, M. Hamatake leg. (host: “*Neodiprion sertifera*”); KPM-NK 81297, F, Nagano Pref., Kawakami Vil., Azusayama, 14. VI. 2015, K. Watanabe leg.; NSMT, 2F & 2M, Shizuoka Pref., Nagaizumi, 25. III. 1937 (cocoon of *Diprion nipponicus* coll.), IV. 1937

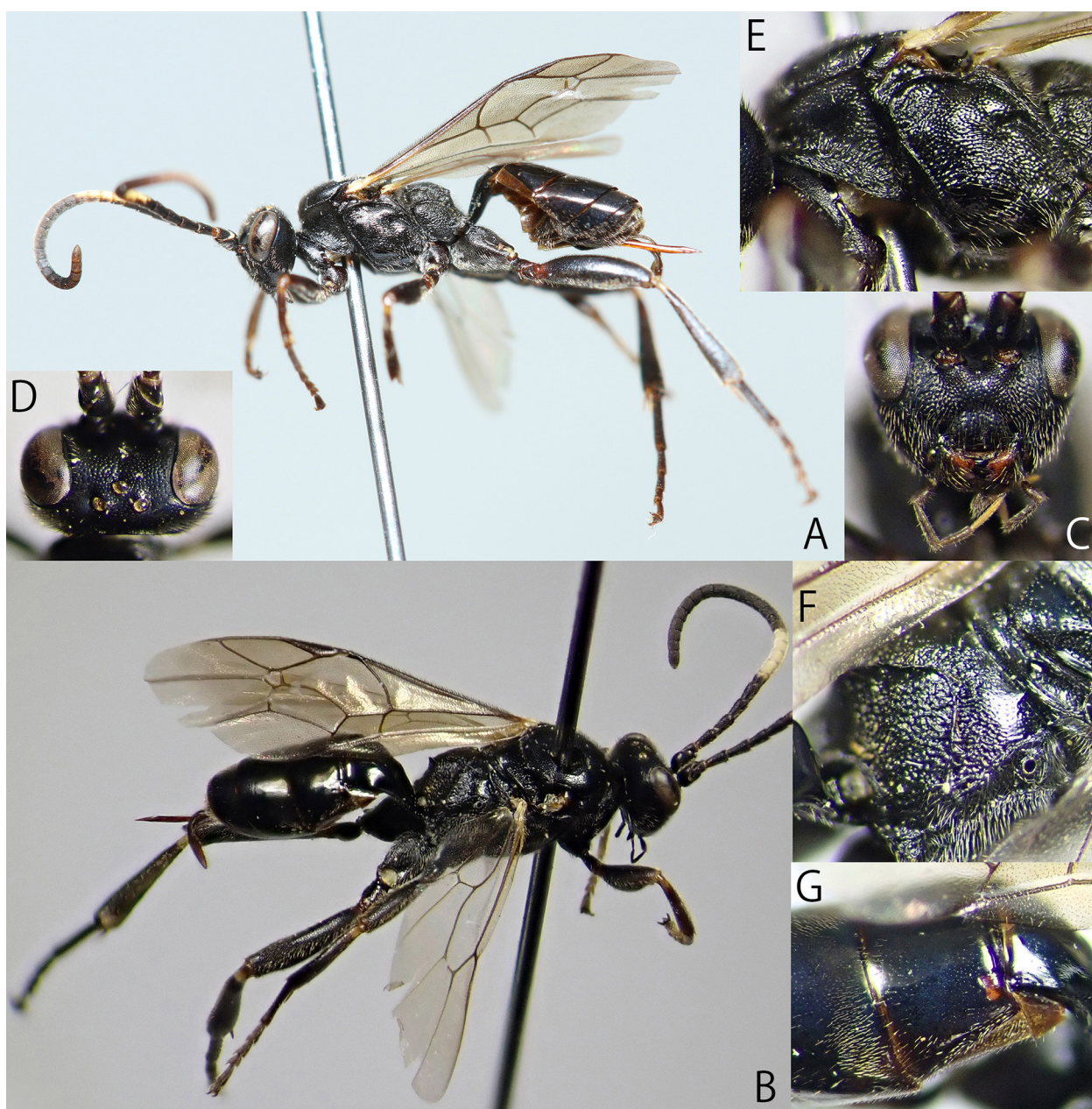


Fig. 55. *Pleolophus setiferae* (Uchida, 1936), female (KPM-NK 81297) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: scutellum and propodeum, dorso-lateral view; G: T I and T II, dorso-lateral view.



(em.); NSMT, 1F & 1M, ditto, 24–27. III. 1937 (cocoon of *D. nipponicus* coll.), 29. III. 1937 (em.); NSMT, 1M, Shizuoka Pref., Nagaizumi, em. from *D. nipponicus*; NSMT, 1M, no locality data, em. from *D. nipponicus*.

**Description.** Female ( $n = 5$ ). Body densely punctate and polished; covered with setae; body length 7.9–8.8 mm.

Head  $0.6 \times$  as long as wide in dorsal view. Clypeus  $1.8\text{--}2.0 \times$  as wide as long; slightly convex in lateral view; punctate dorsally, smooth ventrally; lower margin slightly rounded in frontal view, blunt in lateral view. Face  $0.35 \times$  as long as minimum width; weakly convex medially, shallowly punctate laterally; ISP largely coriaceous laterally. Frons with pair of large smooth areas above antennal sockets. POL  $1.6\text{--}1.9 \times$  as OD. OOL  $1.4\text{--}1.8 \times$  as OD. Dorsal profile of gena slightly rounded in dorsal view; width gradually narrowing posteriorly (Fig. 55D). Occipital carina complete. Malar space  $1.4 \times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 25 flagellomeres; not flattened and tapped. FL I  $1.9\text{--}2.2 \times$  as long as maximum depth in lateral view,  $0.95 \times$  as long as FL II.

Mesosoma. Pronotum rugulose ventrally (Fig. 55E). Epomia absent. Mesoscutum with short and weak notaulus.

Scutellum sparsely punctate (punctures on median part sparser than lateral parts); flat to slightly convex in lateral view. Mesopleuron without conspicuous smooth area around speculum; punctures partly united into groove-like longitudinal foveola (Fig. 55E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.5 of mesopleuron. Metapleuron reticulate rugose; juxtacoxal carina absent or indistinct by rugae. Propodeum rugose or rugulose except for smooth area of area externa; anterior transverse carina absent; posterior transverse carina complete, inverted U-shaped (Fig. 55F); lateromedian longitudinal carina largely indistinct; lateral longitudinal carina partly present; pleural carina complete; antero-lateral part of area basalis of propodeum without conspicuous smooth area (Fig. 55F); area superomedia indistinct; apophysis weak and obtusely projected; spiracle oval. Fore wing length 6.2–6.25 mm. Areolet as long as maximum width; width gradually narrowing anteriorly; received vein 2m-cu at slightly beyond to middle (Fig. 55B). Fore wing vein 1cu-a postfurcal to vein M&RS (Fig. 55B). Nervellus subvertical; intercepted posterior to middle. Hind femur reticulate coriaceous;  $4.0\text{--}4.3 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

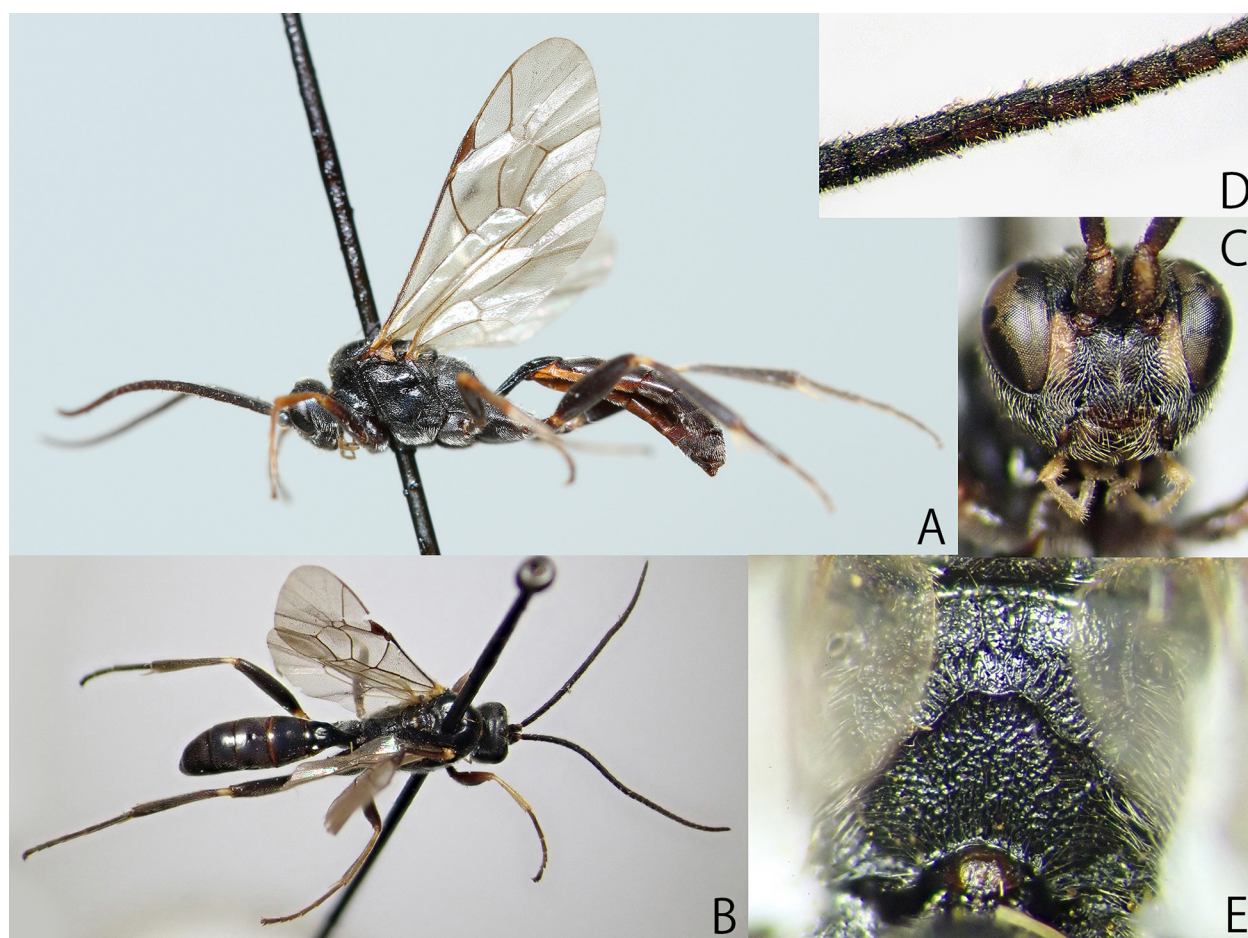


Fig. 56. *Pleolophus setiferae* (Uchida, 1936), male (NHMT) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: flagellum and tyloids; E: propodeum, dorsal view.



Metasoma largely smooth. T I  $1.35\text{--}1.4 \times$  as long as maximum width; latero-median carina absent; dorso-lateral carina complete. T II  $0.5 \times$  as long as maximum width. Thyridium present; close to anterior margin of T II; flat to slightly depressed; ca.  $2.0 \times$  as wide as length. T II to T VI sparsely punctate. Ovipositor sheath  $0.65\text{--}0.7 \times$  as long as hind tibia,  $1.05\text{--}1.25 \times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 79V).

Colouration (Figs. 55A–G). Body (excluding wings) black to blackish-brown. Setae silver except for some blackish-brown setae on head and mesoscutum. FL V to FL X with white marking. Middle part of T VII with a white to yellowish brown marking. Wing slightly yellowish-brown hyaline. Veins and pterostigma blackish-brown to brown except for yellow wing base. Base of tibiae white. Ventral surface of flagellum, tibiae and fore and mid tarsi usually tinged with brown. Ovipositor brown.

Male ( $n = 5$ ). Similar to female (Figs. 56A–E). Body length  $7.3\text{--}8.75$  mm. Head  $0.55 \times$  as long as wide in dorsal view. Face  $0.4\text{--}0.43 \times$  as long as minimum width. POL  $1.4\text{--}1.5 \times$  as OD. OOL  $1.4\text{--}1.9 \times$  as OD. Malar space  $1.0\text{--}1.1 \times$  as long as basal width of mandible. Antenna with 26–27 flagellomeres; with tyloids on FL X to FL XV (Fig. 56D). FL I  $2.15\text{--}2.3 \times$  as long as maximum depth in lateral view,  $1.05\text{--}1.1 \times$  as long as FL II. Hind femur  $4.3\text{--}4.9 \times$  as long as maximum depth in lateral view. Fore wing length  $6.25\text{--}7.0$  mm. T I  $1.95\text{--}2.0 \times$  as long as maximum width. T II  $0.75\text{--}0.8 \times$  as long as maximum width. Scape and pedicel each with ventral yellow marking. Face with pair of yellow markings along orbit. Mandible tinged with yellowish-brown except for teeth. Palpi yellowish-brown. Median part of collar and scutellum each with yellow marking. Tegula sometimes tinged with yellow. Fore and mid tibiae and tarsi largely tinged with yellowish-brown. Base of tibiae white to ivory. Tibial spurs ivory.

**Distribution.** Japan (Honshu), China, and Korea.

**Bionomics.** Host: *Diprion nipponicus* Rohwer, 1910; *Neodiprion sertifer* (Geoffroy, 1785) (“*serifera*” is misspelling) (Hymenoptera, Diprionidae) (Cushman, 1937).

### Genus *Schenkia* Förster, 1869

*Schenkia* Förster, 1869: 184. Type species: *Phygadeuon graminicola* Gravenhorst, 1829. Designated by Ashmead (1900).

*Ecpaglus* Förster, 1869: 185. Type species: *Cryptus brevicornis* Gravenhorst, 1829 (= *Phygadeuon graminicola* Gravenhorst, 1829). Designated by Ashmead (1900).

*Schenckia* Dalla Torre, 1902: 51. Emendation for *Schenkia*.

In Japan, two species, *S. sylvatica* Townes, Momoi & Townes, 1965, and *S. tosaensis* (Uchida, 1936), have been recorded. In this study, I newly describe four new species below with redescrptions of *S. sylvatica* and *S. tosaensis*.

### Key to Japanese species of *Schenkia* (female only)

1. Hind coxa largely or entirely yellowish brown to whitish yellow (Fig. 62A). Metasomal tergites partly tinged with reddish-brown to yellowish-brown (Figs. 62A, B).

..... 2

-. Hind coxa black (Figs. 57A, 58A, 59A, 60A, 61A). Metasomal tergites various in coloration, usually largely black.

..... 3

2. Basal part of hind coxa and base of T I whitish yellow (Fig. 24A). Apex of ovipositor sharply pointed (Fig. 78S). Scutellum yellow (Figs. 24B, G).

..... *Giraudia kurenai* sp. nov. (see remarks of this species)

-. Hind coxa entirely whitish yellow to yellowish brown (Fig. 62A). T I black to blackish-brown except for apex narrowly tinged with yellow (Figs. 62A, B). Apex of ovipositor obtusely pointed (Fig. 79AB). Scutellum black (Figs. 62B, G).

..... *Schenkia uryuensis* sp. nov.

3. Hind tarsus with white parts (Fig. 57A). Apex of ovipositor obtusely pointed (Fig. 79W). Ovipositor sheath  $1.2 \times$  as long as hind tibia.

..... *Schenkia alpina* sp. nov.

-. Hind tarsus entirely black (Figs. 58A, 59A, 60A, 61A). Apex of ovipositor obtusely (Figs. 79X, Z, AA) or sharply (Fig. 79Y) pointed. Ovipositor sheath shorter;  $0.8\text{--}1.1 \times$  as long as hind tibia.

..... 4

4. Hind trochanter and trochantellus ivory to yellowish-brown (Figs. 58A, 59A). Basal part of hind tibia more or less tinged with yellowish brown (Figs. 58A, 59A). Apex of ovipositor sometimes sharply pointed (Fig. 79Y).

..... 5

-. Hind trochanter and trochantellus black to blackish-brown (Figs. 60A, 61A). Hind tibia entirely black (Figs. 60A, 61A). Apex of ovipositor always obtusely pointed (Fig. 79Z, AA).

..... 6

5. Apex of ovipositor obtusely pointed (Fig. 79X). Malar space  $1.1\text{--}1.2 \times$  as long as basal width of mandible. Antenna with 24–26 flagellomeres. Hind femur  $4.3\text{--}4.7 \times$  as long as maximum depth in lateral view. Scutellum sometimes tinged with dark brown.

..... *Schenkia japonica* sp. nov.

-. Apex of ovipositor sharply pointed (Fig. 79Y). Malar space  $0.9 \times$  as long as basal width of mandible. Antenna with 28–29 flagellomeres. Hind femur  $3.7\text{--}3.9 \times$  as long as maximum depth in lateral view. Scutellum black.

..... *Schenkia minuta* **sp. nov.**

6. T II and T III smooth surface with punctures. Malar space  $0.8\text{--}0.9 \times$  as long as basal width of mandible. Apical part of upper valve of ovipositor bulge; apex narrowly truncate (Fig. 79Z).

..... *Schenkia sylvatica* Townes, Momoi & Townes, 1965

-. T II and T III coriaceous with punctures. Malar space  $1.0\text{--}1.1 \times$  as long as basal width of mandible. Apical part of upper valve of ovipositor not bulge; apex not truncate (Fig. 79AA).

..... *Schenkia tosaensis* (Uchida, 1936)

***Schenkia alpina* sp. nov.**

[New SJN: Ontake-futo-togari-himebachi]

(Figs. 57A–G, 79W)

**Type series. Holotype:** JAPAN, KPM-NK 84968, F, Honshu, Nagano Pref., Outaki Vil., Mt. Ontake-san, Hakkaisan, 5. VIII. 2017, K. Watanabe leg. **Paratype:** JAPAN, KPM-NK 84974, F, same locality of holotype, 18–20. VIII. 2014, S. Shimizu leg. (MsT).

**Description.** Female ( $n = 2$ ). Body polished; covered with setae; body length  $8.4\text{--}9.5$  (HT: 9.5) mm.

Head  $0.6 \times$  as long as wide in dorsal view. Clypeus  $2.7 \times$  as wide as long; slightly convex in lateral view; punctate and coriaceous dorsally, smooth ventrally; lower margin subtruncate in frontal view, obtuse in lateral view. Face  $0.45 \times$  as long as minimum width; weakly convex medially; matt; finely punctate. Frons weakly concave above antennal sockets; matt and punctate dorsally, coriaceous and partly transversely rugulose ventrally. POL  $1.2\text{--}1.3$  (HT: 1.2)  $\times$  as OD. OOL  $1.0\text{--}1.2$  (HT: 1.0)  $\times$  as OD. Gena and occiput finely and densely punctate. Dorsal profile of gena rounded in dorsal view; width gradually narrowing posteriorly (Fig. 57D). Occipital carina complete. Malar space  $0.9\text{--}1.0$  (HT: 0.9)  $\times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 29–30 (HT: 29) flagellomeres; apical part flattened below and tapered to slender apex. FL I  $1.8\text{--}1.9$  (HT: 1.9)  $\times$  as long as maximum depth in lateral view,  $0.9 \times$  as long as FL II.

Mesosoma. Pronotum rugulose ventrally and posteriorly, densely punctate antero-dorsally (Fig. 57E). Epomia absent. Mesoscutum densely punctate; with short and weak notaulus (Fig. 57D). Scutellum sparsely punctate (Fig. 57G); slightly convex in lateral view. Mesopleuron

punctate; punctures partly united into groove-like foveola; with conspicuous smooth area around speculum (Fig. 57E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.5 of mesopleuron. Metapleuron punctate anteriorly, irregularly rugulose posteriorly; with complete juxtacoxal carina. Propodeum rugose or rugulose except for area externa finely and sparsely punctate with smooth ISP (Fig. 57G); anterior transverse carina absent; posterior transverse carina complete, inverted U-shaped; lateromedian longitudinal carina complete; lateral longitudinal carina complete; pleural carina complete; area superomedia distinct except for anterior margin, slightly longer than wide; apophysis absent; spiracle oval. Fore wing length  $7.65\text{--}8.5$  (HT: 8.5) mm. Areolet as long as maximum width; width gradually narrowing anteriorly; received vein 2m-cu at near middle (Fig. 57F). Fore wing vein 1cu-a slightly antefurcal to vein M&RS. Nervellus slightly inclivous; intercepted near posterior end of vein. Hind femur reticulate coriaceous;  $4.2\text{--}4.6$  (HT: 4.6)  $\times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma finely and sparsely punctate; ISP smooth. T I  $2.1 \times$  as long as maximum width; latero-median carina absent posteriorly; dorso-lateral carina complete. T II  $0.65\text{--}0.75$  (HT: 0.65)  $\times$  as long as maximum width. Thyridium present; close to anterior margin of T II; slightly depressed; ca.  $3.0 \times$  as wide as length. Ovipositor sheath  $1.2 \times$  as long as hind tibia,  $1.8\text{--}1.85$  (HT: 1.85)  $\times$  as long as T I. Ovipositor slightly decurved; apex obtuse; apex of lower valve with teeth (Fig. 79W).

Colouration (Figs. 57A–G). Body (excluding wings) black to blackish-brown. Setae silver; more or less brownish on head and mesoscutum. Subapical part of mandible, lower part of clypeus, ventral surface of apical part of flagellum, and posterior margin of T II tinged with reddish-brown. Face and frons with pair of longitudinal yellow stripe along each orbit; stripe narrowly absent on frons in HT or largely absent in paratype. FL VI to FL XI (or XII in HT) with white markings. Median part of collar, second to fourth tarsomeres of mid and hind legs, and apex of metasoma ivory. Scutellum and apex of T I narrowly tinged with ivory. Fore tarsus and apex of hind first tarsomere sometimes partly tinged with ivory. Thyridium and ovipositor reddish-brown. Membranous part of metasomal sternites yellowish-brown. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish-brown wing base.

Male. Unknown.

