

William J. Lechel, II
Memorial Scholarship
Student Paper Competition
February 7, 2007

Winner

Sarah Anne Hamer, MSU

Degree Program: Doctor of Philosophy, Fisheries and Wildlife Department,
Graduate Specialization in Wildlife Disease Ecology and Conservation Medicine;
Dual Degree in Ecology, Evolutionary Biology and Behavior.

Presentation Title

Invasive Blacklegged Ticks in Lower Michigan are Involved in Complex
Transmission Cycles With Multiple Zoonotic Pathogens

Abstract

Ixodes scapularis, the blacklegged tick, is endemic to a local area of Michigan's Upper Peninsula and is currently invading the southwestern Lower Peninsula. Until blacklegged ticks became established in southwestern Michigan approximately five years ago, human and canine risk of *I. scapularis*-borne disease, including Lyme borreliosis, anaplasmosis, and babesiosis, was confined to *I. scapularis*-endemic areas. In spring of 2006, we collected questing adult *I. scapularis* from three sites within the invasion zone and two sites within the endemic zone to assay for three classes of zoonotic pathogens. Ticks from both invaded and endemic foci were infected with *Borrelia burgdorferi*, *Anaplasma phagocytophilum* and *Babesia odocoilei*-the latter two of which have not previously been identified in this state. Single and coincident infection rates were greater in ticks from endemic foci than recently-invaded foci. These results will be presented with highlights of our ongoing research on the blacklegged tick invasion, including recent evidence for cryptic cycling of *B. burgdorferi* within wildlife reservoirs and alternative tick species. This study emphasizes the need for heightened awareness for tick-borne disease among human and veterinary health professionals throughout Michigan.