

Article

Observations on the seasonality of *Ixodes scapularis* Say in Mississippi, U.S.A.

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Abstract

To assess the seasonality of adult and immature *Ixodes scapularis* ticks, weekly collections were made year-round with a drag cloth at two 0.5 ha sites in northern Mississippi. One hundred and four collection attempts were made between August 1, 2010 and July 31, 2011, and a total of 256 adult and 6 nymphal *I. scapularis* were collected from the sites. From Wall Doxey State Park near the Tennessee state line, 233 adult ticks were collected, whereas only 23 were collected from Noxubee National Wildlife Refuge (NWR), which is located approximately 350 km southeast of that point. Three nymphal *I. scapularis* were collected from each collecting site, and no larval *I. scapularis* were collected at either site. The first adult *I. scapularis* was collected on October 19, 2010 at Wall Doxey Park, while at Noxubee NWR the first adult *I. scapularis* was collected 3 days later (October 21, 2010). The last adults were collected on April 3, 2011 at Noxubee NWR and on May 25, 2011 at Wall Doxey Park. Most adults were caught during March (97 adults, 37.9% of all *I. scapularis* collected), and no adults were collected from June through mid-October. The first *I. scapularis* nymph was collected on August 2, 2010 at Wall Doxey Park. Two more nymphs were collected (one each) at Noxubee NWR on September 3, 2010 and September 16, 2010. Another nymph was collected on March 14, 2011 at Noxubee NWR, then two more on May 17, 2011 at Wall Doxey Park. Statistical analyses showed no significant correlation between vapor pressure deficit (VPD) and number of adult ticks collected, or temperature and VPD combined and number of adult ticks collected.

Key words: *Ixodes scapularis*, sampling, seasonality, Mississippi

Introduction

The blacklegged tick, *Ixodes scapularis* Say, is a North American hematophagous ectoparasite capable of transmitting several pathogens of medical significance to a wide variety of vertebrate hosts, including humans. In the United States, *I. scapularis* is a known vector of *Borrelia burgdorferi*, *Babesia microti* and *Anaplasma phagocytophilum*, the causative agents of Lyme disease, babesiosis, and human granulocytic anaplasmosis, respectively (Wallis *et al.* 1978, Anderson 1989, Dumler 2011, Telford *et al.* 2011). These pathogens are maintained in a sylvatic cycle and humans acquire them via the bite of an infected *I. scapularis*, so to minimize human-tick interaction and exposure to disease agents, it is very important to understand the relative abundance and seasonality of all life stages of this tick species in a given region (Mackay & Foil 2005).

Primarily as a result of Lyme disease, the seasonality and life cycle of *I. scapularis* have been well studied in the northeastern and central U.S.; however, less is known about the biology of this tick in the southern U.S. (Clark *et al.* 2002, Goddard 1992, 1993, Oliver 1993, Mackay & Foil 2005, Goddard & Piesman 2006). For example, in a 10-year survey of human-biting ticks in Mississippi, *I. scapularis* was responsible for 9.2% of reported human tick bites, making it the fourth most