Bull. Natl. Mus. Nat. Sci., Ser. A, 46(4), pp. 183–202, November 20, 2020

Taxonomic Notes and New Distribution and Host Plant Records for Sawflies and Woodwasps (Hymenoptera, Symphyta) of Japan V

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(Received 24 August 2020; accepted 23 September 2020)

Abstract *Aglaostigma kawazoei* Togashi, 2007 (Tenthredinidae) is a new synonym of *Aglaostigma amoorense* (Cameron, 1876). *Euura damnacanti* (Takeuchi, 1922) (Tenthredinidae) is redescribed and a lectotype is designated. *Euura longa* (Takeuchi, 1952) is redescribed and divided into two subspecies, *E. longa longa* (Takeuchi, 1952) from Honshu and *E. longa shiretoko* Hara and Shinohara, subsp. nov. from Hokkaido. New host records are: *Betula platyphylla* Sukaczev var. *japonica* (Miq.) H. Hara (Betulaceae) and *Lithocarpus edulis* (Makino) Nakai (Fagaceae) for *Tremex apicalis* Matsumura, 1912 (Siricidae), *Quercus crispula* Blume (Fagaceae) for *Periclista erythrogramma* Togashi, 1999 (Tenthredinidae) and *Leucaena leucocephala* (Lam.) de Wit. (Fabaceae) for *Lataxiphyda nodai* (Togashi, 1982) and *Kalopanax septemlobus* (Thunb.) Koidz. (Araliaceae) for *Xiphydria ogasawarai* Matsumura, 1927 (Xiphydriidae). New distribution records are: *Aglaostigma naitoi* Togashi, 1972 (Tenthredinidae) from Kyushu and *Aglaostigma yasumatsui* Togashi, 1970, *Euura tibialis* (Newman, 1837) and *Periclista erythrogramma* Togashi, 1999 (Tenthredinidae) from Hokkaido. New collection records are given for two rare species, *Xiphydria kanba* Shinohara, Hara & Smith, 2020 (Xiphydriidae) and *Xyela kamtshatica* Gussakovskij, 1935 (Xyelidae), and a "drumming" behavior of the male is newly recorded for *Xiphydria ogasawarai* (Xiphydriidae).

Key words: Siricidae, Tenthredinidae, Xiphydriidae, Xyelidae, new synonym, lectotype designation, new subspecies, new distribution records, new host plant records, "drumming" behavior.

Introduction

This is a fifth of a series of papers, where various notes are given about the taxonomy, distribution and biology of sawflies and woodwasps occurring in Japan. Recent knowledge of the diversity of these insects was summarized in a Catalog (Hara *et al.*, 2019) and a Zukan, or an illustrated reference book (Naito *et al.*, 2020), but the information included in those publications was that published elsewhere before early autumn of 2019. Since that period, several papers treating Japanese Symphyta have been published (Park *et al.*, 2019; Hara and Ibuki, 2020; Hara *et al.*, 2020; Shinohara, 2020a; Shinohara and Smith, 2020; Shinohara and Yamasako, 2020; Shinohara *et al.*, 2020a, b) including descriptions of ten new species.

Here we treat 13 species of the families Siricidae, Tenthredinidae, Xiphydriidae and Xyelidae. We propose a new synonym, describe a new subspecies, designate a lectotype and redescribe two little-known species based on the type material in the Tenthredinidae. Other new findings include new host records for four species of Siricidae, Tenthredinidae and Xiphydriidae and new distribution records for four species of Tenthredinidae from Kyushu and Hokkaido. We also give new

collection records for two rare species of Xiphydriidae and Xyelidae and report on a peculiar "drumming" behavior of the male of *Xiphydria ogasawarai* Matsumura, 1927 (Xiphydriidae).

Material and methods

The material used in this study is kept in the National Museum of Nature and Science, Tsukuba, unless otherwise indicated. Morphological examination was undertaken with a Leica MS5 and an Olympus SZ60 stereo binocular microscopes and Olympus BH-2 light microscope. Photographs were taken with an Olympus TG-4 digital camera (Fig. 1A–B) and an Olympus TG-5 digital camera (Figs. 1C–D, F–M, 3G–N) and a Sony DSC-RX100 digital camera with a Leica MS5 and an Olympus BH-2 light microscope (Figs. 1E, 2, 3A–F, 4–6). The digital images were processed and arranged with GIMP 2.10 and Adobe Photoshop Elements 8 and 15® software. For the morphological terminology, we generally follow Viitasaari (2002).

Results and discussion

Siricidae

Tremex apicalis Matsumura, 1912
(Fig. 1A–B)

Tremex apicalis Matsumura, 1912: 23; Maa, 1949: 140; Okutani, 1967a: 44; Smith, 1978: 93; Abe and Togashi, 1989: 558; Naito *et al.*, 2004: 68; Taeger *et al.*, 2010: 107; Kuramitsu *et al.*, 2019: 37; Naito, 2019a: 19; Naito, 2020b: 181, 467.

Material examined. HOKKAIDO: 2 ♀2 ♂, Minamichitose, 42°48′47″N 141°40′11″E, ca. 16 m alt., Chitose, on *Betula platyphylla* var. *japonica*, 12. VI. 2019, A. Shinohara; 1 ♀1 ♂, same locality, on *Betula platyphylla* var. *japonica*, 25. VI. 2020, H. Hara. HONSHU: Ibaraki Pref.: 2 ♀10 ♂, Sengen, 36°4′10″N 140°7′17″E, 23 m, Tsukuba, on *Lithocarpus edulis*, 10. V. 2020, A. Shinohara; 4 ♀16 ♂, same data, 11. V. 2020; 4 ♀2 ♂, same data, 12. V. 2020; 3 ♀1 ♂, same data, 14. V. 2020.

Distribution. Japan: Hokkaido, Honshu, Shikoku, Kyushu. Korea. China. Russia: Sakhalin, Siberia.

Host plants. Cornaceae: *Swida macrophylla* (Wall.). Eupteleaceae: *Euptelea polyandra* Sieb. et Zucc. Fagaceae: *Quercus myrsinifolia* Blume. Magnoliaceae: *Magnolia liliiflora* Desr. Oleaceae: *Fraxinus spaethiana* Lingelsh. Rosaceae: *Cerasus×yedoensis* (Matsum.) Masam. et S. Suzuki. Salicaceae: *Populus* sp. Sapindaceae: *Acer* spp. (Maa, 1949; Okutani, 1967a; Kuramitsu *et al.*, 2019). Betulaceae: *Betula platyphylla* Sukaczev var. *japonica* (Miq.) H. Hara (new record). Fagaceae: *Lithocarpus edulis* (Makino) Nakai (new record).

Remarks. The specimens listed above were found on the trunk of a dead standing tree of *Betula platyphylla* var. *japonica* in Chitose and on the trunk of a half dead tree of *Lithocarpus edulis* in Tsukuba (Fig. 1A–B). Some of the females were ovipositing on the trees and dead and broken bodies of some females were also found on the same trees. This is the first record of *Betula* (Betulaceae) and *Lithocarpus* (Fagaceae) as host plants of this species. *Tremex apicalis* is quite polyphagous, but Matsumura's (1912) record of *Abies* ("the larvae bore in the stem of *Abies sachalinensis*", p. 24) is doubtful.

Tenthredinidae

Aglaostigma amoorense (Cameron, 1876)

Tenthredo amoorensis Cameron, 1876: 466.
Aglaostigma amoorensis: Takeuchi, 1952: 21; Togashi, 1961: 33; Okutani, 1967b: 97; Abe and Togashi, 1989: 545; Naito *et al.*, 2004: 42.
Aglaostigma kawazoei Togashi, 2007: 657; Taeger *et al.*, 2010: 545; Shinohara, 2019e: 98; Shinohara, 2020c: 407. New synonym.
Aglaostigma (*Aglaostigma*) *amoorense*: Taeger *et al.*, 2010: 542; Sundukov, 2017: 83.
Aglaostigma amoorense: Shinohara, 2019e: 97; Shinohara, 2020c: 129, 409.

