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A New Species of the Genus *Cofana* (Hemiptera: Auchenorrhyncha: Cicadellidae) Associated with a Climbing Vine of Bamboo in Java, Indonesia^{1), 2)}

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Abstract. A new species, *Cofana yukawai*, collected from Gunung Halimun National Park, West Java, Indonesia is described together with its biological information. This species is easily distinguishable from the other species of *Cofana* by the markings of head, pronotum, and forewing. The host plant of this species is a tropical clumping high-climbing vine of bamboo, *Dinochloa scandens* (Blume) (Poaceae). The spatial distribution pattern of *C. yukawai* was surveyed on a canopy walk that is about 20 – 25 m high above the ground. *Cofana yukawai* was more abundant near the canopy and at the marginal area of forest than in the space near the ground inside forest.

Key words: new species, *Cofana*, climbing bamboo, spatial distribution pattern, Indonesia, Gunung Halimun National Park.

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 - 2) Contribution from the Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka (Ser. 5, No. 115).

Introduction

The genus *Cofana* Melichar, 1926, belongs to the *Cicadella* genus group of the tribe Cicadellini and occurs in the Oriental, Ethiopian, and Australian regions (Young, 1979, 1986). Among the genera within the generic group, *Cofana* is very similar in appearance to *Plesiommata* Provancher, 1889, that is distributed in the Nearctic and Neotropical regions (Young, 1977). Although both genera have conspicuous sternal abdominal apodemes, *Cofana* lacks the basal aedeagal process found in *Plesiommata* and the paraphyses found in the other genera of the *Cicadella* generic group.

Seven of 25 species of *Cofana* in the world have been recorded from Java Island, Indonesia; they are *C. klossi* (Distant, 1914), *C. lata* Young, 1979, *C. lineata* (Distant, 1908), *C. spectra* (Distant, 1908), *C. subvirescens* (Stål, 1870), *C. unimaculata* (Signoret, 1854), and *C. yasumatsui* Young, 1979. The male genitalia of this genus are not useful for species identification, because they are weakly sclerotized (Wilson and Claridge, 1990). However, the external characters, especially markings of head and pronotum, are rather available for the identification of *Cofana* species.

During our field survey of the auchenorrhynchan fauna in Gunung Halimun National Park, West Java, we collected adults and nymphs of a new species of *Cofana* from a tropical clumping high-climbing vine of bamboo, *Dinochloa scandens* (Blume) (Poaceae). In this paper, we describe the species together with its biological information.

Usually the abundance of leafhopper is higher at the marginal area of forest than near the ground inside forest. In tropical forests, the spatial distribution pattern of Hemiptera has been surveyed in Panama, Papua New Guinea, and Brunei (Sutton *et al.*, 1983), and in Sarawak (Kato *et al.*, 1995). In their studies, hemipteran taxa were more abundant near the canopy than in the space near the ground inside forest. However, the abundance of hemipteran taxa has never been compared at the same time between the canopy, near the ground, and the marginal area of forest. In this paper, we compare the abundance between these three different spaces using collecting data from the Gunung Halimun National Park.

Material and Methods

In August 1997 and March 2003, we collected the adult and nymphal specimens from Gunung Halimun National Park, which is the largest sub-mountain forest remaining on Java Island. In the National Park, there is a canopy walk that is about 20 – 25 m in height above the ground and 100 m in distance. The host bamboo grows on the other plants for support, and the height of the culm was 25 – 30 m in the Park. We used the canopy walk to collect specimens from the bamboo near the canopy. The other specimens were collected from the bamboo near the ground inside forest and the bamboo at the marginal area of

forest. The abundance of the leafhopper was surveyed by the quantitative sweeping method (Kamitani & Saito, 2001). The host bamboo was identified by one of us, TP.

Cofana yukawai Kamitani, sp. n.