**Distribution.** Japan (Honshu).

**Etymology.** The specific name is from Latin “*alpina*”,



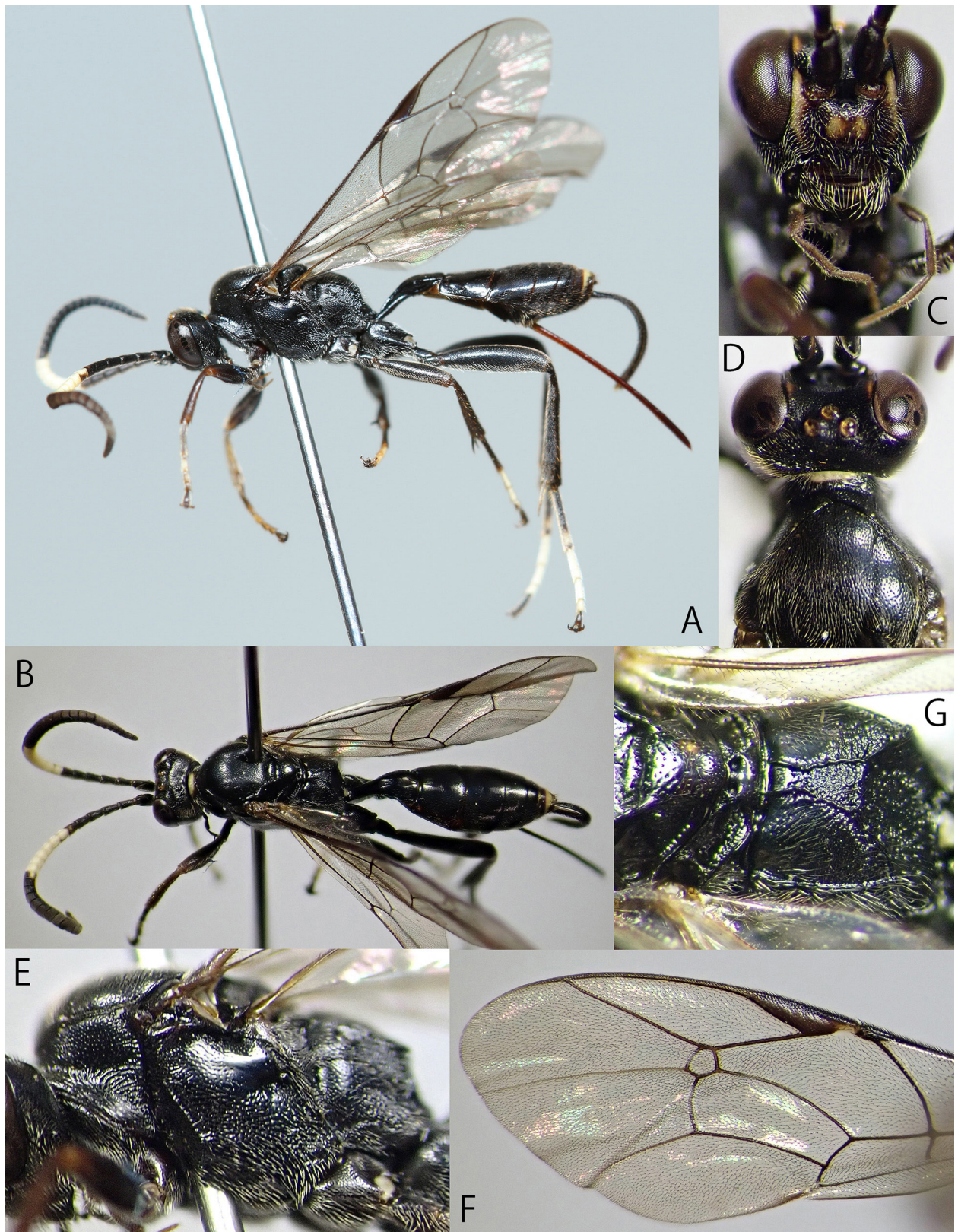


Fig. 57. *Schenkia alpina* **sp. nov.**, female (holotype: KPM-NK 84968) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head and mesoscutum, dorsal view; E: mesosoma, lateral view; F: fore wing; G: scutellum and propodeum, dorsal view.



which means alpine mountains.

**Remarks.** This species resembles *S. tosaensis* in the black body and the shape of ovipositor apex but can be distinguished by the hind tarsus with white areas (black in *S. tosaensis*), the facial and frontal orbits with yellow markings (without markings in *S. tosaensis*) and the FL I  $1.8\text{--}1.9 \times$  as long as maximum depth in lateral view ( $2.6 \times$  in *S. tosaensis*)

***Schenkia japonica* sp. nov.**

[New SJN: Hidahige-futo-togari-himebachi]

(Figs. 58A–G, 79X)

**Type series. Holotype:** JAPAN, KPM-NK 84970, F, Honshu, Nagano Pref., Outaki Vil., Mt. Ontake-san, Tanohara, 17. VI. 2007, K. Watanabe leg. **Paratype:** JAPAN: [Honshu] KPM-NK 102785, F, Fukushima Pref., Hinoemata Vil., 1–14. VIII. 2004, H. Makihara leg. (MsT); KPM-NK 102786, F, Yamanashi Pref., Hokuto City, Masutomi, Biwakubo-sawa, 28. VII. 2007, K. Watanabe leg.; KPM-NK 102788, F, Toyama Pref., Toyama City, Arimine, Jurodani, 21–28. VII. 2009, M. Watanabe leg. (MsT); KPM-NK 102784, F, ditto, 4–11. VIII. 2009; OMNH, 1F, ditto, 1–8. IX. 2009; KPM-NK 102787, F, Fukui Pref., Ikeda Town, Mt. Kanakusayama, 9. VI. 1981, T. Murota leg.; KPM-NK 102789, F, Fukui Pref., Ikeda Town, Mt. Heko-san, 16. VI. 1981, T. Murota leg.

**Description.** Female ( $n = 8$ ). Body punctate and polished; covered with setae; body length  $5.6\text{--}6.9$  (HT:  $6.6$ ) mm.

Head  $0.6\text{--}0.65$  (HT:  $0.65$ )  $\times$  as long as wide in dorsal view. Clypeus  $2.2\text{--}2.25$  (HT:  $2.25$ )  $\times$  as wide as long; slightly convex in lateral view; sparsely punctate and coriaceous dorsally, smooth ventrally; lower margin truncate in frontal view, sharp in lateral view. Face  $0.4\text{--}0.45$  (HT:  $0.45$ )  $\times$  as long as minimum width; weakly convex medially; matt; sparsely punctate medially. Frons coriaceous; weakly concave above antennal sockets; punctate dorsally. POL  $0.8\text{--}1.05$  (HT:  $1.05$ )  $\times$  as OD. OOL  $1.2\text{--}1.25$  (HT:  $1.2$ )  $\times$  as OD. Gena and occiput finely and densely punctate. Dorsal profile of gena nearly straight in dorsal view; width gradually narrowing posteriorly (Fig. 58D). Occipital carina complete. Malar space  $1.1\text{--}1.2$  (HT:  $1.2$ )  $\times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 24–26 (HT: 26) flagellomeres; apical part flattened below and tapered to slender apex. FL I  $2.0\text{--}2.25$  (HT:  $2.25$ )  $\times$  as long as maximum depth in lateral view,  $0.9\text{--}0.95$  (HT:  $0.9$ )  $\times$  as long as FL II.

Mesosoma. Pronotum rugulose ventrally (Fig. 58E). Epomia absent. Mesoscutum with short and weak

notaulus (Fig. 58D). Scutellum sparsely punctate; weakly convex in lateral view. Mesopleuron with or without small conspicuous smooth area around speculum (Fig. 58E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.5 of mesopleuron. Metapleuron with juxtacoxal carina but partly obscured with rugae. Propodeum smooth with punctures, foveolae, and rugae (Fig. 58G); area externa finely and sparsely punctate; anterior transverse carina absent or slightly present as trace-like; posterior transverse carina complete, inverted U-shaped; lateromedian longitudinal carina complete; lateral longitudinal carina complete; pleural carina complete; area superomedia distinct except for anterior margin, distinctly longer than wide, sometimes longitudinally striate; apophysis absent; spiracle round. Fore wing length  $5.4\text{--}5.8$  (HT:  $5.75$ ) mm. Areolet as long as maximum width; width gradually narrowing anteriorly; received vein 2m-cu at near middle (Fig. 58F). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 58F). Nervellus subvertical; intercepted near posterior end of vein. Hind femur reticulate coriaceous;  $4.3\text{--}4.7$  (HT:  $4.4$ )  $\times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma finely and sparsely punctate, ISP smooth. T I  $2.05\text{--}2.4$  (HT:  $2.4$ )  $\times$  as long as maximum width; lateromedian carina absent; dorso-lateral carina complete. T II  $0.85 \times$  as long as maximum width. Thyridium present; close to anterior margin of T II; slightly depressed; ca.  $2.0 \times$  as wide as length. Ovipositor sheath  $0.8\text{--}0.85$  (HT:  $0.83$ )  $\times$  as long as hind tibia,  $1.25\text{--}1.4$  (HT:  $1.25$ )  $\times$  as long as T I. Ovipositor straight; apex obtuse; apex of lower valve with teeth (Fig. 79X).

Colouration (Figs. 58A–G). Body (excluding wings) black to blackish-brown. Setae silver. Subapical part of mandible, lower part of clypeus, and ventral surface of apical part of flagellum tinged with reddish-brown to brown. FL VII (or VI) to FL X (or XI) with white markings. Fore and mid coxae, all trochanters and trochantelli, mid and hind tibial spurs yellow to ivory. Fore and mid legs except for coxae, trochanters, trochantelli, and mid tibial spurs reddish-brown to brown. Subbasal part of hind tibia largely yellowish-brown. Hind tarsus partly tinged with yellowish-brown. Posterior margins of T II to T IV tinged with reddish-brown. Median part of collar sometimes narrowly tinged with ivory. Median part of face, scutellum, and apex of T I sometimes tinged with reddish-brown. Thyridium and ovipositor reddish-brown. Membranous part of metasomal sternites yellow to yellowish-brown. Apex of metasoma with ivory area. Wings hyaline. Veins and pterostigma brown except for yellowish-brown wing base.





Fig. 58. *Schenkia japonica* **sp. nov.**, females (A, C–E: holotype: KPM-NK 84970; B, F, G: paratype: KPM-NK 102789) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head and mesoscutum, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: propodeum, dorso-lateral view.

Male. Unknown.

**Bionomics.** Unknown.

**Etymology.** The specific name is from Japan.

**Distribution.** Japan (Honshu).

**Remarks.** This species resembles *S. minuta* **sp. nov.** in the body colouration but can be distinguished by the obtusely pointed apex of ovipositor (sharply pointed apex in *S. minuta*), the long malar space and hind femur, and the fewer number of flagellar segments (see above key).

***Schenkia minuta* **sp. nov.****

[New SJN: Yamato-futo-togari-himebachi]

(Figs. 59A–G, 79Y)

**Type series.** **Holotype:** JAPAN, KPM-NK 84971, F, Honshu, Nagano Pref., Outaki Vil., Mt. Ontake-san, Hakkaisan, 13. VI. 2015, K. Watanabe leg. **Paratype:** JAPAN: [Honshu] KPM-NK 102790, F, Tochigi Pref., Nasushiobara City, Shiobara, Oonuma, 6–15. VI. 2008, T. Matsumura leg. (MsT); KPM-NK 5004345, F, Kanagawa



Pref., Yamakita Town, Mt. Komotsurushi-yama, 16. VI. 2013, T. Taniwaki leg. (FIT); KPM-NK 102791, F, Niigata Pref., Nagaoka City, Jyoganji Town, Happodai, 24. V. 2014, S. Shimizu leg.

**Description.** Female (n = 4). Body punctate and polished; covered with setae; body length 5.9–9.1 (HT: 9.1) mm.

Head 0.55–0.6 (HT: 0.55) × as long as wide in dorsal view. Clypeus 3.0–3.1 (HT: 3.0) × as wide as long; slightly convex in lateral view; punctate and coriaceous dorsally, smooth ventrally; lower margin subtruncate in frontal view, obtuse in lateral view. Face 0.35–0.38 (HT: 0.35) × as long as minimum width; weakly convex medially; matt; densely punctate medially, finely punctate laterally. Frons weakly concave above antennal sockets; smooth except for matt along orbits; punctate dorsally; partly transversely rugulose medio-ventrally. POL 1.2–1.5 (HT: 1.2) × as OD. OOL 1.5–1.6 (HT: 1.6) × as OD. Gena and occiput finely and densely punctate. Dorsal profile of gena rounded in dorsal view; width gradually narrowing posteriorly (Fig. 59D). Occipital carina complete. Malar space 0.9 × as long

as basal width of mandible. Mandible flat at base; lower tooth equal in or slightly longer than length of upper tooth. Antenna with 28–29 (HT: 28) flagellomeres; apical part flattened below and tapered to slender apex. FL I 1.4–1.65 (HT: 1.65) × as long as maximum depth in lateral view, 0.9–1.0 (HT: 1.0) × as long as FL II.

Mesosoma. Pronotum rugulose ventrally (Fig. 59E). Epomia absent. Mesoscutum with short and weak notaulus (Fig. 59D). Scutellum sparsely punctate (Fig. 59G); slightly convex in lateral view. Mesopleuron with conspicuous smooth area around speculum (Fig. 59E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.4 of mesopleuron. Metapleuron with juxtacoxal carina but partly indistinct with rugae. Propodeum sparsely punctate with smooth ISP; rugulose area along posterior transverse carina and area postero; anterior transverse carina absent; posterior transverse carina complete or sometimes trace-like posteriorly, trapezoid-shaped; lateromedian longitudinal carina weakly present, partly trace-like; lateral longitudinal carina complete; pleural



Fig. 59. *Schenkia minuta* sp. nov., female (holotype: KPM-NK 84971) — A: lateral habitus; B: head, mesosoma, and metasoma, dorsal view; C: head, frontal view; D: head and mesoscutum, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: scutellum and propodeum, dorsal view.



carina complete; area superomedia slightly defined; spiracle oval. Fore wing length 5.75–7.0 (HT: 7.0) mm. Areolet as long as maximum width; width gradually narrowing anteriorly; received vein 2m-cu at near middle (Fig. 59F). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 59F). Nervellus slightly inclivous; intercepted near posterior end of vein. Hind femur reticulate coriaceous; 3.7–3.9 (HT: 3.7) × as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma finely punctate; ISP smooth. T I 1.85–2.25 (HT: 2.0) × as long as maximum width; latero-median carina absent; dorso-lateral carina complete or sometimes obscured posteriorly. T II 0.7–0.75 (HT: 0.73) × as long as maximum width. Thyridium present; close to anterior margin of T II; flat to slightly depressed; ca. 2.0 × as wide as length. Ovipositor sheath 0.9–1.0 (HT: 0.98) × as long as hind tibia, 1.35–1.55 (HT: 1.5) × as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 79Y).

Colouration (Figs. 59A–G). Body (excluding wings) black to blackish-brown. Setae silver. Mandible except for teeth, lower part of clypeus, basal segments of flagellum, ventral surface of apical part of flagellum, tegula, and posterior margin of T II tinged with reddish-brown to brown. FL VI (or VII) to FL XI (or XII) with white markings. Trochantelli and tibial spurs yellowish-brown to brown. Trochanters more or less partly tinged with yellowish-brown. Fore and mid legs largely brown to blackish-brown except for trochantellus and tibial spurs. Base of hind tibia weakly paler than apical part. Thyridium and ovipositor reddish-brown. Membranous part of metasomal sternites yellowish-brown. Apex of metasoma with ivory area. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish-brown wing base.

Male. Unknown.

**Bionomics.** Unknown.

**Etymology.** The specific name is from the Latin “*minuta*” (small), referring to the relatively small body size in Japanese species.

**Distribution.** Japan (Honshu).

**Remarks.** This species resembles *S. japonica* sp. nov. in the body colouration but can be distinguished by the sharply pointed apex of ovipositor (obtusely pointed apex in *S. japonica*), the short malar space and hind femur, and the many numbers of flagellar segments (see above key).

***Schenkia sylvatica* Townes, Momoi & Townes, 1965**

[SJN: Maruyama-kogata-futo-togari-himebachi]

(Figs. 60A–G, 79Z)

*Microcryptus maruyamensis* Uchida, 1936a: 47. Name preoccupied.

*Schenkia sylvatica* Townes *et al.*, 1965: 162. New name.

**Materials examined. JAPAN:** [Hokkaido] SEHU, 1F (holotype of *Mi. maruyamensis*), Sapporo, Mt. Maruyama, 20. VI. 1924, T. Uchida leg.; KPM-NK 102781, F, Akan Town, Akan-lake trail, 10. IX. 2014, S. Shimizu & Y. Saito leg.; KPM-NK 102782, Naie Town, Chasinai, Naiegawarindo, 21. VI. 2017, K. Watanabe leg. [Honshu] KPM-NK 102780, Nagano Pref., Outaki Vil., Mt. Ontake-san, Hakkai-san, 9. VIII. 2007, K. Watanabe leg.; OMNH, 1F, Toyama Pref., Nanto City, Togamura-kamimomose, 21–28. VII. 2009, M. Watanabe leg. (MsT); KPM-NK 102783, F, ditto, 18–25. VIII. 2009; OMNH, 1F, ditto, 8–15. IX. 2009; KPM-NK 81400, F, Toyama Pref., Toyama City, Arimine, Jurodani, 1–8. IX. 2009, M. Watanabe leg. (MsT); KPM-NK 81398, F, Toyama Pref., Toyama City, Arimine, Kamegai, 14–21. VII. 2009, M. Watanabe leg. (MsT); KPM-NK 81399, F, Toyama Pref., Toyama City, Arimine, Inonedani, 11–16. VIII. 2009, M. Watanabe leg. (MsT). [Shikoku] KPM-NK 102779, F, Ehime Pref., Saijyo City, Nishinokawatei, Mt. Ishizuchi-yama, Tsuchigoya, 28. VII. 2018, K. Watanabe leg.

**Description.** Female (n = 11). Body punctate and polished; covered with setae; body length 6.2–9.5 mm.

Head 0.55 × as long as wide in dorsal view. Clypeus 2.2–2.3 × as wide as long; slightly convex in lateral view; punctate and coriaceous dorsally, smooth ventrally; lower margin subtruncate in frontal view, obtuse in lateral view. Face 0.3–0.38 × as long as minimum width; weakly convex medially; matt laterally, densely punctate and coriaceous medially. Frons weakly concave above antennal sockets; matt and punctate dorsally; coriaceous ventrally. POL 1.15–1.3 × as OD. OOL 1.4–1.7 × as OD. Gena and occiput finely and sparsely punctate. Dorsal profile of gena weakly rounded in dorsal view; width gradually narrowing posteriorly (Fig. 60D). Occipital carina complete. Malar space 0.8–0.9 × as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 27–29 flagellomeres; apical part flattened below and tapered to slender apex. FL I 2.0–2.25 × as long as maximum depth in lateral view, 0.9–0.95 × as long as FL II.

Mesosoma. Pronotum rugulose except for small area of antero-dorsal part punctate (Fig. 60E). Epomia absent. Mesoscutum densely punctate; without notaulus. Scutellum sparsely punctate (Fig. 60G); slightly convex in lateral view. Mesopleuron with conspicuous smooth area around speculum (Fig. 60E). Epicnemial carina

present laterally and ventrally. Sternaulus deep in anterior 0.4 of mesopleuron. Metapleuron with juxtacoxal carina; carina sometimes indistinct by rugae. Propodeum rugose or rugulose except for smooth anterior part; anterior transverse carina absent; posterior transverse carina complete, inverted U-shaped (Fig. 60G); lateromedian longitudinal carina present; lateral longitudinal carina present, sometimes weak posteriorly; pleural carina complete; area superomedia partly indistinct; area externa punctate; apophysis absent; spiracle oval. Fore wing length 5.7–7.1 mm. Areolet slightly longer than wide; width gradually narrowing anteriorly; received vein 2m-cu at slightly beyond to or near middle (Fig. 60F). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 60F). Nervellus subvertical; intercepted near posterior end of vein. Hind femur reticulate coriaceous;  $4.1\text{--}4.5 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma finely and sparsely punctate, ISP smooth. T I  $1.9\text{--}2.1 \times$  as long as maximum width; latero-median carina absent posteriorly, weak anteriorly; dorso-lateral

carina complete. T II  $0.6\text{--}0.8 \times$  as long as maximum width. Thyridium present; close to anterior margin of T II; slightly depressed; ca.  $2.0 \times$  as wide as length. Ovipositor sheath  $0.95\text{--}1.05 \times$  as long as hind tibia,  $1.45\text{--}1.65 \times$  as long as T I. Ovipositor straight; apex obtuse with small truncation; apex of lower valve with teeth (Fig. 79Z).

Colouration (Figs. 60A–G). Body (excluding wings) black to blackish-brown. Setae silver; more or less brownish on head and mesoscutum. Subapical part of mandible, ventral surface of apical part of flagellum, and posterior margin of T II tinged with reddish-brown to yellowish-brown. FL V (or VI, VII) to FL X (or XI, XII) with white markings. Fore femur, tibia, and tarsus partly tinged with brown to dark yellowish-brown. Thyridium and ovipositor dark reddish-brown. Apex of metasoma ivory. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish-brown wing base.

Male. Unknown.

**Distribution.** Japan (Kunashiri Is., Hokkaido, Honshu, and Shikoku).

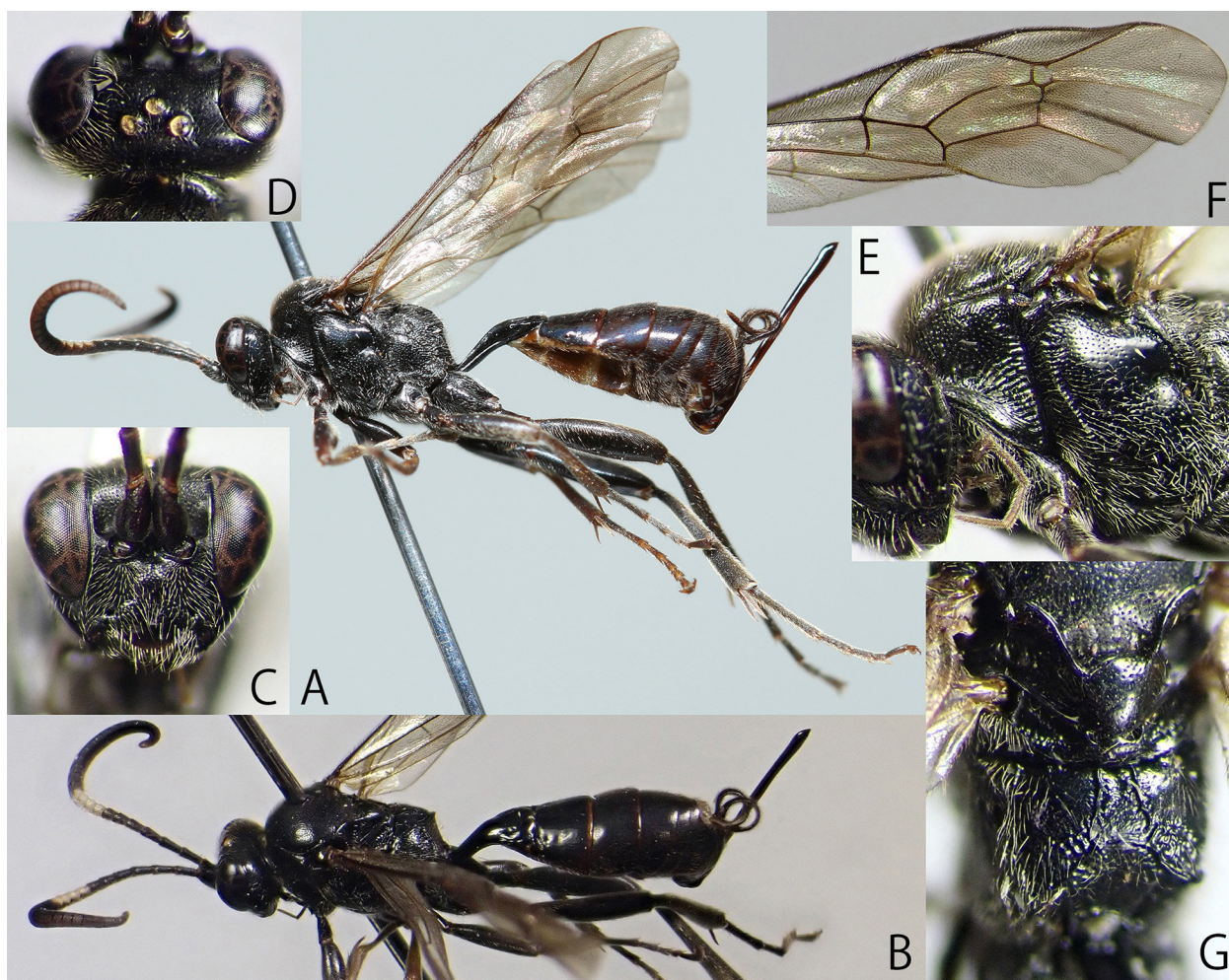


Fig. 60. *Schenkia sylvatica* Townes, Momoi & Townes, 1965, female (KPM-NK 102783) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: scutellum and propodeum, dorsal view.



