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Redescription of the adults of *Culicoides bancrofti* Lee and Reye and *C. hornsbyensis* Lee and Reye (Diptera: Ceratopogonidae)

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Abstract

The Bancrofti species group of the biting midge genus *Culicoides* Latreille which embraces two species from Australia and Papua New Guinea is revised. A diagnosis for the group along with a first description of adult male *C. bancrofti* Lee & Reye and redescriptions of female adult *C. bancrofti* and male and female adult *C. hornsbyensis* Lee & Reye are presented together with keys for their specific determination.

Key words: Biting midges, *Culicoides*, Bancrofti group

Introduction

While the distribution of sensilla coeloconica have been routinely included in descriptions of female *Culicoides* spp. since the 1960's, providing data on the distribution and abundance of the other forms of antennal sensilla has only been adopted relatively recently (Meiswinkel and Dyce 1989; Dyce and Meiswinkel 1995; Dyce and Wirth 1997; Clastier and Delécolle 1996; Bellis and Dyce 2011). Given the usefulness of these data at both the species and species group level (Cornet 1974) and the increasing number of morphologically similar 'cryptic' species revealed by molecular analyses (Gomulski *et al.* 2006; Pagès *et al.* 2009), it is important to provide data on the full range of antennal sensilla to aid in the discrimination of closely related species and to provide a more complete range of morphological characters to assist in future studies on the phylogeny of this genus. Currently, data on the distribution and abundance of antennal sensilla is available for only 16 of the 272 species reported from Australasia, the remainder consequently require some redescription. Two such species are *C. bancrofti* Lee & Reye and *C. hornsbyensis* Lee & Reye, placed into the Bancrofti species group by Dyce *et al.* (2007). Additionally, the male of several species, including *C. bancrofti*, remain undescribed.

Based on similarities between the wing and palpal sensilla pattern of the female, Wirth and Arnaud (1969) considered *C. bancrofti* to be closely related to *C. costalis* Tokunaga and their new species *C. polynesiae* Wirth and Arnaud. They included a diagnosis of the characters shared by these species but acknowledged that only the female of *C. bancrofti* was known at the time and that some significant differences existed between this species and the other two members of the group. Wirth and Hubert (1989) subsequently added *C. novairelandi* Tokunaga to this group and named it the Costalis group. Clastier and Delécolle (1996) added two new species to the group and provided a key to distinguish the species. At no time was *C. hornsbyensis* included in this group although Lee and Reye (1962) did note a similarity in the arrangement of palpal sensilla between *C. bancrofti* and *C. hornsbyensis*.

More recently, Dyce *et al.* (2007) placed *C. bancrofti* and *C. hornsbyensis* in a new group, the Bancrofti group, while retaining the Costalis group for *C. costalis* and its seven cohort species. Herein a diagnosis for the Bancrofti group sensu Dyce *et al.* (2007) is presented along with a description of the male of *C. bancrofti* and redescriptions of the females of *C. bancrofti* and male and female *C. hornsbyensis* and keys to their determination.