

Observations on questing activity of adult Gulf Coast ticks, *Amblyomma maculatum* Koch (Acari: Ixodidae), in Mississippi, U.S.A.

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Abstract

During August of 2008 and 2009, observations were made on the questing heights, behaviors, and spatial distribution of adult Gulf Coast ticks, *Amblyomma maculatum*, in a plot near Gautier, Jackson County, Mississippi, U.S.A. Ticks were not evenly distributed in the plot, being found mostly on torpedograss and/or wiregrass along and in a small dirt field road. Adult ticks were visually observed questing on three different plants: torpedograss, *Panicum repens*, wiregrass, *Aristida stricta*, and Johnsongrass, *Sorghum halepense*, all but the last of which have small-diameter stems and thin, pointed leaves. Ticks were located at or near the tips of the plants (2-tail binomial probability, $p = 0.0074$). Observed questing heights ranged from 20–75 cm, with an average of 36 cm. Nine of 15 ticks (60%) seen questing were oriented head upward, while 6 (40%) were head-down. Limited mark-release-recapture observations were made in the study site, using ticks collected from the field road. Of 27 ticks marked and released, 15 were recaptured in three samples spanning a 24-d period. Of these, 5 had moved closer to the dirt road where they were originally captured and 2 farther away.

Key words: Gulf Coast tick, *Amblyomma maculatum*, questing behavior, Mississippi

Introduction

The Gulf Coast tick (GCT), *Amblyomma maculatum* Koch (Acari: Ixodidae), is a large and aggressive tick species occurring from parts of South America northward into the United States, where it commonly may be found along the southern Atlantic and Gulf coasts from North Carolina to Texas (Bishopp & Hixson 1936; Cooley & Kohls 1944; Bishopp & Trembley 1945). There are also occasional reports of the species from inland and northern states (Goddard & Norment 1983; Snoddy & Cooney 1984), and a well-established population occurs in Oklahoma and Kansas (Semtner & Hair 1973). Recently, the GCT has emerged as an arthropod of increasing medical and veterinary importance, being known to transmit *Rickettsia parkeri* to humans, causing a condition sometimes called “American boutonneuse fever” (Goddard 2004; Paddock *et al.* 2004), the protozoan *Hepatozoon americanum* to dogs (Ewing & Panciera 2003), and potentially the agent of heartwater, *Ehrlichia ruminantium*, to ruminants (Uilenberg *et al.* 1982).

GCT thrive in coastal uplands and tall-grass prairies, where the immature stages feed on a variety of birds and small rodents and adults feed on large mammals, such as cattle and deer (Bishopp & Hixson 1936; Cooley & Kohls 1944; Bishopp & Trembley 1945). High populations of GCT have been reported from coastal Mississippi, with *R. parkeri* infection rates as high as 40% (Paddock *et al.* 2010). Ticks use at least two strategies for locating potential targets for blood meals, namely ambush and hunter strategies (Sonenshine 2005). Ambush strategy involves “questing” by climbing onto the tips of vegetation to wait for passing hosts, while hunter strategy (*e.g.*, some of the large,