

First Record of Bat Flies (Diptera: Hippoboscoidea) in Masungi Georeserve, Luzon Island, Philippines

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Abstract: This paper presents a preliminary account of bat flies (Diptera: Hippoboscoidea) in Masungi Georeserve, a karst ecotourism landscape in Rizal province, Luzon Island, Philippines. Before this paper, there was no account of the bat fly fauna in the area. Thus, this report represents the first documentation of nycteribiid and streblid bat flies in Masungi Georeserve. Herein, four species representing four genera of bat flies are documented from the rapid biodiversity survey in August 2013. Additional surveys are recommended to further document the bat fly fauna occurring in Masungi Georeserve.

Keywords: Chiroptera, ectoparasite, karst, Nycteribiidae, Streblidae

Masungi Georeserve is a protected geopark and an important ecotourism site in the Rizal province, Luzon Island, Philippines. This area is part of the southern Sierra Madre Mountain range and exhibits a predominantly karst landscape (Aquino & Rivera, 2018). In terms of entomofauna, this area is relatively understudied, especially concerning the parasitic fauna. To date, there is no published account on the bat fly fauna in Masungi Georeserve. Thus, this paper aims to provide the first account of bat flies in the aforementioned area.

Specimens were collected during a rapid faunal survey conducted between August 23-25, 2013. Host specimens were retrieved via mist netting and released immediately upon identification and collection of parasites. Bat fly specimens were preserved in 95% ethanol and later mounted on slides. Specimens were identified following published taxonomic keys (e.g., Cuy 1980a, b). Specimens will be deposited in the National Museum of Natural Science (Taiwan).

Leptocyclopodia simulans (Theodor, 1959)

Material examined. PHILIPPINES: LUZON: On *Ptenochrius jagori*: 2♀♀, 5♂♂ Rizal province, Tanay, Masungi Georeserve, 24-25.VIII.2013, coll. AK Amarga & DAP Fernandez.

Megastrebla parvior Maa, 1962

Material examined. PHILIPPINES: LUZON: On *Eonycteris spelaea*: 1♀, Rizal province, Tanay, Masungi Georeserve, 24.VIII.2013, coll. AK Amarga & DAP Fernandez.

Nycteribia parvula Speiser, 1901

Material examined. PHILIPPINES: LUZON: On *Rhinolophus arcuatus*: 1♀, Rizal province, Tanay, Masungi Georeserve, 24.VIII.2013, coll. AK Amarga & DAP Fernandez.

Raymondia pseudopagodarum (Jobling, 1951)

Material examined. PHILIPPINES: LUZON: On *Rhinolophus arcuatus*: 2♀♀, 1♂ Rizal province, Tanay, Masungi Georeserve, 24.VIII.2013, coll. AK Amarga & DAP Fernandez.

In this paper, two nycteribiids (*Leptocyclopodia simulans* & *Nycteribia parvula*) and two streblids (*Megastrebla parvior* & *Raymondia pseudopagodarum*) are reported (see Fig. 1 for representative specimens). All four species have been documented in karst landscape and surrounding forest ecosystems across different islands in the Philippines (e.g., Amarga et al., 2017; Amarga & Phelps, 2021), but it is the first time these species have been recorded in Masungi Georeserve. Since the collection of these parasites is done during a rapid biodiversity assessment, it is recommended to have follow-up and wider-scale surveys within the georeserve to further document the bats and their ectoparasite faunas in this area. Studying the ecology of these flies can provide insight into the transmission of blood-borne microbes among the same species of bats in a colony and microbial transmission among different species of bats.

