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A Revision of the Genus *Xestocephalus* VAN DUZEE (Homoptera, Cicadellidae) of Japan, Part 1¹⁾

Satoshi KAMITANI

Entomological Laboratory, Faculty of Agriculture,
Kyushu University, Fukuoka, 812–81 Japan

Abstract Eleven Japanese species of the leafhopper genus *Xestocephalus* VAN DUZEE are revised. This is the first part of serial papers. In the present part, two species, *X. atratus* and *X. obscurus*, are described as new, and three known species, *X. bicolor* MATSUMURA, *X. iguchii* MATSUMURA and *X. nikkoensis* MATSUMURA, are also redescribed with the lectotype designation. *Xestocephalus shikokuanus* ISHIHARA is proposed as a junior synonym of *X. nikkoensis*.

Key words: *Xestocephalus*; Cicadellidae; new species; new synonymy; lectotype designation.

The Japanese leafhoppers of the genus *Xestocephalus* VAN DUZEE were first classified into 4 species by MATSUMURA (1914). The genus was subsequently revised by ISHIHARA (1961) who treated 6 species including 2 new ones, whereas totaled 11 species are recognized from Japan including the Ryukyus during my course of studies.

This paper is the first part of a series planned to classify the Japanese fauna of *Xestocephalus*. In the present part, 5 species, which are characterized by the subapical dilated process of the style in the male genitalia, are dealt with. Of these, two species, *X. atratus* and *X. obscurus* are described as new; three known species, *X. bicolor* MATSUMURA, *X. iguchii* MATSUMURA and *X. nikkoensis* MATSUMURA, are also redescribed with the lectotype designation. *X. shikokuanus* ISHIHARA is synonymized with *X. nikkoensis*.

The aedeagus and styles of the male genitalia have been regarded as available key characters for classifying *Xestocephalus* species, but these are liable to vary in shape in some species of *Xestocephalus* (eg., *X. iguchii*, *X. nikkoensis*). Thus, the pygofer process is demonstrated as an effective taxonomic character for the present classification, because of its invariability.

Depositories of the specimens examined are abbreviated in the text as follows: EUM, Entomological Laboratory, Ehime University, Matsuyama; HUS, Systematic Entomology, Hokkaido University, Sapporo; KUF, Entomological Laboratory, Kyushu University, Fukuoka; NIAES, National Institute of Agro-

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Environmental Sciences, Tsukuba; NSMT, Department of Zoology, National Science Museum, Tokyo; SUU, Department of Biology, Faculty of Education, Saitama University, Urawa.

Genus *Xestocephalus* VAN DUZEE 1892

Xestocephalus VAN DUZEE, 1892, Trans. Am. ent. Soc., **19**: 298, type species: *X. pulcarius* VAN DUZEE, 1894, by subsequent designation by DISTANT, 1908.

Head rounded; ocellus situated on anterior margin; lateral frontal suture distinct; frontoclypeus expanded laterally at the level of antennal pit; pronotum slightly wider than head; lateral margins of pronotum short and convergent anteriorly; setal pattern of hind femur 2+1+1; fore wing provided with 4 apical cells and 3 anteapical cells; hind wing provided with evanescent submarginal vein anteriorly.

Male genitalia: Valve slightly fused with pygofer basally; subgenital plate bearing 10 macrosetae and many long setae which are slightly shorter than macrosetae; style provided with subapical dilation in some species; aedeagus simple and furnished with appendages.

Although LINNAVUORI (1979) stated that the setal pattern of hind femur is 2+2+1 as a generic character in his revisional study on African species, that is found to be 2+1+1 in type species, *X. pulcarius*, and all Japanese species.

Xestocephalus bicolor MATSUMURA, 1914

(Figs. 1A–B, 2A, 3A & 4A–D)

Xestocephalus bicolor MATSUMURA, 1914, J. Coll. Agr. Tohoku Imp. Univ., **5**: 201; ESAKI & ITO, 1954, Tent. Cat. Jassoidea Jpn., p. 85; ISHIHARA, 1961, Trans. Shikoku ent. Soc., **7**: 21.

Redescription. Body oblong, black. Vertex slightly produced, provided with a brown spot near each eye in male and with a brown discontinuous narrow transverse band at middle; posterior margin brown in female. Ocellus situated on anterior margin of vertex; ocellocular area provided with 1 or 2 obscure brown bands. Frontoclypeus provided with 2 pale transverse bands anteriorly which are usually reduced at middle. Pronotum wider than head, furnished with brown posterior margin in male, with 6 brown spots near anterior margin in female. Mesonotal scutellum slightly shorter than pronotum. Fore wing brownish, semitransparent, immaculate, furnished with 4 apical cells and 3 anteapical cells. Submarginal vein of hind wing evanescent anteriorly. Pygofer of both sexes bearing about 10 yellowish macrosetae.

