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New tick-host records (Acari: Ixodidae) from Mississippi, U.S.A.

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Abstract

Thirty-five specimens of at least five tick species—*Amblyomma americanum*, *Dermacentor variabilis*, *Haemaphysalis leporispalustris*, *Ixodes cookei* and *Ixodes scapularis*—were collected from eight mammal species in Rankin County, Mississippi, U.S.A. All are new county records. Three collections of *D. variabilis* from the eastern mole, *Scalopus aquaticus*, constitute the first report of tick collections anywhere in Mississippi from a mole.

Key words: Ixodidae, host records, Mississippi

Introduction

Hard ticks (Acari: Ixodidae) are of significant medical and veterinary importance, being vectors of many diseases and maladies, such as Rocky Mountain spotted fever, Lyme disease, ehrlichiosis, anaplasmosis, tick-borne encephalitis, babesiosis, and tick paralysis (Goddard 2008). Knowledge of species present in a given area and their hosts is important to physicians, veterinarians, wildlife biologists, and owners of livestock. Previous studies have documented tick species present in Mississippi (Rhodes & Norment 1979, Jackson & Goddard 1995, Goddard 2006, Goddard & Layton 2006, Goddard & Piesman 2006) and the disease agents associated with them (Stricklin 1975, Norment *et al.* 1985, Goddard & Norment 1986, Goddard *et al.* 2003, Goddard & Varela-Stokes 2009, Castellaw *et al.* 2010). This paper presents new distributional and host records for hard ticks (Ixodidae) in the State of Mississippi, U.S.A.

Methods

From November 17, 2008 until December 20, 2010, ticks were removed from dead mammals captured by the second author's cat and also from road kill, in Rankin County, central Mississippi. Animals were first carefully examined for attached ectoparasites, then their fur was vigorously combed over a white enamel pan partially filled with ethanol. Tick specimens were retrieved, preserved in ethanol and/or mounted on microscope slides, and subsequently identified by the third author (RGR). Voucher specimens of 19 ticks were deposited in the Mississippi Entomological Museum, Mississippi State University, accession numbers 80-2a through 80-2n, and 16 specimens were returned to the second author's collection.

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Results and discussion

Thirty-five larval, nymphal, or adult ticks of at least five species were collected from 13 mammals representing eight species (Table 1). Due to damage or poor preservation, a few specimens could only be identified to genus level. Although these are new county records, adult *Ixodes scapularis* Say from bobcat, *Lynx rufus*, and gray fox, *Urocyon cinereoargenteus*, are to be expected (Cooley & Kohls 1945), as are larval and nymphal *Dermacentor variabilis* (Say) from the pine vole, *Microtus pinetorum*, and an undetermined deer mouse, *Peromyscus* sp. (Cooley 1938), as well as *Haemaphysalis leporispalustris* (Packard) from the cottontail rabbit, *Sylvilagus floridanus* (Cooley 1946). Interestingly, the *Ixodes* females removed from the cottontail rabbit were not *Ixodes dentatus* Marx, but, on the basis of hypostomal dentition (Keirans & Clifford 1978), resembled *Ixodes minor* Neumann. Five nymphal *Ixodes cookei* Packard were collected from a single striped skunk, *Mephitis mephitis*, on February 2, 2010, and these also constitute a new county record. Previously, *I. cookei* had only been collected from Clay and Oktibbeha Counties in the northern third of the state (Goddard 2006). The *Ixodes* specimens collected from our second raccoon, *Procyon lotor*, were probably *I. cookei*, but they could not be positively identified. Five *D. variabilis* larvae collected from three individuals of the eastern mole, *Scalopus aquaticus*, do not represent a new host association (Bishopp & Trembley 1945), but this is the first report of tick collections anywhere in Mississippi from a mole.

TABLE 1. Ticks removed from mammals, Rankin County, Mississippi, 2008–2010.

Host	Date	Tick species and no.	Accession no.
Raccoon 1, *Procyon lotor*	17 Nov 2008	*Dermacentor variabilis* 4L*	80-2m
Raccoon 2, *Procyon lotor*	15 Oct 2009	*Amblyomma americanum* 1L	80-2n
		Ixodes sp. 2L	--
		Ixodes sp. 1N	--
Raccoon 3, *Procyon lotor*	29 Jan 2010	*Ixodes* sp. 4L	80-2l
Mouse, *Peromyscus* sp.	15 Jan 2010	*Dermacentor variabilis* 1L	--
Cottontail rabbit, *Sylvilagus floridanus*	7 Feb 2010	*Haemaphysalis leporispalustris* 2F	80-2j
		Ixodes sp. (not *I. dentatus*) 2F	80-2f
		Dermacentor variabilis 2L	80-2g
Gray fox, *Urocyon cinereoargenteus*	22 Jan 2010	*Ixodes scapularis* 2M	80-2e
Bobcat, *Lynx rufus*	26 Jan 2010	*Ixodes scapularis* 1M	80-2k
Striped skunk, *Mephitis mephitis*	2 Feb 2010	*Ixodes cookei* 5N	80-2h; 80-2a
Eastern mole 1, *Scalopus aquaticus*	15 Sep 2009	*Dermacentor variabilis* 1L	--
Eastern mole 2, *Scalopus aquaticus*	20 Jan 2010	*Dermacentor variabilis* 2L	80-2i
Eastern mole 3, *Scalopus aquaticus*	5 Feb 2010	*Dermacentor variabilis* 2L	80-2d
Pine vole 1, *Microtus pinetorum*	10 Nov 2010	*Dermacentor variabilis* 2L	80-2c
Pine vole 2, *Microtus pinetorum*	20 Dec 2010	*Dermacentor variabilis* 1N	80-2b

*L = larva, N = nymph, F = female, M = male

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