

NOTES

NEW RECORDS FOR FLEAS (SIPHONAPTERA) FROM NEW MEXICO WITH NOTES ON PLAGUE-CARRYING SPECIES

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We report range extensions for 16 flea species collected from 11 rodent species in 7 counties across northeastern and central New Mexico. Including the new records, 107 species of flea have now been documented from New Mexico (Appendix 1). Records from the New Mexico Environment Department Vector Control Program (NMED) indicate 33 of these flea species have tested positive as vectors of sylvatic plague (*Yersinia pestis* = *Pasturella*) in New Mexico (Appendix 1). Of the species that tested plague positive, 5 (*Aetheca wagneri*, *Malariaeus sinomus*, *Opisodasys* (*Oxyopsylla*) *keeni*, *Oropsylla* (*Opisocrostis*) *labis*, *Pleochaetis exilis*) have newly documented range extensions into Colfax, Union, and Rio Arriba counties.

Fleas were collected from live-trapped or dead rodents. Rodents were placed on either a white background or in a clear plastic bag and brushed with a small brush to remove fleas. Fleas were then placed in alcohol. Fleas collected by PLF and PJP were identified by RAF and are deposited in the Museum of Southwestern Biology, Arthropod Division, University of New Mexico. Fleas collected by NMED were identified by and are in the collection of NMED, or a place of their designation.

New State and County Records (* = new state record)—*Aetheca wagneri* (Baker), 4 July 1998, PLF collector, Union Co., Kiowa National Grassland, host *Onychomys leucogaster*; *Atyphloceras multidentatus multidentatus* (C. Fox), 10 November 1988, NMED collector, *Santa Fe Co., San Cristobal Ranch, host *Peromyscus boylii*; *Catallagia neweyi* Holland and Losbaugh, 10 October 1987, NMED collector, *Colfax Co.,

Eagle Nest, host *Spermophilus tridecemlineatus*; *Catallagia charlottensis* (Baker), 10 November 1988, NMED collector, *Santa Fe Co., San Cristobal Ranch, host *Peromyscus boylii*; *Ctenophthalmus* (*Nearctoctenophthalmus*) *pseudagyrtes* Baker, 5 September 1998, PJP Collector, *Socorro Co., Magdalena Mts., host *Microtus mexicanus*; *Dactylopsylla bluei* (Fox), NMED collector, 10 October 1993, *San Miguel Co., Grass Mt., host *Microtus montanus*; *Hystriehopsylla occidentalis linsdalei* Holland, 26 April 1989, NMED collector, *Colfax Co., host *Neotoma mexicana*; *Malariaeus sinomus* (Jordan), 4 July 1998, PLF collector, Union Co., Kiowa National Grassland, host *Onychomys leucogaster*; *Megarhroglossus procus* Jordan and Rothschild, 27 May 1998, PJP collector, *Sandoval Co., Placitas, host *Neotoma albigula*; *Meringis jamesoni* Hubbard, 23 October 1998, PLF collector, Union Co., Kiowa National Grassland, host *Perognathus flavus*; *Opisodasys* (*Oxyopsylla*) *keeni* (Baker), 5 June 1998, NMED collector, *Rio Arriba Co., Madera Canyon near Plaza Blanca, host *Peromyscus truei*; *Oropsylla* (*Opisocrostis*) *labis* (Jordan and Rothschild), August 1983, NMED collector, *Colfax Co., Moreno Canyon near Eagle Nest, host *Cynomys gunnisoni*; *Peromyscopsylla hesperomys adelpha* (Rothschild), 23 October 1998, PLF collector, Union Co., Kiowa National Grassland, host *Onychomys leucogaster*; *Peromyscopsylla draco* (Hopkins), 4 July 1998, PLF collector, Union Co., Kiowa National Grassland, host *Onychomys leucogaster*; *Pleochaetis exilis* (Jordan), 23 October 1998, PLF collector, Union Co., Kiowa National Grassland, host *Onychomys leucogaster*; *Spicata bottaceps* (Hubbard), 17 May 1993, collector NMED, *Santa Fe Co., Santa Fe, host *Thomomys bottae*.

Resumen—Se reportan unas extensiones en los áreas de distribución en New Mexico para 16 especies de pulga. Recogimos las pulgas en 11 especies de mamíferos capturados en 7 condados en la región central y noreste del estado. Con estos registros nuevos, se ocurren 107 especies de pulga en New Mexico. De estas, treinta y tres especies prueban positivas para transmitir la plaga, incluyendo cinco con extensiones nuevas de distribución en los condados de Colfax, Union, y Rio Arriba.

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APPENDIX 1

Species listed by family and subfamily from records of University of New Mexico Museum of Southwestern Biology, Vector Control Program of the New Mexico Environment Department, Environmental Health Department of the City of Albuquerque, private collections, and literature records. * = Species that have tested plague positive as documented by records from NMED.

