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**TROPIDUCHIDAE OF TAIWAN (HOMOPTERA:
FULGOROIDEA), SUPPLEMENT**

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TROPIDUCHIDAE OF TAIWAN (HOMOPTERA: FULGOROIDEA), SUPPLEMENT¹

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Shun-Chern Tsaaur (1990) Tropicuchidae of Taiwan (Homoptera: Fulgoroidea), supplement. *Bull. Inst. Zool., Academia Sinica* 29(4): 243-248. Thirteen species belonging to 11 genera and 6 tribes were recorded previously. In this paper 3 tropiduchids species, *Sogana hopponis* Matsumura, *Neommatissus basifuscus* Kato and *N. zonatus* Kato are redescribed and illustrated. The fauna now consists of 12 genera with 14 species in Taiwan.

Key words: Taiwan, *Sogana hopponis*, *Neommatissus basifuscus*, *N. zonatus*.

The Taiwanese Tropicuchidae was revised and supplemented in a recent paper (Yang *et al.*, 1989). Thirteen species belonging to 11 genera and 6 tribes were recognized in their work. In the present paper three species are redescribed, bringing the total number of tropiduchid species in Taiwan up to 14 in 12 genera. Among them *Sogana hopponis* Matsumura was firstly introduced and placed in Lophopidae. However, it was then shifted to the Tropicuchidae by Melichar (1914). For *Neommatissus basifuscus* Kato and *N. zonatus* Kato, male and female genitalia are described for the first time in this article.

MATERIALS AND METHODS

The specimens studied were collected by the author and his friends from 1987 to 1989 in Taiwan. The terminology and methods of description and illustration follow that of Yang *et al.* (1989). The

scale units are in mm.

SYSTEMATIC ACCOUNTS

Genus *Neommatissus* Muir

Neommatissus Muir, 1913. Proc. Hawaii Ent. Soc. 2: 267.

Type species: *Neommatissus spurcus* Muir, 1913 (original designation).

Neommatissus formosanus Kato

Neommatissus formosanus, Yang *et al.*, 1989: 111.

Specimens examined: 1 ♀, Hsinhsien, Taipei Hsien; 15-X-1988, S. C. Tsaaur; 1 ♀, Shuanlienpi, Ilan Hsien; 9-VIII-1989, S. C. Tsaaur.

Distribution: Japan, Taiwan.

Remarks: In addition to the characteristics mentioned by Yang *et al.* (1989), the percurrent black stripes on foretibiae and wing with *R* forked also distinguish this species from all of its Taiwanese congeners.

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Neommatissus basifuscus Kato

(Fig. 1A-C)

Neommatissus basifuscus Kato, 1933: 468.—: Yang *et al.*, 1989: 109.

Male genitalia: Pygofer subquadrated in lateral view, roundly concaved basomedially in ventral view. Anal segment short and stout, ventral margin convexed at ventrad, slightly longer than dorsal margin in lateral view, anal style also

short and stout, reaching about tip of anal segment. Genital styles symmetrical, covered with setae, triangularly produced at dorsad subapically in lateral view; slightly narrowing to apex, with two processes when viewed ventrally: awl-like one at basal third, one club-like near middle. Aedeagus with the phallus in tubular, relatively long, protruding from phallobase then decurved downward at apical fourth, dilating apically in

