

Correspondence

New tick (Acari: Ixodidae) records from a mink, *Neovison vison* (Schreber), in Mississippi, U.S.A.JEROME GODDARD¹, LAWRENCE BIRCHAM,² & RICHARD G. ROBBINS³¹Department of Biochemistry, Molecular Biology, Entomology and Plant Pathology, 100 Twelve Lane, Clay Lyle Entomology, Mississippi State University, Mississippi State, MS 39762, U.S.A. E-mail: jgoddard@entomology.msstate.edu²220 Martin Drive South, Brandon, MS 39042 U.S.A.³Armed Forces Pest Management Board, Office of the Deputy Under Secretary of Defense for Installations and Environment, Building 172, U.S. Army Garrison Forest Glen, Silver Spring, MD 20910, U.S.A.**Abstract**

Forty-two specimens of three tick species – *Dermacentor albipictus*, *D. variabilis*, and *Ixodes cookei* – were collected from a single road-killed male American mink, *Neovison vison*, in Leake County, Mississippi, U.S.A. The *D. albipictus* and *I. cookei* collections are new county records. This is the first report of tick collections anywhere in Mississippi from a mink.

Key words: Ixodidae, ticks, host records, American mink, Mississippi

Introduction

Knowledge of tick species present in a given area and their hosts is important to physicians, veterinarians, wildlife biologists, and owners of livestock due to the diseases they transmit, as well as nuisance effects from their bites (Goddard 2008). There have been several studies documenting tick species present in Mississippi (Rhodes & Norment 1979, Jackson & Goddard 1995, Goddard 2006, Goddard & Layton 2006, Goddard & Piesman 2006, Goddard *et al.* 2011) 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). The American mink, *Neovison vison* (Schreber), occurs in Mississippi but is rarely encountered. The key tick-host papers (Banks 1908, Cooley 1938, Bishopp & Trembley 1945, Cooley & Kohls 1945) report no specimens taken from mink in Mississippi. This paper presents new records for three hard tick species (Ixodidae) found on a mink in the State of Mississippi, U.S.A.

Methods

On February 5, 2012 a male mink was found dead (road killed) in Leake County, near Walnut Grove, central Mississippi. The animal was first carefully visually examined for attached ticks, then its 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 each species were deposited in the Mississippi Entomological Museum, Mississippi State University, accession numbers 80-2o through 80-2q, and 1 specimen (the *D. albipictus* discussed below) was returned to the second author's private

collection. On March 13, 2012, a literature search of Dialog, LLC, and Ovid Technologies, Inc., databases, comprising Agricola, Biosis, CAB Abstracts, Medline, and the Zoological Record, revealed no records of ticks from the American mink in Mississippi.

Results and discussion

Forty-two larval, nymphal, or adult ticks of three species were collected from the mink specimen (Table 1). Larval *Dermacentor variabilis* (Say) have often been reported from many small- to medium-sized mammals (Cooley 1938), so our finding of that species on mink might be expected. One male, 3 females, 19 nymphs, and 15 larvae of *Ixodes cookei* Packard were collected from the mink specimen, constituting new county and host records for Mississippi. Previously, *I. cookei* had only been collected from Clay, Oktibbeha, and Rankin Counties in the northern half of the state (Goddard 2006, Goddard *et al.* 2011). However, *I. cookei* previously has been reported from mink in other states (Bishopp & Trembley 1945, Cooley & Kohls 1945). *Dermacentor albipictus* (Packard) is a relatively rare tick in Mississippi, with only a few collections from the central and southern counties (USDA 1978, Goddard & Layton 2006), and none from small mammals such as mink.

TABLE 1. New tick records from a mink, Leake County, Mississippi, 2012.

Host	Date	Tick species and no.	Accession no.
American mink, <i>Neovison vison</i>	5 Feb 2012	<i>Dermacentor variabilis</i> 3L*	80-2o
		<i>D. albipictus</i> 1M	
		<i>Ixodes cookei</i> 1M	
		<i>I. cookei</i> 3F	80-2p
		<i>I. cookei</i> 19N	80-2q
		<i>I. cookei</i> 15L	

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

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References

- Banks, N. (1908) A revision of the Ixodoidea, or ticks, of the United States. *USDA Bureau of Entomology Technical Series* No. 15, 1–61.
- Bishopp, F.C. & Trembley, H.L. (1945) Distribution and hosts of certain North American ticks. *Journal of Parasitology*, 31, 1–54.
- Castellaw, A.H., Showers, J., Goddard, J., Cheney, E. & Varela-Stokes, A.S. (2010) Detection of vector-borne agents in lone star ticks, *Amblyomma americanum*, from Mississippi. *Journal of Medical Entomology*, 47, 473–476.
- Cooley, R.A. (1938) The genera *Dermacentor* and *Otocentor* in the United States, with studies in variation. *U.S. National Institute of Health Bulletin* No. 171, 1–89.

- Cooley, R. A. & Kohls, G.M. (1945) The genus *Ixodes* in North America. *U.S. National Institute of Health Bulletin No.* 184, 1–246.
- Goddard, J. (2006) An annotated list of the ticks (Ixodidae and Argasidae) of Mississippi. *Journal of Vector Ecology*, 31, 206–209.
- Goddard, J. (2008) *Infectious Diseases and Arthropods*. Humana Press (Springer), Totowa, NJ.
- Goddard, J. & Norment, B.R. (1986) Spotted fever group rickettsiae in the lone star tick. *Journal of Medical Entomology*, 23, 465–472.
- Goddard, J. & Layton, M.B. (2006) A Guide to Ticks of Mississippi. *Mississippi Agriculture and Forestry Experiment Station, Mississippi State University, Bulletin No.* 1150, 1–17.
- Goddard, J. & Piesman, J. (2006) New records of immature *Ixodes scapularis* from Mississippi. *Journal of Vector Ecology*, 31, 421–422.
- Goddard, J. & Varela-Stokes, A.S. (2009) The discovery and pursuit of American boutonneuse fever: a new spotted fever group rickettsia. *Midsouth Entomologist*, 2, 47–52.
- Goddard, J., Bircham, L. & Robbins, R.G. (2011) New tick-host records from Mississippi. *Systematic and Applied Acarology*, 16, 212–214.
- Goddard, J., Sumner, J.W., Nicholson, W.L., Paddock, C.D., Shen, J. & Piesman, J. (2003) Survey of ticks collected in Mississippi for *Rickettsia*, *Ehrlichia*, and *Borrelia* species. *Journal of Vector Ecology*, 28, 184–189.
- Jackson, L.A. & Goddard, J. (1995) New state records for ticks in Mississippi. *Journal of the Kansas Entomology Society*, 68, 119–120.
- Norment, B.R., Stricklin, L.R. & Burgdorfer, W. (1985) Rickettsia-like organisms in ticks and antibodies to spotted fever-group rickettsiae in mammals from northern Mississippi. *Journal of Wildlife Diseases*, 21, 125–131.
- Rhodes, A.R. & Norment, B.R. (1979) Hosts of *Rhipicephalus sanguineus* in northern Mississippi. *Journal of Medical Entomology*, 16, 488–492.
- Stricklin, L.S. (1975) Tick and rickettsial infections of mammals in Marshall County, Mississippi, M.S. Thesis, Entomology Department, Mississippi State University, Starkville, MS, 31 pp.
- USDA (1978) Winter tick in Mississippi - new state record. *USDA Cooperative Pest Report*, 3 (9), 69.

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