Male genitalia: Pygofer bearing dorsal and ventral processes on inner surface; dorsal process slender and blunt apically; ventral process shorter than

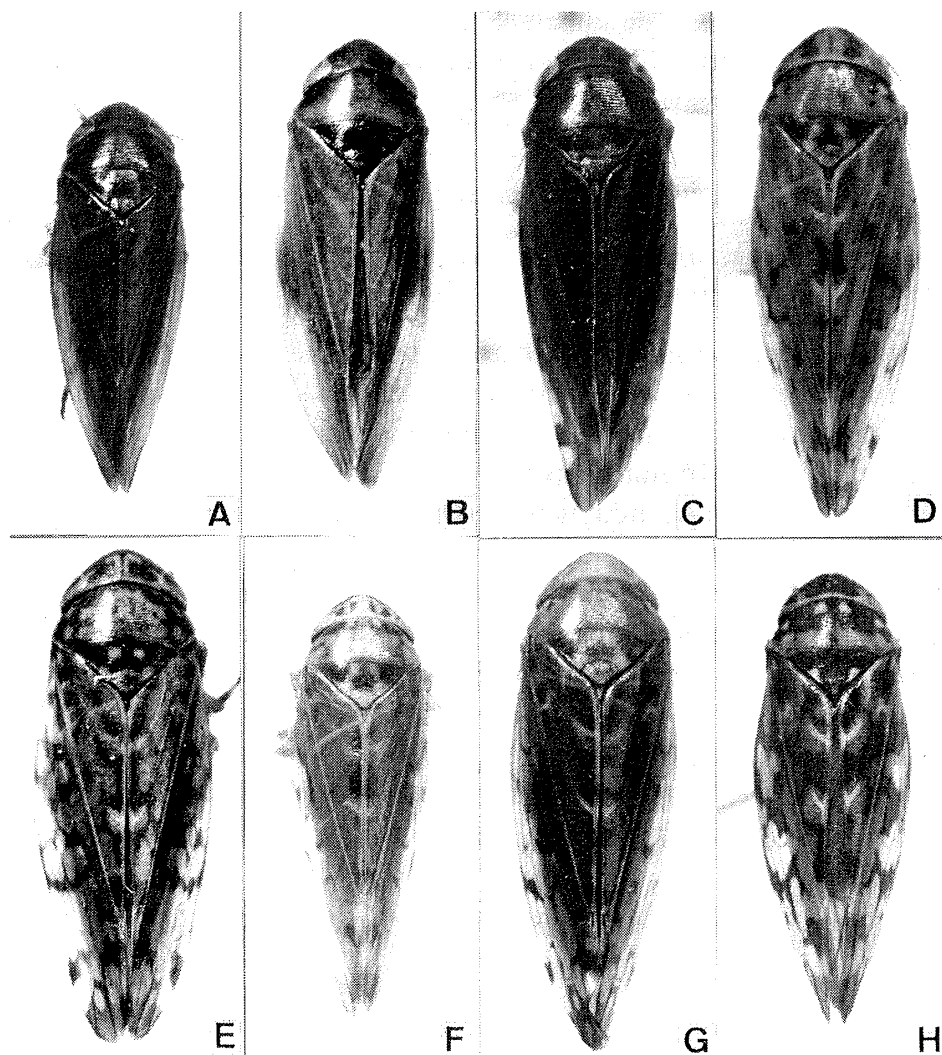


Fig. 1. Japanese *Xestocephalus* species. A & B, *X. bicolor*; C, *X. atratus*; D, *X. iguchii*; E & F, *X. nikkoensis*; G & H, *X. obscurus*. A, D, F, H: male. B, C, E, G: female.

dorsal one and widened basally. Style bearing apical and subapical dilated processes; margin between apical and subapical process straight. Aedeagus provided with oblong shaft and with 2 pairs of sacci at base of shaft.

Body length: ♂, 3.3–3.5 mm; ♀, 3.7–3.9 mm.

Distribution. Japan (Honshu, Kyushu), Taiwan.

Specimens examined. Lectotype: ♀, Japan, MATSUMURA / Kii, 1911 / *X. bicolor*, det. MATSUMURA / Type MATSUMURA (red label) (HUS). Paralectotypes: 1 ♀, Gifu, Y. Nawa (HUS); 1 ♂, Formosa, MATSUMURA / Toroen (HUS); 1 ♀, Horisha (=Pulishe), 30. v. 1907 / Formosa, MATSUMURA (HUS); 1 ♂ 1 ♀, Kanetwan, 15. iv. 1943, NITOBE / *X. bicolor* (HUS). Additional specimens: [Honshu] 2 ♂, Mie, 20. iv. 1958, H. ICHIHASHI (NSMT); 1 ♂ 1 ♀,