(Figs. 1-9)

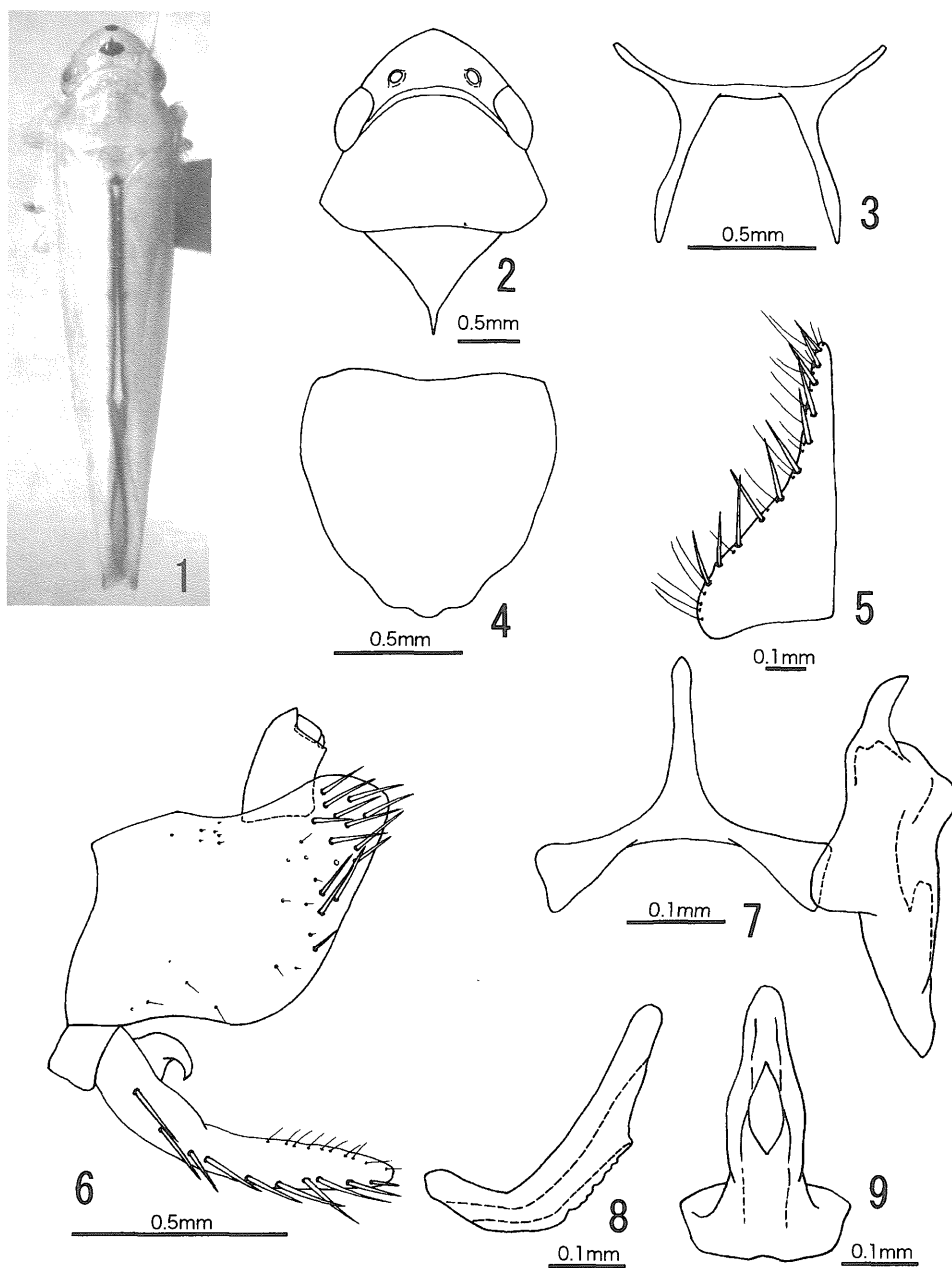
Body pale yellow (pale green when alive). Vertex with a central large black oval spot, and with a small round black spot on the center of anterior margin (Figs. 1-2); clypeus, clypellus, and gena immaculate. Pronotum immaculate; posterior corner of mesonotum (mesonotal scutellum) narrowly black; forewing with anal and apical margins black, forming a longitudinal black mid-dorsally stripe when folded (Fig. 1); ventral surface of thorax, legs, and abdominal segments pale yellow.

