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Lice, Mites, and Ticks of Southeastern Wisconsin Mammals

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LICE, MITES, AND TICKS OF SOUTHEASTERN WISCONSIN MAMMALS

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ABSTRACT

Seventeen species of southeastern Wisconsin mammals were found to be infected with arthropod ectoparasites other than fleas. One host species was infested with one species of biting lice (Mallophaga), five with five species of sucking lice (Anoplura), ten with at least 16 species of mites (Acari) and nine with six species of hard ticks (Ixodidae). Many new state and/or host records are reported. Host specificity was very pronounced in lice but less marked in ticks and mites particularly in the more common species, ex. *Androlaelaps fahrenholzi* (Berlese) and *Ixodes cookei* Packard, respectively.

INTRODUCTION

The present report is the last in a series of investigations dealing with the ecological role played by southeastern Wisconsin arthropods and wild mammals in the maintenance and dissemination of vector-borne diseases of man and animals. A preliminary survey of arthropod ectoparasites was made during the autumn of 1971 in the Parkside study area, Kenosha County (Amin, 1973). The complete 1972 survey yielded information on host distribution and ecology (Amin, 1974), its arboviral antibody distribution (Amin and Thompson, 1974), mosquito and tabanid populations (Amin and Hageman, 1974) and fleas (Amin, 1976). The present report deals with host distribution of lice, mites and ticks.

MATERIALS AND METHODS

All materials and methods applied are the same as those described by Amin (1976). Maps, weather conditions during the study period (1972) and details of the botanical composition are included in Amin and Thompson (1974) and Amin and Hageman (1974).

Most hosts were trapped in the Parkside study area, Kenosha County, between April and October, 1972. Information from the pilot study (September-November, 1971) are herein included only when absent or scarce in the 1972 collections. The only material otherwise reported herein is that collected by F. V. Dunkel from one meadow vole, one short-tailed shrew and three masked shrews in another Kenosha County study area during late 1974.

RESULTS AND DISCUSSION

The 17 mammal species from which the reported material was recovered were Eastern Chipmunk, *Tamias striatus ohionensis* Moulthrop; Eastern Gray Squirrel, *Sciurus carolinensis* Merriam; Fox Squirrel, *S. niger rufiventer* Geoffroy Saint-Hillaire; Virginia Opossum, *Didelphis virginiana* Kerr; Raccoon, *Procyon lotor hirtus* Nelson and Goldman; Dog, *Canis familiaris* Linnaeus; Thirteen-lined Ground Squirrel, *Spermophilus t. tridecemlineatus* (Mitchill); Franklin's Ground Squirrel, *Citellus franklinii* (Sabine); Meadow Vole, *Microtus p. pennsylvanicus* (Ord); Prairie Vole, *M. o. ochrogaster* (Wagner); White-footed Mouse, *Peromycus leucopus noveboracensis* (Fischer); Meadow Jumping Mouse, *Zapus hudsonius intermedius* Krutzsch; Masked Shrew, *Sorex cinereus* Kerr; Short-tailed Shrew, *Blarina brevicauda* (Say); Long-tailed Weasel, *Mustella frenata noveboracensis* (Emmons); Mink, *M. vison letifera* Hollister; Muskrat, *Ondatra z. zibethicus* (Linnaeus).

A parasite-host list follows. Host names are followed by the number examined; number of parasites recovered/number of hosts infested; date infestation occurred and annotations.

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BITING LICE (MALLOPHAGA)

Trichodectes octomaculatus Paine
Raccoon; 15, 1M/1; IV. 72. New species record for Wisconsin.

SUCKING LICE (ANOPLURA)

Species of sucking lice reported herein were all host specific with each species typically infesting one host species.

Neohaematopinus sciuri Jancké
Gray squirrel; 60; 15 M, 22 F, 22 N/19; IV-X, 72. Infestation was scarce until July but became heavier subsequently; max. of 18/host in September. Nymphs were absent until June, 2 of 6 specimens were nymphs then, and progressively became more abundant subsequently; max. of 10 of 19 specimens in September. Harkema (1936) and Wilson (1961), however, found that North Carolina and Indiana Gray Squirrels were more heavily and frequently infested with *sciuri* during the winter. All but five of the infested hosts were males which harbored 33 of the 59 collected specimens. Cook and Beer (1958) also found that infestation of meadow voles with *Holopleura acanthopus* was lower in females than in males but not so in deer mice infested with *H. hesperomydis.* No variations in first antennal segment or its setae (which might bring some *N. scirui* closer to *N. sciurinum* Mjöberg) as reported by Ferris (1951) were observed in local specimens.

Holopleura erratica (Osborn)
Chipmunk; 30; 4 M, 14 F, 2 N/4 (max. of 7/host); X, 71 and 164; 1 M, 2 F, 9 N/4 (max. of 5/host) only in VIII, 72. More nymphs were collected in the summer than in autumn.

Hoplopleura hesperomydis (Osborn)
White-footed Mouse; 22; 11 (including 3 F)/1; X, 71.

Hoplopleura sciuricola Ferris
Fox Squirrel; 2; 10 N/1; VIII, 72. New species record for Wisconsin.

Hoplopleura acanthopus (Burmeister)
Meadow Vole; 1; 1 M/1; X, 74. New species record for Wisconsin.

