

## SCIENTIFIC NOTE

### TWO NEW MOSQUITO SPECIES AND SIX NEW PROVINCIAL RECORDS IN ARGENTINA

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**ABSTRACT.** The geographical distribution of *Aedes pennis*, *Anopheles galvaoi*, *Coquillettidia albicosta*, *Cq. nigricans*, *Culex usquatissimus*, *Cx. apicinus*, *Cx. chidesteri*, *Cx. coronator* s.l., *Cx. interfor*, *Cx. maxi*, *Cx. pipiens*, *Cx. saltanensis*, *Cx. educator*, *Cx. serratimarge*, *Cx. theobaldi*, *Psorophora cyanescens*, *Ps. cilipes*, *Ps. cingulata*, *Ps. pallescens*, *Uranotaenia lanei*, *Ur. nataliae*, *Wyeomyia diabolica*, and *Wy. melanocephala* is extended, including new records for 6 provinces and 2 new records for the country, increasing the number of species in Argentina from 226 to 228.

**KEY WORDS** New records, distribution, Argentina, *Anopheles galvaoi*, *Culex usquatissimus*

Knowledge of mosquito species distribution is essential to determine areas of potential risk of pathogen transmission. The last contributions regarding Culicidae distribution in Argentina were made by Campos and Maciá (1998), Rossi et al. (2006), and Visintin et al. (2009). This note updates the mosquito fauna of Argentina, extending the geographical distribution of 21 species in the country and increasing the number of species from 226 to 228.

Specimens were collected as part of an arbovirus and entomological surveillance project carried out in Córdoba, Chaco, Jujuy, La Pampa, La Rioja, and Salta provinces. Adult mosquitoes were collected with Centers for Disease Control and Prevention (CDC) light traps baited with CO<sub>2</sub>, can traps baited with chicken or rabbit, and from human volunteers, using mechanical aspirators. Immature stages were collected with a 300-ml dipper. When possible, larvae were individually reared to obtain the larval and pupal exuviae associated with the respective adult. Species were identified from larvae, males, females, and male genitalia based on keys by Lane (1953), Darsie (1985), Consoli and Lourenço de Oliveira (1994), and Forattini (2002). The abbreviations of life stages and other terms used

are as follows: male (M), male genitalia (MG), female (F), pupa (P), pupal exuviae (Pe), 4th instar (L), larval exuviae (Le), the person who determined the species (det.), and the collector (coll.). Information on collection locality and date, phytogeographical region and climate, number of examined and deposited individuals and stage of the collected specimens, collectors, and the current distribution by province are included for each species.

*Anopheles (Nyssorhynchus) galvaoi* Causey, Deane & Deane has been listed for Brazil (Walter Reed Biosystematics Unit [WRBU] 2001); this is the 1st record of the species for Argentina. Collection data: Chaco Province: Monte Alto (27°26'S, 58°55'W), May–August, December 2001; km 1,031 (27°10'S, 58°58'W); August, October, December 2001; April, May, December 2002; March 2003; Chaco phytogeographical region, subtropical humid climate; 77 F, 22 L; Stein and Willener coll. and det. Thirty F and 11 L deposited in the entomological collection of Instituto de Medicina Regional, Universidad Nacional del Nordeste, Argentina, as voucher specimens.

*Culex (Culex) usquatissimus* Dyar was listed for tropical areas in Central America (Costa Rica and Panamá) and northern South America (Colombia, Venezuela, Ecuador, and Guyana) (WRBU 2001). This is the 1st report of the species for Argentina. Collection data: Jujuy Province: Calilegua National Park, San Lorenzo (23°45'46"S, 64°51'43"W), August 2000; Yungas phytogeographical region, subtropical climate of the mountains, 3 M, 2 MG, 1 F, 4 Pe, 4 Le; Molina coll.; Laurito and Mureb Sallum det. All collected materials are deposited in the entomological collection of Facultad de Ciencias Naturales e Instituto Miguel Lillo, Universidad Nacional de Tucumán, Argentina, as voucher specimens.

The geographical distribution of the following species is extended in Argentina, being listed for

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the 1st time in other provinces than those previously known.

