

Understanding the risk of ticks and tick-borne diseases in Alaska

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Why do we care about ticks?



Tick-borne diseases



Rocky Mountain spotted fever is classically characterized by an multiple spots around the location of the tick bite.



Tularemia is characterized by an 'orange' appearance around the location of the tick bite.



Lyme disease is classically characterized by a 'bull's-eye' type rash.



Dermaacentor albipictus (Winter tick or Moose tick)



Adult Female



Adult Male

Ticks That Can Carry Lyme Disease Are Spreading Across the US

By Mindy Weisberger January 21, 2016 Health



Ticks Becoming Endemic In Iceland

Published May 29, 2014

Radio Sweden

Your best source of news from Sweden


▶ Rising number of people picking up TBE-infection

2:34 min  [My playlist](#)  [Share](#)

Published tisdag 20 augusti kl 11.25

A record number of Swedes are taking the vaccine against TBE - Tick Borne Encephalitis. But the disease is still spreading in the country.

Evidence for increasing densities and geographic ranges of tick species of public health significance other than *Ixodes scapularis* in Québec, Canada

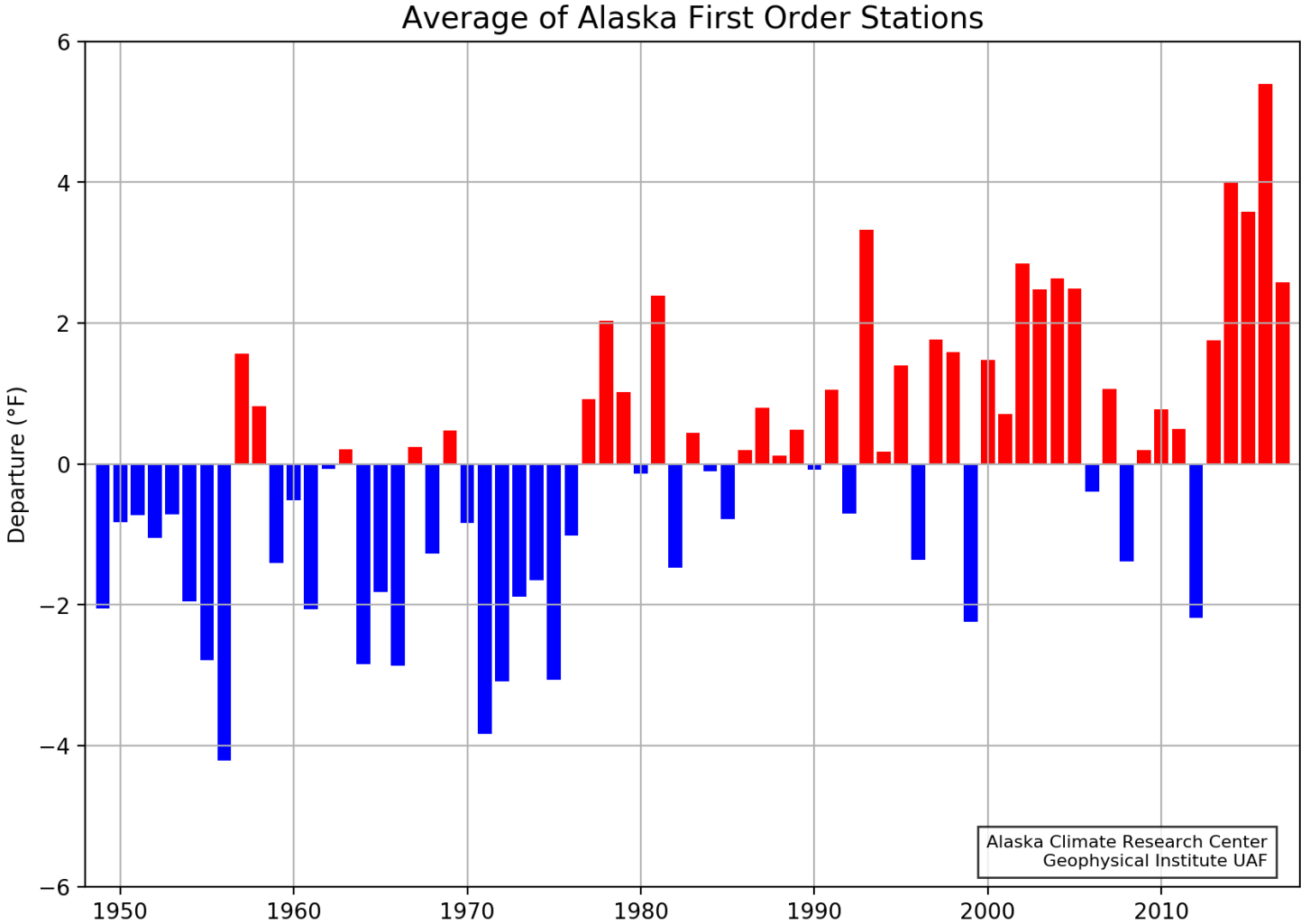
Salima Gasmî, Catherine Bouchard, Nicholas H. Ogden, Ariane Adam-Poupart, Yann Pelcat, Erin E. Rees, François Milord, Patrick A. Leighton, Robbin L. Lindsay, Jules K. Koffi, Karine Thivierge 