MITES (ACARI)

Androlaelaps fahrenholzi (Berlese) [= *Haemolaelaps glasgowi* (Ewing) as reported by Amin, 1973]
Specimens of *Haemolaelaps* sp. also reported by Amin (1973) were found to belong to this species. The number of dorsal posterior setae and shape of female sternal plate were variable. This species appears to be common in this area on a relatively large number of host species.
Chipmunk; 164; 26 F, 7 N/9; V-IX, 72. Heavier infestation in July (max. of 20/host). Twice as many female than male hosts were infested.
Meadow Vole; 15; 3 M, 31 F, 1 N/6 (max. of 15/host); X, 71.
Prairie Vole; 2, 3 F/1; X, 71.
Virginia Opossum; 24, 4 F/1; IV, 72. New host record in Wisconsin.
White-footed Mouse; 22; 1 M, 3 F/2; X, 71 and 20; 1 F/1 only in VII, 72. *A. fahrenholzi* was observed to have a positive association with nesting of this host elsewhere in Wisconsin particularly during the summer and autumn (Jackson and DeFoliart, 1975).

Dermacarus hylandi Fain
Chipmunk, 164; 71 DN/1; VI, 72. New species record for Wisconsin.

Eulaelaps stabularis (Koch)
Chipmunk; 164; 2 F/2; VI, VIII, 72. New host record in Wisconsin.
Masked Shrew; 9; 1 M/1; XII, 74. New host record in Wisconsin.

Euryparasitus sp.
Meadow Jumping Mouse; 73; 1 DN/1; VII, 72. New host record in Wisconsin.
Virginia Opossum; 24; 1 DN/1; VI, 72. New host record in Wisconsin.

Euschoengastia sp.
Chipmunk; 164; 1 F/1; V, 72. New host record in Wisconsin.

Haemogamasus liponyssoides Ewing
Masked Shrew; 9; 1 M/1; XII, 74. New host record in Wisconsin.

Haemogamasus reidi Ewing
Gray Squirrel; 42; 1 F/1; V, 72. New species record for Wisconsin.

Haemogamasus sp.
Short-tailed Shrew; 1; 1 DN/1; X, 74. New host record in Wisconsin.

Hirstionyssus utahensis Allred & Beck
White-footed Mouse; 22; 13 F, 1 N/2; X, 71. *H. utahensis* was observed to have a positive association with nesting of this host elsewhere in Wisconsin particularly during the summer and autumn (Jackson and DeFoliart, 1975).

Hirstionyssus sp.
Meadow Vole; 15; 1 M/1; X, 71. New host record in Wisconsin.

Hyperlaelaps microti (Ewing). [= *Laelaps kochi* Oudemans as reported by Amin, 1973]
Meadow Vole; 15, 1 M/1; X, 71.

Laelaps alaskensis Grant
Meadow Vole; 15; 1 F/1· X, 71.
White-footed Mouse; 22; 1 F/1; X, 71.

Laelaps multispinosus Banks
Muskrat; 1; 4 M, 15 F, 6 N/1; XI, 71.

Macrocheles sp. A
Gray Squirrel; 60; 1 F/1; VII, 72
Virginia Opossum; 24; 1 F/1; IV, 72

Macrocheles sp. B
Chipmunk; 164; 1 F/1; IX, 72

Pergamasus longicornis grp.
Chipmunk; 164; 1 F; IX, 72. New host and state records.

Trombicula (Leptotrombidium) myotis Ewing
Chipmunk; 164; 1 F/1, VI, 72. New host record in Wisconsin.

HARD TICKS (IXODIDAE)

Dermacentor variabilis (Say)
This tick species is scarcely found in the previously glaciated southeastern corner of Wisconsin but is more common elsewhere in the state.
Dog; 20; 1 F/1; X, 71.

Ixodes cookei Packard
This tick species appears to be common on a relatively large number of host species in this area as well as elsewhere in Wisconsin.
Virginia Opossum; 26; 2 F, 5 N, 5 L/2; IV, V, 72.
Franklin's Ground Squirrel; 1; 1 N, 8 L/1; IX, 72. New host record in Wisconsin.
Raccoon; 15; 2 F, 2 N/3; VI, VIII, 72. New host record in Wisconsin.
Long-tailed Weasel; 3; 1 F/1; VIII, 72. New host record in Wisconsin.
Mink; 1; 1 F, 18 N, 36 L/1; XI, 71.

Ixodes muris Bishopp and Smith
Masked Shrew; 9; 3 L/2; X, 74. New species record for Wisconsin.

Ixodes scapularis Say

This tick species was only previously reported in northern Wisconsin from dog and deer by Jackson and DeFoliart (1970).

Dog; 20; 1 F/1; X, 71.

Ixodes sculptus Neumann

Thirteen-lined Ground Squirrel; 5; 1 F, 1 N, 2 L/2; VIII, IX, 72.

Ixodes texanus Banks

This tick species was reported only once in northern-most Bayfield County, Wisconsin, from a "weasel" by Knipping *et al.* (1950).

Raccoon; 15; 5 F, 7 N/5; IV-VI, VIII, 72. New host record for Wisconsin. Male *Ixodes* spp. also appear to be rare in collections of other investigators.

Rhipicephalus sanguineus (Latreille)

Dog; 20; 2 F/1; X, 71.

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E. F. Cook, University of Minnesota, St. Paul, identified the lice *H. sciuricola* and *H. acanthopus*. R. Price, University of Minnesota, St. Paul, confirmed my identification of the louse *T. octomaculatus*. J. M. Brennan and C. E. Yunker, Rocky Mountain Laboratory, Hamilton, Montana, identified the chiggers *Euschoengastia* sp. and *T. (L.) myotis*. G. S. Ide, the Ohio State University Acarology Laboratory, Columbus, identified all other mite species. D. E. Sonenshine, Old Dominion University, Norfolk, Virginia, identified or confirmed my identification of all larval tick species. I am very grateful to these colleagues for their contributions.

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