*Aedes (Ochlerotatus) pennai* Antunes and Lane. Chaco Province: Monte Alto, February 2003; 1 L; Stein and Willener coll. and det. Current distribution: Chaco, Misiones; 1 L (microscopic preparation), deposited in the entomological collection of Instituto de Medicina Regional, Universidad Nacional del Nordeste, Argentina.

*Coquillettidia (Rhynchoetaenia) albicosta* (Perassu). Chaco Province: Resistencia (27°30'S, 59°W), April 2003, Monte Alto, June, September–December 2001; March–May, September 2002; July 2003; Chaco phytogeographical region, subtropical humid climate; km 1,031; October 2001; October, December 2002; January–May 2003; 534 F; Stein and Willener coll.; Stein and Ramírez det. Current distribution: Chaco, Formosa; 28 F, deposited in the entomological collection of Instituto de Medicina Regional, Universidad Nacional del Nordeste, Argentina.

*Coquillettidia (Rhynchoetaenia) nigricans* (Coquillet). Córdoba Province: Altos de Chipión (30°54'19.3"S, 62°18'11.1"W), March 2006; Chaco phytogeographical region, temperate climate with dry winters; 2 F; Visintin coll.; Visintin and Almirón det. Current distribution: Chaco, Córdoba, Corrientes, Formosa, Misiones, Salta; 2 F, deposited in the entomological collection of the Centro de Investigaciones Entomológicas de Córdoba, Universidad Nacional de Córdoba, Argentina.

*Culex (Culex) apicinus* Philippi. La Pampa Province: Lihué Calel National Park (38°00'25"S, 65°35'53.4"W), February 2009; Monte phytogeographical region, cold semiarid climate; 2 M, 2 MG, 2 F, 2 Pe, 124 L, 2 Le; Visintin and Laurito coll.; Laurito det. Current distribution: Buenos Aires, Catamarca, Córdoba, Corrientes, Jujuy, La Pampa, La Rioja, Río Negro, Salta, San Luis, Santa Fe; all collected material was deposited in the Centro de Investigaciones Entomológicas de Córdoba, Universidad Nacional de Córdoba, Argentina.

*Culex (Culex) chidesteri* Dyar. Chaco Province: Resistencia, June–December 2001; February, April, September–December 2002; February–October 2003; Monte Alto, June–December 2001; March–May, September–December 2002; January–October 2003; km 1,031, June–December 2001; March–May, September–December 2002; May–September 2003; 86 L, 4,024 F; Stein and Willener coll., Stein and Ramírez det. Current distribution: Buenos Aires, Chaco, Córdoba, Salta, Tucumán; 49 F and 11 L, deposited in the entomological collection of Instituto de Medicina Regional, Universidad Nacional del Nordeste, Argentina.

*Culex (Culex) coronator* s.l. Chaco Province: Resistencia; October–November 2001; Monte Alto; February–May, October–December 2002;

January–October 2003; km 1,031, June–October 2001; March–April, September, December 2003; 3 L, 738 F; Stein and Willener coll. det. Current distribution: Buenos Aires, Catamarca, Chaco, Corrientes, Formosa, Jujuy, Misiones, Salta, Tucumán; 32 F and 3 L, deposited in the entomological collection of Instituto de Medicina Regional, Universidad Nacional del Nordeste, Argentina.

*Culex (Culex) interfor* Dyar. La Rioja Province: Chamental (30°22'00"S, 66°19'00"W); February 2008; Chaco phytogeographical region, arid climate of the hills and fields; 1 M, 1 MG, 1 F, 2 Pe, 2 Le; Laurito coll.; Laurito and Almirón det. Current distribution: Chaco, Córdoba, Corrientes, Entre Ríos, La Rioja, San Luis, Santa Fe, Tucumán; all collected material was deposited in the Centro de Investigaciones Entomológicas de Córdoba, Universidad Nacional de Córdoba, Argentina.