**Bionomics.** Unknown.

**Remarks.** This is the first record of this species from Shikoku.

***Schenkia tosaensis* (Uchida, 1936)**

[SJN: Tosa-kogata-futo-togari-himebachi]

(Figs. 61A–G, 79AA)

*Microcryptus tosaensis* Uchida, 1936b: 17.

**Materials examined.** JAPAN: [Honshu] KPM-NK 69500, F, Hyogo Pref., Kami Town, Niiya, Mikata-kogen, 26. VI. – 18. VII. 2011, S. Fujie leg. (MsT). [Shikoku] SEHU, 1F (holotype), Kochi Pref., Mt. Kajigamori, 4. VI. 1933, Y. Sugihara leg.; MNHAH, 1M (allotype), Kochi Pref., Teragawa, 18. VII. 1933, Y. Sugihara leg.

**Description.** Female (n =2). Body punctate and polished; covered with setae; body length 9.5–11.5 mm.

Head  $0.6 \times$  as long as wide in dorsal view. Clypeus  $2.5 \times$  as wide as long; slightly convex in lateral view; punctate and coriaceous dorsally, smooth ventrally; lower margin subtruncate in frontal view, obtuse in lateral view. Face  $0.38 \times$  as long as minimum width; weakly convex medially; matt laterally, densely punctate and coriaceous medially. Frons weakly concave above antennal sockets; matt and punctate dorsally, coriaceous and partly transversely rugulose ventrally. POL  $1.25 \times$  as OD. OOL  $1.3 \times$  as OD. Gena and occiput finely and sparsely punctate. Dorsal profile of gena nearly straight in dorsal view; width gradually narrowing posteriorly (Fig. 61D). Occipital carina complete. Malar space  $1.0\text{--}1.1 \times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 30 flagellomeres; apical part flattened below and tapered to slender apex. FL I  $2.6 \times$  as long as maximum depth in lateral view,  $0.9 \times$  as long as FL II.

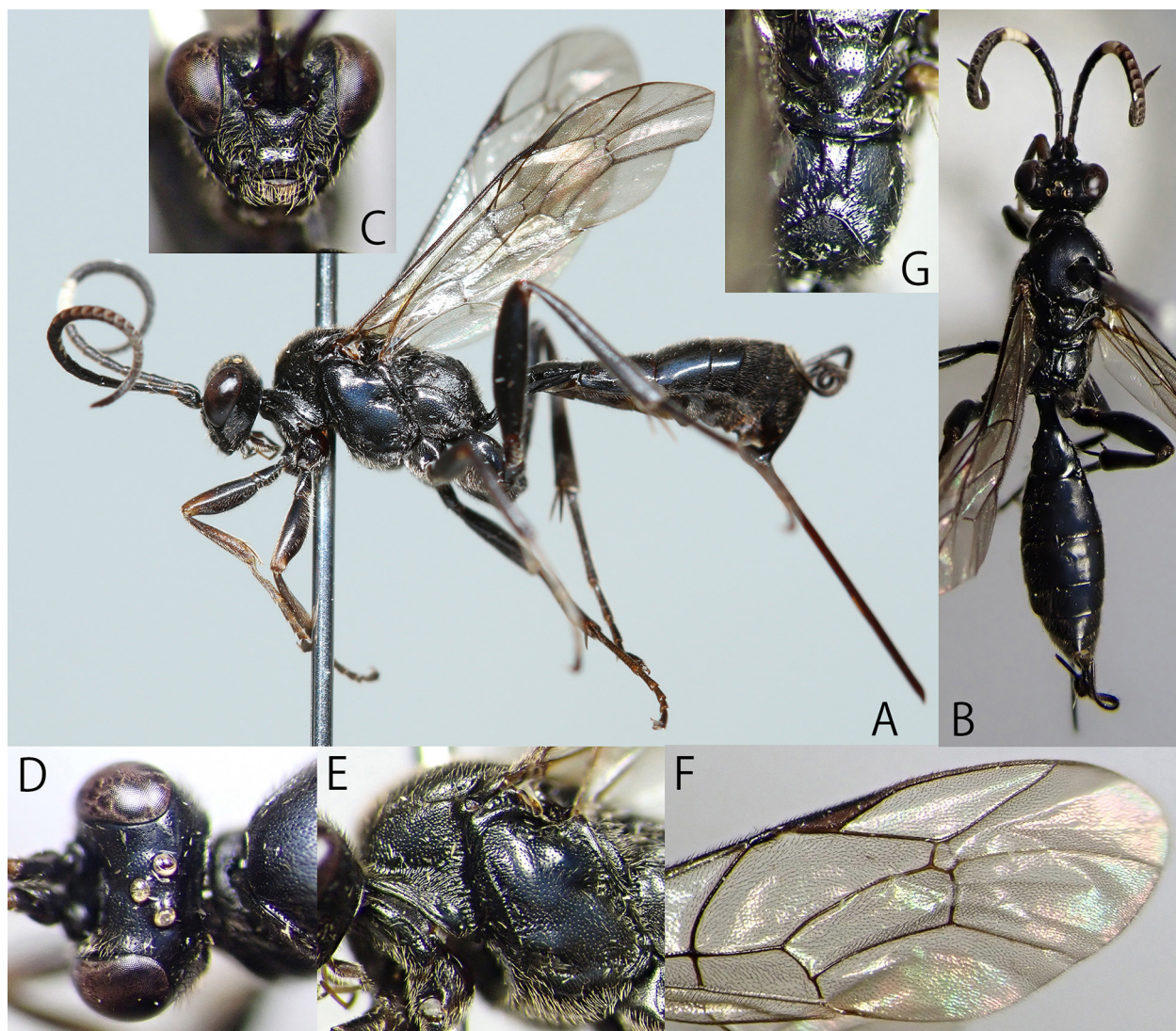


Fig. 61. *Schenkia tosaensis* (Uchida, 1936), female (KPM-NK 69500) — A: lateral habitus; B: head, mesosoma, and metasoma, dorsal view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: scutellum and propodeum, dorsal view.

Mesosoma. Pronotum rugulose ventrally (Fig. 61E). Epomia absent. Mesoscutum densely punctate; without notaulus (Fig. 61D). Scutellum sparsely punctate; slightly convex in lateral view. Mesopleuron with conspicuous smooth area around speculum (Fig. 61E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.4 of mesopleuron. Metapleuron punctate anteriorly, transversely strigose posteriorly; with complete juxtacoxal carina. Propodeum finely and weakly coriaceous; area along posterior transverse carina rugose or rugulose; anterior transverse carina absent; posterior transverse carina complete, inverted V-shaped (Fig. 61G); lateromedian longitudinal carina present anteriorly; lateral longitudinal carina complete; pleural carina complete; area superomedia partly indistinct; area externa punctate; apophysis absent; spiracle oval. Fore wing length 8.3 mm. Areolet slightly longer than wide; width steeply narrowing anteriorly; received vein 2m-cu at slightly beyond to middle (Fig. 61F). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 61F). Nervellus subvertical; intercepted near posterior end of vein. Hind femur reticulate coriaceous;  $4.9 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma weakly to slightly coriaceous except for posterior smooth area of T I; finely and sparsely punctate. T I  $1.85\text{--}1.95 \times$  as long as maximum width; lateromedian carina absent posteriorly; dorso-lateral carina complete except for area near spiracle. T II  $0.8 \times$  as long as maximum width. Thyridium present; close to anterior margin of T II; slightly depressed; ca.  $2.0 \times$  as wide as length. Ovipositor sheath  $0.95\text{--}1.1 \times$  as long as hind tibia,  $1.85\text{--}1.9 \times$  as long as T I. Ovipositor straight; apex obtuse; apex of lower valve with teeth (Fig. 79AA).

Colouration (Figs. 61A–G). Body (excluding wings) black to blackish-brown. Setae silver; more or less brownish on head and mesoscutum. Subapical part of mandible, ventral surface of apical part of flagellum, and posterior margin of T II tinged with reddish-brown to yellowish-brown. FL VII to FL X with white markings. Fore femur, tibia, and tarsus partly tinged with brown to dark yellowish-brown. Thyridium and ovipositor reddish-brown. Apex of metasoma ivory. Wings hyaline. Veins and pterostigma blackish-brown to brown except for yellowish-brown wing base.

Male. No additional material is available.

**Distribution.** Japan (Hokkaido, Honshu, and Shikoku).

**Bionomics.** Unknown.

***Schenkia uryuensis* sp. nov.**

[New SJN: Kitaguni-futo-togari-himebachi]

(Figs. 62A–G, 79AB)

**Type series. Holotype:** JAPAN, KPM-NK 84967, F, Hokkaido, Horokanai Town, Uryu, Research Forest of Hokkaido University, 11–17. VII. 2012, K. Watanabe *et al.* leg. (MsT).

**Description.** Female ( $n = 1$ ). Body polished; covered with setae; body length 6.7 mm.

Head  $0.6 \times$  as long as wide in dorsal view. Clypeus  $2.3 \times$  as wide as long; slightly convex in lateral view; sparsely punctate dorsally; smooth ventrally; lower margin subtruncate in frontal view, obtuse in lateral view. Face  $0.38 \times$  as long as minimum width; weakly convex medially; matt; finely punctate. Frons weakly concave above antennal sockets; matt and punctate dorsally, coriaceous ventrally. POL  $1.2 \times$  as OD. OOL  $1.4 \times$  as OD. Gena and occiput finely punctate. Dorsal profile of gena rounded in dorsal view; width gradually narrowing posteriorly (Fig. 62D). Occipital carina complete. Malar space  $1.1 \times$  as long as basal width of mandible. Mandible flat at base; lower tooth equal in length of upper tooth. Antenna with 24 flagellomeres; apical part flattened below and tapered to slender apex. FL I  $2.0 \times$  as long as maximum depth in lateral view,  $0.85 \times$  as long as FL II.

Mesosoma. Pronotum rugulose ventrally and posteriorly, punctate antero-dorsally (Fig. 62E). Epomia absent. Mesoscutum punctate; with short and weak notaulus. Scutellum sparsely punctate (Fig. 62G); weakly convex in lateral view. Mesopleuron punctate; punctures partly united into groove-like foveola; without conspicuous smooth area around speculum (Fig. 62E). Epicnemial carina present laterally and ventrally. Sternaulus deep in anterior 0.4 of mesopleuron. Metapleuron finely punctate; with complete juxtacoxal carina; area around and below juxtacoxal carina rugose. Propodeum rugose or rugulose except for area externa finely and sparsely punctate with smooth ISP (Fig. 62D); anterior transverse carina absent (Fig. 62D); posterior transverse carina complete, inverted V-shaped (Fig. 62D); lateromedian longitudinal carina weak; lateral longitudinal carina complete; pleural carina complete; area superomedia indistinct; apophysis absent; spiracle oval. Fore wing length 5.9 mm. Areolet as long as maximum width; width gradually narrowing anteriorly; received vein 2m-cu at near middle (Fig. 62F). Fore wing vein 1cu-a postfurcal to vein M&RS (Fig. 62F). Nervellus subvertical; intercepted posterior to middle. Hind femur reticulate coriaceous;  $4.3 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma finely and sparsely punctate, ISP smooth. T I  $2.15 \times$  as long as maximum width; latero-median carina absent; dorso-lateral carina complete. T II  $0.8 \times$  as long as maximum width. Thyridium present; close to anterior



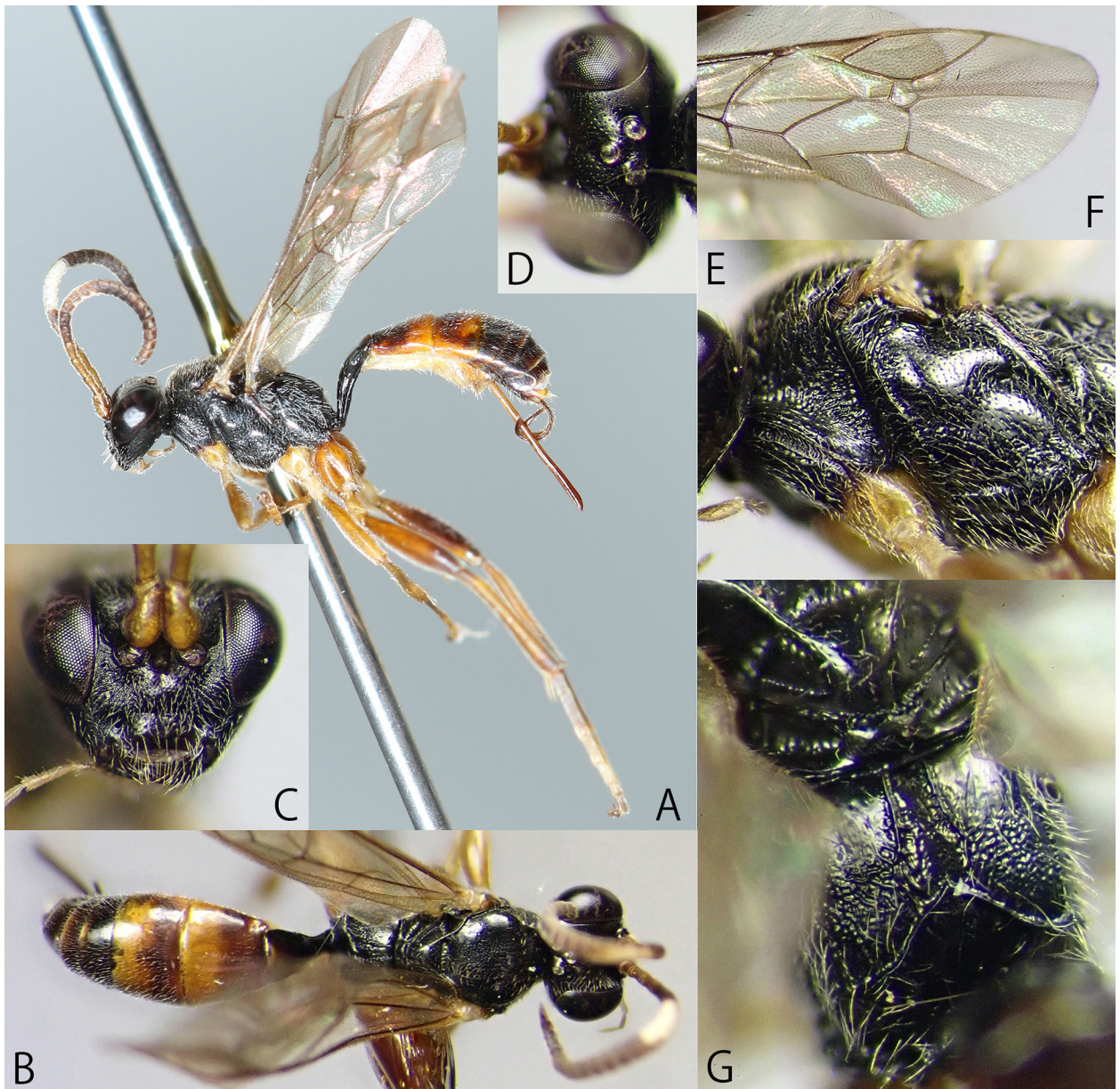


Fig. 62. *Schenkia uryuensis* sp. nov., female (holotype: KPM-NK 84967) — A: lateral habitus; B: head, mesosoma, and metasoma, dorsal view; C: head, frontal view; D: head, dorsal view; E: pronotum and mesopleuron, lateral view; F: fore wing; G: scutellum and propodeum, dorsal view.

margin of T II; slightly depressed; ca.  $2.0 \times$  as wide as length. Ovipositor sheath  $0.85 \times$  as long as hind tibia,  $1.35 \times$  as long as T I. Ovipositor straight; apex obtuse; apex of lower valve with teeth (Fig. 79AB).

**Colouration** (Figs. 62A–G). Body (excluding wings) black to blackish-brown. Setae silver. Mandible tinged with dark brown except for teeth. Labrum, palpi, scape, pedicel, FL I to FL III, and ovipositor yellowish-brown. FL VI to FL X with white markings. Fore and mid coxae, trochanters, trochantelli, tibial spurs, and second to fourth hind tarsomeres ivory to yellowish-brown. Hind coxa, femora, tibiae, and tarsi except second to fourth hind tarsomeres reddish-yellow. Apices of hind femur and tibia and hind first and fifth tarsomeres tinged with brown. Membranous part of metasomal sternites yellow. Apex

of T I narrowly tinged with reddish-brown. T II and T III largely tinged with reddish-brown to red. Posterior margins of T II to T VI narrowly tinged with red. Wings brownish-hyaline. Veins and pterostigma brown to yellowish-brown except for yellow wing base.

**Male.** Unknown.

**Distribution.** Japan (Hokkaido).

**Bionomics.** Unknown.

**Etymology.** The species name is from the type locality, Uryu, a place in Hokkaido with the research forest of Hokkaido University.

**Remarks.** This species resembles *S. aries* (Thomson, 1883) and *S. spinolae* (Gravenhorst, 1829) in the body colouration and the obtusely pointed ovipositor but can be distinguished by the black T I and T IV (both red in *S.*



*aries* and *S. spinolae*), the fore wing vein 1cu-a postfurcal to vein M&RS (interstitial in *S. aries* and *S. spinolae*), the apex of ovipositor not bulged dorsally (bulged dorsally in *S. aries*), and the entirely black face (with reddish markings in *S. aries* and *S. spinolae*).

### Tribe Cryptini Kirby, 1837

This group has been studied more than Aptesini in Japan, but there are still many unknown species identified. Previously, 50 genera and 122 species have been recorded (Watanabe *et al.*, 2024). In this paper, I study six genera, including the descriptions of a new species and a new subspecies. I also report a new synonym, a species new to Japan and a subspecies new to Japan.

### Genus *Euchalinus* Townes, 1961

*Euchalinus* Townes, 1961 in Townes *et al.* 1961: 471.

Type species: *Skeattia balteata* Cameron, 1905.  
Original designation.

A single species, *Euc. multimaculatus* Kusigemati, 1986, has been recorded from Japan. In this study, I record

the additional specimens of this species collected from Amamioshima Island (new record) and Okinawajima Island below.

### *Euchalinus multimaculatus* Kusigemati, 1986

[SJN: Okinawa-madara-togari-himebachi]

(Figs. 63A–F)

*Euchalinus multimaculatus* Kusigemati, 1986: 421.

**Materials examined. JAPAN:** [Amamioshima Is.] MNHAH, 1F, Kagoshima Pref., Sumiyo Vil., Yakkachi, 17. VII. 1933, T. Esaki & K. Yasumatsu leg. [Okinawajima Is.] SEHU, 1F (holotype), Motobu, Izumi, 29. VI. 1982, K. Ohara leg.; SEHU, 1M (paratype), Kunigami, Yona, 1. VII. 1982, K. Kusigemati leg.; OMNH, 1F, Okinawa Pref., Sueyoshikoen, 18. X. 1994, R. Matsumoto leg.; OMNH, 1F, ditto, 16. VII. 1995; KPM-NK 103100, F, Okinawa Pref., Nago City, Mt. Nago-dake, 8. V. 2021, N. Tokushige leg.

**Description.** See Kusigemati (1986).

**Distribution.** Japan (Tanegashima Is., Amamioshima Is., and Okinawajima Is.).

**Bionomics.** Unknown.

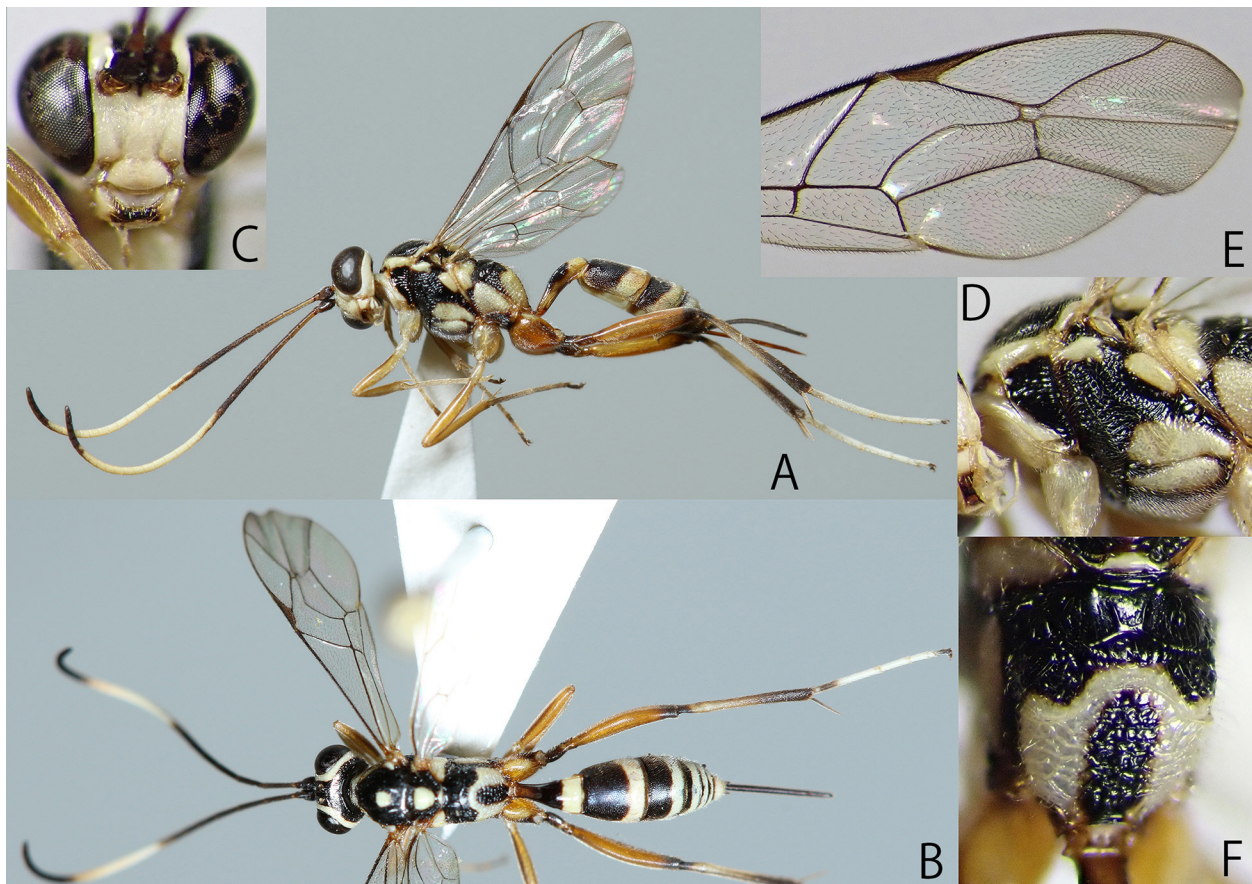


Fig. 63. *Euchalinus multimaculatus* Kusigemati, 1986, females (A, D: OMNH; B, C, E, F: KPM-NK 103100) — A: lateral habitus; B: dorsal habitus; C: head, frontal view; D: pronotum and mesopleuron, lateral view; E: fore wing; F: propodeum, dorsal view.



