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# New national records for *Cyclopodia greeffi greeffi* (Diptera: Nycteribiidae) from the Kunene Region, Namibia, Africa

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## SCIENTIFIC NOTE

**NEW NATIONAL RECORDS FOR CYCLOPODIA  
GREEFFI GREEFFI (DIPTERA: NYCTERIBIIDAE)  
FROM THE KUNENE REGION, NAMIBIA, AFRICA<sup>1</sup>**

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KEY WORDS: Hippoboscoidea, *Eidolon helvum*, African straw-colored fruit bat, Namib Desert, ectoparasite

Bats (Chiroptera) are among the most taxonomically diverse groups of mammals. Possibly due to their diversity, the arthropod ectoparasites of bats are likewise diverse with a wide range of ticks, mites, earwigs, fleas, true bugs, and true flies forming species-specific host-parasite relationships. In many situations these ectoparasites are exclusively found on their hosts, so collections of these ectoparasites requires trapping live bats. Since studies on bats are far from homogeneous over diverse geographic distributions, the known distribution of their ectoparasites are often patchy and discontinuous.

We conducted research on bats from the Namib Desert in the Kunene Region of northwestern Namibia from 27 February 2016 to 4 April 2017. Bats were captured by deploying mist nets (2.6 m high by 4 to 12 m in length) above bodies of water for 1 to 3 hours after sunset for a total of 426.24 hours over 173 nights. We systematically examined bats for ectoparasites between 6 December 2016 and 4 April 2017 (i.e., when netting for bats 120.37 hours over 53 nights), but also sampled for ectoparasites when convenient in the months prior (i.e., when netting for bats 305.87 hours over 120 nights). Bats were morphologically identified using taxonomic descriptions by Monadjem et al. (2010). The bodies (front, back, tail, wings, ears, uropatagium, etc.) of all bats were thoroughly and systematically surveyed for ectoparasites using an LED headlamp. All ectoparasites were removed with forceps, pooled into one sample for each individual bat, and preserved in 95% ethanol before the bats were released. Fieldwork was conducted in accordance with the guidelines of Institutional Animal Care and Use Committee (Colorado State University Protocol #15-6140A) and the Ministry of Environment and Tourism, Republic of Namibia (Research/Collecting Permits #2122/2016 and #2225/16).

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Dipteran ectoparasites were discovered on one bat. An *Eidolon helvum*, African straw-colored fruit bat, captured on 11 June 2016 harbored a pair of nycteribiid bat flies. While rarely recorded in the Namibian Desert, *E. helvum* is widespread across sub-Saharan Africa, occurring from Kenya to Senegal east to west and from the Sahel to South Africa north to south (DeFrees and Wilson, 1988; Bergmans, 1990). It occurs widely in southern Africa as a non-breeding migrant, including arid regions of Namibia and South Africa (Monadjem et al., 2010). The bat was trapped in Sesfontein, Kunene Region (19.1168° S, 13.6191° E, Elevation: 569 meters, Collector: T. Lavery). The flies were identified using the morphological characters described by Theodor (1967). Voucher specimens have been deposited at the C. P. Gillette Museum of Arthropod Diversity, Colorado State University, Fort Collins, Colorado, U.S.A.

The nycteribiids collected were a male and female of *Cyclopodia greeffi greeffi* Karsch, 1884. While *C. greeffi* has been reported from various parts of Africa including Cameroon, Chad, Congo, Côte d'Ivoire, Nigeria, Equatorial Guinea, Guinea-Bissau, Kenya, São Tomé, Uganda, and Zanzibar it was not known from Namibia. Local checklists of Nycteribiidae from southern African countries do not include Namibia (Theodor, 1967; Maa, 1968, 1971). Nycteribiidae can transmit a range of parasites to their hosts, including the parasitic protozoans *Polychromophilus* spp. (Gardner and Molyneux, 1988). *Cyclopodia greeffi* has been closely associated with a *Bartonella* sp. isolated from both flies and their associated bat hosts, *E. helvum* (Billeter et al., 2012).

We report the first collections of *C. greeffi greeffi* from Namibia expanding the range of the ectoparasite to a new country, as could be expected since its host, *E. helvum* has a wide distribution across Africa (Peel et al., 2013). While our collections are limited to parasites from a single bat these parasitic insects are most likely found wherever *E. helvum* is found in Namibia.

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