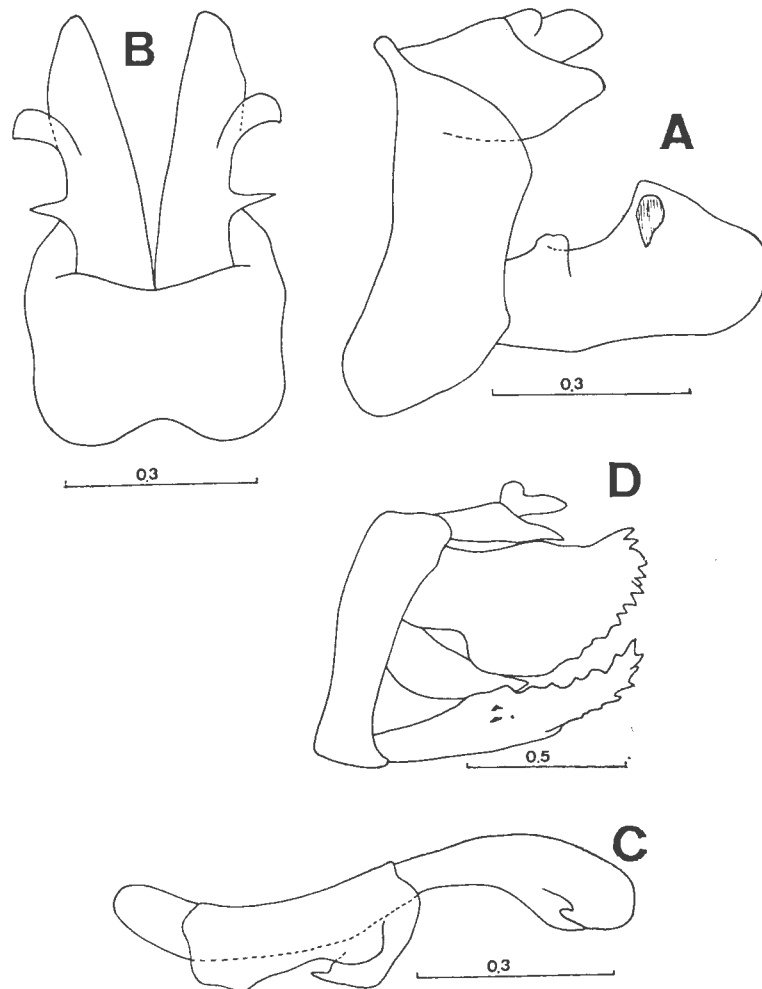


Fig. 1. A-C, *Neommatissus basifuscus* Kato. A, pygofer, genital style and anal segment, left-side view; B, pygofer and genital styles, ventral view; C, aedeagus, left-side view; D, female genitalia of *Neommatissus zonatus* Kato, left-side view.

lateral view, surpassing level of genital styles, rounded at apex. Phallobase cylindrical, with a plate produced from ventral margin at apical part of phallobase, this plate protruding a small, acute process to cephalad.

Specimen examined: 1 ♂, Chihpen, Taitung Hsien; 7-IX-1988, S. C. Tsaur.

Measurements: Male body length 5.02 mm; tegmen length 4.04 mm.

Distribution: Taiwan, Japan.

Remarks: The shining green body pigmentation separates this species from *N. zonatus* Kato which bears dull yellowish brown body coloration.

Neommatissus zonatus Kato

(Fig. 1D)

Neommatissus zonatus Kato, 1933: 468.

—: Yang *et al.*, 1989: 112.

Female genitalia: Anal segment short and stout, longer ventrally than dorsally in lateral view, dilating to apex both in lateral and dorsal views; anal style short. First valvula of ovipositor smoothly curving dorsocaudad at apex, with one row of 9 teeth in lateral view. Third valvula widened at apical two-thirds, densely covered with setae, with ventral margin roundly produced near middle, inner margin with 8 claws, all directed mesad.

Specimens examined: 1 ♂, Hoshe, Nantou Hsien; 12-VII-1988, S. C. Tsaur; 14 ♂ ♂ 12 ♀ ♀, Lienhuachih, Hualien Hsien; 4-5-IX-1988, S. C. Tsaur; 1 ♂, Shuanlienpi, Ilan Hsien; 9-VIII-1989, S. C. Tsaur; 1 ♀, Tienshiang, Hualien Hsien; 17-XI-1989, S. C. Tsaur; 8 ♀ ♀, Paiyang Falls, Hualien Hsien; 18-XI-1989, S. C. Tsaur; 6 ♀ ♀, Lushui, Hualien Hsien; 19-XI-1989, S. C. Tsaur; 1 ♀, Wenshan, Hualien Hsien; 19-XI-1989, S. C. Tsaur.

