

**FIRST RECORD OF FLEAS (INSECTA:
SIPHONAPTERA) FROM NELSON'S
KANGAROO RAT, *DIPODOMYS NELSONI*
(RODENTIA: HETEROMYIDAE) IN DURANGO,
MEXICO**

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SCIENTIFIC NOTES

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FIRST RECORD OF FLEAS (INSECTA: SIPHONAPTERA) FROM NELSON'S KANGAROO RAT, *DIPODOMYS NELSONI* (RODENTIA: HETEROMYIDAE) IN DURANGO, MEXICO

The genus *Dipodomys* belongs to the rodent family Heteromyidae, and is composed of 21 species, distributed in the arid and semiarid regions of southern Canada, United States, reaching to southern Mexico (Wilson and Reeder, 1993). The species *D. nelsoni* Merriam, 1907 (Nelson's kangaroo rat) is distributed primarily in north-central Mexico, in the states of Chihuahua, Coahuila, Durango, Zacatecas, San Luis Potosi and Nuevo Leon (Best, 1988; Hall, 1981; Williams et al., 1993). The species is strongly associated with arid and semiarid ecosystems, mainly in open desert communities (Best, 1988; Williams et al., 1993).

Records of rodent fleas in northern Mexico are scarce. However, some authors have collected fleas from *Dipodomys* species distributed in this region. Whitaker et al. (1993), in their chapter on ectoparasites of Heteromyidae, mentioned the flea species that parasitize this genus, however, no flea species are known to parasitize Nelson's kangaroo rat.

We collected specimens of flea genus *Meringis* (Ctenophthalmidae: Neopsyllinae) which distribution are limited to more arid region in the western part of the Nearctic region, and is known to parasitize kangaroo rats (Lewis, 1974). Hopkins and Rothschild (1962) reported *M. arachis* (Jordan, 1929) in the United States, mainly on *D. spectabilis*, and on the wood rat *Neotoma lepida*. Lewis (1974) compiled information on the geographic distribution and host preferences of the family Hystrichopsyllidae. He also mentioned that *Meringis arachis* is distributed in parts of Texas, New Mexico, Arizona and north of Mexico. In Mexico, this species was collected in Chihuahua, also on *D. spectabilis* and on mice of the genus *Peromyscus* (accidentally) in 1947 and 1949. Since 1940's no one has collected or recorded *M. arachis* in Mexico. Whitaker et al. (1993) reported records of species of heteromyids and fleas that parasitize them, and noted also that some species of fleas are associated mainly with *Dipodomys* and *Perognathus*. They mentioned especially the species of *Meringis*, but they did not have any records for *D. nelsoni*. However, they reported the presence of *Meringis arachis* on *D. elator*, *D. merriami*, and *D. spectabilis*. Here we report the first record of *Meringis arachis* on *D. nelsoni*.

The genus *Thrassis* (Ceratomyllidae: Ceratomyllinae) is a commonly found on ground squirrels and marmots (Sciuridae). Stark (1959) mentioned that most of the species of this genus are host-specific with more than half of the species parasitizing members of the genus *Spermophilus*, three are associated with marmots, and one is found on *Dipodomys*. The majority of the species are limited to the western U.S.A. and Canada, but a few species have penetrated Mexico. Traub et al. (1983) mentioned that some species of *Thrassis* have been collected on *Dipodomys*, from the United States and Mexico (the states of Coahuila, Sonora, Chihuahua, Durango, Nuevo Leon, Hidalgo and Tlaxcala). In their work they said that only one species, *Thrassis aridis* Prince, 1944, is a primary parasite of *Dipodomys*. However, they did not mention records of the species and subspecies from Mexico. Herein we present a new

record for the subspecies *Thrassis aridis campestris* on *Dipodomys nelsoni* for Durango, a subspecies previously only known from *D. ordii* in the United States (Traub et al., 1983).

A total of eight females and 10 males fleas of *Meringis arachis* and *Thrassis aridis campestris* (5894 MZFC–5908 MZFC) were collected from three females and one male of the Nelson's kangaroo rat *Dipodomys nelsoni* (CNMA 41876, CNMA 41877, CNMA 41879, CNMA 41880), trapped on 2003, November 26, in Durango (4 km SSE La Zarca, lat. 25°51' 43"N, long. 104°43' 34"W). Fleas were deposited in the collection of Siphonaptera, Museo de Zoología "Alfonso L. Herrera," Facultad de Ciencias, Universidad Nacional Autónoma de México (MZFC, UNAM). Host specimens were deposited in the Colección Nacional de Mamíferos (CNMA), Instituto de Biología, UNAM, México, Distrito Federal.

