

Notes

Rodent Fleas (Siphonaptera) in Tree Cavities of Woodpeckers in Alaska

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Eighteen specimens of rodent fleas were collected from nine nests (40 searched) of woodpeckers in tree cavities in dead stubs. Tree squirrel fleas predominated with 1/2 of the specimens being *Ceratophyllus vison* and 1/3 *Orchopeas caedens durus*. The tree squirrel flea *Tarsopsylla octodecimdentata coloradensis* and vole fleas *Catallagia charlottensis* and *Megabothris abantis* were represented by one specimen each. Studies of total populations of tree squirrel fleas should include tree cavities, even those not containing squirrel nests. Most of the rodent fleas collected from the cavities probably were lost there by visiting Red Squirrels, *Tamiasciurus hudsonicus*, and Martens, *Martes americana*.

Key Words: Fleas (Siphonaptera), ecology, Red Squirrel, *Tamiasciurus hudsonicus*, tree cavities, woodpecker nests, Marten, *Martes americana*, Alaska.

In a detailed ecological study of tree cavities in the Midwest, Park et al. (1950) indicated that the rich variety of arthropod inhabitants depended on many factors. Successive nesting by such cavity residents as woodpeckers, mice, and squirrels together with subsequent occurrence of bird and mammal ectoparasites, such as fleas and mites were noted, but the emphasis of their study was on certain beetles. In Alaska, we studied woodpecker nest cavities as a habitat for bird fleas (Haas et al. 1981; Haas and Wilson 1984) and found that multi-use of the cavity involving nesting Red Squirrels (*Tamiasciurus hudsonicus*) and Northern Red-backed Voles (*Clethrionomys rutilus*) resulted in the occurrence of fleas of these rodents (Haas and Wilson 1982; Haas 1982). We also found that cavities not containing rodent nests were occasionally infested with rodent fleas; the present report concerns records of 18 specimens of these fleas: *Ceratophyllus vison*, *Orchopeas caedens durus*, *Tarsopsylla octodecimdentata coloradensis*, *Catallagia charlottensis*, and *Megabothris abantis*.

Materials and Methods

The rodent fleas were collected incidentally to our survey of bird fleas in unoccupied nests of woodpeckers (Haas and Wilson 1984). Inspection of approximately 60 woodpecker tree cavities yielded 40

nests that were in satisfactory condition for flea studies.

Results

Eighteen specimens of five species of rodent fleas, represented by one to nine specimens each, were collected from nine nests of woodpeckers (Table 1). Bird fleas occurred in eight of these nests and in 31 others (Haas and Wilson 1984). The nine cavities (Table 1) averaged 3.4 m above ground level in dead stubs of trees located in four relatively dry districts, i.e. the Copper Basin, the Interior, Matanuska Valley, and West Kenai Peninsula.

Localities and sites of nest cavities by nest number (Table 1):

1. Palmer, 18.2 km SE [Knik River Road near Fox Lake] (61°27'N, 148°52'W), nest of *Picoides* sp. (woodpecker) in cavity 1.7 m up dead White Spruce (*Picea glauca*) stub.

2. Palmer, 1.6 km N (61°38'N, 149°06'W), nest of *Picoides* sp. in cavity 3 m up dead cottonwood (*Populus* sp.) stub.

3. Nabesna Road, mile 24.5 [39.2 km] (62°33'N, 143°29'W), nest of *Colaptes auratus* (Northern Flicker) in cavity 4 m up dead spruce stub.

4. Chistochina, 22.5 km SW [mile 22.5 Glenn Highway] (62°25'N, 145°W), nest of *Picoides villosus* (Hairy Woodpecker) or *Picoides pubescens* (Downy

- Woodpecker) in cavity 3 m up dead White Birch (*Betula papyrifera*) stub.
5. Kenai [city] (60°34'N, 151°17'W), old nest of *Picoides* sp. in cavity 2 m up rotten birch stub, with some evidence of nesting by *Parus* sp. (chickadee).
6. Glennallen, 51 km W [mile 3 (4.8 km) Lake Louise Road] (62°09'N, 146°17'W), nest of *Colaptes auratus* in cavity 4 m up dead White Spruce stub.
7. Glennallen, 53 km W [mile 4.5 (7.2 km) Lake Louise Road] (62°11'N, 146°18'W), nest of *Picoides* sp. in cavity probably of *Colaptes auratus* 2.5 m up dead White Spruce stub.
8. Fairbanks, 35 km WSW [mile 336 Parks Highway] (64°44'N, 148°22'W), nest of *Colaptes auratus* in cavity 5 m up dead birch stub.
9. Same locality as number 6, nest of *Colaptes auratus* in cavity 5 m up dead White Spruce stub.

Discussion

The collection of rodent fleas was small (Table 1), but it illustrated certain aspects of flea ecology. Undoubtedly other specimens escaped detection. The quality of a woodpecker nest cavity as a habitat for fleas changed over time so that the contents of very old cavities had become so compacted, especially when remains of ants were present, that a search for dead fleas was futile. As indicated in the introduction, our data from the newer cavities provided valuable insight into the multi-use of cavities by birds and mammals and the consequent occurrence of their fleas in the same habitat. Jurik's (1974, 1976) thorough studies of fleas in birds' nests in Czechoslovakia according to "Zones of Aphaniptera" (= Siphonaptera) showed

that the zone of the fleas of birds that build nests in tree crowns, hollowed trees (boxes), and shrubs has the strongest linkage with the zone of the fleas of the arboreal-nesting squirrel, *Sciurus vulgaris*. Our short series of collecting records from Alaska showed a strong parallel involving the woodpecker nest cavities in tree stubs and the arboreal habits of the Red Squirrel.