**Remarks.** This is the first record of this species from Amamioshima Island.

**Genus *Goryphus* Holmgren, 1868**

*Goryphus* Holmgren, 1868: 398. Type species: *Goryphus basilaris* Holmgren, 1868. Designated by Viereck (1914).

*Psacus* Holmgren, 1868: 400. Type species: *Goryphus* (*Psacus*) *areolaris* Holmgren, 1868. Designated by Viereck (1914). Name preoccupied.

*Brachycoryphus* Kriechbaumer, 1894b: 46. Type species: *Brachycoryphus calabaricus* Kriechbaumer, 1894. Designated by Viereck (1914).

*Fislistina* Cameron, 1902a: 56. Type species: *Fislistina maculipennis* Cameron, 1902. Monotypic.

*Fenenias* Cameron, 1902b: 211. Type species: *Fenenias albomaculatus* Cameron, 1902. Monotypic.

*Cratocryptus* Cameron, 1905a: 141. Type species: *Cratocryptus maculiceps* Cameron, 1905. Monotypic. Name preoccupied.

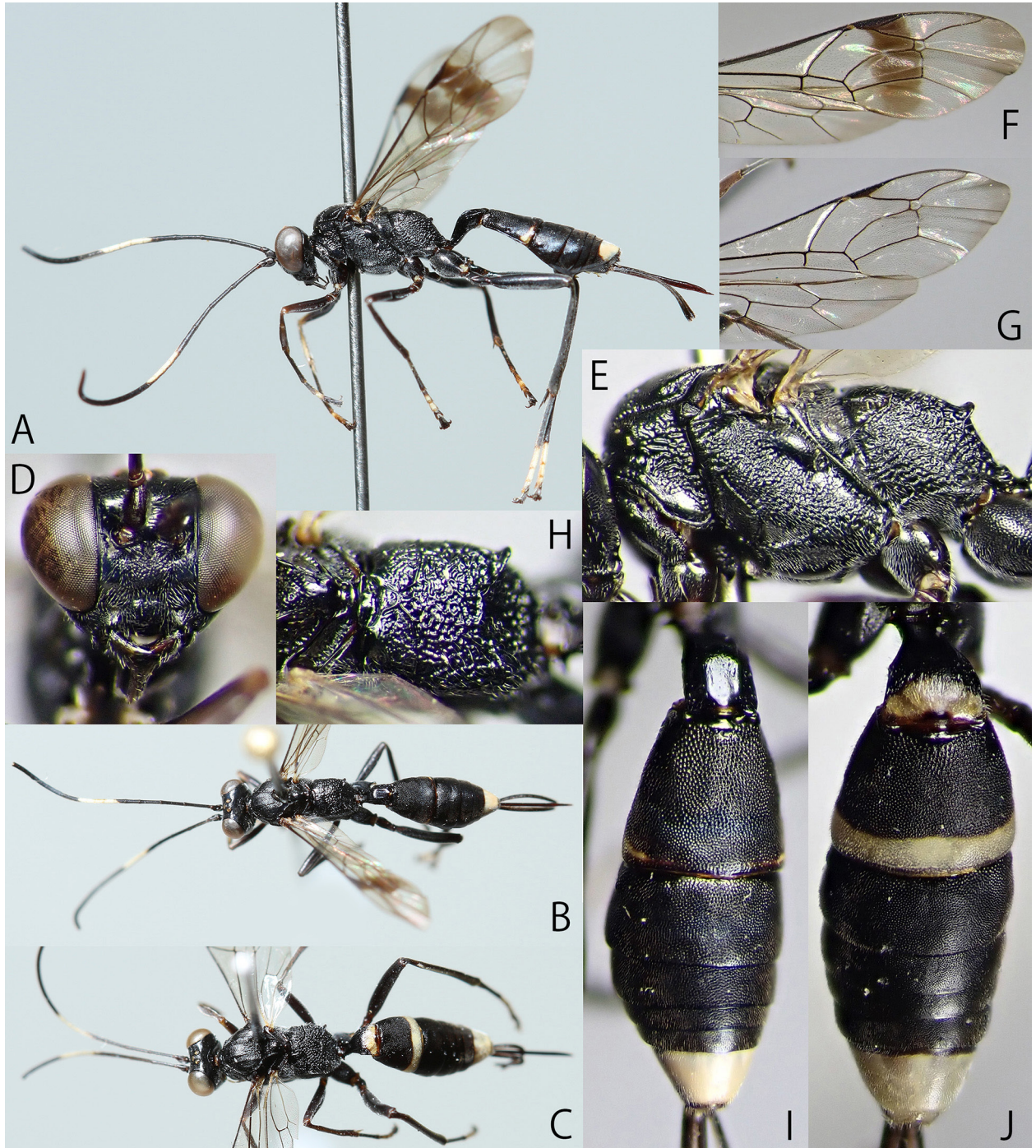


Fig. 64. *Goryphus albofasciatus erabu* **subsp. nov.** (holotype: KPM-NK 103202) and *Go. a. albofasciatus* (Matsumura & Uchida, 1926) (KPM-NK 103200), females — A: lateral habitus; B, C: head, mesosoma, and metasoma, dorsal view; D: head, frontal view; E: mesosoma, lateral view; F, G: wings; H: scutellum and propodeum, dorsal view; I, J: metasoma, dorsal view.



*Loiada* Cameron, 1905b: 166. Type species: *Loiada maculiceps* Cameron, 1905 (= *Cratocryptus maculiceps* Cameron, 1905). Monotypic.

*Cratocryptodes* Schulz, 1906: 123. New name for *Cratocryptus*.

*Cratocryptoides* Schmiedeknecht, 1908: 62. New name for *Cratocryptus*.

*Scenopathus* Enderlein, 1914: 215. Type species: *Scenopathus ferrugineus* Enderlein, 1914. Original designation.

*Miramilia* Seyrig, 1952: 179. Type species: *Miramilia communis* Seyrig, 1952. Original designation.

Two species, *Go. albofasciatus* (Matsumura & Uchida, 1926) and *Go. basilaris* Holmgren, 1868, have been recorded from Japan. In this study, I newly describe a new subspecies of the former species below.

***Goryphus albofasciatus* (Matsumura & Uchida, 1926)**

[SJN: Shiro-yokojima-togari-himebachi]

(Figs. 64A–J, 65A–F, 80F)

*Gambrus albofasciatus* Matsumura & Uchida, 1926: 75.

**Description.** Female (n = 10). Body polished; covered with setae; body length 7.3–11.2 mm.

Head  $0.6\text{--}0.65 \times$  as long as wide in dorsal view. Clypeus  $1.8\text{--}2.0 \times$  as wide as long; weakly convex in lateral view; densely punctate dorsally; smooth ventrally; lower margin rounded in frontal view, narrowly reflected in lateral view. Face  $0.5\text{--}0.55 \times$  as long as minimum width; slightly convex medially; punctate laterally; foveola rugose medially. Anterior tentorial pit small. Frons weakly concave above antennal sockets; rugose dorsally except for coriaceous lateral sides; smooth on concavity. POL  $0.6\text{--}1.0 \times$  as OD. OOL  $1.0\text{--}1.3 \times$  as OD. Gena and occiput finely and densely punctate, ISP coriaceous. Dorsal profile of gena slightly rounded to straight in dorsal view; width abruptly narrowing posteriorly. Occipital carina complete. Malar space  $0.7\text{--}0.75 \times$  as long as basal width of mandible. Mandible slightly convex at base; lower margin not widened as lamella; lower tooth shorter than upper tooth. Antenna with 25–27 flagellomeres; apical part slightly widened. FL I  $8.8\text{--}10.5 \times$  as long as maximum depth in lateral view,  $1.05\text{--}1.1 \times$  as long as FL II.

Mesosoma. Pronotum reticulate rugose. Epomia long; dorsal end closed to dorsal margin of pronotum and strongly raised as convexity. Mesoscutum densely and finely punctate; rugulose posteromedially; with long and strong notaulus. Scutellum punctate; convex in lateral view; with lateral carina on anterior half. Mesopleuron largely irregularly rugose; with smooth area around

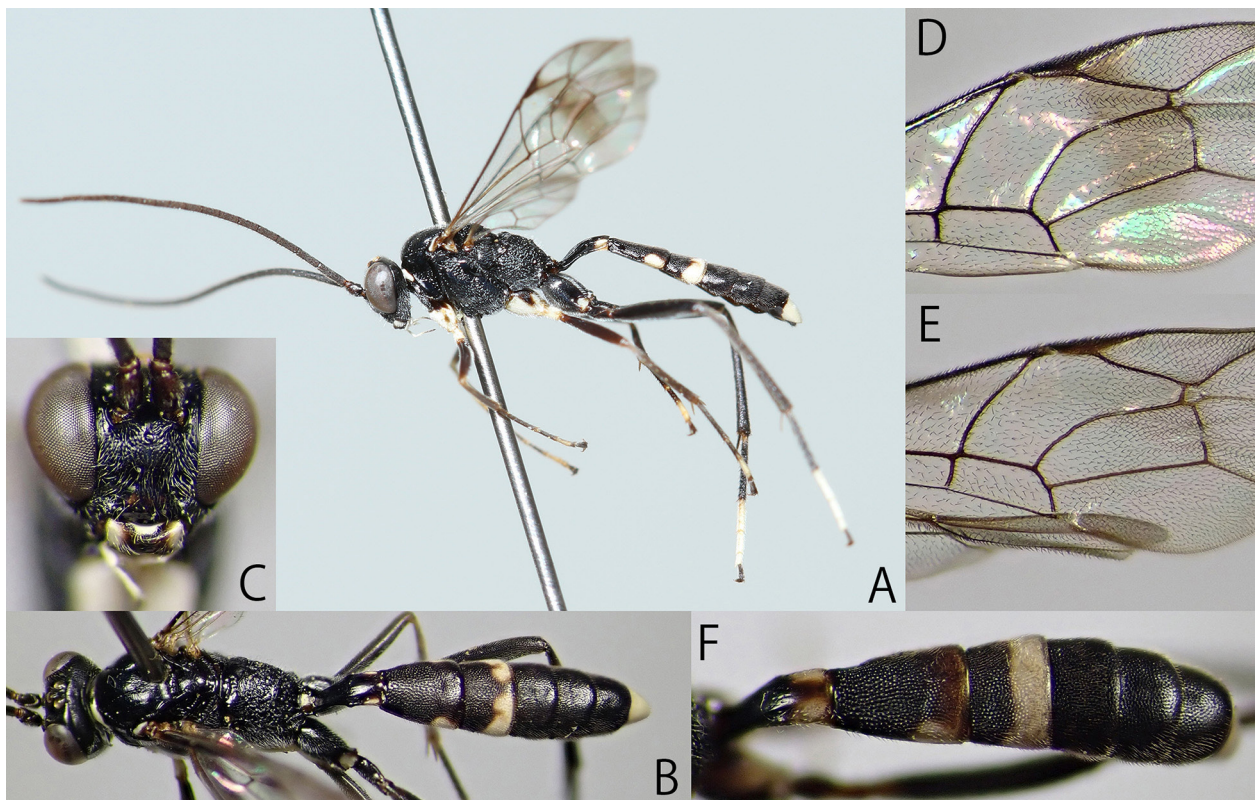


Fig. 65. *Goryphus albofasciatus erabu* subsp. nov. (paratype: KPM-NK 103203) and *Go. a. albofasciatus* (Matsumura & Uchida, 1926) (KPM-NK 103201), males — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D, E: fore wing; F: metasoma, dorsal view.



speculum (Fig. 64E). Epicnemial carina present laterally and ventrally; dorsal end reaching below subtegular ridge. Sternaulus deep in entire length of mesopleuron. Metapleuron irregularly rugose; with complete juxtacoxal carina. Propodeum rugose (Fig. 64H): anterior transverse carina complete; posterior transverse carina largely indistinct; lateral longitudinal carina absent; pleural carina present; lateromedian longitudinal carina present only anterior to anterior transverse carina; apophysis large and ear-like (Figs. 64E, H); spiracle oval. Fore wing length 5.6–8.5 mm. Areolet small; as long as maximum width; width slightly narrowing anteriorly; received vein 2m-cu near middle (Figs. 64F, G). Fore wing vein 1cu-a slightly antefurcal to vein M&RS (Figs. 64F, G). Nervellus subvertical; intercepted posterior to middle (Fig. 64F). Hind 5.2–5.75 × as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma densely punctate except for T I (Figs. 64I, J). T I 1.55–1.75 × as long as maximum width; sparsely punctate except for smooth basal part; latero-median carina present except for posterior part; dorso-lateral carina complete; with pair of lateral triangular teeth at base. T II 0.9–0.95 × as long as maximum width; thyridium weakly present close to anterior margin of T II; slightly depressed; ca. 2.0 × as wide as length. Ovipositor sheath 0.85–0.9 × as long as hind tibia, 1.7–2.05 × as long as T I. Ovipositor straight; apex sharp; nodus slightly present; apex of lower valve with teeth (Fig. 80F).

Colouration (Figs. 64A–J). Body (excluding wings) black to blackish-brown. Setae silver. FL V (or VI) to FL XI with white markings. T II and T VII with white marking(s). Palpi, fore and mid legs, and membranous parts of metasomal sternites sometimes tinged with ivory. Ovipositor reddish-brown. Some tarsal segment(s) of legs ivory. Wings hyaline; with clouded area. Veins and pterostigma blackish-brown except for brown to yellowish-brown wing base. Some intersubspecific variation of coloration present; see description of *G. a. erabu* **ssp. nov.**

Male (n = 15). Similar to female (Figs. 65A–F). Body length 6.0–10.7 mm. Head 0.55 × as long as wide in dorsal view. Face 0.6–0.65 × as long as minimum width. Antenna with 26–31 flagellomeres; with tyloids on FL XIV (or XIII) to FL XV (or XVI). FL I 3.55–3.85 × as long as maximum depth in lateral view, 1.25 × as long as FL II. Fore wing length 4.3–7.3 mm. T I 2.0–2.6 × as long as maximum width. T II 1.0–1.5 × as long as maximum width. Antenna without white band. Mandible, median part of collar, and fore and mid coxae and trochanters with ivory area. T III with white posterior band. Clouded area of fore wing weaker than female. Whitish parts of legs larger than female.

**Distribution.** Japan (Okinawajima Is. and Okinoerabujima Is.).

**Bionomics.** Unknown. Adults were collected in evergreen forests.

**Remarks.** This species is easily distinguished from other Japanese species by the black and white body colouration. Matsumura & Uchida (1926) described this species based on the specimens collected from Okinawajima Island. Momoi (1970) recorded additional data of this species based on the specimens collected in Okinawajima Island and Okinoerabujima Island. I found some additional materials of this species from both islands and recognized stable differences of body colouration. In this study, I newly describe a new subspecies of this species based on the specimens collected from Okinoerabujima Is.

*Goryphus albofasciatus albofasciatus*

(Matsumura & Uchida, 1926)

(Figs. 64C, G, J, 65E, F)

**Materials examined. JAPAN:** [Okinawajima Is.] KPM-NK 103222, M, Okinawa Pref., Nago City, Mt. Nago-dake, 7. VII. 2003, H. Irei & H. Makihara leg. (MsT); KPM-NK 103223, F, ditto, 12–16. IX. 2004; KPM-NK 103224, F, same locality, 16. IV. 2022, A. Tokushige leg.; KPM-NK 103201, 103211, 2M, Okinawa Pref., Kunigami Vil., Ginama, 19. VII. 2001, H. Irei & H. Makihara leg. (MsT); KPM-NK 103212, M, ditto, 26. VII. 2001; KPM-NK 103213, M, ditto, 23. IV. 2002; KPM-NK 103214, M, ditto, 2. V. 2002; KPM-NK 103215, F, same locality, 7. X. 2019, T. Amano leg.; KPM-NK 103216, M, Okinawa Pref., Kunigami Vil., Uka, 26. VII. 2001, H. Irei & H. Makihara leg. (MsT); KPM-NK 103217, M, ditto, 23. VIII. 2001; KPM-NK 103218, M, ditto, 18. V. 2002; KPM-NK 103219, M, Okinawa Pref., Kunigami Vil., Oku, 2. V. 2002, H. Irei & H. Makihara leg. (MsT); KPM-NK 103220, F, ditto, 22. X. 2019, T. Amano leg.; KPM-NK 103221, F, Okinawa Pref., Kunigami Vil., Mt. Nishime-dake, 29. V. 2021, N. Tokushige leg.; KPM-NK 103225, F, Okinawa Pref., Kunigami Vil., Aha, 28. VI. 2013, M. Ito leg.; KPM-NK 103226, 103227, 2M, Okinawa Pref., Kunigami Vil., Yona, 21. V. 2007, K. Watanabe leg.; KPM-NK 103228, 103229, 2M, ditto, 20–23. V. 2007 (YPT); KPM-NK 103200, F, same locality, 29. VI. 2013, S. Fujie leg.; KPM-NK 103230, F, Okinawa Pref., Kunigami Vil., Benoki, 6. X. 2019, T. Amano leg.

**Distribution.** Japan (Okinawajima Is.).

***Goryphus albofasciatus erabu* subsp. nov.**

(Figs. 64A, B, D–F, H, I, 65A–D, 80F)

**Type series. Holotype:** JAPAN, [Okinoerabujima Is.] KPM-NK 103202, F, Kagoshima Pref., China Town, Ashikiyora, Mt. Oyama, 25. IV. 2016, K. Watanabe leg.

**Paratype:** JAPAN: [Okinoerabujima Is.] KPM-NK 91360, F, Kagoshima Pref., China Town, Oyama, 28. VI. 2001, T. Nambu leg. (YPT); MNHAH, 1F, Kagoshima Pref., Okinoerabu, 19. III. 1970, H. Takizawa leg.; KPM-NK 103203, M, Kagoshima Pref., China Town, Tamina, Mt. Oyama, 26. IV. 2016, K. Watanabe leg.

**Description.** This subspecies has no morphological difference from *Go. albofasciatus albofasciatus*, while their body colorations are clearly differed, i.e., fore wing with a broad, conspicuous clouded band in *Go. a. erabu* (Figs. 64A, B, F, 65A, D) (without a band in *Go. a. albofasciatus* as in Figs. 64G, 65E), T I entirely black in female of *Go. a. erabu* (Figs. 64A, B, I) (with a broad white posterior band in female of *Go. a. albofasciatus* as in Figs. 64C, J), posterior white band of T II narrow and partly indistinct in female of *Go. a. erabu* (Figs. 64A, B, I) (with a broad white posterior band in female of *Go. a. albofasciatus* as in Figs. 64C, J), and the ivory markings of T I and T II narrow and divided into a pair of small lateral spots, respectively, in male of *Go. a. erabu* (Figs. 65A, B) (T I and T II each with broad white posterior band in male of *Go. a. albofasciatus* as Fig. 65F).

**Distribution.** Japan (Okinoerabujima Is.).

**Etymology.** The subspecific name is from the local name of Okinoerabujima Island, “Erabu”.

**Remarks.** This subspecies is endemic in Okinoerabujima Island.

**Genus *Idiolispa* Förster, 1869**

*Idiolispa* Förster, 1869: 188. Type species: *Bassus analis* Gravenhorst, 1807. Designated by Viereck (1914).

*Liocryptus* Thomson, 1873: 471. Type species: *Bassus analis* Gravenhorst, 1807. Monotypic.

*Paracryptus* Szépligeti, 1916: 251. Type species: *Paracryptus hungaricus* Szépligeti, 1916. Monotypic.

A single species, *I. analis nigra* Uchida, 1930, has been recorded from Japan. In this study, I newly record another subspecies of *I. analis* (Gravenhorst, 1807) from Japan below.

***Idiolispa analis* (Gravenhorst, 1807)**

[SJN: Munebuto-togari-himebachi]

(Figs. 66A–F)

***Idiolispa analis analis* (Gravenhorst, 1807)**

(Figs. 66A–F)

*Bassus analis* Gravenhorst, 1807: 266.

*Ichneumon cursor* Thunberg, 1822: 256.

*Cryptus elevatus* Zetterstedt, 1838: 370.

*Cryptus limatus* Cresson, 1864: 298.

*Ischnus lentus* Provancher, 1875: 110.

*Spilocryptus dubiosus* Kiss, 1924: 57.

*Idiolispa fusca* Constantineanu, 1929: 497.

**Materials examined. JAPAN:** [Yonagunijima Is.] NARO, 6M, 5–8. IV. 1999, K. Konishi leg. (YPT); KPM-NK 103136, F, Mt. Kubura-dake, 29. V. 2003, T. Mita leg.; KPM-NK 103137–103140, 1F & 3M, ditto, 30. IV. 2004; KPM-NK 103141, N, Kubura, 28. III. 2011, T. Kawano leg.; KPM-NK 103142, 103143, 2M, Tarumai-shitsugen, 17. III. 2007, J. Imura leg.; KPM-NK103144, M, Tabarugawa-shitsugen, 8. IV. 2013, T. Sasai leg. **GERMANY:** MNHAH, 1F (det. by Momoi), Sternberg, 12. VIII. 1937. **ITALY:** MNHAH, 2M, Naturns, 14. VII. 1958, D. Townes leg. **AUSTRIA:** MNHAH, 1F (det. by Townes), Admont, Kaiserau, VI. 1950; LI, 1F (det. by Schwarz), Oberosterreich, Kraftwerk Wallsee, S-Ufer, 19. VI. 1996, J. Gusenleitner leg.; LI, 1M (det. by Schwarz), Perchtoldsdorfer Heide, 8. VI. 2013. **USA:** MNHAH, 1F (det. Townes as *I. analis imata*), Michigan, Ann Arbor, 12. V. 1959, H. & M. Townes leg.

**Description.** See Townes & Townes (1962) and Schwarz (1988).

**Distribution.** Japan (Yonagunijima Is.); widely distributed in Holarctic region and India (Oriental region).

**Bionomics.** According to Yu *et al.* (2016), several spiders, sawfly, moths, and cerambycid beetle have been recorded as host.

**Remarks.** This is the first record of this species from Japan while this distribution may be based on the introduced population. This subspecies can be easily distinguished from *I. analis nigra* by the conspicuous red T II and T III (Figs. 66A, B) (black in *I. analis nigra*).

**Genus *Listrognathus* Tschek, 1871**

*Listrognathus* Tschek, 1871: 153. Type species: *Listrognathus cornutus* Tschek, 1871 (= *Cryptus pubescens* Fonscolombe, 1850). Monotypic.

*Mesostenoides* Ashmead, 1900: 45. Type species: *Mesostenus albomaculatus* Cresson, 1864. Original designation.

