BioOne RESEARCH EVOLVED

NEW RECORDS OF MAMMAL FLEAS (SIPHONAPTERA) IN NORTHERN AND CENTRAL MEXICO

Author(s): Roxana Acosta, Jesús A. Fernández, Jorge Falcón-Ordaz
Source: Entomological News, 117(1):69-72. 2006.
Published By: The American Entomological Society
DOI: http://dx.doi.org/10.3157/0013-872X(2006)117[69:NROMFS]2.0.CO;2
URL: http://www.bioone.org/doi/full/10.3157/0013-872X%282006%29117%5B69%3ANROMFS%5D2.0.CO%3B2

BioOne (www.bioone.org) is a nonprofit, online aggregation of core research in the biological, ecological, and environmental sciences. BioOne provides a sustainable online platform for over 170 journals and books published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Web site, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/page/terms_of_use.

Usage of BioOne content is strictly limited to personal, educational, and non-commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

NEW RECORDS OF MAMMAL FLEAS (SIPHONAPTERA) IN NORTHERN AND CENTRAL MEXICO[1]

Roxana Acosta,[2] Jesús A. Fernández,[3] and Jorge Falcón-Ordaz[3]

ABSTRACT: Eight species of fleas were collected from several mammal species in northern and central Mexico. Four species extend the distribution and three present new state records. Mammal hosts species comprise rodents in most cases and one mustelid, from the states of Durango and Queretaro.

KEY WORDS: fleas, Siphonaptera, mammals, records, Mexico

Morales and Llorente (1986) provided a comprehensive review of Mexican fleas and found that there were few records of insects that parasitize mammals. The flea fauna of Nuevo Leon is better known than other northern states, with 37 documented species (Ponce and Llorente, 1996; Tipton and Méndez, 1968). Known records of other states have twelve or fewer species. Gutiérrez-Velázquez (2004) found the same trend, indicating the need for more field work in northern Mexico. New flea records and their hosts from the Durango and Queretaro states are provided.

METHODS

Fleas were collected from five species of rodents and one species of mustelid (skunk). Rodents were caught with Sherman traps, and one skunk was collected on a highway (road kill). Rodents were captured in the states of Durango and Queretaro in November 2003. Fleas were picked and brushed, and their parasites preserved in 70% ethanol. The mounting method follows Smit (1957). Taxonomic keys by Traub (1950), Traub et al. (1983), Hopkins and Rothschild (1956, 1962, 1966), Stark (1970), Acosta and Morrone (2003), and Hastriter (2004) were used.

RESULTS AND DISCUSSION

Eight species of fleas were collected from six mammal species. Specimens of the mammals were deposited in the Colección Nacional de Mamíferos of the Instituto de Biología, Universidad Nacional Autónoma de México (UNAM). Flea specimens were deposited in the collection of the Museo de Zoología "Alfonso L. Herrera," Facultad de Ciencias, UNAM. New host and locality records follow.

---

[1] Received on May 27, 2005. Accepted on July 24, 2005.

[2] Museo de Zoología "Alfonso L. Herrera," Departamento de Biología Evolutiva, Facultad de Ciencias, Universidad Nacional Autónoma de México, Apartado Postal 70-399, 04510 México D. F., México. E-mail: roxana_a2003@yahoo.com.mx.

[3] Departamento de Zoología, Instituto de Biología, Universidad Nacional Autónoma de México, Apartado Postal 70-153, 04510 México D. F., México. E-mails: jaff@ibiologia.unam.mx and jfalcon@ ibiologia.unam.mx, respectively.

Mailed on March 29, 2006

Ceratophyllidae

Jellisonia wisemani Eads, 1951

Hastriter (2004) reported this species in nine different states along Mexico and Guatemala, parasitizing different species of rodents (in most of the cases associated to genus *Peromyscus*), insectivores and carnivores. This is the second record for the state of Durango.

Material Examined. 1 female (5913 MZFC), ex *Reithrodontomys megalotis zacatecae* (Baird) (41901 CNMA) (Rodentia: Muridae). Durango: 4 km SSE la Zarca, Mpio. Villa Hidalgo 26-XI-2003.

Opisodasys robustus robustus (Jordan, 1925)

Recorded by Ayala-Barajas et al. (1988) in southwestern Durango. Morales and Llorente (1986) record the flea from the state of Nuevo León, on a species of Sciurus. In the country exist another subspecies, *O. r. mexicana* Dampf 1942, which is reported from central Mexico, and the genus was associated mainly with sciurids (Dampf, 1942).

Material Examined. 2 females 5917 MZFC, 5918 MZFC), ex *Perognathus flavus flavus* Baird (41886 CNMA) and *Peromyscus pectoralis pectoralis* Osgood, 1904 (41889 CNMA) (Rodentia: Muridae). Durango: 4 km SSE la Zarca, Mpio. Villa Hidalgo 26-XI-2003.

