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NOTES ON MATSUMURA'S TYPE SPECIMENS OF ORTHOPTERA

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Abstract

ITO, G. and ICHIKAWA, A. 2003. Notes on Matsumura's Type Specimens of Orthoptera. *Ins. matsum. n. s.* 60: 55–65, 2 figs.

Original label data associated with all extant known types of 28 Orthoptera species described by Shônen Matsumura are recorded. All the specimens examined are preserved in the Laboratory of Systematic Entomology, Faculty of Agriculture, Hokkaido University, Sapporo, Japan (SEHU) except four syntypes of four species preserved in the Department of Plant Pathology and Entomology, National Taiwan University, Taipei, Taiwan (ENTU). *Xiphidium sasakiri* Matsumura, 1904 and *X. dimidiatum* Matsumura et Shiraki, 1908 are synonymized with *Conocephalus japonica* (Redtenbacher, 1891) and *C. maculatus* (Le Guillou, 1841), respectively. *Phaneroptera grandis* Matsumura et Shiraki, 1908 is transferred to *Elimaea*. *Conocephalus luteus* Matsumura et Shiraki, 1908, recognized in *Ruspolia* by Baily (1975) is transferred to *Palaeoagraecia*.

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Introduction

Shônen Matsumura (1872–1960) is the founder of entomology in Japan. He described a large number of new taxa belonging to almost all orders of insects, mainly from Japan, Taiwan, and Sakhalin. He worked on order Orthoptera in his early publications, mainly in "Matsumura (1904)" and "Matsumura and Shiraki (1908)", 35 species being described by him. In most of his papers, new species were described without designation of types, because most entomologists had no idea of typification at that time. A common difficulty in studying Matsumura's type specimens is that some other specimens have been arranged in same cabinets with Matsumura's types after the publication. It has often caused difficulty in distinguishing which are true type specimens. There is another difficulty in examining Orthoptera specimens. Before the World War II, T. Shiraki brought many specimens of Orthoptera including types of some species from Japan to Taiwan. After the War, most of them were left in Taiwan. And some type specimens were missing and still unknown. In order to decrease these difficulties, we aimed to provide information of Matsumura's type specimens.

We have examined all extant known type specimens of 28 species described by Matsumura and deposited in the Laboratory of Systematic Entomology, Faculty of Agriculture, Hokkaido University (SEHU) and the Department of Plant Pathology and Entomology, National Taiwan University, Taipei, Taiwan (ENTU). But any representatives of the type series of the following species have not yet been found:

Tettigoniidae: *Phaneroptera nakanoensis* Matsumura et Shiraki, 1908: 22; *Kuwayamaea sapporensis* Matsumura et Shiraki, 1908: 8; *Teratura suzukii* Matsumura et Shiraki, 1908: 48.

Gryllidae: *Liogryllus formosanus* Matsumura, 1910: 8.

Gryllacrididae: *Gryllacris japonica* Matsumura et Shiraki, 1908: 70; *Gryllacris subrectis* Matsumura et Shiraki, 1908: 71; *Eremus testaceus* Matsumura et Shiraki, 1908: 74.

Tomokuni (1994) wrote the context of labeling on Matsumura's specimens. His paper was useful for us in sorting out syntypes. A new type label is attached to each type specimen. When we concluded that a species was described based on a single specimen, the specimen is regarded as the holotype of the species. If not so, other specimens should be treated as syntypes. After sorting out types, a new type label is attached to each type specimen.

Format of the list

This list is arranged in sequence of date and pages in the original description for each family. Each name is followed by the author, date, and page reference. The genus name of each species in the original description is shown. If genus name was changed, current or new genus name is recorded. The sequence of labels on the pin are indicated as (1), (2), (3), ... from top to bottom. Translations or transliterations from Japanese are presented in brackets [ ]. The handwriting identification is enclosed by double quotation marks " ". Supplements to the original data are given in parentheses ( ). Some notes on type specimens or Matsumura's species are given when it is necessary. All specimens examined are deposited in SEHU, except four syntypes in ENTU marked with *.

