SOME SPECIES OF FORMOSAN HOMOPTERA

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All the specimens treated in this report were collected in Formosa in the summer of 1961 mostly by Dr. Takashi Shirôzu and his colleagues and partially by Dr. Shun-Ichi Uéno and they are preserved in the Entomological Laboratory, College of Agriculture, Ehime University, Matsuyama, excluding a set of duplicates which are to be sent to Kyushu University.

I could finish to examine most of the Formosan specimens referred to me in time for the first publication. Several specimens, however, remained untouched. The undetermined specimens are some species belonging to Family Cixiidae or Superfamily Jassoidea and shall be studied the other day probably as the second report.

In order to keep the explanation of each specimen at a minimum, the year of collection, 1961, is curtailed and the collectors are shown by their capital letters as follows.

A. M. = Dr. Akira Mutuura

M. O. = Dr. MASAMI OGATA

M. W. = Mr. Morio Wakabayashi

S. U. = Dr. Shun-Ichi Uéno

T. S. = Dr. TAKASHI SHIRÔZU

My sincere thanks are due to Dr. T. Shirôzu and his colleagues and to Dr. S. U_{ENO} who gave the valuable specimens to my study.

Family 1, CICADIDAE

Genus Platypleura Amyor et Serville, 1843

1. Platypleura kaempferi (Fabricius, 1794)

Fabricius, 1794. Ent. Syst., 4: 23 (Tettigonia).

Locality collected: Shôkei (1 9 VII-5, T. S.).

Distribution: Kuriles, Japan, Ryukyus, Formosa, Korea, China, Malaya, Borneo.

Genus Cryptotym pana Stål, 1861

2. Cryptotympana pustulata (Fabricius, 1787)

Fabricius, 1787. Mant. Ins., 2: 266 (Tettigonia).

Locality collected: Taipei (4 8 819 VI-10, S. U.).

Distribution: Formosa, China, Malaya.

3. Cryptotym pana facialis (WALKER, 1858)

Walker, 1858. List. Hom. Suppl., 30 (Cicada).

Localities collected: Taichu (2 % % VI-22, T. S. et al.); Urai (7 % % % % % VII-8~12, O. M. et A. M.); Magan (2 % % VII-10, A. M.).

Distribution: Ryukyus (Is. Miyako. Is., Ishigaki), Formosa, China, Thailand.

Genus Rihana Distant 1904

4. Rihana ochracea (Walker, 1850)

Walker, 1850. List. Hom., 1: 99 (Fidicia).

Localities collected: Taipei (1 \circ VI-10, S. U.); Hori (1 \circ VI-22, M. O.); Shôkei (1 \circ VII-5, M. O.; 1 \circ VII-6, M. W.); Urai (1 \circ VII-8, T. S.; 1 \circ VII-9, A.M.).

Distribution; Formosa, China.

Genus Nipponosemia Kato, 1925

5. Nipponosemia terminalis (Matsumura, 1913)

Matsumura, 1913. Thous. Ins. Jap. Addit. 1: 82, pl. 9: 12 (Abroma. Ryukyus: Is. Miyako & Is. Ishigaki, China (Szechwan).

= Cicada fuscoplaga Schumacher, 1915. Suppl. Ent., 4: 109 (Syn. nov. Formosa: Taihorin & Kosempo); Като, 1932. Monogr. Cicad., 255.

Localities collected: Urai (1 & VII-8, T. S.); Rimogan~Magan (2 9 9 VII-10, A. M. et M. W.). Distribution: Ryukyus (Is. Miyako, Is. Ishigaki), Formosa, China (Szechwan).

As a valid species had been treated the Formosan habitant, I could not find however any definite specific difference between the Formosan and the Ryukyu specimens. Kato (1932 loc. cit.) made the following notes on it: "Although Nipponosemia fuscoplaga (Schumacher) resembles closely N. terminalis (Matsumura), it is separable from the latter by the tergites which are black from the 1st to the 3rd and are sooty brown in the remainder and the dark-coloured tympanic coverings." According to the Schumacher's description on the abdominal coloration, "Abdomen oben schwärzlich, dicht goldgelb behaart. Unterseite nebst den Beinen einfarbig rein gelb oder orange." and the coloration of the above specimens examined, the distinctions shown by Kato seem to be very variable.

Genus Pomponia Stål, 1866

6. Pomonia fusca (OLIVIER, 1790)

OLIVIER, 1790. Enc. Meth., 5: 749 (Cicada).

Locality collected: Piyanan (1 & VI-19, S. U.).

Distribution: Ryukyus (Is. Ishigaki), Formosa, China, Malaya, India.

Genus Neotanna Kato, 1927

7. Neotanna viridis (Kato, 1925)

Kato, 1925. Trans. Nat. Hist. Soc. Formosa, 15:17 (Tanna).

Localities collected: Musha (4 & & VI-14, S. U.; 19 VI-23, M. O.); Keitô (4 & & 19 VI-27~28, A. M., M. W. & T. S.).

Distribution: Formosa.

Genus Euterpnosia Matsumura, 1917

8. Euterpnosia viridifrons Matsumura, 1917

Matsumura, 1917. Trans. Sapporo Nat. Hist. Soc., 6(3): 204 (1 & Formosa: Mt. Kanshirei).

Localities collected: Suisharyo (1 & VI-24, S. U., 1 \to VI-30, S. U.); Urai (1 \to VII-8, M. O.); Keitô (1 \to VII-28, T. S.).

Distribution: Formosa.

9. Euterpnosia varicolor Kato, 1926

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Kato, 1926. Trans. Nat. Hist. Soc. Formosa, 16: 174 (Formosa: Mt. Taihei near Rato).

Locality collected: Mt. Shibajin (5 3 3 1 9 VI-16, S. U.).

Distribution: Formosa.

Genus Mogannia Amyot et Serville, 1843

10. Mogannia hebes (WALKER, 1858)

Walker, 1858. List. Hem. Suppl., 38 (Cephaloxys).

Localities collected: Piyanan (8 & \$1 \times VI-20, S. U.); Urai~Agyoku (2 \times \times VII-8, T. S.; 1 \times 1 \times VII-11, M. O. & T. S.); Rimogan~Magan (6 \times \times VII-10, M. W. & T. S.).

Distribution: Formosa, China.

11. Mogannia formosana Matsumura, 1907

Матѕимика, 1907. Hakubutsu no Tomo, 7 (36): 7 (Formosa: Koshun); Матѕимика, 1907. Annot. Zool. Jap., 6(2): 102 (& ♀ Formosa: Kiirun).