Material examined. HONSHU: Mie Pref.: ♀ (holotype of *Aglaostigma kawazoei*), "Fit [trap], Kameyama-shi, Asakayama-cho, Nonobari-yama, 21-IV-2005, coll. M. Inagaki" "Holotype, *Aglaostigma kawazoei* n. sp." "NSMT-HYM

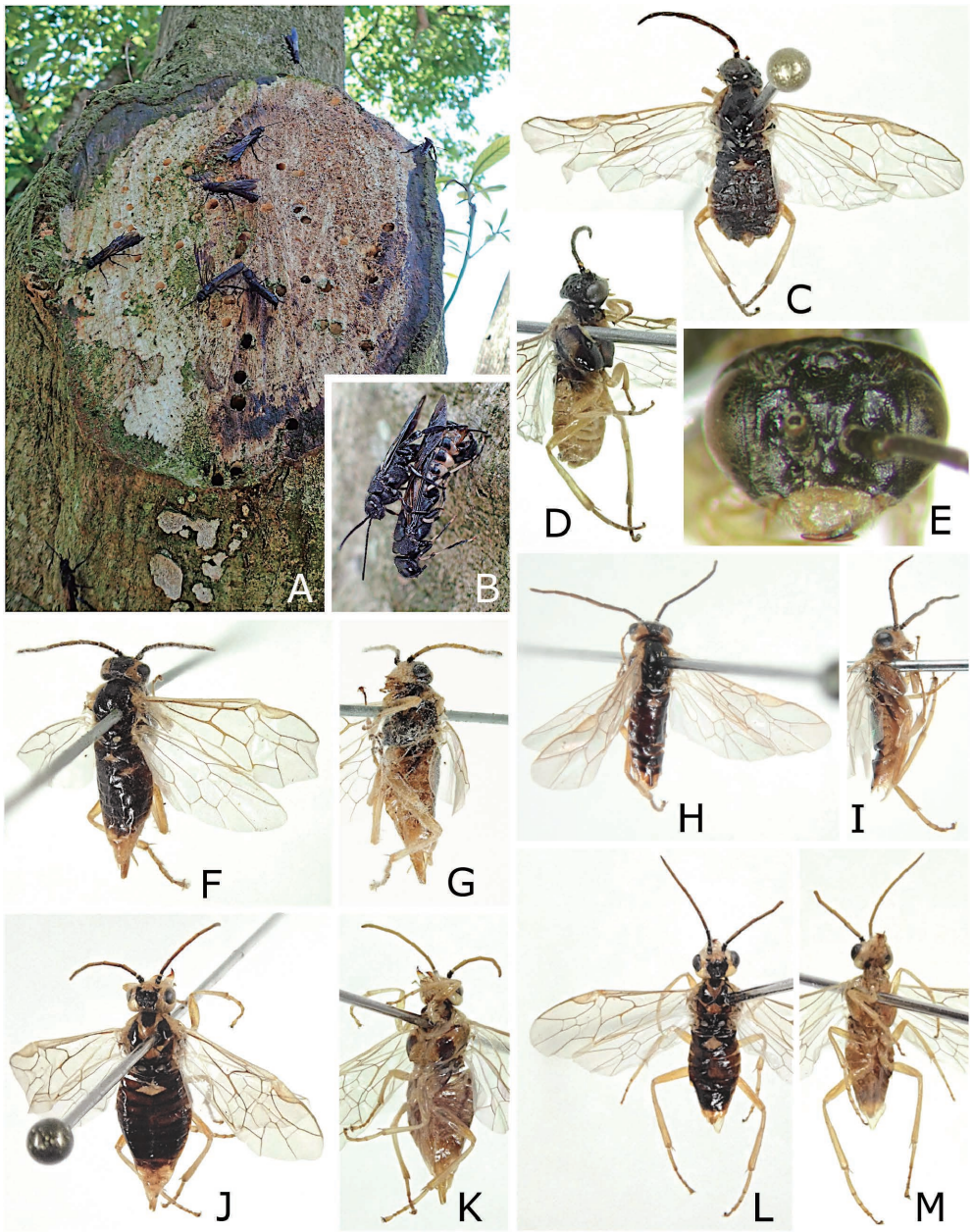

Fig. 1. A–B, *Tremex apicalis*: A, several male adults on the trunk of *Lithocarpus edulis*; B, a male adult on the same tree trying to copulate with an already dead and half broken body of a female adult. Photographed in Tsukuba on May 10 and 11, 2020, by A. Shinohara. C–E, *Euura damnacanti*, female, lectotype: C–D, dorsal, ventrolateral view; E, head, frontal view. F–I, *Euura longa longa*: F–G, female, dorsolateral, ventrolateral view, holotype; H–I, male, dorsolateral, lateral view, paratype, Mt. Hakuba. J–M, *Euura longa shiretoko*: J–K, female, dorsal, ventrolateral view, holotype; L–M, male, dorsal, ventrolateral view, paratype. Photographed by H. Hara.

62204"; 1 ♂ (paratype of *Aglaostigma kawazoei*), same data, "Paratype, *Aglaostigma kawazoei* n. sp." "NSMT-HYM 62206"; 1 ♀ (paratype of *Aglaostigma kawazoei*), same data except coll. A. Kawazoe, "Paratype, *Aglaostigma kawazoei* n. sp." "NSMT-HYM 62205".

Distribution. Japan: Honshu. Korea. China. Russia: Far East, Siberia (Shinohara, 2019e).

Remarks. Togashi (2007) distinguished *A. kawazoei* from *A. amoorense* by the venational characters of the fore and hind wings, the shape of the tarsal claws and the inner tibial spur, and the color of the mesepisternum. By examining the type series of *A. kawazoei* and over 50 specimens of *A. amoorense*, we confirmed that the given differences were within the range of intraspecific individual variations and we here propose to treat them as synonyms.

Aglaostigma naitoi Togashi, 1972

Aglaostigma naitoi Togashi, 1972: 81; Abe and Togashi, 1989: 546; Shinohara, 2019e: 98; Shinohara, 2020c: 407.

Material examined. HONSHU: Gunma Pref.: 1 ♀, Nidoage, 1200 m, 5. VII. 1967, M. Nishikawa (Y. Kato collection). Nagano Pref.: 1 ♀, "Shimashima-dani, 4. VI. 1933, Y. Nakajima". Hiroshima Pref.: 1 ♀, "12. VI. 1937, Mt. Kanmuri, Hirosima, Takeuchi/coll. T. Nakanishi" "*Aglaostigma nakanishii* n. sp." "*Aglaostigma naitoi* Togashi, Paratype". SHIKOKU: Tokushima Pref.: ♀ (holotype), "1. VI. 1950, Mt. Tsurugi, Awa, Takeuchi/S. Isshiki, S. Ito" "*Aglaostigma naitoi* Togashi, Holotype". KYUSHU: Oita Pref.: 1 ♀, Mt. Kurodake, 900–1100 m, Kujusan Mts., 18–19. V. 1997, A Shinohara.

Distribution. Japan: Honshu, Shikoku (Togashi, 1972), Kyushu (new record).

Remarks. *Aglaostigma naitoi* was described from three females collected in Shikoku (Tokushima Prefecture) and western Honshu (Hiroshima Prefecture) (Togashi, 1972) and no additional collection records have been published thereafter. This is the first record from central Honshu (Gunma and Nagano Prefectures) and Kyushu (Oita Prefecture). The five specimens available show small variation. The pale mark on the mesoscutellum is large and covers most of the mesoscutellum in the Kyushu specimen, whereas it is missing in the Gunma specimen and it is small and near its posterior margin in the remaining three specimens. The Gunma specimen is not in good condition, very dark and possibly discolored, with no distinct pale marks on the head.

Aglaostigma yasumatsui Togashi, 1970

Aglaostigma yasumatsui Togashi, 1970: 2; Abe and Togashi, 1989: 546; Shinohara, 2019e: 98; Shinohara, 2020c: 130, 409.

Material examined. HOKKAIDO: 1 ♀1 ♂, Hobetsu-cho, Iburi, 16. VI. 1997, H. Hara. HONSHU: Tokyo Met.: 1 ♀, Kamiange, Mt. Jinbayama, 6. V. 1991, A. Shinohara; 1 ♀, same data except 17. V. 1992; 1 ♂, Nippara, Okutama, 26. V. 1974, A. Shinohara. Niigata Pref.: 1 ♀, Renge-onsen, Itoigawa, 24. VII. 1984, A. Shinohara. Yamanashi Pref.: 1 ♂, Koganezawa, 26. V. 1974, K. Kimura. Ishikawa Pref: 1 ♀ (paratype), Mt. Haku, 4. VII. 1966, I. Togashi. Nagano Pref.: 1 ♀, Shimashima, 23. V. 1985, A. Shinohara; 4 ♀5 ♂, Tobira-onsen, 24 − 31. V. 1985, A. Shinohara; 1 ♂, Misayama-toge, nr. Kakeyu, 29. V. 1981, A. Shinohara; 1 ♀1 ♂, Oshirakawa-rindo, Azumi-mura, 4. VI. 1990, A. Shinohara; 1 ♀, Maekawado, Azumi-mura, Nagano, 5. VI. 1990, A. Shinohara. Gifu Pref.: 1 ♂, Hikagedaira, Takayama, 11. VI. 1980, E. Nishida.

Distribution. Japan: Hokkaido (new record), Honshu (Togashi, 1970).

Remarks. This species has been recorded from Ishikawa and Nagano Prefectures, Honshu (Togashi, 1970; Shinohara, 2020c) and this is the first record from Hokkaido and Tokyo Metropolis and Niigata and Yamanashi Prefectures, Honshu. The Hokkaido specimens show no conspicuous differences from the Honshu specimens examined.

Euura damnacanti (Takeuchi, 1922)
(Figs. 1C–E, 2)

Pteronidea damnacanti Takeuchi, 1922: 77, 80; Watanabe, 1937: 7; Shiraki, 1952, Vol. 5: 96; Takeuchi, 1952: 69; Shiraki, 1954: 558.

Nematus damnacanti: Okutani, 1967b: 93; Abe and Togashi, 1989: 552; Taeger *et al.*, 2010: 429.

Euura damnacanti: Shinohara and Hara, 2015: 173; Hara, 2019: 72.

