



Description of male, pupa and larva of *Psorophora (Grabhamia) paulli* and redescription of the female (Diptera: Culicidae)

MARINA STEIN^{1,4}, GUSTAVO CARLOS ROSSI² & WALTER RICARDO ALMIRÓN³

¹Instituto de Medicina Regional. Universidad Nacional del Nordeste. Av. Las Heras 727 3500, Resistencia, Argentina

²Centro de Estudios Parasitológicos y de Vectores (CEPAVE) (CCT La Plata, CONICET - UNLP), Calle 2 No. 584 – B1902CHX - La Plata, Argentina

³Centro de Investigaciones Entomológicas de Córdoba. Facultad de Ciencias Exactas, Físicas y Naturales. Universidad Nacional de Córdoba. Av. Vélez Sársfield 1611 X5016GCA, Córdoba, Argentina

⁴Corresponding author. E-mail: marinastein@yahoo.com.ar

Abstract

The female of *Psorophora (Grabhamia) paulli* Paterson & Shannon is redescribed, and the pupa, fourth-instar larva and male genitalia are described and illustrated for the first time. Information about the distribution, bionomics and taxonomy is also included. Adults of *Ps. paulli* can be separated from the other species of the genus and subgenus by its small size. The larva of *Ps. paulli* is similar to that of *Ps. varinervis* Edwards and *Ps. discolor* (Coquillett) but can be separated based on the development of setae 1-X and 5-VIII, the length of the anal papillae and the comb on a sclerotized area.

Key words: *Psorophora paulli*, immature stages, male genitalia, morphology, description

Introduction

Psorophora (Grabhamia) paulli was described by Paterson & Shannon (1927) from seven females collected in Tres Pozos, Salta, Argentina. Shannon & Del Ponte (1927) included a key to species in a systematic review of the mosquitoes of Argentina based on specimens from the Instituto Bacteriológico and Museo Nacional de Historia Natural de Buenos Aires. Lane (1953) redescribed the female, adding minor variations to the original description. Guedes *et al.* (1965) illustrated the female genitalia. None of these authors included descriptions of the larva, pupa and adult male. The purpose of this paper is to provide a complete description of all life stages to aid the unequivocal recognition of the species.

Material and methods

During sampling in Chaco Province, Argentina, larvae belonging to the genus *Psorophora* were collected from ground pools. Several larvae were individually reared to obtain adults. Some larvae could not be identified to species using the keys of Darsie (1985), but the respective adults were identified as *Ps. paulli*. Adults were pin-mounted and the immature stages and male genitalia were mounted in Canada balsam on microscope slides.

The morphological terminology follows Harbach & Knight (1980, 1982). Life stages are indicated as follows: M (male), MG (male genitalia), F (female), Pe (pupal exuviae) and Le (larval exuviae), and an asterisk following these indicates that a drawing is available. Measurements are given in millimeters (mm) and micrometers (µm), as a range followed by the mean in parentheses. Counts and ratios are formatted similarly. Voucher specimens are deposited in the Departamento de Entomología, Instituto de Medicina Regional (Universidad Nacional del Nordeste) and Centro de Investigaciones Entomológicas de Córdoba (Universidad Nacional de Córdoba), Argentina.