Localities collected; Suisharyo (1 & VI-30, S. U.); Urai-Agyoku (1 & VII-8, T.S.; 1 & 1 & VII-11, M. O.); Rimogan-Magan (1 & VII-10, M. W.).

Distribution; Formosa.

Genus Huechys Amyor et Serville, 1843

12. Huechys sanginea (DE GEER, 1773)

DE GEER, 1773. Mém., 3: 221, t. 33: 17 (Cicada).

Locality collected: Keitô (1 9 VI-27, T. S.).

Distribution: Formosa, China, Malaya, India, Sumatra, Borneo.

Genus Scieoptera Stål, 1866

13. Scieoptera formosana Schmidt, 1919

Schmidt, 1919. Stett. Ent., Zeit., 79: 277, 279 (Formosa).

Localities collected: Magan (3 \upphi 3 \upphi 1 \upphi VII-10, M. O.); Rimogan~Magan (6 \upphi \upphi 5 \upphi VII-10, M. W. & T. S.).

Distribution: Formosa.

Family 2, TOMASPIDIDAE

Genus Cosmoscarta Stål, 1969

1. Cosmoscarta bispecularis (White, 1844)

WHITE, 1844. Ann. Mag. Nat. Hist., 14: 426 (Cercopis).

Locality collected: Taipei (3 & VI-26, S. U.).

Distribution: Formosa, China, Malaya, N. India.

2. Cosmoscarta rubroscutellata Matsumura, 1907

Matsumura, 1907. Ann. Zool. Jap., 6(2): 105 (♀ Formosa: Koshun).

Localities collected: Nanzankei (1 ô VI-24, T. S.): Urai-Agyoku (1 ô VII-11, T. S.).

Distribution: Formosa.

Genus Okiscarta Matsumura, 1940

3. Okiscarta uchidai (Matsumura, 1905)

Matsumura, 1905. Trans. Sapporo Nat. Hist. Soc., 1:30 (Cosmoscarta. 1♀ Daito-jima); Matsumura,

1907. loc. cit., 104 Cosmoscarta. Formosa); Matsumura, 1940. Journ. Fac. Agr. Hokkaido Imp. Univ., 45(2): 65-66,80.

Localities collected: Nanzankei (2 \circ \circ VI–24, T. S.); Keitô (1 \circ VI–28, M.W.); Urai~Agyoku (3 \circ \circ VII–11, T. S.).

Distribution: Ryukyus (Daito-jima), Formosa.

Genus Tadascarta Matsumura, 1940

4. Tadascarta formosana (Kato, 1929) (Fig. 1)

Kato, 1929. Trans. Nat. Hist. Soc. Formosa, 19: 545, f. 4 (Caloscarta. & Formosa: Mt. Noko, Musha; Matsumura, 1940. loc. cit. 70–71, 81.

Locality collected: Oiwake $3 \circ 4 \circ VI-24$, T. S. et M. W.).

Distribution: Formosa.

Genus Eoscartopsis Matsumura, 1940

5. Eoscartopsis zonalis (Matsumura, 1907)

Matsumura, 1907. loc. cit. 106 Rinaulax. ↑ ♀ Formosa:

Koshun,; Matsumura, 1940. loc. cit. 81.

Localities collected: Musha (1 3 1 9 VI-23, T. S.); Urai~Agyoku (1 9 VII-11, T. S.).

Distribution: Formosa.

Family 3, CERCOPIDAE

Genus Aphrophora German, 1831 (s. lsst.)

1. Aphrophora taiu ana Kato, 1933

 K_{ATO} , 1933. Konchu-kai, 1 (3): 231, pl. 15:6 ($\hat{\text{c}}$ Formosa: Karenko.

Locality collected: Oiwake~Tattaka (1 \circ 1 \circ VI-24, T. S.).

Distribution: Formosa.

2. Aphrophora karenkoensis Kato, 1933

Kato, 1933. loc. cit. 229, pl. 15: 2 (♀ Formosa: Karenko.

Localities collected: Oiwake $(2 \ \ \ \ \ VI-24, \ \ T. \ S.)$; Tattaka $(1 \ \ \ VI-23, \ T. \ S.)$.

Distribution: Formosa.

Genus Ariptyelus Matsumura, 1940

3. Ariptyelus auropilosus (Matsumura, 1907)

Matsumura, 1907. Annot. Zool. Jap., 6 (2): 113

(Aphrophora. & P Formosa: Shinsha, Shoka, Koshun);

Matsumura 1940. Journ. Fac. Agr. Hokkaido Imp. Univ., 45 (2): 50 et 77, pl. 2:6.

Localities collected: Rimogan~Magan (2 9 9 VII-10, T. S.); Urai~Agyoku (4 9 9 VII-11, T. S.). Distribution: Formosa.



Fig. 1. Tadascarta formosana (Kato, 1929) ♀

Genus Sagophora Matsumura, 1942

4. Sagophora tsurui (Matsumura, 1907)

Matsumura, 1907. loc. cit. 110 (*Aphrophora*. ↑ ♀ Formosa: Taihokan, Hoppo, Shinsha); Matsumura, 1942. Ins. Mats., 16: 74–75.

Localities collected: Rimogan~Magan (1 \, VII-10, T. S.); Urai~Agyoku (1 \, VII-11, T. S.).

Distribution: Formosa.

Genus Jembrana Distant, 1908

5. Jembrana punctipennis Kato, 1933

Като, 1933. loc. cit 225, pl. 15: 14 (3 Formosa: Musha).

Locality collected: Oiwake $(2 \circ VI-24, T. S.)$.

Distribution: Formosa.

Genus Clovia Stål, 1866

6. Clovia bipunctata Kirby, 1891

Kirby, 1891. Journ. Linn. Soc. Zool., 24: 163.

Locality collected: Rimogan~Magan (1 & VII-10, T. S.).

Distribution: Formosa, India, Ceylon.

Genus Philagra Stål, 1862

7. Philagra fusiformis (WALKER, 1858)

Walker, 1858. List. Hem. Suppl., 47 (Cyrene).

Locality collected: Oiwake~Tattaka (1 \mbox{o} VI-24, T. S.).

Distribution: Formosa, China, Burma, India.

Family 4, MEMBRACIDAE

Genus Gargara Amyot et Serville, 1843

1. Gargara taikomontana Kato, 1928

Kato, 1928. Ins. World, Gifu, 32 (2): 39 (♀ Formosa: Mt. Taiko).

Locality collected: Oiwake~Tattaka (1 \&\delta 2 \approx \text{VI-24, T. S.}).

Distribution: Formosa.

