

## New Geographic Records of the Flying Fox Bat Fly *Cyclopodia horsfieldi* de Meijere, 1899 (Diptera: Hippoboscoidea) from the Philippines

ACE KEVIN S. AMARGA<sup>1, 2, 3</sup>, RAINIER MANALO<sup>4</sup>

<sup>1</sup>Biodiversity Program, Taiwan International Graduate Program, Biodiversity Research Center, Academia Sinica, Nangang District, Taipei 11529, Taiwan. Email: ace\_amarga061@yahoo.com

<sup>2</sup>School of Life Science, National Taiwan Normal University- Gongguan Campus, Wenshan District, Taipei 11677, Taiwan

<sup>3</sup>International Union for Conservation of Nature Species Survival Commission (IUCN SSC) Parasite Specialist Group

<sup>4</sup>Crocodylus Porosus Philippines, Inc., Pag-asa Farms, Kapalong, Davao del Norte, Philippines

**Abstract.** This paper presents new geographic records for the nycteribiid bat fly *Cyclopodia horsfieldi* de Meijere, a widespread Old World endemic species parasitic on flying foxes. Additionally, this account represents the first published record of *C. horsfieldi* on Tawi-Tawi Island and in the Bicol Peninsula (southern Luzon).

**Key words:** Bicol, flying foxes, Nycteribiidae, Tawi-Tawi

Flying foxes host a unique assemblage of parasitic species. The most common ectoparasitic arthropods found on flying foxes are bat flies and mites, which typically thrive on the pelage and wing membrane of their respective hosts. Endoparasitic helminths also inhabit the internal organs of the host, including the viscera and lungs. Furthermore, flying foxes have been reported to harbor a diverse range of blood-borne parasites and viruses. This paper presents new locality records for *Cyclopodia horsfieldi* de Meijere, a widespread nycteribiid bat fly parasitic on the flying fox genera *Acerodon* Jourdan and *Pteropus* Brisson in the Philippines. Bat fly specimens were collected during various fieldwork surveys conducted across the Philippines. Bat hosts were captured using mist nets placed in different areas within forest ecosystems at study sites. Prior to identification, specimens were preserved in 95% ethanol and examined under a Leica S9D dissecting microscope. Flying fox bat flies were identified following Theodor's (1963) description. Voucher specimens will be deposited at the National Museum of Natural Science in Taichung, Taiwan.

Order Diptera  
Family Nycteribiidae  
Subfamily Cyclopoidea

*Cyclopodia horsfieldi* de Meijere, 1899

*Cyclopodia horsfieldi* de Meijere, 1899. Tijds. Ent. 42: 153. Type locality: Indonesia (Java).

**Material examined. PHILIPPINES: LUZON:** ex. *Pteropus vampyrus* (Linnaeus): 1♂ (NMNS 8722-15), 1♀ (NMNS 8722-16), Libmanan municipality (13. 690617N, 122. 978343E), Camarines Sur, V. 2015, coll. H Centeno. (**New locality record, Fig. 1A**)  
**PALAWAN:** ex. *Pteropus hypomelanus* Temminck: 1♀ (NMNS 8722-17), Ursula Island (8. 342080N, 117. 517113E), Bataraza municipality, 27.VI.2019, coll. R Giganto & A Santillan. **PANAY:** ex. *Pteropus pumilus* Miller: 2♂♂ (NMNS 8722-18, NMNS 8722-19), 1♀, Barangay Jayobo (11. 102763N, 122. 408952E), Lambunao municipality, Iloilo City, coll. AKS Amarga & DAP Fernandez. **CEBU:** ex. *P. hypomelanus*: 1♂, 1♀, Alcoy, 2015, local collector; ex. *P. pumilus*: 2♂♂, Alcoy, 2015, local collector. **TAWI-TAWI:** ex. *P. vampyrus*: 3♂♂ (NMNS 8722-20, NMNS 8722-21, NMNS 8722-22), Barangay Malacca (5. 071837N, 119. 885804E), Panglima Sugala municipality, coll. AKS Amarga. (**New locality record, Fig. 1A**)

*Cyclopodia horsfieldi* is one of the two species in the genus *Cyclopodia* Kolenati found in the Philippines. This species is widely distributed across Southeast Asia and has been recorded on various species of flying foxes, particularly in the genera *Acerodon* and *Pteropus*. In the Philippines, *C. horsfieldi* is present in all faunal regions and has previously been recorded on the following islands: Luzon, Mindoro, Busuanga, Culion, Palawan, Ursula, Balabac, Panay, Guimaras, Negros, Samar, Leyte, Camiguin, Mindanao, and Jolo (Theodor 1963; Cuy 1980; Amarga & Hastriter 2023a). Recently, Amarga & Hastriter (2023b) reported the presence of *C. horsfieldi* on Cebu Island.

This report represents the first documented occurrence of *C. horsfieldi* on the Bicol Peninsula in southern Luzon. Previous records for this species on Luzon Island were documented by Cuy (1980) in Laguna and Quezon provinces and by Ferris (1925) from an

unspecified *Pteropus* species collected in Bangui, Ilocos Norte. Additionally, this report marks the first record of *C. horsfieldi* on Tawi-Tawi Island and represents the southernmost provincial distribution of *C. horsfieldi* in the Philippine archipelago.

