



Anopheles (Cellia) rampae n. sp., alias chromosomal form K of the Oriental Maculatus Group (Diptera: Culicidae) in Southeast Asia

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Abstract

Chromosomal form K (also known as species K) of the *Anopheles maculatus* group of sibling species in the Oriental Region is diagnosed and formally named *An. (Cellia) rampae* Harbach & Somboon, n. sp. The male genitalia, pupa and fourth-instar larva are illustrated and information is provided on the morphology, systematics, bionomics and distribution of the species.

Key words: *Anopheles rampae*, *Anopheles maculatus*, mosquitoes, Neocellia Series, new species

Introduction

The Maculatus Group is an assemblage of eight formally named Oriental mosquito species within the Neocellia Series of *Anopheles* subgenus *Cellia* in the Old World. *Anopheles maculatus* Theobald was first recognised as a complex of species based on polytene chromosome rearrangements (Green & Baimai, 1984; Green *et al.*, 1985), and later confirmed by metaphase karyotypes (Baimai *et al.*, 1993) and DNA sequence data (Ma *et al.*, 2002, 2006; Walton *et al.*, 2007; Morgan *et al.*, 2009). Correlation of morphological differences with the cytogenetic forms enabled Rattanaarithikul & Green (1987) and Rattanaarithikul & Harbach (1991) to assign both existing (available) and new Latin names to the eight forms, i.e. *An. dispar* Rattanaarithikul & Harbach, *An. dravidicus* Christophers, *An. greeni* Rattanaarithikul & Harbach, *An. maculatus* Theobald, *An. notanandai* Rattanaarithikul & Green, *An. pseudowillmori* (Theobald), *An. sawadwongporni* Rattanaarithikul & Green and *An. willmori* (James). A ninth cytogenetic form, first referred to as species K by Baimai (1989), has only recently been embraced as a species of the Group based on an accumulation of evidence that includes morphology (Harbach, 2004; Rattanaarithikul *et al.*, 2006), mitotic karyotype (Baimai, 1989; Baimai *et al.*, 1993), rDNA and mtDNA sequences (Ma *et al.*, 2006; Walton *et al.*, 2007; Morgan *et al.*, 2009) and crossmating studies (Somboon *et al.*, 2008; Thongwat, 2008; Thongwat *et al.*, 2008). Based on this body of evidence, species K is described and named *An. rampae* n. sp. in this report.

Material and methods

This study is based on specimens with associated larval and pupal exuviae that were reared from cytotyped progeny broods of females and fourth-instar larvae collected at various localities in Chaiyaphum, Loei, Mukdahan, Nakhon Phanom, Phetchabun, Nong Khai, Ubon Ratchathani and Udon Thani Provinces of northeastern Thailand. Observations of adults were made under artificial light. Larval and pupal chaetotaxy were studied using bright-field microscopy. Setal branching counts were obtained from 10 specimens (20 setae) of each life stage. Unless indicated otherwise, numbers in parentheses represent modes of the reported ranges. The morphological terminology