

## SCIENTIFIC NOTE

## New Host and Locality Records for Mites and Fleas Associated with Wild Rodents from Northwestern Argentina

LARESCHI, Marcela\*, Analía G. AUTINO\*\*, M. Mónica DÍAZ\*\*\* and Rubén M. BARQUEZ\*\*

\* CONICET, Argentina. Departamento de Parasitología. ICB/UFMG, Av. A. Carlos 6627, Pampulha, BH 31270-901. Belo Horizonte, MG, Brasil; e-mail: mlareschi@yahoo.com.ar

\*\* y \*\*\* PIDBA. Facultad de Ciencias Naturales e IML, UNT, Miguel Lillo 205, San Miguel de Tucumán, Argentina; e-mail: pidba@arnet.com.ar

\*\*\* Department of Biological Sciences and The Museum, Texas Tech University, Lubbock, Texas, 79409-3131 USA.

■ **ABSTRACT.** The present study extends the distribution area for the mites *Gigantolaelaps oudemansi* (Fonseca), *Gigantolaelaps wolffshoni* (Oudemans) and *Laelaps paulistanensis* Fonseca, and for the flea *Neotyphloceras crassispina hemisus* Jordan. In addition, new host species are recorded for the flea *Craneopsylla minerva minerva* (Rothschild) and for all mite species collected; 21 new ectoparasite-host associations are mentioned for the first time.

**KEY WORDS.** Acari. Siphonaptera. Laelapidae. Macronyssidae. Stephanocircidae. Hystrichopsyllidae.

■ **RESUMEN.** Nuevos Registros de Huéspedes y Localidades para Ácaros y Pulgas Asociados a Roedores Silvestres del Noroeste argentino. El presente estudio extiende el área de distribución de los ácaros *Gigantolaelaps oudemansi* (Fonseca), *Gigantolaelaps wolffshoni* (Oudemans) y *Laelaps paulistanensis* Fonseca, así como de la pulga *Neotyphloceras crassispina hemisus* Jordan. Además, se registraron nuevas especies huéspedes para la pulga *Craneopsylla minerva minerva* (Rothschild) y para todas las especies de ácaros recolectados; también se mencionan por primera vez 21 asociaciones ectoparásito-huésped.

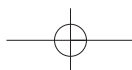
**PALABRAS CLAVE.** Acari. Siphonaptera. Laelapidae. Macronyssidae. Stephanocircidae. Hystrichopsyllidae.

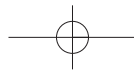
Approximately hundred of mite and flea species have been reported in association with wild rodents from Argentina (Autino & Lareschi, 1998; Lareschi & Mauri, 1998). However, the majority of researches are mainly related to hosts from Buenos Aires Province (Mauri & Capri, 1972; Lareschi, 1996; Lareschi & Iori, 1998; Lareschi & Sánchez López, 2000; Lareschi *et al.* 2003; Nava *et al.*, 2003), whereas studies from the remaining provinces are scarce. In recent years, new species and genera of rodents have been described based on individuals collected in northwestern Argentina (Díaz *et al.*, 1999; Mares *et al.*, 2000), but no

ectoparasites were reported associated with them.

The purpose of this study is to contribute to the knowledge of mite and flea species associated with the most representative wild rodents from northwestern Argentina.

The following localities were selected: Jujuy Province: J1: El Palmar (24° 05' S; 64° 36' W); J2: Laguna La Brea (23° 56' S; 64° 28' W); J3: Abra de Santa Laura (24° 28' S; 65° 21' W). Catamarca Province: C: Cuesta La Cebila (28° 43' S; 66° 22' W). La Rioja Province: R: 1 km al N de Tombillos (29° 22' S; 67° 47' W). Tucumán Province; T1: Cumbre del Taficillo "Las Agüitas" (26° 42' S; 65°





22° W); T2: Ibatín (27° 12' S; 65° 35' W); T3: Las Tipas (26° 39' S; 65° 22' W); T4: Arroyo Aguas Chiquitas (26° 37' S; 65° 12' W); T5: Pueblo Viejo (27° 10' S; 65° 40' W); T6: Reserva Provincial Los Sosa (26° 56' S; 65° 39' W); T7: Reserva Provincial Santa Ana (27° 41' S; 65° 51' W); T8: Tafi del Valle (26° 44' S; 65° 45' W).