Xiphidium sasakiri Matsumura, 1904: 129. (Figs. 5, 10, 11)

1 ♀ – (1) [Tokyo] 11.12; (2) 23; (3) *Xiphidium* n. sp.; (4) "*X. sasakiri* Mats".

New status: *Conocephalus japonica* (Redtenbacher, 1891), syn. nov.

Notes: This specimen almost agrees with the original description of *Conocephallus japonica* in the following characters: Fastigium of vertex (Fig. 10) narrow, almost straight in anterior view; prosternum bispinose; tegmina obtuse apically; hind femora with several spines on ventral outer margin in apical half; ovipositor straight and long; female subgenital plate (Fig. 11) emarginate in posterior margin. Therefore, we synonymize *X. sasakiri* with *C. japonica*.

Isotima japonica Matsumura et Shiraki, 1908: 10.

1 ♂ – (1) 9/VIII 190? (a character unable to read) Hagi.

1 ♀ – (1) 8/9 [Hagi].

Current status: *Shirakisotima japonica* (Matumura et Shiraki). Transferred by Furukawa (1963).

Notes: This species was once transferred to the genus *Anisotima* by Bey-Bienko (1954), then transferred to the genus *Shirakisotima* by Furukawa (1963).

Phauloidia daitoensis Matsumura et Shiraki, 1908: 13.

1 ♀ – (1) VII/1905 Okinawa; (2)166; (3) "*Holochlora daitoensis* Mats.".

1 ♂ – (1) Hachijo Takahashi.

1 ♂ * – (1) Formosa Matsumura; (underside) Koshun 7/7; (2) "*Phauloidia daitoensis*".

Current status: *Phaulula daitoensis* (Matumura et Shiraki). Transferred by Bey-Bienko (1954).

Phauloidia gracilis Matsumura et Shiraki, 1908: 14.

1 ♂ – (1) Formosa Matsumura; (underside) Hokuto 7/30.

1 ♀ – (1) Formosa Matsumura; (underside) Hokuto 7/30.

1 ♀ * – (1) Formosa Matsumura; (underside) 30/VII 1906 Hokuto; (2) "*Phauloidia gracilis*".

Current status: *Phaulula gracilis* (Matumura et Shiraki). Transferred by Bey-Bienko (1954).

Holochlora nawae Matsumura et Shiraki, 1908: 17.

1 ♂ – (1) 4/IX 1906 Kumamoto.

1 ♂ – (1) Formosa Matsumura; (underside) Taikokan 8/18.

1 ♂ – (1) 8/IX 1906 Kumamoto; (2) [Ookudamakidamashi].

Current status: *Holochlora japonica* (Brunner von Wattenwyl, 1878). Synonymized by Bey-Bienko (1954).

Holochlora longifissa Matsumura et Shiraki, 1908: 18.

Holotype (by monotypy) ♂ – (1) [middle] VIII 1906 [Yamaguchi].

Current status: *Holochlora longifissa* Matsumura et Shiraki.

Phaneroptera grandis Matsumura et Shiraki, 1908: 23. (Figs. 1, 2, 6, 7)

1 ♀ – (1) Formosa Matsumura; (underside) 23/VII 1906 Shinsha.

1 ♂ – (1) Formosa Matsumura; (underside) 7/23 [Shin].

2 ♂ – (1) Formosa Matsumura; (underside) Taikokan 7/16.

New status: *Elimaea grandis* (Matsumura et Shiraki), comb. nov.

Notes: This species is considered to be a member of *Elimaea* (*Elimaea*), having the following diagnostic characters of the genus given by Ingrisch (1998b): Fore femora in basal area compressed and curved; tibial tympanal organs (Fig. 6) covered by a conchate fold on both sides; tegmina with radius vein branching before the middle length of tegmina; male subgenital plate (Fig. 7) without styli.

Phaneroptera tympanalis Matsumura et Shiraki, 1908: 25.

1 ♂ * – (1) Formosa Matsumura; (underside) 7/24 [??(two characters unable to read)]; (2) "*Phaneroptera tympanalis* Shir.".

