



Ten species of *Culicoides* Latreille (Diptera: Ceratopogonidae) newly recorded from Thailand

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Abstract

A survey of biting midges in animal sheds, mangroves and beaches along the Andaman coastal region in southern Thailand between April 2012 and May 2013 collected 10 species of *Culicoides* which were not previously known from Thailand. These new records are *C. arenicola*, *C. flavipunctatus*, *C. hui*, *C. kinari*, *C. kusaiensis*, *C. parabubalus*, *C. quatei*, *C. spiculae*, *C. pseudocordiger* and *C. tamada*. An updated checklist of species of *Culicoides* reported from Thailand is provided.

Key words: *Culicoides arenicola*, *C. flavipunctatus*, *C. hui*, *C. kinari*, *C. kusaiensis*, *C. parabubalus*, *C. quatei*, *C. spiculae*, *C. pseudocordiger* and *C. tamada*

Introduction

Species of *Culicoides* (Diptera, Ceratopogonidae), known as “rin” in Thailand, are important pests of humans and livestock and many species act as vectors of pathogens (Meiswinkel *et al.* 2004). The first major work on the *Culicoides* fauna of Thailand was published by Causey (1938) who recorded 21 species, eight of which were new to science. Ratanaworabhan (1974; 1975; 1977) added a further 11 species to the fauna of Thailand and published a key to the 22 species present in the Changmai valley. Pakarnseree (1976), reported 52 species from Phuket and Songkha in southern Thailand, including six undescribed species, and increased the total number of described species for Thailand to 50. The monographic work of Wirth & Hubert (1989) added a further 25 species to the fauna of Thailand, 12 of which were new to science. More recently, Kitaoka *et al.* (2005) reported 19 species including seven new records and four new species in Doi Inthanon National Park and Thepparat *et al.* (2012) collected 14 species, including six undescribed species and one new record, in Sakaew Province.

The continued discovery of new records and undescribed species from Thailand in recent times is indicative of a complex and diverse fauna that is incompletely known so more new records and new species can be expected as further surveys are undertaken. The advent of molecular tools to test species boundaries may also yield further species records for Thailand; indeed Bellis *et al.* (2014) recently confirmed the presence of *C. asiana* Bellis in Thailand amongst material previously identified as *C. brevitarsis* Kieffer. This paper reports ten species from southern Thailand which were not previously known from the country and provides an updated checklist to the *Culicoides* fauna of Thailand.