The rodents were captured between 1985 and 1998 according to the requirements, regulations and policies from the Departments of Environment and Renewable Natural Resources of every province. They were preserved in formol 10% or prepared as skins and skulls, and deposited at the Colección Mamíferos Lillo (CML), of the University of Tucumán (UNT). However, some specimens still have temporary identifications (ARG, PIDBA and RMB). The ectoparasites were preserved and identified following Hopkins & Rothschild (1956, 1962), Johnson (1957), and Furman (1972). Voucher specimens of ectoparasites were deposited at the Annexes of the CML. The list of mite and flea species collected is given below. For each species, locality, number of specimens examined, sex, host species, collection date (day/month/year) and collector name are also given. A brief report including comments on geographical distribution and host species previously known from Northwestern Argentina is also included for every species.

***Androlaelaps fahrenheitzi* (Berlese)**  
(Parasitiformes: Laelapidae)

**Specimens examined:** T1: 2 females on *Akodon spegazzinii* (CML 4025), 19-IX-1993, M. Goytia and 1 female on *Akodon aliquantulus* (CML 6122, Holotype), 19-IX-1993, M. Goytia; T2: 2 females on *Akodon tucumanensis*, (CML 5636), 29-VIII-1993, A. G. Autino; T3: 1 female on *Akodon simulator* (CML 6017), 04-VIII-1993, A. G. Autino.

**Remarks.** This is a complex species, with cosmopolitan distribution. In Argentina it has been recorded on mammals of the orders Rodentia, Didelphimorphia, Microbiotheria, Xenarthra and Chiroptera (Lareschi & Mauri, 1998). Concerning the wild rodents, only *Abrothrix illuteus* and *A. simulator* from Tucumán, were infested by this mite in northwestern Argentina (Mauri, 1965; 1967). The results obtained in this study add three new host records for *A. fahrenheitzi*.

***Androlaelaps rotundus* (Fonseca)**  
(Parasitiformes: Laelapidae)

**Specimens examined:** T1: 2 females on *A. spegazzinii* (CML 4025), 19-IX-1993, M. Goytia; 3 females on *A. aliquantulus* (CML 6122, Holotype), 19-IX-1993, M. Goytia.

**Remarks.** This species has Neotropical distribution. In Argentina it is associated to 13 wild species of rodents but it prefers those of the genus *Akodon*. In northwestern Argentina it has been recorded on *Akodon* sp. from Salta Province and *Akodon alterus* and *A. simulator* both from Tucumán Province (Mauri, 1965; Lareschi & Mauri, 1998). This results add two new host records for this mite.

***Eulaelaps stabularis* (Koch)**  
(Parasitiformes: Laelapidae)

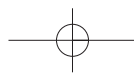
**Specimens examined:** T1: 1 female on *A. spegazzinii* (CML 4025), 19-IX-1993, M. Goytia; 1 female on *A. aliquantulus* (CML 6121, Paratype) 19-IX-1993, M. Goytia; 1 female on *Akodon lutescens puer* Thomas (CML 4023), 19-IX-1993, M. Goytia; T3: 1 female on *A. simulator* (CML 6017), 04-VIII-1993, A. G. Autino.

**Remarks.** This mite has cosmopolitan distribution. In Argentina it has been recorded on nine genera of rodents. In the northwestern part of the country this mite has been collected only on *A. simulator* in Tucumán Province (Mauri, 1965; Lareschi & Mauri, 1998). This study adds three new host records for this mite.

***Gigantolaelaps oudemansi* (Fonseca)**  
(Parasitiformes: Laelapidae)

**Specimens examined:** T2: 2 females on *Oligoryzomys destructor* (Tschudi) (PIDBA 210), 2-VII-1994, A. G. Autino; J1: 2 females on *Oryzomys russatus* (Wagner) (ARG 3414), 11-VII-1993, R.M. Barquez.