Current status: *Elimaea tympanalis* (Matsumura et Shiraki). Transferred by Liu (1993).

Togona unicolor Matsumura et Shiraki, 1908: 30.

1 ♀ – (1) Formosa Matsumura; (underside) Shinsha 7/23; (2) [2].

1 ♀ * – (1) Formosa Matsumura; (underside) 23/VII 1906 Shinsha.

Current status: *Togona unicolor* Matsumura et Shiraki.

Pyrgocorypha formosana Matsumura et Shiraki, 1908: 35.

1 ♂ – (1) Formosa Matsumura [Hoppo]. (Head missing).

1 ♀ – (1) Formosa Matsumura [Hoppo]; (2) [10] (using red ink).

Current status: *Pyrgocorypha formosana* Matsumura et Shiraki.

Conocephalus platynotum Matsumura et Shiraki, 1908: 39.

1 ♀ – (1) Formosa Matsumura; (underside) 24/IV – 1907 Tappansha.

Current status: *Xestophrys horvathi* (Bolívar, 1905).

Notes: This species was once transferred to *Euconocephalus* by Karny (1912b), and then synonymized with *X. horvathi* by Fukuhara (1983).

Conocephalus formosanus Matsumura et Shiraki, 1908: 42.

1 ♀ – (1) Formosa Matsumura; (underside) 22/XI 1906 Giran.

Current status: *Euconocephalus formosanus* (Matsumura et Shiraki). Transferred by Karny (1912b).

Conocephalus luteus Matsumura et Shiraki, 1908: 45. (Figs. 3, 8)

1 ♀ – (1) [6, IX, 1902. Locality: Kasada, Kawashima-Town/Village. ?? (two characters unable to read)]; (underside) 55a [Hashima-Gun, Kasada elementary school grade 2 student, K. Tanaka leg.].

New status: *Palaeoagraecia lutea* (Matsumura et Shiraki), comb. nov.

Notes: This species was transferred to *Homorocoryphus* by Karny (1912b), and to *Ruspolia* by Baily (1975), both genera belonging to Copiphorini. It, however, does not belong to this tribe, but to the tribe Agraeciini and to the genus *Palaeoagraecia*. According to Ingrisch (1998a), Agraeciini is characterized as follows: vertex and top of frons are connected by a thin keel (Fig. 8); ovipositor curved dorsally; vertex without ventral tooth;

and width of fastigium is narrower than width of scapus, and *Palaeoagraecia* as: pronotum somewhat flattened dorsally; without spines or tubercles; prosternum with two spines; fore femora with spines of subequal length on inner and outer ventral margins; tegmina rounded apically; ovipositor long, compressed and blade-shaped. The present Matsumura's species has all of these characters.

Xiphidium dimidiatum Matsumura et Shiraki, 1908: 56. (Figs. 4, 9)

Holotype ♂ (by monotypy) – (1) Akasi 11/5. (Head missing).

New status: *Conocephalus maculatus* (Le Guillou, 1841), syn. nov.

Notes: This species was transferred to *Conocephalus* by Karny (1912a), and we consider the species a junior synonym of *C. maculatus* on the basis of the following characters agreeing with a diagnoses of *C. maculatus* given by Pitkin (1980): Prosternum bispinose; no markings in costal and precostal areas of tegmina; hind femora with no spines ventrally; cerci (Fig. 9) with one internal spine. In this specimen tegminal pigmentation is pale, but this condition is sometimes observed in *C. maculatus*, and the specimen agrees with the species also in other characters.

Xiphidium formosanum Matsumura et Shiraki, 1908: 59.

Holotype ♀ (by monotypy) – (1) Formosa Matsumura; (underside) 20/XI-1906 Heirinbi.

Current status: *Conocephalus formosanus* (Matumura et Shiraki). Transferred by Karny (1912a).

Xiphidium gigantium Matsumura et Shiraki, 1908: 60.

1 ♂ – (1) Formosa Matsumura; (underside) 23/VII-1906 Shinsha; (2) [3](using red ink).

