



## Survey of Indiana Deer for *Ixodes scapularis* Ticks: 2001 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 2001 survey are reported here. We hope that this information will be helpful to state and local health officials and 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 the faculty and students from several Indiana universities, and 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 2001, the 12<sup>th</sup> year of the survey.

### Methods

In September 2001, a letter describing the survey of hunter harvested deer for ticks was sent to each of the 378 official deer check stations listed in the 2001-2002 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 our interest in receiving 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 Public Health Entomology Lab.

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 local health department 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 17 and 18, 2001). 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.

Deer check stations in 16 counties were selected for active surveillance during the 2001 firearm season. The majority of this surveillance occurred on November 17 and 18, 2001, 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 Indiana Dunes State Park and Versailles State Park. 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.

Forty 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 Public Health Entomology Lab at Ball State University for review

and identification of ticks.

## Results

A total of 508 deer from 30 counties were examined at 16 check stations where active surveillance took place. In addition several ticks were submitted in the tick mailing kits sent to each check station (passive surveillance). A total of 98 *I. scapularis* ticks were recovered from 45 (8.9%) of the 508 deer examined. These ticks were collected from deer harvested in Cass, Fulton, Greene, Jasper, Johnson, Monroe, Pulaski, Porter, Starke, and Franklin counties. These ten counties are shaded in Figure 1. Ticks were found on deer in Monroe County for the first time.

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 one new county mentioned above, the number of Indiana counties from which *I. scapularis* ticks have been found on deer has increased to 36 (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 2001, for the first time we received one *I. scapularis* each from Owen and Putnam Counties. At the conclusion of the 2001 Survey, the total number of Indiana counties from which at least one *I. scapularis* tick has ever been recorded stands at 56.

None of *I. scapularis* ticks collected from deer in 2001 were tested for Lyme disease. However, since this program began in 1990, our lab has detected spirochetes in ticks from five northwestern Indiana counties: Jasper, Newton, Porter, Pulaski and St. Joseph counties.

## Discussion

Although fewer deer were examined in the 2001 Survey, the percentage of deer that were discovered to be infested with blacklegged ticks was higher (8.9%) than in 2000 (3.68%). The fact that blacklegged ticks were reported from three new counties in 2001 supports 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

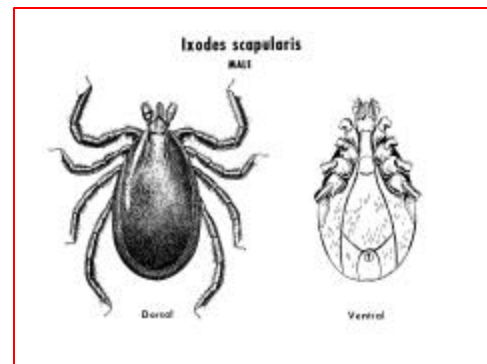
useful information about the expanding range of *I. scapularis* in Indiana.

## Acknowledgments

I extend my thanks to all who participated in the survey, including all of those whose names appear in Table 1. I 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. I 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. Finally, I thank April Nelson who helped produce this report.

This report is available on-line from the Public Health Entomology Lab web site at: <http://www.bsu.edu/csh/phs/phel.html>



**Table 1. Deer Check Stations and Participants, 2001**

<b>County</b>	<b>Deer Check Station</b>	<b>Date</b>	<b>Participants</b>
Decatur	Day-Nite Food Mart	11/18/01	K. Rosh-BSU
Franklin	52 Pick-up	11/17/01	C. Whitney, C. Patrick-BSU
Hamilton	Schwartz's Bait & Tackle	11/17/01	B. Schaefer, M. Fincel, S. Kistler-BSU; Dan Walker-HCHD
Hamilton	Schwartz's Bait & Tackle	11/18/01	D. Walker-HCHD
Henry	Marsh's Processing	11/17/01	A. Duff, G. Slagle, Z. Walker-BSU
Howard County	Bryant's Outdoor Store	11/17/01	M. Arvin and C. Myers-Howard County HD
Jasper/Pulaski	Jasper-Pulaski FWA	11/17/01	R. Pinger, A. Kanochuk, D. Church, A., R. Furness, S. Gardner
Jay	Portland Fire Department	11/17/01	E. Wood, M. Comingore, S. Keevil, M. Abbott, B. Pagac-BSU
Jennings	Herr's Sporting Goods	11/17/01	J. Marshall-BSU
Lawrence		11/17/01	A. Fetty
Monroe	Buddy Bill's Bait Barn	11/18/01	J. Bertram-BSU
Porter	Indiana Dunes State Park	11/20/01	A. Seddighzadeh-BSU
Pulaski	Winamac FWA	11/17/01	A. Seddighzadeh, K. Burnside, J. Rennaker, C. Steven
Ripley	Versailles State Park	11/19/01	V. Dunn & M. Carr-ISDH; D. Baer & J. Grace-Dearborn Co. HD; P. Thomas & A. Bryant-Ripley Co. HD
Sullivan	Trotter Sports Center	11/17/01	M. Van Sant-BSU
Switzerland	T-J Market	11/17/01	
Union	Frame's Outdoor Supply	11/17/01	A. Taylor, J. Young, E. Albers, K. Salle-BSU

BSU: Ball State University  
 IDNR: Ind. Dept. of Natural Resources  
 ISDH: Indiana State Department of Health  
 - - HD: County Health Department

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