Genus Sipylus Stål, 1866

2. Sipylus guttulinervis (Matsumura, 1912)

Matsumura, 1912. Annot. Zool. Jap., 8 (1): 25 (Centrotus. 3 & Formosa: Horisha).

=S. lineatus Kato, 1928. loc. cit. 32 (1): 13, pl. 1: 9 (♀ Formosa: Shinten, Botansha, Takezaki, Hori & Musha).

Locality collected: Keitô (1 9 VI-27, T. S.).

Distribution: Formosa.

Genus Tricentrus Stål, 1866

3. Tricentrus takaoensis Kato, 1930

Kato, 1930. Dobutsugaku-Zasshi, 42: 290, f. 7 a-b (♀ Formosa: Takao).

Locality collected: Rimogan~Magan (2 ♀ ♀ VII-10, T. S.).

Distribution: Formosa.

Family 5, RICANIIDAE

Genus Ricania German, 1818

1. Ricania speculum (Walker, 1851)

Walker, 1851. List. Hem., 2: 406 (Flatoides).

Localities collected: Urai~Agyoku (1 & VII-8, T. S.); Rimogan~Magan (1 & VII-10, T. S.).

Distribution: Formosa, S. China, India.

2. Ricania japonica simulans (Walker, 1851)

Walker, 1851. loc. cit. 431 (Pochazia).

Localities collected: Keitô (1 9 VI-27, T. S.); Rimogan~Magan (2 8 8 VII-10, T. S.); Urai~Agyoku (VII-11, T. S.).

Distribution: Ryukyus, Formosa, N. India.

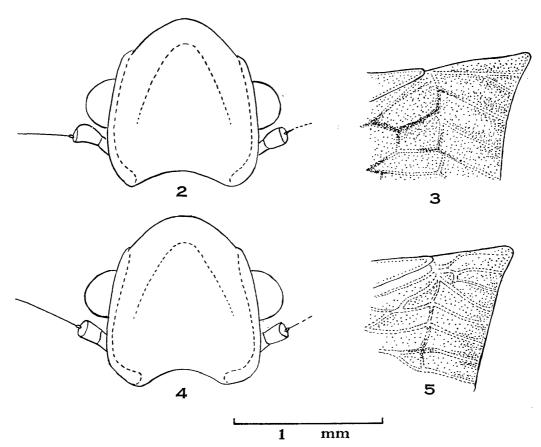
Genus Euricania Melichar, 1898

3. Euricania ocellatus (Walker, 1851)

Walker, 1851. loc. cit. 429 (Pocazia).

Locality collected: Urai~Agyoku (1 3 1 9 VII-8, T. S.).

Distribution: Ryukyus, Formosa, China, India.



Figs. 2-3.

Mimophantia carinata Jacobi, 1915 (2, frons; 3, posterior angle of tegmen)

Figs. 4-5.

M. maritima Matsumura, 1900 (4, frons; 5, posterior angle of tegmen).

Family 6, FLATIDAE

Genus Mimophantia Matsumura, 1900

1. Mimophantia carinata Jacobi, 1915 (Figs. 2-3)

Jacobi, 1915. Deutsch. Ent. Zeitschr., (1915): 169 (5 ex. Formosa: Takao).

Locality collected: Tenshô, Taroko Valley (19 VII-3, T. S.).

Distribution: Formosa.

Although Jacobi described the present species followingly: "Nur durch die völlig abweichende Stirnbildung von der ersten Art unterscheiden. Die Stirn ist nicht oval, sondern trapezoidal,", the frons of the first species, *M. maritima* Matsumura, 1900, which is distributed in Japan (Honshu, Shikoku, Kyushu and Yakushima) is not oval but rather rectangular. So far as the identification of the above female specimen is correct, they will be differentiated from each other by the tegminal characters. In the present species, the postero-lateral angle of the tegmen is comparatively acutely developed and the brownish marking of tegmen from postero-lateral angle to the central portion is deeper in hue and apical half of clavus is infuscated. The decided differences may be found when the male genital characters of them are examined.

Family 7, NOGODINIDAE

Genus Pisacha Distant, 1906

DISTANT, 1906. Faun. Brit. Ind. Rhynch., 3: 391.

= Genus Soaemis Jacobi, 1915. Deutsch. Ent. Zeitschr., (1915): 311 (Syn. nov.).

1. Pisacha naga Distant, 1906 (Fig. 6)

1906 Pisacha naga Distant, loc. cit. 392, f. 201 (1 9 Assam).

1915 Soaemis encaustica Jacobi, loc. cit. 311 (1 & Formosa: "Polisha") (Syn. nov.).

1915 Soaemis encaustica: Schumacher, Suppl. Ent., 4: 139 (Formosa: Kosempo & Banshoryo).

1923 Pisacha naga: Melichar, Gen. Ins., fas. 182, 160.

1923 Soaemis encaustica: Melichar, loc. cit. 168.

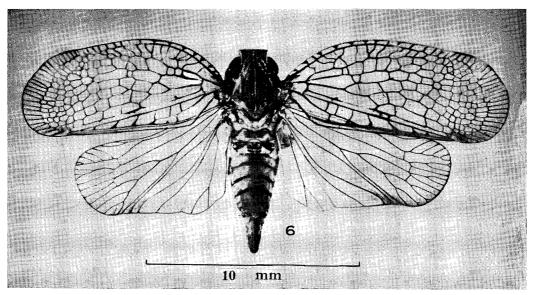


Fig. 6. Pisacha naga Distant, 1906. 9

No. 1

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1956 Pisacha naga: Fennah, Calif. Acad. Sci., 28 (13): 518 (19 Hainan Is.).

Locality collected: Rimogan~Magan (1 9 VII-10, M. O.).

Distribution: Formosa, Is. Hainan, Assam.

The male specimen described by Distant has two remarkable fuscous markings in the tegmen, one in the anterior margin near apex and the other in the hind angle, the above specimen, however, has no marking in the tegmina and veind are slightly infuscated in the related portions and seems to be a light-coloured form of the present species.

Family 8, ISSIDAE

Genus Gergithus Stal, 1870

1. Gergithus tessellatus Matsumura, 1916

Matsumura, 1916. Trans. Sapporo Nat. Hist. Soc., 6 (2): 100 (3 9 Formosa: Koshun).

Locality collected: Rimogan~Magan (2 & & VII-10, T. S.)

Distribution: Formosa.

2. Gergithus reticulatus Matsumura, 1916

Matsumura, 1916. loc. cit. 101 (\$ Prormosa: Shoka & Koshun).

Locality collected: Oiwake~Tattaka (1 & VI-24, T. S.).

Distribution: Formosa.

