



## Redescription of *Anopheles oswaldoi* (Peryassú, 1922) (Diptera: Culicidae), with formal lectotype designation

MAYSA TIEMI MOTOKI<sup>1</sup>, YVONNE-MARIE LINTON<sup>2</sup>, FREDDY RUIZ<sup>2</sup>,  
CARMEN FLORES-MENDOZA<sup>3,4</sup> & MARIA ANICE MUREB SALLUM<sup>1,5</sup>

<sup>1</sup>Departamento de Epidemiologia, Faculdade de Saúde Pública, Universidade de São Paulo, Avenida Dr. Arnaldo 715, CEP 01246-904, São Paulo, Brazil

<sup>2</sup>Department of Entomology, The Natural History Museum, Cromwell Road, SW7 5BD, London, United Kingdom

<sup>3</sup>Laboratório Transmissores de Hematozoários, Instituto Oswaldo Cruz-Fiocruz, Av. Brasil 4365, 21045-900 Rio de Janeiro, RJ, Brazil

<sup>4</sup>Current address: Entomology Program, Naval Medical Research Center Detachment, Unit 3800, APO AA 34031

Email addresses: maysatm@usp.br; Y.Linton@nhm.ac.uk

<sup>5</sup>Corresponding author. E-mail: masallum@usp.br

### Abstract

*Anopheles* (*Nyssorhynchus*) *oswaldoi* (Peryassú, 1922) comprises a species complex in South America. To fully characterize other taxa within the Oswaldoi Complex, it is essential to fix the identity of the nominotypical member. Given that the no type was designated in the original description, a lectotype is formally designated from the remaining syntypes in the Museu Nacional do Rio de Janeiro. These and other recently collected specimens from the type locality (Espírito Santo, Brazil) and the State of São Paulo, Brazil were used to redescribe the species using morphological characters of the adult female, male and male genitalia, and the fourth-instar larva and pupa. The larva, pupa, and male genitalia are illustrated. Diagnostic morphological characters of the adult female and male genitalia are provided to distinguish *An. oswaldoi* s.s. from the morphologically similar *An. konderi*, *An. galvaoi*, and *An. ininii*. DNA sequence data from the second nuclear internal transcribed spacer region (ITS2) are included to fix the molecular identity of *An. oswaldoi* s.s.

**Key words:** *Anopheles oswaldoi*; lectotype; redescription; *Nyssorhynchus*, ITS2

### Introduction

*Anopheles* (*Nyssorhynchus*) *oswaldoi* (Peryassú, 1922) was first described as a species of the genus *Cellia*, based on adults collected in Vale do Rio Doce, Espírito Santo and Baixada Fluminense, Rio de Janeiro, Brazil. At more or less the same time that Dyar (1923) synonymized *An. oswaldoi* with *An. tarsimaculatus* Goeldi, Bonne (1923, 1924) recognized two “races” of *An. tarsimaculatus*, one exophilic and characterized by a small dark basal ring on the hindtarsal segment 2 (= *An. oswaldoi*) and *An. aquasalis* Curry, which was reported in coastal areas. Root (1924) examined the male genitalia of *An. oswaldoi* and *An. tarsimaculatus* and, considering them identical, once again synonymized the two species. Later, *An. oswaldoi* was resurrected from synonymy with *An. tarsimaculatus* based on morphological differences in the adults, larvae and pupae of both species (Lima 1928). *Anopheles aquacaelestis* Curry was first described as a variety of *An. tarsimaculatus* and later synonymized with *An. oswaldoi* (Senevet & Abonnenc 1938). Galvão & Lane (1937) suggested that *An. oswaldoi* consisted of three subspecies, *An. oswaldoi oswaldoi*, *An. oswaldoi* var. *metcalfi* Galvão & Lane and *An. oswaldoi* var. *noroestensis* Galvão & Lane. In 1942, Galvão & Damasceno described *An. konderi* from specimens collected in Coari, State of Amazonas, Brazil, and considered *An. noroestensis* to be a distinct