A R T I C L E

NEW HOST RECORDS OF TICKS (ACARINA; IXODIDAE) PARASITIZING THE RIVER OTTER (*Lutra canadensis*)

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Abstract: The occurrence of *Ixodes cookei* and *Amblyomma americanum* constitute new host records for *Lutra canadensis* and the subfamily Lutrinae.

Keywords: *Lutra canadensis*, ticks, ixododae

INTRODUCTION

Present-day Arkansas has been known for its infestations of ticks since the early 1800's. Early naturalist Thomas Nuttall (1821, p. 151) wrote in 1819 in Arkansas territory near the Red River that the woods "were now disgustingly infested with ticks..." Lancaster (1973) did the only intensive study of the ticks inhabiting Arkansas mammals and birds. Although Lancaster reported on 35 species of native and naturalized mammals, he omitted the river otter (*Lutra canadensis*). This semi-aquatic mustelid has one of the largest distributions of any North American mammal (Anderson, 1977), yet few specimens have been collected. Most of the specimens that have been received by researchers were previously skinned and could not be examined for ectoparasites (Chanin, 1985). No study has been done determining the occurrence of ticks on an adequate sample of indigenous river otters. The literature of the ticks and other ectoparasites of the other members of the subfamily Lutrinae is modest and is in obscure publications. The purpose of the present study is: 1) to determine the occurrence of ticks and other ectoparasites on Arkansas river otters, 2) to summarize the literature on the occurrence of ticks and other ectoparasites on otters (subfamily: Lutrinae), and 3) to compare the tick assemblage of otters to other mustelids plus other furbearing mammals which occur in Arkansas wetlands.

MATERIALS AND METHODS

A total of 24 river otters was obtained from fur buyers and trappers in Arkansas (trapped in December, January, February, March, April, and June). Specimen donators were requested to put their otter specimens in a plastic bag after trapping and to freeze them. The author thawed them and brushed the pelt in both directions (i.e. with the grain of the fur and against) onto a light-colored piece of paper or plastic bag in order to dislodge ectoparasites. Small recesses and other likely areas (e.g. pinnae, muzzle, groin, and axilla) were examined carefully for the presence of ectoparasites. All ectoparasites were collected and preserved in 70% ethyl alcohol. Numbers of each ectoparasite species per otter, location of ectoparasites on host, sex of ectoparasite, and collection locality, host sex, and collection date of host were recorded. Specimens were identified with the aid of keys by Cooley and Kohls (1945) and Lancaster (1973).

RESULTS

The pelage of 24 unskinned otter specimens yielded a total of 10 ticks from 5 otters. No other macro- or micro-ectoparasites were found. Small mites may have easily been overlooked. Two species of ticks were represented; the Lone star tick (*Amblyomma americanum*) and the hard tick (*Ixodes cookei*). Table 1 lists the collection data.

Ticks occurred on both male and female otters collected in January, February, and April in areas such as the pinnae, muzzle, lip, and groin where the pelage is less dense and skin is more highly vascularized. Ticks came from river otters captured in the West Gulf Coastal Plain and the Ouachita Mountain Natural Divisions, areas in Arkansas that have the highest density of otters (Polechla, 1987). No suitable specimens from the Mississippi Alluvial Plain, Ozark Mountain, and Crowley's Ridge Natural Divisions were available for inspection.

DISCUSSION

These occurrences of *Ixodes cookei* and *Amblyomma americanum* constitute new host records for *Lutra canadensis* and the subfamily Lutrinae. Prior to this study only seven species of ectoparasites have been identified from otters (Table 2). Most authors (Stephens, 1957; Johnson et al., 1967; Harris, 1968; Kenyon, 1969) have regarded ectoparasites to be very rare due to the otters' aquatic behavior. However, the lustrous guard hairs and wool hairs are very dense (Peterson, 1914) and create a dead air space that effectively keeps the base of the pelage and skin dry (Tarasoff, 1972, 1974). This provides a suitable microhabitat for ticks, mites, a fleas, and marine sucking lice. When otters periodically surface for a breath of air, the parasitic arthropods are given an opportunity for gaseous exchange. Two factors may explain the low infestation rate usually found on otters. Otters in their vigilant grooming may rid themselves of many ectoparasites.