*Mesostenidea* Viereck, 1914: 93. Type species: *Mesostenus*



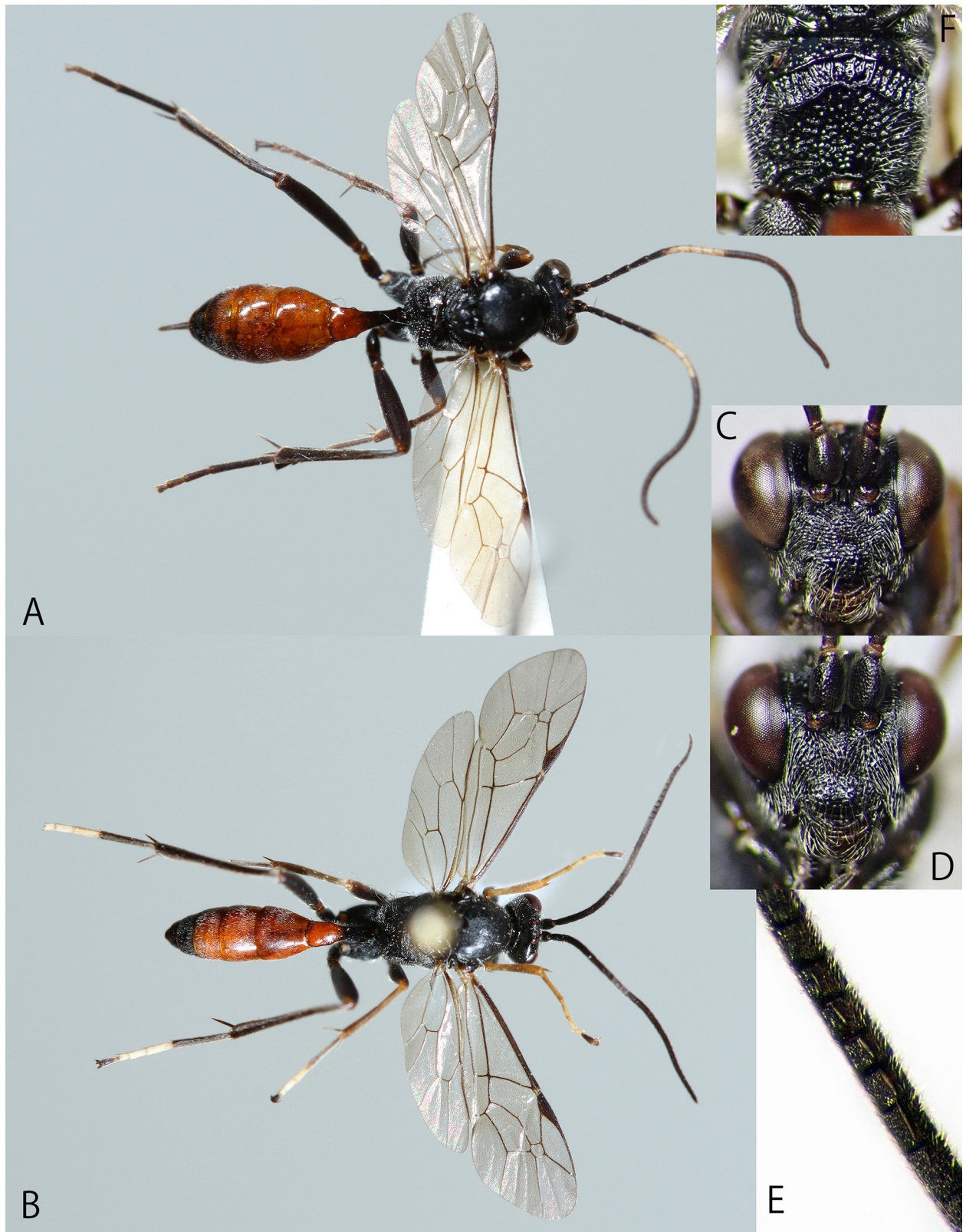


Fig. 66. *Idiolispa analis analis* (Gravenhorst, 1807), female (A, C, F: KPM-NK 103136) and male (B, D, E: KPM-NK 103144) — A, B: dorsal habitus; C, D: head, frontal view; E: flagellum and tyloids; F: propodeum, dorsal view.

*ligator* Gravenhorst, 1829 (= *Ichneumon firmator* Fabricius, 1798). Original designation.

Five species of two subgenera, *L. (Fenestula) aequabilis* Uchida, 1952, *L. (F.) alticarinatus* Momoi, 1966, *L. (Listrognathus) coreensis coreensis* Uchida, 1930, *L. (L.) eccopteromus* Uchida, 1930, and *L. (L.) punctator* (Smith, 1874), have been recorded from Japan. In this study, I describe a new species, report newly recorded species from Japan, and record some new data below.

### Key to Japanese species of *Listrognathus*

1. Thyridium narrow, about  $0.8 \times$  as wide as its distance from base of T II. Clypeus in profile moderately convex, not sharply pyramidal. Posterior transverse carina of propodeum complete medially.

..... Subgenus *Fenestula* Townes, 1962 2

-. Thyridium wide, about  $1.3\text{--}2.5 \times$  as wide as its distance from base of T II. Clypeus in profile sharply pyramidal or very strongly convex (Fig. 80B). Posterior transverse carina of propodeum complete, weak, or absent.

..... Subgenus *Listrognathus* Tschek, 1871 3

2. Antero-lateral corner of pronotum not produced in dorsal view. Areolet large, its length longer than  $0.33 \times$  as long as vein 2m-cu. T II sparsely punctate; ISP distinctly longer than PD. Frons weakly concave. Frontal horn without dorsal tooth in female.

..... *Listrognathus (Fenestula) aequabilis* Uchida, 1952

-. Antero-lateral corner of pronotum produced in dorsal view (weak in male). Areolet small, its length approximately  $0.33 \times$  as long as vein 2m-cu. T II densely punctate; ISP as long as PD. Frons strongly concave. Basal part of frontal horn with small dorsal tooth in female.

..... *Listrognathus (Fenestula) alticarinatus* Momoi, 1966

2. Antero-ventral part of mesopleuron large yellow marking (Fig. 70A). Posterior margins of T II to T IV each with yellow band (Figs. 70A, B). Hind tibia bicolour: base and apex black and median part largely reddish-yellow (Figs. 70A, B). Propodeum with pair of large yellow markings (Fig. 70E).

..... *Listrognathus (Listrognathus) yunnanensis* He & Chen, 1996

-. Antero-ventral part of mesopleuron without yellow marking (Figs. 67A, F, 68A, 69A, F). Posterior margins of T II to T IV at most narrowly tinged with reddish-brown. Hind femur largely blackish-brown to black (Figs. 67A, 68A, 69A). Propodeum with (Figs. 67I, 68E, 69H) or without (Fig. 69I) pair of yellow markings.

..... 3

3. Punctures of T II shallow and sparse; interspace of punctures distinctly longer than diameter of puncture (Fig. 67L). T II strongly coriaceous. Large species; body length longer than 8.5 mm (usually longer than 10 mm). Posterior margin of T I sometimes with white band in male. Postero-lateral corner of T II with whitish-yellow markings in male. White band of antenna small; at most three flagellomeres white in female. Posterior transverse carina of propodeum absent medially in female.

.... *Listrognathus (Listrognathus) eccopteromus* Uchida, 1930

-. Punctures of T II deep and dense; interspace of punctures largely distinctly shorter than diameter of puncture (Fig. 67J). T II weakly coriaceous. Small species; body length sometimes shorter than 8.5 mm. Posterior margin of T I without white band (Fig. 68B). Postero-lateral corner of T II without whitish-yellow markings in male (Fig. 68B). White band of antenna large in female; usually more than four flagellomeres white. Posterior transverse carina of propodeum present or absent medially in female.

..... 4

4. Posterior transverse carina of propodeum inverted V-shaped; straight between lateral sides and median part; median part of carina sometimes absent (Figs. 69H, I, 80E). Posterior margins of T IV to T VII each with pair of transverse white markings (Figs. 69A, B, J). Hind tarsus with white bands on apical half of TS I, TS II, TS III, and TS IV (Fig. 69A). Hind tibia with large yellowish-brown part subbasally (Fig. 69A). Scutellum sometimes with yellow spot (Fig. 69H). Propodeum sometimes with pair of yellow markings (Fig. 69H). Ovipositor sheath  $0.65\text{--}0.7 \times$  as long as hind tibia. T V and T VI with white marking(s) (Figs. 69A, B, J). Fore wing without clouded area (Figs. 69A, G). Male unknown.

..... *Listrognathus (Listrognathus) octoguttatus* **sp. nov.**

-. Posterior transverse carina of propodeum inverted wide U-shaped; sinuate between lateral sides and median part; median part of carina complete (Figs. 67I, 68E, 80D). Posterior margins of T IV and T VII black in female (Figs. 67B, K). Posterior margins of T V and T VI, if with white markings, tergite(s) (each) with single median white marking in female (Figs. 67B, K). Posterior margins of T IV to T VII each with single median white marking in male (Figs. 68A, B). Other character states various.

..... 5

5. Hind tibia with small white marking at subbasal part; it sometimes reduced (Figs. 67A, B, 68A, B). T V and T VI each with single median white marking in female (Figs. 67B, K). T IV to T VII each with single median white marking in male (Figs. 68A, B). Base of hind TS I usually narrowly white (Fig. 68A). Fore wing usually



with clouded area in female (Figs. 67A, B, G, H) (this area sometimes indistinct as in Fig. 67H). Scutellum sometimes with yellow spot (Fig. 67I; sometimes scutellum entirely yellow). Propodeum sometimes with pair of yellow markings (Figs. 67I, 68E).

..... *Listrognathus (Listrognathus) coreensis coreensis* Uchida, 1930

-. Hind tibia yellowish-brown except for blackish-brown apical part. T IV to T VII without white marking. Fore wing without clouded area. Scutellum and propodeum entirely black.

..... *Listrognathus (Listrognathus) punctator* (Smith, 1874)

### Subgenus *Listrognathus* Tschek, 1871

In this study, a new species are described is described below and a newly recorded species is reported below. In addition, I recognise the large intraspecific colour variation of *L. (L.) coreensis coreensis* and therefore I redescribe this species below.

#### *Listrognathus (Listrognathus) coreensis coreensis*

Uchida, 1930

[SJN: Chosen-tsuno-togari-himebachi]

(Figs. 67A-K, 68A-E, 80D, G)

*Listrognathus coreensis* Uchida, 1930: 316.

*Listrognathus punctator*: Iwata, 1958: 70. Misidentification.

*Listrognathus punctator*: Iwata, 1960: 159. Misidentification.

**Materials examined. JAPAN:** [Hokkaido] MNHAH, 1F (det. by Momoi), Nukabira, 14. VII. 1959, S. Momoi leg.; MNHAH, 1M (det. by Momoi), Bibai, 20. VIII. 1962, K. Kamijo leg., em. from *Nycteola asiatica*; MNHAH, 1F, ditto, 23. VIII. 1962; KPM-NK 103176, F, Horokanai Town, Uryu, 11–17. VII. 2012, K. Watanabe *et al.* leg. (MsT). [Honshu] NARO, 1F, Aomori Pref., Shiura Vil., Midori, 18. VIII. 1996, T. Ichita leg.; KPM-NK 103177, F, Niigata Pref., Myouko City, Suginosawa, Otomi-toge, 10. VIII. 2013, S. Shimizu leg.; NARO, 1F, Tochigi Pref., Fujioka Town, Watarase-yusuichi, 20. IX. 1992, H. Ohkawa leg.; KPM-NK 75869, F, Tochigi Pref., Kuroiso Town, Enna-Skyline, 13. VII. 2000, E. Katayama leg.; KPM-NK 75871, F, ditto, 30. VIII. 2000; KPM-NK 103178, F, Saitama Pref., Saito City, Makinoji, 8. IX. 2009, S. Yoshizawa leg.; NARO, 1F, Tokyo, Fuchu, 30. V. 1936, T. Ishii leg.; NARO, 1F, Tokyo, Mt. Takao, J. Minamikawa leg.; KPM-NK 103179, F, Kanagawa Pref., Kamakura, 4. X. 1981, H. Nagase leg.; KPM-NK M, Kanagawa Pref., Miura City, Misaki Town, Koajiro,

28. V. 2004, I. Kawashima leg.; KPM-NK 75873, F, Kanagawa Pref., Fujino Town, Mt. Jinba-yama, 7. VI. 2008, K. Watanabe leg.; KPM-NK 103181, 1F, Kanagawa Pref., Yokosuka City, Nagasawa, Muraoka, 23. VII. 2011, Y. Saito leg.; NARO, 1F, Shizuoka Pref., Kanaya, 15. VII. 1952, J. Minamikawa leg.; KPM-NK 103182, F, Nagano Pref., Outaki Vil., Mt. Ontake-san, Hakkaisan, 18–20. VIII. 2014, S. Shimizu leg.; KPM-NK 103183, F, Toyama Pref., Toyama City, Arimine, Inonedani, 11–16. VIII. 2009, M. Watanabe leg. (MsT); KPM-NK 75868, F, Toyama Pref., Toyama City, Arimine, Jurodani, 21–28. VII. 2009, M. Watanabe leg. (MsT); KPM-NK 75867, F, Toyama Pref., Nanto City, Togamura-kamimomose, 8–15. IX. 2009, M. Watanabe leg. (MsT); KPM-NK 75865, F, Fukui Pref., Mt. Asuwa, 15. VIII. 1980, T. H. Nakagon leg.; KPM-NK 103196, M, Fukui Pref., Izumi Vil., Itoshiro river, 15. V. 1982, T. Murota leg.; KPM-NK 103184, F, Fukui Pref., Kadonomaesaka, 10. X. 1995, C. Nozaka leg.; KPM-NK 75872, F, Mie Pref., Kameyama City, Seki Town, Kutsukake, Suzuka-toge, 4. VII. 2012, Y. Shinoki leg.; KPM-NK 103187, F, Nara Pref., Nara City, Naka Town, Kindai University, 10. V. 2015, M. Ito leg.; KPM-NK 75870, F, Osaka Pref., Higashiosaka City, Hiraoka-park, 13. V. 2012, M. Ito leg.; MNHAH, 1F, Hyogo Pref., Tajima, Ikoda, 10. VI. 1951, K. Iwata leg.; MNHAH, 1F, Hyogo Pref., Tanba, Higashihamadani, 7. VII. 1952, M. Miki leg. [Sado Is.] KPM-NK 75866, F, Niigata Pref., Sado City, Kanaishinpo, Hakuundai to Mt. Myokenzan, 4. VIII. 2009, K. Watanabe leg. [Kyushu] KPM-NK 75863, 75864, 2F, Fukuoka Pref., Kurume City, Chikugogawa, 1. V. 2007, T. Mita leg.; MNHAH, 1F (det. by Uchida as *Listrognathus punctata*), Miyazaki Pref., Omata, 16. VII. 1954, K. Iwata leg.; KPM-NK 103185, F, Kagoshima Pref., Sakurajima, Yogan-Nagisa Road, 20. IV. 2022, Sk. Yamane leg. [Iki Is.] KPM-NK 103186, F, Nagasaki Pref., Iki City, Katsumoto Town, Yurihatafure, 19. VI. 2021, K. Otsui leg. [Yakushima Is.] KPM-NK 103188, F, Kagoshima Pref., Han-yama, 1. V. – 5. VI. 2007, T. Yamauchi leg. (MsT); OMNH, 1F, ditto, 28. VI. – 30. VII. 2007; KPM-NK 5000270, F, ditto, 22. VII. – 22. VIII. 2006; KPM-NK 103189, F, Kagoshima Pref., Aiko-dake, 2. V. – 5. VI. 2007, T. Yamauchi leg. (MsT); KPM-NK 103190, M, Kagoshima Pref., Kurio, 10. VI. 2007, T. Maeda leg. **CHINA:** MNHAH, 1F, Manshuria, Kaigen (= Liaoning Province, Tieling), 23. VII. 1936, K. Okada leg. **KOREA:** SEHU, 1F (holotype), Suigen, 21. VIII. 1925, K. Sato leg.

**Description.** Female (n = 38). Body polished; covered with setae; body length 5.9–10.9 mm.

Head 0.55 × as long as wide in dorsal view. Clypeus 1.7–2.0 × as wide as long; strongly convex as pyramid-



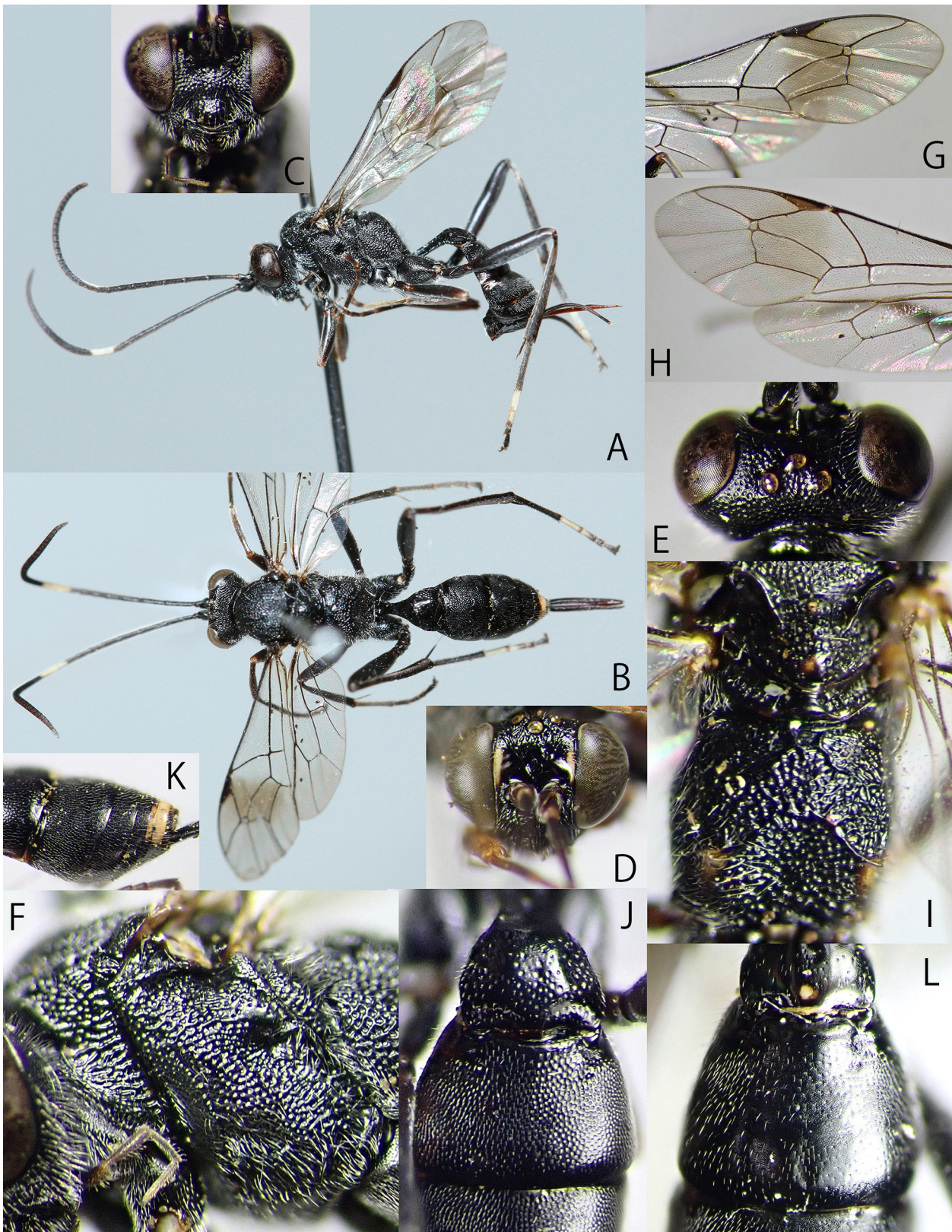


Fig. 67. *Listrognathus (Listrognathus) coreensis coreensis* Uchida, 1930 (A, C, E, F, J: KPM-NK 75870; B, G, K: KPM-NK 75872; D, H, I: MNHAH) and *L. (L.) eccopteromus* Uchida, 1930 (KPM-NK 84994), females — A: lateral habitus; B: dorsal habitus; C: head, frontal view; D: head, antero-dorsal view; E: head, dorsal view; F: pronotum and mesopleuron, lateral view; G, H: wings; I: scutellum and propodeum, dorsal view; J, L: T I and T II, dorsal view; K: posterior part of metasoma, dorso-lateral view.



shaped in lateral view; sparsely punctate dorsally; smooth ventrally; lower margin weakly rounded to subtruncate in frontal view, narrowly reflected in lateral view. Face  $0.5 \times$  as long as minimum width; slightly convex medially; punctate; punctures largely united into groove-like foveola medially. Anterior tentorial pit small. Frons concave above antennal sockets; rugose dorsally; smooth on concavity; with pointed median horn (Fig. 67E). POL  $1.6\text{--}2.0 \times$  as OD. OOL  $1.05\text{--}1.7 \times$  as OD. Gena and occiput finely and densely punctate, ISP coriaceous. Dorsal profile of gena slightly rounded to straight in dorsal view; width abruptly narrowing posteriorly (Fig. 67E). Occipital carina complete. Hypostomal carina strongly widened as lamella between occipital carina and mandibular base, with deep concavity along lamella. Malar space  $0.75\text{--}0.9 \times$  as long as basal width of mandible. Mandible convex at base; lower margin strongly widened as lamella; lower tooth equal in length of upper tooth. Antenna with 27–31 flagellomeres; apical part slightly widened. FL I  $5.0\text{--}6.9 \times$  as long as maximum depth in lateral view,  $1.2\text{--}1.4 \times$  as long as FL II.

Mesosoma. Pronotum reticulate rugose except for

foveolate punctate dorsally (Fig. 67F). Epomia long; dorsal end closed to dorsal margin of pronotum and strongly raised as tubercle. Mesoscutum densely punctate; punctures largely united into groove-like foveola; with short and weak notaulus. Scutellum punctate; convex in lateral view. Mesopleuron largely longitudinally to obliquely rugose (Fig. 67F); partly densely punctate; with small smooth area around speculum. Epicnemial carina present laterally and ventrally; dorsal end not reaching middle height of mesopleuron. Sternaulus deep in anterior  $0.5$  of mesopleuron. Metapleuron reticulate rugose; with complete juxtacoxal carina. Propodeum rugose (Fig. 67I): anterior transverse carina complete; posterior transverse carina complete (sometimes weak medially), inverted U-shaped (sinuate between lateral sides and median part) (Fig. 80D); lateral longitudinal carina absent; pleural carina absent; lateromedian longitudinal carina present only anterior to anterior transverse carina; apophysis small and obtuse; spiracle elongate. Fore wing length  $4.75\text{--}7.7$  mm. Areolet small; slightly longer than maximum width; width slightly or not narrowing anteriorly; received vein 2m-cu



Fig. 68. *Listrognathus (Listrognathus) coreensis coreensis* Uchida, 1930, male (MNHAH) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: flagellum and tyloids; E: propodeum, dorsal view.



near outer corner (Figs. 67G, H). Fore wing vein 1cu-a slightly antefurcal to vein M&RS (Figs. 67G, H). Nervellus subvertical; intercepted posterior to middle (Figs. 67G, H). Hind femur reticulate coriaceous;  $5.0\text{--}6.45 \times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma densely punctate (Fig. 67J). T I  $1.5\text{--}1.75 \times$  as long as maximum width; ISP smooth (Fig. 67J); latero-median carina absent; dorso-lateral carina absent except for posterior part; with pair of lateral triangular teeth at base. T II  $0.75\text{--}0.9 \times$  as long as maximum width; ISP weakly coriaceous; thyridium weakly present close to anterior margin of T II; slightly or not depressed; ca.  $2.0 \times$  as wide as length. T III to T V with coriaceous ISP. Ovipositor sheath  $0.55\text{--}0.75 \times$  as long as hind tibia,  $1.05\text{--}1.35 \times$  as long as T I. Ovipositor straight; apex sharp; nodus weak; apex of lower valve with teeth (Fig. 80G).