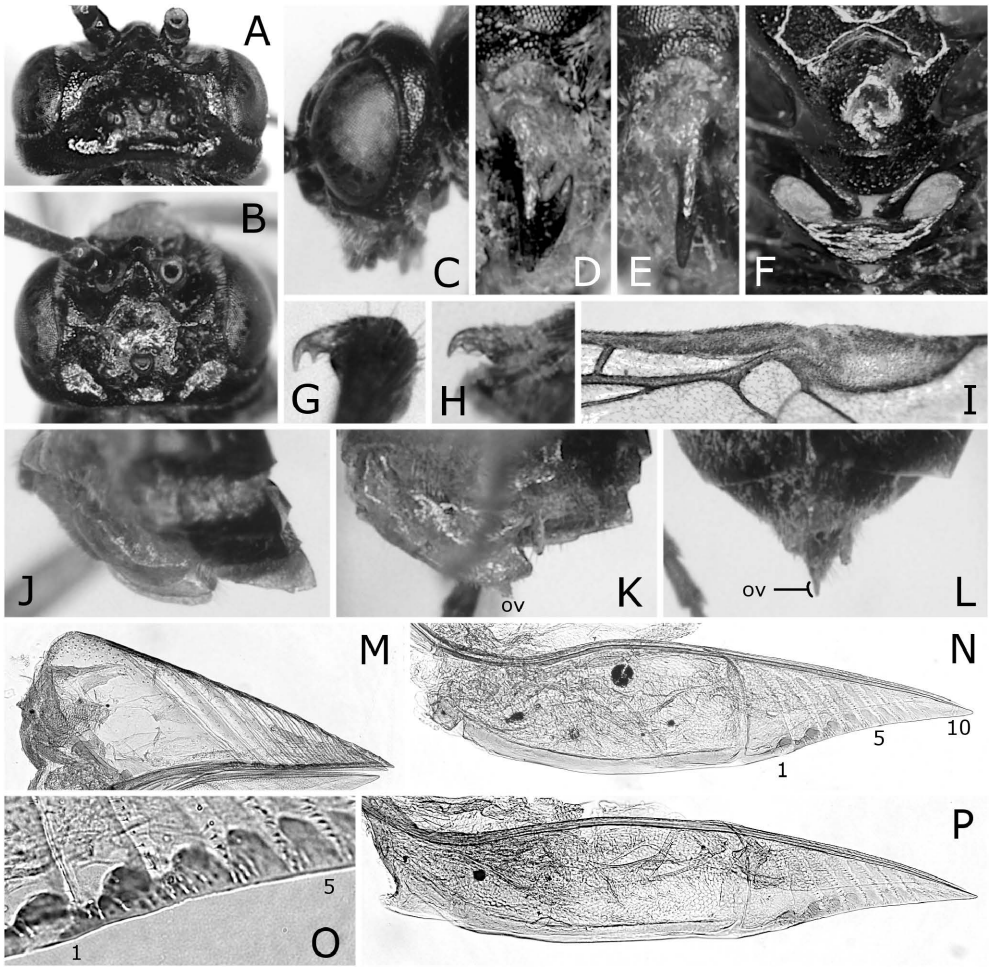

Fig. 2. *Euura damnacanti*, female: A–C, head, dorsal, frontodorsal, lateral view; D, right mandible, outer view; E, left mandible, outer view; F, posterior part of thorax, dorsal view; G–H, claw; I, antero-middle part of fore wing; J–K, apex of abdomen, lateral view (ov = ovipositor protruding from ovipositor sheath); L, apex of abdomen, dorsal view (ov, same as above); M, lance; N–P, lancet (1, 5, 10 = first, fifth, tenth annulus). A–G, I, J, M–O, Lectotype; H, paralectotype, Gifu; K–L, Gifu; P, paralectotype, "Minomo". Photographed by H. Hara.

Redescription, *female* (Fig. 1C–E). Length 6–7 mm. Black. Head yellow on clypeus except for dorsolateral area, labrum, mandible except for reddish brown apical half, and maxillary and labial palpi. Thorax brown yellow on narrow lateral area of median mesoscutal lobe and large dorsal area of mesepisternum, yellow on pronotum except for narrow medial and ventral areas, tegula and postspiracular sclerite. Legs brown yellow; narrow bases of coxae black; apices of fore and middle tarsi, apex of hind tibia and hind tarsus brown. Wings slightly yellowish; stigma brown yellow, marginally dark brown; veins mostly dark brown. Abdomen yellow laterally, ventrally and on tenth tergum, cercus and ovipositor sheath.

Head in dorsal view slightly dilated behind eye, with length behind eye 0.4–0.5 × eye length (Fig. 2A); length behind lateral ocellus 1.7–2.2 × length of lateral ocellus. Postocellar area moderately or markedly convex, with anterior margin dull and lateral furrow short. OOL:POL:OCL 0.9–1.1:1.0:0.8–0.9. Frontal area widest at somewhat posterior to middle between frontal pit and

median ocellus in frontodorsal view (Fig. 2B), with very shallow concavity before median ocellus; lateral ridge weak; anterior ridge medially shallowly concave or not. Distinct transverse ridge present above dorsal tentorial macula (Fig. 2B). Frontal pit long oval, large and deep. Distance between eyes at torulus 1.2–1.3 × eye height (Fig. 1E). Torulus wholly surrounded by narrow ridge. Paraantennal field setose except for glabrous medial third, with longitudinal ridge along inner margin of eye (Fig. 1E). Supraclypeal area distinctly swollen. Clypeus with width 2.5–2.7 × maximum height, deeply emarginate ventrally; maximum height 1.0–1.2 × torulus height; depth of ventral emargination 0.6–1.0 × median height of clypeus. Malar space 0.6–0.7 × as long as median ocellus width. Distinct furrow present along outer margin of eye (Fig. 2C). Antenna 2.3–2.4 × as long as head width; flagellum very slightly tapering (Fig. 1C); first flagellomere 0.6–0.7 × as long as eye height; second flagellomere 1.1–1.2 × as long as first. Mandibles almost equal in length, each in outer view sharply tapering basally, with same or similar thickness on wide middle part and gradually tapering apically (Fig. 2D–E); basal outer surface slightly rounded or nearly flat. Maxillary palpus long, with second maxillary palpomere about 0.7 × as long as third and apical palpomere length 1.2–1.6 × torulus height.

Mesoscutellum gently roundly convex (Fig. 2F) or widely flattened centrally. Mesoscutellar appendage length 1.2–1.6 × short diameter of cenchrus. Metascutellum length 1.1–1.4 × short diameter of cenchrus. Mesepisternum with groove along anterior edge; this groove dorsally shortly extending into epicnemium. Ventral edge of epicnemium grooved. Katepimeron glabrous, with several setae along posterior edge and ventral area. Anterior fore tibial spur with velum. Hind tibia usual, in lateral view 0.7 × as broad as femur; posterior tibial spur 1.1–1.2 × as long as apical breadth of tibia, 0.4 × as long as first tarsomere. Hind tarsus 0.8–0.9 × as long as hind tibia. Claws with inner tooth hardly curved, rather long or short (Fig. 2G–H); depth of concavity between teeth 0.5–0.7 × distance between teeth. Fore wing with vein C swollen apically (Fig. 2I) and cell Sc 0.2–0.3 × as wide as vein C at level of base of vein Rs + M. Hind wing with section of vein 1A between cell 1A and crossvein cu-a 1.7–1.9 × as long as crossvein cu-a (Fig. 1C).

Abdomen with ninth tergum 0.3–0.5 × as long as eighth tergum at level of base of cercus, 0.6–1.5 × as long as eighth tergum at level of eighth spiracle (Fig. 2J–K). Cercus about 2–3 × as long as wide, posteriorly not extending beyond ovipositor sheath. Ovipositor sheath about 0.2–0.3 × as long as abdomen, 0.4 × as long as hind tibia; each apical sheath in lateral view with apex sharply rounded or nearly pointed, dorsal margin short and almost straight and ventral margin rounded, sometimes slightly concave near apex (Fig. 2J–K), in dorsal view tapering apically, with basal width about as long as or slightly longer than cercus width (Fig. 2L). Lance annulated on apical two thirds (Fig. 2M); annuli distinctly oblique. Lancet with radix about 1.4 × as long as lamnium (Fig. 2N, P); lamnium with about 10 annuli; annuli except for most basal and apical ones each with row of minute ctenidial teeth along anterior margin (Fig. 2O); rows of ctenidial teeth oblique with ventral ends located posterior to dorsal ends; serrulae flat, with minute denticles; tangium without sensilla.

Punctures inconspicuous or fine. Head capsule finely rough, dorsally rather smooth. Thorax mostly smooth; pronotum rough; scutum slightly rough; posterolateral sunken area of mesoscutum entirely smooth; mesopostnotum microsculptured; metapostnotum smooth; mesepisternum mostly glabrous on ventral half. Abdomen microsculptured.

Male. Unknown.

Material examined. Lectotype (here designated) (Fig. 1C–E): ♀, “30, IV, 1921 Katayama Takeuchi”, “*Pteronidea damnacanti* Takeu Type”. Paralectotypes: 1 ♀, “17, IV, 1920 Minomo Takeuchi”; 1 ♀, “19, IV, 1920 Gifu Takeuchi”; 1 ♀, “30, IV, 1921 Katayama Takeuchi”, “[Aritoshi-habachi (in Japanese)]”. Other material examined: 1 ♀, “5, V, 1921 Gifu Takeuchi”,

"*Pteronidea damnacanti*".

Distribution. Japan: Honshu (Takeuchi, 1922).

Host plants. Rubiaceae: *Damnacanthus indicus* C. F. Gaertn. var. *indicus* (Takeuchi, 1922).

Life history. This species has one generation a year, and the adult appears in spring (Takeuchi, 1922).

Remarks. The original description of *Pteronidea damnacanti* Takeuchi, 1922 is too simple, and we here redescribe the sawfly in detail. The female ovipositor is described and figured for the first time.

