

**FIRST RECORD OF *Samsama chersonesia chersonesia* DISTANT, 1906
(HEMIPTERA: FULGORIDAE) from BORNEO**

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ABSTRACT

The only known distribution for the subspecies *Samsama chersonesia chersonesia* Distant, 1906 was in Perak and Cameron Highlands, Peninsular Malaysia and Sumatra, Indonesia. This paper provides the first distributional record for the subspecies in Sarawak and Sabah, Borneo. A total of 17 individuals were documented based on voucher specimens from three repositories in Sarawak and Sabah, namely Universiti Malaysia Sarawak Insect Reference Collection (UIRC), Research Development and Innovation Division, Forest Department Sarawak (RDID), and Sabah Parks Entomological Museum (SPM). This discovery denotes that this subspecies occurs in Sundaland: Malay Peninsula, Sumatra, and Borneo.

Key words: Sundaland, Borneo, Fulgoridae, *Samsama chersonesia chersonesia*, first record, voucher specimens.

ABSTRAK

Penyebaran subspecies *Samsama chersonesia chersonesia* Distant, 1906 hanya diketahui di Perak dan Tanah Tinggi Cameron, Semenanjung Malaysia dan Sumatra, Indonesia. Kertas kajian ini melaporkan buat pertama kalinya penemuan rekod bagi taburan subspecies ini di Sarawak dan Sabah, Borneo Malaysia. Sebanyak 17 individu telah didokumen berasaskan spesimen baucer dari tiga repositori di Sarawak dan Sabah, iaitu Koleksi Rujukan Serangga, Universiti Malaysia Sarawak (UIRC), Bahagian Penyelidikan, Pembangunan dan Inovasi, Jabatan Hutan Sarawak (RDID), dan Muzium Entomologi Taman-Taman Sabah (SPM). Penemuan ini menunjukkan bahawa subspecies ini berlaku di Sundaland: Semenanjung Malaysia, Sumatra, dan Borneo.

Kata kunci: Sundaland, Borneo, Fulgoridae, *Samsama chersonesia chersonesia*, rekod pertama, spesimen baucer.

INTRODUCTION

Samsama chersonesia chersonesia Distant, 1906 was known only from Perak and Cameron Highlands, Peninsular Malaysia and Sumatra, Indonesia (Bosuang et al. 2017; Distant 1906;

Lallemand 1963; Nagai & Porion 1996). This paper adds to the first distributional record for the subspecies in Sarawak and Sabah, Malaysian Borneo, thus revealing a distributional range in Sundaland: Malay Peninsula, Sumatra and Borneo. Sundaland is composed of the Malay Peninsula, the Malay Archipelago, Borneo, the islands of Sumatra, Java and Bali, with the Wallace's Line forming at the eastern border of Sundaland (Grootaert 2009). On the other hand, the subspecies *Samsama chersonesia borneana* Bosuang, Audibert et Porion, 2017 ["2016"] are known to be endemic in Sabah and Kalimantan, Borneo (Bosuang et al. 2017). The creation of a subspecies within a species creates two subspecies consisting of the nominotypical subspecies and the new subspecies (Winston 1999). Hence, the recognition of *Samsama c. borneana* automatically establishes *Samsama c. chersonesia* as the nominotypical subspecies based on Article 47 (ICZN 1999).

MATERIALS AND METHODS

The present study of *Samsama chersonesia chersonesia* in Sarawak and Sabah was based on voucher specimens from Universiti Malaysia Sarawak Insect Reference Collection (UIRC), Research Development and Innovation Division (RDID), Forest Department Sarawak and Sabah Parks Entomological Museum (SPM). Habitus photographs were taken as reference (Figure 1A-B). Closer inspection of the specimens was observed through microscope Motic SMZ-168 with Moticam 2000 2.0M Pixel camera and Motic Images Plus 2.0 ML software (Figure 1C-D). The distribution map was generated using BatchGeo (Figure 2). Total length of specimens was measured to the base of the cephalic process following Constant (2015), using a Mitutoyo™ digital caliper and recorded for additional references.