**Remarks.** *Gigantolaelaps* is known only from South and Central America, extending north to southern United States. A total of 19 species are known, four of them have been recorded for Argentina. There is a great amount of intraspecific variation among *Gigantolaelaps* species; however, according to Furman (1972) keys all the *G.*



*oudemansi* specimens collected in this study belong to "Group 1". In Argentina this mite has been previously collected only on *Oecomys concolor* (Wagner) from Chaco Province (Lareschi & Mauri, 1998). This study adds two new host records for this mite and extends its geographical distribution to Tucumán and Jujuy provinces.

***Gigantolaelaps wolffshoni* (Oudemans)**  
(Parasitiformes: Laelapidae)

**Specimens examined:** T4: 4 females on *O. destructor* (CML 5997), 27-VI-1992, A. G. Autino; T2: 1 female on *O. destructor* (PIDBA 198), 6-II-1994, A. G. Autino; T3: 3 females, 1 on *O. destructor* (CML 6021), 4-VIII-1993, A. G. Autino, and 2 on *Oligoryzomys longicaudatus* Bennett (PIDBA 140), 4-VIII-1993, A. G. Autino; T5: 8 females on *O. destructor* (1 on CML 6082, 2 on CML 6084, 3 on CML 6085), 3-V-1992, A. G. Autino and (2 on PIDBA 140), 4-VIII-1993, A. G. Autino; T6: 3 females on *O. destructor* (CML 6036), 13-III-1994, A. G. Autino; T7: 2 females on *Oligoryzomys flavescens* (Waterhouse) (CML 6076), 7-III-1994, M. M. Díaz.

**Remarks.** In Argentina, *G. wolffshoni* has been mentioned on four species of rodents from Buenos Aires Province. In the northwest it has been collected on a "rata silvestre" from Jujuy Province (Mauri, 1965; Lareschi & Mauri, 1998). This study adds two new host records for this mite and extends its geographical distribution, since it is here recorded for the first time for Tucumán Province.

***Laelaps paulistanensis* Fonseca**  
(Parasitiformes: Laelapidae)

**Specimens examined:** T2: 1 female on *O. destructor* (CML 6094), 28-VIII-1993, A. G. Autino; T4: 2 females on *O. destructor* (CML 5597), 27-VI-1992, L. Malizia-J. Babet; T5: 6 females on *O. destructor* (3 on CML 6084, 1 on CML 6082, 2 on CML 6085), 3-V-1992, A. G. Autino. J1: 1 female on *O. russatus* (ARG 3414), 11-VII-1993, R. M. Barquez.

**Remarks.** This mite has neotropical distribution. In Argentina it has been recorded on nine species of the Order Rodentia and one of Didelphimorphia. In northwestern Argentina it has been recorded exclusively associated with *O. flavescens* in Tucumán Province (Mauri, 1965; Lareschi

& Mauri, 1998). This study adds two new host species for this mite, and it is recorded for the first time in Jujuy Province.

***Mysolaelaps microspinosus* Fonseca**  
(Parasitiformes: Laelapidae)

**Specimens examined:** T2: 1 female on *O. destructor* (PIDBA 210), 2-VII-1994, A. G. Autino; T3: 1 female on *O. destructor* (CML 6021), 4-VIII-1993, A. G. Autino; T5: 2 females on *O. destructor* (CML 6085), 3-V-1992, A. G. Autino; T6: 1 female on *O. destructor* (CML 6036), 13-III-1994, A. G. Autino.

**Remarks.** This mite has a Neotropical distribution. In Argentina, it has been recorded on eight genera of rodents that prefer humid environments. In the northwest this mite has been found associated with *O. flavescens* and *O. longicaudatus* in Tucumán Province (Mauri, 1965; Lareschi & Mauri, 1998). This study adds one new host record for this mite.

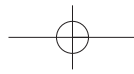
***Ornithonyssus bacoti* (Hirst)**  
(Parasitiformes: Macronyssidae)

**Specimens examined:** T1: 1 female on *A. l. puer* (CML 4019), 19-IX-1993, M. Goytia.

**Remarks.** This mite has cosmopolitan distribution. In Argentina it has been recorded on 10 Rodentia and one Didelphimorphia species. It has been found associated only with *Cavia* sp. in Salta Province and *Cavia apera* in Tucumán Province, both belonging to the Family Caviidae (Capri & Mauri, 1971; Lareschi & Mauri, 1998). This study adds one new host record for this mite. Our specimens represent the first known infection on a sigmodontinae rodent from Northwestern Argentina.

