



Short note

First record of the flying fox mite *Meristaspis calcarata* (Hirst) on Ursula Island, Philippines (Dermanyssoidea: Spinturnicidae)

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Abstract. *Meristaspis* Kolenati is a small genus of dermanyssoid mites exclusively ectoparasitic on bats. This paper reports the first published record of the flying fox mite *Meristaspis calcarata* (Hirst) on Ursula Island, Philippines. Also, this account represents the first documentation of an ectoparasitic acarine in Ursula Island.

Key words: distribution, ectoparasite, *Meristaspis calcarata*, Philippines, *Pteropus*.

Introduction

The family Spinturnicidae Oudemans comprises a small group of dermanyssoid mites exclusively ectoparasitic on bats (Chiroptera). This family is represented by 110 species belonging to 12 genera and is cosmopolitan in distribution (Beron, 2020). Spinturnicid mites usually attach to the patagium of their bat hosts. Recently, genotypes of hemotropic mycoplasmas (Wang *et al.*, 2023) as well as *Bartonella* (Han *et al.*, 2021) were reported on spinturnicid mites. Thus, indicating that spinturnicids portray a significant role as vectors. In the Philippines, nine spinturnicid species have previously been documented, representing the genera *Ancystropus* Kolenati, *Meristaspis* Kolenati, *Paraperiglischrus* Rudnick, and

Spinturnix von Heyden (Cuy, 1979). Published accounts describing the geographic distribution of Philippine spinturnicid mites include those of Delfinado & Baker (1963), Baker & Delfinado (1964), Prasad (1969), Cuy (1979), Fain (2002), and Amarga *et al.* (2017).

Ursula Island is a small wildlife sanctuary situated in southern Palawan, Philippines (Fig. 1). Despite its limited land area and forest cover, it is home to a diverse native fauna, including *Ducula bicolor* (Scopoli) (Pied imperial pigeon), *Megapodius cumingii* Dillwyn (Philippine megapode), and *Otus mantananensis* (Sharpe) (Mantanani scops owl) (Gonzalez, 1996; Birdlife International, 2023). However, the ectoparasite fauna of Ursula Island remains poorly known, the only prior

record being that of the nycteribiid bat fly *Cyclopodia horsfieldi* de Meijere, collected on *Pteropus hypomelanus* Temminck (Island flying fox) (Amarga & Hastriter, 2023). Here, the spinturnicid mite *Meristaspis calcarata* (Hirst) is reported from Ursula Island for the first time; this is also the first record of the genus *Meristaspis* from Ursula Island.

Material and methods

Mite specimens were examined in the Entomology Collection of the National Museum of Natural Science (NMNS), Taichung City, Taiwan. Morphological characters were examined using a Leica DM500 compound microscope (Fisher Scientific, United Kingdom), and species determination were based on the taxonomic descriptions of Delfinado & Baker (1963). The higher classification of the genus *Meristaspis* adopted here is that of Beaulieu *et al.* (2011), while host names follow Burgin *et al.* (2020).

Results and Discussion

Superorder Parasitiformes Reuter
Order Mesostigmata Canestrini
Suborder Monogynaspida Camin &
Gorirossi
Infraorder Gamasina Kramer
Hyporder Dermanyssidae Evans & Till
Superfamily Dermanyssoidea Kolenati
Family Spinturnicidae Oudemans
Genus *Meristaspis* Kolenati

Meristaspis calcarata (Hirst, 1923) (Figs. 2-3)

Ancystropus calcaratus Hirst, 1923: 983.
Type host: *Pteropus* sp. Type locality:
Rook Island (Indonesia). Holotype: ♀ in
Natural History Museum (London).

Meristaspis calcarata (Hirst) Domrow,
1972: 548.

Diagnosis: Transverse line of idiosoma
absent; peritreme completely dorsal;

marginal hook projection on coxa I
conspicuous; distal setae on tarsus I
flattened. Additional characters are
provided by Hirst (1923) and Delfinado
& Baker (1963).

Material examined: PHILIPPINES:
ex. *Pteropus hypomelanus*: 1♂ (NMNS
8722-11), 2♀♀ (NMNS 8722-10, NMNS
8722-12), Palawan Province, Bataraza
municipality, Ursula Island, 22-
26.VI.2019, coll. R. Giganto. **New island
record.**

Meristaspis is a small genus of
spinturnicid mites represented by six
species worldwide (Beron, 2020), and in
the Philippines four species have been
recorded (Cuy, 1979). Of these, *M.*
calcarata is primarily associated with
flying foxes (Pteropodidae). This species
was first collected in 1913 from
undetermined *Pteropus* species on Rook
Island. Hirst (1923) first described *M.*
calcarata under the genus *Ancystropus*,
but the species was subsequently
transferred to *Meristaspis* by Domrow
(1972).