Shinohara and Hara (2015) erroneously stated that this species went to the second half of the couplet 17 in the key by Prous *et al.* (2014). This species only goes to the couplet 6 in the key and does not agree with both halves of the couplet; the first half reads "Left mandible markedly constricted near middle and right mandible tapered regularly towards apex" and the second half "Left and right mandible both tapered regularly towards apex". This species has the left and right mandibles both swollen and sharply tapering on the base, thin from the middle to the apex, and with almost the same thickness on the wide middle part (Fig. 2D–E). Although we placed this species in *Euura* Newman, 1837 (Shinohara and Hara, 2015), the generic position needs revision.

In the keys by Zhelochovtsev and Zinovjev (1988), *P. damnacanti* goes to their "*Nematus*" but does not fit any of the subgenera, because this sawfly has the combination of a ventrally deeply emarginate clypeus (Fig. 1E), a relatively small inner tooth of the claws (Fig. 2G–H) and an apically broadened vein C in a forewing (Fig. 2I). "*Nematus*" of Zhelochovtsev and Zinovjev (1988) consists of the currently recognized genera *Euura*, *Nematus* Panzer, 1801, *Pristiphora* Latreille, 1810 and *Stauronematus* Benson, 1953. *Pteronidea damnacanti* is distinguished from *Pristiphora* by the tangium of the lancet without sensilla and from *Stauronematus* by the claws without a basal lobe (for the generic characters, see Prous *et al.*, 2014). This species probably belongs to *Euura* or *Nematus*, but we are not aware of any species of these genera closely similar to *E. damnacanti*. We retain this species in *Euura* until more information is available.

Euura damnacanti is rather unique in having a longitudinal ridge along the inner orbit (Fig. 1E), a bulging supraclypeal area (Fig. 1E), a distinct furrow along the outer orbit (Fig. 2C), the mandibles almost equal in length and both with the basal part sharply tapering and the wide middle part with almost the same thickness in the outer view (Fig. 2D–E), and a ventrally very widely glabrous mesepisternum. These features will distinguish this species from other species of *Euura* and its related genera.

In Takeuchi's collection now kept in the National Museum of Nature and Science, Tsukuba, there are four females under the card "Pteronidea damnacanti Tak." probably written by Takeuchi. One of them has the type label. We designate it as the lectotype. The type localities mentioned by Takeuchi (1922) are "[Honshu (Gifu-ken Yawata-mura, Settsu Minoo-koen) (in Japanese)]". "Katayama" and "Minomo" on the labels of the type specimens are within "[Yawata-mura]" and "[Minoo]", respectively. "[Ari-toshi-habachi]" means a sawfly of *Damnacanthus indicus* var. *indicus*.

We have also found one female with the data label agreeing with the original description and a label "*Pteronidea damnacanti*" probably written by Takeuchi in another place of Takeuchi's collection. It is not regarded as the type because Takeuchi (1922) wrote "Described from four females".

As the host plant of this sawfly, Shiraki (1954) gave *D. macrophyllus* Siebold ex Miq., but not *D. indicus* var. *indicus*, without any comment. This inexplicable treatment is probably a mistake.

Euura longa (Takeuchi, 1952)
(Figs. 1F–M, 3A–F, 4–5)

Decanematus longus Takeuchi, 1952: 67 [part]; Wong, 1968: 85, 86; Abe and Togashi, 1989: 548.

Amauronematus (*Brachycoluma*) *longus*: Taeger *et al.*, 2010: 388.

Euura longa: Shinohara and Hara, 2015: 174 [part]; Hara, 2019: 73.

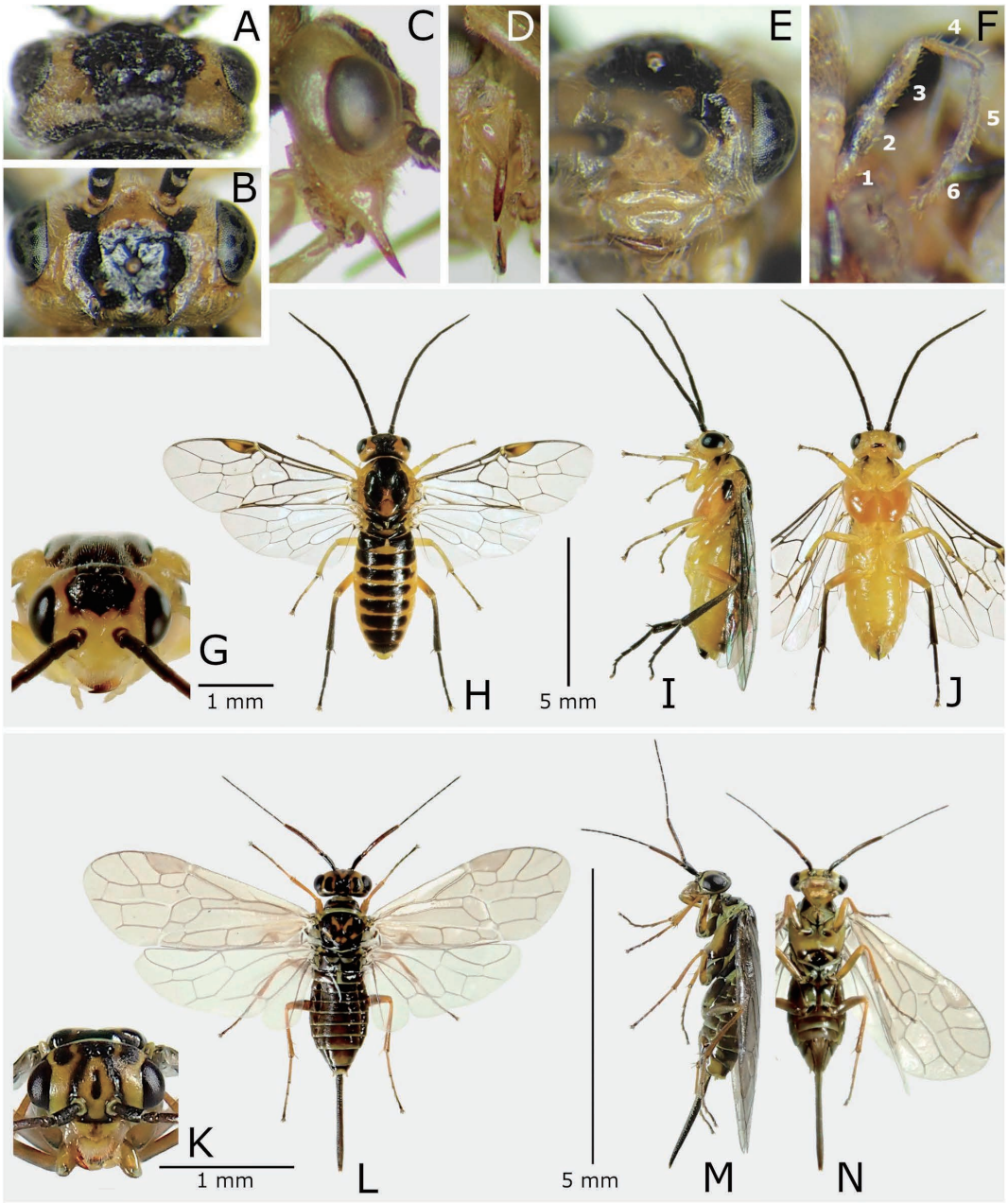

Fig. 3. A, *Euura longa longa*, female, head, dorsal view, holotype. B–F, *E. longa shiretoko*, female: B–C, head, frontodorsal, lateral view; D, left mandible outer view; E, head, anterior view; F, maxillary palpus; B–E, holotype; F, paratype. G–J, *Euura tibialis*, female, Hokkaido: G, frontal view; H, dorsal view; I, lateral view; J, ventral view. K–N, *Xyela kamtshatica*, female, Hidaka: K, frontal view; L, dorsal view; M, lateral view; N, ventral view. Photographed by H. Hara.

Redescription, *female* (Fig. 1F–G, J–K). Length 6–6.5 mm including ovipositor sheath. Head in dorsal view slightly dilated behind eye, with length behind eye 0.7–0.8 × eye length (Fig. 3A); length behind lateral ocellus 2.8–3.3 × length of lateral ocellus. Postocellar area with anterior

margin dull and lateral furrow deep. OOL:POL:OCL 1.2–1.3:1.0:1.0–1.2. Frontal area widest at middle between frontal pit and median ocellus in frontodorsal view, with small concavity before median ocellus (Fig. 3B); lateral ridge weak; anterior ridge with or without median furrow. Distance between eyes at torulus 1.8–1.9 × eye height (Fig. 3E). Torulus wholly surrounded by narrow ridge. Paraantennal field mostly setose. Clypeus with width 3.3–3.5 × maximum height, deeply emarginate ventrally (Fig. 3E); maximum height 0.9–1.0 × torulus height; depth of ventral emargination 0.6–0.8 × median height of clypeus. Malar space 1.4–1.7 × as long as median ocellus width. Antenna 2.4–2.6 × as long as head width; flagellum very slightly tapering; first flagellomere 0.9–1.1 × as long as eye height; second flagellomere 1.1–1.2 × as long as first. Each mandible with one inner tooth, rounded on basal outer surface; right mandible 0.9 × as long as left one, in outer view rather regularly tapering (Fig. 3C); left mandible in outer view sharply tapering on basal half, slightly constricted at middle or with same thickness from middle to near apex, and thin on apical half (Fig. 3D). Maxillary palpus long, with second maxillary palpomere 0.5–0.7 × as long as third (Fig. 3F) and apical palpomere length 0.9–1.2 × torulus height.