***Craneopsylla minerva minerva* (Rothschild)**  
(Siphonaptera: Stephanocircidae)

**Specimens examined:** J3: 1 female on *Akodon toba* (PIDBA 589), 24-V-1998, A. G. Autino; J2: 1 female on *O. russatus* (RMB 900), 22-VI-1985, R. M. Barquez; T2: 1 male on *O. destructor* (CML 5981), 28-VIII-1993, A. G. Autino; 3 females and 2 males on *A. simulator* (PIDBA 6), 27-VI-1992, A. G. Autino; T3: 2 specimens on *Graomys do-*



*morum* (Thomas): 1 male (CML 5986) and 1 female (CML 6005), 4-VIII-1993, A. G. Autino; T5: 3 males and 1 female on *A. simulator* (CML 6087), 2-V-1992, A. G. Autino; C: 2 specimens on *A. simulator*, 1 female (CML 3752) and 1 male (CML 3751), 25-IX-1993, R. M. Barquez.

**Remarks.** This flea has been recorded from Argentina, Brazil, Paraguay and Peru (Hopkins & Rothschild, 1956). In Argentina, it has been found mainly associated with wild rodents in Buenos Aires Province. In the northwest it has been reported on *Holochilus brasiliensis* (Desmarest) from Jujuy, *Akodon* sp. from Salta and on unknown hosts from Catamarca and Tucumán provinces (Hopkins & Rothschild, 1956; Johnson, 1957; Mauri & Capri, 1970; Autino & Lareschi, 1998). This study adds five new host records for this flea.

***Neotyphloceras crassispina hemisus* Jordan  
(Siphonaptera: Hystrichopsyllidae)**

**Specimens examined:** R: 1 female and 1 male on *Graomys griseoflavus* (Waterhouse) (PIDBA 176), 30-IX-1993, R. M. Barquez.

**Remarks.** This flea was recorded in Argentina, Bolivia, Peru and Chile (Hopkins & Rothschild, 1962; Johnson, 1957). In Argentina it was found associated with *G. griseoflavus* in Mendoza Province. In the northwest it has been reported on an unknown host from Tucumán Province and on *Phyllotis* sp., *Andinomys edax* and *Reithrodon auritus* from Catamarca Province (Autino & Lareschi, 1998). This flea is recorded for the first time from La Rioja Province.

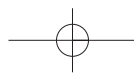
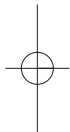
The results obtained in the present study expand the distribution area for *G. oudemansi*, *G. wolffshoni*, *L. paulistanensis* and *N. c. hemisus*. In addition, new host species are recorded for *C. m. minerva* and for all the mite species collected. Twenty-one ectoparasite-host associations are recorded for the first time as well. However, since mites and fleas are among the most important vectors of pathogens whose reservoirs are wild rodents and that cause diseases in human beings and both, domestic and wild animals (Autino & Lareschi 1998; Lareschi & Mauri, 1998), the results obtained are also important because they show that new ectoparasite-host relationships would increase the risk of unexpected infections.

This study was supported by grants from CONICET, Biodiversity Support Program, NSF and

UNLP. We thank the members of PIDBA, who assisted in the fieldwork, and Laura Gorostordoy for the critical revision of the English.

