

## **New Records of Mosquitoes from Northwestern Argentina**

Author(s): María J. Dantur Juri, Marina Stein, Gustavo C. Rossi, Juan Carlos Navarro, Mario Zaidenberg, and María A. Mureb Sallum

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## SCIENTIFIC NOTE

### NEW RECORDS OF MOSQUITOES FROM NORTHWESTERN ARGENTINA

MARÍA J. DANTUR JURI,<sup>1,2</sup> MARINA STEIN,<sup>3</sup> GUSTAVO C. ROSSI,<sup>4</sup> JUAN CARLOS NAVARRO,<sup>5</sup>  
MARIO ZAIDENBERG<sup>6</sup> AND MARÍA A. MUREB SALLUM<sup>7</sup>

**ABSTRACT.** Eleven mosquito species, namely *Aedes hastatus*, *Ae. fulvus*, *Coquillettidia albicosta*, *Cq. juxtamansonia*, *Culex aliciae*, *Cx. delpontei*, *Cx. oedipus*, *Cx. pedroi*, *Mansonia flaveola*, *Uranotaenia leucoptera*, and *Wyeomyia oblita*, are recorded for the first time from northwestern Argentina. In addition, 3 species, *Cx. brethesi*, *Limatus durhami*, and *Ur. nataliae*, are reported for the first time from Salta Province. These records extend the geographical distribution of these 3 species to Salta Province. This study also extends the geographical distributions of *Cq. nigricans*, *Cx. chidesteri*, and *Ma. humeralis* to Jujuy Province and of *Ae. meprai*, *Ae. milleri*, *Ae. oligopistus*, *Cx. brethesi*, *Cx. fernandezi*, and *Cx. tatoi* to Tucumán Province.

**KEY WORDS** New records, Culicidae, Argentina

The present report updates the mosquito fauna of northwestern Argentina, citing new records and extending the geographical distribution of some species. Earlier studies showed the mosquito fauna of Argentina to consist of 208 species in 19 genera (Mitchell and Darsie 1985), which was later revised to 226 species in 23 genera (Rossi et al. 2006), or more recently to 228 species (Visintín et al. 2010). The most recent studies on the geographical distribution of mosquitoes in Argentina covered Formosa Province, northeastern Argentina (Hoyos et al. 2011). A total of 101 species of mosquitoes were reported from the northwestern region of the country. These species belonged to the genera *Aedeomyia*, *Aedes*, *Anopheles*, *Coquillettidia*, *Culex*, *Haemagogus*, *Limatus*, *Lutzia*, *Mansonia*, *Psorophora*, *Sabethes*, *Toxorhynchites*, *Uranotaenia*, and *Wyeomyia*, thus increasing the number of species in Tucumán Province from 44

to 47, in Salta Province from 74 to 79, and in Jujuy Province from 44 to 45 (Rossi et al. 2006).

Mosquito samples in this study were obtained during the development of an entomological surveillance program conducted in subtropical mountainous rainforest or yungas in northwestern Argentina. The subtropical mountainous rainforest extends from the Bolivian border (22°S) to northern Catamarca Province (29°S) and is found throughout Salta, Jujuy, and Tucumán provinces. The piedmont forest sits in a region heavily impacted by human activities (deforestation and agriculture), although some native vegetation patches or relicts still exist. The canopy is approximately 30 m high and is dominated by *Calycophyllum multiflorum* Griseb. and *Phyllostylon rhamnoides* (Poiss.) Taubert. There is also a dense shrub stratum up to 2 m high composed of lianas, climbers, and epiphytes. The forest of *Tipuana tipu* (Benth.) Kuntze and *Enterolobium contortisiliquum* (Vell.) Morong., located in the southern part of the area, has been replaced by sugarcane (*Saccharum officinarum* L.), soybean (*Glycine max* L.), and citrus (*Citrus limon* (L.) Burm) plantations (Dantur Juri et al. 2010).

Adult mosquitoes (M = male, F = female) were collected with the Centers for Disease Control and Prevention light traps baited with carbon dioxide and with mechanical aspirators. Mosquito identification keys used in this study included: Ronderos and Bachmann (1963) for the genus *Coquillettidia*; Berlin and Belkin (1980), Bram (1967), and Sallum and Forattini (1996) for the genus *Culex*; and Lane (1953), Darsie (1985), and Forattini (2002) as general references. Voucher specimens confirming these new records were deposited in the collections of the Instituto-Fundación Miguel Lillo (IMLA), Tucumán, and Museo de La Plata, Argentina. The genus and subgenus abbreviations used in this paper are those defined by the Walter Reed Biosystematics Unit (WRBU 2001).

<sup>1</sup> Instituto Superior de Entomología Dr. Abraham Willink, Facultad de Ciencias Naturales e Instituto Miguel Lillo, Universidad Nacional de Tucumán, Miguel Lillo 205, CP 4000 Tucumán, Argentina.

<sup>2</sup> IAMRA, Universidad Nacional de Chilecito, 9 de Julio No. 22, CP F5360CKB, Chilecito, La Rioja, Argentina.

