

RECORDS OF OHIO FLEAS (SIPHONAPTERA)^{1, 2}

J. G. HUMPHREYS³

Department of Zoology, Ohio University, Athens, Ohio

ABSTRACT

A check list of Ohio Siphonaptera is presented, with species distribution records listed by city or county. Twenty species and four subspecies are recorded from Ohio. *Chaetopsylla lotoris* (Stewart), *Conorhinopsylla stanfordi* Stewart, *Doratopsylla blarinae* C. Fox, *Eptedia wenmanni testor* (Rothschild), *Stenoponia americana* (Baker), *Peromyscopsylla scottii* I. Fox, and *Oropsylla arctomys* (Baker) are new state distribution records.

Early studies of fleas in Ohio are few. Fox (1940), in his comprehensive study, *Fleas of the Eastern United States*, listed 8 species from Ohio. Hughes, in an unpublished report (dated 1938), records 5 species. These records, plus occasional records from other authors, provide a list of 12 species of fleas from the state.

During this study, six hundred and five Siphonaptera from 20 species of mammals and 1 bird were examined. Four hundred and thirty-three specimens were collected by the author from mammals live-trapped during the period of March through December, 1964. The remaining specimens were either contributed by various individuals (60 specimens) or are in the entomological collections at The Ohio State University (110) or Ohio University (2). These specimens together with literature records on North American fleas provide a total of 20 species and 4 subspecies from Ohio. Seven species are reported for the first time from the state.

An expression of thanks is extended to Dr. W. C. Stehr, Ohio University, for his encouragement and suggestions during the study, to Dr. A. H. Benton, State University College, Fredonia, New York, for verification of some of the author's identifications, to Dr. Paul Freytag, then at Ohio State University, for permission to examine and include records of Ohio fleas in the O.S.U. Collection, and to Dr. W. L. Jellison, USPHS, for providing names of Ohio fleas sent to the USNM.

SPECIES LIST

The siphonapteran nomenclature used herein follows Hopkins and Rothschild (1953, 1956, 1962). Mammalian nomenclature is from Miller and Kellogg (1955). Collections are abbreviated as follows: Ohio University (OU); The Ohio State University (OSU), literature record (author, year); all records with no collection cited are in possession of the author. F = female; M = male.

FAMILY PULICIDAE

Cediopsylla simplex (Baker):

ex. *Felis catus* L.

ATHENS CO. 7-IV-1965, 1M.

ex. *Sylvilagus floridanus mearnsi* (Allen)

ATHENS CO. 7-IV-1936, 2M (OU); 10-VI-1964, 1M; 2-VII-1964, 5F & 7M; 17-VII-1964, 2F & 2M; 23-VII-1964, 4F & 2M; 23-VII-1964, 1F.

JACKSON CO. 16-XI-1963, 1F & 1M.

ex. *Vulpes fulva* (Desmarest)

MEIGS CO. 18-VI-1938, 2F (Hughes, 1938).

ex. No host given

JACKSON CO. IV-1964, 1F & 1M.

OHIO. Pratt and Wiseman (1962).

¹From a study presented in partial fulfillment of requirements for Master of Science degree.

²Manuscript received October 25, 1966.

³Present address: Department of Entomology, Virginia Polytechnic Institute, Blacksburg, Virginia 24061.

Ctenocephalides canis (Curtis):

ex. *Canis familiaris* L.

ATHENS CO. 19-VII-1938, 60 specimens; 26-VII-1938, 20 specimens (Hughes, 1938).

JACKSON CO. 18-VI-1938, 1F; 24-VII-1938, 20 specimens (Hughes, 1938). Summer-1964, 17F & 1M.

FRANKLIN CO. 17-II-1917, 2F (OSU).

ROSS CO. 28-VI-1923, 1F (OSU).

ex. *Gallus gallus* L.

LONDON. 18-VI-1897, 1F (OSU).

ex. *Vulpes fulva* (Desmarest)

MEIGS CO. 18-VII-1938, 1F (Hughes, 1938).

ex. No host given

AKRON. 18-IX-1936, 2F & 2M (Fox, 1940).

AKRON, Cincinnati, Geneva, Loveland. Trembly & Bishopp (1940).

JACKSON CO. IV-1964, 2F.

Ctenocephalides felis felis (Bouche):

ex. *Canis familiaris* L.

ATHENS CO. 30-VII-1964, 1F & 1M; VII-1964, 2F & 1M.

FRANKLIN CO. 3-X-1897, 1F (OSU).