Genus Gergithoides Schumacher, 1915

(= Genus Darma Matsumura, 1916)

3. Gergithoides carinatifrons Schumacher, 1915

Schumacher, 1915. Mitt. Zool. Mus. Berlin 8 (1): 126 (Formosa: Hoozan & Polisha)

= Darma nitobei Matsumura, 1916, loc. cit. 104 (δ 9 Formosa: Horisha, Shinsha & Arisan).

Locality collected: Urai~Agyoku (1 & 1 9 VII-1. T. S.).

Distribution: Shikoku (Tosa-Okinoshima, new record); Formosa.

Genus Sarima Melichar, 1903

4. Sarima satsumana Matsumura, 1916

Matsumura, 1916. loc. cit. 111 (& Kyushu).

Localities collected: Rimogan~Magan (1 & 1 & VII-10, T. S.); Urai~Agyoku (1 & 1 & VII-11, T. S.).

Distribution: Kyushu, Formosa (new record).

Although this species is closely allied to a Formosan species, *S. formosanum* (sic!) Matsumura, 1961 (loc. cit. 112), they are differentiated each other by the vertex which is "deutlich breiter als lang" in the former and is "etwa doppelt so breit wie lang "in the latter or by the frons which is "mit zahlreichen gelblichen Punkten besäzt "in the former and "in der Mitte mit zwei blassgelblichen Fleckchen" in the latter.

To the above S. formosanum Matsumura, 1916 (loc. cit.) preoccupied by S. formosana Schumacher, 1915 (Suppl. Ent., 4: 137), is given S. matsumurai Esaki, 1931 (Annot. Zool. Jap., 13 (3): 268).

Family 9, DERBIDAE

Genus Vekunta DISTANT, 1906

1. Vekunta albipennis Matsumura, 1914

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Матѕимика, 1914. Ann. Mus. Nat. Hung, 12: 289 (↑ ♀ Formosa: Koshun, Arisan, Kuyania & Toroen). Locality collected: Oiwake (5↑ ↑ ♀ VI-24, Т. S.).

Distribution: Formosa.

2. Vekunta nigrolineata Muir, 1914

Muir, 1914. Proc. Haw. Ent. Soc., 3: 44 (♀ Formosa: Horisha & Klappan); Schumacher, 1915. Mitt. Zool. Mus. Berlin 8 (1): 120 (Taihorin).

Locality collected: Rimogan~Magan (1 & VII-10, T.S.).

Distribution: Formosa.

3. Vekunta makii Muir, 1914

Muir. 1914. loc. cit. 45 (& Formosa: Horisha).

Locality collected: Rimogan~Magan (1 9 VII-10, T. S.).

Distribution: Formosa.

4. Vekunta lyricen Fennah, 1956

Fennah, 1956. Proc. Calif. Acad. Sci, 28: 484 (9 Formosa: Musha).

Locality collected: Urai (19 VII-8, T. S.).

Distribution: Formosa.

Genus Rhotana Walker, 1857

5. Rhotana hopponis Matsumura, 1914

Matsumura, 1914. loc. cit. 294 (1 & Formosa: Hoppo).

Localities collected: Oiwake~Tattaka (1 & 1 & VI-24, T. S.); Rimogan-Magan (2 & & VII-10, T. S.).

Distribution: Formosa.

6. Rhotana formosana Matsumura, 1914

Matsumura, 1914. loc. cit. 295 (2♀♀ Formosa: Kanshirei).

Locality collected: Oiwake~Tattaka (1 \(\text{VI-24}, \text{T. S.} \).

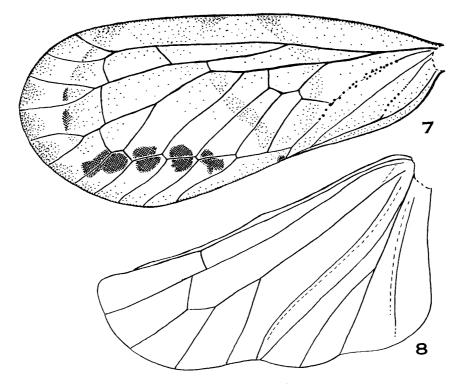
Distribution: Formosa.

7. Rhotana shirozui sp. nov. (Figs 7-8).

3. Length 2.3 mm, tegmen 3.8 mm. Body and legs excluding head mostly pale stramineous. Head somewhat tinted with brown from vertex to frons, especially on carinae. Second antennal segments and frons medio-longitudinally orange-tinted. Clypeus and rostrum pale stramineous. Eyes brown. Tegmina transparent, powdered white, with a series of four black roundish markings transversely near the postero-lateral angle of tegmen and three faint infuscate narrow bands, namelly outer one running submarginally of which central portion is partially darkened, central one running obliquely and basal one recurved basally of which posterior end touched with the central one near the tegminal hind margin. Tegminal hind margin infuscated at apex of clavus. Veins stramineous, with concolorous granules on Cu and on 1A. Abdomen pale stramineous except for apex of anal style which is black. Wings including veins transparent, powdered white.

Rostrum long, protruding hind coxae. Of hind legs, tibia 3-spined at apex, tarsus 4-spined each at apices of basal and of second segments.

Specimen examined: 13 (holotype) Rimogan-Magan, VII-10, T. S.



Figs. 7-8. Rhotana shirozui sp. nov. (7, tegmen; 8, wing).

Distribution: Formosa.

This new species may be easily identified by the characteristic tegminal markings.

Family 10, TROPIDUCHIDAE

Genus Tambinia Stål, 1859

1. Tambinia debilis Stål, 1859

Stål, 1859. Berl. Ent. Zeitschr., 3: 317.

Locality collected: Urai~Agyoku (1 9 VII-8, T. S.).

Distribution: Formosa, S. China, Ceylon.

Genus Sogana Matsumura, 1914

2. Sogana hopponis Matsumura, 1914

Матѕимика, 1914. Ann. Mus. Nat. Hung, 12: 268, f. 3 (↑ ♀ Formosa: Shoka & Hoppo); Esaki, 1937. Akitsu, 1 (1): 24, pl. 3: 2 (♀ Ryukyus: Amami-Oshima); Fennah, 1956. Proc. Calif. Acad. Sci, 4th ser., 28 (13): 499 (1♀ Formosa: Hori).

Locality collected: Urai~Agyoku (1 9 VII-11, T.S.).

Distribution: Ryukyus (Amami-Oshima), Formosa.

Family 11, ACHILIDAE

Genus Kosalya Distant, 1906

1. Kosalya flavostrigata Distant, 1906

DISTANT, 1906, Faun. Brit. Ind. Rhynch., 3: 293, f. 140.