Measurements: Body length, male 4.93-5.03 mm, female 5.99-6.10 mm; tegmen length, male 3.90-3.95 mm, female 4.83-

4.90 mm.

Distribution: Japan and Taiwan.

Biological notes: This unusual species seems to hide in the uncultivated forest and is abundant in Hualien Hsien, especially on the Central Cross-Island Highway.

Remarks: Several female specimens are examined in the previous revision by Yang *et al.* (1989). However, they didn't describe and illustrate the female genitalia. The drawings of the female genitalia have been presented here for supplementing their work. Moreover, the author has also corrected the misspelled *zanatus* to *zonatus*.

Genus *Sogana* Matsumura

Sogana Matsumura, 1914: 268.

—: Melichar, 1914: 113.

Type species: *Sogana hopponis* Matsumura, 1914 (by monotype).

Sogana hopponis Matsumura

(Fig. 2)

Sogana hopponis Matsumura, 1914: 268.

—: Melichar, 1914: 113.

Head including eyes narrower than pronotum. Vertex moderately long, as long in middle line as wide at base, but shorter than pronotum and mesonotum in combination (about 1:1.7), produced in front of eyes, apical margin of vertex rounded, lateral margins subparallel-sided, median carina massive, protruding forward from base to apical fourth, with two prominent lateral carinae diverging posteriorly. Frons elongated, about 1.5 times longer in middle line than wide at widest portion, basomedian compartment roundly convexed, lateral margins diverging to apex, widest crossing below level of antennae then converging to level of frontoclypeal suture, median carina distinctly elevated, straight. Median ocellus

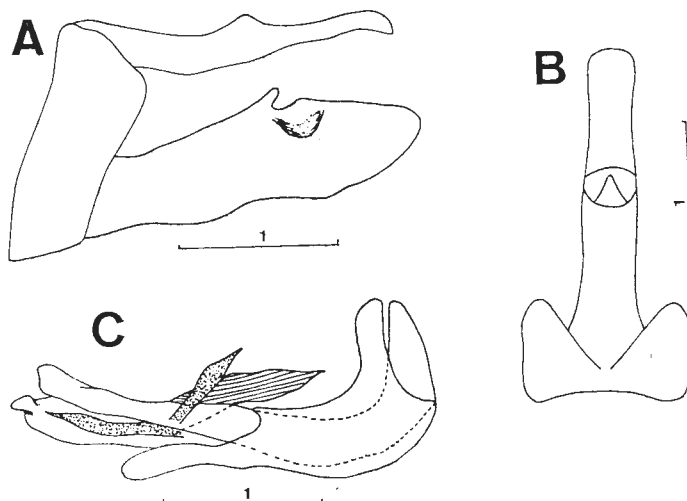


Fig. 2. *Sogona hopponis* Matsumura. A, pygofer, genital styles and anal segment, left-side view; B, male genitalia and anal segment, dorsal view; C, aedeagus, right-side view.

absent. Frontoclypeal suture slightly curved from dorsad to middle. Clypeus subtriangular. Postclypeus much longer than anteclypeus. Rostrum short, just reaching mid-coxae, 3-segmented, apical segment longer than wide. Pronotum with straight, distinct median carina and two elevated intermediate carinae, strongly carinated laterally. Mesonotum tricarinated, median carina straight, reaching the transverse line, lateral carinae contiguous anteriorly, together forming a finely rounded parabola. Tegmen slender, about 3.3 times longer than broad, with zigzag-like cross veins across middle, with 8 anteapical cells and 16 apical cells, not covered with setae. Wing finely curved near anal region. Meta-tibiae each with 3 lateral spines. Spinal formula of hind leg 7-8-2.

General color dull yellow. Vertex, pro- and mesonotum usually with various irregular black markings as figured by Matsumura (1914:269, 3a). Head with 3 black spots of equal space on anterior part. Frons greenish, with several prominent red markings as figured by

Matsumura (1914:269, 3b-c). One black stripe originating from lateral compartment of clypeus, ending at the opposite part. Tegmen and wing with black markings.

