

## Michigan Tick Identification and Testing Program: 2018 Summary

Michigan Department of Health & Human Services (MDHHS)

Emerging & Zoonotic Infectious Disease Section (EZID)

### Introduction

The Michigan Tick Identification and Testing Program allows citizens, local health departments, and healthcare providers to submit ticks for identification by tick experts at the MDHHS EZID Section. The program also allows for the testing of blacklegged ticks for Lyme disease if the ticks are submitted alive and were removed off a person. The results of the identifications and testing allow Michigan healthcare providers to make informed medical follow-up decisions. It may also provide piece of mind in many cases where people think that they have been bitten by a Lyme disease vector, and EZID tick experts determine the species is not a vector. It may also help residents to make appropriate tick-bite prevention decisions. In addition, the data generated through the program allows EZID staff to follow-up with field investigations in cases where vector ticks are submitted from regions where blacklegged ticks have not been previously documented. Instructions for submission, and an order form for free, pre-assembled tick submission kits are available at [www.michigan.gov/lyme](http://www.michigan.gov/lyme).

In 2018, EZID staff assembled and mailed over 1500 submission kits, and identified approximately 900 submitted ticks. A new program for 2018 “[Got a Tick, Submit a Pic](#)” also accounted for an additional 160 ticks identified. As shown in Figure 1, 2017 and 2018 have seen significant increases in the number of ticks submitted to the program with over 1,000 ticks submitted each year. From 1999-2016 tick submissions to the program averaged 382 ticks per year.

The increase in tick submissions during 2017 and 2018 is likely due to several factors, including but not limited to:

- Increased promotion of the Tick Identification and Testing Program to local health departments, human and animal healthcare providers
- Increased media attention to the expansion of the blacklegged tick, and increasing Lyme disease incidence in Michigan
- Ease of submitting pictures of ticks via MDHHS-Bugs@michigan.gov
- Blacklegged tick populations expanding geographically
- Climate and habitat increasingly suitable for ticks in Michigan
- Increased opportunity for exposure, either peridomestic or through recreation

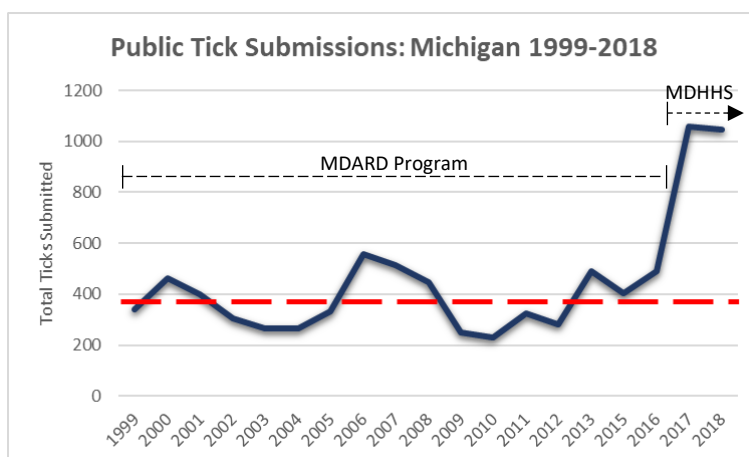


Figure 1. Number of ticks submitted to the Michigan Tick Identification and Testing Program from 1999-2018. From 1999-2016 the program was administered by the Michigan Department of Agriculture and Rural Development, MDHHS assumed responsibility for the program beginning in 2017.

### Species Summary - Abundance

In 2018, the two most common ticks submitted by the public were the American dog tick (*Dermacentor variabilis*) and the blacklegged tick (*Ixodes scapularis*). American dog ticks accounted for 65% of all ticks submitted, and the blacklegged tick accounted for 32% of ticks submitted. A summary of the five most common species in Michigan and their associated pathogens can be seen at the following [link](#). While much attention is being paid to the blacklegged tick and its emerging role as a Lyme disease vector in Michigan, the apparent increase in ticks seen through the Tick Submission Program in 2017 and 2018 shows proportional increases in both major species. The historic rates of tick submissions for these two species can be seen in Figure 2.