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Locality collected: Urai~Agyoku (1 \, VII-11, T.S.).

Distribution: Formosa, India.

Fennah examined the holotype of the present species and stated that it is uncertain whether the bispinose condition of post-tibiae is normal (Fennah, 1950. A generic revision of the Achilidae, p. 73), the above specimen has one spine about 2/3 portion from base in the post-tibia and has the medio-central carina distinct throughout the vertex.

Genus Deferunda Distant, 1912

(=Genus Okatropis Matsumura, 1914)

2. Deferunda rubrostigma (Matsumura, 1914)

Matsumura, 1914. Ann. Mus. Nat. Hung., 12: 273, f. 5 (Okatropis. 3 9 Honshu & Formosa).

Locality collected: Rimogan~Magan (1 9 VII-10, T. S.).

Distribution: Japan (Honshu, Kyushu, Yakushima), Formosa.

Genus Betatropis Matsumura, 1914

3. Betatropis formosana Matsumura, 1914

Matsumura, 1914. loc. cit. 275, f. 6 (8 9 Formosa: Shinsha, Horisha Arisan & Koshun).

Localities collected: Jitsugetsutan (Q VI-26, T. S.), Urai (1Q VII-7, T. S.).

Distribution: Formosa.

4. Betatropis horishana Matsumura, 1914

Matsumura, 1914. loc cit. 276 (ô ♀ Formosa: Horisha).

Locality collected: Urai~Agyoku (2 9 9 VII-11, T. S.).

Distribution: Formosa.

Genus Magadha Distant, 1906

5. Magadha formosana Matsumura, 1914 (Figs. 9-13)

Matsumura, 1914. loc. cit. 277 (9 Formosa: Koshun, Hoppo & Arisan).

Locality collected: Oiwake~Tattaka (1 9 VI-24, T. S.).

Distribution: Formosa.

The post-tibiae of the above specimen is one-spined at about one-third from base. The present figures (Figs. $9\sim13$) are the first illustration of this species.

Family 12, DELPHACIDAE

Genus Tropidocephala Stål, 1853

1, Tropidocephala festiva (Distant, 1906)

DISTANT, 1906. Faun. Brit. Ind. Rhynch., 3: 478 (Smara); Metcalf, 1943. Gen. Cat. Hem., fasc.

4, pt. 3, Araeopidae, 94; Ishihara, 1949. Sci. Rep. Matsuyama Agr. Coll., 2: 13, f. 27.

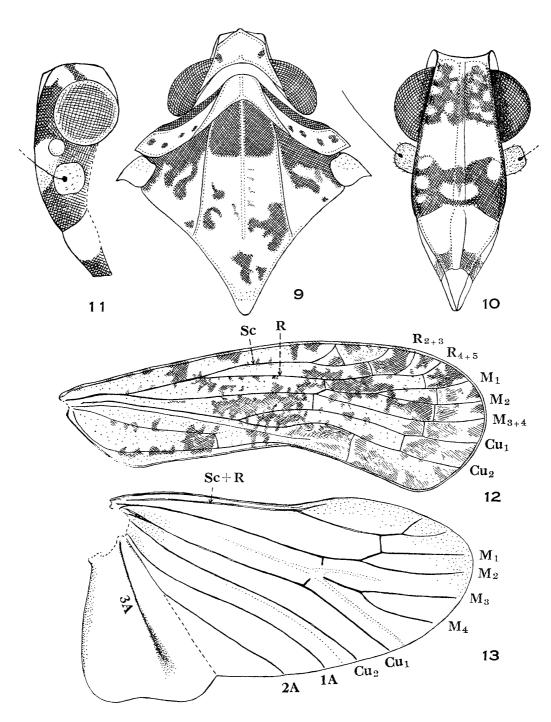
Locality collected: Rimogan~Magan (1 ô VII-10, T. S.).

Distribution: Japan (Honshu, Shikoku), Formosa, China, Malaya, Ceylon, Java, Borneo.

Genus Eurysa Fieber, 1866

2. Eurysa nawai (Matsumura, 1900)

Матѕимика, 1900. Ent. Nachr., 26: 261 (*Epeurysa*. Japan: Gifu); Метсаlf, 1943. loc. cit. 287 (*Epeurysa*); Іѕнінака, 1949. loc. cit. 87, fs. 229–232.



Figs. 9-13.

Magadha formosana Matsumura, 1914.

(9, head, pronotum and scutellum in dorsal view; 10, head in frontal view; 11, head in lateral view; 12, tegmen; 13, wing).

Locality collected: Jitsugetsutan (1 & VI-26, T. S.).

Distribution: Japan (Honshu, Shikoku, Kyushu), Formosa, China.

Genus Peregrinus Kirkaldy, 1904

3. Peregrinus maidis (Ashmead, 1890)

Ashmead, 1890. Psyche, 5: 323, fs. (*Del phax*); Metcalf, 1943. loc. cit. 252; Ishihara, 1949. loc. cit. 80, fs. 90-94.

Locality collected: Chipon (1 9 VII-1, T. S.).

Distribution: Formosa, India, Java, Micronesia, Hawaii, Africa, Australia, N. America, W. India, etc.

Genus Delphacodes Fieber, 1866

4. Del phacodes striatella (Fallén, 1826)

Fallén, 1826. Hem. Suec. Cicad., 75 (*Del phax*); Metcalf, 1943. loc. cit. 513; Ishihara, 1949. loc. cit. 49, fs. 113-116.

Locality collected: Urai (1 819 VII-7, T. S.).

Distribution: Japan, Ryukyus, Formosa, Philippines, Korea, Siberia, Europe.

Genus Nilaparvata Distant, 1906

5. Nilaparvata lugens (Stål, 1854)

Stål, 1854. Ofv. Vet. Akad. Förh., 11: 246 (*Delphax*); Metcalf, 1943. loc. cit. 296; Ishihara, 1949. loc. cit. 67, fs. 163–166.

Localities collected: Chipon (39 ô ô 18 9 9 VII-1, T. S.); Urai (18 ô ô 14 9 9 VII-7, T. S.).

Distribution: Japan, Korea, Ryukyus, Formosa, China, Malaya, India, Java, Philippines, Micronesia, New Guinea, Australia.

Genus Sogatella Fennah, 1956

6. Sogatella furcifera (Horváth, 1899)

Horvath, 1899. Term. Fuzet., 22: 372 (Delphax. Japan: Hokkaido); Metcalf, 1943. loc. cit. 357 (Sogata); Ishihara, 1949. loc. cit. 63, fs. 169-171 (Sogata); Fennah, 1956. Proc. Calif. Acad. Sci., 4th ser. 28 (13): 472 (Chloriona-Sogatella. China).

