

## **Evaluation of *Amblyomma americanum* vector competence for *Anaplasma marginale***

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Bovine anaplasmosis is a tick-transmitted, production-limiting disease and a major obstacle to profitable beef cattle production in the United States. Changes in climate, ecosystems, and increases in animal transport have contributed to the expansion of various disease-transmitting tick species, including the Lone Star Tick (LST) (*Amblyomma americanum*), a species now commonly found on cattle. The intracellular rickettsial pathogen and agent of anaplasmosis, *Anaplasma marginale* (*Am*), is primarily transmitted by *Dermacentor* tick species in the U.S. The role of LST in the transmission of bovine anaplasmosis is currently unknown; however, the frequency of LST infestation on cattle warrants examination into whether LST contributes to *Am* transmission. The objective of this study was to examine the vector competence of LST for *Am* using a combination of field-surveillance and controlled laboratory transmission experiments. For the field-surveillance component, host-seeking LST were collected from a pasture used by a cattle herd naturally-endemic for *Am* and tested for *Am* using real-time PCR. The vector competence of LST for *Am* was specifically evaluated by comparing the ability of two geographically-distinct LST strains to acquire and transmit *Am* compared to a known *Am* vector, *Dermacentor variabilis*, using an experimental tick-calf *Am* transmission model. The *Am* bacterial levels were monitored throughout the transmission process in calf blood and tick midgut and salivary gland tissues to specifically track *Am*. The results will provide a combination of field and laboratory evidence to illuminate the potential LST contribution to *Am* transmission in the U.S., information which will influence disease management strategies.

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