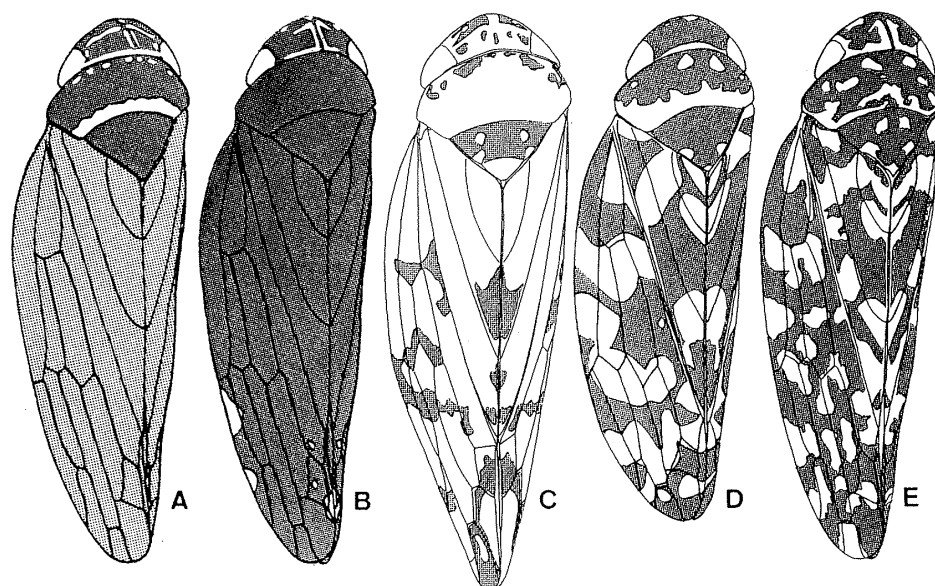


Fig. 2. Color pattern. A, *X. bicolor*; B, *X. atratus*; C, *X. iguchii*; D, *X. nikkoensis*; E, *X. obscurus*. C, D, E, male. A, B: female.

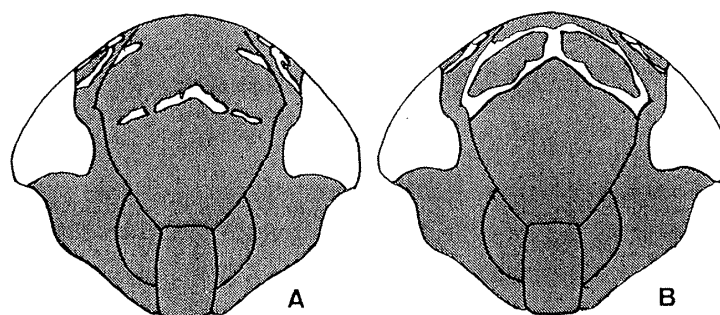


Fig. 3. Color pattern of face. A, *X. bicolor*; B, *X. atratus* sp. nov.

Nagasu, Muraoka, Hyogo Pref., 1. v. 1991, T. NAKAMURA; 15♂17♀, Kurihara, Sada, Shimane Pref., 3. v. 1991, same collector; 27♂40♀, Kanagi, Shimane Pref., 9. v. 1991, S. KAMITANI. [Kyushu] 4♀, Iwashita, Yabakei, Oita Pref., 1. v. 1994, S. KAMITANI. MATSUMURA described this species based on 6 syntypes (2♂4♀). Among them, the 1♀ with the type label is selected as the lectotype.

Remarks. This species is externally similar to *X. sjaolimnus* DLABOLA from Korea and the Russian Maritime Territory, but it is easily distinguished from the latter by the following features of the male genitalia: the straight margin of apical and subapical processes, slender and apically blunt dorsal process of the pygofer lobe, and short and basally widened ventral process. This is the first record from Kyushu.

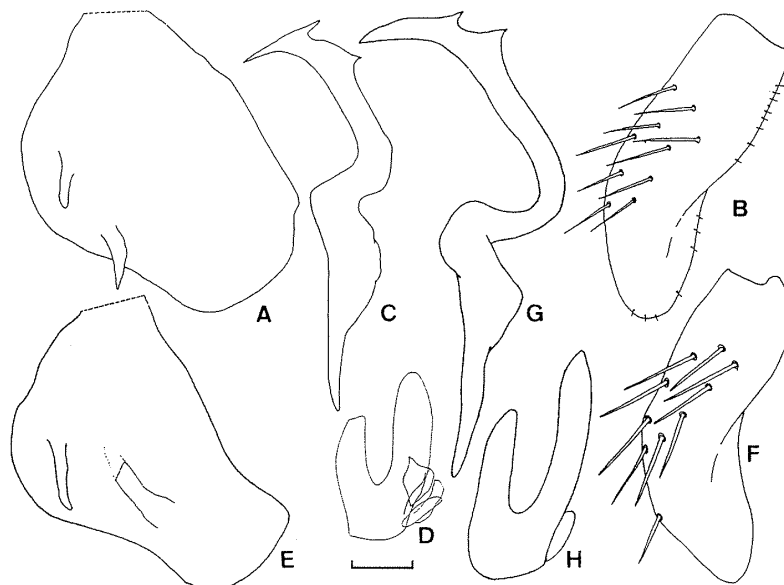


Fig. 4. A–D, *Xestocephalus bicolor*; E–H, *X. atratus* sp. nov. A, E, internal surface of ♂ pygofer; B, F, left subgenital plate in ventral view; C & G, right style in dorsal view; D & H, aedeagus in dorsal view. Scale: 0.1 mm.

Xestocephalus atratus sp. nov.

(Figs. 1C, 2B, 3B & 4E–H)

Description. Body oblong and almost black. Vertex weakly produced anteriorly, provided with a brown transverse band at middle; posterior margin brown. Coronal suture distinct. Frontoclypeus provided with 2 transverse pale brown bands near anterior margin. Pronotum distinctly rugose. Fore wing brownish, semitransparent, provided with 2 pale markings at apical 1/3 of costal margin and several pale small spots near anterior end of claval suture. Fore leg brown; middle and hind legs black. Posterior margin of each abdominal sternum brown.