The three taxa and 16 specimens of tree squirrel fleas (Table 1) ranked in the same order of abundance as in the collection of 867 specimens from arboreal nests of the Red Squirrel mostly in the same regions of Alaska (Haas and Wilson 1982). Ten of the 39 infested squirrel nests were built inside old woodpecker nest cavities. The multi-use of woodpecker cavities suggests that any total population study of Red Squirrel fleas in forests with woodpecker nest cavities in the trees should include sampling of the tree cavities for squirrel fleas.

The rodent fleas collected (Table 1) are not known to have well-developed, arboreal perambulatory habits, so they were most likely lost in the woodpecker cavities by tree-climbing rodents, especially Red Squirrels. Some of the fleas were probably left behind in the cavities by visiting predators such as Martens, *Martes americana*. These mammals are known to enter tree cavities in California (Spencer and Zielinski 1983), and in Alaska there is a record of *Monopsyllus* (= *Ceratophyllus*) *vison* and several of *O. caedens durus* from Martens (Hopla 1965). The relative scarcity of *T. octodecimdentata* in the cavities (Table 1) is attributable to general uncommonness of the flea and to its being a nest-flea, thus reducing the

TABLE 1. Rodent fleas in nests of woodpeckers in tree cavities in Alaska, 1974-1976.*

Nest number	Date	<i>Ceratophyllus vison</i>	<i>Orchopeas caedens durus</i>	<i>Tarsopsylla octodecimdentata coloradensis</i>
1	28 July 74	♂(dead)		
2**	3 Aug. 74	♀(gravid)		
3	2 Sept. 75		4♀♀	
4	9 Apr. 76	♂ 2♀♀(all dead)		
5	23 Apr. 76	♀(dead)		
6	8 June 76		♂	
7	14 June 76	♀(dead)	♀(dead)	
8	29 June 76	♀(dead)		
9	27 Sept. 76	♂		♀

*Locality and site data listed under Results.

**Also *Catallagia charlottensis* ♂ (engorged) and *Megabothris abantis* ♂; bird fleas absent, but five species represented in collections from the other nests.

likelihood of its riding about in fur of Martens and Red Squirrels.

Literature Cited

- Haas, G. E.** 1982. Fleas (Siphonaptera) from vole nests in subarctic Alaska. *Canadian Journal of Zoology* 60: 2157-2161.
- Haas, G. E., T. Rumfelt, and N. Wilson.** 1981. Fleas (Siphonaptera) from nests of the tree swallow (*Iridoprocne bicolor*) and the violet-green swallow (*Tachycineta thalassina*) in Alaska. *Wasmann Journal of Biology* 39: 37-41.
- Haas, G. E., and N. Wilson.** 1982. Fleas (Siphonaptera) from nests of the red squirrel (*Tamiasciurus hudsonicus*) and burrows of the arctic ground squirrel (*Spermophilus parryi*) in Alaska. *Wasmann Journal of Biology* 40: 59-65.
- Haas, G. E., and N. Wilson.** 1984. Fleas (Siphonaptera) from nests of woodpeckers in Alaska. *Journal of the New York Entomological Society* 92: 125-130.
- Hopla, C. E.** 1965. Alaskan hematophagous insects, their feeding habits and potential as vectors of pathogenic organisms. I. The Siphonaptera of Alaska. Arctic Aeromedical Laboratory, Fort Wainwright, Alaska, Project No. 8241, AAL-TR-64-12. Volume I. 267 pp.
- Jurik, M.** 1974. Bionomics of fleas in birds' nests in the territory of Czechoslovakia. *Acta Scientiarum Naturalium Academiae Scientiarum Bohemoslovacae* Brno 8(10): 1-54.
- Jurik, M.** 1976. Interrelationships between studied zones of avian Aphaniptera and linkages of these to zones of mammalian Aphaniptera. *Acta Universitatis Agriculturae* Brno 24: 161-169.
- Park, O., S. Auerbach, and G. Corley.** 1950. The tree-hole habitat with emphasis on the pselaphid beetle fauna. *Bulletin of the Chicago Academy of Sciences* 9: 19-57.
- Spencer, W. D., and W. J. Zielinski.** 1983. Predatory behavior of pine martens. *Journal of Mammalogy* 64: 715-717.

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Where do Juvenile Atlantic Wolffish, *Anarhichas lupus*, live?¹

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A size frequency histogram for Atlantic Wolffish collected on the Avalon Peninsula, Newfoundland is presented. No individuals smaller than 50 cm total length were collected or observed. It is concluded that the juveniles do not inhabit shallow water where adults migrate in spring to spawn. The most likely habitat for juvenile Atlantic Wolffish is offshore in deeper water. It is probable that Atlantic Wolffish only appear in shallow water when they have reached sexual maturity and are ready to spawn.

Key Words: Atlantic Wolffish, *Anarhichas lupus*, Newfoundland.

During the period 1982-1985 we have studied the feeding and behavior of the Atlantic Wolffish (*Anarhichas lupus*) in Newfoundland. All individuals seen while on collecting dives on the Avalon Peninsula were taken using spear guns. In addition to collections, observations were made on dives conducted for other purposes. Although diving was concentrated around the spring-autumn period, at least three dives were made per month during the winter. As part of the study we measured the lengths

of all specimens collected (Figure 1). No specimens smaller than 50 cm were collected or observed. Most specimens were in the range 70 to 90 cm, indicating ages from 9 to 18+ years (Beese and Kandler 1969).

Adult Wolffish are common in inshore waters from the spring until late autumn, and egg masses are deposited during September-October (Keats et al. 1985). We have observed larval wolffish in the water column during the hatching period (October-November), but newly settled juveniles



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