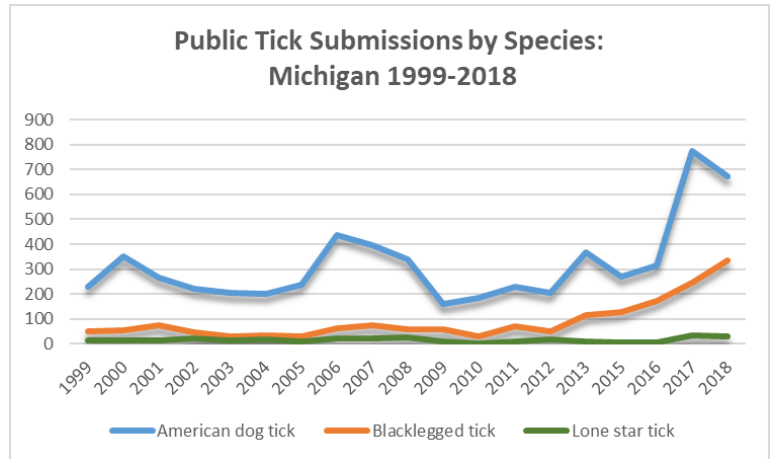


Figure 2. Public tick submissions by tick species from 1999-2018.

### Species Summary – Seasonal Activity

Based upon the collection dates of American dog ticks and blacklegged ticks submitted to the EZID Section, a general seasonal activity chart was produced. Figure 3 illustrates the seasonal periods of increased risk for contacting these species in Michigan. Adult American dog ticks (the only stage readily found on people) emerge in early-Spring, peaking in the early-Summer, and are generally gone by August. Blacklegged ticks show a similar Spring-Summer peak with both adults and nymphs readily feeding on people. However, there is an additional Autumn peak of blacklegged tick adults that emerges in early-October and will be present until temperatures fall below 40 degrees consistently.

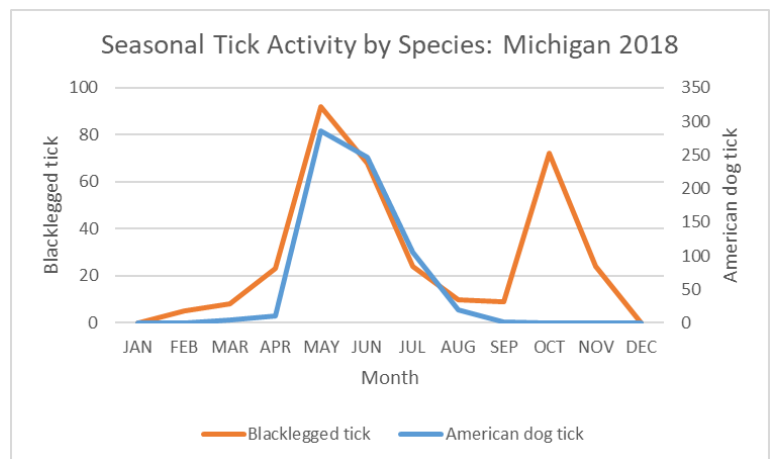


Figure 3. Seasonal tick activity for blacklegged ticks (orange) and American dog ticks (blue) in 2018.

### Geographic Extent of Ticks and Lyme Disease

Table 1 details the number of ticks, by species, submitted to MDHHS from exposures in each Michigan county. To view a map of tick submissions in Michigan, click [here](#). For the most current Michigan Lyme Disease Risk map, click [here](#).

Table 1 – Top three tick species submitted for identification (and picture identification) to MDHHS EZID Section by county in 2018.