Male genitalia: Pygofer bearing distinct slender processes. Subgenital plate armed with about 10 macrosetae laterally. Apical dilated process of genital style short, pointed apically; subapical process having sinuate convex posterior margin in ventral aspect. Shaft of aedeagus slender and acute apically; socle 2/3 as long as shaft.

Body length: ♂, 4.1 mm; ♀, 4.2 mm.

Distribution. Japan (Ryukyus: Amami-Oshima Is.).

Holotype: ♂ (Type No. 2950, KUF.), Mt. Yuwandake, Amami-Oshima Is., Kagoshima Pref., 29. iii. 1992, S. KAMITANI. **Paratypes:** 1 ♀, Mt. Yuidake, Amami-Oshima Is., 1. iv. 1989, S. KAMITANI; 1 ♂, same locality, 29. iii. 1992, K. YOSHIZAWA.

Remarks. This new species is easily distinguished from *X. bicolor* MATSUMURA by the transverse pale brown bands on the frontoclypeus, pale spots of the fore wing, short apical process of the style, sinuate convex posterior margin from the subapical process of style, etc.

***Xestocephalus iguchii* MATSUMURA, 1914**

(Figs. 1D, 2C & 5)

Xestocephalus iguchii MATSUMURA, 1914, J. Coll. Agr. Tohoku Imp. Univ., 5: 202; ESAKI & ITO, 1954, Tent. Cat. Jassoidea Jpn., p. 86; ISHIHARA, 1961, Trans. Shikoku ent. Soc., 7: 22; ISHIHARA, 1965, Icon. Ins. Jpn. Col. nat. edi., 3: 120, pl. 60, fig. 12.

Redescription. Body slender and light brown. Vertex slightly produced anteriad, narrower than pronotum, provided with a black transverse band near anterior margin reduced at middle and with several black spots transversely on middle of vertex. Ocellocular area provided with a dark brown band along anterior margin. Frontoclypeus sometimes provided with several transverse black bands. Pronotum distinctly rugose, provided with dark brown irregularly shaped markings along anterior margin (Fig. 2C). Scutellum black, furnished with brown basal and apical corners. Fore wing semitransparent, provided with many black markings especially on apical 1/2. Thorax dark brown. Abdomen black; 7th sternum light brown in male. Male pygofer and subgenital plate black; female pygofer light brown; 3rd valvula black.

Male genitalia: Pygofer bearing spinose lobe posteriorly (Fig. 5A) and

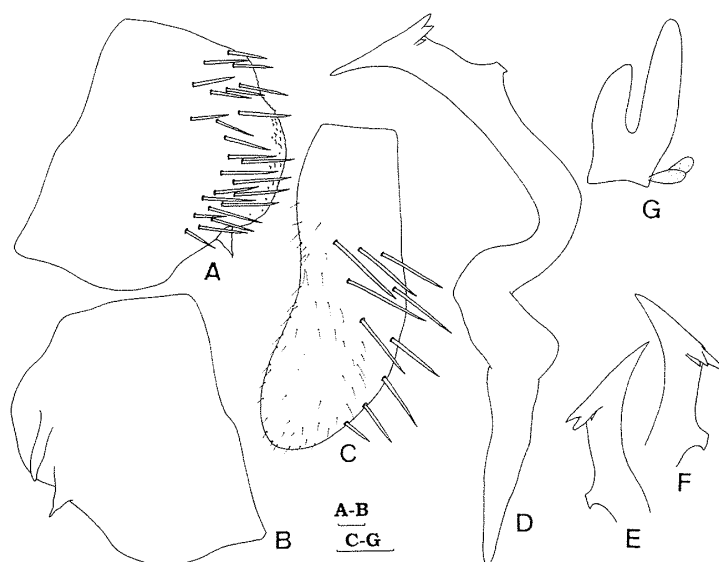


Fig. 5. Male genitalia of *Xestocephalus iguchii*. A, outer surface of pygofer; B, inner surface of pygofer; C, left subgenital plate in ventral view; D-F, style in dorsal view (D & F, right style; E, left style); G, aedeagus in lateral view. Scales: 0.1 mm.

rather long setae on ventral 1/2; dorsal process long and slender; ventral process subtriangular. Subapical dilated process of style trapezoid; outer edge straight. Aedeagal shaft slender and provided with blunt apex.

Body length: ♂, 4.0–4.2 mm; ♀, 4.4–4.7 mm.