JACKSON CO. Summer-1964, 33F & 4M.

NEWARK. 29-VIII-1927, 4F & 1M (OSU).

ex. *Didelphis marsupialis virginiana* Kerr

ATHENS CO. 21-IV-1964, 2F; 13-X-1964, 28F & 5M.

ex. *Felis catus* L.

BRUNSWICK. 27-V-1929 (Fox, 1940).

ATHENS CO. 19-VII-1938, 4 specimens (Hughes, 1938); 30-VII-1964, 6F & 5M; 25-I-1965, 1F.

FRANKLIN CO. 14-IV-1921, 1F & 1M (OSU).

ex. *Homo sapiens* L.

BRUNSWICK. 27-V-1929 (Fox, 1940).

JACKSON CO. 18-X-1964, 1F.

ex. No host given

AKRON. 18-IX-1936, 2F & 2M (Fox, 1940).

AKRON, Cincinnati, Cleveland, Columbus, Lima, Lorain, Marietta, Mayfield, Heights, Painesville, Steubenville, Tiltonsville, Willoughby, Wyoming. Trembly and Bishopp (1940).

CELINA. 17-VIII-1932, 2F & 4M (OSU).

CLEVELAND. 9-IX-1936, 1F & 2M (OSU).

CUYAHOGA CO. 8-X-1940, 7F & 2M (OSU).

CUYAHOGA FALLS. 3-XI-1931, 3F (OSU).

JACKSON CO. IV-1964, 1F & 2M.

OHIO. Pratt and Wiseman (1962).

Pulex irritans L.:

ex. *Canis familiaris* L.

JACKSON CO. 18-IV-1938, 1M (Hughes, 1938).

ex. *Felis catus* L.

FRANKLIN CO. 9-II-1918 (OSU).

ex. *Sus scrofa* L.

OHIO. IX-1895, 2F (OSU).

ex. No host given

CINCINNATI. 28-VI-1915 (Ewing, 1931).

CINCINNATI, Fremont, Pandora. Trembly and Bishopp (1940).

FRANKLIN CO. 3-X-1943, 1F & 1M (OSU).

SOMERFIELD. 21-VII-1943, 1F (OSU).

OHIO. VI-1923 (Ewing, 1931); Fox (1940); Pratt and Wiseman (1962).

Xenopsylla cheopis (Rothschild):

ex. *Canis familiaris* L.

JACKSON CO. 11-VI-1938, 1F (Hughes, 1938).

ex. *Rattus norvegicus* (Berkenhout)

ATHENS CO. 21-VI-1938, 4F & 6M; 23-VI-1938, 100 specimens; 24-VI-1938, 20 specimens (Hughes, 1938).

COLUMBUS. 1940. Runner (1941).

ex. No host given

YOUNGSTOWN. 10-VII-1938, 3F & 3M (Ewing and Fox, 1938); 12-VII-1938, 13F (OSU); Trembly and Bishopp (1940).

OHIO. Fox (1940); Pratt and Good (1954); Pratt and Wiseman (1962).

FAMILY VERMIPSYLLIDAE

- Chaetopsylla lotoris* (Stewart): Reported for the first time from Ohio.
 ex. *Procyon lotor* (L.)
 JACKSON CO. 17-X-1964, 6F.