Current status: *Conocephalus gigantius* (Matumura et Shiraki). Transferred by Karny (1912a).

Xiphidium divergentum Matsumura et Shiraki, 1908: 61.

Holotype ♀ (by monotypy) – (1) Formosa Matsumura; (underside) [Shinsha] 7/24.

Current status: *Conocephalus divergentus* (Matsumura et Shiraki). Transferred by Karny (1912a).

Hexacentrus fuscipes Matsumura et Shiraki, 1908: 65.

Holotype ♀ (by monotypy) – (1) Formosa Matsumura [Hoppo]; (2) [8](using red ink).

Current status: *Hexacentrus fuscipes* Matsumura et Shiraki.

Famly Gryllidae

Nemobius nigrofasciatus Matsumura, 1904: 138.

1♂ – (1) Japan [Sahoro(=Sapporo)] Matsumura; (2) "*N. nigrofasciatus* det. Dr. Matsumura".

Curent status: *Dianemobius nigrofasciatus* (Matsumura).

Notes: This species was once synonymized with *Pteronemobius fascipes* (Walker, 1869) by Uvarov (1926) and *P. fascipes* was transferred to the genus *Dianemobius* by Vickery (1973). Gorochov (1983) regarded the Matsumura's taxon as a subspecies of *D. fascipes*, but Masaki and Nagase (1992) revived it as a distinct species.

Oecanthus longicauda Matsumura, 1904: 136.

1 ♂ – (1) 10.12 Sapporo Matsum.

1 ♀ – (1) Sapporo Matsum.

Current status: *Oecanthus longicauda* Matsumura, 1904.

Anaxiphus pallidulus Matsumura, 1910: 10.

1♂ – (1) Formosa Matsumura; (underside) [Rinkiho] 29/IV '07(=1907); (2) [Pest of sugarcane].

Current status: *Natula pallidula* (Matsumura). Transferred by Ichikawa *et al.* (2000).

Gryllodes guttula Matsumura, 1913: 36.

Holotype ♀ (by monotypy) – (1) "*Gryllodes guttulus* det. Matsumura" (2) [12] (using red ink).

Current status: *Cardiodactylus guttulus* (Matsumura).

Notes: This species was once transferred to the genus *Gryllopsis* by Chopard (1967), then to the genus *Cardiodactylus* by Ichikawa (1999).

Anaxiphus vittatipes Matsumura, 1913: 39.

1♂1 ♀ (specimens are pinned to a polyfoam block) – (1) [Nakano] Japan Matsum; (underside) 8/14; (2) "*Cyrtoxiphus vittatipes* n. sp. det. Matsumura".

1 ♀ – (1) Kumamoto H. Kawamura; (underside) IX 12 1907; (2) [15] (using red ink).

1 ♂ – (1) Kumamoto H. Kawamura; (underside) IX 12 1907; (2) [Kinhibari].

Current status: *Svistella bifasciata* (Shiraki, 1913). Synonymized by Ichikawa *et al.* (2000).

Madasumma hibinonis Matsumura, 1917: 279.

1 ♂ 2 ♀ – (1) Japan Matsumura; (underside) [Tokyo Azabu 8/1916 Hibino Shin-ichi leg.].

2 ♀ – (1) Japan Matsumura; (underside) [Tokyo, 16/IX 1916 Hibino Shin-ichi leg.].

Current status: *Truljalia hibinonis* (Matsumura).

Notes: This species was once transferred to the genus *Calyptotrypus* by Chopard (1936), then to the genus *Truljalia* by Gorochov (1985).

Family Mogoplistidae

Ectatoderus kanetataki Matsumura, 1904: 131.

1♂ – (1) (underside of thick paper on which the specimen glued) 25, 10, 0. [Mt. Ibuki] (using green ink) ♂ ; (2) "det. *Ectatoderus kanetataki* M. Dr. Matsumura".

1 ♂ – (1) [early] / X 1903 [Takasago].

Current status: *Ornebius kanetataki* (Matsumura).

