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Ectoparasites of the Virginia Opossum (*Didelphis virginiana*) in an Urban Environment

Abstract

Eleven species of fleas, mites, and ticks were collected from urban *Didelphis virginiana* during an 18-month study. Four species of mites and ticks represent new host records. Infestation is greatest during summer and fall.

Introduction

The Virginia opossum (*Didelphis virginiana* Kerr 1792) is a relatively recent arrival in Oregon. Many were brought to the state in the early 1930s by Civilian Conservation Corps (CCC) workers for food and/or pets; they escaped or were released by 1939 when the CCC was terminated (Mace, 1970). Known releases were made near Warrenton (Clatsop County) and Troutdale (Multnomah County). Opossums continued to expand their range, and on 24 March 1954 the Virginia opossum was first reported in northeast Portland where one was captured and taken to the Washington Park Zoo. In the ensuing 22 years, the opossum became abundant and ubiquitous throughout western Oregon.

Previous studies on the parasitology of opossums have been carried out in rural areas east of the Rocky Mountains. No studies have been reported concerning the animal's introduction in the western United States, nor its presence in urban areas. The purpose of this investigation was to study parasites that infest *D. virginiana* in a region occupied only recently by the species.

Methods and Materials

Seventy-seven opossums (excluding pouch young) were collected from December 1974 through May 1976, primarily from within the city limits of Portland (Multnomah County), Oregon. Eight opossums were from outside the city limits but within nearby urbanized areas. Except for two killed by dogs and one shot, all the animals were road kills.

The opossums were thoroughly combed and ectoparasites removed and preserved in 70 percent ethanol. Opossums were washed in 70 percent ethanol if large numbers of fleas were present to facilitate their capture.

Results and Discussion

Many ectoparasites, principally fleas, are known to infest opossums. At least 15 species

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of fleas are known to parasitize the animal (Potkay, 1970). In this study, the cat flea (*Ctenocephalides felis* Bouche), the dog flea (*C. canis* Curtis), and the Northern rat flea (*Nosopsyllus fasciatus* Bosc) were found. Both *C. felis* and *N. fasciatus* were common, neither occurring significantly more often than the other. *C. felis* has been the most commonly reported species in the past (Sandidge, 1953; Potkay, 1970). *N. fasciatus* has been reported only once previously, and then from just four opossums (Sandidge, 1953). *C. canis* has been previously reported on *D. virginiana* (Sanford and Hays, 1974). I found only one specimen of this flea.

Past studies have indicated that the opossum is relatively free of external parasites (Hamilton, 1958; Reynolds, 1945; Sandidge, 1953). This study, however, indicates the contrary, at least in Portland where infestation is frequent, although usually not severe. The higher rate of infestation may be attributable to the greater number of cats (*Felis catus*), dogs (*Canis familiaris*), and rats (*Rattus rattus* and *R. norvegicus*) found in an urban environment than in a rural one. The opossum likely exists in the same habitat as do rats and feral dogs and cats.

Frequency of flea infestation varied monthly, reaching a peak late in the year. Frequency during the winter was 53.3 percent; it increased slightly during the spring to 57.9 percent and in the summer to 66.7 percent. With the advent of fall, however, the frequency increased greatly to 92.3 percent.

Degree of infestation differs markedly between the sexes. Of 53 males examined, 38 (71.7 percent) were infested, but only 10 of 24 females (41.7 percent) were infested. The cause for this difference is unknown, but probably it is not due to a difference in grooming since there was no difference between sexes in the percentage of infested opossums with ingested fleas. No significant difference in the occurrence of fleas was found between juveniles and adults.

Nine species of Acari were removed from opossums; eight species of mites and one tick, in addition to 15 unidentified specimens, probably mostly nonparasitic. Five of the identified mite species are nonparasitic and are apparently accidentals; these include *Scheloribates* sp. (Orbatulidae), *Pergamasus* sp. (Parasitidae), *Ceratoppia* sp. (Metrioppiidae), and *Poecilochirus necrophori* Vitzthum (Parasitidae). The other three are parasitic on mammals. All represented new host records, and all were taken from more than one animal. All are in the family Laelapidae; they are: *Androlaelaps fabrenholzi* (Berl.), *Haemogamasus nidi* (Michael), and *Eulaelaps stabularis* (Koch). Only one species of tick, *Ixodes angustus* (Neum.) was recovered. This, too, was a new host record.

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