Some of the ticks found on otters have been found on other mustelids and wetland furbearing mammals. *Ixodes cookei* has been found on other furbearing mammals species occurring in wetlands with river otters (e.g. raccoons (*Procyon lotor*) and opossums (*Didelphis virginiana*) and other mustelids (e.g. badgers (*Taxidea taxus*), long-tailed weasels (*Mustela frenata*), spotted skunks (*Spilogale putorius*), and striped skunks (*Mephitis mephitis*) (Lowery, 1974; Mumford and Whitaker, 1982; Rabinowitz, 1983). *Ixodes hexagonus* has been reported from the long-tailed weasels, minks (*Mustela vison*), and striped skunks (Lowery, 1974). *Amblyomma americanum* is very common in Arkansas and has been found on 16 native and domestic mammals (Lancaster, 1973) including the mustelid, the striped skunk (Lancaster, 1973; Lowery, 1974). Nuttall (1821, p. 130) wrote that after he had taken a collecting trip that he "picked off my skin and clothes more than 50 ticks (*Acarus sangisugas*) which are here more abundant and trouble some than in any part of America which I have been yet." The old specific name, *Acarus sangisugas* is synonymous with *Amblyomma americanum*.

Otters may contract ticks by making contact with conspecifics, other mammals, infested substrate, vegetation, and bedding materials. Prime sites for transfer of ticks to otters would be along wildlife trails, otter rolling sites, or beaver lodges. Otters may be important in transporting ticks across large rivers and other bodies of water.

Table 1. Collection data of ectoparasites from river otters (*Lutra canadensis*) from Arkansas

Taxa	No. of Specimens	Tick Sex*	RML No.†	Location of Ticks on Host	PJP No§	Host Sex	Collection Location	Collection Date	Method of Capture
Amblyomma americanum	1	M	117912	Pinnae	1263	M	Ouachita R., 8 mi. W. Vick, sec. 21, R10W, T16S, Bradley Co., Arkansas	5 April 1983	330 Conibear Trap
"	1	N	117912	Muzzle	"	"	"	"	"
"	1	M	117913	Lip	"	"	"	"	"
"	1	F	117913	Lip	"	"	"	"	"
"	2	N	117914	Groin	1274	"	1 mi. S. +15 mi. E. Waldo NW 1/4 sec. 22, R21W, T16S, Columbia Co., Arkansas	9 February 1983	Road Kill
Ixodes cookei	2	F	117911	Unknown	1303	"	Black Branch, 150 yds. Upstream of Deceiper Creek, 9.5 mi. E + 3 mi. N. Gurdon SW 1/4 of SW 1/4 of sec. 8, R18W, T9S, Clark Co., Arkansas	28 January – 3 February 1984	330 Conibear Trap
Unknown Ixodidae	1	U		Unknown	1390	F	Poteau River, Waldron, SW 1/4, sec. 17, R29W, T3N, Scott Co., Arkansas	18 January 1984	"
"	1	U		Pinnae	1243	F	Unspecifed Location, Arkansas	January 1983	Leg Hold Trap

* N = Nymph, U = Unidentified Sex, M = Male, F = Female
† RML No = Rocky Mountains Laboratory Number
§ PJP No = Paul J. Polechla Number

Table 2. Previously published accounts of otter (sub-family Lutrinae) ectoparasite species reported at various localities

Taxonomic Groups	Locality	Author (Data)
Class:Arachnidaie		
Order: Acarina		
Family: Listrophoridae - mites		
Lutracarus canadensis	Southeastern Alaska	Fain & Yunker (1980)
Lynxacarus mustelae	Southeastern Alaska	Fain & Yunker (1980)
Family: Halarachnidae – marine water mites		
*Halarachne miraungae**	Amchitka Is., Alaska	Kenyon (1965)
Family: Ixodiae – hard ticks		
Ixodes uriae	Humboldt County, CA	Eley (1977)
Ixodes hexagonus **	Louisiana	Lowery (1974)
Unidentified taxa †	Africa	Harris (1968)
Unidentified taxa §	British Isles	Stephens (1957)
Unidentified taxa ††	Veracruz, Mexico	Hall & Dalquest (1967)
Class: Insecta		
Order: Anoplura		
Family: Echinophthiriidae – Marine sucking lice		
Latagophthirus rauschi	Coos Co., Oregon	Kim & Emerson (1974)
Order: Siponaptera		
Family: Vermipsyllidae – carnovire fleas		
Chaetopsylla floridensis	Katlian Bay, Alaska	Hass et al (1978)

* These mites were reported on the sea otter (*Enhydra lutris*)

† This unidentified tick was reported on the African clawless otter (*Aonyx capensis halios*)

§ These unidentified ticks were reported on the Eurasian Otter (*Lutra lutra*). All other ectoparasites were reported on *Lutra canadensis.*

†† This unidentified "large black tick" was reported on the Neotropical otter (*Lutra longicaudis*)

** Keirans & Clifford (1978) synonomized *I. hexagonus* with *I. cookei*

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