Because flying foxes are capable of
transoceanic flights, the geographic
range of *M. calcarata* is broad. In the
Oriental zoogeographic region and
Oceania, this mite has been recorded
from the Philippines and Micronesia
(Guam and Saipan), but it also has been
collected in southeastern Australia,
New Guinea, and the Solomon Islands
(Australasian region), and its range
extends to Madagascar (Afrotropical
region) (Delfinado & Baker, 1963;
Baker & Delfinado, 1964; Prasad, 1969;
Domrow, 1979). In the Philippines, *M.*
calcarata was first documented by
Delfinado & Baker (1963) on Puerto
Princesa, Palawan, and Cuernos de
Negros (Negros Island). Additional
collections were made by Cuy (1979)
from Cabugan Islet, Puerto Princesa.
The specimens of *M. calcarata* from

Ursula Island constitute a new geographic record for the Philippines. To date, all Philippine specimens of *M. calcarata* have been recovered from bats of the genus *Pteropus*, indicating that flying foxes are the primary hosts of this mite species. Additional known hosts of *M.*

calcarata include *P. hypomelanus* (Island flying fox, Fig. 4B), *P. pumilus* Miller (Little golden-mantled flying fox, Fig. 4A), *P. speciosus* Andersen (Philippine gray flying fox), and *P. vampyrus* (Large flying fox) (Delfinado & Baker, 1963; Baker & Delfinado, 1964; Cuy, 1979).

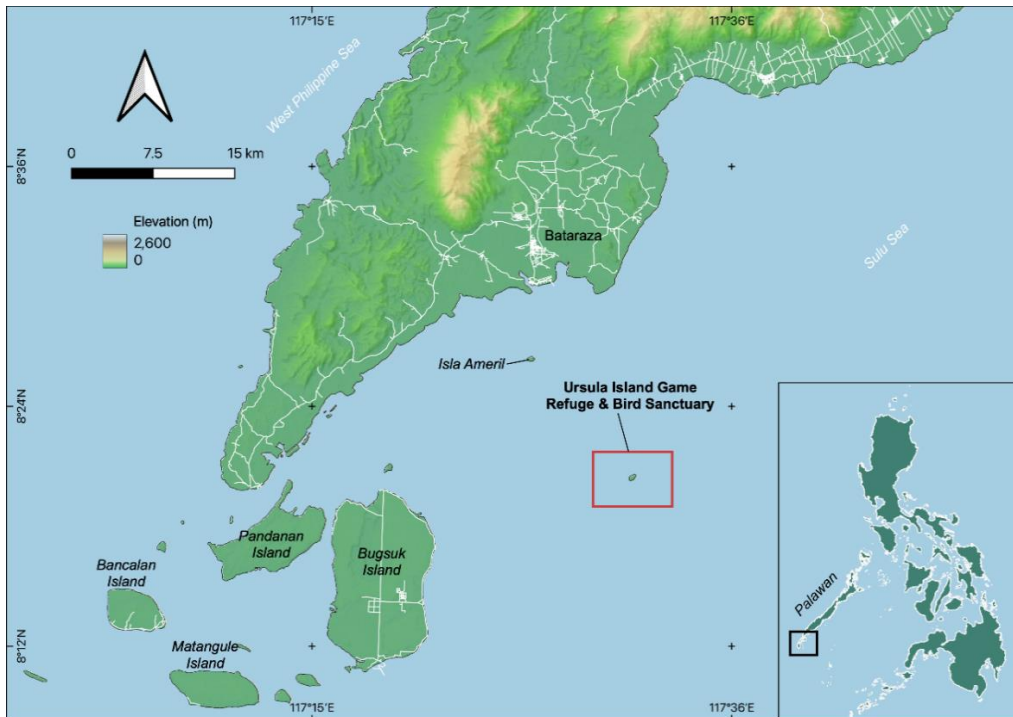


Fig. 1. Location of Ursula Island in southern Palawan, the Philippines.



Fig. 2. Slide mount female *Meristaspis calcarata* from Ursula Island (ventrum).

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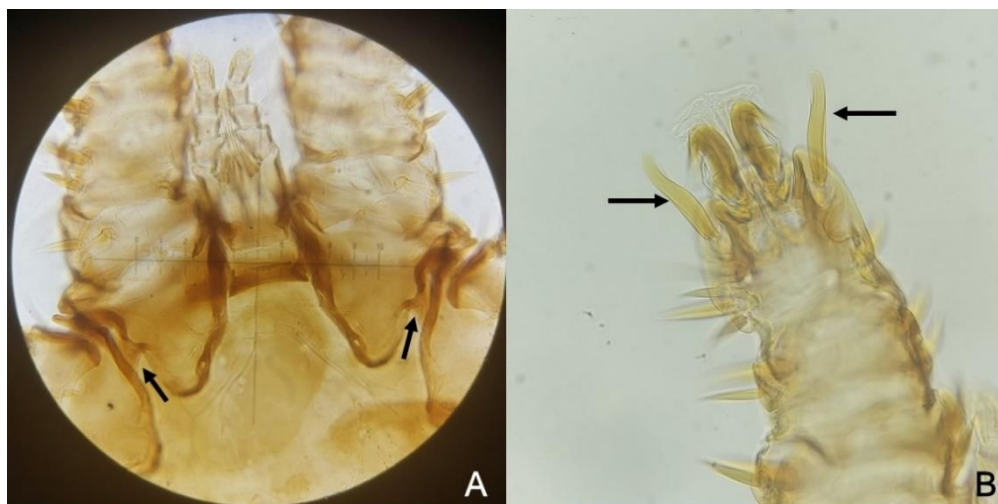


Fig. 3. Some characters of *M. calcarata*: (A) prominent marginal hook projection on coxa I (black arrow); (B) distal setae on tarsus I flattened (black arrow).



Fig. 4. Some of the host species of *Meristaspis calcarata* in the Philippines: (A) *Pteropus pumilus*; (B) *Pteropus hypomelanus*.

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