*Culex (Culex) maxi* Dyar. La Pampa Province: Lihué Calel National Park; February 2009; 3 L, 2 Le; Visintin and Laurito coll.; Laurito det. La Rioja Province: Chamental; February, December 2008; Desiderio Tello (31°12'16.9"S, 66°18'16.5"W); December 2008; Chaco phytogeographical region, arid climate of the hills and fields; 4 M, 4 MG, 2 F, 6 Pe, 6 Le; Laurito and Visintin coll.; Laurito and Almirón det. Salta Province: Güemes, Saladillo (24°33'30.58"S, 65°07'24.54"W); November 2000; Yungas phytogeographical region, subtropical climate of the mountains; 1 M, 3 MG, 3 F, 4 Pe, 5 Le; Molina coll. and det. Current distribution: Buenos Aires, Chaco, Córdoba, Corrientes, Entre Ríos, Jujuy, La Pampa, La Rioja, Salta, Santa Fe, Santiago del Estero, Tucumán; all collected material was deposited in the Centro de Investigaciones Entomológicas de Córdoba, Universidad Nacional de Córdoba, Argentina.

*Culex (Culex) pipiens* L. La Rioja Province: Chepes (31°21'00"S, 66°37'00"W), November 2007; Chaco phytogeographical region, arid climate of the hills and fields; 3 M, 3 MG; Visintin and Lorenzo coll.; Laurito and Almirón det. Current distribution: Buenos Aires, Chubut, Córdoba, La Rioja, Mendoza, Neuquén, Río Negro, San Juan, San Luis, Santa Cruz; all collected material was deposited in the Centro de Investigaciones Entomológicas de Córdoba, Universidad Nacional de Córdoba, Argentina.

*Culex (Culex) saltanensis* Dyar. La Rioja Province: Milagro (30°58'04.7"S, 65°55'14.2"W); December 2008; Chaco phytogeographical region, arid climate of the hills and fields; 7 M, 6 F, 13 Pe, 13 Le; Laurito and Visintin coll.; Laurito det. Current distribution: Chaco, Córdoba, Corrientes, Formosa, La Rioja, Misiones, Salta, Santiago del Estero, Tucumán; all collected material was deposited in the Centro de Investi-

gaciones Entomológicas de Córdoba, Universidad Nacional de Córdoba, Argentina.

*Culex (Melanoconion) educator* Dyar and Knab. Chaco Province: Resistencia, April 2003; Monte Alto; July–December 2001; March–May, September–December 2002; January–June, August–October 2003; km 1,031; June–October 2001; March, May, September–December 2003; 11 L, 349 F; Stein and Willener coll.; Stein and Ramírez det. Current distribution: Chaco, Córdoba, Misiones; 30 F and 11 L, deposited in the entomological collection of Instituto de Medicina Regional, Universidad Nacional del Nordeste, Argentina.

*Culex (Melanoconion) serratimarge* Root. Chaco Province: Monte Alto; May 2003; km 1,031; October 2001; 4 L; Stein and Willener coll. and det. Current distribution: Chaco, Misiones; 4 L, deposited in the entomological collection of Instituto de Medicina Regional, Universidad Nacional del Nordeste, Argentina.

*Culex (Melanoconion) theobaldi* Lutz. Chaco Province: km 1,031; November 2001; 4 L; Stein and Willener coll. and det. Current distribution: Chaco, Corrientes; 4 L, deposited in the entomological collection of Instituto de Medicina Regional, Universidad Nacional del Nordeste, Argentina.

*Psorophora (Janthinosoma) cyanescens* (Coquillett). La Rioja Province: Milagro, December 2008; 3 F; Visintin and Laurito coll. and det. Current distribution: Buenos Aires, Catamarca, Chaco, Córdoba, Corrientes, Entre Ríos, Formosa, La Rioja, Mendoza, Misiones, Salta, Santa Fe, Santiago del Estero, Tucumán; all collected material was deposited in the Centro de Investigaciones Entomológicas de Córdoba, Universidad Nacional de Córdoba, Argentina.

*Psorophora (Psorophora) cilipes* (Fabricius). La Rioja Province: Chepes, December 2008; 1 Pe, 1 L; Lorenzo and Visintin coll., Laurito and Visintin det. Current distribution: La Rioja, Misiones; all collected material was deposited in the Centro de Investigaciones Entomológicas de Córdoba, Universidad Nacional de Córdoba, Argentina.

*Psorophora (Grabhamia) cingulata* (Fabricius). La Pampa Province: Lihué Calel National Park, February 2009; 5 L; Visintin and Laurito coll. and det. Current distribution: Buenos Aires, Chaco, Corrientes, Formosa, Entre Ríos, La Pampa, Misiones, Santa Fe; all collected material was deposited in the Centro de Investigaciones Entomológicas de Córdoba, Universidad Nacional de Córdoba, Argentina.

