



Survey of Indiana Deer for *Ixodes scapularis* Ticks: 2000 Final Report



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Introduction

The purpose of the Survey of Indiana Deer for *Ixodes scapularis* Ticks is to gather data and report annually on the expanding geographic distribution of *I. scapularis*, the blacklegged tick, in Indiana. The results of the 2000 survey are reported here. We hope that this information will be helpful to state and local health officials and also to health care providers who are often asked to estimate the risk of exposure to this important Lyme disease vector.

The Public Health Entomology Lab (PHEL) at Ball State University has coordinated annual surveys of hunter harvested deer since 1990. Passive and active surveillance activities are conducted in cooperation with faculty and students from several Indiana universities, representatives of the Indiana State Department of Health (ISDH), several local health departments, and the Indiana Department of Natural Resources (IDNR). This report describes the surveillance procedures and summarizes the data collected in this the 11th year of the survey.

Methods

In September 2000, a letter describing the survey of hunter harvested deer for ticks was sent to each of the 381 official deer check stations listed in the 2000-2001 Indiana Hunting and Trapping Guide published by the IDNR's Division of Fish and Wildlife. The letters encouraged individuals involved with checking and weighing deer to send any ticks found to our lab for identification. A "Ticks Wanted" poster was included with each letter to raise awareness on the part of deer check station operators and hunters about ticks encountered on deer. Approximately one week later, a tick mailing kit containing a vial and data sheet was sent to each check station to

enable operators to return any ticks found to the PHEL.

In addition to contacting the official deer check stations of Indiana, an effort was made to involve local health departments in each county of Indiana. In October, a letter and a tick mailing kit were sent to each of the 92 county health departments in Indiana. The letter described the annual survey and encouraged environmental health specialists to visit local deer check stations to check deer during the opening weekend of firearm season (November 18 and 19, 2000). A "Ticks Wanted" poster was also included with each letter. To support this effort, Dr. Michael J. Sinsko, Senior Medical Entomologist of the ISDH, composed a letter of encouragement which also accompanied the materials from the PHEL. These processes constituted the passive surveillance portion of the survey.

Twenty-one deer check stations in 21 counties were selected for active surveillance during the 2000 firearm season. The majority of this surveillance occurred on November 18 and 19, 2000, the opening weekend of firearm season. These dates were chosen in order to maximize the number of deer examined at each site. Volunteers also examined deer during special hunts at Camp Atterbury and Jefferson Proving Ground. Permission to examine deer at stations located on state properties was obtained from IDNR. Permission to examine deer at privately owned stations was obtained from local owners.

Twenty-four volunteers participated in the active inspection of hunter harvested deer at Indiana deer check stations (Table 1). Participants received written guidelines for examining deer for ticks and data forms on which to record the number of deer examined, the county in which the deer were killed, and the number of ticks found.

Any ticks removed from the deer were stored in small plastic vials. The vials and data forms were then sent or carried to the PHEL at Ball State University for review and identification of ticks.

Results

A total of 771 deer from 58 counties were examined at 21 check stations where active surveillance took place. In addition several ticks were submitted in the tick mailing kits that were sent to each check station (passive surveillance). A total of 32 *I. scapularis* ticks were found on 28 (3.63%) of the 771 deer examined. These ticks were collected from deer harvested in Boone, Clay, Fountain, Greene, Hamilton, Howard, Jasper, Jennings, LaPorte, Marshall, Montgomery, Newton, Pulaski, Ripley, Starke, and St. Joseph. These sixteen counties can be seen in Figure 1. Ticks were found on deer in Greene, Howard, Jennings, Marshall, Ripley and St. Joseph Counties for the first time.

This year, in most cases, only a single tick was removed from each deer. The exception was Marshall County, where both infested deer had more than one tick.

Figure 2 depicts the counties in which at least one deer has been positive for *I. scapularis* since the annual survey began in 1990. With the addition of the six new counties mentioned above, the number of Indiana counties from which *I. scapularis* ticks have been found on deer has increased to 35 (Fig. 2). It is important to note that this distribution does not include *I. scapularis* ticks sent into our lab from other hosts, such as humans or dogs. For example, in 2000, for the first time we received one *I. scapularis* collected from a human from Hendricks County. At the conclusion of the 2000 Survey, the total number of Indiana counties from which at least one *I. scapularis* tick has ever been recorded stands at 53.