Mesoscutellum slightly roundly convex (Fig. 4A). Mesoscutellar appendage length 0.6–0.9 × short diameter of cenchrus. Metascutellum length 1.2–1.4 × short diameter of cenchrus. Mesepisternum with groove along anterior edge; this groove dorsally extending into epicnemium. Ventral edge of epicnemium grooved. Katepimeron glabrous, at most with several setae along posterior edge and narrow ventral area. Anterior fore tibial spur with velum narrow or indistinct. Hind tibia usual, in lateral view 0.7–0.8 × as broad as femur; posterior tibial spur 1.3–1.6 × as long as apical breadth of tibia, 0.4–0.5 × as long as first tarsomere. Hind tarsus 0.8–0.9 × as long as hind tibia. Claws with large inner tooth hardly curved (Fig. 4B–C); depth of concavity between teeth 0.6–1.0 × distance between teeth. Fore wing with vein C moderately swollen apically (Fig. 1F) and cell Sc 0.8–1.0 × as wide as vein C at level of base of vein Rs + M. Hind wing with section of vein 1A between cell 1A and crossvein cu-a 1.6–2.0 × as long as crossvein cu-a.

Abdomen with ninth tergum 1.5–2.0 × as long as eighth tergum at level of base of cercus, 2.1–2.7 × as long as eighth tergum at level of eighth spiracle (Fig. 4E). Cercus about 10–12 × as long as wide, posteriorly not reaching apex of ovipositor sheath (Fig. 4D–E). Ovipositor sheath about 0.7 × as long as abdomen, 1.3–1.4 × as long as hind tibia; apical sheath long, in dorsal view with basal width about 1.5–2 × cercus width, in lateral view sharply rounded apically. Lance annulated almost throughout (Fig. 4F); annuli oblique. Lancet with radix short and about 0.3 × as long as lamnium, with 18–21 annuli (Fig. 4G, I); each annulus with row of ctenidial teeth along anterior margin (Fig. 4H, J–K); ctenidial teeth short and thick; rows of ctenidial teeth of middle and apical annuli nearly erect; serrulae with minute denticles, sometime without denticles (probably because of severe wear).

Punctures inconspicuous or fine. Head mostly slightly irregularly microsculptured. Thorax mostly smooth; pronotum slightly rough; posterolateral sunken area of mesoscutum widely microsculptured; mesopostnotum mostly microsculptured; metapostnotum smooth, partly or widely irregularly microsculptured. Abdomen slightly microsculptured.

Male (Fig. 1H–I, L–M). Length 5 mm. Differing from female as follows. Head in dorsal view with length behind eye 0.5–0.6 × eye length; length behind lateral ocellus 2.1–2.6 × length of lateral ocellus. OOL:POL:OCL 1.1–1.2:1.0:0.9. Distance between eyes at torulus 1.6–1.7 × eye height. Antenna 2.5–2.7 × as long as head width. Procidentia distinctly protruding posteriorly, narrowing toward apex and rounded apically, about third as wide as eighth tergum (Fig. 5A–B). Subgenital plate about 0.6 × as long as abdomen, 0.8–0.9 × as long as hind tibia, gradually narrowing towards apex, with apex narrowly rounded. Male genitalia Fig. 5B–F,

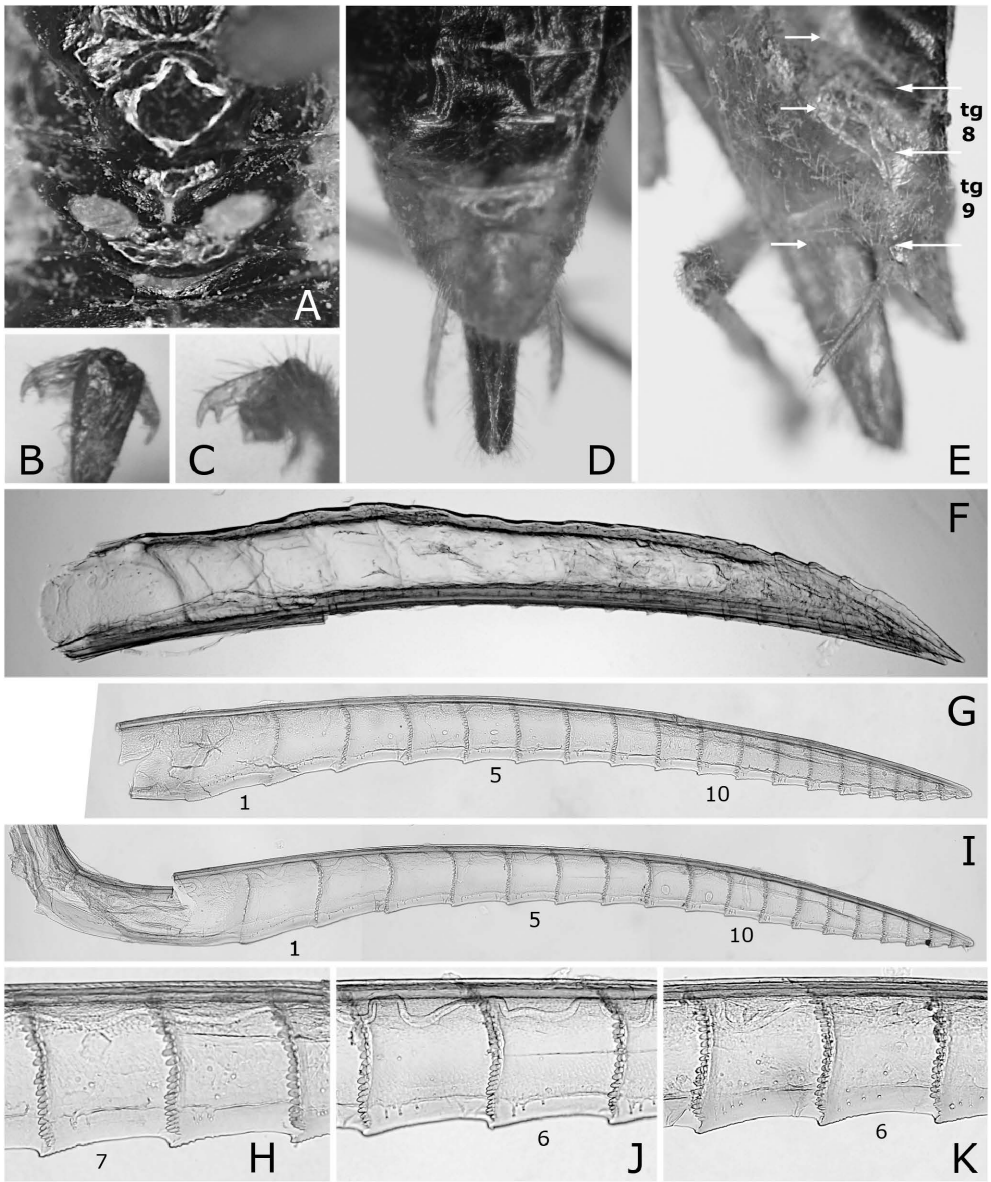

Fig. 4. A–B, D–H, *Euura longa longa*, female; C, I–K, *E. longa shiretoko*, female. A, Posterior part of thorax, dorsal view; B–C, claw; D–E, apex of abdomen, dorsal, lateral view (tg 8, tg 9 = eighth, ninth tergum; long arrows indicate edges of terga at level of cercus base, short arrows at level of eighth spiracle; E, reversed); F, lance; G–K, lancet (1, 5, 6, 10 = first, second, fifth, sixth, tenth annulus). A–B, D–E, holotype; F–H, paratype, Mt. Hakuba; C, I–J, holotype; K, paratype. Photographed by H. Hara.

H–K; harpe in ventral view slightly longer than wide, with lateral margin slightly concave, medial margin gentry rounded and apex rounded; parapennis narrow, acute; valvispina acute; paravalva not protruding apically.

Material examined. See the material examined in *E. longa longa* and *E. longa shiretoko*.

Distribution. Japan: Hokkaido, Honshu (Takeuchi, 1952).