Colouration (Figs. 67A–K). Body (excluding wings) black to blackish-brown. Setae silver. Frons usually with pair of ivory to yellow markings along each orbit. Mandible more or less tinged with reddish brown. FL VII (or VIII, IX) to FL X (or XI) with white markings. Scutellum sometimes with yellow marking(s). Propodeum sometimes with pair of yellow markings postero-laterally. Posterior margins of T I to T III sometimes narrowly tinged with reddish-brown. Membranous parts of metasomal sternites and ovipositor yellowish-brown. Fore and mid tibiae and tarsi largely brown. Base of hind femur brown. Subbasal part of hind tibia with small ivory band. Bases of hind TS I to TS III each with white band (sometimes band of TS I darkened or absent). Posterior margins of T IV and T VII black. Posterior margins of T V and T VI each with single median white marking. Wings hyaline; usually

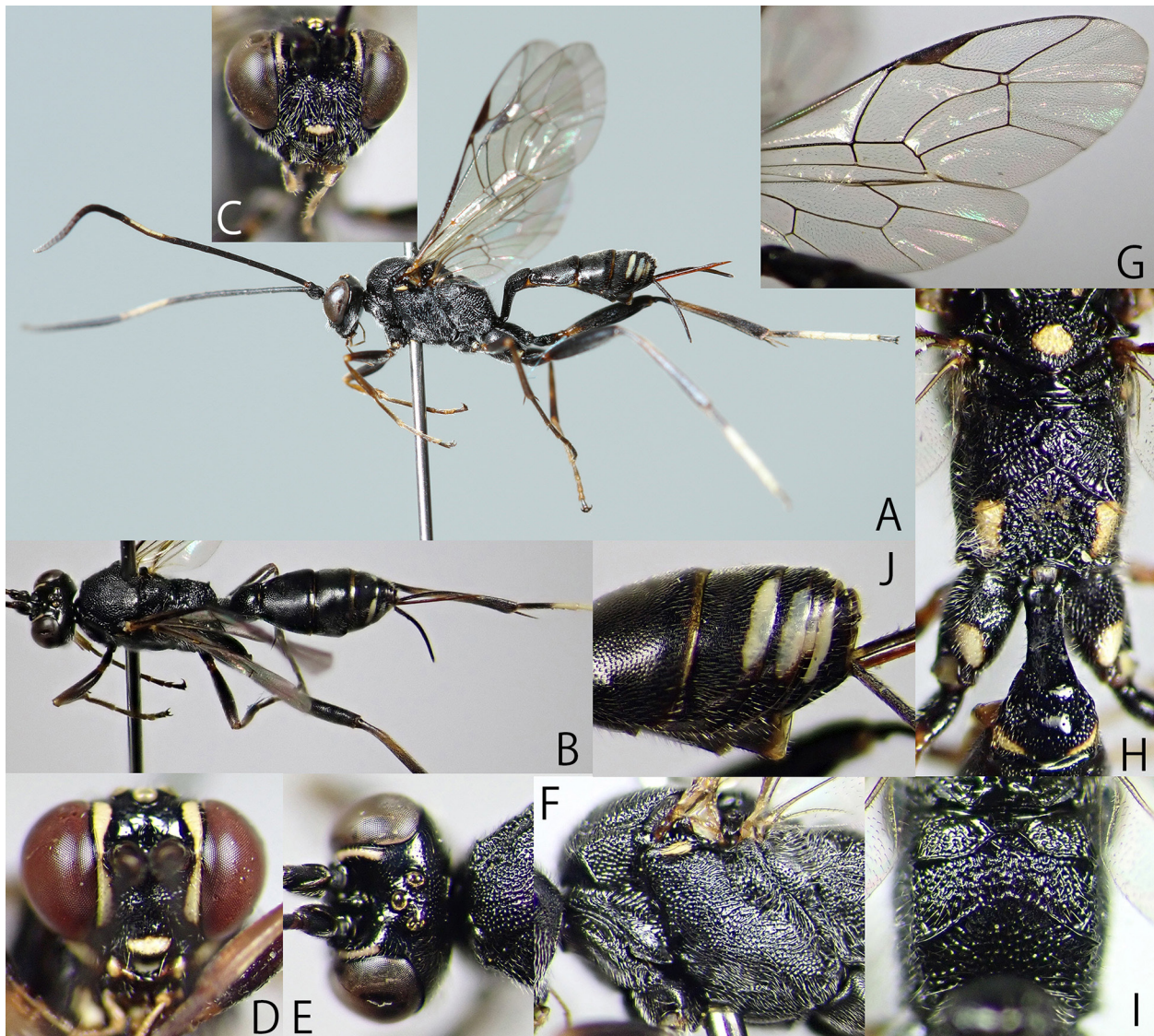


Fig. 69. *Listrognathus (Listrognathus) octoguttatus* sp. nov., females (A–C, E–G, I: holotype: KPM-NK 103192; D, H: paratype: NARO) — A: lateral habitus; B: head, mesosoma, and metasoma, dorsal view; C, D: head, frontal view; E: head and mesoscutum, dorsal view; F: pronotum and mesopleuron, lateral view; G: wings; H: scutellum, propodeum, and T I, dorsal view; I: propodeum, dorsal view; J: posterior part of metasoma, lateral view.



with clouded area (this area sometimes weak). Veins and pterostigma blackish-brown except for brown to yellowish-brown wing base.

Male (n = 4). Similar to female (Figs. 68A–E). T I 1.75–2.1 × as long as maximum width. T II 0.9–1.0 × as long as maximum width. Antenna with 32–34 flagellomeres; with tyloids on FL XV to FL XVIII (Fig. 68D). FL I 3.15–3.5 × as long as maximum depth in lateral view. Hind femur 6.2–6.8 × as long as maximum depth in lateral view. Face, clypeus, frontal orbit, mandible, and anterior part of tegula largely ivory. Antenna without white band. Posterior margins of T IV to T VII each with single median white marking. Fore wing without clouded area. Fore and mid coxae with ivory marking. Fore and mid legs paler than female; dorsal surfaces of tibiae and large parts of tarsi ivory. Hind TS II, TS III, and TS IV ivory. All tibial spurs more or less tinged with ivory.

**Distribution.** Japan (Hokkaido, Honshu, Sado Is., Kyushu, Iki Is., and Yakushima Is.), Korea and China.

**Bionomics.** *Nycteola asiatica* (Krulikowski, 1904) (Lepidoptera, Nolidae) is recorded as the host (Momoi, 1968).

**Remarks.** This is the first record of this species from Honshu, Sado Island, Kyushu, and Iki Island.

***Listrognathus (Listrognathus) punctator* (Smith, 1874)**  
[SJN: Ten-tsuno-togari-himebachi]

*Cryptus punctator* Smith, 1874: 393.

*Ichneumon diversipes* Walker, 1874: 302.

**Materials examined.** No material is available in this study.

**Distribution.** Japan (Honshu).

**Bionomics.** Unknown.

**Remarks.** Iwata (1958, 1960) recorded this species from Kyushu basis of a single specimen identified by Dr. T. Uchida, whereas it is a misidentification of *L. coreensis*. Therefore, I delete the distribution of this species from Kyushu. Shimizu & Broad (2020) included high resolution images of the holotypes of *Cr. punctator* and *Ich. diversipes* in their paper. Although, Uchida (1940) synonymised *Ich. diversipes* (female unknown) with *Cr. punctator* (male unknown) without any morphological reason, judging from the photos of Shimizu & Broad (2020), the combination of female and male may be correct.

***Listrognathus (Listrognathus) octoguttatus* sp. nov.**

[New SJN: Yatsuboshi-tsuno-togari-himebachi]

(Figs. 69A–J, 80A–C, E, H)

**Type series. Holotype:** JAPAN, KPM-NK 103192, F, Honshu, Kanagawa Pref., Hadano City, Mt. Koubou-yama, 1. V. 2016, K. Watanabe & H. Utsugi leg. **Paratype:** JAPAN: [Hokkaido] KPM-NK 103193, F, Eniwa City, Banjiri, 20. VI. 2017, K. Watanabe leg. [Honshu] KPM-NK 75876, F, Toyama Pref., Toyama City, Kamegai, 25. VIII. – 1. IX. 2009, M. Watanabe leg. (MsT); KPM-NK75877, F, ditto, 1–8. IX. 2009; NARO, 1F, Ishikawa Pref., Tatsukuchi Town, Nabatani, 5. XI. 1989, Y. Sugie leg.; KPM-NK 75874, F, Fukui Pref., Izumi Vil., Kuzawadani, 30. V. 1982, T. Murota leg. [Shikoku] NARO, 1F, Ehime Pref., Oda Town, 15. VII. 1998, E. Yamamoto leg.

**Description.** Female (n = 8). Body densely punctate and polished; covered with setae; body length 6.6–10.1 (HT: 8.3) mm.

Head 0.55 × as long as wide in dorsal view. Clypeus 2.0 × as wide as long; strongly convex as pyramid-shaped in lateral view (Fig. 80B); sparsely punctate dorsally; smooth ventrally; lower margin weakly rounded in frontal view, narrowly reflected in lateral view. Face 0.5 × as long as minimum width; slightly convex medially; punctures partly united into groove-like foveola medially. Anterior tentorial pit small. Frons concave above antennal sockets; matt along orbits; punctate dorsally; smooth on concavity; with pointed median horn (Figs. 69E, 80A, B). POL 1.35–1.9 (HT: 1.75) × as OD. OOL 1.1–1.8 (HT: 1.7) × as OD. Gena and occiput finely punctate, ISP coriaceous. Dorsal profile of gena rounded in dorsal view; width abruptly narrowing posteriorly (Fig. 69E). Occipital carina complete. Hypostomal carina strongly widened as lamella between occipital carina and mandibular base, with deep concavity along lamella (Fig. 80C). Malar space 0.6–0.65 (HT: 0.6) × as long as basal width of mandible. Mandible convex at base; lower margin strongly widened as lamella; lower tooth equal in length of upper tooth. Antenna with 29–30 (HT: 30) flagellomeres; apical part slightly widened. FL I 2.4–2.75 (HT: 2.7) × as long as maximum depth in lateral view, 0.35–0.4 (HT: 0.4) × as long as FL II.

Mesosoma. Pronotum rugose ventrally (Fig. 69F). Epomia long, dorsal end closed to dorsal margin of pronotum and strongly raised as tubercle (Fig. 69E). Mesoscutum with short and weak notaulus; punctures partly united into short foveola. Scutellum convex in lateral view. Mesopleuron with small smooth area around speculum; punctures largely united into oblique, groove-like foveola (Fig. 69F). Epicnemial carina present latero-ventrally and ventrally; dorsal end not reaching middle height of mesopleuron. Sternaulus deep in anterior 0.5 of mesopleuron. Metapleuron reticulate rugose; with

complete juxtacoxal carina. Propodeum rugose; anterior transverse carina complete; posterior transverse carina complete, or present laterally, weak or indistinct medially, inverted V-shaped (Figs. 69H, I, 80E); lateral longitudinal carina absent; pleural carina absent; lateromedian longitudinal carina present only anterior to anterior transverse carina; apophysis small and obtuse; spiracle elongate. Fore wing length 6.0–8.1 (HT: 7.1) mm. Areolet small; as long as maximum width; width not narrowing anteriorly; received vein 2m-cu near outer corner (Fig. 69G). Fore wing vein 1cu-a slightly antefurcal to vein M&RS (Fig. 69G). Nervellus subvertical; intercepted posterior to middle (Fig. 69G). Hind femur reticulate coriaceous; 4.9–5.6 (HT: 5.2)  $\times$  as long as maximum depth in lateral view. Tarsal claws simple.

Metasoma. T I 1.7–1.85 (HT: 1.85)  $\times$  as long as maximum width; ISP smooth; latero-median carina absent; dorso-lateral carina absent except for posterior part; with pair of lateral triangular teeth at base. T II 0.8–1.0 (HT: 0.8)  $\times$  as long as maximum width; ISP coriaceous. Thyridium present; somewhat distant from (by more than length of thyridium) anterior margin of T II; flat to slightly depressed; ca. 2.0  $\times$  as wide as length. T III to T V with smooth ISP. Ovipositor sheath 0.68–0.7 (HT: 0.68)  $\times$  as long as hind tibia, 1.3–1.6 (HT: 1.4)  $\times$  as long as T I. Ovipositor straight; apex sharp; apex of lower valve with teeth (Fig. 80H).

Colouration (Figs. 69A–J). Body (excluding wings) black to blackish-brown. Setae silver. Clypeus with small ivory to yellow marking. Face with pair of ivory to yellow markings along each orbit. Frons with pair of ivory to yellow markings along each orbit. Malar space, base of mandible, lower part of gena, palpi, collar, dorsal margin of pronotum, tegula, scutellum, upper division of metapleuron, propodeum, and coxae sometimes with ivory to yellow marking(s). FL VII (or VIII) to FL XI (or XII) with white markings. Subtegular ridge with yellow marking. T I sometimes with pair of yellow markings postero-laterally. Posterior margins of T I to T III narrowly tinged with reddish-brown. Membranous parts of metasomal sternites and ovipositor yellowish-brown. Apex of trochantelli, bases and apices of femora, fore and mid tibiae, bases of fore and mid tarsal segments, and subbasal part of hind tibia brown to yellowish-brown. Brownish area of femora and tibiae sometimes expanded. Apical part of hind TS I and hind TS II to TS IV ivory. T IV to T VII each with pair of transverse, ivory markings. Wings hyaline. Veins and pterostigma blackish-brown except for brown to yellowish-brown wing base. In some paratypes, following colour variations present: face with pair of yellow.

Male. Unknown.

**Distribution.** Japan (Honshu).

**Bionomics.** Unknown.

**Etymology.** The specific name is from Latin “*octo*” (eight) plus “*guttatus*” (with spots), referring to the eight yellow markings on metasomal tergites.

**Remarks.** This species resembles *L. coreensis* in the body coloration but can be distinguished by the reverse V-shape posterior transverse carina of propodeum and the four pairs of ivory spots on T IV to T VII (see above key).

### *Listrognathus (Listrognathus) yunnanensis*

He & Chen, 1996

[NSW SJN: Karube-tsuno-togari-himebachi]

(Figs. 70A–E)

*Listrognathus (Listrognathus) yunnanensis* He & Chen, 1996 in He *et al.*, 1996: 527.

**Materials examined. JAPAN:** [Tsushima Is.] OMNH, 1M, Nagasaki Pref., Ohfunakoshi, 6. V. 1994, R. Matsumoto leg.; KPM-NK 103191, M, Tsushima City, Tonosaki, 18. VI. 2024, H. Karube leg.

**Description.** See He *et al.* (1996) and Sheng & Sun (2009).

**Distribution.** Japan (Tsushima Is.) and China.

**Bionomics.** Unknown in Japan. In China, *Earias vittella* Fabricius, 1794 (Lepidoptera, Nolidae) has been recorded as the host (He *et al.*, 1996).

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

### Subgenus *Fenestula* Townes, 1962

*Fenestula* Townes, 1962 in Townes & Townes, 1962: 408.

Type species: *Mesostenus paludatus* Cresson, 1872.

Original designation.

The males of the Japanese species were unknown, but I was able to find the male of *L. (Fenestula) aequabilis* described below.

### *Listrognathus (Fenestula) aequabilis* Uchida, 1952

[SJN: Sasayama-tsuno-togari-himebachi]

(Figs. 71A–D)

*Listrognathus aequabilis* Uchida, 1952: 19.

**Materials examined. JAPAN:** [Honshu] MNHAH, 1F, Hyogo Pref., Sasayama, 25. XI. 1950, K. Iwata leg.; KPM-



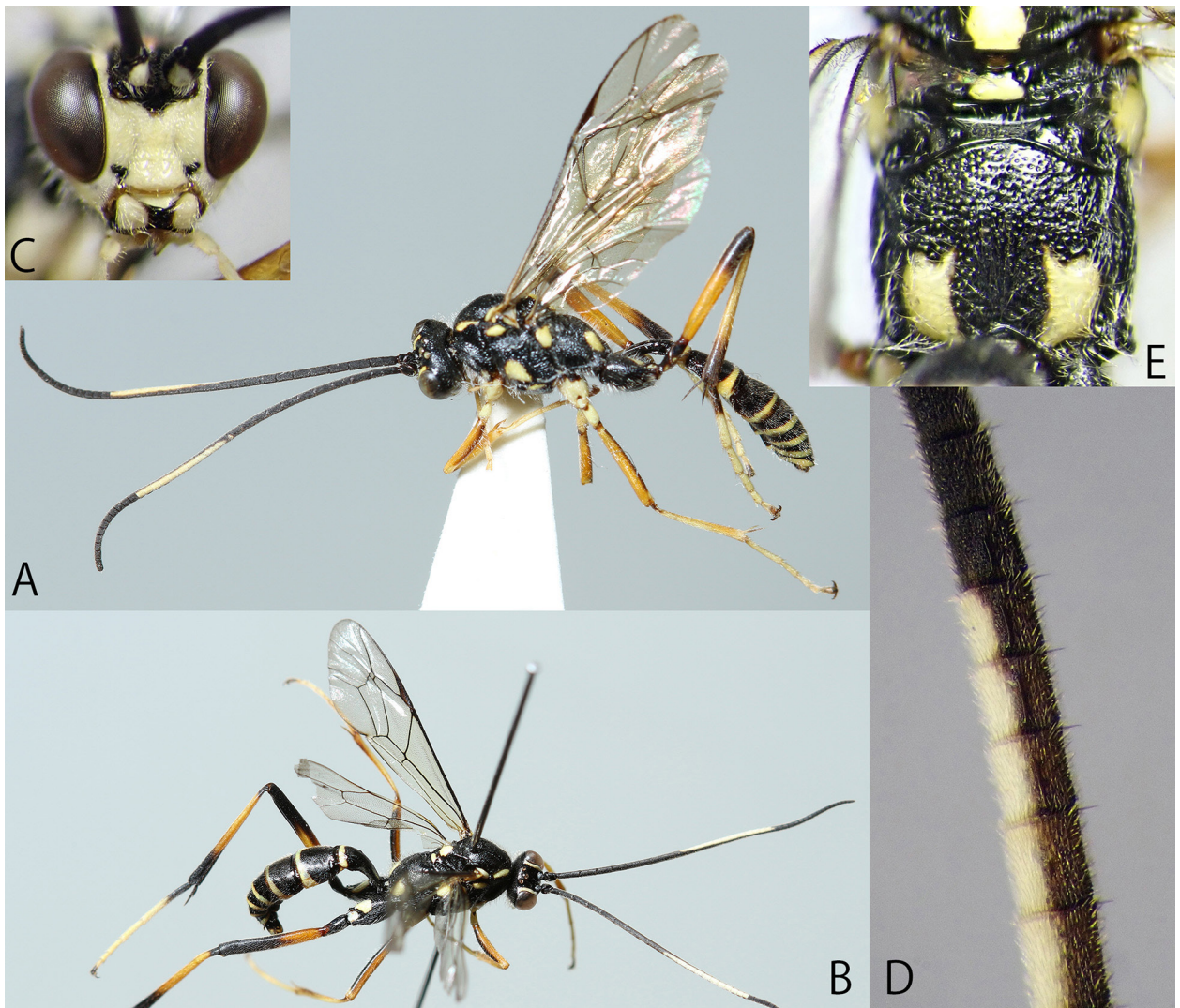


Fig. 70. *Listrognathus* (*Listrognathus*) *yunnanensis* He & Chen, 1996, males (A: OMNH; B–E: KPM-NK 103191) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: flagellum and tyloids; E: propodeum, dorso-lateral view.

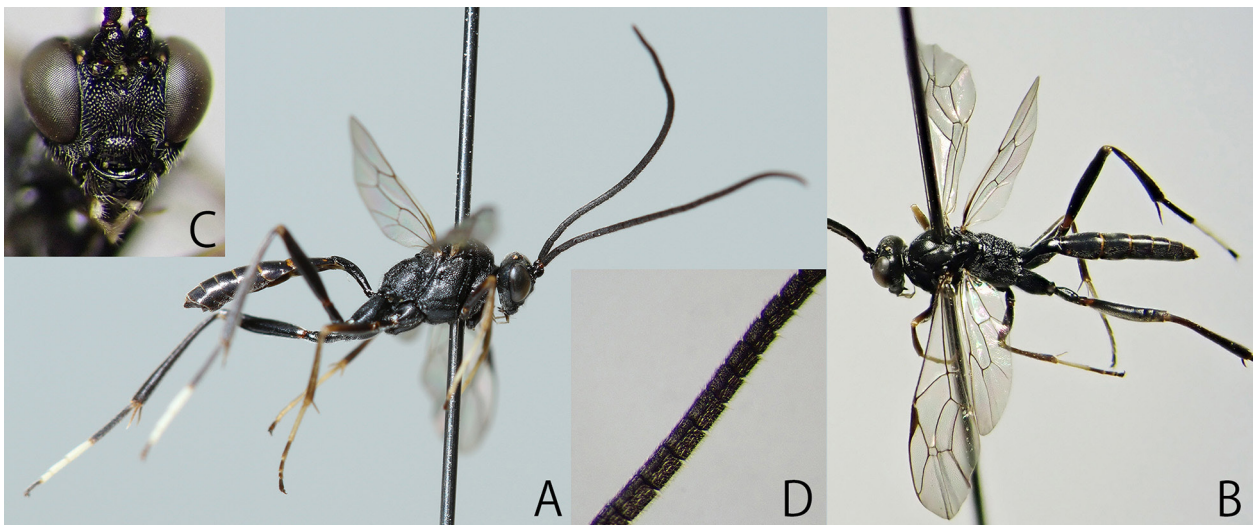


Fig. 71. *Listrognathus* (*Fenestula*) *aequabilis* Uchida, 1952, male (KPM-NK 103195) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: flagellum and tyloids.



NK 103194, F, Hyogo Pref., Kasai City, Kishiro Town, 29. IV. 2011, K. Maeto & K. Watanabe leg.; KPM-NK 103195, M, Hyogo Pref., Tatsuno City, Kamioka Town, Hashizaki, 22. IV. 2019, K. Watanabe leg.

**Description.** Female. See Uchida (1952) and Sheng & Sun (2009).

Male ( $n = 1$ ). Similar to female (Figs. 71A–D). Body length 7.9 mm. Clypeus  $2.0 \times$  as wide as long. Face  $0.7 \times$  as long as minimum width. POL  $1.9 \times$  as OD. OOL  $1.3 \times$  as OD. Malar space  $0.7 \times$  as long as basal width of mandible. Lower part of gena without deep concavity along hypostomal carina. Antenna with 31 flagellomeres;

with slender, linear tyloids on FL XI to FL XXI (Fig. 71D). FL I  $2.8 \times$  as long as maximum depth in lateral view,  $1.05 \times$  as long as FL II. Fore wing length 5.8 mm. Hind femur  $6.1 \times$  as long as maximum depth in lateral view. T I  $3.5 \times$  as long as maximum width; with pair of lateral weak convexities. T II  $1.5 \times$  as long as maximum width. Frons with pair of small yellow markings between antennal sockets and eyes (Fig. 71C). Antenna without white band (Fig. 71A). Hind TS II to TS IV entirely ivory (Fig. 71A).