Pleochaetis paramundus Traub, 1950

The species is mainly parasite of cricetine rodents. However, it has been found on species from several families of rodents. Our records are abundant from central and southern Mexico. The present record is one of the most northern in the country, extending the known distribution northward approximately 390 km.

Material Examined. 3 females and 3 males (5909 MZFC - 5911 MZFC, 5914 MZFC, 5916 MZFC) ex *Onychomys torridus torridus* (Coues) (41897 CNMA) and 1 female and 1 male, ex *Peromyscus maniculatus blandus* (Wagner) (41898 CNMA). Durango: 4 km SSE la Zarca, Mpio. Villa Hidalgo 26-XI-03.

Thrassis aridis (cf).

Stark (1970) mentioned that *Thrassis aridis campestris* Prince, 1944 reaches northern Mexico. However, at the time he did not have records from skunks. Taxa within the *Thrassis aridis* complex are primarily parasites of species of *Dipodomys* (Stark 1970). Its occurrence on a skunk *(Mephitis macroura)* reflects the carnivorous habits of its host and is an accidental association. Morales and Llorente (1986) reports a species of *Thrassis* in Mexico, however, our record is the first for the state of Queretaro. The complex likely occurs throughout the range of *Dipodomys* sp. on the Mexican Plateau.

Material Examined. 1 female (5920 MZFC), ex *Mephitis macroura* Lichtenstein (42287 CNMA). Queretaro: 37 km Carretera a Tequisquiapan, Mpio. Tequisquiapan 27-XI-03.

Ctenophthalmidae

Meringis altipecten Traub and Hoff, 1951

Reported by Ayala-Barajas et al. (1988) from San Luis Potosi state on *Dipodomys* sp. Gutiérrez-Velázquez (2004) reported this species in two different localities from Chihuahua. Our record is new for the state of Durango.

Material Examined. 1 female (5912 MZFC), ex *Onychomys torridus torridus* (41897 CNMA) (Rodentia: Muridae). Durango: 4 km SSE la Zarca, Mpio. Villa Hidalgo 26-XI-2003.

Meringis arachis (Jordan, 1929)

Whitaker et al. (1993) reported this species on the same host and other heteromyids. Hopkins and Rothschild (1962) cited this species on *Dipodomys* sp. and *Peromyscus* sp. in Chihuahua state. Ours is the first record for the state of Durango.

Material Examined. 1 female (5926 MZFC), ex *Perognathus flavus flavu*s (41886 CNMA) (Rodentia: Heteromyidae). Durango: 4 km SSE la Zarca, Mpio. Villa Hidalgo 26-XI-2003.

Leptopsyllidae

Peromyscopsylla hesperomys adelpha (Rothschild, 1915)

This species is documented in Michoacán, Lagunas de Zempoala, Popocatépetl and Nuevo León (Morales and Llorente, 1986). Ayala-Barajas et al. (1988) list a record from *Neotoma mexicana* Baird, 1855 (Rodentia: Muridae) from the state of Zacatecas. Our new record extends the range westward by 260 km.

Material Examined. 1 male (5915 MZFC), ex *Peromyscus maniculatus blandus* (41898 CNMA) (Rodentia: Muridae). Durango: 4 km SSE la Zarca, Mpio. Villa Hidalgo 26-XI-2003.

Pulicidae

Pulex irritans Linnaeus, 1758 (cosmopolitan)

Material Examined. 2 females and 3 males (5921 MZFC – 5925 MZFC), ex *Mephitis macroura* (42287 CNMA) (Carnivora: Mustelidae). Queretaro: 37 km Carretera a Tequisquiapan, Mpio. Tequisquiapan, 27-XI-2003.

Rhopalopsyllidae

Polygenis vazquezi Vargas, 1951.

Whitaker et al. (1993) reported parasites of heteromyids, citing *Liomys pictus* (Thomas, 1983) as the known host for this flea species. Morales and Llorente (1986) reported the fleas from central and southwestern Mexico. Acosta (2003) recorded this flea in northern Queretaro. Our record represents the northernmost record in Mexico, extending the known range approximately 350 km.

Material Examined. 1 male (5919 MZFC), ex. *Perognathus flavus flavus* (41886 CNMA) (Rodentia: Heteromyidae). Durango: 4 km SSE la Zarca, Mpio. Villa Hidalgo 26-XI-2003.

ACKNOWLEDGMENTES

We thank Juan J. Morrone and Juan B. Morales-Malacara for critical comments on the manuscript, and the Museo de Zoología, Collection of Siphonaptera for the loan of specimens. This work was supported by Rafael Lamothe-Argumedo.