Remarks. *Euura longa* is a little known species

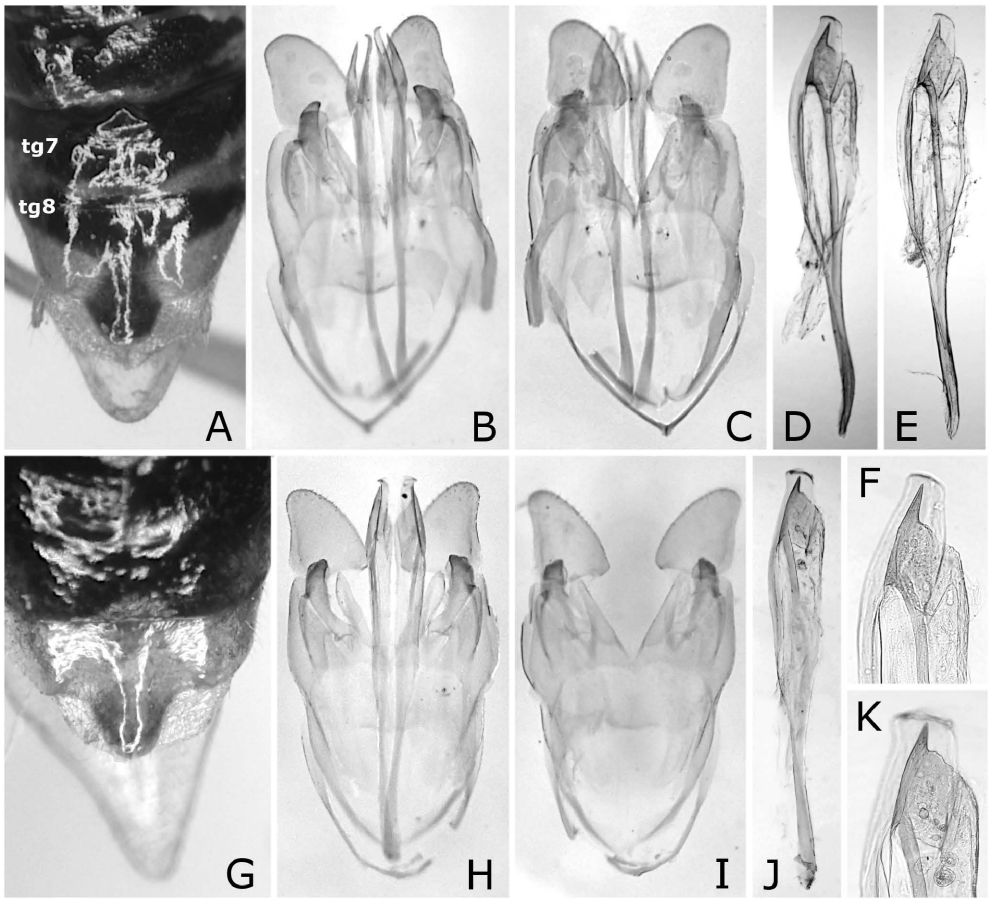

Fig. 5. A–F, *Euura longa longa*, male; G–K, *E. longa shiretoko*, male. A, G, Apex of abdomen, dorsal view (tg 7, tg 8 = seventh, eighth tergum); B, H, genital capsule, dorsal view; C, I, genital capsule, ventral view (I, penis valves removed); D–E, J, penis valve, lateral view (left dorsal); F, K, apical part of penis valve, lateral view (left dorsal). A–D, F, paratype, Mt. Hakuba; E, paratype, Mt. Hakuba; G–K, paratype. Photographed by H. Hara.

with peculiar morphological features. Here we give a detailed redescription. The female ovipositor and male genitalia are described and figured for the first time.

Euura longa has the exceptionally long female ovipositor sheath and male subgenital plate, each of which is longer than half of the abdomen. These features are useful to distinguish this species from other species of *Euura* and its related genera. In the keys by Zhelochovtsev and Zinovjev (1988), the female of *Euura longa* may go to couplets 64 and 97 of the key to species of "*Pteronidea*" but disagrees with both lines because the ovipositor sheath is longer than two basal tarsomeres of the hind tarsus and the three basal abdominal terga combined, and the male may go to couplets 145 and 146 but differs from both lines in having the widely or mostly black occiput and the dorsally black and ventrally and apically brown yellow abdomen.

The female of *E. longa* has a very large ninth abdominal tergum as that of *Nematinus* Rohwer, 1911. This species is easily distinguished from *Nematinus* by the left mandible with a sharply tapering basal half and a thin apical half in the outer view (Fig. 3D), the mandibles with basally rounded outer surfaces and the relatively short clypeus (Fig. 3E).

Takeuchi (1952) placed this species in *Decanematus* Malaise, 1931. The genus is now treated as the species group of *Euura viduata* (Zetterstedt, 1838) (see Zhelochovtsev and Zinovjev, 1988, Lacourt, 1999, Prous *et al.*, 2014). The members of *Decanematus* were placed in *Amauronematus* Konow, 1890 (a synonym of *Euura*) by Lindqvist (1945), Benson (1958), Zhelochovtsev and Zinovjev (1988) and Taeger *et al.* (2010), or *Decanematus* was regarded as a subgenus of *Amauronematus* by Hellén (1970) and Goulet (1992). According to Benson (1958), Zhelochovtsev and Zinovjev (1988) and Goulet (1992), *Amauronematus* was mainly characterized by the slightly projecting face and the short maxillary palpus with all palpomeres almost of equal length. However, *Euura longa* does not have those features: face normally projecting (Fig. 3B–C); maxillary palpus long with first and second palpomeres distinctly shorter than other palpomeres (Fig. 3F). This species is not considered a member of the *E. viduata* species group.

The Hokkaido specimens of *E. longa* have more pale areas than the Honshu specimens. We treat them as different subspecies as stated below.

Euura longa longa (Takeuchi, 1952)
(Figs. 1F–I, 3A, 4A–B, D–H, 5A–F)

Description, *female* (Fig. 1F–G). Length 6 mm including ovipositor sheath (6.3 mm in holotype). Head yellow; ocellar area, frontal area and its surroundings, dorsal tentorial macula and its surroundings and occiput black; postocellar area black (Fig. 3A), posterolaterally with or without brown to dark brown spot; temple dark brown on narrow margin behind eye, sometimes mostly dark brown (Fig. 1G). Antenna with scape and pedicel black; flagellum with dorsum black, gradually becoming paler toward apex and apically brown to dark brown, and venter brown yellow to brown. Mandible yellow, apically reddish brown. Maxilla, labium and their palpi brown yellow to brown. Thorax black (Fig. 1F); pronotum except for medial area and tegula yellow; postspiracular sclerite mostly or entirely pale yellow; sometimes anterolateral corner of median mesoscutal lobe, posterolateral ridge of lateral mesoscutal lobe and lateral area of mesoscutellum brown yellow respectively; sometimes middle or posterior middle area of mesepisternum and posterior area of katepimeron brown yellow to dark brown; rarely pectus yellow brown (lateral area of mesoscutellum brown yellow, wide middle area of mesepisternum and posterior area of katepimeron dark brown in holotype). Legs yellow; coxae narrowly darkened basally; femora except for trochantelli usually slightly darkened dorsobasally; tarsi slightly darkened apically. Abdomen black dorsally, brown yellow apically and ventrally.

Male (Fig. 1H–I). Length 5 mm. Coloration differing from female as follows: propleuron widely brown yellow; mesopleuron brown yellow except for anepimeron; metepisternum brown yellow.

Material examined. Holotype (Fig. 1F–G): ♀, "1, VIII, 1932 Mt. Hakuba Takeuchi" "Decanematus longus" (upper side) / "[Shirinaga-himehabachi (in Japanese)]" (under side). Paratypes: 1 ♀ with same data label as holotype and "Decanematus Malaise [ni zokusu (in Japanese)]"; 1 ♀2 ♂ with same data label as holotype; 2 ♀, "17, VIII, 1936 Mt. Yari Takeuchi"; 1 ♀, 28, VIII, 1940, Kumonotaira, [Kurobe-genryu (in Japanese)], Takeuchi".

Distribution. Japan: Honshu (Takeuchi, 1952).

Remarks. Takeuchi (1952) described *Decanematus longus* based on five females and ten males from Honshu and one female from Hokkaido. He wrote "Holotype: ♀, Mt. Shirouma, Shinano, 1, VIII, 1932, K. Takeuchi leg." In Takeuchi's collection now kept in the National Museum of Nature and Science, Tsukuba, there are six females and four males with the labels agreeing with the original description under the card *Decanematus* probably written by Takeuchi himself. They do not have the type label, but one female has the label "Decanematus longus" probably written by Takeuchi. The collection data of this female, "1, VIII, 1932 Mt. Hakuba [another name of Mt. Shirouma] Takeuchi", agrees with

the holotype data stated in the original description. We regard the female as the holotype and the other five females and four males as the paratypes. The paratopotypes mentioned by Takeuchi (1952) were one female and three males, but actually they are two females and two males. Takeuchi (1952) referred to seven male paratypes from Kumonotaira. We have located only two males from this series. They are not *Euura longa* but belong to an unknown *Euura* species, and therefore we excluded them from the list above.

Euura longa shiretoko Hara and Shinohara, subsp. nov.
(Figs. 1J–M, 3B–F, 4C, I–K, 5G–K)

Description, *female and male* (Fig. 1J–M). Length 6–6.5 mm including ovipositor sheath (6.5 mm in holotype) in female, 5 mm in male.

Differing from the nominotypical subspecies as follows: postocellar area yellow with anterior and lateral margins and narrow median line black or only narrow anterior margin black (Fig. 3B); temple dark brown only on narrow hind margin of eye (Fig. 3C); occiput widely brown yellow marginally; propleuron mostly brown yellow; mesoscutum widely brown yellow along notaulus and on posterolateral ridge; mesoscutellum brown yellow except for apex; in female, mesopleuron brown yellow except for most of epicnemium, large middle spot, anepimeron and anterior part of katepimeron, and metapleuron widely brown yellow (Fig. 1K); in male, thorax as in Honshu male, but propleuron mostly brown yellow and metepimeron widely brown yellow.

Material examined. Holotype (Fig. 1J–K): ♀, "[JAPAN] Hokkaido" "Mt. Rausu-dake 23. vi. 1967 T. Naito leg." Paratypes: 4 ♀3 ♂, same data as holotype.

Distribution. Japan: Hokkaido.