FAMILY HYSTRICHOPSYLLIDAE

- Conorhinopsylla stanfordi* Stewart: Reported for the first time from Ohio.
 ex. *Glaucomyces volans* L.
 ATHENS CO. 10-X-1964, 3F & 2M.
 ex. *Procyon lotor* (L.)
 JACKSON CO. 17-X-1964, 1F & 1M.
- Ctenophthalmus pseudagyrtis pseudagyrtis* Baker:
 ex. *Blarina brevicauda* (Say)
 ATHENS CO. 25-VIII-1964, 1M.
 FAIRFIELD CO. 2-IV-1935, 1F (Fox, 1940).
 ex. *Peromyscus leucopus noveboracensis* (Fischer)
 ATHENS CO. 20-III-1964, 2F; 11-V-1964, 1F.
 JACKSON CO. 30-III-1964, 3F & 3M.
 ex. *Scalopus aquaticus* L.
 FRANKLIN CO. X-1895, 1M (OSU); 29-VII-1900, 1F (OSU).
 OHIO. Jordan (1928); IX-1895, 1M (OSU).
 ex. *Synaptomys cooperi* Baird
 JACKSON CO. 21-III-1964, 1F.
 ex. *Tamias striatus* L.
 FRANKLIN CO. 10-III-1917, 1F (OSU).
- Doralopsylla blarinae* C. Fox: Reported for the first time from Ohio.
 ex. *Blarina brevicauda* (Say)
 ATHENS CO. 12-X-1964, 1M.
 JACKSON CO. 24-IV-1964, 2F.
- Epitedia wenmanni testor* (Rothschild): Reported for the first time from Ohio.
 ex. *Peromyscus leucopus noveboracensis* (Fischer)
 ATHENS CO. 20-III-1964, 1F; 21-III-1964, 2F & 2M; 12-IV-1964, 1F; 26-X-1964, 1M;
 30-XII-1964, 1F; 30-XII-1964, 2F.
 JACKSON CO. 30-III-1964, 3F & 2M.
- Stenoponia americana* (Baker): Reported for the first time from Ohio.
 ex. *Peromyscus leucopus noveboracensis* (Fischer)
 ATHENS CO. 11-I-1952, 1M; 20-III-1964, 2M; 15-XI-1964, 1M.
 ex. No host given
 OHIO. Jellison (1965). Jellison reports that Ohio specimens of this species were deposited in the USNM during 1964.

FAMILY LEPTOPSYLLIDAE

- Peromyscopsylla hesperomys hesperomys* (Baker):
 ex. *Peromyscus* sp.
 HOCKING CO. (Johnson & Traub, 1954).
 ex. *Peromyscus leucopus noveboracensis* (Fischer)
 ATHENS CO. 11-I-1952, 1M; 18-III-1964, 4F & 2M; 18-III-1964, 3F & 1M; 20-III-1964, 3F & 8M; 20-III-1964, 5F & 3M; 21-III-1964, 2F; 25-V-1964, 1M; 26-V-1964, 1F; 25-IX-1964, 1M; 30-XII-1964, 2F.
- Peromyscopsylla scotti* I. Fox: Reported for the first time from Ohio.
 ex. *Peromyscus leucopus noveboracensis* (Fischer)
 ATHENS CO. 6-IX-1964, 1F & 1M; 26-X-1964, 1F & 2M; 31-X-1964, 1M; 15-XI-1964, 1F & 1M; 15-2I-1964, 1F & 1M.
- Odontopsyllus multispinosus* (Baker):
 ex. *Vulpes fulva* (Desmarest)
 MEIGS CO. 18-VII-1938, 1F & 1M (Hughes, 1938).

FAMILY ISCHNOPSYLLIDAE

- Myodopsylla insignis* (Rothschild):
 ex. *Eptesicus fuscus* (Beauvois)
 CEDAR POINT. 5-VIII-1904, 2F; 5-VIII-1904, 2F & 2M (OSU).
 ex. *Myotis lucifugus* (LeConte)
 DELAWARE CO. VII-1952, 2F & 1M (Hopkins & Rothschild, 1956).
- Nycteridopsylla chapini* Jordan:
 ex. *Eptesicus fuscus* (Beauvois)
 HOCKING CO. 2-III-1951, 1F, (Lane, 1953).

FAMILY CERATOPHYLLIDAE

Nosopsyllus fasciatus (Bosc):

- ex. *Rattus norvegicus* (Berkenhout)
 CHILLICOTHE. 13-VII-1923, 15F & 9M (OSU).
 LANCASTER. 30-V-1935, 1F; 26-XI-1935, 1F (Fox, 1940).
 OHIO. 28-X-1886, 2F & 1M (OSU).
 ex. *Sciurus* spp.
 OHIO. Katz (1938).
 ex. No host given
 OHIO. Pratt and Good (1954); Pratt and Wiseman (1962).

Orchopeas howardii howardii (Baker):

- ex. *Glaucomyz volans* L.
 ATHENS CO. 10-X-1964, 10F & 4M.
 SCIOTO CO. 12-IV-1964, 4F.
 ex. *Sciurus carolinensis carolinensis* Gmelin
 ATHENS CO. 18-II-1964, 4F & 2M; 18-II-1964, 4F & 3M; 19-II-1964, 1F & 1M; 2-IX-1964, 1F & 2M; 11-IX-1964, 1F.
 VINTON CO. 24-I-1964, 1F & 3M; 24-I-1964, 1F; 28-I-1964, 3F & 3M; 30-I-1964, 1M; 24-IV-1964, 4F & 3M; 29-IV-1964, 10F & 17M; 29-IV-1964, 17F & 8M; 30-IV-1964, 14F & 3M; 30-VI-1964, 3F & 2M.
 ex. *Sciurus niger rufiventer* Geoffroy-Saint-Hilaire
 AKRON. 6-VI-1897, 1F (OSU).
 ATHENS CO. 30-X-1964, 3F.
 VINTON CO. 24-I-1964, 1F & 3M; 29-IV-1964, 11F & 1M; 29-IV-1964, 21F & 9M.
 ex. *Tamias striatus* L.
 SCIOTO CO. 29-III-1964, 1F.
 ex. No host given
 OHIO. Pratt and Wiseman (1962).