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

Specimens examined. Lectotype: ♀, Japan, *Iguchii* / 7. v. 1912 / *X. iguchii* / 60 / Type MATSUMURA (red label) (HUS). Paralectotype: 1 ♀, Japan, MATSUMURA / Jozankei, mid-May. 1911 (the data written in Japanese) (HUS). The specimen with type-label which is collected by S. IGUCHI, is selected as the lectotype. Additional specimens: [Hokkaido] 1 ♀, Shiriuchi. [Honshu] 3 ♀, Touno, Mitamori, Iwate Pref.; 2♂22 ♀, Nippara, Oku-Tama, Tokyo Met.; 29 ♀, Jinmuji, Zushi, Kanagawa Pref.; 1♂, Motosu (930 m), Mt. Fuji, Yamanashi Pref.; 56 ♀, Tenkawa, Nara Pref.; 1♂1 ♀, Kanagi, Shimane Pref. [Shikoku] 2 ♀, Hiratani, Higashiiyayama, Tokushima Pref.; 1♂5 ♀, Omogo Valley, Ehime Pref.; 1♂, Ashizuri, Kochi Pref.; 4♂, Kuroson, Kochi Pref. [Kyushu] 15 ♀, Mt. Hiko, Fukuoka Pref.; 31♂12 ♀, Fukakura Valley, Mt. Hiko, Fukuoka Pref.; 5♂, Buzenbo, Mt. Hiko, Fukuoka Pref.; 13 ♀, Ino, Hisayama, Fukuoka Pref.; 1♂, Mt. Wakasugi, Fukuoka Pref.; 74♂47 ♀, Taku, Saga Pref.; 2 ♀, Mt. Fugen, Nagasaki Pref.; 2♂, Iwashita, Yabakei, Oita Pref.; 1♂1 ♀, Daimyosha (900 m), Oita Pref.; 1♂10 ♀, Mitate (600 m), Hinokage, Miyazaki Pref.; 4♂24 ♀, Shin-hata (200 m), Hinokage, Miyazaki Pref.; 5♂12 ♀, Shiiba, Miyazaki Pref.; 2♂5 ♀, Kirei-tôge (700 m), Suki, Miyazaki Pref.; 22♂4 ♀, Kibayashiki (400 m), Suki, Miyazaki Pref.; 37♂28 ♀, Mt. Wanitsuka (200–400 m), Miyazaki Pref.; 2 ♀, same locality (400–1,000 m), 3. v. 1991; 13♂6 ♀, Mt. Hoyoshidake, Kagoshima Pref.

Remarks. The coloration of abdomen is more or less different by sexes; blackish in male and light brownish in female. This leafhopper is recorded from Kyushu for the first time.

Xestocephalus nikkoensis MATSUMURA, 1914

(Figs. 1E–F, 2D, 6A–B & 7)

Xestocephalus nikkoensis MATSUMURA, 1914, J. Coll. Agr. Tohoku Imp. Univ., 5: 200; ESAKI & ITO, 1954, Tent. Cat. Jassoidea Jpn., p. 87.

Xestocephalus shikokuanus ISHIHARA, 1961, Trans. Shikoku ent. Soc., 7: 23; ISHIHARA, 1965, Icon. Ins. Jpn.. Col. nat. edi., 3: 119, pl. 60, fig. 9. *Syn. nov.*

Redescription. Coloration: *Male*. Body black. Vertex furnished with a light brown spot on middle of anterior margin, and with a light brown spot near eye and light brown posterior margin. Frontoclypeus furnished with a light brown spot centrally at anterior margin. Lateral margin of gena usually light brown. Pronotum provided with 4 brown spots along anterior margin and brown

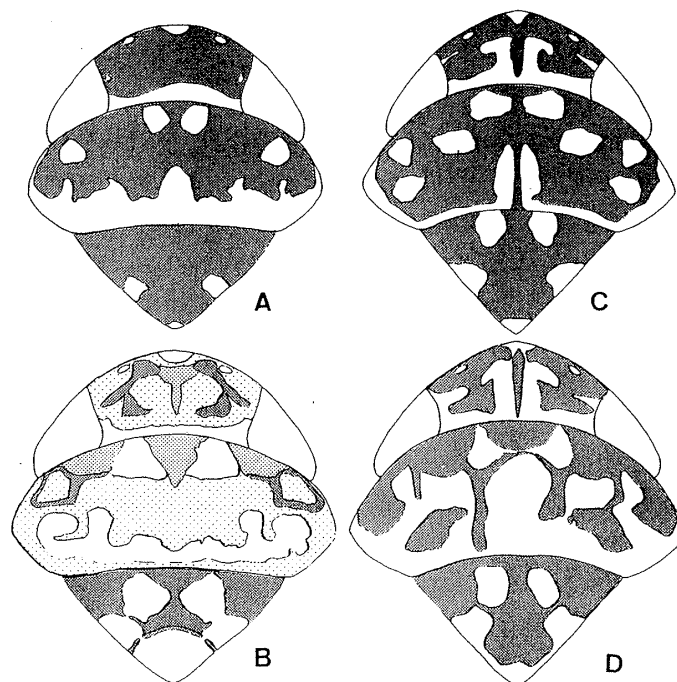


Fig. 6. Color pattern of head, pronotum and scutellum. A-B, *Xestocephalus nikkoensis*; C-D, *X. obscurus*.