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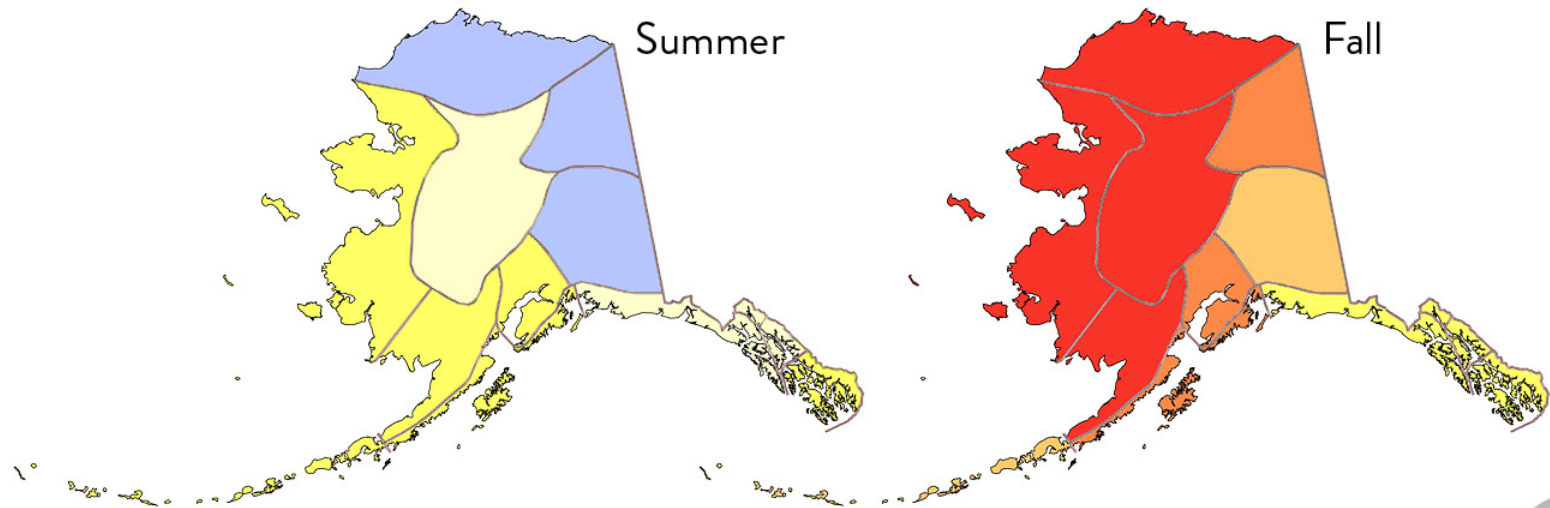
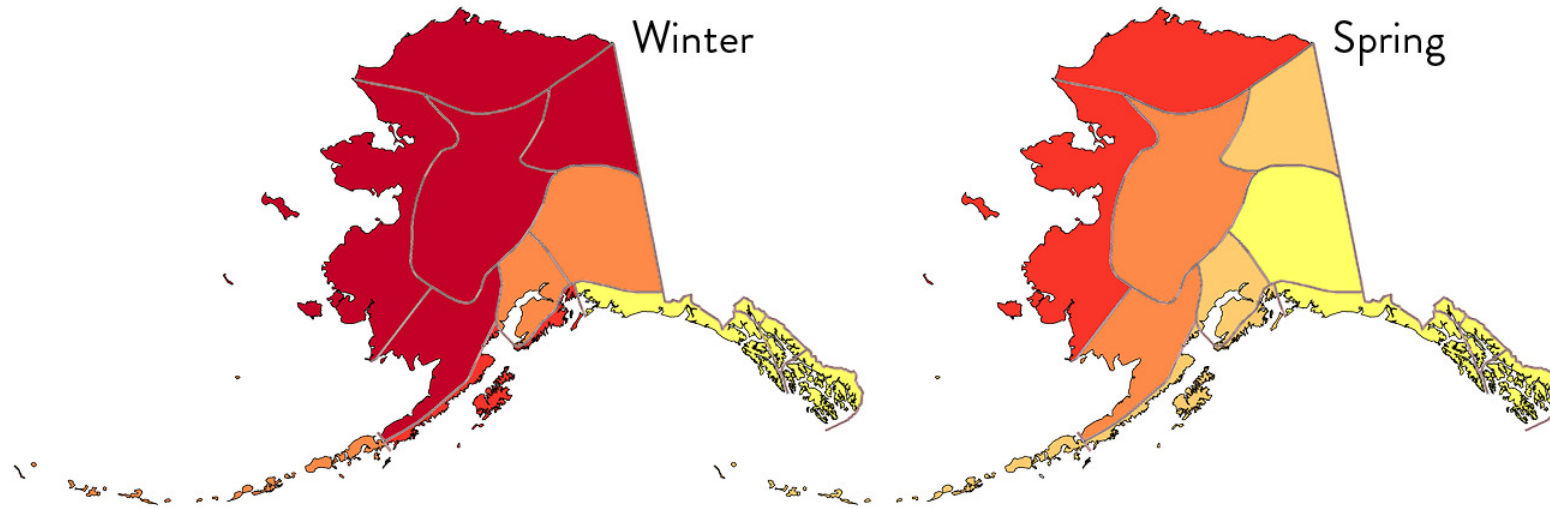
Why do we care about ticks in Alaska?