Orchopeas leucopus (Baker):

- ex. *Peromyscus leucopus noveboracensis* (Fischer)
 ATHENS CO. 18-III-1964, 1F; 20-III-1964, 1F; 24-III-1964, 1F; 26-III-1964, 1M; 12-IV-1964, 1F & 1M; 12-IV-1964, 6F; 13-IV-1964, 2F; 14-IV-1964, 1M; 27-V-1964, 1F; 11-V-1964, 2F; 11-VI-1964, 4F & 1M; 6-IX-1964, 1F & 2M; 6-IX-1964, 1F & 1M; 26-X-1964, 1M; 15-X-1964, 2M; 15-X-1964, 1F & 3M; 15-X-1964, 2F & 2M.
 FAIRFIELD CO. 23-IV-1935, 1M (Fox, 1940). London. 30-V-1905, 5F & 2M (OSU).

Oropsylla arctomys (Baker): Reported for the first time from Ohio.

- ex. *Marmota monax monax* L.
 JACKSON CO. 14-VIII-1965, 2F & 1M.
 ex. No host given
 OHIO: Jellison (1965). Jellison reports that specimens of this species were deposited in USNM in 1964.

LITERATURE CITED

- Ewing, H. E. 1931. Some factors affecting the distribution and variation in North American ectoparasites. *The Amer. Natur.* 65: 360-369.
 ——— and I. Fox. 1938. Occurrence of the oriental rat flea in the interior of the United States. *Science* 88: 427.
 Fox, I. 1940. Fleas of the Eastern United States. Iowa State College Press, Ames, Iowa. 191 p.
 Hopkins, G. H. E. and M. Rothschild. 1953. Catalogue of the Rothschild Collection of Fleas (Siphonaptera) in the British Museum (Nat. Hist.). London. V. 1: 361 p.
 ———. 1956. Catalogue of the Rothschild Collection of Fleas (Siphonaptera) in the British Museum (Nat. Hist.). London. V. 2: 445 p.
 ———. 1962. Catalogue of the Rothschild Collection of Fleas (Siphonaptera) in the British Museum. London. V. 3: 462 p.
 Hughes, J. H. 1938. The flea and tick populations of southeastern Ohio. Biological studies Report for the Dept. of Zool., Ohio Univ., Athens. 16 p. (Unpublished).
 Jellison, W. L. 1965. Personal communication.
 Johnson, P. T. and R. Traub. 1954. A revision of the flea genus *Peromyscopsylla*. Smithsonian Misc. Coll. Publ. 4178: 68 p.
 Jordan, K. 1928. Siphonaptera collected during a visit to the eastern United States of North America in 1927. *Nov. Zool.* 34: 178-188.
 Katz, J. S. 1938. A survey of the parasites found in and on the fox squirrel and in the southern gray squirrel in Ohio. Master's Thesis, Ohio State Univ., Columbus. 64 p. (Unpublished).
 Lane, J. E. 1953. A note on the discovery of a rare bat flea in Ohio. *Ohio Jour. Sci.* 53: 178.

- Miller, G. S. and R. Kellogg.** 1955. List of North America Recent Mammals. U. S. Natl. Mus. Bul. 205: 954 p.
- Pratt, H. D. and N. E. Good.** 1954. Distribution of some common domestic rat ectoparasites in the United States. J. Parasitol. 40: 113-129.
- and **J. S. Wiseman.** 1962. Fleas of Public Health Importance and Their Control. U. S. Pub. Hlth. Ser. Publ. 772, Insect Control Series: Part VIII. 36 p.
- Runner, A. G.** 1941. Occurrence of the oriental rat flea in Columbus, Ohio. Science (n.s.) 93: 111-112.
- Trembly, H. L. and F. C. Bishopp.** 1940. Distribution and hosts of some fleas of economic importance. Jour. Econ. Entomol. 33: 701-703.
-