Ceratophyllidae: Ceratophyllinae; **Aetheca wagneri* (Baker), *Amaradix bitterrootensis* (Prince), *Amaradix euphorbi* (Rothschild), *Amphalius runatus necopinus* (Jordan), *Ceratophyllus* (*Ceratophyllus*) *celsus* Jordan, *Ceratophyllus* (*Ceratophyllus*) *niger* C. Fox, *Ceratophyllus* (*Ceratophyllus*) *petrochelidoni* Wagner, *Ceratophyllus* (*Monopsyllus*) *vison* (Baker), *Eumolpianus cyrturus* (Jordan), **Eumolpianus eumolpi americanus* Hubbard, **Malaraeus sinomus* (Jordan), *Malaraeus telchinus* (Rothschild), *Megabothris* (*Amegabothris*) *abantis* (Rothschild), *Megabothris* (*Megabothris*) *asio megacollis* (Jordan), *Nosophyllus fasciatus* (Bosc), **Opisodasys* (*Oxyphylla*) *keeni* (Baker), *Opisodasys* (*Sciurophylla*) *robustus robustus* (Jordan), *Orchopeas caedens* (Jordan), *Orchopeas fulleri* Traub, **Orchopeas leucopus* (Baker), **Orchopeas neotomae* Auguston, **Orchopeas sexdentatus agilis* (Rothschild), **Orchopeas sexdentatus intermedius* Hubbard, **Oropsylla* (*Diamanus*) *montana* (Baker), **Oropsylla* (*Opisocrostis*) *hirsuta* (Baker), **Oropsylla*

(*Opisocrostis*) *labis* (Jordan & Rothschild), **Oropsylla* (*Opisocrostis*) *tuberculata cynomuris* Jellison, *Oropsylla* (*Oropsylla*) *idahoensis* (Baker), **Pleochaetis exilis* (Jordan), *Plusaetis equatoris* (Jordan), *Tarsophyllus octodecimentata coloradensis* (Baker), **Thrassis aridis aridis* Prince, *Thrassis aridis campestris* Prince, **Thrassis bacchi consimilis* Stark, *Thrassis bacchi pansus* (Jordan), **Thrassis fatus* (Jordan), *Thrassis stanfordi* Wagner. Dactylopsyllinae; *Dactylopsylla bluei bluei* (C. Fox), *Dactylopsylla neomexicana* Prince, **Foxella ignota apache* (C. Fox), *Foxella ignota utahensis* Wagner, *Spicata botticeps* (Hubbard), *Spicata rara* (I. Fox).

Ischnopsyllidae: Ischnopsyllinae; *Myodopsylla gentilis* Jordan & Rothschild, *Myodopsylla nordina* Traub & Hoff, *Sternopsylla distincta texanus* (C. Fox).

Leptopsyllidae: Amphipsyllinae; *Ctenophyllus armatus armatus* (Wagner), *Odontopsyllus dentatus* (Baker). Leptopsyllinae; *Leptopsylla segnis* (Schönherr), *Peromyscopsylla draco* (Hopkins), *Peromyscopsylla hamifer vicens* (Jordan), **Peromyscopsylla hesperomys adelpha* (Rothschild), *Peromyscopsylla selenis* (Rothschild).

Ctenophthalmidae: Anomiopsyllinae; *Anomiopsyllus martini* Holland, *Anomiopsyllus novomexicanensis* Williams & Hoff, **Anomiopsyllus nudatus hiemalis* Eads & Menzies, **Anomiopsyllus nudatus mexicanus* Holland, *Callistopsyllus terinus terinus* (Rothschild), *Delotilis telegoni* (Rothschild), **Megarhroglossus bisetis* Jordan & Rothschild, **Megarhroglossus cavernicolus* Mendez & Haas, **Megarhroglossus divisus* (Baker), **Megarhroglossus procus* Jordan & Rothschild, **Megarhroglossus wilsoni* Mendez & Haas, **Stenistomera alpina* (Baker), *Stenistomera macrodactyla* Good, *Stenoponia americana* (Baker), *Stenoponia ponera* Traub & Johnson. Ctenophthalminae; *Ctenophthalmus* (*Nearctotenophthalmus*) *pseudagrytes* Baker. Doratopsyllinae; *Corrodopsylla curvata curvata* (Rothschild). Phalacropsyllinae; *Catallagia charlottensis* (Baker). **Catallagia decipiens* Rothschild, *Catallagia neweyi* Holland & Loshbaugh, **Epitedia stanfordi* Traub, *Epitedia wernmanni* (Rothschild), *Meringis altipectin* Traub and Hoff, *Meringis arachis* (Jordan), *Meringis bilsingi* Eads & Menzies, *Meringis dipodomys* Kohls, *Meringis disparilis* Eads, *Meringis facilis* Eads, *Meringis jamesoni* Hubbard, *Meringis nidi* Williams & Hoff, *Meringis parkeri* Jordan, *Meringis rectus* Morlan, *Phalacropsylla allos* Wagner, *Phalacropsylla hamata* Tipton & Mendez, *Phalacropsylla morlani* Eads & Campos, **Phalacropsylla paradisea* Rothschild. Rhadinopsyllinae; *Rhadinopsylla* (*Actenophthalmus*) *fraternal* (Baker), *Rhadinopsylla* (*Actenophthalmus*) *multidentaculata* Morlan & Prince, **Rhadinopsylla sectilis sectilis* Jordan & Rothschild, *Rhadinopsylla sectilis goodi* (Hubbard).