**Distribution.** Japan (Honshu).

**Bionomics.** Unknown.

**Remarks.** This is the first record of the male of this species.

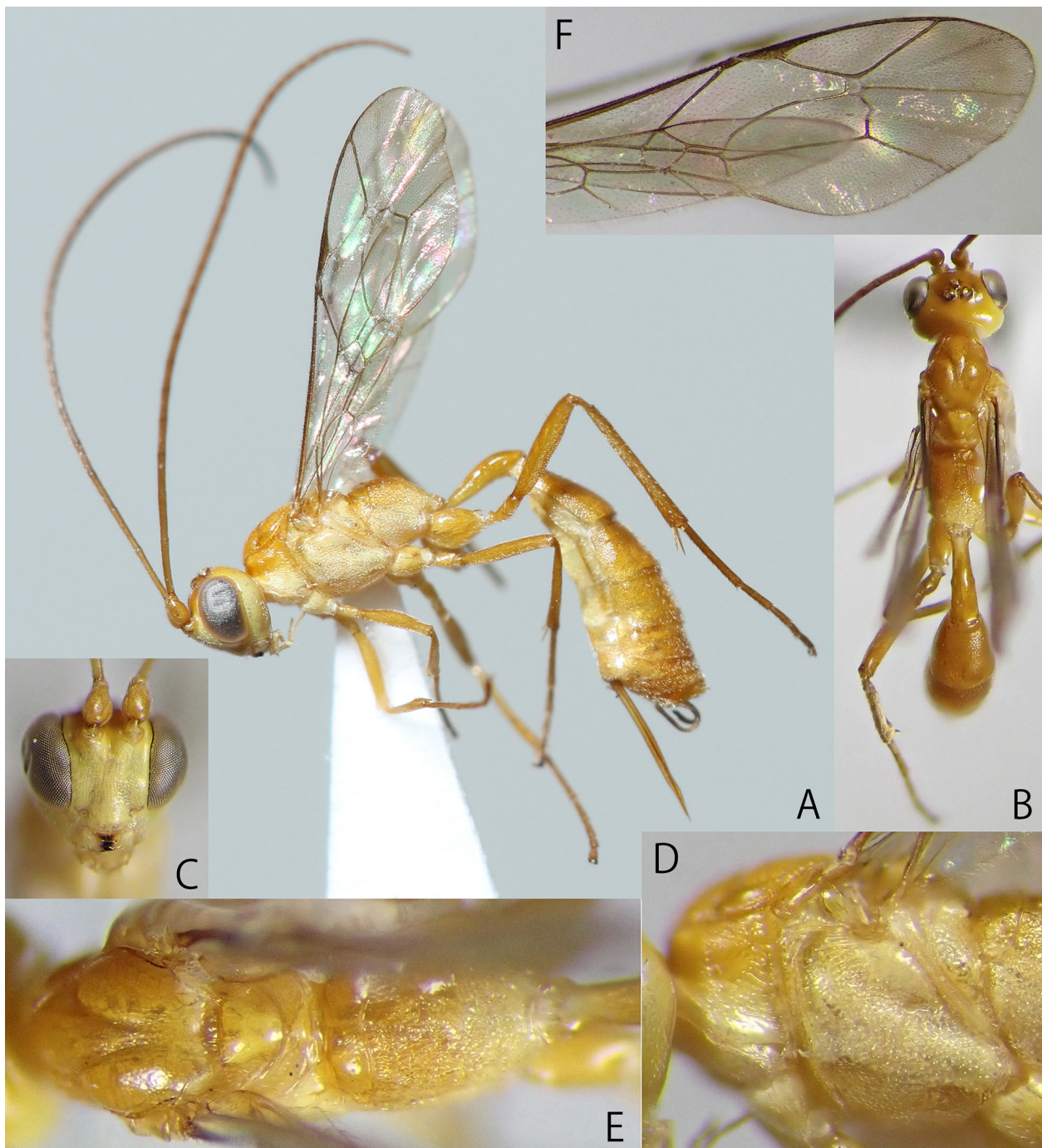


Fig. 72. *Menaforia szepligetii* (Uchida, 1930), female (KPM-NK 103101) — A: lateral habitus; B: head, mesosoma, and metasoma, dorsal view; C: head, frontal view; D: pronotum and mesopleuron, lateral view; E: mesosoma, dorsal view; F: wings.



**Genus *Menaforia* Seyrig, 1952**

*Menaforia* Seyrig, 1952: 205. Type species: *Menaforia rufa* Seyrig, 1952. Original designation

A single species, *Men. szepligetii* (Uchida, 1930), has been recorded from Japan. In this study, I newly record this species from Iriomotejima Island and Yonagunijima Island with redescription based on Japanese materials below.

***Menaforia szepligetii* (Uchida, 1930)**

[SJN: Taiwan-togari-himebachi]

(Figs. 72A–F, 73A–D, 80I)

*Neomesostenus formosanus* Szépligeti, 1916: 293. Name preoccupied.

*Mesostenus szepligetii* Uchida, 1930: 301. New name.

*Eurycryptus unicolor*: Watanabe, 2019: 93. Misidentification (in part).

**Materials examined. JAPAN:** [Miyakojima Is.] MNHAH, 1F (det. Momoi), Okinawa Pref., Miyako Is., XI. – XII. 1952, C. E. Bohart leg. [Iriomotejima Is.] MNHAH, 1M, Okinawa Pref., Taketomi Town, Komi, 19. VIII. 1968, S. Azuma leg.; KPM-NK 5006301, M, Okinawa Pref., Iriomotejima Is., Ootomi, 15. V. 2007, T. Ban leg. [Yonagunijima Is.] KPM-NK 5006300, M, Okinawa Pref., Yonagunijima Is., 29. V. 2003, T. Mita leg.; KPM-NK 103101, F, Okinawa Pref., Yonaguni Town, Tarumai-shitsugen, 25. VI. 2013, S. Fujie leg.

**Description.** Female (n = 2). Body polished; covered with setae; length 5.9–6.9 mm.

Head  $0.75 \times$  as long as wide. Clypeus  $1.5 \times$  as wide as long; sparsely punctate; anterior margin slightly rounded in frontal view, without distinct tooth anteromedially. Face  $0.65\text{--}0.7 \times$  as long as width just below antennal sockets; densely punctate with some longitudinal lined punctures below antennal sockets. Malar space  $0.85\text{--}0.9 \times$  as long as basal width of mandible. Frons and anterior part of vertex finely coriaceous with sparse punctures. Posterior



Fig. 73. *Menaforia szepligetii* (Uchida, 1930), male (KPM-NK 5006301) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: flagellum and tyloids.



part of vertex and gena punctate. POL  $1.8\text{--}2.0 \times$  as OD. OOL  $0.9\text{--}1.5 \times$  as OD. Occipital carina complete; joined with hypostomal carina far from mandibular base. Upper tooth of mandible almost as long as lower tooth. Base of mandible flat. Antenna with 34 flagellomeres; apex pointed. FL I  $8.3\text{--}9.6 \times$  as long as maximum depth in lateral view,  $1.2\text{--}1.25 \times$  as long as FL II.

Mesosoma. Lateral part of pronotum largely covered with oblique rugae. Epomia indistinct. Mesoscutum punctate; with distinct notaulus (Fig. 72B). Scutellum punctate; not margined laterally. Mesopleuron largely irregularly rugulose except for smooth speculum (Fig. 72D); with some longitudinal striae just in front of speculum; with well-developed epicnemial carina. Metapleuron irregularly rugulose; without a juxtacoxal carina. Propodeum without carinae except for anterior and posterior transverse carinae and anterior section of lateromedian longitudinal carinae present. Posterior

transverse carina of propodeum partly weak and sometimes partly indistinct. Anterior area of propodeum including weakly defined area basalis largely smooth. Median and posterior parts of propodeum covered with irregular rugae (Fig. 72E). Fore wing length 4.0–4.9 mm. Areolet present (Fig. 72F). Fore wing vein 1cu-a interstitial to vein M&RS (Fig. 72F). Nervellus reclivous; intercepted slightly anterior the middle. Hind femur  $5.6 \times$  as long as maximum depth in lateral view. Tarsal claws simple and short; slightly longer than arolium in hind tarsal claws.

Metasoma. T I  $2.9\text{--}3.05 \times$  as long as maximum width; smooth; without carinae. Spiracle of T I situated only slightly just behind of middle length. T II  $1.5\text{--}1.6 \times$  as long as maximum width; densely punctate. T III to T V finely and densely punctate. ISP of T II to T V coriaceous. Ovipositor sheath  $0.5\text{--}0.55 \times$  as long as hind tibia,  $1.0\text{--}1.05 \times$  as long as T I. Ovipositor straight; with a weak nodus and ventral teeth (Fig. 80I).



Fig. 74. *Nippocryptus alutaceus* (Tschek, 1871), female (KPM-NK 91363) — A: lateral habitus; B: head, mesosoma, and metasoma, dorsal view; C: head, frontal view; D: mesosoma, lateral view; E: wings; F: scutellum and propodeum, dorsal view.



Coloration (Figs. 72A–F). Body (excluding wings) yellow to reddish-yellow. Setae silver. Mandibular teeth black. Apical part of antenna, apical segments of tarsi, and ovipositor sheath more or less darkened. Wings hyaline. Veins and pterostigma brown.

Male ( $n = 3$ ). Similar to female (Figs. 73A–D). Body length 6.0–7.2 mm. Clypeus  $1.7\text{--}1.75 \times$  as wide as maximum length. Malar space  $0.85\text{--}1.0 \times$  as long as basal width of mandible. Antenna with 38 flagellomeres. FL I  $6.1\text{--}6.5 \times$  as long as maximum depth in lateral view. FL XII to FL XIV each with linear tyloid ventrally (Fig. 73D). Hind femur  $6.0 \times$  as long as maximum depth in lateral view. T II  $2.05 \times$  as long as maximum width.

**Distribution.** Japan (Miyakojima Is., Iriomotejima Is., and Yonagunijima Is.) and Taiwan.

**Bionomics.** Unknown.

**Remarks.** This is the first record of the male and from Iriomotejima Island, and Yonagunijima Island. The male of this species resembles *Eurycryptus unicolor* (Uchida, 1932), while it can be distinguished by the reddish-yellow ocellar area (black in *Eur. unicolor*) and the complete occipital carina (absent lower part in *Eur. unicolor*). Watanabe (2019) recorded *Eur. unicolor* from Iriomotejima Island and Yonagunijima Island, while these specimens are misidentification of this species. Thus, the distribution of *Eur. unicolor* of both islands are delated here.

### Genus *Nippocryptus* Uchida, 1936

*Nippocryptus* Uchida, 1936b: 3. Type species: *Hemiteles suzukii* Matsumura, 1912 (= *Ichneumon vittatorius* Jurine, 1807). Original designation

A single species, *N. vittatorius* (Jurine, 1807), has been recorded from Japan. In this study, I identified the generic position of *Caenocryptus canaliculatus* Momoi, 1968 as *Nippocryptus*. In addition, this species has the character states of *N. alutaceus* (Tschek, 1871) and thus I newly synonymised this species with *N. alutaceus* (**syn. nov.**).

### Key to Japanese species of *Nippocryptus*

1. Upper tooth of mandible same length as or slightly shorter than lower tooth. Fore wing with conspicuous clouded band in female. Base of hind tibia of male and some females\* white. Basal part of T I of male white.  
..... *Nippocryptus vittatorius* (Jurine, 1807)
- . Upper tooth of mandible longer than lower tooth. Fore wing without conspicuous clouded area in female (Figs. 74A, E). Hind tibia entirely blackish brown to brown (Figs. 74A, 75A). Basal part of T I of male without white area (Fig. 75B).  
..... *Nippocryptus alutaceus* (Tschek, 1871)  
(= *Caenocryptus canaliculatus* Momoi, 1968 **syn. nov.**)



Fig. 75. *Nippocryptus alutaceus* (Tschek, 1871), male (KPM-NK 91362) — A: lateral habitus; B: head, mesosoma, and metasoma, dorso-lateral view; C: head, frontal view; D: flagellum and tyloids.

\* Schwarz (1990) noted that the base of female hind tibia of *N. vittatorius* is white, while Japanese specimens of this species usually has entirely black hind tibia.

***Nippocryptus alutaceus* (Tschek, 1871)**

[New SJN: Momoi-togari-himebachi]

(Figs. 74A–F, 75A–D)

*Cryptus alutaceus* Tschek, 1871: 129.

*Caenocryptus canaliculatus* Momoi, 1968: 213. **Syn. nov.**

**Materials examined. JAPAN:** [Hokkaido] KPM-NK 91361, F, Yubari City, Oyubari, 31. VIII. – 13. IX. 2007, A. Ueda leg. (MsT); KPM-NK 91362, M, Akankohan, 1. VII. 1957, R. Ishikawa leg. [Honshu] KPM-NK 91363, F, Gunma Pref., Katashina Vil., Marunuma, Yuzawa, 12. VII. 2014, K. Watanabe leg.; KPM-NK 91364, F, Tokyo, Okutama Town, Hikawa, 1. VII. 2007, K. Watanabe leg.; KPM-NK 91365, F, Kanagawa Pref., Minamiashigara City, Ashigara-toge, 16. VI. 2020, K. Watanabe leg.; KPM-NK 91366, F, Kanagawa Pref., Oiso Town, Koma, Mt. Komayama, 16. IV. 2016, K. Watanabe leg.; KPM-NK

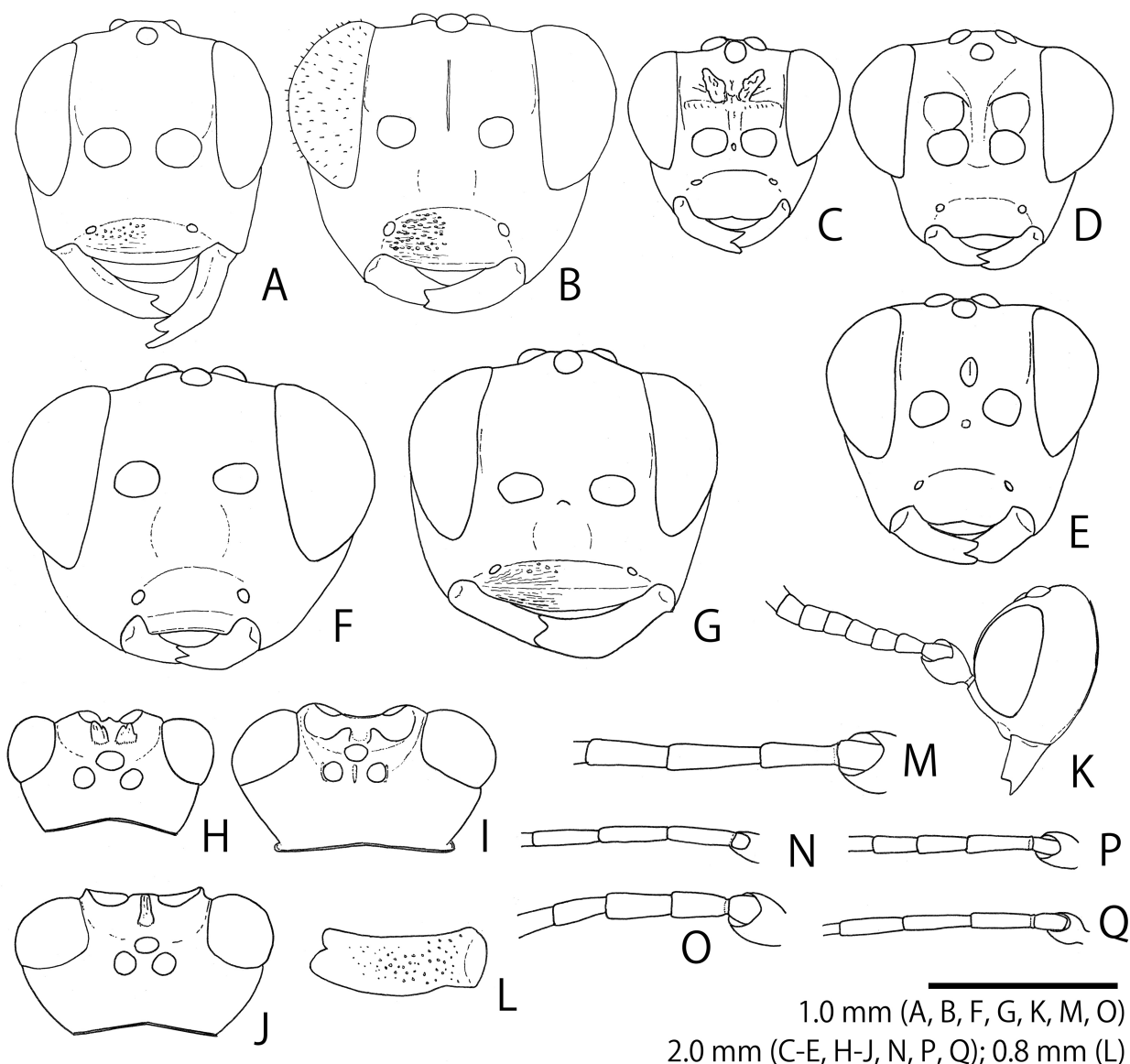


Fig. 76. Japanese species of Aptesini, females — A: *Aconias concavopropodeonus* (Uchida, 1952) (KPM-NK 81193); B: *Aptesis albibasalis* (Uchida, 1930) (KPM-NK 102987); C, H: *Megaplectes bicornis* **sp. nov.** (holotype: KPM-NK 103052); D, I: *Meg. konishii* **sp. nov.** (holotype: KPM-NK 103050); E, J: *Meg. monticola dentatus* Uchida, 1930 (E: KPM-NK 91325; J: KPM-NK 81279); F: *Oresbius cushmani* **nom. nov.** (KPM-NK 81199); G, L: *Plectocryptus japonicus* **sp. nov.** (G: holotype: KPM-NK 5004410; L: paratype: KPM-NK 5004383); K: *Cubocephalus nanus* **sp. nov.** (holotype: KPM-NK 91381); M: *C. asiaticus* **sp. nov.** (holotype: KPM-NK 91383); N: *C. atrator* (Walker, 1874) (KPM-NK 91379); O: *C. confusus* **sp. nov.** (paratype: KPM-NK 91380); P: *C. sapporensis* **sp. nov.** (holotype: KPM-NK 91382); Q: *C. uryuensis* **sp. nov.** (holotype: KPM-NK 75809) — A–G: head, frontal view; H–J: head, dorsal view; K: head and basal part of antenna, lateral view; L: outer face of mandible; M–Q: basal part of antenna, lateral view.



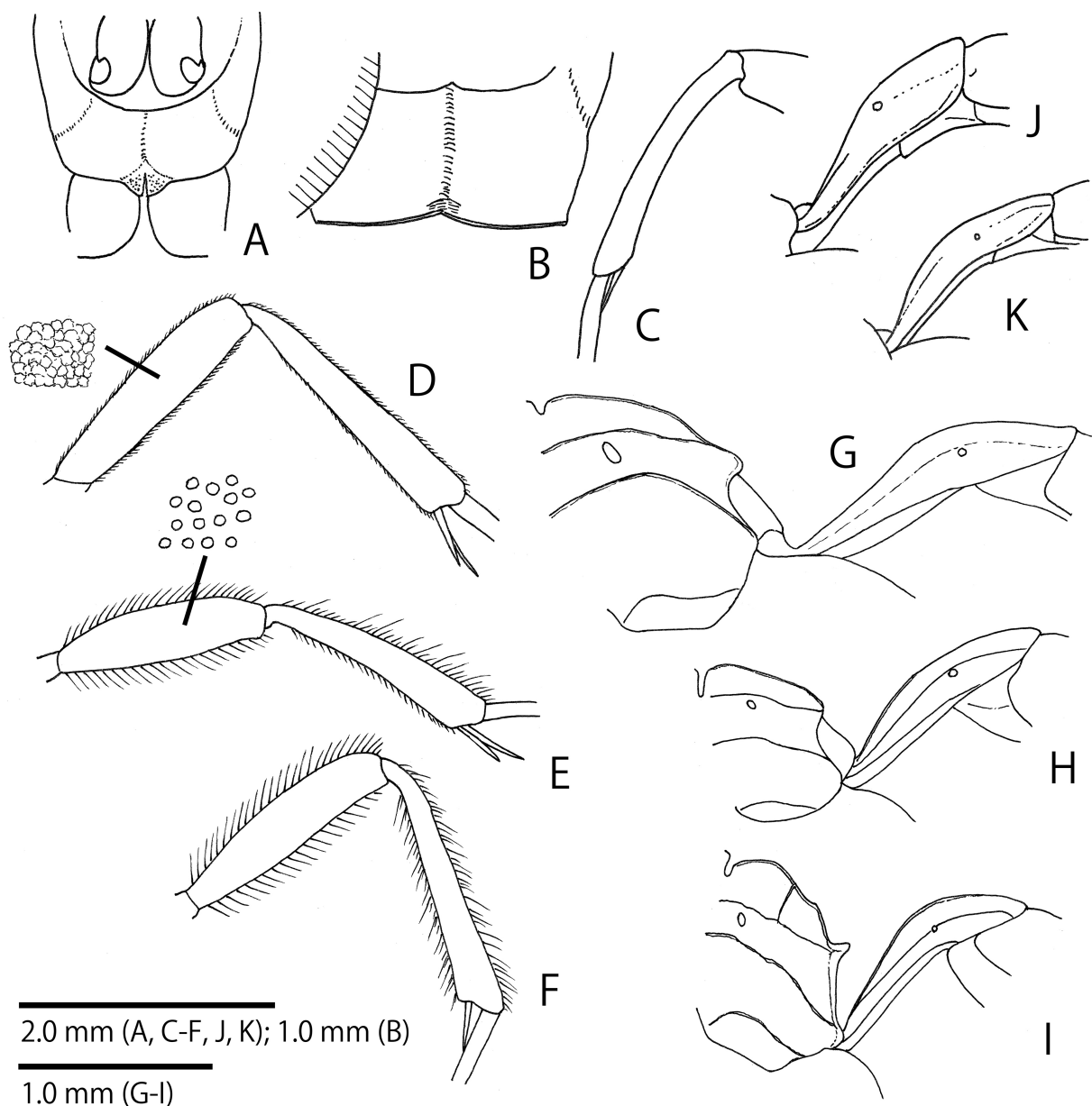


Fig. 77. Japanese species of Aptesini, females — A: *Cubocephalus atrator* (Walker, 1874) (KPM-NK 91385); B: *C. uryuensis* **sp. nov.** (holotype: KPM-NK 75809); C, J: *Parmortha gigantea* **sp. nov.** (holotype: KPM-NK 75808); D: *Aconias concavopropodeonius* (Uchida, 1952) (KPM-NK 81193); E: *Ac. fujiei* **sp. nov.** (holotype: KPM-NK 81195); F: *Ac. longisetosus* **sp. nov.** (holotype: KPM-NK 81196); G: *Aptesia albibasalis* (Uchida, 1930) (KPM-NK 81213); H: *Ap. ezoensis* **sp. nov.** (holotype: KPM-NK 81202); I: *Ap. flagitator* (Rossi, 1794) (KPM-NK 81201); K: *Pa. nigra* **sp. nov.** (holotype: KPM-NK 75811) — A, B: mesosternum, ventral view; C: fore tibia; D–F: hind femur and tibia, lateral view; G–I: propodeum and T I, lateral view; J, K: T I, lateral view.

