

**FIRST NEARCTIC RECORD OF *CAMILLA ATRIMANA*
(DIPTERA: CAMILLIDAE)**

J. H. KITS*, J. HOLDENRIED, S. M. PAIERO
School of Environmental Sciences, University of Guelph
50 Stone Road West, Guelph, ON, Canada N1G 2W1
e-mail: joel.kits@gmail.com

Scientific Note

J. ent. Soc. Ont. 143: 121–124

Members of Camillidae are among the least known Diptera in the Nearctic Region. Worldwide, this small family consists of four extant genera and approximately 40 species (Pape et al. 2011). Most species occur in the Palearctic and Afrotropical regions, and the family was not recorded in the New World until McAlpine (1960) noted the occurrence of *Camilla glabra* (Fallen) in Ottawa, Ontario. *Camilla glabra* is a widespread Palearctic species and its occurrence in the New World presumably represents an accidental introduction. The family was included in McAlpine (1987) on the basis of this population. Barraclough and Wheeler (1995) later described two endemic species of *Afrocamilla* Barraclough from Arizona and California and one of *Camilla* Haliday from Baja California, and Barraclough and Fitzgerald (2001) described an additional species of *Afrocamilla* from Colorado. Barraclough and Wheeler (1995) examined the status of *C. glabra*, noting that specimens were only collected in a small area of Ottawa between 1954 and 1965 and suggesting that this population is likely extirpated. Thus the current known Nearctic fauna of Camillidae consists of three species of *Afrocamilla* and one of *Camilla*. Here we record and key an additional species of *Camilla* in the Nearctic region.

The specimens of *Camilla atrimana* Strobl reported here were collected with a Vortis suction sampler (Burkard Manufacturing Co. Ltd., Hertfordshire, UK) during an invertebrate survey of experimental grass plots at the Guelph Turfgrass Institute. They are deposited in the University of Guelph Insect Collection, Guelph, ON (DEBU); we also examined material from the Canadian National Collection of Insects, Arachnids & Nematodes, Ottawa, ON (CNCI).

Key to Nearctic *Camilla* species

- | | | |
|---|---|---|
| 1 | Scutum mostly shining. Wing apex rounded. Legs yellow. | 2 |
| – | Scutum covered with microtomentum. Wing apex distinctly pointed. Femora 1–3 and tibia 1 black, tibiae 2 and 3 brown (Fig. 1)..... | |
| | <i>C. atrimana</i> (Ontario, adventive) | |

Published December 2012

* Author to whom all correspondence should be addressed.

- 2 About 7 genal bristles subequal to vibrissal length. Tegite 2 without enlarged median bristles.....
.....*C. glabra* (Ontario, adventive; Nearctic population probably extirpated)
- One genal bristle subequal to vibrissal length. Tegite 2 with medial pair of bristles enlarged..... *C. arnaudi* (Baja California)

***Camilla atrimana* Strobl**

Camilla glabra var. *atrimana* Strobl 1910

Camilla atripes Duda 1934

Camilla atrimana: Papp 1985 (key, illustration)



FIGURE 1. Lateral habitus of female *Camilla atrimana* from Guelph, Ontario.

Material examined. **Canada:** ON: Guelph, Guelph Turfgrass Institute, 43°32'56"N 80°13'06"W, June 2010, J. Holdenried (2 ♂ 19 ♀, DEBU). **Germany:** Ingelheim am Rhein, Malaise trap, July 1965 (2 ♂ 4 ♀, CNCI). **Great Britain:** Devon: Paignton, 6 June 1960, J.R. Vockeroth (2 ♂, CNCI), same but 23 August 1960 (1 ♂, CNCI); Devon: Clennon Valley, Paignton, 23 August 1960 (1 ♀, CNCI), same but 26 August 1960 (1 ♂ 2 ♀, CNCI); Devon: Torquay, 25 June 1960, J.R. Vockeroth (1 ♂, CNCI); Devon: Berry Head, Brixham, 1 September 1960 (1 ♀, CNCI).

