

***Cofana lineata* (DISTANT), A NEW RECORD FOR LUZON ISLAND,
WITH A CHECKLIST OF KNOWN PHILIPPINE *Cofana* SPECIES
(HEMIPTERA: CICADELLIDAE)¹**

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ABSTRACT

Leafhopper specimens were collected using sweep net from 37 to 1000 meters above sea level (masl) and other nearby agricultural sites in Mount Makiling, Laguna, Philippines. This was conducted as a contribution to the study of Cicadellidae (Hemiptera) from the said mountain, which are poorly studied. Specimens loaned from the UPLB Museum of Natural History were also examined. This paper presents the first geographical record of *Cofana lineata* (Distant, 1908) in Luzon, which is also a new country record. These additional geographical data were added to the checklist of *Cofana* Melichar, 1926 from the Philippines.

Key words: Cicadellidae, *Cofana*, Hemiptera, new record, Philippines

INTRODUCTION

Mount Makiling Forest Reserve (MMFR) is home for a wide range of flora and fauna. According to Lapitan et al. (2013) these include 120 avian species, 50 mammalian species, 6 amphibian species, and 19 reptile species. Although there is no updated record of insects in MMFR, this is still a home for a number of insect species. Insects recorded in Mount Makiling include species of butterflies (Cayabyab, 2000) and mealybugs (Lit & Calilung, 1994). Records of Makiling Cicadellidae are minimal, particularly of the genus *Cofana*.

Cofana species, like many other hemipterans, have a distinct row of spines on the hind tibia. The head is not strongly produced (Young, 1979) and bears a white streak on the face (Praveen et al. 2014). Thorax width varies with species, some with broader, others with narrower. The forewing is usually without a membrane, except for *Cofana subvirescens* (Stål, 1870). They can be commonly found and collected from

grassland areas or fields planted to crops like corn through net-sweeping. They can also be collected by light trapping.

MATERIALS AND METHODS

Collection of specimens was done in Mount Makiling from Flatrocks (37 meters above sea level or masl) to Peak II (1000 masl) and in other nearby agricultural sites in the University of the Philippines Los Baños (UPLB) Campus, such as the Central Experimental Station, Animal and Dairy Sciences, Biological Sciences and Agronomy/by net-sweeping. Together with collection, data were also recorded such as elevation using Global Positioning System (GPS). Specimens were also loaned from the UPLB Museum of Natural History for a duration of one year for identification and further studies. Some of the collected specimens were preserved dry and others were kept in liquid preservative, the latter were for dissection purposes. Collected and loaned specimens were then identified using the keys by Praveen et al. (2014) and Distant (1908).

RESULTS AND DISCUSSION

Cofana Melichar, 1926

Cofana lineata (Distant)

Figure 1

Kolla lineatus Distant, 1908, Fauna of British India, Rhynchota 4: 224. (Type: Sri Lanka: North Central Province. BMNH)

Cofana lineata: Young, 1979. Proc Entomol Soc Wash 81: 7.

Geographical distribution: This species, according to Distant (1908), is first described as *Kolla lineatus* which was later transferred by Young (1979) to *Cofana*. This species is commonly found in India but as well in Sri Lanka (Distant, 1908; Praveen et al, 2014). There were no records of this species in the Philippines based on the checklist of leafhoppers in the Pacific by Knight (2010).

Specimens examined: Philippines, Luzon, Calamba, Laguna: Puting Lupa [Elevation: 25 meters], V.1977 [2 ♀ specimens, Voucher specimen: UPLBMNH HEM-03393, UPLBMNH HEM-03394].

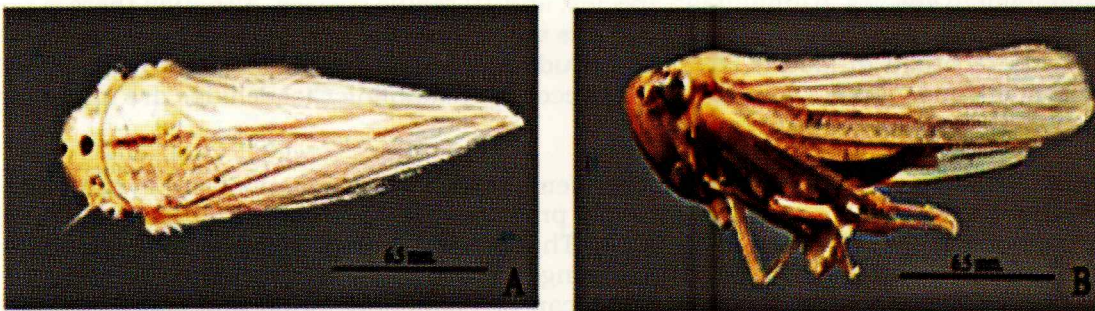


Figure 1. *Cofana lineata* (Distant) habitus, Female. A. dorsal view; B. lateral view. Scale bars (6.5 mm).