Notes: This species was once transferred to the genus *Liphoplus* by Shiraki (1930), and then transferred to the genus *Ornebius* by Chopard (1968).

Family Myrmecophilidae

Myrmecophilus sapporensis Matsumura, 1904: 138.

2 ♀ – (1) det. Dr. Matsumura "*M. japonicus*".

1 ♀ – [sahoro(=Sapporo)] 10/21.

Current status: *Myrmecophilus sapporensis* Matsumura.

Family Gryllacrididae

Neanias magnus Matsumura et Shiraki, 1908: 73.

Holotype ♀ (by monotypy) – (1) 7/2 Koshun Coll. T. Kawakami; (2) [5] using red ink.

Notes: Label (1) is paraffin paper folded in small size.

Current status: *Neanias magnus* Matsumura et Shiraki.

Family Tridactylidae

Tridactylus flavomaculatus Matsumura, 1910: 9.

1 ♀ – (1) [Rinkiho] 29/IV 07 (=1907); (underside) Formosa Matsumura; (2) [pest of sugar cane]; (3) "*T. flavaovittatus*(? unreadable) det. Matsumura"; (4) *Tridactylus flavomaculatus* Matsumura, 1911. Lectotypus: ♀ det. K. K. Günther 1979; (5) Lectotypus (red label); (6) *Xya riparia* (Sauss., 1877) ♀ det. K. K. Günther 1979.

1 ♂ – (1) Formosa Matsumura Riukiho (=Rinkiho) 29. IV. 07.; (2) au Zucketrohr schädlich (= Pest of sugarcane); (3) *Tridactylus flavomaculatus* Matsumura, 1911. Lectoparatypus: ♂ det. K. K. Günther 1979; (5) ParaLectotypus (red label); (6) *Xya riparia* (Sauss., 1877) ♂ det. K. K. Günther 1979.

1 ♂ – (1) [Rinkiho] 29/IV 07; (underside) Formosa Matsumura; (2) [pest of sugar cane]; (3) *Tridactylus flavomaculatus* Matsumura, 1911. Lectoparatypus: ♂ det. K. K. Günther 1979; (5) ParaLectotypus (red label); (6) *Xya riparia* (Sauss., 1877) ♂ det. K. K. Günther 1979.

1 ♂ – (1) [Rinkiho] 29/IV 07; (underside) Formosa Matsumura; (2) [pest of sugar cane]; (3) Paralectotype von: *Tridactylus flavomaculatus* Matsumura. des. K. K. Günther 1980; (4) *Xya riparia* (Saussure) ♂ det. K. K. Günther 1980.

1 ♀ – (1) [Rinkiho] 29/IV 07; (underside) Formosa Matsumura; (2) [pest of sugar cane]; (3) Paralectotype von: *Tridactylus flavomaculatus* Matsumura. des. K. K. Günther 1980; (4) *Xya riparia* (Saussure) ♀ det. K. K. Günther 1980.

1 ♂ – (1) Formosa Matsumura; (underside) 11/VII 1906 Akô; (2) Paralectotype von *Tridactylus flavomaculatus* Matsumura. des. K. K. Günther 1980; (4) *Xya riparia* (Saussure) ♂ det. K. K. Günther 1980.

Current status: *Xya flavomaculata* (Matsumura). Transferred by Günther (1980).

Notes: This species was considered a junior synonym of *Xya riparia* (Saussure) by K. K. Günther when he examined Matsumura specimens in 1979–1980, and he attached lectotype- or paralectotype-labels to the specimens. These taxonomic treatments were not published in Günther's (1980) catalog, and so far as we aware, are not found in his later works. Günther (1980) transferred this species to the genus *Xya* and treated as a distinct species.

Family Acrididae

Podisma sachalinensis Matsumura, 1911: 5.

1 ♂ – (1) 13/VIII 1906 [Pilewo]; (underside) "*Podisma sachalinensis* det. Matsumura".

1 ♂ – (1) 13/VIII 1906 [Pilewo].

Current status: *Prumna primnoa* (Fischer-Waldheim, 1846).