LITERATURE CITED

Acosta, R. 2003. New records of rodent fleas from Queretaro, Mexico (Siphonaptera). Zootaxa 396: 1 – 15.

Acosta, R. and J. J. Morrone L. 2003. Clave ilustrada para la identificación de los taxones supraespecíficos de Siphonaptera de México. Acta Zoológica Mexicana, Nueva Serie 89: 39 – 53.

Ayala-Barajas, R., J. C. Morales, N. Wilson, J. E. Llorente and H. E. Ponce. 1988. Catálogo de las pulgas (Insecta: Siphonaptera) en el Museo de Zoología, Facultad de Ciencias, Universidad Nacional Autónoma de México. 1: Colección Alfredo Barrera. Serie de Catálogos del Museo de Zoología "Alfonso L. Herrera" 1: 1 – 102.

Dampf, A. 1942. Dos nuevas pulgas mexicanas del género *"Opisodasys"* Jordan, 1933 (Insecta, Aphaniptera, Fam. Ceratophyllidae). Revista Brasileira de Biologia 2(4): 495 – 511.

Gutiérrez–Velázquez, A. L. 2004. Análisis biogeográfico preliminar del orden Siphonaptera (Arthropoda: Insecta) en México. Tesis de Maestría, Facultad de Ciencias, Universidad Nacional Autónoma de México. Ciudad, México. 101 pp.

Hastriter, M. W 2004. Revision of the flea genus *Jellisonia* Traub, 1944 (Siphonaptera: Ceratophyllidae). Annals of the Carnegie Museum of Natural History 73(4): 213 – 238.

Hopkins, G. H. and M. Rothschild. 1956. An illustrated catalogue of the Rothschild collection of fleas (Siphonaptera) in the British Museum (Natural History) II. Coptopsyllidae, Vermipsyllidae, Stephanocircidae, Ischnopsyllidae, Hypsophthalmidae and Xiphiopsyllidae [Macropsyllidae]. British Museum (N. H.). London, England, United Kingdom. 445 pp.

Hopkins, G. H. and M. Rothschild. 1962. An illustrated catalogue of the Rothschild collection of fleas (Siphonaptera) in the British Museum (Natural History) III. Hystrichopsyllidae (Acedestiinae, Anomiopsyllinae, Hystrichopsyllinae, Neopsyllinae, Rhadinopsyllinae and Stenoponiinae). British Museum (N. H.). London, England, United Kingdom. 560 pp.

Hopkins, G. H. and M. Rothschild. 1966. An illustrated catalogue of the Rothschild collection of fleas (Siphonaptera) in the British Museum (Natural History) IV. Hystrichopsyllidae (Ctenophthalmidae, Dinopsyllinae, Doratopsyllinae and Listropsyllinae). British Museum (N.H.). London, England, United Kingdom. 549 pp.

Morales, J. C. and J. Llorente. 1986. Estado actual del conocimiento de los Siphonaptera de México. Anales del Instituto de Biología, UNAM. Serie Zoología 2: 497 – 554.

Ponce, H. E. and J. Llorente. 1996. Siphonaptera. pp. 553 – 565. *In,* Llorente, J., A. N. García and E. S. González (Editors). Biodiversidad, taxonomía y biogeografía de artrópodos de México: Hacia una síntesis de su conocimiento. Instituto de Biología-UNAM (Universidad Autónoma Nacional de Mexico). Conabio and Facultad de Ciencias-UNAM, México, D. F. 660 pp.

Smit, F. G. A. M. 1957. Handbook for the identification of British insects (Siphonaptera). London. Royal Entomological Society of London. Volume1. Part 16. 239 pp.

Stark, H. E. 1970. A revision of the flea genus *Thrassis* Jordan 1933 (Siphonaptera: Ceratophyllidae) with observations on ecology and relationship to plague. University of California Publications in Entomology. Volume 53. 183 pp.

Tipton, V. J. and E. Mendez. 1968. New species of fleas (Siphonaptera) from Cerro Potosi, Mexico, with notes and ecology and host parasite relationships. Pacific Insects, 10(1): 177 – 214.

Traub, R. 1950. Siphonaptera of Central America and Mexico: A morphological study of aedeagus with descriptions of new genera and species. Fieldiana Zoology, I: 1 – 127.

Traub, R., M. Rothschild, and J. F. Haddow. 1983. The Rothschild collection of fleas. The Ceratophyllidae: Key to the genera and host relationship. Privately published. London, England, Great Britain. Distributed by Academic Press. 288 pp.

Whitaker, J. O., Jr., W. J. Wren, and R. E. Lewis. 1993. Parasites, pp. 386 – 478. *In,* H. H. Genoways and J. H. Brown (Editors). Biology of the Heteromyidae. Special publication No. 10. The American Society of Mammalogists. 719 pp.