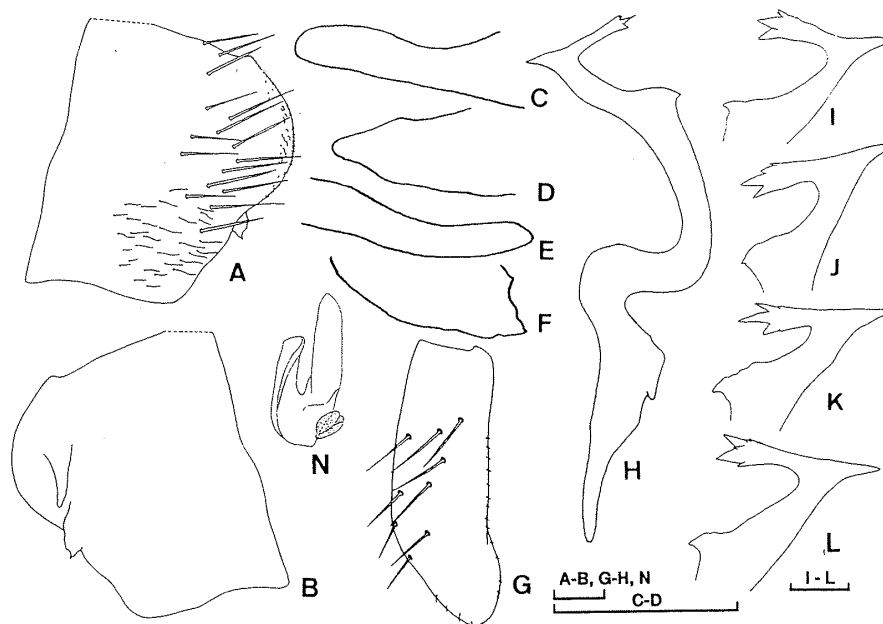


Fig. 7. Male genitalia of *Xestocephalus nikkoensis*. A, outer surface of pygofer; B, inner surface of pygofer; C & F, dorsal internal process of pygofer; D & E, ventral internal process; G, left subgenital plate in ventral view; H-M, style in dorsal view; H & M, right style; I-L, left style; N, aedeagus in lateral view. Scales: 0.1 mm.

posterior margin. Scutellum provided with light brown spots near both ends of scutal suture and at posterior corner. Fore wing light brown, furnished with black markings along veins.

Female. Vertex dark brown, provided with a pair of large black markings medially and with pale posterior margin. Pronotum dark brown, furnished with a ring-like black marking near eye, with a pair of large light brown spots near anteromedian margin and with a broad light brown band near posterior margin. Scutellum provided with 2 large light brown spots centrally. Fore wing brownish, semihyaline, narrowly blackened along cross veins.

Structure: Body oblong-oval in male and oblong in female. Head slightly rounded anteriorly in male and produced triangularly in female. Pronotum short laterally. Fore wing furnished with inner anteapical cell basally closed.

Male genitalia: Pygofer furnished with serrated lobe near posterior margin (Fig. 7A); dorsal process widened basad, tapering apicad; ventral process short, 2/3 times as long as dorsal one. Apical dilated process of style elongate, splitted apically; subapical one with acute apex.

Body length: ♂, 4.1–4.2 mm; ♀, 4.5–4.7 mm.

Distribution. Japan (Honshu, Shikoku, Kyushu).

Specimens examined. Lectotype: ♂, Nikko, MATSUMURA / Chuzenji (the data written in Japanese), 6–31. vi. 1911 / *X. nikkoensis*, det. MATSUMURA / Type MATSUMURA (red label) (HUS). Paralectotypes: 5♂5♀, same data as lectotype. Additional specimens: [Honshu] 15♂, Kayano-chaya, Aomori, Aomori Pref.; 6♀, Akanezawa, Aomori Pref.; 1♂1♀, Mitsumenai-gawa, Aomori Pref.; 7♀, Warisawa, Aomori Pref.; 5♀, Tsuta, Aomori Pref.; 1♀, Hachoboshi, Aomori Pref.; 1♂, Imaizumi, Iwate Pref.; 1♀, Kadoma, Mt. Hayachine, Iwate Pref.; 6♂16♀, Mt. Hayachine, Iwate Pref.; 1♂, Futase (560 m), Oku-Chichibu Mts., Saitama Pref.; 1♂2♀, Irikawa Valley (700–750 m), Oku-Chichibu Mts., Saitama Pref.; 6♂9♀, Takayama~Kabasaka, Oku-Musashi Mts., Saitama Pref.; 1♂14♀, Mikuni Pass~Akuseki (1,720–1,850 m), Oku-Chichibu Mts., Saitama / Nagano Pref's.; 3♂7♀, Mt. Jômine (930–1,030 m), Saitama Pref.; 1♂1♀, Nakatsugawa For. Rd., Oku-Chichibu Mts., Saitama Pref.; 2♀, Shôji (920 m), Mt. Fuji, Yamanashi Pref.; 1♀, Motosu (930 m), Mt. Fuji, Yamanashi Pref.; 10♀, Mt. Mitsu-tôge, Yamanashi Pref.; 14♀, Nippara, Oku-Tama, Tokyo Met.; 1♂1♀, Mt. Jinba, Tokyo Pref.; 2♂24♀, Mitsumata (1,170 m), Horigane, Nagano Pref.; 2♂10♀, Mt. Ontake (1,100 m), Nagano Pref.; 14♀, Akasawa (950 m), Nagano Pref.; 1♂, Mt. Saburo-dake, Shizuoka Pref.; 3♂10♀, Menno-ki-tôge (1,100 m), Aichi Pref.; 46♂36♀, Ôdaigahara (1,500 m), Nara Pref.; 1♀, Saigo, Oki Is., Shimane Pref.; 1♂, Tsuma, Oki Is., Shimane Pref. [Shikoku] 1♂, Kuroson, Kochi Pref.; 8♀, Hiratani (800 m), Higashiiyayama, Tokushima Pref.; 43♂21♀, Mt. Tsurugi, Tokushima Pref.; 2♂6♀, Omogo Valley, Ehime Pref.; 1♀, Naose, Ehime Pref.; 1♀, Mt. Ishizuchi, Ehime Pref.; 1♀, Mt. Takanawa,