Members of the family Camillidae can be separated from other Nearctic Diptera based on a combination of characters: one proclinate and one reclinate orbital bristle, arista with long dorsal rays and very short ventral rays, an episternum with at least one strong bristle, fore femur with anteroventral spines, mid tibia with preapical dorsal bristle, cell *cup* not developed, and cells *bm* and *dm* confluent. Species of camillids are most similar to those of Drosophilidae and Diastatidae, which also have proclinate and reclinate orbital bristles and often a plumose arista; however, species in both these families lack a strong anepisternal bristle, have two reclinate orbital bristles and a complete cell *cup*, and usually have the arista with dorsal and ventral rays of similar size. *Camilla atrimana* is a typical member of the genus, based on the plumose arista, two dorsocentral bristles, clear wing, and abdominal tergite 2 not bulging posteriorly. There is no single key to all the species of *Camilla*, but Papp (1985) covers all Palearctic members of the genus. The three African species can be excluded as they lack the preapical dorsal bristle on the mid tibia and anteroventral spine on the fore femur (Barraclough 1993). The newly collected Guelph specimens externally match the descriptions and available European material of *C. atrimana*, and the genitalia of a dissected male match illustrations of this species provided by Papp (1982).

In general, camillid specimens are rarely collected. Three of the Nearctic species are known from single specimens (Barraclough and Wheeler 1995), and the Afrotropical diversity was almost entirely unknown until collectors began to focus on rock hyrax, *Procavia capensis* (Pallas), latrines and bat guano in caves (Barraclough 1997). Most Camillidae are associated with small mammal nests and burrows but the biology of *C. atrimana* is unknown; it is unlikely to be of any economic significance and potential ecological impacts cannot be determined until more information about its biology and New World distribution is known. Suction trapping appears to be an effective method of collecting some acalyptrate Diptera groups that are generally under-recorded by standard sampling techniques (e.g., some Anthomyzidae). Whether this accounts for the lack of previous records of *C. atrimana* from the New World, or if this Palearctic species only recently became established in the Nearctic region is unknown.

Acknowledgements

Samples were obtained through research led by Jonathan Newman (University of Guelph) and funded by OMAFRA. Jeffrey Skevington (CNCI) loaned material for comparison. Stephen Marshall (University of Guelph) and two anonymous reviewers provided valuable suggestions on earlier drafts of this note.

References

- Barracough, D. A. 1993. *Teratocamilla*, a new genus of Camillidae (Diptera) and two new species of *Camilla*, from southern Africa. *Annals of the Natal Museum* **34**: 19–30.
- Barracough, D. A. 1997. The African species of *Afrocamilla* Barracough, 1992 (Diptera: Schizophora), a genus of Camillidae associated with rock hyrax latrines. *Annals of the Natal Museum* **38**: 21–53.
- Barracough, D. A. and Fitzgerald, S. J. 2001. A new *Afrocamilla* from Colorado, the third species of Camillidae (Diptera: Schizophora) from the United States. *Tijdschrift voor Entomologie* **144**: 1–4.
- Barracough, D. A. and Wheeler, T. A. 1995. Three new species of Camillidae (Diptera) from the southwestern Nearctic region, the first species of the family described from the New World. *Proceedings of the Entomological Society of Washington* **97**: 737–745.
- McAlpine, J. F. 1960. First record of the family Camillidae in the New World (Diptera). *The Canadian Entomologist* **42**: 954–956.
- McAlpine, J. F. 1987. Camillidae. Pp. 1023–1025 in McAlpine, J. F., et al. (eds), Manual of Nearctic Diptera, Volume 2. *Agriculture Canada Monograph* **28**.
- Pape, T., Blagoderov, V. and Mostovski, M. B. 2011. Order DIPTERA Linnaeus, 1758. Pp. 222–229, in Zhang, Z.-Q. (ed), Animal biodiversity: An outline of higher-level classification and survey of taxonomic richness. *Zootaxa* **3148**.
- Papp, L. 1982. A revision of the species of *Camilla* Haliday described by J. E. Collin (Diptera: Camillidae). *Memoirs of the Entomological Society of Washington* **10**: 125–135.
- Papp, L. 1985. A key to the world species of Camillidae (Diptera). *Acta Zoologica Hungarica* **31**: 217–227.