*Psorophora (Psorophora) pallescens* Edwards. La Rioja Province: Chepes, December 2008; 2 M, 4 F, 3 Pe, 3 Le; Visintin and Lorenzo coll.; Visintin and Laurito det. Current distribution: Buenos Aires, Chaco, Córdoba, Corrientes, Entre Ríos, Formosa, Jujuy, La Rioja, Mendoza, Salta, Santa Fe, Santiago del Estero; all collected

material was deposited in the Centro de Investigaciones Entomológicas de Córdoba, Universidad Nacional de Córdoba, Argentina.

*Uranotaenia (Uranotaenia) lanei* Martínez and Prosen. Chaco Province: Monte Alto, April–May 2002; June 2003; 3 F; Stein and Willener coll. and det. Current distribution: Chaco, Formosa; 3 F, deposited in the entomological collection of Instituto de Medicina Regional, Universidad Nacional del Nordeste.

*Uranotaenia (Uranotaenia) nataliae* Lynch Arribálzaga. Chaco Province: Monte Alto, June, October 2001; May 2002; April 2003; 7 F; Stein and Willener coll. and det. Current distribution: Buenos Aires, Chaco, Córdoba, Corrientes, Entre Ríos, Formosa, Jujuy; 7 F, deposited in the entomological collection of Instituto de Medicina Regional, Universidad Nacional del Nordeste.

*Wyeomyia (Phoniomyia) diabolica* Lane and Forattini. Chaco Province: Monte Alto, July–December 2001, April–May, September–December 2002; March, June–September 2003; km 1,031; July–December 2001; April–May, September–December 2002; January–September 2003; 9 L, 2,197 F; Stein and Willener coll. and det. Current distribution: Chaco, Misiones; 37 F and 1 L, deposited in the entomological collection of Instituto de Medicina Regional, Universidad Nacional del Nordeste.

*Wyeomyia melanocephala* Dyar and Knab, uncertain subgenus (Motta and Lourenço de Oliveira, 1995). Chaco Province: Monte Alto, November 2001; April–May 2002; 7 F; Stein and Willener, coll. and det. Current distribution: Chaco, Jujuy, Salta; 6 F, deposited in the entomological collection of Instituto de Medicina Regional, Universidad Nacional del Nordeste.

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#### REFERENCES CITED

- Campos RE, Maciá A. 1998. Culicidae. In: Morrone JJ, Coscarón S, eds. *Biodiversidad de artrópodos argentinos. Una aproximación biotaxonomica*. La Plata, Argentina: Ediciones Sur. p 291–303.
- Consoli RAGB, Lourenço de Oliveira R. 1994. *Principais mosquitos de importância sanitária no Brasil*. Rio de Janeiro, Brazil: Editora Fiocruz.
- Darsie RF Jr. 1985. Mosquitoes of Argentina. Part I. Keys for identification of adult females and fourth stages larvae in English and Spanish (Diptera: Culicidae). *Mosq Syst* 17:153–253.
- Forattini OP. 2002. *Culicidologia médica*. São Paulo, Brazil: Universidade de São Paulo.

- Lane J. 1953. *Neotropical Culicidae*. São Paulo, Brazil: Universidade de São Paulo.
- Motta MA, Lourenço de Oliveira R. 1995. *Wyeomyia luteoventralis* Theobald, the type of the subgenus *Dendromyia* Theobald (Diptera: Culicidae). *Mem Inst Oswaldo Cruz* 90:375–385.
- Rossi GC, Lestani EA, D’Oria JM. 2006. Nuevos registros y distribución de mosquitos de la Argentina (Diptera: Culicidae). *Rev Soc Entomol Argent* 65:51–56.
- Visintin AM, Laurito M, Díaz LA, Benítez Musicant G, Cano C, Ramírez R, Almirón WR. 2009. New records of mosquito species for Central and Cuyo regions in Argentina. *J Am Mosq Control Assoc* 25:208–209.
- WRBU [Walter Reed Biosystematics Unit]. 2001. *Systematic catalog of Culicidae* [Internet]. Washington, DC: Smithsonian Institution [accessed August 11, 2009]. Available from: <http://www.mosquitocatalog.org/main.asp>.