COUNTY	LONE STAR TICK	AMERICAN DOG TICK	BLACKLEGGED TICK	TOTAL TICKS	COUNTY	LONE STAR TICK	AMERICAN DOG TICK	BLACKLEGGED TICK	TOTAL TICKS
ALCONA	0	1	5	6	LAKE	0	3	0	3
ALGER	0	1	1	2	LAPEER	0	3 (3)	2	5 (3)
ALLEGAN	0	7 (2)	13	20 (2)	LEELANAU	0	1 (1)	10 (1)	11 (2)
ALPENA	0	5 (1)	0	5 (1)	LENAWEE	1	8 (8)	1	10 (8)
ANTRIM	0	0 (1)	0	0 (1)	LIVINGSTON	1	58 (5)	16	75 (5)
ARENAC	0	3	0 (1)	3 (1)	LUCE	0	4 (1)	0	4 (1)
BARAGA	0	0	0 (2)	0 (2)	MACKINAC	0	3	0	3
BARRY	0	4	7	11	MACOMB	2	22 (8)	1	25 (8)
BAY	0	1	0	1	MANISTEE	0	3	7 (3)	10 (3)
BENZIE	0	5 (1)	5	10 (1)	MARQUETTE	0	4	6 (1)	10 (1)
BERRIEN	0	2	7 (3)	9 (3)	MASON	0	2 (2)	4 (1)	6 (3)
BRANCH	0	0	0	0	MECOSTA	0	3	1	4
CALHOUN	0	5	2 (1)	7 (1)	MENOMINEE	0	1	1	2
CASS	0	1 (1)	0	1 (1)	MIDLAND	0	3	4 (1)	7 (1)
CHARLEVOIX	0	3 (1)	3	6 (1)	MISSAUKEE	0	5	1	6
CHEBOYGAN	0	9 (4)	1	10 (4)	MONROE	0	16	2	18
CHIPPEWA	0	1 (2)	0	1 (2)	MONTCALM	0	1	3	4
CLARE	0	4	0	4	MONTMORENCY	0	3	0	3
CLINTON	0	12	5	17	MUSKEGON	1	5 (1)	3 (2)	9 (3)
CRAWFORD	0	4 (1)	0	4 (1)	NEWAYGO	0	2 (3)	0	2 (3)
DELTA	0	1	2	3	OAKLAND	3	56 (17)	12 (1)	71 (18)
DICKINSON	0	1	42	43	OCEANA	0	2	3 (1)	5 (1)
EATON	0	7 (3)	0	7 (3)	OGEMAW	0	7 (1)	1	8 (1)
EMMET	0	2	0	2	ONTONAGON	0	1	1	2
GENESEE	1	14 (3)	1	16 (3)	OSCEOLA	0	6	1	7
GLADWIN	0	5 (1)	0 (1)	5 (2)	OSCODA	0	3	0	3
GOGEBIC	0	0 (1)	0	0 (1)	OTSEGO	0	7	0	7
GRAND TRAVERSE	0	3	5	8	OTTAWA	0	17 (3)	19 (1)	36 (4)
GRATIOT	0	1 (1)	1	2 (1)	PRESQUE ISLE	0	2	1	3
HILLSDALE	2	1	0	3	ROSCOMMON	0	2	0	2
HOUGHTON	0	1	1	2	SAGINAW	0	9 (2)	1 (1)	10 (3)
HURON	0	1	2	3	SANILAC	0	1	2	3
INGHAM	0	16 (1)	10 (1)	26 (2)	SCHOOLCRAFT	0	2 (1)	3	5 (1)
IONIA	0	6	0	6	SHIAWASSEE	1	8	4	13
IOSCO	0	6	4	10	ST. CLAIR	0	7 (2)	0	7 (2)
IRON	0	0 (1)	1	1 (1)	ST. JOSEPH	0	1	4	5
ISABELLA	0	1 (1)	0	1 (1)	TUSCOLA	0	1 (1)	0	1 (1)
JACKSON	0	13	5	18	VAN BUREN	1	1	1	3
KALAMAZOO	0	5	21 (1)	26 (1)	WASHTENAW	0	55 (19)	25 (6)	80 (25)
KALKASKA	1	1	0	2	WAYNE	0	32 (7)	1	33 (7)
KENT	0 (1)	21 (5)	9 (1)	30 (7)	WEXFORD	0	3 (1)	2	5 (1)
KEWEENAW	0	0	0	0	<b>GRAND TOTAL</b>	<b>14 (3)</b>	<b>547 (120)</b>	<b>296 (29)</b>	<b>857 (153)</b>