

PARASITES OF THREE RODENT SPECIES FROM SOUTH DAKOTA AND THEIR DISTRIBUTIONS

Glenn E. Kietzmann, Jr.
Department of Zoology
Iowa State University, Ames, Iowa 50011

ABSTRACT

Between September, 1982 and February, 1984, seven rodents including five eastern fox squirrels (*Sciurus niger*), one Richardson ground Squirrel (*Spermophilus richardsonii*) and one plains pocket gopher (*Geomys bursarius*) were examined for parasites. *Orchopeas howardii* and *Neohaematopinus sciurinus* parasitized the fox squirrels, while *Opisocrostis bruneri*, *Thrassis bacchi*, *Rhadinopsylla fraterna* and a cestode believed to be of the genus *Hymenolepis* parasitized the ground squirrel. The pocket gopher also was host to *Hymenolepis* sp., as well as lice. All parasites reported are not new to South Dakota; however, this study establishes new locality records for them.

Based on the size of South Dakota and the relative lack of distributional data concerning the parasites of rodents in the state, any new information, however gathered is a welcome addition. In this report, new distributional data is offered for parasites of three rodent species. Several new locality records within the state were noted for the parasites found.

MATERIALS AND METHODS

Between September, 1982 and February, 1984, four road-killed eastern fox squirrels (*Sciurus niger rufiventer* Linnaeus) were picked up and examined for parasites. In addition, one other fox squirrel, one Richardson ground squirrel (*Spermophilus richardsonii* Sabine) and one plains pocket gopher (*Geomys bursarius* Shaw) were shot with a small calibre rifle and examined. All animals were placed in plastic bags and put on ice until returned to the laboratory. All animals were combed to remove ectoparasites and then eviscerated. The gastro-intestinal tracts were cut open in a shallow pan of water and the helminths recovered. Parasites were fixed, cleared, dehydrated in ethanol and mounted on glass microscope slides with Canada balsam. The cestodes, in addition, were stained with Harris hematoxylin. Voucher specimens (79169 to 79175) are deposited in the U.S. National Parasite Collection, Beltsville, Maryland 20705,

ACKNOWLEDGEMENTS: The author would like to extend a sincere thank you to Dr. Omer R. Larson for identifying the fleas and Dr. K. C. Emerson for identifying the lice collected in this study.

USA. The remaining parasites are in the author's personal collection.

RESULTS AND DISCUSSION

A single species each of flea and anopluran louse were collected from the eastern fox squirrels, while the ground squirrel harbored three flea species and one cestode. The plains pocket gopher was host to cestodes and lice.

Orchopeas howardii (Baker) was the siphonapteran collected from the fox squirrels. A total of 10 specimens, including six females and four males were found. This species has been collected previously in Brookings and McCook Counties of South Dakota (Easton, 1982). The collection of *O. howardii* from Deuel County in this study appears to constitute a new locality record. *Orchopeas howardii* was found also in Brookings County. It was noted that one female flea did not possess the spermatheca.

Neohaematopinus sciurinus (Mjöberg) were the anopluran lice collected from the fox squirrel found in Lawrence County. The lice recovered included one male and four females. Members of the genus *Neohaematopinus* are parasites of four major groups of squirrels and are distributed widely in the holarctic and oriental regions (Kim and Adler, 1982).

The species of fleas collected in Deuel County from *S. richardsonii* were *Opisocrostitis bruneri* (Baker), *Rhadinopsylla fraterna* (Baker) and *Thrassis bacchi bacchi* (Rothschild). The fleas, although not state records, appear to represent new locality records.

Opisocrostitis bruneri, the common ground squirrel flea, was collected in the highest numbers. The 36 individuals recovered included 18 males and 18 females. Previously, *O. bruneri* has been collected from ground squirrels in Brookings, Potter, Spink and Brown Counties (Prince, 1943; Easton, 1982). This flea has also been reported from white-tailed jackrabbits (*Lepus townsendii campianus* Hollister) in Brookings County (Kietzmann and Huggins, 1984).

Thrassis bacchi bacchi, also common on ground squirrels, has been reported from Codington, Potter, Brown and Spink Counties (Prince, 1943; Easton, 1982). There were two males and one female found in this study.

Rhadinopsylla fraterna was the final flea species collected. Although considered to be more of a burrow inhabitant, two males and one female were removed from the body of the ground squirrel. *Rhadinopsylla fraterna* was not on Easton's list (1982), but according to Hubbard (1947) this species was described from a single fe-

male specimen collected in Brookings County by Professor Aldrich. The host from which it was collected is unknown.

A cestode believed to be of the genus *Hymenolepis* was recovered from the small intestine of the ground squirrel. Although the scolex was not found, the strobila fit closely the description offered by McLeod (1933). Studies concerning the helminths of *S. richardsonii* in South Dakota were not found, but studies in Alberta (Lubinsky, 1957) and Manitoba, Canada (McLeod, 1933) indicated that *H. diminuta* was the cestode associated with *S. richardsonii* in those locations.

Examination of the plains pocket gopher yielded two cestodes also believed to be of the genus *Hymenolepis*. Identification to species was not possible as the scolices were not found. The strobilae again resembled those described by McLeod (1933). Reports of *Hymenolepis* sp. from *G. bursarius* in South Dakota were lacking. Rissky (1962) however, did find a cestode in pocket gophers he examined from Clay County. Unfortunately, the tapeworm was classified to order only.

This report adds distributional data for the parasites that were collected. Although the parasites are not new to South Dakota, new locality records appear to be established. For a complete understanding of distributional patterns of rodent parasites in the state, additional collections such as those performed in this study are a means by which new information can be compiled.

LITERATURE CITED

- Easton, E. R. 1982. An annotated checklist of the fleas of South Dakota (Siphonaptera). Entomol. News, 93:155-158.
- Hubbard, C. A. 1947. Fleas of western North America. Iowa State Coll. Press. Ames., 533 pp.
- Kietzmann, G. E., Jr. and E. J. Huggins. 1984. Ectoparasites of white-tailed jackrabbits and eastern cottontail rabbits in South Dakota. Proc. S. D. Acad. Sci., 63:42-47.
- Kim, K. C. and P. H. Adler. 1982. Taxonomic relationship of *Neohaematopinus* to *Johnsonpithirus* and *Linognathoides* (Polyplacidae:Anoplura). J. Med. Entomol., 19:615-627.
- Lubinsky, G. 1957. List of helminths from Alberta rodents. Can. J. Zool., 35:623-627.
- McLeod, J. A. 1933. A parasitological survey of the genus *Citellus* in Manitoba. Can. J. Res., 9:108-127.
- Prince, F. M. 1943. Report on the fleas *Opisocrostitis bruneri* (Baker) and *Thrassis bacchi* as vectors of plague. Publ. Hlth. Repts., 58:1013-1016.
- Rissky, R. W. 1962. Parasites of the plains pocket gopher, *Geomys bursarius* (Shaw) in Clay County, South Dakota. Proc. S. D. Acad. Sci., 41:83-90.