

NOTA CIENTÍFICA

Expanding the distribution of two species of mosquitoes (Diptera: Culicidae) in Argentina and notes on their bionomics

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Ampliación de la distribución de dos especies de mosquitos (Diptera: Culicidae) en Argentina y notas sobre su bionomía

■ **RESUMEN.** En esta nota, se informa el hallazgo de los mosquitos *Toxorhynchites haemorrhoidalis* (Lynch Arribálzaga) y de *Ochlerotatus milleri* Dyar en la provincia de Corrientes y Buenos Aires respectivamente; con lo cual se amplía la distribución geográfica de ambas especies en Argentina.

PALABRAS CLAVE. *Toxorhynchites haemorrhoidalis*. *Ochlerotatus milleri*. Biodiversidad. Insectos acuáticos. Fitotelmata. Huecos en rocas.

■ **ABSTRACT.** This paper reports the discovery of the mosquitoes *Toxorhynchites haemorrhoidalis* (Lynch Arribálzaga) and *Ochlerotatus milleri* Dyar in Corrientes and Buenos Aires provinces respectively, thereby extending the geographical distribution of both species in Argentina.

KEY WORDS. *Toxorhynchites haemorrhoidalis*. *Ochlerotatus milleri*. Biodiversity. Aquatic insects. Phytotelmata. Rock holes.

The first taxonomic study of Culicidae (Diptera) and therefore its distribution in Argentina, dates from 1878, when Lynch Arribálzaga described three species of local mosquitoes (Lynch Arribálzaga, 1878 in Lynch Arribálzaga, 1891). From that time many contributions allowed to know the distribution of mosquitoes in the Argentine territory (e. g.: Duret, 1950, 1951a, b). Darsie and Mitchell in 1985 compiled all existing information so far, produced the first key that grouped the 208 species of mosquitoes known from Argentina (Darsie, 1985), and constructed a map of their geographical distribution (Mitchell & Darsie, 1985). In the following decades, the number of mosquito species raised to 226 (Rossi *et al.*, 2006),

and recently two were added, totaling 228 species (Visintín *et al.*, 2010). The first recount of mosquitoes made by Mitchell & Darsie (1985) yielded 59 species for Buenos Aires province and 77 for Corrientes province. At present, the number of species reaches 74 and 115, respectively (Rossi *et al.*, 2006).

The purpose of this note is to contribute to the knowledge of the geographic distribution of Culicidae in Argentina. This update is important for two reasons: (1) The Culicidae is a family of medical and veterinary interest because it transmits pathogens that cause diseases to humans and pets, and their bite causes allergies to susceptible individuals, that is why it is necessary to know the local distribution of the species in order to

carry out the corresponding vector control measures. (2) Because natural environments are being modified by human activity, and many endemic species that remain could be exposed to danger of extinction, it is necessary to have the knowledge of the diversity and distribution of species not only worldwide but also at a local level, in order to preserve the species with more restricted distribution because they are the most vulnerable.

During ecological studies on macro-invertebrate communities that breed in aquatic micro-environments undertaken in various provinces of Argentina, between 2005 and 2010, larvae of mosquitoes were collected and reared until adult emergence. Among them two species were identified, *Toxorhynchites (Lynchiella) haemorrhoidalis separatus* (Lynch Arribáizaga) (subfamily Toxorhynchitinae) collected in Riachuelo (27° 32' 43 "S - 58° 40' 23" W), province of Corrientes and *Ochlerotatus milleri* Dyar (Subfamily Culicinae), collected in Sierra de la Ventana (38° 03' 43 "S - 62° 01' 22" W), province of Buenos Aires.

Examined material. *Toxorhynchites h. separatus*, Corrientes Province: Riachuelo, November 28th, 2010, 1 male, 5 females collected as larva, R. E. Campos coll. and det. *T. h. separatus* larvae were found in the leaf axils of *Aechmea distichantha* (Bromeliaceae) and were associated with the culicids *Culex (Microculex) imitator* Theobald and *Phoniomyia muehlensi* (Petrocchi).

Toxorhynchites h. separatus is a Neotropical species distributed in Argentina (type locality), Paraguay, and Brazil (Lane, 1953a). The distribution in Argentina comprises the provinces of Chaco, Formosa (Duret, 1950) and Salta (Rossi *et al.*, 2006). For Argentina, the subspecies *T. haemorrhoidalis haemorrhoidalis* (Fabricius) (Knight & Stone, 1977) was also cited, without specifying the location where it was collected. Mitchell & Darsie (1985) pointed out that "since all mention of *T. haemorrhoidalis* in the Argentina literature gives only subspecies *separatus*, it is doubtful that the typical subspecies occurs in Argentina. This opinion was also expressed by Duret (1950)". There

were no subsequent studies showing that *T. h. haemorrhoidalis* is present in the country.

Examined material. *Ochlerotatus milleri*, Buenos Aires Province: Sierra de la Ventana, April 2006, 3 males, 10 females caught with CDC trap and 10 females caught on humans. December 2006, 2 males, 4 females collected as larvae, S. Fischer coll. and R. E. Campos det. April 2007, 1 male, 2 females caught with CDC trap and 8 males, 8 females collected as larvae, R. E. Campos coll. and det.

Larvae of *O. milleri* were found in holes in rocks (approx. 60 x 40 cm) on the banks of streams El Belisario (38° 04' 0.9" S, 61° 55' 10" W) and Ventana (38° 03' 34.9" S, 62° 01' 22.9" W), associated with *Ochlerotatus crinifer* (Theobald) and species of *Culex (Culex)* (Culicidae).

Ochlerotatus milleri is a Neotropical species distributed in Argentina, Bolivia, Colombia, Ecuador and Peru (Forattini, 1962), with type locality in Bogotá, Colombia (Lane, 1953b). Its distribution in Argentina comprises the provinces of Córdoba, Jujuy, and Salta, being Duret (1951) who recorded it for the first time. Other authors mentioned in the work of Mitchell & Darsie (1985), pointed localities other than those mentioned by Duret, but within the same provinces.

This note extends the distribution of *Toxorhynchites h. separatus* and *O. milleri* to the provinces of Corrientes and Buenos Aires, respectively. The biology and ecology of both species are still unknown. With these new findings, the fauna of mosquitoes of Corrientes and Buenos Aires provinces reach 116 and 75 species, respectively. All collected material was deposited in the Instituto de Limnología "Dr. Raúl A. Ringuelet", Universidad Nacional de La Plata, Argentina.

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