None of *I. scapularis* ticks collected from deer in 2000 were tested for Lyme disease. However, since this program began in 1990, our lab has detected spirochetes in ticks from four northwestern Indiana counties: Jasper, Newton, Porter, and Pulaski counties.

Discussion

The 2000 survey of Indiana hunter-harvested deer for *I. scapularis* ticks, while smaller in scope than the 1999 survey, nonetheless produced some interesting results. The total number of deer examined was smaller, but ticks were found on deer from six new counties, confirming the view that the *I. scapularis* tick population is extending its range in Indiana. Although active surveillance of hunter-harvested deer at check stations is limited by the availability of volunteers, it has continued to provide useful information about the expanding range of *I. scapularis* in Indiana.

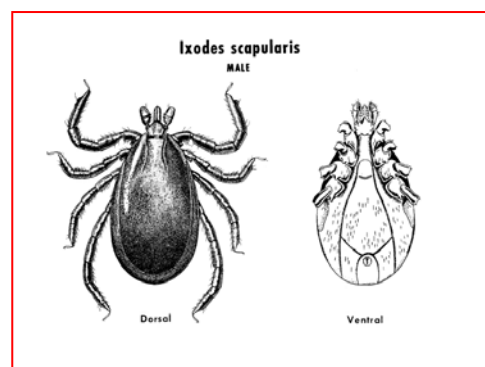
Acknowledgments

We extend our thanks to all who participated in the survey, including all of those whose names appear in Table 1. We especially thank Drs. Tom Morrell and Kamal Islam of Ball State University who encouraged students in the Ball State University Wildlife Society to participate in this study.

Special thanks also goes to Dave Spitznagle at Willow Slough FWA in Newton County, who has diligently conducted surveillance on *I. scapularis* ticks for many years. We also thank Dr. Michael Sinsko, Vivie Dunn, Brad Foster, and Keri Karris of the Indiana State Department of Health for their many years of help on this annual survey.

This report will be made available on line from the PHEL web site at:

<http://www.bsu.edu/csh/phs/phel.html>



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Table 1. Deer Check Stations and Participants, 2000

County	Deer Check Station	Date	Participants
Boone	Big R Store	11/18/00	Pat Minnick Boone County Health Department
Cass	Young America/Simpson's	11/18/00	J. Vest Cass County Health Department
Clay	Shakaak StatePare	11/30/00	Steve Siscoe IDNR
Crawford	Eckerty Corners	11/18/00	John Castrale- IDNR
Daviess	Jones and Sons Viking	11/18/00	Josh Griffin
Dearborn	The Getting Place	11/19/00	Ed Guljas BSU-TWS
Decatur	Day Nite Food Mart	11/19/00	Darin Fry BSU-TWS
Franklin	52 – Pick-up	11/18/00	Tamara Gross & Amy Tagela- BSU-TWS
Hamilton	Schwartz's Bait & Tackle	11/18/00 11/19/00	Alisha DeWitt & Bart Renner – Mark Burch
Howard	Bryant's Outdoor Store	11/18/00	Charity Myers Howard County Health Department
Jay	Portland Fire Department	11/19/00	Bob and Tom Pinger –BSU
Jefferson	Jefferson Proving Ground	11/28/00	Tamara Gross-BSU-TWS
Johnson	Atterbury	11/28/00	John Bonsett Johnson Co.unty Health Dept.
Knox	Siever's Custom Processing	11/18/00	G.R. Rees Knox County Health Department
Kosciusco	Albertson's Sport Shop	11/18/00	Tara E. Still
Marshall	Totem Pole	11/18/00	Keri Karris -ISDH
Montgomery	South Boulevard Bait Shop	11/19/00	Toni Britton –BSU TWA
Newton	Willow Slough FWA	Various	Dave Spitznagle
Pike	Serbert's Bait Shop	11/12/00	Mike Houglan
Union	Frames Outdoor Sports	11/18/99	J. Chris Rennaker -BSU-TWS Fresia Steiner, -BSU Ali Seddighzadeh, -BSU