Remarks: This species is a new record for the Philippines particularly in Puting Lupa, Calamba, Laguna, which is one of the borders of Mount Makiling. This species shares the morphology with *C. spectra* except for the distinct and huge discal spot on the vertex and the presence of a distinct central longitudinal dark brown stripe on the pronotum that extends to the scutellum.

Cofana Species Known from the Philippines

An updated checklist of the seven *Cofana* species that are known to occur in the Philippines is presented in Table 1. Species are alphabetically arranged. The genus in which the species was originally described is also indicated alongside the species name. Authors of publications used as the basis for this list are cited after locality or distribution data. The new record is marked with an asterisk.

Table 1. *Cofana* species known from the Philippines.

Species Name	Original Generic Assignment	Philippine Distribution: Island (Province: Locality)	References
<i>Cofana albida</i> (Walker, 1851)	<i>Tettigonia</i>	Palawan	Knight (2010); Wilson et al. (2009); Young (1979)
<i>Cofana eburnea</i> (Walker, 1857)	<i>Tettigonia</i>	Philippines (exact locality unknown)	Knight (2010); Wilson et al. (2009)
<i>Cofana lineata</i> (Distant, 1908)	<i>Kolla</i>	Luzon (Laguna: Puting Lupa, Mt. Makiling, Calamba)*	This paper, i.e., Yasona & Yap (2016)
<i>Cofana nigrilinea</i> (Stal, 1870)	<i>Tettigonia</i>	Palawan, Negros	Knight (2010); Wilson et al. (2009); Young (1979)
<i>Cofana spectra</i> (Distant, 1908)	<i>Tettigoniella</i>	Leyte, Luzon (Laguna: Mt. Makiling, Los Baños), Mindanao, Mindoro, Negros, Palawan	Knight (2010); Young (1979)
<i>Cofana subvirescens</i> (Stal, 1870)	<i>Tettigonia</i>	Mindanao (Misamis), Negros	Knight (2010); Young (1979)
<i>Cofana unimaculata</i> (Signoret, 1854)	<i>Tettigonia</i>	Palawan (Iwahig)	Knight (2010); Wilson et al. (2009)

Cofana lineata can easily be differentiated by the presence or absence of a distinct central longitudinal dark brown stripe that extends to scutellum. However, similarities still exist within the genus. According to Meshram & Ramamurthy (2014), *C. trilobata*, a species they described from India, and *C. lineata* bear the same easily recognizable characteristic, which is the presence of a central longitudinal dark brown to black line that extends to the scutellum. The difference between the two species according to them, includes the blunt anterior margin of the head for *C. trilobata*, while that of *C. lineata* is narrowly pointed. In addition, a brown spot located on the anterior portion of the head is present in *C. lineata* but absent in *C. trilobata*. For genitalic characters, they also observed that *C. trilobata* has a moderately produced pygofer with an acutely rounded caudo-dorsal margin, while *C. lineata* has a trapezoidal pygofer with rounded dorso-caudal margin.

C. lineata, which can only be found in India and Sri Lanka according to Praveen et al. (2014) and Distant (1908) and also in Nepal and Indonesia (Java) according to Young (1979), was recently found and identified in the Philippines, particularly in Calamba, Laguna, in the southern part of Luzon Island. The species was confirmed to be not confined to India and Sri Lanka. Its new geographic distribution suggests that the Philippines' environmental conditions suit the requirements of *C. lineata*. Being a tropical country like India and Sri Lanka, the species' new geographical distribution also suggests that *C. lineata* can also possibly be found in other countries between India and Sri Lanka and the Philippines. These include Myanmar, Malaysia, Vietnam and Thailand.

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