Etymology. The subspecific name is derived from Shiretoko Peninsula that includes the type locality. It is a noun in apposition.

Remarks. Although we here treat the Hokkaido specimens as a distinct subspecies, Takeuchi (1952) did not mention the difference between his Hokkaido specimen (one female from Shari) and Honshu specimens. Unfortunately, we have not located his Hokkaido specimen.

Euura tibialis (Newman, 1837)
(Figs. 3G–J, 6)

Nematus tibialis Newman, 1837: 260; Benson, 1958: 223; Smith, 1979: 69; Darling and Smith, 1985: 225; Liston, 2011: 190; Ichikawa, 2015: 22.
Nematus hortensis Hartig, 1837: 195.
Nematus trilineatus Norton, 1867: 215.
Nematus similaris Norton, 1880: 224; Comstock, 1880: 222; Dyar, 1895: 301.
Pteronidea tibialis: Enslin, 1916: 432.
Nematus (*Pteronidea*) *tibialis*: Raizenne, 1957: 36; Zhelochovtsev and Zinovjev, 1988: 90; Taeger *et al.*, 2006: 436; Taeger *et al.*, 2010: 427.
Pteronidea trilineata: Lorenz and Kraus, 1957: 231.
Hypolaepus (*Pteronidea*) *tibialis*: Lacourt, 1999: 143.
Euura tibialis: Hara, 2019: 75; Hara, 2020: 88, 348.

Only the references cited in the text are shown. For more synonyms, see Smith (1979), Lacourt (1999) and Taeger *et al.* (2010, 2018).

Material examined. JAPAN, HOKKAIDO: 1 ♀, Mikasa, Kayano, 43°12′N 141°51′E, 23. V. 2019, H. Hara (Figs. 3G–J, 6A). HONSHU: Tochigi Pref.: 1 ♀, Tochigi, Watarase Retarding Basin, coll. larva on *Robinia pseudoacacia* 14. VI. 2008, em. 29. VI. 2008, T. Saito (Fig. 6B); 1 ♀, same data but em. 3. VII. 2008. USA: 1 ♀, "Princeton, N. J., 50 g 9" (Fig. 6C); 1 ♀, "Poughkeepsie, VIII 25 1936 NY, H. K. Townes".

Distribution. Japan (introduced): Hokkaido (new record), Honshu (Ichikawa, 2015). Europe (introduced) (Newman, 1837; Taeger *et al.*, 2006, details), North America (native) (Norton, 1867; Smith, 1979, details).

Host plants. Fabaceae: *Gleditsia triacanthos* L. (Raizenne, 1957), *Robinia hispida* L. (Darling and Smith, 1985), *R. pseudoacacia* L. (Comstock, 1880), *R. viscosa* Vent. (Liston, 2011).

Remarks. Although this sawfly was described from Europe in the early 19th century (Newman, 1837, from the isle of Wight; Hartig, 1837, from Germany), it was introduced from North America into Europe (Enslin, 1916). This sawfly was recently recorded from Japan by Ichikawa (2015),

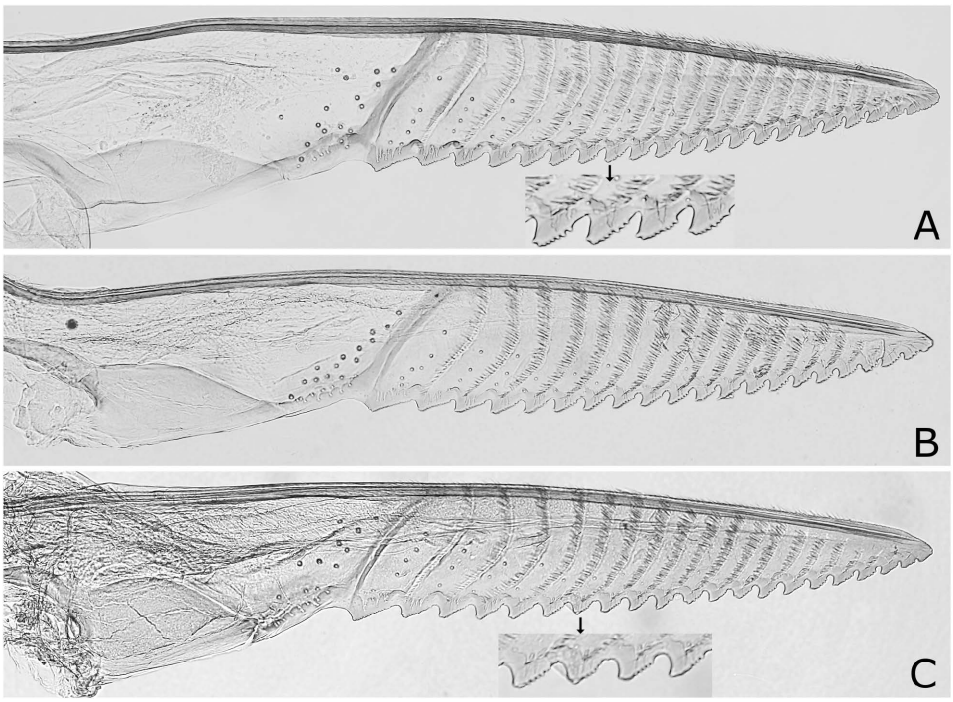

Fig. 6. Lancets of *Euura tibialis*: A, Hokkaido; B, Honshu, Tochigi, reversed; C, Princeton. Photographed by H. Hara.

who found the adults and larvae in Kansai Region, western Honshu in 2015. He also mentioned about the specimen collected in Tokyo Metropolis, Kanto Region, eastern Honshu in 2006. We examined two females obtained in Tochigi Prefecture, Kanto Region in 2008 and one female collected in Hokkaido in 2019. This sawfly is recorded from Hokkaido for the first time.

The identification of the specimens examined is based on Newman (1837), Benson (1958) and Darling and Smith (1985). This sawfly will be distinguished from other Japanese species of *Euura* and its related genera by the predominantly yellow body and legs with black on the vertex, mesoscutum, hind tibia and tarsus, abdominal terga and ovipositor sheath (Fig. 1A–D) and the malar space 0.8–1.0 × as long as a median ocellus width. For the larval characters and life history, see Comstock (1880), Dyar (1895), Enslin (1916), Lorenz and Kraus (1957) and Darling and Smith (1985). All the recorded hosts are native to North America. The host recognized in Japan is *R. pseudoacacia* (Ichikawa, 2015; present study).

In the keys by Zhelochovtsev and Zinovjev (1988), our specimens may not run to *E. tibialis*. In the five specimens examined, the ovipositor sheath is about as long as (0.9–1.1 ×) the two basal tarsomeres of a hind tarsus (Fig. 3I), while, according to Zhelochovtsev and Zinovjev (1988), the ovipositor sheath (“яйцк.” = “яйцеклад”) of *E. tibialis* is longer than the two basal tarsomeres of a hind tarsus. Also, two Japanese specimens dissected (Fig. 6A–B) have the ctenidial setae longer than those in one American specimen dissected (Fig. 6C) and those in figure 718 in Benson (1958) and in figure 6 in Darling and Smith (1985). We regard these differences as intraspecific variations.

Periclista erythrogramma Togashi, 1999

Periclista erythrogramma Togashi, 1999: 40; Naito *et al.*, 2004: 31; Yoshida, 2014: 41; Naito, 2019b: 62; Naito,

2020a: 98, 366.

Material examined. HOKKAIDO: 1 ♀, Tokachi, Shintoku, on *Quercus crispula*, 24. V. 1993, H. Hara; 1 ♀, same data but ovipositing in emerging leaf of *Quercus crispula*; 1 ♀, Mikasa, Kayano, 7. V. 2016, H. Hara; 2 ♀, Mikasa, Kayano, 43°12′N 141°51′E, 11. V. 2018, H. Hara; 3 ♀, same data but 12. V. 2018; 1 ♀, same data but 5. V. 2019; 1 ♂, same data but 6. V. 2019; 3 ♀, Abira, Hayakita, 42°45′N 141°50′E, 20. V. 2017, H. Hara. HONSHU: Ishikawa Pref.: ♀ (holotype), Mt. Shiritaka, 28. IV. 1991, I. Togashi. Tottori Pref.: 1 ♀ (paratype), Sannosawa, Mt. Daisen, 22. V. 1981, A. Shinohara.

Distribution. Japan: Hokkaido (new record), Honshu (Togashi, 1999).

Host plants. Fagaceae: *Quercus aliena* Blume (Yoshida, 2014), *Q. crispula* Blume (new record).

Remarks. This sawfly is recorded from Hokkaido for the first time. *Quercus crispula* is newly recorded as the host plant.

Xiphydriidae

Lataxiphyda nodai (Togashi, 1982)

Hyperxiphia nodai Togashi, in Togashi and Hirashima, 1982: 186; Abe and Togashi, 1989: 559.

Lataxiphyda nodai: Shinohara, 2019a: 103 Shinohara, 2019d: 22; Shinohara, 2020d: 183, 471; Smith, 2020: 144.

See Shinohara (2019a) for more synonyms.

Material examined. OKINAWA-JIMA IS.: 1 ♂, Kushi, 26°30′29″N 128°00′07″E, ca. 15 m alt., Nago, emerged 2. VII. 2020 (indoors in Tsukuba) from dead branch of *Leucaena leucocephala* (about 35–50 mm in diameter) collected 14. XII. 2019, A. Shinohara.