Head strongly swollen anteriorly; vertex convex between ocelli; the width of vertex 1.8 times as wide as the median length of head; ocelli on a line between anterior eye angles. Pronotum 1.2 times as wide as head, with lateral margin obliquely and straight; central and posterior portion of pronotum transversely rugulose; mesonotum not rugose, 0.9 times as long as pronotum in median length; forewing without *r-m* cross vein and not forming middle anteapical cell. Apodeme of male abdominal sternum II well developed but very slender, extending to anterior margin of 4th segment (Fig. 3); female abdominal sternum VII narrowed, 0.9 times as long as width, convex apically, with posterior margin slightly undulate (Fig. 4).

Male genitalia. Pygofer lobe long, furnished with 14 macrosetae on posterior half (Fig. 5). Valve rectangular and short, about 0.2 times as long as genital plate. Genital plate elongated, furnished with 11 macrosetae and numerous hairs along outer lateral margin; outer lateral margin concaved (Fig. 6). Style stout and short, almost as long as connective (Fig. 7); apophysis small, strongly hooked ventrally, pointed apically. Connective Y-shaped; stem narrowed, as long as arms (Fig. 7). Aedeagus stout, bending dorsad at basal 1/4 (Figs. 8-9); dorsal apodeme small; shaft almost straight; gonopore subapical and ventral, near apical 1/3 of shaft.

Body length to tip of folded forewing (mean). ♂, 8.0-8.5 mm (8.4 mm); ♀, 8.8-9.5 mm (9.2 mm).

Type material. Holotype. ♂, [W. Java: Indonesia] on Canopy Walk, Cikaniki (alt. 950m), Gn. Halimun National Park, 16. March. 2003 [SW-3], Coll. S. Kahono, S. Kamitani & H. Yoshitake. Paratypes. [W. Java] 1♂, Cikaniki (alt. 1100m), Gn. Halimun National Park, 12. viii. 1997, S. Kamitani; 1♀, same data except Cikaniki (alt. 900m); 8♂ 5♀, same data as holotype; 2♂1♀, Cikaniki – Citalahab (alt. 950m), Gn. Halimun National Park, 16. iii. 2003, S. Kahono, S. Kamitani & H. Yoshitake; 13♂ 5♀, Gate of National Park - Cikaniki (alt. 900m), Gn. Halimun National Park, 17. iii. 2003, S. Kahono, S. Kamitani &



Figs 1-9. *Cofana yukawai* sp. n., ♂. 1, dorsal habitus; 2, head, pronotum and mesonotum in dorsal view; 3, apodeme of ♂ abdominal sternum II; 4, ♀ abdominal sternum VII; 5, left genital plate in ventral view; 6, pygofer in lateral view; 7, stylus and connective in dorsal view; 8, aedeagus in lateral view; 9, aedeagus in posterior view.

H. Yoshitake; 2♀, Cikaniki (alt. 950m), Gn. Halimun National Park, 17. iii. 2003, S. Kahono, S. Kamitani & H. Yoshitake; 2♂ 2♀, Cikaniki – Citalahab (alt. 950m), Gn. Halimun National Park, 18. iii. 2003, S. Kahono, S. Kamitani & H. Yoshitake; 1♀, Citalahab (alt. 1000m), Gn. Halimun National Park, 19. iii. 2003, S. Kahono, S. Kamitani & H. Yoshitake.

Type depository. The holotype and a part of paratypes are deposited in the Museum, Zoologicum Bogoriense, Research Center for Biology, Indonesian Institute of Science, Cibinong, Indonesia. The rest of paratypes are kept in the collection of Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka, Japan.

Distribution. Indonesia: W. Java (Gunung Halimun).

Host plant. *Dinochloa scandens* (Blume) (Poaceae).