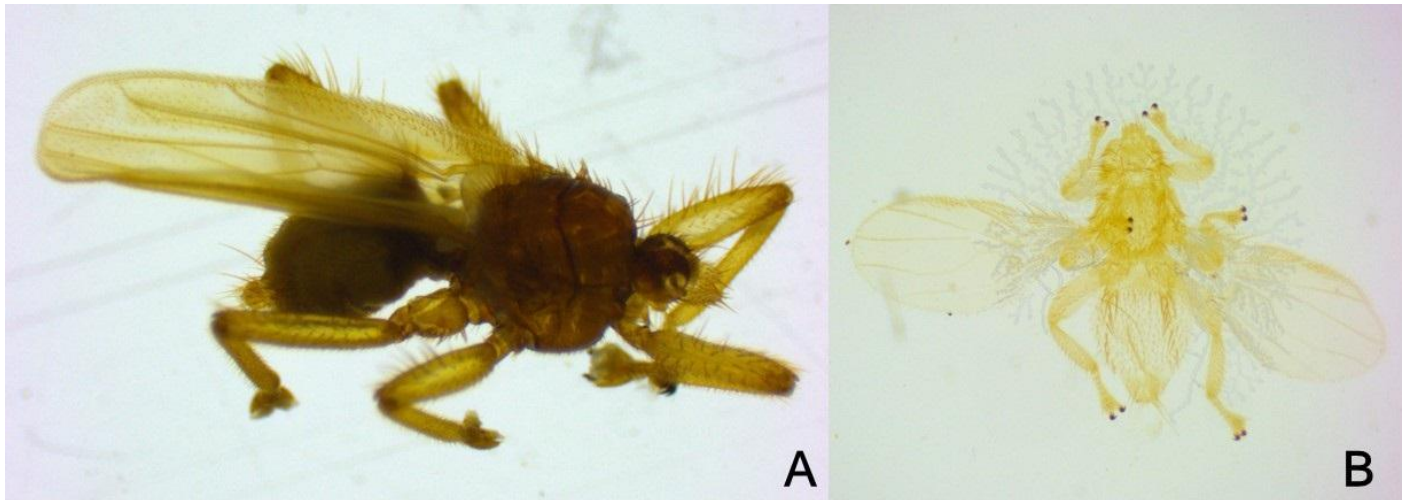


Figure 1. Representative bat fly species found in Masungi Georeserve. (A) *Megastrebla parvior* (♀) and (B) *Raymondia pseudopagodarum* (♂, in slide).

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References

- Amarga, A. K. S., Alviola, P. A., Lit, I. & Yap, S. A. 2017. Checklist of ectoparasitic arthropods among cave-dwelling bats from Marinduque Island, Philippines. *Check List* 13 (1): 2029.
- Amarga, A. K. S. & Phelps, K. L. 2021. New host and distribution records of bat flies (Diptera: Streblidae, Nycteribiidae) on cave-dwelling bats from Bohol Island, Philippines. *International Journal of Tropical Insect Science* 41: 3213–3222.
- Aquino, R. S. & Rivera J. P. R. 2018. Public-private partnership framework for sustainable geopark development. In: Dowling, R., Newsome, D (eds.) *Handbook of Geotourism*. Edward Elgar Publishing, pp 111–125.
- Cuy, L. S. 1980a. Nycteriboscinae (Diptera: Streblidae) of the Philippines. *Kalikasan, Philippine Journal of Biology* 9 (2–3): 137–144.
- Cuy, L. S. 1980b. Nycteribiidae (Diptera) of the Philippines. *Kalikasan, Philippine Journal of Biology* 9 (2–3): 145–168.

菲律賓呂宋島馬蘇妮自然保護區的蝠蠅首次紀錄（雙翅目：蝨蠅總科）

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摘要：本文對菲律賓呂宋島黎剎省馬蘇妮自然保護區中喀斯特地形的蝠蠅進行初步描述。此區域過去未曾有任何有關蝠蠅族群的描述。因此，本文為馬蘇妮自然保護區中蛛蠅和蝙蝠蠅的首次紀錄。在 2013 年 8 月的生物多樣性快速調查中，記錄了來自四個不同屬的四種蝠蠅。然而馬蘇妮自然保護區中的蝠蠅相，仍須更進一步的調查。

關鍵詞：翼手目、外寄生蟲、喀斯特、蛛蠅科、蝠蠅科