Distribution. Japan: Amami-oshima Is., Okinawa-jima Is. (Shinohara, 2019a). Laos (Smith, 2020).

Host plants. Lauraceae: *Machilus thunbergii* Siebold et Zucc. Primulaceae: *Ardisia sieboldii* Miq. (Shinohara, 2019a). Fabaceae: *Leucaena leucocephala* (Lam.) de Wit. (new record).

Remarks. The adults of this species have been reared from *Machilus thunbergii* (Lauraceae) and *Ardisia sieboldii* (Primulaceae) (Shinohara, 2019a) and this time from *Leucaena leucocephala* (Fabaceae). The three plant families are not closely related, all belonging to different orders (APG, 2009). *Lataxiphyda nodai* is clearly polyphagous.

The male listed above, which emerged on July 2, 2020, from a dead piece of branch collected in Kushi, Nago, near the seacoast, in December, 2019, is the second specimen to be recorded from Okinawa-jima Island. Shinohara (2019a) recorded a male specimen collected on Mt. Nishimedake (360 m alt.), Kunigami, on October 19, 1987. This species occurs from the seacoast to mountains and is on flight in July and October in the island. The adult may also occur there in May and June because the species has been found in that season in Amami-oshima Island (Shinohara, 2019a). The newly acquired male is a large specimen, 15.5 mm long, and both the antennae have 19 antennomeres; otherwise, it is quite similar to the previously known specimens (Shinohara, 2019a).

Xiphydria kanba
Shinohara, Hara and Smith, 2020

Xiphydria kanba Shinohara *et al.*, 2020a: 382.

Material examined. HOKKAIDO: 1 ♀1 ♂, Horobinai, 42°48′01″N 141°19′20″E, ca. 280 m alt., near Shikotsu-ko, Chitose, Hokkaido, emerged 20–29. IV. 2020 (indoors in Tsukuba) from dead branch of *Betula ermanii* collected 20. VII. 2019, A. Shinohara. HONSHU: Gunma Pref.: 1 ♀, Marunuma, 10. VIII. 1980, K. Konishi (Kyushu University, Fukuoka). Tochigi Pref.: 1 ♀, Chûgûshi, 36°44′46″N 139°28′23″E, ca. 1300 m alt., near Chûzenji-ko, Nikko, emerged 2. VII. 2020 (indoors in Tsukuba) from dead branch of *Betula platyphylla* var. *japonica* collected 10. VI. 2020, A. Shinohara; 1 ♀, same data except emerged 20. VII. 2020.

Distribution. Japan: Hokkaido, Honshu (Shinohara *et al.*, 2020a).

Host plants. Betulaceae: *Betula platyphylla* Sukaczev var. *japonica* (Miq.) H. Hara, *Betula*

ermanii Cham. (Shinohara *et al.*, 2020a).

Remarks. This species was recently described from a long series of specimens from Hokkaido and one specimen from Honshu. The two specimens from Shikotsu-ko listed above emerged from the very piece of dead branch of *Betula ermanii* from which most of the type specimens emerged in 2019. This piece of branch was kept in a plastic container since July 2019. Some of the individuals of *Xiphydria kanba* certainly stay in the branch, probably in larval stage, for two or more years before emergence, as is known for *X. ogasawarai* (Kajimura, 2000).

The only paratype from Honshu is the female that emerged on August 10, 2019, from a dead branch of *Betula platyphylla* var. *japonica* collected in Chûgûshi, Nikko, on August 7, 2019. The two specimens from Chûgûshi listed above emerged also from a dead branch collected at the same locality as the paratype but the collection date of the branch was June 10 and the emergence dates were July 2 and 20, 2020, the earlier date being more than a month earlier, though in different years, than the paratype. We still have little information but the adult emergence period of this species in Chûgûshi seems to be long, at least over a month in July to August.

The female from Marunuma collected in 1980 is the fourth specimen available from Honshu and Marunuma is the second locality of this species to be recorded in Honshu. It is interesting that all the four specimens collected in 1980 and 2019/2020 were from the two localities in the same area, only 16 km apart, considering that we have examined hundreds of xiphydriid specimens randomly sampled in all areas in Honshu (e.g., Shinohara, 2019b; Shinohara and Kameda, 2019; Shinohara *et al.*, 2020a). The two localities, about 1300–1400 meters high, are on the western and eastern slopes of a high mountain range, the highest peak being Mt. Shiranesan (2577 m alt.). More material is needed to ascertain the actual distribution range of *X. kanba* in Honshu.

Xiphydria ogasawarai Matsumura, 1927

Xiphydria ogasawarai Matsumura, 1927: 205; Naito *et al.*, 2004: 69; Shinohara, 2019b: 533; Shinohara, 2019d: 24; Shinohara, 2020d: 183, 472.
See Shinohara (2019b) for more synonyms and references.

Material examined. HOKKAIDO: 5 ♀ 1 ♂, Chisaka, 42°56′05″N 142°35′52″E, ca. 450 m, Hidaka, 22–24. VI. 2020, H. Hara; 5 ♀ 6 ♂, same locality, 23–24. VI. 2020, A. Shinohara. HONSHU: Nagano Pref.: 1 ♀, Iizuna-kogen, Ageya, 20. VI. 2019, H. Kojima; 1 ♀, Biwaike, 1400 m, Yamanouchi, 22. VI. 2019, H. Kojima; 1 ♀, Kisawa, 875 m, Minamishinano, Iida, 3. VII. 1973, H. Kojima.

Distribution. Japan: Hokkaido, Honshu, Shikoku (Shinohara, 2019b).

Host plants. Juglandaceae: *Juglans mandshurica* Maxim. var. *sachalinensis* (Komatsu) Kitam., *Pterocarya rhoifolia* Siebold et Zucc. Sapindaceae: *Acer sieboldianum* Miq., *Acer palmatum* Thunb., *Aesculus turbinata* Blume (Shinohara, 2019b). Araliaceae: *Kalopanax septemlobus* (Thunb.) Koidz. (new record).

Remarks. The female specimen from Iizuna-kogen listed above was ovipositing on a dead branch of *Kalopanax septemlobus* (Araliaceae) (H. Kojima, personal communication). This is the first record of this plant as a host of *Xiphydria ogasawarai*.

On July 23, 2020, Hara observed a "drumming" behavior of the male of this species in Chisaka, Hidaka, Hokkaido. While watching at a dead standing tree of *Acer* (6–7 m high), which had already lost much of bark, at around 11:00 AM, one male of this species was found walking downwards on a smooth surface of trunk without bark about 2 m high and about 6–7 cm in diameter. The male tapped his abdomen on the trunk a few times quickly and rhythmically and repeated this behavior twice. The male was captured just after this observation.

Shinohara *et al.* (2020a) reported on the similar behavior of the males for *X. kanba* Shinohara, Hara & Smith, 2020, and called it a "drumming" behavior. They suggested that the "drumming"

might be part of the courtship behavior and might have some connection with the presence of hair tufts on the abdominal sterna of the male. This latter view was supported by the present discovery of the "drumming" behavior for the male of *X. ogasawarai*, which also has hair tufts on the abdominal sterna (Shinohara, 2019b).

Xyelidae

Xyela kamtshatica Gussakovskij, 1935 (Fig. 3K–N)

Xyela kamtshatica Gussakovskij, 1935: 133; Takeuchi, 1938: 203; Togashi, 1954: 12; Togashi, 1961: 29; Smith, 1978: 13; Abe and Togashi, 1989: 541; Blank *et al.*, 2013: 21; Blank *et al.*, 2017: 112; Shinohara, 2019c: 1; Shinohara, 2020b: 2, 220.

Material examined. HOKKAIDO: 1 ♀, Nissho-toge, 42°58′16″N 142°45′08″E, 1100 m, Shimizu, Tokachi, 21. VI. 2020, A. Shinohara; 1 ♀, same locality, 22. VI. 2020, H. Hara.

Distribution. Japan: Hokkaido, Honshu (Takeuchi, 1938; Togashi, 1954). Russia: Kamchatka (Gussakovskij, 1935).

Remarks. This species was described from Kamchatka, Russia (Gussakovskij, 1935) and later recorded from Hokkaido and Honshu, Japan (Takeuchi, 1938; Togashi, 1954). From Hokkaido, one female collected on "Mt. Daisetsu" in 1930 was recorded by Takeuchi (1938) and three females collected on Mt. Upepesanke-yama in 1995 by Blank *et al.* (2013). One of the two specimens listed above was collected by random sweeping on the grass and another was found on the clothes of the collector. There were a few small bushes of the probable host, *Pinus pumila* (Pall.) Regel, nearby, but extensive searches and sweeping on the plant did not yield any additional specimens.

Acknowledgements

We thank Tatsuya Ide (National Museum of Nature and Science, Tsukuba), Yu Kato (Kawasaki), Haruyoshi Kojima (Nagano), Toshiharu Mita (Kyushu University, Fukuoka) and Takeshi Saito (Kanuma) for the loan or gift of the specimens and Shinobu Akiyama (National Museum of Nature and Science, Tsukuba) for determining *Lithocarpus edulis*. Special thanks are due to Haruyoshi Kojima for the information about the oviposition of *Xiphydria ogasawarai*. We also thank David R. Smith (United States Department of Agriculture, Washington, D.C.) for his careful review of the manuscript and Andreas Taeger (Senckenberg Deutsches Entomologisches Institut, Müncheberg) for providing literature.

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