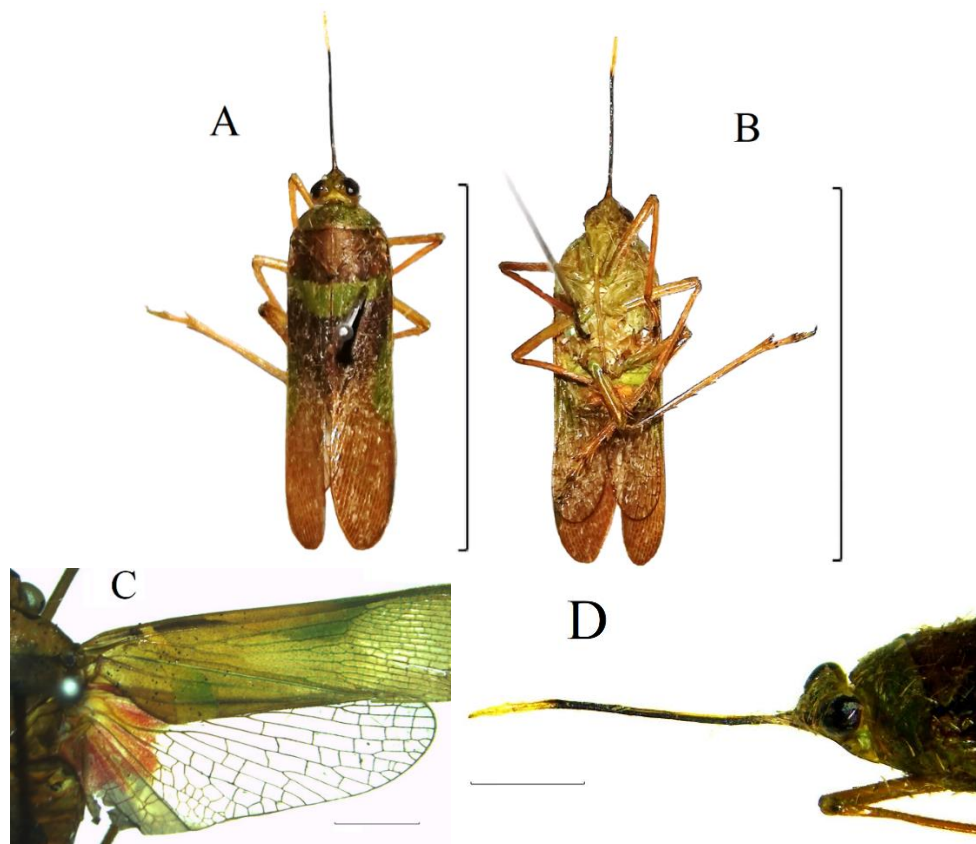


Figure 1. 1A-D *Samsama chersonesia chersonesia*, male. (A) Habitus, dorsal view; (B) habitus, ventral view; (C) hindwing, dorsal view; (D) head and thorax, left lateral view. Scale bar: 20 mm (A, B), 0.02 mm (C, D)



Figure 2. Distribution map of *Samsama chersonesia chersonesia*: (A) Recreation Park Ranchan, Serian; (B) Sabal Forest Reserve, Simunjan; (C) Lanjak Entimau; (D) Mujong Seringin, Kapit; (E) Lambir Hills National Park, Miri; (F) Denai Laluan Garam, Tambunan; (G) Crocker Range National Park, Tambunan; (H) Poring Hot Spring, Ranau, Malaysian Borneo, based on voucher specimens from UIRC, RDID and SPM (Source: Modified after BatchGeo 2020)

RESULTS

The *Samsama chersonesia* is the only species in the monotypic genus *Samsama*. There are two subspecies being *Samsama c. chersonesia* and *Samsama c. borneana*. The *Samsama c. borneana* is very rare and is endemic to Sabah and Kalimantan (Borneo) only (Bosuang et al. 2017).

Samsama chersonesia Distant, 1906: 21

Description

Body elongated-oval. Head concaved hexagon, developing into a long and slender head process with white apex. Vertex very narrow, eyes very close, with fossettes. Mesonotum with a median carina, lateral carinae and fossettes. Tegmen with two triangular markings along the costal margin and near the base. The hindwings are translucent except in the opaque basal third.