**LITERATURE CITED**

- AUTINO, A. G. & M. LARESCHI. 1998. Capítulo 27: Siphonaptera. In: Morrone, J. J. & S. Coscarón (dirs.), *Biodiversidad de Artrópodos Argentinos. Una perspectiva biotaxonomica*, Ediciones Sur, La Plata, pp. 279-290.
- CAPRI, J. J. & R. A. MAURI. 1971. Ectoparásitos (Suctoria y Acarina) de roedores de la Familia Caviidae en Argentina. *Rev. Soc. Entomol. Argent.* 33 (1-4): 93-100.
- DÍAZ M. M., R. M. BARQUEZ, J. K. BRAUN & M. A. MARES. 1999. A new species of *Akodon* (Muridae: Sigmodontinae) from Northwestern Argentina. *J. Mammal.* 80: 786-798.
- FURMAN, D. P. 1972. Laelapid mites (Laelapidae: Laelapinae) of Venezuela. *Brigham Young University Science Bulletin (Biol. Series)*: 58 pp.
- HOPKINS G. H. & M. ROTHSCHILD. 1956. An illustrated catalogue of Rothschild collection of fleas (Siphonaptera) in the British Museum (NH). Vol. II. British Museum (Natural History), London, 445 pp.
- HOPKINS G. H. & M. ROTHSCHILD. 1962. An illustrated catalogue of Rothschild collection of fleas (Siphonaptera) in the British Museum (NH) Vol III. British Museum (Natural History), London, 560 pp.
- JOHNSON, P. T. 1957. A classification of the Siphonaptera of South America. *Mem. Ent. Soc. Wash.* 5: 1-298.
- LARESCHI, M. 1996. Estudio preliminar de la comunidad de roedores (Rodentia: Muridae) y sus ectoparásitos (Acari, Phthiraptera y Siphonaptera) en Punta Lara (Buenos Aires). *Rev. Soc. Entomol. Argent.* 55 (1-4): 113-120.
- LARESCHI, M. & A. IORI. 1998. Nuevas citas de Siphonaptera (Rhopalopsyllidae; Hystrichopsyllidae) parásitos de roedores de la provincia de Buenos Aires, Argentina. *Rev. Bras. Entomol.* 41 (2-4): 165-168.
- LARESCHI, M. & R. MAURI. 1998. Capítulo 58: Dermanysoidea. In: Morrone, J. J. & S. Coscarón (eds.), *Biodiversidad de Artrópodos Argentinos. Una perspectiva biotaxonomica*, Ediciones Sur, La Plata, pp. 581-590.
- LARESCHI, M. & M. I. SÁNCHEZ LÓPEZ. 2000. Ectopa-



- rásitos (Phthiraptera y Acari) de roedores (Rodentia: Muridae: Sigmodontinae) en el delta bonaerense del Río Paraná, Argentina. *Rev. Soc. Entomol. Argent.* 59 (1-4): 1-6.
- LA RESCHI M., J. NOTARNICOLA, G. NAVONE & P.M. LINARDI. 2003. Arthropod and Filarioid Parasites Associated with Wild Rodents in the Northeast Marshes of Buenos Aires, Argentina. *Mem. Inst. Oswaldo Cruz* 98 (5): 673-677.
- MARES M. A., J. K. BRAUN, R.M. BARQUEZ & M. M. DÍAZ. 2000. Two new genera and species of halophytic desert Mammals form Isolated Salt Flat in Argentina. *Occasional Papers, The Museum, Texas Tech University* 203: 1-27.
- MAURI, R. 1965. Acaros Mesostigmata parásitos de Vertebrados de la República Argentina. *Seg. Jorn. Entom. Argent.* 1: 65-73.
- MAURI, R. 1967. Hospedadores y distribución geográfica en Argentina de *Haemolaelaps glasgowi* (Ewing). *CIC* 4 (10): 3-8.
- MAURI, R. & J. J. CAPRI. 1970. Ectoparásitos (Acarina y Suctoria) de roedores del gen *Akodon* (Cricetidae) en Argentina. *Rev. Soc. Entomol. Argent.* 32 (1-4): 133-141.
- MAURI, R. & J. J. CAPRI. 1972. Ectoparásitos (Acarina y Suctoria) de roedores del Delta bonaerense. *Delta del Paraná* 12 (13): 28-29.
- NAVA, S., M. LA RESCHI & D. VOGLINO. 2003. Interrelationship between ectoparasites and wild rodents from Northeastern Buenos Aires Province, Argentina. *Mem. Inst. Oswaldo Cruz* 98 (1): 45-49.

Recibido: 4-II-2003  
Aceptado: 30-VI-2003