BSU: Ball State University
 BSU-TWS: Ball State University-
 The Wildlife Society
 IDNR: Ind. Dept. of Natural Resources
 ISDH: Indiana State Department of Health

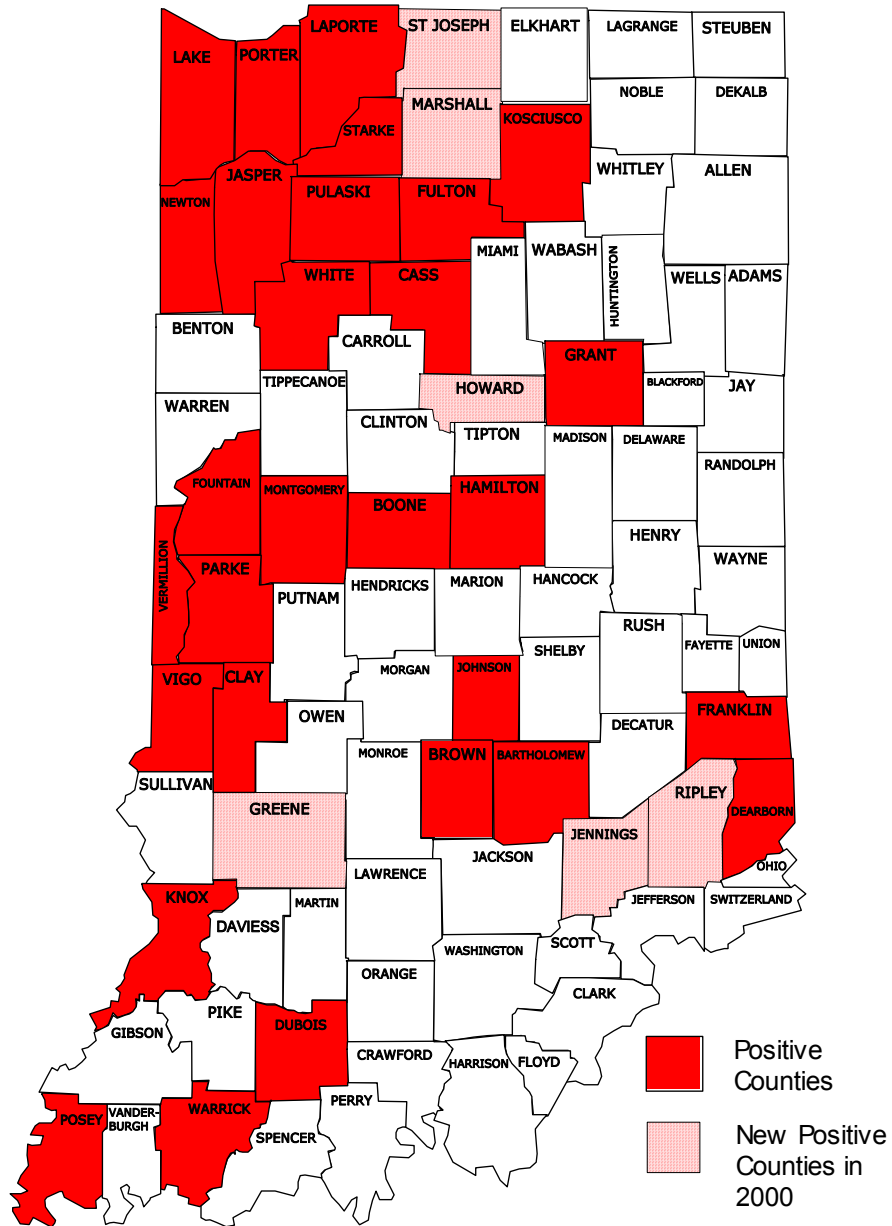


Fig. 2 Indiana Counties with at Least One Deer Positive for *Ixodes scapularis* Ticks, 1990-2000