Order **Hemiptera**

Family **Fulgoridae**

Subfamily **Amyclinae**

Tribe **Amyclini**

Genus *Samsama* Distant, 1906

Species *Samsama chersonesia* Distant, 1906

Subspecies *Samsama chersonesia chersonesia* Distant, 1906

Materials examined

Malaysia (Borneo): Sarawak: Serian, Ranchan Fall, 25.v.1995 (Wahap Marni leg.), 1 male (G1109) (UIRC); Simunjan, Sabal Forest Reserve, 5.vi.1997 (Ento Team leg.), light trap, 1 male (SFR04601) (RDID); Kapit, Mujong Seringin, 25.ii.2003 (Ento Team leg.), light trap, 1 male (FN03-0093) (RDID); Lanjak Entimau, 16.ix.1993 (Ento Team leg.), light trap, 1 female (ITTO-0040) (RDID); Miri, Lambir National Park, 28.ix.1993 (Kishimoto, Yamada and Itioka leg.), light trap, 1 male (ZF7C-013), 1 female (ZF7C-013) (RDID); Miri, Lambir National Park, 10-11.xi.1996 (Ento Team leg.), light trap, 1 female (E0684) (RDID); Miri, Lambir National Park, 9-10.ii.1994 (Ento Team leg.), light trap, 1 female (C0247) (RDID); Miri, Lambir National Park, 13-14.ii.1996 (Ento Team leg.), light trap, 1 male (E0681) (RDID); Miri, Lambir National Park, 25-26.x.1995 (Ento Team leg.), light trap, 1 female (D0288) (RDID); Miri, Lambir National Park, 12-13.vi.1994 (Ento Team leg.), light trap, 1 male (C0463) (RDID); Miri, Lambir National Park, 16-17.x.1993 (Ento Team leg.), light trap, 1 male (B0900) (RDID); Miri, Lambir National Park, 17-18.ii.1996 (Ento Team leg.), light trap, 1 female (E0049) (RDID); Miri, Lambir National Park, 2-3.viii.1997 (Ento Team leg.), light trap, 1 male (F0205) (RDID). **Sabah:** Ranau, Poring Hot Spring, 27.vii.1993 (Paul leg.), 1 male (SP/EHO/01249) (SPM); Tambunan, Crocker Range National Park, 9-13.xii.2003 (Johny Lapidin leg.), 1 male (SP/EHO/01249) (SPM); Tambunan, Denai Laluan Garam, 7-16.v.2008 (Johny Lapidin leg.), 1 male (SP/EHO/02549) (SPM).

Description

Total length: male 17.39-19.02 mm; female 19.02-20.79 mm. Head and pronotum green while cephalic process is black. Mesonotum ochraceous. Tegmen ochraceous with two triangular green marks along the costal margin and near the base. Hindwing with carmine-red basal area and grey jugal lobe. The abdomen is ochraceous, while the legs are ochre green. Hind tibia has seven spines, while the apex has six spines.

Remarks

Based on the male holotype specimen of *Samsama chersonesia borneana* provided in Bosuang et al. (2017), *Samsama c. chersonesia* is distinguished from *Samsama c. borneana* by the marking colouration at tegmen in which the former has green triangular markings while the latter has orange triangular markings. The head and pronotum of *Samsama c. chersonesia* are green while *Samsama c. borneana* is ochre orange. Also, *Samsama c. chersonesia* has an ochraceous abdomen while *Samsama c. borneana* has a red-brown abdomen. Despite the subspecies *Samsama c. chersonesia* to be found in the Malay Peninsula, Sumatra and Borneo, the subspecies *Samsama c. borneana* was only recorded in Borneo (Sabah and Kalimantan) (Bosuang et al. 2017).

Distribution

Malay Peninsula (Perak and Cameron Highlands), Indonesia (Sumatra) and Borneo (Sarawak and Sabah).

Key to the Subspecies of *Samsama chersonesia*

- Tegmen with green triangular markings, head and pronotum green, abdomen ochraceous *Samsama c. chersonesia*
- Tegmen with orange triangular markings, head and pronotum ochre-orange, abdomen red brown *Samsama c. borneana*

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