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## Ectoparasites from River Otters in Pennsylvania

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**ABSTRACT:** Twenty-three livetrapped and two trapper-caught river otters (*Lutra canadensis*) from northeastern Pennsylvania (USA) were examined for ectoparasites immediately after their captures during 1981 to 1985. Ectoparasites were collected from both trapper-caught otters, but from only one livetrapped otter. One species of tick (*Ixodes cookei*) and one flea (*Oropsylla arctomys*) were collected.

**Key words:** River otter, *Lutra canadensis*, *Ixodes cookei*, *Oropsylla arctomys*, ectoparasites, survey.

There are few records of ectoparasites from river otters (*Lutra canadensis*) in North America. Kim and Emerson (1974) described a new genus of sucking louse (*Latagophthirus rauschi*) from river otters in Oregon (USA). Eley (1977) collected two ticks (*Ixodes uriae*) from a river otter in California (USA). *Ixodes banksi*, a tick that commonly parasitizes beavers and muskrats, and *Ixodes cookei*, a tick that typically parasitizes medium-sized mammals that frequent earthen dens, have been reported from river otters in Michigan (Lawrence et al., 1965) and Alabama (USA) (Cooney and Hays, 1972), respectively. The United States National Tick Collection (Institute of Arthropodology and Parasitology, Georgia Southern University, Statesboro, Georgia 30460, USA) contains specimens of *Amblyomma americanum*, *Dermacentor variabilis* and *Ixodes cookei* from otters collected in Florida (USA) and *Ixodes banksi* obtained from otters in northeastern Pennsylvania. We were unable to find literature citations of river otters serving as hosts for fleas.

The relatively infrequent occurrence of ectoparasitism of river otters has been attributed to their semi-aquatic existence and grooming habits (Park, 1971). However, because river otters have suffered population declines (Nilsson, 1980), maintain

low population densities (Melquist and Hornocker, 1983) and are difficult to live-trap (Melquist and Hornocker, 1979), few opportunities have been available to study ectoparasitism in native river otter populations.

In Pennsylvania, river otter populations declined throughout much of their historic range (Rhoads, 1903) and became limited to northeastern counties in the state (Eveland, 1978). From 1981 to 1985, 23 otters were livetrapped from a segment of the northeastern population (40°45' to 41°30'N, 74°40' to 75°40'W) as part of the Pennsylvania River Otter Reintroduction Program (Serfass et al., 1986). Each livetrapped otter was immobilized at the capture site with an injection of 22 mg/kg ketamine hydrochloride (Ketaset®, Bristol Laboratories, Syracuse, New York 13201, USA) and processed prior to transport to holding facilities (Serfass, 1984). Immobilized otters were examined for evidence of ectoparasites by parting their fur throughout cephalic and cervical regions and at the base of the tail. While in captivity, otters were again immobilized and reexamined for ectoparasites as part of an overall veterinary examination. Although protected in Pennsylvania since 1952, otters are sometimes caught during trapping seasons for legal furbearers. As a result, we had the opportunity to examine two female otters that were accidentally caught in leg-hold traps by trappers during 1981. Both trapper-caught otters were in poor health and died shortly after we received them. We examined their carcasses for ectoparasites immediately after death.

Ectoparasites were detected on only one of 23 livetrapped otters, but occurred on both trapper-caught otters (Table 1). The ectoparasites were species of a flea (*Or-*

TABLE 1. Ectoparasites collected from river otters in northeastern Pennsylvania.

Otter number <sup>a</sup>	Date trapped	Location	Ectoparasite (sex/age class) <sup>b</sup>
2-81	3/13/81	Pike County, Milford, Sawkill Creek	<i>Ixodes cookei</i> (2F)
4F	11/23/81	Monroe County, Brod-headsville, McMichael Creek	<i>Oropsylla arctomys</i> (4M, 2F)
7-81	11/28/81	Monroe County, Brod-headsville, McMichael Creek	<i>Ixodes cookei</i> (1F, 1N, 1L) Flea <sup>c</sup>

<sup>a</sup> Otters 2-81 and 7-81 were caught by trappers (trapper-caught) and otter 4F was livetrapped by project investigators.

<sup>b</sup> M, male; F, female; N, nymph; L, larva.

<sup>c</sup> Fleas were observed emerging from carcass shortly after otter's death, but escaped collection.

*opsylla arctomys*) and a tick (*Ixodes cookei*) (Table 1).

Because of the otter's dense underfur, we suspect presence of fleas and smaller ticks frequently may remain undetected by gross external examination of the pelage. During our investigation, ectoparasites collected were first observed on the outer pelage of host otters. Ectoparasites were easily detected on guard hairs as they withdrew from trapper-caught otters as the carcasses cooled. A similar pattern of flea emergence was observed on livetrapped otter 4F (Table 1). Hypothermia is reported to occur in otters immobilized with ketamine hydrochloride (Hoover and Jones, 1986) and may have been responsible for withdrawal of ectoparasites from this otter.

All ectoparasites collected during this investigation were from female otters. Because female otters occupy smaller home ranges than males and are more likely to frequent established dens (Melquist and Hornocker, 1983), they may be more vulnerable to contracting and maintaining an ectoparasite infestation. *Oropsylla arctomys* is common on woodchucks (*Marmota monax*) in Pennsylvania (Holland and Benton, 1968) and will parasitize other mammals that use woodchuck burrows as denning or resting sites. River otters occasionally use woodchuck burrows occurring in riparian areas as den sites and may

have acquired the flea in this manner. A wide range of mammalian species have been identified as hosts to *I. cookei* in eastern North America (Ko, 1972). Because riparian habitats frequently support large and diverse mammal populations (Kirkland and Serfass, 1989), otters probably have frequent opportunities to contract *I. cookei* as well as other ectoparasites while denning or traveling along wetlands.

Results of this study probably do not reflect frequencies or patterns of ectoparasite occurrence on otters in northeastern Pennsylvania. Both trapper-caught otters were females and opportunity to examine them shortly after death appears to have enhanced our ability to detect ectoparasites. We believe more intensive collection procedures are required to adequately evaluate occurrence of ectoparasites on wild otters. Administration of topical or systemic insecticides (e.g., ivermectin, Hoover et al., 1985) and subsequent confinement to facilitate collection of dying or withdrawing ectoparasites may be a more effective method of evaluating occurrence of ectoparasites on live-trapped river otters.

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