Localities collected: Chipon (1 \text{ VII-1, T. S.}); Urai (1 \text{ VII-7, T. S.}).

Distribution: Japan, Ryukyus, Formosa, etc. A tropicopolitan species.

Genus Unkanodes Fennah, 1956

7. Unkanodes sapporona (Matsumura, 1935)

Матѕимига, 1935. Ins. Mats., 10: 74 (*Unkana*. Hokkaido: Sapporo); Метсаьг, 1943. loc. cit. 157 (*Unkana*); Іѕнінага, 1949. loc. cit. 57, fs. 110–112 (*Del phacodes*); Fеnnah, 1956. loc. cit. 474, f. 8: A (China: Che-Kiang).

Locality collected: Ratô (3 9 9 VII-4, T. S.).

Distribution: Japan (Hokkaido, Kyushu), Formosa (new record), China.

Family 13, MEENOPLIDAE

Genus Eponisia Matsumura, 1914

1. Eponisia guttula Matsumura, 1914

Matsumura, 1914. Ann. Mus. Nat. Hung., 12: 286 (↑ ♀ Formosa: Taihokan, Hoppo, Horisha & Ako); Fennah, 1956. Proc. Calif. Acad. Sci., 28 (13): 475 (China: Che-Kiang); Ізнінака, 1961. Nat.

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Life in Southeast Asia, 1: 231 (Thailand).

Locality collected: Rimogan~Magan (1 & VII-10, T. S.).

Distribution: Formosa, China, Thailand.

Family 14, CIXIIDAE

Genus Cixius Latreille, 1804

1. Cixius nitobei Matsumura, 1914

Matsumura, 1914. Annot. Zool. Jap., 8 (3): 401 (3 Formosa: Arisan).

Locality collected: Oiwake~Tattaka (1 & VI-24, T. S.).

Distribution: Formosa.

2. Cixius hopponis Matsumura, 1914

Matsumura, 1914. loc. cit. 406 (& Formosa: Hoppo).

Locality collected: Urai~Agyoku (1 9 VII-8, T. S.).

Distribution: Formosa.

Genus Macrocixius Matsumura, 1914

3. Macrocixius giganteus Matsumura, 1914

Matsumura, 1914. loc. cit. 394, f. 1 (↑ ♀ Kyushu: Kagoshima); Fennah, 1956. Proc. Calif. Acad. Sci., 28 (13): 459 (1♀ Formosa: Musha).

Locality collected: Oiwake~Tattaka (2 9 9 VI-24, T. S.).

Distribution: Japan (Kyushu), Formosa.

Genus Betacixius Matsumura, 1914

4. Betacixius ocellatus Matsumura, 1914

Matsumura, 1914. loc. cit. 412, f. 3 (б ♀ Formosa: Hoppo & Horisha).

Locality collected: Oiwake~Tattaka (1 & VI-24, T. S.).

Distribution: Formosa.

5. Betacixius brunneus Matsumura, 1914

Matsumura, 1914. loc. cit. 417 (& Formosa: Tappan & Toroen).

Locality collected: Oiwake~Tattaka (1 § 1 9 VI-24, T. S.).

Distribution: Formosa.

Genus Ptoleria Stål, 1859

6. Ptoleria indica DISTANT, 1916

DISTANT, 1916. Faun. Brit. Ind. Rhynch., 6: 39; Fennah, 1956. loc. cit. 448 (1 9 China: Suisapa).

Locality collected: Rimogan~Magan (1 9 VII-10, T. S.).

Distribution: Formosa, China, India.

The tegmina of the above specimen are uniformly light brownish, without the blackish suffusion and are only slightly infuscated at apices of the apical veins.

Genus Borysthenes Stål, 1866

(= Genus Barma Distant, 1906=Vademela Melichar, 1914)

7. Borysthenes maculatus (Matsumura, 1914)

1914 Barma maculata Matsumura, loc. cit. 430 (З Ф Formosa: Toroen, Horisha & Hoppo).

1933 Borysthenes (sic.) guttatus Kato, Konchu-Kai, 1 (5): 468, pl. 14: 14 (8 Formosa: Karapin).

1936 Borysthenes maculata: Metcalf, Gen. Cat. Hem. fasc. 4, pt. 2, Cixiidae, 252 (Formosa. listed).

1956 Borysthenes maculata: Fennah, loc. cit. 459 (Okinawa: Chizuka).

1961 Borysthenes maculata: Ishihara, Gist of Lectures of the 21st Annual Meet. of Ent. Soc. Japan, 4 (Amami-Oshima).

Locality collected: Urai (1 9 VII-8, M. O.).

Distribution: Ryukyus (Amami-Oshima, Okinawa), Formosa.

Family 15, KINNARIDAE

Genus Kinnara DISTANT, 1906

1. Kinnara fumata (Melichar, 1903)

Melichar, 1903. Hom. Faun. Ceylon, 42 (*Pleroma*); Fennah, 1956. Proc. Calif. Acad. Sci., 28 (13): 476 (China: W. Hupeh).

Locality collected: Rimogan~Magan (1 9 VII-10, T. S.).

Distribution: Formosa (new record), China, India.

In the above specimen, the 1st, 2nd and the 4th apical veins of tegmina are 2-branched and the third ocellus which is in the type specimen "an der Clypeusnaht gross, glashell, deutlich" is indistinguishable.

Family 16, COELIDIIDAE

Genus Coelidia German, 1821

1. Coelidia conspersa (Stal, 1854)

Stål, 1854. Ofv. Vet. Akad. Förh., 27:735 (*Jassus*. Philippines); Matsumura, 1914. Trans. Sapporo Nat. Hist. Soc., 5 (2): 82 (Formosa: Hoppo, Shinsha & Shinko, Shoka, etc.); Baker, 1915. Philip. Journ. Sci., 10 (1): 55, f. 2 (*Jassus*).

Locality collected: Urai~Agyoku (3 9 9 VI-11, T. S.).

Distribution: Formosa, Malaya, Philippines.

Family 17, TARTESSIDAE

Genus Tartessus Stål, 1865

1. Tartessus ferruginea (Walker, 1851)

WALKER, 1851. List. Hem., 3: 865 (Bythoscopus).

Localities collected: Tenshô (1 & 1 & VII-3, T. S.); Urai~Agyoku (2 & & 3 & & VII-11, T. S.).

Distribution: Japan (Honshu, Shikoku, Kyushu), Ryukyus, Formosa, China, Malaya, Philippines.