As commented before, other authors have indicated the presence of species of Siphonaptera in other states of Mexico. These species records are relevant, because there exist few records of fleas from Durango and this is the first time a flea species has been reported from *Dipodomys nelsoni* and these are new host records and new host locality records for this association. Apparently only members of the rodent subfamily Dipodomysinae are hosts where most of the species of *Meringis* and *Thrassis aridis* subspecies occur on the genus *Dipodomys* (Whitaker et al., 1993). *Dipodomys* species are parasitized by some species of fleas but in low numbers (Stark, 1970). This genus is the principal host of some species and subspecies of *Meringis* and *Thrassis aridis*.—*Jesús A. Fernández** and *Roxana Acosta***, *Departamento de Zoología, Instituto de Biología, UNAM, Apdo. Postal 70-153, 04510 México D. F., México. (e-mail: jaff@ibiologia.unam.mx) **Museo de Zoología "Alfonso L. Herrera," Departamento de Biología Evolutiva, Facultad de Ciencias, UNAM, Apdo. Postal 70-399, 04510 México D. F., México (e-mail: roxana_a2003@yahoo.com.mx)

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LITERATURE CITED

- Best, T. L. 1988. *Dipodomys nelsoni*. Mammalian species 326: 1–4.
- Hall, E. R. 1981. The Mammals of North America. John Wiley & Sons, New York, 1181 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.): 560 pp.
- Lewis, R. E. 1974. Notes on the geographical distribution and host preferences in the order Siphonaptera. Part 3. Hystrichopsyllidae. J. Med. Ent. 11(2): 147–167.
- Stark, H. E. 1959. The Siphonaptera of Utah. U. S. Department of Health, Education, and Welfare. Atlanta, Georgia, 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, 53: 1–184.
- 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. 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 (eds.), Biology of the Heteromyidae. Special Publication. No. 10. The American Society of Mammalogists, 719 pp.

- Williams, D. F., H. H. Genoways and J. K. Braun. 1993. Taxonomy, pp. 38–190 in H. H. Genoways and J. H. Brown (eds.), *Biology of the Heteromyidae*. Special Publication, No. 10. The American Society of Mammalogists, 719 pp.
- Wilson, D. E. and D. A. Reeder. 1993. *Mammal Species of the World. A Taxonomic and Geographic Reference*. Smithsonian Institution Press, 1206 pp.

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NEW CENTIPEDE RECORDS FROM LONG ISLAND, NEW YORK

Two species of centipedes previously recorded from the New England area are now reported from New York State Park Preserves on Long Island. One species of lithobiomorph centipede, *Sigibius puritanus* Chamberlin, 1913, was collected at Henry Ingraham Nature Preserve (HINP), Northport, under a 20 cm diameter rock. *Sigibius puritanus* was also found at Caleb Smith State Park Preserve (CSSPP), Smithtown, within sifted mulch from a trail. Another species of lithobiid, *Garibius opicolens* Chamberlin, 1913, was collected in CSSPP under loose bark of a fallen pine tree as well as from under the log itself. *Sigibius puritanus* has a large distribution in the northeastern U.S.; however, it has only been reported in New York from Ithaca, Elmira, and the Hudson Valley region (see Crabill, 1952). Crabill's general distribution for *G. opicolens* is as follows: "Ranges south from Massachusetts along the Atlantic coastal plain to Virginia and west through West Virginia into Kentucky." Although Crabill failed to mention specific New York localities for *G. opicolens* in his distribution list, elsewhere in the text he mentions that a large quantity of specimens were from Ithaca, New York. Neither of these species has been reported from Long Island, New York. All specimens have been deposited in the myriapod collection of the American Museum of Natural History (AMNH).

Clearly Long Island is heavily populated and there are native centipedes yet to be identified. It appears that smaller indigenous centipedes have remained overlooked mainly due to the lack of chilopodologists, and also because of their smaller size. Other species may continue to be overlooked until further studies are undertaken to carefully sample relatively undisturbed native habitats such as our State Parks and other land that has escaped development. Eason (1974) officially synonymized *S. puritanus* with *Lithobius microps* Meinert, 1868; adding another introduced species from Europe to North America. A centipede sample in the AMNH myriapod collection from Prospect Park, Brooklyn was also found to contain a specimen of *L. microps* along with several specimens of the well known introduced species *Lithobius forficatus* Linnaeus, 1758. This sample was collected on November 3, 1907 indicating that both *L. forficatus* and *L. microps* were already established on Long Island at this time. Unfortunately, it appears that the dominant species of lithobiid centipedes within the two aforementioned parks (and Long Island in general) are the introduced *L. forficatus*, and *Cryptops hortensis* (Donovan) (pers. obs.). This raises concern because these species could be outcompeting the native

centipede fauna thus restricting them to smaller and smaller parcels of land. Although this statement is conjecture, the situation warrants attention. Hopefully, with further field studies, the biogeographic distribution of centipede species will continue to expand, new species will be described, and we will better understand the natural histories of these fascinating but poorly known organisms.—Randy J. Mercurio, *Division of Invertebrate Zoology, American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024, USA (e-mail: mercurio@amnh.org)*

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LITERATURE CITED

- Chamberlin, R. V. 1913. The Lithobiid Genera *Nampabius*, *Garibius*, *Tidabius*, and *Sigibius*. Bull. Mus. Comp. Zool., Harvard. 57: 39–104.
- Crabill, R. E. 1952. The Centipedes of Northeastern North America. Thesis, Cornell University, Ithaca, 450pp, + 9 plates.
- Eason, E. H. 1974. The type specimens and identity of the species described in the genus *Lithobius* by F. Meinert, and now preserved in the Zoological Museum, Copenhagen University (Chilopoda:Lithobiomorpha). Zool. J. Linn. Soc., 55: 1–52.
- Shelley, R. M. 2002. A Synopsis of the North American Centipedes of the Order Scolopendromorpha (Chilopoda). Va. Mus. Nat. Hist. Mem. 5: 1–108.

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