<sup>3</sup> Departamento de Entomología, Instituto de Medicina Regional, Universidad Nacional del Nordeste, Avenida Las Heras 727, CP 3500, Resistencia, Chaco, Argentina.

<sup>4</sup> Centro de Estudios Parasitológicos y de Vectores, CCT La Plata, CONICET – UNLP, Calle 2 No. 584, CP B1902CHX, La Plata, Argentina.

<sup>5</sup> Laboratorio de Biología de Vectores, Instituto de Zoología Tropical, Universidad Central de Venezuela, Apartado 47058 Caracas 1041-A, DC, Venezuela.

<sup>6</sup> Coordinación Nacional de Control de Vectores, Ministerio de Salud de la Nación, Güemes 125, Piso 1, CP 4400, Salta, Argentina.

<sup>7</sup> Departamento de Epidemiologia, Faculdade de Saúde Pública, Universidade de São Paulo, Avenida Dr. Arnaldo 715, 01246-904, São Paulo, SP, Brazil.

The distribution, material examined (M.E.), localities, collection date, number of specimens collected, collectors (coll.), and taxonomists (det.) are listed below with a brief description of the bionomics of certain species of medical importance.

The following species are reported for the first time from the northwestern region:

*Aedes (Ochlerotatus) hastatus* Dyar. Distribution: Chaco, Corrientes, Misiones. M.E.: Jujuy, Yuto, 08,09-XII-2005, 5F; Salta, San Ramón de la Nueva Orán (Orán), 08-XII-2005, 1F; Dantur Juri, Laci, and Vianconi coll. and Stein det. Bionomics: Pixuna virus was isolated from this species collected in Tucumán Province, Argentina (Pisano et al. 2010).

*Aedes (Och.) fulvus* Wiedemann. Distribution in Argentina: Chaco, Formosa, Misiones. M.E.: Salta, Orán, 02-XII-2004, 4F; Dantur Juri, Laci, and Vianconi coll. and Dantur Juri and Navarro det.

*Coquillettidia (Rhynchoaenia) albicosta* (Peryassu). Distribution: Chaco, Corrientes, Formosa. M.E.: Jujuy, Finca Yuto, 8-XII-2005, 1F; Dantur Juri, Laci and Vianconi coll. and Stein det.

*Coquillettidia (Rhy.) juxtamansonia* (Chagas). Distribution: Corrientes, Misiones. M.E.: Tucumán, Sargento Moya (S. Moya), 27-II-2002, 3F, 27-XI-2002, 1F, 25,26-I-2003, 2F, 14-III-2003, 13,14-V-2003, 5F, 12-XII-2005, 7F; Tucumán, La Florida, 30-VIII-2003, 1F; Dantur Juri, Laci, and Vianconi coll. and Rossi det.

*Culex (Melanoconion) aliciae* Duret. Distribution: Misiones, Corrientes. M.E.: Tucumán, S. Moya, 10-V-2003, 1M, 23-VII-2003, 1F, 26-VII-2003, 1M, 1F, 14-V-2005, 1M, 2F; Dantur Juri, Laci, and Vianconi coll. and Rossi det.

*Culex (Mel.) delpontei* Duret. Distribution: Buenos Aires, Chaco, Córdoba, Corrientes, Formosa, Misiones, Santa Fe. M.E.: Jujuy, Yuto, 08-XII-2005, 1F; Salta, Orán, 08-XII-2005, 6F; Dantur Juri, Laci, and Vianconi coll. and Rossi and Stein det. Bionomics: 40 strains of Venezuelan Equine Encephalitis Virus subtype VI were isolated from this species collected in Chaco Province (Mitchell et al. 1987).

*Culex (Mel.) oedipus* Root. Distribution: Buenos Aires, Chaco, Misiones, Santa Fe. M.E.: Jujuy, Yuto, 27-X-2005, 2M, 7F; Dantur Juri, Laci, and Vianconi coll. and Rossi and Stein det.

*Culex (Mel.) pedroi* Sirivanakarn and Belkin. Distribution: Chaco, Corrientes, Misiones. M.E.: Salta, Orán, 08-XII-2005, 4F; La Florida, 08-XII-2005, 3F; Dantur Juri, Laci, and Vianconi coll. and Rossi and Stein det.

*Mansonia (Mansonia) flaveola* (Coquillett). Distribution: Buenos Aires, Chaco, Corrientes, Misiones, Santa Fe. M.E.: Jujuy, Yuto, 27-X-2005, 4F; Dantur Juri, Laci, and Vianconi coll. and Stein det.

*Uranotaenia (Uranotaenia) leucoptera* (Theobald). Distribution: Corrientes, Misiones. M.E.: Salta, Orán, 02-XII-2004, 1F; Dantur Juri, Laci, and Vianconi coll. and Dantur Juri and Navarro det.

*Wyeomyia (Wyeomyia) oblita* (Lutz). Distribution: Misiones. M.E.: Salta, Orán, 08-XII-2005, 6F; Dantur Juri, Laci, and Vianconi coll. and Stein det.

