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SIPHONAPTERA RECORDS AND HOST ASSOCIATIONS FROM THE CENTRAL AND EASTERN UPPER PENINSULA OF MICHIGAN

William C. Scharf¹, Patrick E. Lederle², and Thomas A. Allan³

ABSTRACT

Fleas were collected from birds and mammals over a five year period in four upper peninsula counties. Identified specimens were compared to published records of distribution for the parasite species and its host species, and only those records which are new county distributions for host or parasite are listed. Four new host records for Michigan, four new flea distribution records for the upper peninsula, and 26 new county records are listed.

Two previous studies partially document flea distribution by hosts in the upper peninsula of Michigan (Lawrence et al. 1965, and Scharf and Stewart 1980). Additionally comparisons were made with the work of Wilson and Johnson (1971), Timm (1975) and Benton (1980). Despite the appearance of thorough coverage by the previous studies, much of the large geographic area of the upper peninsula, and a variety of flea hosts remain unexamined. The goal of this paper is to further the knowledge of flea and host distributions and provide new records from the region.

MATERIALS AND METHODS

We collected 307 fleas representing 16 species from 114 individual specimens representing 14 mammal species and one bird species in Chippewa, Dickinson, and Iron Counties between 1985 and 1989. One species of flea, *Peromyscopsylla catatina* (Jordan) from Iron and Chippewa Counties, was not a new record. The majority of the specimens were collected by systematic trapping with snap, live and pitfall traps by three groups of collectors: (1) Lederle and co-workers collected regularly as part of long term small mammal studies in Dickinson and Iron Counties by the Michigan State University Terrestrial Vertebrates Group. They also searched nest boxes of both birds and mammals which subsequently yielded fleas. (2) Allan and his students also ran a systematic trapping program, and caught bats in mist nets as part of a faunal inventory of the Vermilion Point Biological Station of Lake Superior State University in Chippewa County. (3) Scharf and his students snap trapped near Lake Munuscong. All three groups collected fleas from road-kills in the areas surveyed whenever possible.

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Small mammals were brushed and examined, and the fleas dislodged were subsequently picked up with forceps or wetted finger. Bird nests were sorted and searched both in and out of the nest box. All fleas were collected in 70% ethyl alcohol, cleared and subsequently mounted in Canada Balsam on glass slides for identification. Identification was aided by using a phase-contrast microscope. The slides are in the personal collection of the senior author.

Mammal names concur with the nomenclature of Hamilton and Whitaker (1979). Bird names follow the Checklist of North American Birds (1983). Most Siphonaptera were identified using Holland (1949), but Benton (1983) was also useful in a few instances. Holland's nomenclature is adhered to except that *Nearctopsylla genalis genalis* follows the accepted nomenclature of Hopkins and Rothschild (1953).

RESULTS

The following list of parasites consists of new county records for either host or parasite. Additional specimens which were reported in earlier works are not repeated. New records for the mainland of the upper peninsula are denoted with (UP) and new records for Michigan are denoted with (MI). Following each county, is the number of specimens and number of hosts examined from that county. The new records listed here are from 107 of the total of 307 specimens mounted and identified. The remainder are flea species already reported in the literature from the counties and hosts examined, and listing them here, even though they are new specimens, would be redundant.

CERATOPHYLLIDAE

Ceratophyllus idius Jordan and Rothschild, (UP): Tree Swallow, *Tachycineta bicolor* (Vieillot), Dickinson, 3/4 nests.

Megabothris acerbus (Jordan): *Tamias striatus*, Chippewa, 9/4 hosts.

Megabothris quirini (Rothschild): *Zapus hudsonius*, Chippewa, 3/4 hosts.

Monopsyllus vison (Baker): *Glaucmys sabrinus*, (MI), Dickinson 3/1 host; *Tamias striatus*, *Tamiasciurus hudsonicus*, Iron 2/6 hosts, and 1/1 host.

Opiscrostis brueneri (Baker), (UP): Thirteen-lined Ground Squirrel, *Spermophilus tridecemlineatus* (Mitchill), Dickinson 1/1 host.

Orchopeas caedens caedens (Jordan): Northern Flying Squirrel, *Glaucmys sabrinus* (Shaw), (MI), Dickinson 1/1 host; Red Squirrel, *Tamiasciurus hudsonicus* (Erxleben), Dickinson 6/3 hosts.

Orchopeas howardii (Baker), (UP): *Mustella frenata*, Iron, 1/1 host.

Orchopeas leucopus (Baker): Woodland Deer Mouse, *Peromyscus maniculatus gracilis* LeConte, Dickinson 42/16 hosts; Bog Lemming, *Synaptomys cooperi*, Baird, (MI), Iron 1/4 hosts.

Oropsylla arctomys (Baker), (UP): Woodchuck, *Marmota monax* (L.), Dickinson 1/1 host.

HYSTRICHOPSYLLIDAE

Corrodopsylla curvata curvata (Rothschild): Masked Shrew, *Sorex cinereus* Kerr, Meadow Jumping Mouse, *Zapus hudsonius* (Zimmerman), Chippewa 1/1 host, and 1/1 host.

Ctenophthalmus pseudagyrtis Baker: Short-tailed Shrew, *Blarina brevicauda*

(Say) Dickinson, Iron 10/32 hosts; *Sorex cinereus*, Iron; Eastern Chipmunk, *Tamias striatus* (L.), Chippewa 1/1 host.

Doratomyia blarinae C. Fox: *Blarina brevicauda*, Dickinson 6/5 hosts.

Epidemia wenmanni (Rothschild): Long-tailed Weasel, *Mustella frenata* Lichtenstein, Iron 1/1 host.

Nearctopsylla genalis genalis (Baker): *Blarina brevicauda*, Chippewa 1/1 host; *B. brevicauda*, *Mustella frenata*, Iron 2/8 and 1/5 hosts; *Sorex cinereus*, Dickinson, Iron 1/4 hosts; *Martes americana* (Turton), Marquette 1/1 host, (MI).

ISCHNOPSYLLIDAE

Myodopsylla insignis (Rothschild): Little Brown Bat, *Myotis lucifugus* (LeConte), Chippewa 7/3 hosts.

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