Notes: This species was synonymized with *Primnoa primnoa* by Tarbinsky (1932). The genus *Primnoa* has been changed its name to *Prumna* Motschulsky, 1859 by Ito (2003).

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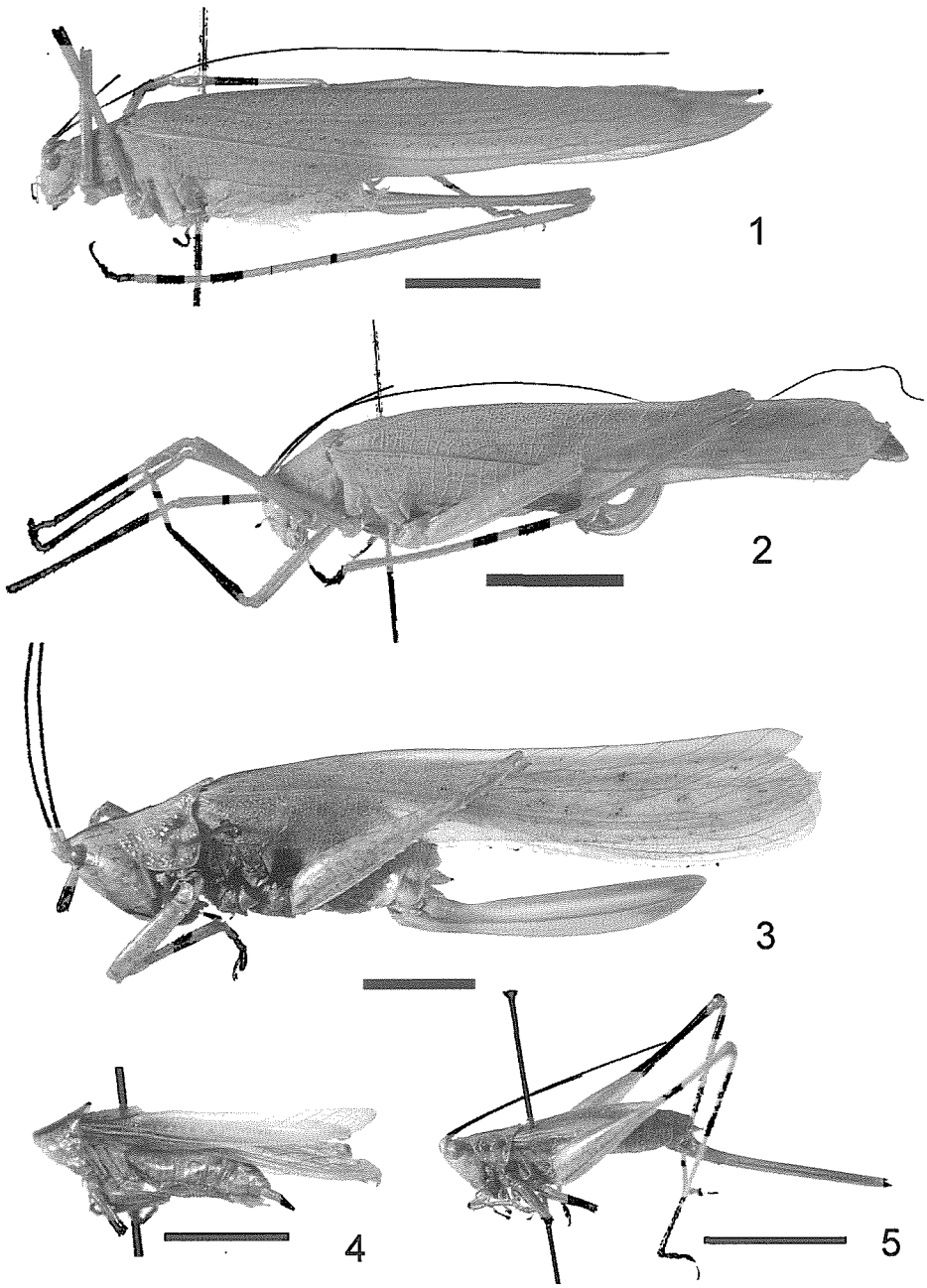
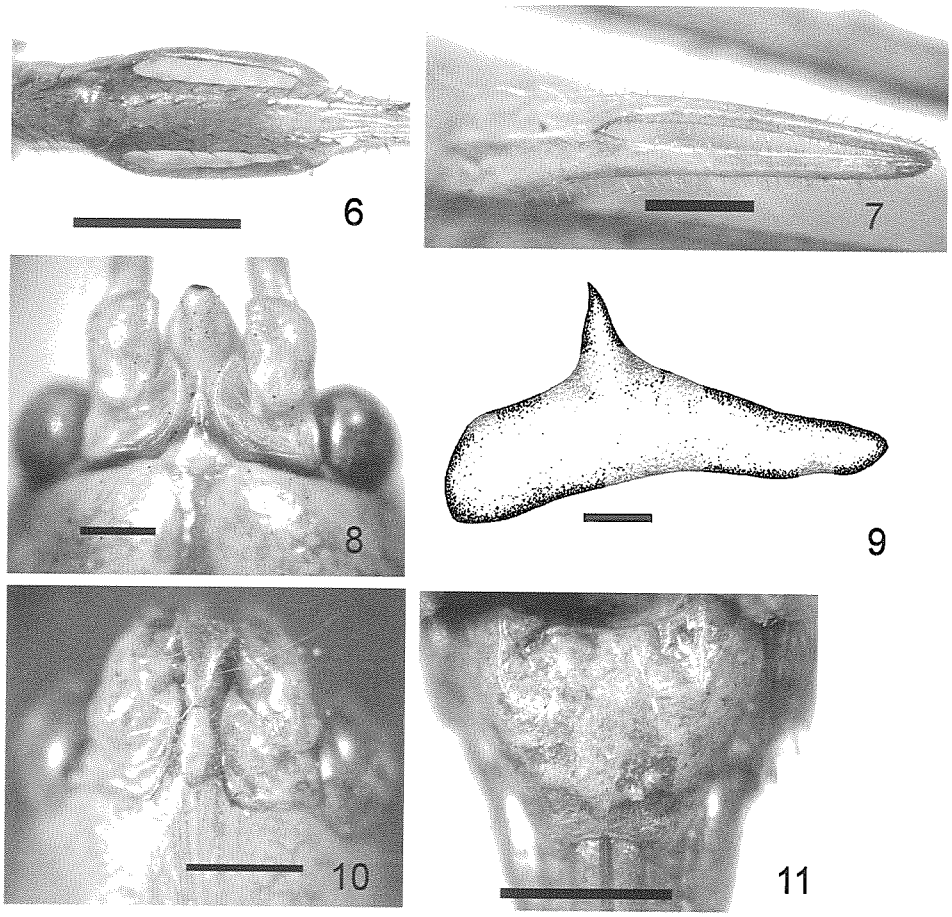


Figs. 1–5. Matsumura's type specimens, lateral view. 1: *Elimaea grandis* (Matsumura et Shiraki, 1908), syntype male; 2: *E. grandis*, syntype female; 3: *Palaeoagraecia lutea* (Matsumura et Shiraki, 1908), syntype female; 4: *Xiphidium dimidiatum* Matsumura et Shiraki, 1908, holotype male (=*Conocephalus maculatus*); 5: *Xiphidium sasakiri* Matsumura, 1904, syntype female (=*Conocephalus japonica*). Scale: 1 cm.



Figs. 6–11. Body parts of Matsumura's type specimens. 6: *Elimaea grandis,* tibial tympanal organ; 7: *E. grandis*, male subgenital plate; 8: *Palaeoagraecia lutea*, upper part of head, anterior view; 9: *Xiphidium dimidiatum*, male cercus, ventral view; 10: *X. sasakiri*, upper part of head, anterior view; 11: *X. sasakiri*, femle subgenital plate. Scale: 1 mm (6–8, 10–11), 0.25 mm (9).