91367, F, Toyama Pref., Toyama City, Arimine, Jyurodani, 1–8. IX. 2009, M. Watanabe leg. (MsT); KPM-NK 91368, F, ditto, 8–15. IX. 2009; KPM-NK 91369, F, Toyama Pref., Toyama City, Kamegai, 15–26. IX. 2009, M. Watanabe leg. (MsT); KPM-NK 91370, 91371, 2F, Toyama Pref., Nanto City, Togamura-kamimomose, 25. VIII. – 1. IX. 2009, M. Watanabe leg. (MsT); KPM-NK 91372–91375, 4F, ditto, 15–29. IX. 2009; MNHAH, 1F (holotype of *Caenocryptus canaliculatus*), Hyogo Pref., Sasayama, 18. XI. 1954, K. Iwata leg. **AUSTRIA**: LI, 1F (det. Schwarz), Oberösterreich, Hinterstoder, 25. VIII. 1999, F. & T.

Gusenleitner leg.

**Description.** See Momoi (1968) and Schwarz (1990).

**Distribution.** Japan (Hokkaido and Honshu).

**Bionomics.** Host: *Eumenes samuray* Schulthess, 1908 (= *Eumenes rubronotatus rubronotatus* Pérez, 1905) (Hymenoptera, Vespidae) (Momoi, 1968).

**Remarks.** No particular morphological differences were found between European and Japanese specimens. In Japan, males of *Nippocryptus* are extremely under-represented compared to females. Such a tendency was also observed in this species. Japanese name of this

species, “Kuro-Shikoku-togari-himebachi” is based on the black-bodied species resembles “Shikoku-togari-himebachi”, *Caenocryptus shikokuensis* (Uchida, 1936), while the generic positions of both species are different each other and this species has no distribution data from Shikoku. Thus, I propose new SJN based on Dr. Setsuya Momoi in this study.

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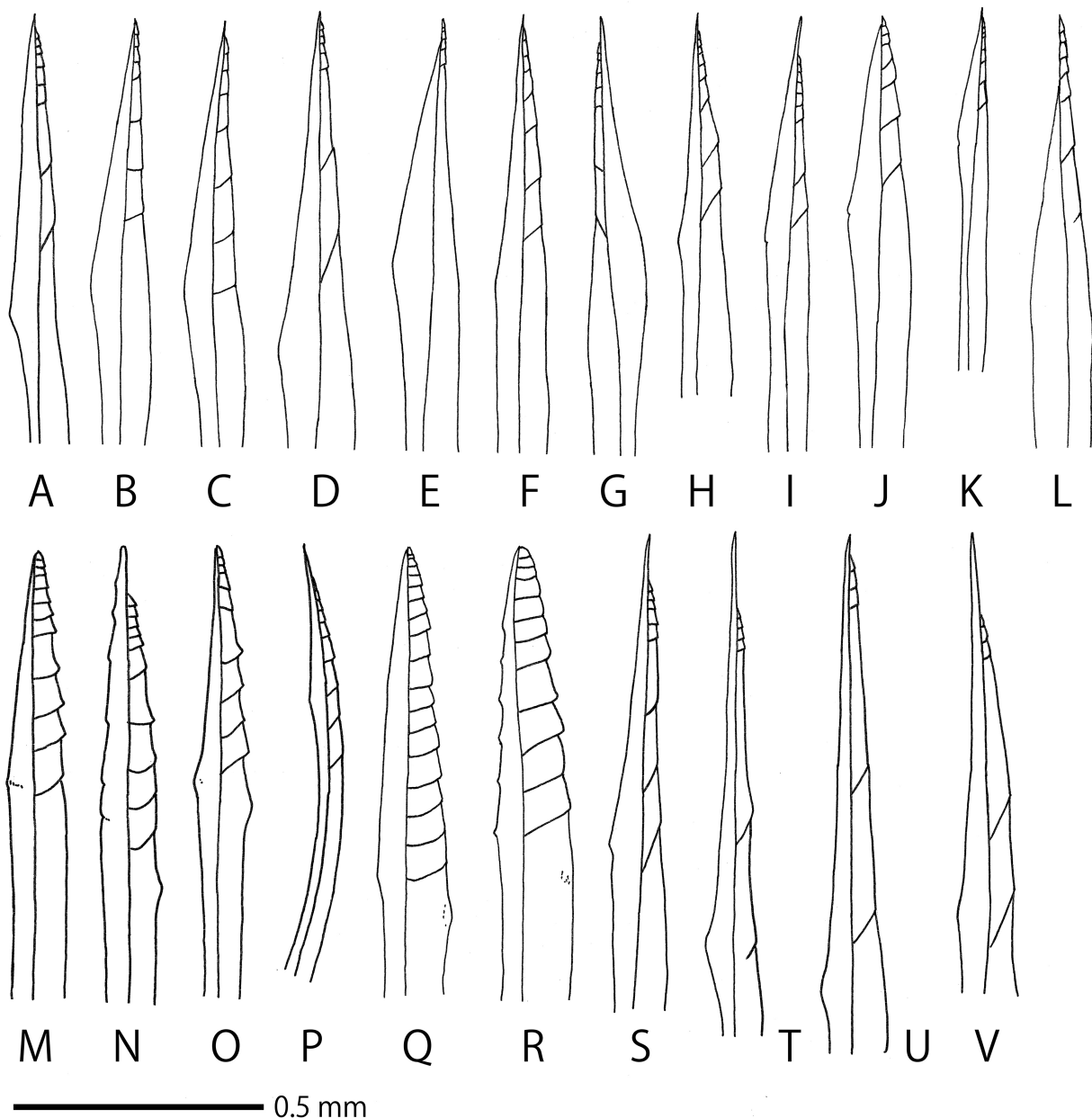


Fig. 78. Apex of ovipositor of Japanese species of Aptesini, females, lateral view — A: *Aconias concavopropodeonus* (Uchida, 1952) (KPM-NK 81288); B: *Ac. fujiei* **sp. nov.** (holotype: KPM-NK 81195); C: *Ac. longisetosus* **sp. nov.** (holotype: KPM-NK 81196); D: *Ac. tarsatus* (Bridgman, 1881) (KPM-NK 81194); E: *Aptesia albibasalis* (Uchida, 1930) (KPM-NK 102987); F: *Ap. albicoxalis* **sp. nov.** (holotype: KPM-NK 81204); G: *Ap. ezoensis* **sp. nov.** (holotype: KPM-NK 81202); H: *Ap. flagitator* (Rossi, 1794) (KPM-NK 81202); I: *Ap. jinbensis* **sp. nov.** (holotype: KPM-NK 81207); J: *Ap. melana* Li & Sheng, 2013 (KPM-NK 81211); K: *Ap. minor* **sp. nov.** (holotype: KPM-NK 81212); L: *Ap. yamauchii* **sp. nov.** (holotype: KPM-NK 81208); M: *Cubocephalus asiaticus* **sp. nov.** (holotype: KPM-NK 91384); N: *C. atrator* (Walker, 1874) (KPM-NK 81286); O: *C. confusus* **sp. nov.** (holotype: KPM-NK 91383); P: *C. nanus* **sp. nov.** (holotype: KPM-NK 91381); Q: *C. sapporensis* **sp. nov.** (holotype: KPM-NK 91382); R: *C. uryuensis* **sp. nov.** (holotype: KPM-NK 75809); S: *Giraudia kurenai* **sp. nov.** (holotype: KPM-NK 91387); T: *Gi. nana* **sp. nov.** (holotype: KPM-NK 91388); U: *Gi. spinosa* Uchida, 1936 (KPM-NK 81290); V: *Gi. teranishii* Uchida, 1930 (KPM-NK 91386).



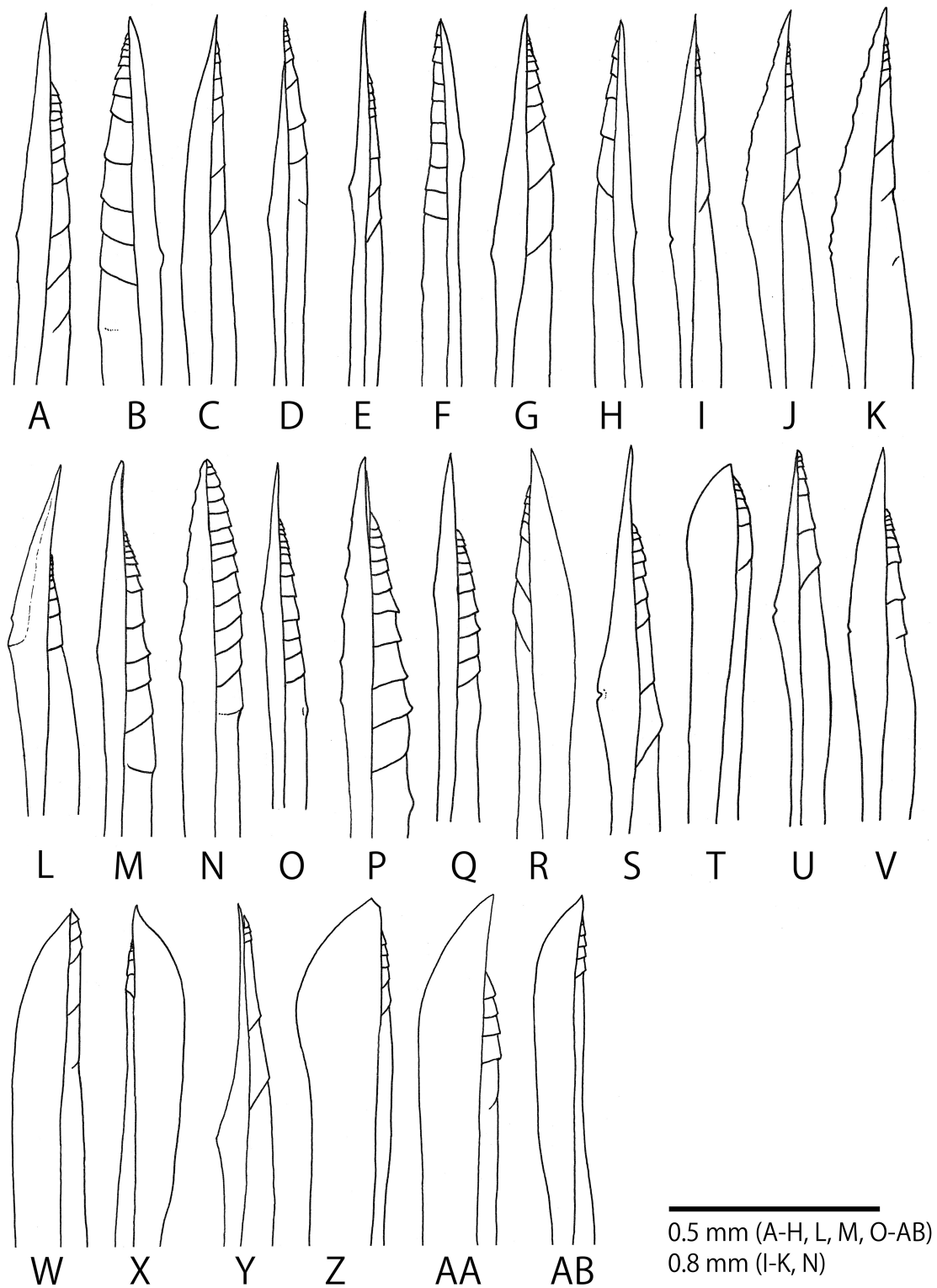


Fig. 79. Apex of ovipositor of Japanese species of Aptesini, females, lateral view — A: *Javra albotrochantellata* **sp. nov.** (holotype: KPM-NK 102847); B: *J. gigantea* **sp. nov.** (holotype: KPM-NK 102819); C: *J. japonica* **sp. nov.** (holotype: KPM-NK 102795); D: *J. minamiashigarensis* **sp. nov.** (holotype: KPM-NK 102821); E: *J. minuta* **sp. nov.** (holotype: KPM-NK 102805); F: *J. taniguchiae* (Uchida, 1956) (KPM-NK 102806); G: *J. tenuis* **sp. nov.** (holotype: KPM-NK 102799); H: *J. teranishii* (Uchida, 1952) (KPM-NK 81293); I: *Megaplectes bicornis* **sp. nov.** (holotype: KPM-NK 103052); J: *Meg. konishii* **sp. nov.** (holotype: KPM-NK 103050); K: *Meg. monticola dentatus* Uchida, 1930 (KPM-NK 91325); L: *Oresbius cushmani* **nom. nov.** (holotype: KPM-NK 81199); M: *Parmortha albitarsale* **sp. nov.** (holotype: KPM-NK 75812); N: *Pa. gigantea* **sp. nov.** (holotype: KPM-NK 75808); O: *Pa. maruyamensis* (Uchida, 1930) (KPM-NK 91326); P: *Pa. nigra* **sp. nov.** (holotype: KPM-NK 75811); Q: *Pa. pleuralis albomaculata* (Ashmead, 1906) (KPM-NK 91389); R: *Plectocryptus japonicus* **sp. nov.** (holotype: KPM-NK 5004410); S: *Pleolophus funereoides* (Uchida, 1952) (KPM-NK 91378); T: *Pleo. obtusus* **sp. nov.** (holotype: KPM-NK 91376); U: *Pleo. sapporensis* (Uchida, 1930) (KPM-NK 5006657); V: *Pleo. setiferae* (Uchida, 1936) (KPM-NK 81297); W: *Schenkia alpina* **sp. nov.** (holotype: KPM-NK 84968); X: *S. japonica* **sp. nov.** (holotype: KPM-NK 84970); Y: *S. minuta* **sp. nov.** (holotype: KPM-NK 84971); X: *S. sylvatica* Townes, Momoi & Townes, 1965 (KPM-NK 81400); AA: *S. tosaensis* (Uchida, 1936) (KPM-NK 69500); AB: *S. uyuensis* **sp. nov.** (holotype: KPM-NK 84967)

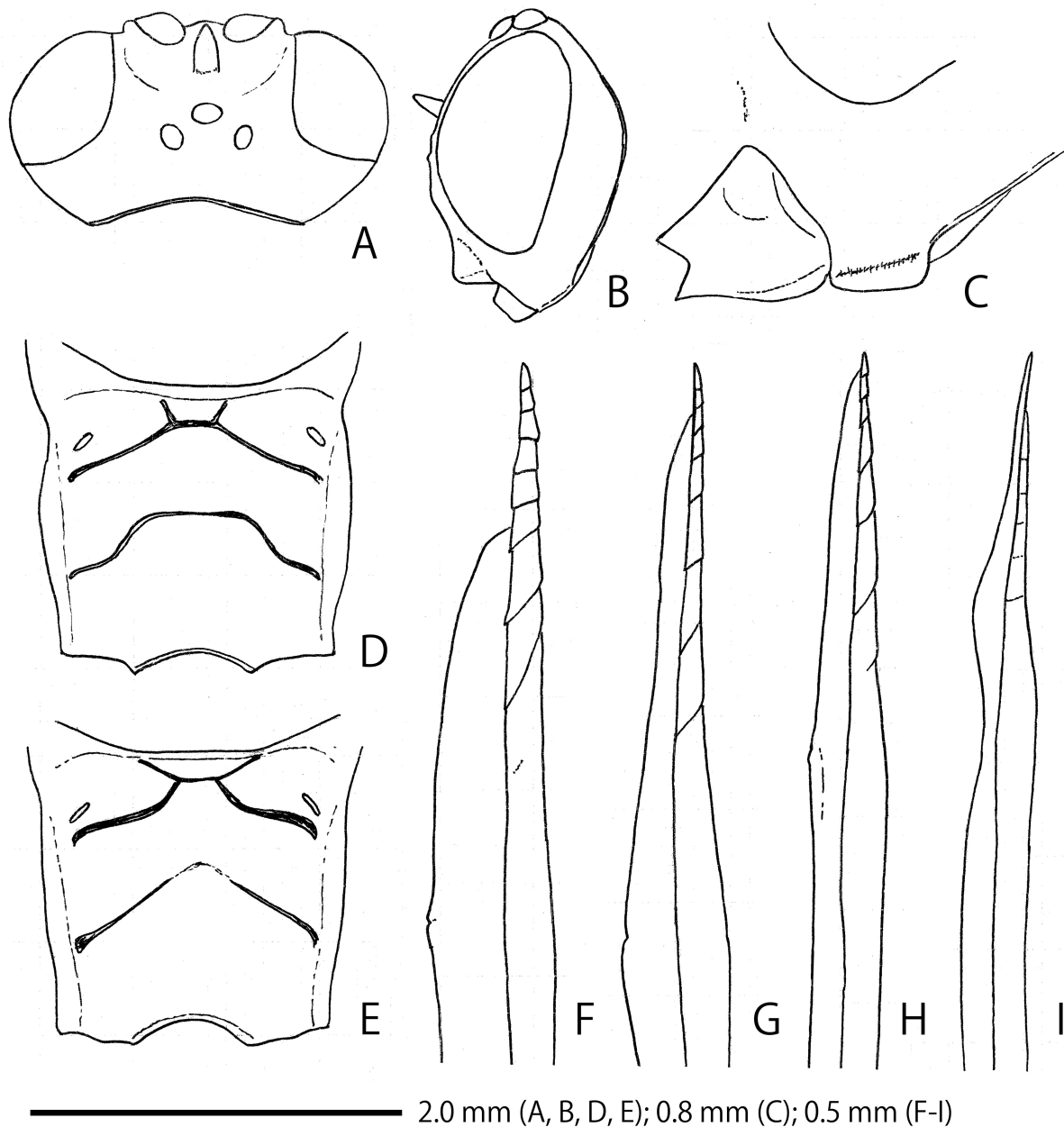


Fig. 80. Japanese species of Cryptini, females — A–C, E, H: *Listrognathus* (*Listrognathus*) *octoguttatus* **sp. nov.** (holotype: KPM-NK 103192); D, G: *L. (L.) coreensis coreensis* Uchida, 1930 (D: MNHAH; G: KPM-NK 75870); F: *Goryphus albofasciatus erabu* **subsp. nov.** (holotype: KPM-NK 103202); I: *Menaforia szepligetii* (Uchida, 1930) (KPM-NK 103101) — A: head, dorsal view; B: head, lateral view; C: malar space and mandible, lateral view; D, E: propodeum, dorsal view; F–I: apex of ovipositor, lateral view.

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## 摘 要

渡辺恭平, 2025. 日本産トガリヒメバチ亜科 (ハチ目、ヒメバチ科) の 32 新種の記載を伴う分類学的研究. 神奈川県立博物館研究報告 (自然科学), (54): 71–204. [Watanabe, K., 2025. Taxonomic Study of Japanese Cryptinae (Hymenoptera, Ichneumonidae), with Descriptions of 32 New Species. Bull. Kanagawa Pref. Mus. (Nat. Sci.), (54): 71–204.]

日本産トガリヒメバチ亜科の 17 属について分類学的研究を行った。検討の結果、以下の 32 新種 1 新亜種を認め、新たに記載し、標準和名を提唱した：フジエクロトガリヒメバチ *Aconias fujiei* **sp. nov.**、ケナガトガリヒメバチ *Ac. longisetosus* **sp. nov.**、アツギトガリヒメバチ *Aptesis albicoxalis* **sp. nov.**、エゾアカハラトガリヒメバチ *Ap. ezoensis* **sp. nov.**、ジンバトガリヒメバチ *Ap. jinbensis* **sp. nov.**、カスミトガリヒメバチ *Ap. minor* **sp. nov.**、ヤマウチトガリヒメバチ *Ap. yamauchii* **sp. nov.**、アジアオナガトガリヒメバチ *Cubocephalus asiaticus* **sp. nov.**、コガタオナガトガリヒメバチ *C. confusus* **sp. nov.**、マメオナガトガリヒメバチ *C. nanus* **sp. nov.**、サッポロオナガトガリヒメバチ *C. sapporensis* **sp. nov.**、ウリュウオナガトガリヒメバチ *C. uryuensis* **sp. nov.**、クレナイトガリヒメバチ *Giraudia kurenai* **sp. nov.**、ムロタトガリヒメバチ *Gi. nana* **sp. nov.**、アシシロモントガリヒメバチ *Javra albotrochantellata* **sp. nov.**、カタヤマトガリヒメバチ *J. gigantea* **sp. nov.**、ニッポンクロトガリヒメバチ *J. japonica* **sp. nov.**、アシガラトガリヒメバチ *J. minamiashigarensis* **sp. nov.**、トヤマクロトガリヒメバチ *J. minuta* **sp. nov.**、ホソミクロトガリヒメバチ *J. tenuis* **sp. nov.**、フタコブオオトガリヒメバチ *Megaplectes bicornis* **sp. nov.**、コニシオオルリトガリヒメバチ *Meg. konishii* **sp. nov.**、コウシュウオナガトガリヒメバチ *Parmortha albitarsale* **sp. nov.**、イトウオナガトガリヒメバチ *Pa. gigantea* **sp. nov.**、ミヤマオナガトガリヒメバチ *Pa. nigra* **sp. nov.**、タニワキトガリヒメバチ *Plectocryptus japonicus* **sp. nov.**、サキマルフトトガリヒメバチ *Pleolophus obtusus* **sp. nov.**、オンタケフトトガリヒメバチ *Schenkia alpina* **sp. nov.**、ヒダヒゲフトトガリヒメバチ *S. japonica* **sp. nov.**、ヤマトフトトガリヒメバチ *S. minuta* **sp. nov.**、キタグニフトトガリヒメバチ *S. uryuensis* **sp. nov.**、ヤツボシツノトガリヒメバチ *Listrognathus (Listrognathus) octoguttatus* **sp. nov.** (以上新種)；シロヨコジマトガリヒメバチ沖永良部島亜種 *Goryphus albofasciatus erabu* **subsp. nov.** (新亜種)。日本から新たに以下のタクサを記録し、種には標準和名を提唱した：*Plectocryptus* Thomson, 1873 (日本新産属)；トゲヒダトガリヒメバチ *Ap. flagitator* (Rossi, 1794)、チュウゴクトガリヒメバチ *Ap. melana* Li & Sheng, 2013、カルベツノトガリヒメバチ *L. (L.) yunnanensis* He & Chen, 1996 (以上日本新産種)；ムネブトトガリヒメバチ名義タイプ亜種 *Idiolispa analis analis* (Gravenhorst, 1807) (日本新産亜種)。以下の 3 種において異名を認めた：*Ac. tarsatus* (Bridgman, 1881) = *Plec. albitarsis* Uchida, 1936 **syn. nov.** (標準和名：アシモンクロトガリヒメバチ)、*Parmortha maruyamensis* (Uchida, 1930) = *Cratocryptus microstriatellus* Uchida, 1952 **syn. nov.** (標準和名：マルヤマヒメトガリヒメバチ)、*Nippocryptus alutaceus* (Tschek, 1871) = *Caenocryptus canaliculatus* Momoi, 1968 **syn. nov.** (標準和名：モモイトガリヒメバチ)。マツノクロホシハバチトガリヒメバチ *Aptesis opaca* (Cushman, 1937) の属を *Oresbius* Marshall, 1867 に移動させ、種小名が先取されていたことから、新置換名 *O. cushmani* **nom. nov.** を提唱した。*Pleolophus sapporensis* (Uchida, 1930) の和名が疑わしい寄主記録に基づいていたため、新しい標準和名としてコガタフトトガリヒメバチを提唱した。上記の種を含めた新分布記録を報告し、再記載と 10 属の種への検索表を提供した。