Family 18, TETTIGELLIDAE

Genus Tettigella China et Fennah, 1946

1. Tettigella spectra (Distant, 1908)

DISTANT, 1908. Faun. Brit. Ind. Rhynch. 4: 211 (Tettigoniella)

- = Tettigonia albida Signoret, 1853. Ann. Soc. Ent. France, (3): 1: 663, f. 33.
- = Tettigonia alba Matsumura, 1917. Applied Ent., 1: 411.

Locality collected: Chipon (1 & VII-1, T. S.).

Distribution: Yakushima, Ryukyus, Formosa, Oriental Region.

2. Tettigella horishana (Matsumura, 1912)

Матѕимика, 1912. Ann. Zool. Jap., 8 (1): 36 (Tettigonia. ô ♀ Formosa: Horisha & Hoppo).

Locality collected: Rimogan~Magan (2 9 9 VII-10, T. S.).

Distribution: Formosa.

Genus Bothrogonia China, 1938

3. Bothrogonia formosana (Matsumura, 1912)

Matsumura, 1912. loc. cit. 34 (*Tettigonia*. 19 Formosa: Horisha); Ishihara, 1962. Jap. Journ. Appl. Ent. Zool., 6 (4): 289.

Localities collected: Nanzankei (1 & VI–24, T. S.); Rimogan~Magan (4 & & & 5 & P VII–10, T. S.); Urai~Agyoku (1 & VII–11, T. S.).

Distribution: Formosa.

Genus Mileeva Distant, 1908

4. Mileeva margheritae Distant, 1908

DISTANT, 1908. Faun. Brit. Ind. Rhynch. 4: 238.

= Tylozygoides artemisiae Matsumura, 1912. loc. cit. 43.

Locality collected: Oiwake (2 & & 1 P VI-24, T. S.).

Fig. 14. Formotettigella shirozui sp. nov. \circ

Distribution: Japan (Hokkaido, Honshu, Kyushu), Korea, Oriental Region.

Genus Formotettigella nov.

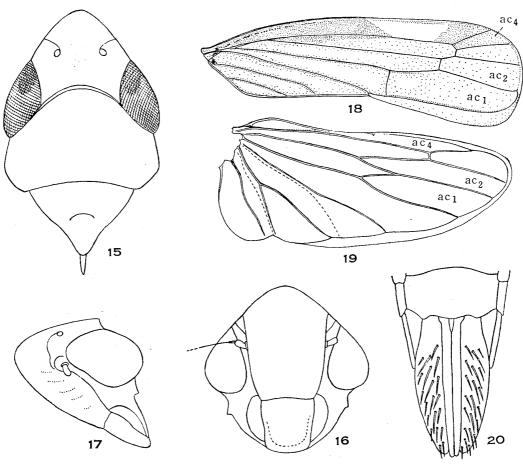
Type: Formotettigella shirozui sp. nov.

Head about as wide as pronotum, anterior margin rounded; apex of head subconically produced; vertex much longer medially than next the eye but clearly shorter than pronotum. Ocelli nearer to cephalic margin than to base of vertex. Eyes slightly expanded laterally. Clypeus with basal suture distinct, with apec weakly rounded. Pronotum with lateral margins feebly carinate. Tegmen amplified towards apex which is subtruncate; appendix well developed; apical cells largest in the 1st, gradually smaller to the 2nd and to the 3rd and very small in the 4th; anteapical cells absent. Wing with 4 apical cells but the 4th basad of the 3rd.

Although this new genus seems to be near to Genus *Mileeva* Distant, 1908, in some respects, the characters of vertex, the spinulation of the female genital segments, etc. are different.

5. Formotettigella shirozui sp. nov. (Figs. 14-20)

9. Length 4.7 (including tegmina), 3.2 (excluding tegmina) mm. Head and thorax above black, polished. Ocelli reddish yellow. Eyes dark brown. Body beneath including face and legs entirely stramineous except for genital segments which are blackish and furnished with light brownish spines. Tegmina blackish, subhyalie, conspicuously infuscated along costal



Figs. 15-20.

Formotettigella shirozui sp. nov. φ (15, head and thorax in dorsal view; 16, head in frontal view); 17, head in lateral view; 18, tegmen; 19, wing; 20, genital segments in ventral view).

area, each with a remarkable whitish marking in the costal area at about 3/4 portion from base. Wings blackish, subhyaline. Veins black both in tegmina and in wings.

Specimen examined: 1 9 (holotype), Rimogan~Magan, VII-10. T. S.

Distribution: Formosa.

The present new species may be easily identified by the peculiar characters of the genus.

Family 19, EVACANTHIDAE

Genus Evacanthus Peletier et Serville, 1828

1. Evacanthus brevice ps (Matsumura, 1912)

Матsumura, 1912. Ann. Zool. Jap., 8 (1): 39 (Euacanthus. & Formosa: Rinkiho).

Locality collected: Oiwake (699 VI-24, T. S.).

Distribution: Formosa.

Genus Onukia Matsumura, 1912

2. Onukia arisana Matsumura, 1912

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Матѕимика, 1912. loc. cit. 45 (8 ♀ Formosa: Arisan & Toroen); Іѕнінака, 1963. Trans. Shikoku Ent. Soc., 8 (1): 3 (key).

Locality collected: Urai~Agyoku (1 9 VII-8, T. S.).

Distribution: Formosa.

3. Onukia flavifrons Matsumura, 1912

Matsumura, 1912. loc. cit. 45 (φ Formosa: Rinkiho & Toroen); Ishihara, 1963. loc cit. 3 (key). Distribution: Formosa.

Genus Onukiades Ishihara, 1963

4. Onukiades formosana (Matsumura, 1912)

Matsumura, 1912. loc. cit. 40 (Euacanthus. 3 ♀ Formosa: Hoppo).

Locality collected: Rimogan~Magan (3 & & 1 9 VII-10, T. S.).

Distribution: Formosa.

Genus Paraonukia Ishihara, 1963

5. Paraonukia keitonis Ishihara, 1963

Ishihara, 1963. loc. cit. 5, fs. B-C.

Locality collected: Keitô (1 & -holotype, VI-21, T. S.).

Distribution: Formosa.

Family 20, DELTOCEPHALIDAE

Genus Balclutha Kirkaldy, 1900

1. Balclutha viridis (Matsumura, 1902)

Matsumura, 1902. Term. Füzet., 25: 357 et 359 (Gnathodus. ⊗ 9 Japan: Gifu & Tokyo); Schumacher, 1915. Mitt. Zool. Mus. Berlin, 8 (1): 108 (Formosa: Tainan).

Locality collected: Urai (1 9 VII-7, T. S.).

Distribution: Honshu, Shikoku, Kyushu, Formosa, Ceylon.