Male genitalia: Pygofer symmetrical, roundly produced at dorsolateral angle in lateral view. Anal segment long and slender, nearly as long as genital style in lateral view, subquadrated in dorsal view; anal style hyaline, invisible in lateral view. Genital styles symmetrical, densely covered with setae, with 3 productions: one short and stout at dorsal margin over middle, directed dorso-caudad; two short, triangular ones on distad of the former, one directed mesad and the other laterad. Outer surface among the three productions deeply concaved. Phallus protruding from phallobase, longer than anal segment in lateral view, bifurcated at apical third with the lower one in a sharp, spiral-like ending. Aedeagus with three spinose processes, two on upper bifurcation: the longest one flattened and implanted on left side at apical fifth, the shortest one

also flattened, implanted on right side at apical third; the medium one on lower bifurcation, originating below the former shortest process. Phallobase covering less than half length of phallus, ventrally protruding a long, tongue-shaped production at apex, reaching medium process of phallus.

Female genitalia: Anal segment moderately large, ventral margin slightly sinuated, extending far beyond the dorsal one in lateral view; lateral margin converging to apex, forming a rounded apex in dorsal view; anal style short, reaching beyond level of third valvula; apical end rounded. First valvula of ovipositor smoothly curved on distad, attaining level of third valvulae, with 10-11 large teeth and 5-6 small teeth along margin, and 2 small teeth on center of outer surface. Third valvulae parallel-sided at base then roundly produced dorsad at middle, with 12 outer and 2 inner claws along margin, all directed mesad.

Specimens examined: 1♀, Shihmen, Pingtung Hsien; 24-I-1987, S.C. Tsaur; 1♂ 3♀, Hoshe, Nantou Hsien; 11-VII-1988, S.C. Tsaur; 1♀, 12-VII-1988, S.C. Tsaur; 1♂, Tungpu, Nantou Hsien; 13-VII-1988, S.C. Tsaur; 1♀, Nanao, Ilan Hsien; 18-VII-1988, S.C. Tsaur; 1♂ 1♀, Kukuan, Taichung Hsien; 25-VII-1988, S.C. Tsaur; 1♀, Lienhuachih, Hualien Hsien; 5-X-1988, S.C. Tsaur; 1♀, Chihpen, Taitung Hsien; 7-IX-1988, S.C. Tsaur; 1♂, Yangmingshan, Taipei City; 15-IX-1988, S.C. Tsaur; 1♀, Hsinhsien, Taipei Hsien; 15-X-1988, S.C. Tsaur; 1♀, Nanfengshan, Kaohsiung Hsien; 17-VI-1989, Y.F. Hsu; 1♂, Toonghou, Taipei Hsien; 28-VIII-1989, C.F. Lee; 1♀, Mientianshan, Taipei City; 1-IX-1989, I.S.

Hsu; 1♂ 1♀, Nanjenshan, Pingtung Hsien; 12-XI-1989, S.C. Tsaur.

Measurements: Body length, male 10.4-10.7 mm, female 1.20-1.27 mm; tegmen length, male 0.86-0.87 mm, female 0.94-1.00 mm.

Distribution: Taiwan.

Remarks: According to the key of Yang *et al.* (1989) this species runs to *Mesepora onukii* (Matsumura) but can be easily distinguished from the latter in having slender tegmen, zigzag-like cross veins across middle and longer male anal segment.

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臺灣軍配飛蝨科之補述 (同翅目：飛蝨總科)

曹 順 成

本文計描述三種軍配飛蝨之成蟲：*Neommatissus formosanus* Kato, *N. zonatus* Kato 與 *Sogana hopponis* Matsumura。其中，前二者分別為雄蟲與雌蟲外性器之首度描述，後者因原命名者 Matsumura 將其置於脊粗腳飛蝨科 (Lophopidae) 之內，而未列於 Yang 等人之增訂中，故均在此加以補述，使臺灣飛蝨相更為完整。現今臺灣軍配飛蝨科之記錄增為六族十二屬十四種。