Remarks. This new species is easily distinguishable from the other congeners by the following characters; 1) head with a central large black spot and apical small black spot but without a black spot near eye, 2) the relative small width of head to pronotum, 3) pronotum without a dark median longitudinal stripe that continues to vertex, 4) longitudinal black mid-dorsally stripe of forewing, 5) aedeagus without apical process. Among seven other congeners recorded from Java, *C. lineata* is most similar to this new species in the coloration of forewing, but is easily distinguished from the new species in the smaller body-size. *C. yasumatsui* is also similar to this species in the coloration of head, but the male genitalia have no apical processes of aedeagus in *C. yukawai*.

Biological notes. *Cofana yukawai* feeds exclusively on *D. scandens*, although both *Cofana spectra* and *C. unimaculata* are found commonly on rice and also on other poacean grasses even though they grow away from rice field (Wilson & Claridge, 1990). *Dinochloa scandens* is an endemic bamboo species to Java Island, although there have been many distributional records in other parts of South-East Asia due to misidentification of the climbing bamboo (Dransfield & Widjaja, 1995).

This species may be at least bivoltine, because adults were collected both in March (the end of rainy season) and in August (dry season).

Etymology. The specific name, *yukawai*, honors Prof. Junichi Yukawa who has visited Indonesia many times to study the entomofauna of the Krakatau Islands.

Spatial distribution pattern

The abundance of this new species near the canopy was about 10 - 15 individuals / 10 sweepings, but that near the ground inside forest was 0 - 1 individual / 10 sweepings (Fig. 10). The abundance at the marginal area of forest was 5 - 15 individuals / 10 sweepings, which is subequal to that near the canopy. Our field survey on *C. yukawai* in the National Park indicated that its spatial distribution pattern was similar to that demonstrated for

overall Hemipteran taxa by Sutton *et al.* (1983) and Kato *et al.* (1995). In addition, it was also revealed that the abundance of Hemiptera in the marginal area of forest was quite high as that near the canopy.

In recent years, surveys on insect diversity have been focused chiefly on species richness near the canopy. However, it must be pointed out here that the diversity in the marginal area of forest cannot be neglected whenever the species richness in forest is discussed.

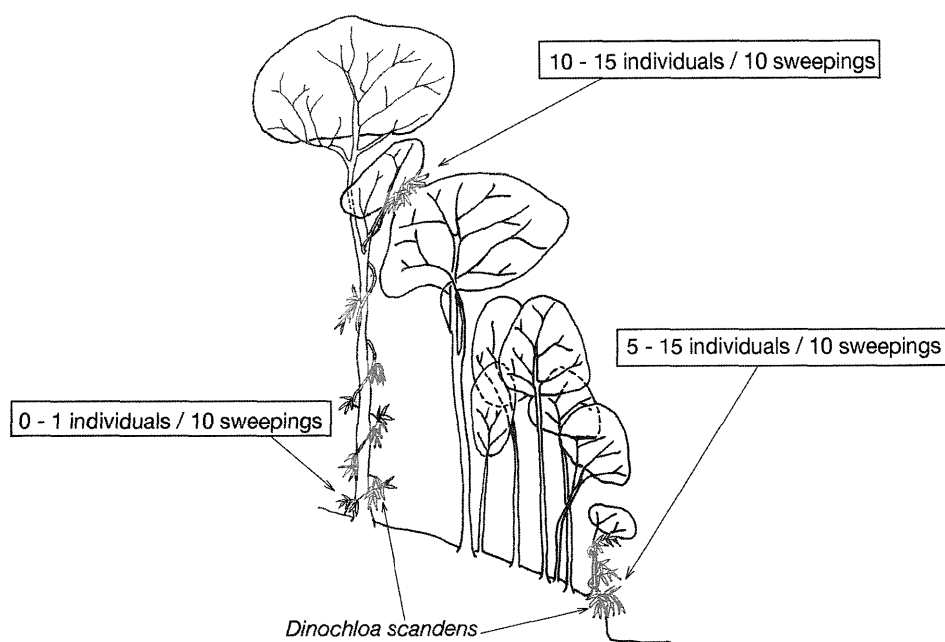


Fig. 10. The spatial distribution pattern of *Cofana yukawai* sp. n. in Gunung Halimun National Park.

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