



Listrophorid Mites and Other Ectoparasites of Muskrats, *Ondatra zibethicus*, from the Chena River, Alaska

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ern Pacific coast, Univ. of Washington Press, Seattle). This species, which is often very abundant and typically lies with its shell just contacting the surface, would be at least occasionally visible to loons foraging along the bottom.

Although mollusks have been listed in the diet of the Common Loon, most records refer to snails. Palmer (1962, Handbook of North American birds, Vol. 1: loons through flamingos, Yale Univ. Press, New Haven) lists *Helisoma*, a freshwater snail, as the only mollusk recorded in the diet. Cramp and Simmons (1977, The birds of the Western Palearctic, Vol. 1: ostrich to ducks, Oxford Univ. Press, Oxford) list a single clam, the razorshell (*Solen*), in the diet of this species; it is quite differently shaped from *Protothaca* and is more characteristic of sand bottoms. Marine mollusks have been listed as stomach contents of other species of loons (*Gavia stellata*, *arctica*, and *adamsii*) but thought perhaps to have been ingested within their fish prey (Cramp and Simmons 1977).

Ganong (1896, Auk 13:77-78) reported a large downy Common Loon with the tip of its mandible broken off by a 2-inch freshwater mussel, the only other record I could locate of loon-bivalve interaction.

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LISTROPHORID MITES AND OTHER ECTOPARASITES OF MUSKRATS, *ONDATRA ZIBETHICUS*, FROM THE CHENA RIVER, ALASKA

JOHN O. WHITAKER, JR.

There are a number of reports of ectoparasites from the fur of muskrats (*Ondatra zibethicus*) from North America (Whitaker and Wilson 1974). The important ectoparasites and other associates are the hypopus of the glycyphagid mite *Zibethacarus ondatrae* (phoretic), the parasitic mites, *Laelaps multispinosa* (Laelapidae), and six species of mites of the genus *Listrophorus* (Listrophoridae). Two other parasites occur, *Radfordia zibethicalis* (Myobiidae) and *Myocoptes ondatrae* (Myocoptidae). Only one paper (Bauer and Whitaker 1981) reports on the abundance and distribution of listrophorid mites on the body of the host.

Listrophorus americanus, *L. dozieri*, *L. faini*, *L. ondatrae*, and *L. validus* are all known from Indiana (Bauer and Whitaker 1981), Oregon (Whitaker and Maser 1985), and Rhode Island (Fain and Hyland 1974). In addition, *L. americanus* is known from British Columbia, Maryland, Ontario, Utah, and Washington. *Listrophorus kingstownensis* is known only from Rhode Island and New York (Fain and Hyland 1974, Bauer and Whitaker 1981).

Four of the five species found on muskrats from Indiana, *Listrophorus americanus*, *faini*, *validus*, and *dozieri* were abundant on all muskrats examined ($N = 40$) whereas *L. ondatrae* was found on only two muskrats. *Listrophorus americanus*, *dozieri*, *faini*, and *validus* reached their greatest abundance on the venter, sides, rump, and around the ear, respectively, in Indiana.

The objectives of this study were to describe the listrophorid mite community in a sample of three muskrats from the Chena River (about 40 mi east of Fairbanks), Alaska, to compare it to that from Indiana, and to give information on other parasites of muskrats from Alaska.

I thank Randy Zarnke of the Alaska Department of Fish and Game for the muskrats. Mites were collected from 23 separate sampling areas of the muskrats as described for the beaver, *Castor canadensis* (Whitaker and Smith 1985). Mites were preserved in alcohol in separate vials, cleared in Nesbitts Solution, mounted on slides in Hoyers solution, and ringed with euparal.

The main ectoparasites and other associates of the fur of the muskrat from Alaska were *Zibethacarus ondatrae*, *Listrophorus americanus*, *L. faini*, and *L. dozieri* (Table 1). Three other host specific species were also taken in low numbers, *Radfordia zibethicalis*, *Myocoptes ondatrae*, and *Laelaps multispinosa*. Thus, all the main groups of muskrat parasites were present on the Alaska sample. *Zibethacarus*

TABLE 1. Numbers of individuals identified of ectoparasites of three muskrats from the Chena River, 40 km west of Fairbanks, and distribution of *Listrophorus* species on the host.

	Muskrat			Total
	1	2	3	
<i>Listrophorus americanus</i>	84	126	174	384
<i>L. faini</i>	111	67	80	258
<i>L. dozieri</i>	24	24	38	86
<i>Zibethacarus ondatrae</i>	346	91	78	515
<i>Myocoptes ondatrae</i>	3		1	4
<i>Radfordia zibethicalis</i>	3	1		4
<i>Laelaps multispinosa</i>		3		3
<i>Schizocarpus indianensis</i>		1		1

	Distribution of <i>Listrophorus</i> species on the host		
	<i>Listrophorus</i> species		
	<i>americanus</i>	<i>dozieri</i>	<i>faini</i>
Venter			
Under head	3		
Anterior abdomen	133	6	3
Mid abdomen	69		1
Posterior abdomen	92	4	1
Inside hind legs			1
Totals	297	10	6
Dorsum			
Top of head			5
Nape	16	16	29
Anterior dorsum	55	37	25
Mid dorsum	3	13	24
Posterior dorsum	11	8	86
Base of tail	2	2	58
Outside hind legs			25
Totals	87	76	252

ondatrae was common on muskrats both in Indiana and in Alaska, and was fairly well distributed over the animal.

It is clear that the listrophorid mite community of muskrats from the Alaska sample had only three main species of *Listrophorus*, whereas previously known populations (Indiana, Oregon, Rhode Island) had four or five. *Listrophorus americanus* was more abundant on the venter than on the dorsum (Table 1). On the dorsum, it reached its greatest abundance anteriorly and on the nape. Only six individuals of *L. faini* were taken on the venter, whereas 193 of the 258 were on the middle and posterior dorsum and outside of the hind legs. *Listrophorus dozieri* was more abundant on the dorsum (76 individuals identified) than on the venter (10 identified), 53 of the 76 were on the anterior dorsum and nape.

The numbers presented are of the mites actually identified. One muskrat had large numbers of mites in certain areas that further relate to these conclusions. An estimated 10,000, 2500, and 1500 mites from the posterior and anterior abdomen were almost all *L. americanus* as indicated by 73 of 74 mites from those samples being that species. On the other hand, there was much more mixing in the anterior dorsum area, where an estimated 17,000 mites occurred. Here, 26 mites were identified as *L. americanus*, 23 as *L. faini*, and 16 as *L. dozieri*. These numbers would project to estimates of about 6800, 6000, and 4250, respectively, of these three species.

The distribution of *Listrophorus* on these muskrats was similar to that in Indiana, except that there was one less major species and mixing among the species is less than in the Indiana sample.

All parasites found were host specific mites of the muskrat, except for one female of the *Schizocarpus indianensis* group, a host specific mite of beavers (Fain et al. 1984).

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