Saijo, Ehime Pref. [Kyushu] 12♂3♀, Mt. Hiko, Fukuoka Pref.; 2♂12♀, Buzenbo, Mt. Hiko, Fukuoka Pref.; 2♂17♀, Fukakura Valley, Mt. Hiko, Fukuoka Pref.; 40♂27♀, Mt. Sefuri, Fukuoka Pref.; 6♀, Mt. Sobo, Miyazaki Pref.; 4♂22♀, Mt. Shiratori (1,300 m), Izumi, Kumamoto Pref.

Remarks. This species exhibits sexual dimorphism in the body color; the coloration of vertex and pronotum, and shape of the pygofer and style in the male genitalia are variable as shown in Figs. 6 & 7. The style of the male genitalia is sometimes asymmetrical, but the typical form is as shown in Fig. 7H. The ventral process of the pygofer is also variable; it is truncate in most specimens from Honshu and Shikoku, while it becomes subtriangular in those from Kyushu.

The author examined the type specimens of both *X. nikkoensis* MATSUMURA and *X. shikokuanus* ISHIHARA, and concluded that the latter is only a variant of the former. Therefore, *X. shikokuanus* is proposed as a junior synonym of *nikkoensis*.

Xestocephalus obscurus sp. nov.

(Figs. 1G–H, 2E, 6C–D & 8)

Xestocephalus nikkoensis: ISHIHARA, 1961, Trans. Shikoku ent. Soc., 7: 22; ISHIHARA, 1965, Icon. Ins. Jpn. Col. nat. ed., 3: 120, pl. 60, fig. 11 (nec MATSUMURA, 1914).

Description. Body oblong and slender. Head light brown, weakly produced anteriorly, slightly narrower than pronotum, provided with black markings on apical 1/2. Frontoclypeus black and provided with a light brown band near anterior margin. Anteclypeus, gena and lorum black. Pronotum black and provided with 8 large light brown spots at central part which are sometimes fused to each other in female; latero-posterior margin provided with light brown markings. Scutellum black, provided with a large light brown spot near base of suture, 2 large light brown spots centrally and a light brown spot at posterior end. Fore wing blackish, provided with a narrow appendix.

Male genitalia: Pygofer furnished with slender dorsal process and with ventral process which is tapering toward apex. Style furnished with apical dilated process whose apex is multi-furcated; subapical one trapezoid, straightly on posterior margin.

Body length: ♂, 4.3–4.7 mm; ♀, 4.4–4.8 mm.

Distribution. Japan (Honshu, Shikoku, Kyushu).

Holotype: ♂ (Type No.2951, KUF), Buzenbo, Mt. Hiko, Fukuoka Pref., 10. v. 1991, S. KAMITANI. Paratypes: [Honshu] 2♀, Karasugawa, Horigane, Nagano Pref., 12. v. 1988, M. HAYASHI *et al.* (SUU); 1♀, Nippara, Oku-Tama, Tokyo Met., 31. v. 1984, same collector; 8♀, Motosu (930 m), Mt. Fuji, Yamanashi Pref., 21. vi. 1984, same collector; 1♂, Hirakura, Mie Pref., 3. v.

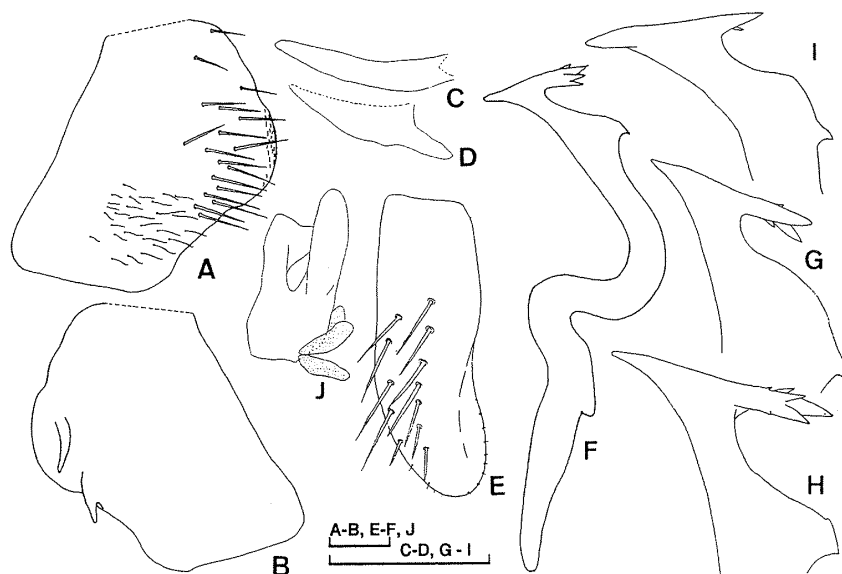


Fig. 8. Male genitalia of *Xestocephalus obscurus* sp. nov. A, outer surface of pygofer; B, inner surface of pygofer; C, dorsal internal process of pygofer; D, ventral internal process; E, left subgenital plate in ventral view; F-I, right style in dorsal view; J, aedeagus in lateral view. Scales: 0.1 mm.