The species listed below are the first records for Jujuy, Salta, and Tucumán provinces, respectively.

Jujuy Province:

*Coquillettidia (Rhy.) nigricans* (Coquillett). Distribution: Chaco, Córdoba, Corrientes, Formosa, Misiones, Salta. M.E.: Jujuy, Yuto, 08,09-XII-2005, 12F; Dantur Juri, Laci, and Vianconi coll. and Stein det.

*Culex (Cux.) chidesteri* Dyar. Distribution in Argentina: Buenos Aires, Catamarca, Chaco, Córdoba, Corrientes, Entre Ríos, Misiones, Salta, San Juan, Tucumán. M.E.: Jujuy, Yuto, 26,27-X-2005, 13M, 5F; Dantur Juri, Laci, and Vianconi coll. and Rossi and Stein det.

*Mansonia (Man.) humeralis* Dyar and Knab. Distribution in Argentina: Buenos Aires, Chaco, Corrientes, Entre Ríos, Formosa, Misiones, Salta, Santa Fe. M.E.: Jujuy, Yuto, 08,09-XII-2005, 3F; Dantur Juri, Laci, and Vianconi coll. and Stein det.

Salta Province:

*Culex (Cux.) brethesi* Dyar. Distribution in Argentina: Buenos Aires, Córdoba, Corrientes, Entre Ríos, Jujuy, La Pampa, Mendoza, Misiones, Río Negro, Santa Cruz, Santa Fe, Santiago del Estero. M.E.: Salta, Orán, 08-XII-2005, 5F; Tucumán, S. Moya, 18-VIII-2002, 1F, 13-V-2003, 1F; Tucumán, Capitán Cáceres (C. Cáceres), 30-III-2003, 1F; Dantur Juri, Laci, and Vianconi coll. and Rossi det.

*Limatus durhamii* Theobald. Distribution in Argentina: Buenos Aires, Chaco, Corrientes, Formosa, Jujuy, Misiones. M.E.: Salta, Orán, 02-XII-2004, 3F; Dantur Juri, Laci, and Vianconi coll. and Dantur Juri and Navarro det.

*Uranotaenia (Ura.) nataliae* Lynch Arribalzaga. Distribution in Argentina: Buenos Aires, Chaco, Córdoba, Corrientes, Entre Ríos, Formosa, Jujuy, Misiones. M.E.: Salta, Orán, 09-XII-2005, 1F; Dantur Juri, Laci, and Vianconi coll. and Stein det.

Tucumán Province:

*Aedes (Och.) meprai* Martínez and Prosen. Distribution in Argentina: Catamarca, Salta. M.E.: Tucumán, C. Cáceres, 21-XII-2005, 1F; Tucumán, S. Moya, 20-XII-2005, 11F; Dantur Juri, Laci, and Vianconi coll. and Stein det.

*Aedes (Och.) milleri* Dyar. Distribution in Argentina: Córdoba, Jujuy, Salta. M.E.: Tucumán, S. Moya, 23-VIII-2003, 3F; Dantur Juri, Laci, and Vianconi coll. and Rossi det.

*Aedes (Och.) oligopistus* Dyar. Distribution in Argentina: Salta. M.E.: Tucumán, S. Moya, 13,14-V-2003, 3F; Dantur Juri, Laci, and Vianconi coll. and Rossi and Stein det.

*Culex (Cux.) fernandesi* Casal, Garcia, and Cavalieri. Distribution in Argentina: Misiones, Salta. M.E.: Tucumán, C. Cáceres, 30-III-2003, 1F; Tucumán, La Florida, 30-VIII-2003, 1M; S. Moya, 17,18-VII-2002, 8F, 25-I-2003, 14F, 13-V-2003, 1F, 23 and 30-VII-2003, 2F, 23 and 30-VIII-2003, 14F, 04-VII-2004, 1F, 12-XII-2005, 37F; Jujuy, Yuto, 26-X-2005, 1M, 11F; Dantur Juri, Laci, and Vianconi coll. and Rossi and Stein det.

*Culex (Cux.) tatoi* Casal and Garcia. Distribution in Argentina: Buenos Aires, Córdoba, La Pampa, Salta. M.E.: Tucumán, S. Moya, 27-II-2002, 1F, 25-V-2002, 1F; Dantur Juri, Laci, and Vianconi coll. and Rossi and Stein det.

The present report updates the list of species recorded from northwestern Argentina and increases the total number of species for the region from 101 to 112. The increases in number of species by province are as follows: Jujuy, 48 to 55; Salta, 84 to 95; and Tucumán, 47 to 56. The present report bears epidemiological importance as some of the species, such as *Ae. hastatus* and *Cx. delponteii*, could be involved in arbovirus transmission. Two arboviruses, Pixuna and Rio Negro viruses, have been recently detected in the area (Dantur Juri et al. 2009, Pisano et al. 2010). Evidently, the role of these species in arbovirus transmission will be the focus of future studies.

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