Hystrichopsyllidae: Hystrichopsyllinae; **Atypholceras echis echis* Jordan & Rothschild, *Atypholceras multidentatus multidentatus* (C. Fox), **Hystrichopsylla dippiei truncata* Holland, *Hystrichopsylla occidentalis linsdalei* Holland.

Rhopalopsyllidae: Rhopalopsyllinae; *Polygenis gwyni* (C. Fox), *Polygenis martinez-baezi* Vargas. Pulicidae: Pulicinae; **Cediopsyllus inaequalis inaequalis* (Baker), *Ctenocephalides felis felis* (Bouche), **Echid-*

nophaga gallinacea (Westwood), **Euhoplopsyllus glacialis affinis* (Baker), **Hoplopsyllus anomalus* (Baker), **Pulex irritans* Linnaeus, **Pulex simulans* Baker, *Xenopsylla cheopsis* (Rothschild).

OCCURRENCE OF THE CLINGFISH, *GOBIESOX FLUVIATILIS* (GOBIESOCIFORMES: GOBIESOCIDAE), IN THE RÍO CHAPALAGANA, MÉXICO: CONFIRMATION OF A HISTORICAL RECORD

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As many as 30% of the fish species inhabiting Mexican freshwaters are marine in origin (Miller and Smith, 1986). The occurrence and distribution of some are represented by a small number of records, as is the case in the family Gobiesocidae. The Gobiesocidae includes about 120 species worldwide (Briggs, 1955; Nelson, 1994), only 7 of which live in fresh water (Espinosa and Castro-Aquirre, 1996). Of the latter, 3 are endemic to Mexico: *Gobiesox fluviatilis*, *G. mexicanus*, and *G. juniperoserrae*. Several researchers (Briggs and Miller, 1960; Burr and Buth, 1977; Espinosa et al., 1987; Espinosa and Castro-Aquirre, 1996) have reported records for the distribution of these 3 species. However, the occurrence of *G. fluviatilis* in the Río Chapalagana (also known as Río Atengo in the locality) has been questioned because the original material, collected at the close of the 19th century, was thought to be lost; recent inquiry has refuted this.

Pellegrin (1901) recorded a gobiesocid species from the Río Chapalagana, Jalisco, and noted it was also known from the Río Grande de Santiago and other rivers near Tepic, Nayarit. Pellegrin identified the material as *Gobiesox adustus*, and noted the local common name of this fish was "cucharita." Subsequently, Briggs and Miller (1960) assigned the name *Gobiesox fluviatilis* to a new species based on material collected in 1955 and 1957 in the Río Grande de Santiago, not far from Guadalajara,

Jalisco, and in one of its tributaries close to Tepic. Both localities are within the distribution range referred to by Pellegrin. Briggs and Miller lacked material from the Río Chapalagana, but Miller subsequently obtained a specimen from the National Museum of Natural History (MNHN), Paris, recorded by Pellegrin (MNHN 1901-0104; Diguët, collector). Additional records indicate that *G. fluviatilis* is also present in other river systems: Río Mezquital, Durango; Río Fuerte, Chihuahua (not accepted by RRM); and Río Cuitzmala, Jalisco (Burr and Buth, 1977; Espinosa et al., 1987).

We present distributional records for *G. fluviatilis* in the segment of the Río Chapalagana that flows through the Mexican state of Zacatecas. One record is based on one specimen collected in 1985 with a gill net placed across the Río Chapalagana. The locality is 4.3 km N and 5.4 km E of San Juan Capistrano (Fig. 1), at an elevation of 1,250 m, in Zacatecas (22°40'43.8"N, 104°03'17.8"W). R. R. Miller and F. H. Miller collected 5 adults in the same area in 1982. The specimen collected in 1985 was already dead and in an early stage of decomposition when found in the net; it was frozen in the field and later fixed with 70% ethyl alcohol in the laboratory. The specimen was deposited in the Colección Nacional de Peces at the Instituto de Biología of the Universidad Nacional Autónoma de México as catalog number UNAM 8867. Because the specimen