Genus Nephotettix Matsumura, 1902

2. Nephotettix cincticeps (UHLER, 1896)

UHLER, 1896. Proc. U. S. Mus., 19: 292. (Selenocephalus. Japan.).

Localities collected: Chipon (1 9 VII-1, T. S.); Ratô (1 8 19 VII-4, T. S.).

Distribution: Japan, Ryukyus, Formosa.

This is the first record of the present species from Formosa after the species of the genus were revised.

Genus Inazuma Ishihara, 1949

3. Inazuma dorsalis (Motschulsky, 1859)

Motschulsky, 1859. Etud. Ent., 7: 114 (Deltoce phalus).

Locality collected: Urai (1 & VII-7, T. S.).

Distribution: Japan (Honshu, Shikoku, Kyushu), Korea, Formosa. Oriental Region.

Genus Nosophrosyne Kirkaldy, 1906

4. Nesophrosyne orientalis (Matsumura, 1914)

Matsumura, 1914. J. Coll. Agr. Sapporo, 5 (7): 192 (Eutettix. ♦ ♀ Japan: Honshu; Formosa: Ako,

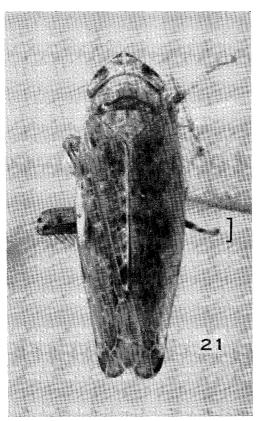


Fig. 21. Neurotettix horishanus Matsumura, 1914. 9

Shirin & Banshoryo); Ishihara, 1963. Trans. Shikoku Ent. Soc., 7 (4): 121, fs 1-3 Ryukyus).

Localities collected: Tainan (1 \circ 6 \circ \circ , VI-29, T. S.); Urai (1 \circ VII-7, T. S.).

Distribution: Honshu, Ryukyus, Formosa.

Genus Neurotettix Matsumura, 1914

- 5. Neurotettix horishanus Matsumura, 1914 Fig.
- 21) Matsumura, 1914. loc. cit. 193 (\$\pi\$ Formosa: Horisha); Ishihara, 1963. loc. cit. 124, f. 4 (\$\pi\$ Formosa). Locality collected: Jitsugetsutan (1 \$\pi\$ 1 \$\pi\$ VI-24, T. S.).

Distribution: Formosa.

Family 21, CICADELLIDAE

Genus Erythroneura Fitch, 1851

1. Erythroneura maculifrons (Motschulsky, 1863) Motschulsky, 1863. Bull. Soc. Nat. Moscou, 36 3; 103 (Typhrocyba); Schumacher, 1915. Mitt. Zool. Mus. Berlin, 8 (1): 109 (Formosa); Ishihara, 1961. Nat. Life in Southeast Asia, 256, fs. 103-107 (Thailand).

Locality collected: Tainan (1 º VI-29, T. S.). Distribution: Formosa, India, Ceylon, Java, etc.

2. Erythroneura takasagonis (Matsumura, 1932)

Matsumura, 1932. Ins. Matsu., 6 (3): 118 (Zygina. 19 Honshu: Takasago).

Locality collected: Urai~Agyoku (1 9 VII-11, T. S.).

Distribution: Honshu, Formosa.

3. Erythroneura takaonella (Matsumura, 1932)

Matsumura, 1932. loc. cit. 118 (Zygina. 19 Formosa: Takao).

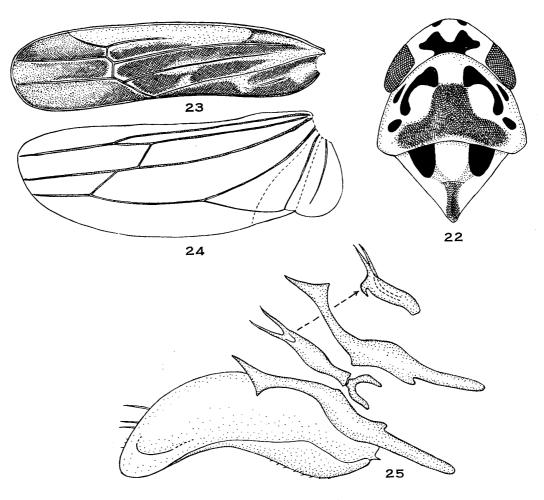
Locality collected: Tainan (3 $\ \ \ \ \ \ VI-29$, T. S.).

Distribution: Formosa.

4. Erythroneura shirozui sp. nov. (Figs. 22-25)

Length includ. tegmina & \(\text{2.3 mm}, \) id. exclud. teg. \(\text{2.3, } \text{\text{\text{9}}} \) 2.5 mm. Head and thorax stramineous, with black markings as follows: a large short-Y-shaped marking on vertex, two small roundish markings in the cephalic margin, a small roundish marking in front of the eye, three markings (two short and one long markings, some of which are contiguous to one another in some specimens) on each side of pronotum and two large markings at base of scutellum. Eyes fuscous. Face infuscated on both sides of frons and entirely on clypeus. Pronotum fuscous from hind portion convergingly to a little anterior to the middle. Scutellum also infuscated medially in the hind half. Abdomen fuscous except for stramineous hind margin of each segment. Tegmina





Figs. 22-25.

Erythroneura shirozui sp. nov. 5

(22, head and thorax in dorsal view; 23, tegmen; 24, wing; 25, a male plate, aedeagus, connective and styles).

faintly infuscated except for the stramineous costal area, with veins stramineous. Wings almost hyaline, with blackish veins. Legs stramineous throughout. Vertex somewhat longer medially than next the eye, less than half the distance between eyes. Male genitalia in the dried specimen with plates gradually tapering distally, basal halves of which are stramineous and distal halves are fuscous and recurved dorsad and have several whitish spines scattered. Aedeagus at apex with a small dorsal reflection and a pair of fairly long acuminate paraphyses on the ventral surface.

Locality collected: Oiwake (holotype, \circ and 4 paratopotypes, $1 \circ 3 \circ \circ$, VI-24, T.S.).

Distribution: Formosa.

This new species are easily separable from other known species of the genus by the contrastive coloration.

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Genus Cicadella Dumeril, 1806

5. Cicadella triangularis (Matsumura, 1932)

Matsumura, 1932. Ins. Mats., 6 (3): 94 (Honshu).

Locality collected: Oiwake (1 \circ 1 \circ VI-24, T. S.).

Distribution: Honshu, Shikoku, Formosa (new record).

This species injures the leaves of the rose and of the strawberry in Japan.