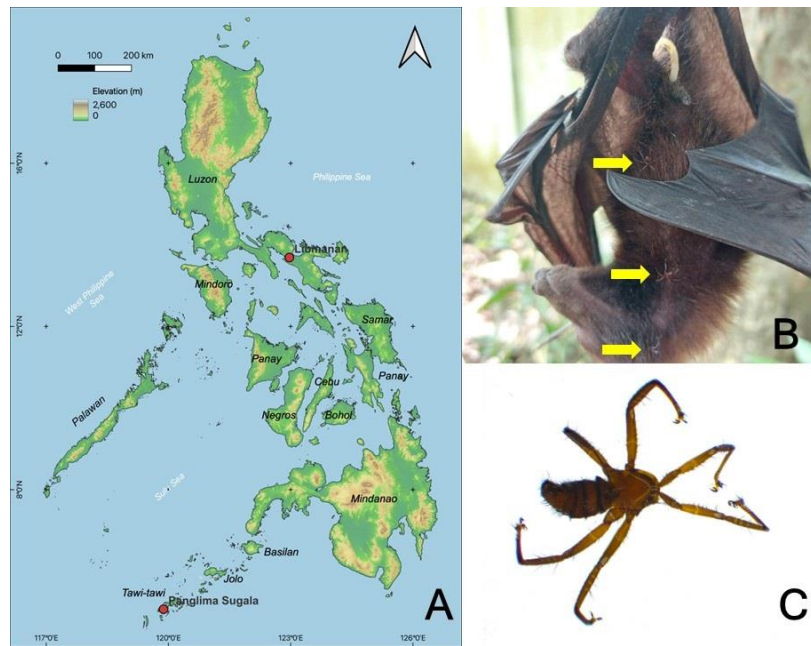


Figure 1. *Cyclopodia horsfieldi* de Meijere and its host *Pteropus vampyrus* (Linnaeus): (A) New locality records (red dots) of *C. horsfieldi* on Luzon and Tawi-Tawi; (B) *C. horsfieldi* foraging on the host pelage, in situ; (C) male *C. horsfieldi* collected from Tawi-Tawi Island (ventral view).

#### Acknowledgements

The author would like to thank the following individuals: H. Centeno for donating specimens from Bicol; R.A. Ruzol, D.A.P. Fernandez, J.W. Binaday, D. Acuña, and M.J. Sarmiento for their assistance during fieldwork; and C.E. Supsup for creating the locality map (Fig. 1). We also thank BARM-MENRE for providing the collection and transport permit (Wildlife Gratuitous Permit No. 05, Series of 2019).

#### References

- Amarga, A. K. S. & Hastriter, M. W. 2023a. First record of the flying fox bat fly *Cyclopodia horsfieldi* de Meijere, 1899 (Diptera: Hippoboscoidea: Nycteribiidae) on Ursula Island, Philippines. *Historia naturalis bulgarica* 45 (2): 25–29.
- Amarga, A. K. S. & Hastriter, M. W. 2023b. Bat flies (Diptera: Hippoboscoidea) associated with fruit bats (Pteropodidae) on Cebu Island, Philippines. *Taiwanese Journal of Entomological Studies* 8 (1): 8–11.
- Cuy, L. S. 1980. Nycteribiidae (Diptera) of the Philippines. *Kalikasan, Philippine Journal of Biology* 9 (2–3): 145–168.
- de Meijere, J. C. H. 1899. *Cyclopodia horsfieldi* n.sp., eine neue Nycteribie aus Java. *Tijdschrift voor Entomologie* 42: 153.
- Ferris, G. F. 1925. Third report upon Diptera Pupipara from the Philippine Islands. *Philippine Journal of Science* 27: 413–421.
- Theodor, O. 1963. Philippine batflies of the family Nycteribiidae. *Fieldiana Zoology* 42 (11): 151–192.

## *Cyclopodia horsfieldi* de Meijere, 1899 (雙翅目：蟲蠅總科) 之菲律賓新地理紀錄

艾斯<sup>1,2,3</sup>、雷尼爾·馬納洛<sup>4</sup>

<sup>1</sup>中央研究院生物多樣性中心 生物多樣性臺灣國際研究生博士學位學程 11529 臺北市南港區

E-mail: ace\_amarga061@yahoo.com

<sup>2</sup>國立臺灣師範大學生命科學專業學院 11677 臺北市文山區

<sup>3</sup>國際自然保護聯盟物種存續委員 (IUCN SSC) 寄生蟲專家組

<sup>4</sup>Crocodylus Porosus Philippines, Inc. · Pag-asa 農場 卡帕隆 北達沃省 菲律賓

**摘要：**本文介紹了廣泛分佈於古北界的狐蝠寄生物種 *Cyclopodia horsfieldi* de Meijere, 1899 的新地理紀錄。此外，這筆紀錄也代表了本種在塔威塔威島以及比科爾半島(呂宋島南部)的首次報導。

**關鍵字：**比科爾、狐蝠、蛛蠅科、塔威塔威