1958, C. OKAWA (NSMT); 41 ♀, Ôdaigahara (900m), Nara Pref., 24. v. 1991, S. KAMITANI; 25 ♀, Tenkawa (500–750m), Nara Pref., 24. v. 1991, same collector; 3 ♀, Mt. Taisen (=Mt. Daisen), Tottori Pref., 3. vi. 1955, S. KIMOTO (KUF); 1 ♂, Kurihara, Sada, Shimane Pref., 3. v. 1991, T. NAKAMURA; 1 ♂ 4 ♀, Kanagi (400m), Kanagi, Shimane Pref., 9. v. 1991, T. NAKAMURA; 1 ♀, Mt. Garyu, Geihoku, Hiroshima Pref., 28. v. 1991, T. NAKAMURA. [Shikoku] 10 ♀, Hiratani (800m), Higashiiyayama, Tokushima Pref., 23. v. 1991, S. KAMITANI; 3 ♀, Tochikubotani (1,000m), Higashiiyayama, Tokushima Pref., 23. v. 1991, S. KAMITANI; 1 ♂ 31 ♀, Mt. Tsurugi, Tokushima Pref. (1,300–1,450m), 23. v. 1991; 3 ♀, Omogo Valley, Ehime Pref., same locality (600m), 22. v. 1991, S. KAMITANI; 1 ♀, same data except (1,300m), 22. v. 1991; 2 ♀, Mt. Takanawa, Saijo, Ehime Pref., 30. v. 1992, M. HAYASHI (SUU). [Kyushu] 2 ♀, Mt. Hiko, Fukuoka Pref., 12. v. 1953, Y. HIRASHIMA (KUF); 1 ♀, same locality, 17. v. 1955, T. HIDAKA (KUF); 1 ♀, Buzenbo, Mt. Hiko, Fukuoka Pref., 10. v. 1991, S. KAMITANI; 2 ♀, Daimyosha (900m), Oita Pref., 4. v. 1991, S. KAMITANI; 4 ♂, Obira, Takeda, Oita Pref., 2. v. 1994, S. KAMITANI; 1 ♂, Nakanouchi, Takachiho, Miyazaki Pref., 3. v. 1994, S. KAMITANI; 1 ♀, Mitate (900m), Hinokage, Miyazaki Pref., 5. v. 1991, S. KAMITANI; 8 ♂, Shiiba (600m), Miyazaki Pref., 4. v. 1991, S. KAMITANI; 2 ♂, Mt. Wanitsuka (400–1,000m), Miyazaki Pref., 3. v. 1991, S. KAMITANI; 6 ♀, Mt. Shiratori (800m), Izumi, Kumamoto Pref., 25–26. v. 1990, S. KAMITANI; 5 ♀, same locality (1,300m), 30. v. 1989, S. KAMITANI; 16 ♂ 46 ♀, same locality and collector, 25. v. 1990.

Remarks. This new species is similar to *X. nikkoensis* MATSUMURA, but is different in the body coloration and the shape of the male genitalia, especially in the tapering ventral process of the pygofer and straight subapical process of the style. The style of *obscurus* is somewhat variable in shape; the typical form is as shown in Fig. 8H.

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Image Database File TOBIKOBACHI, in a Taxon-based
Entomology Database KONCHU, Using Metallic
Optical Disk (Hymenoptera, Encyrtidae)¹⁾

Osamu TADAUCHI and Yoshimitsu HIGASHIURA

Entomological Laboratory, Faculty of Agriculture, Kyushu University,
Fukuoka, 812-81 Japan

Key words: image database; TOBIKOBACHI file; metallic optical disk; Hymenoptera;
Encyrtidae.

An image database file of Encyrtid wasps named TOBIKOBACHI in an entomology database KONCHU using metallic optical disks was produced. The KONCHU is a publically available entomology database including various files of bibliographical and image databases (TADAUCHI, 1987, 1994; TADAUCHI & TAKEMATSU, 1995).

The image file, TOBIKOBACHI, is based on Dr. T. Tachikawa's large collection of Chalcid specimens which was presented to Entomological Laboratory, Kyushu University. In the present work we produced one file based on the slide mounted specimens of Japanese Encyrtidae.

One record treated in the TOBIKOBACHI is made for a total image or one or some parts of a specimen. It consists of one image and 15 literal data as follows: 1) image no.; 2) family name; 3) generic name (scientific name); 4) specific name (scientific name); 5) author and year; 6) taxon name (Japanese name); 7) locality; 8) collecting date; 9) collector; 10) sex; 11) name of part(s) of the image; 12) host; 13) name of plant collected on; 14) designation of type; 15) note.

¹⁾ Contribution from the Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka (Ser. 4, No. 99).