Mean annual air temperature, departure from normal (base: 1949-2017)

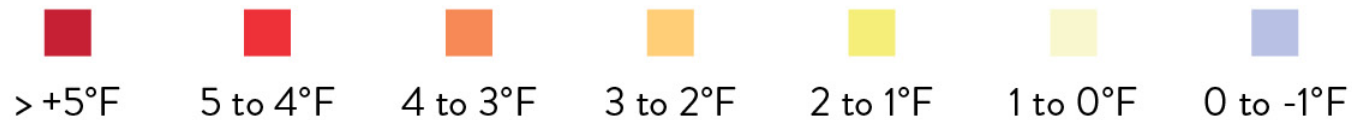


It's getting warmer in Alaska.

Alaska average seasonal temperatures, 2014–2018



Credit:
Rick Thoman,
Alaska Center
for Climate
Assessment
and Policy.
Data source:
NOAA/NCEI





Ticks are sensitive to climate and weather

- Minimum winter temperature
- Maximum summer temperature
- Humidity and precipitation

Goal of our research



What is the risk of ticks and tick-borne diseases in Alaska?

Methods

- Gather old tick data
- Collect new tick data
- Pathogen testing
- Habitat suitability modeling

Historical data sources

6 “native” tick species in Alaska



Haemaphysalis leporispalustris
(hare / rabbit tick)



Ixodes angustus
(squirrel / vole tick)



Ixodes auritulus
Ixodes howelli
(bird ticks)



Ixodes signatus
Ixodes uriae
(seabird ticks)



“Non-native” tick
species in Alaska

Potential sources of non-native tick importation

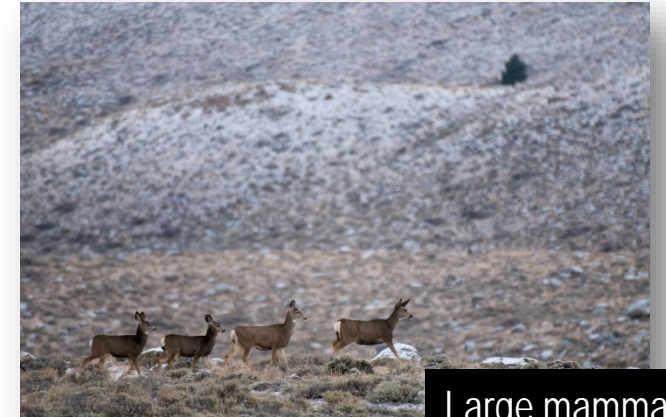
People and pet travel



Bird migration



Mammal movement



Large mammal



Small mammal

Alaska Submit-A-Tick Program

The public may contribute to this project by submitting ticks found on themselves, their pets, or in their personal effects.

Tick submission locations: *Office of the State Veterinarian, veterinarian, local ADFG office, local public health clinic*

Option for submitter to receive tick identification results



Dermacentor andersoni



You Are Here: [DEC](#) / [EH](#) / [Vet](#) / [Information On Ticks](#)

INFORMATION ON TICKS

Ticks are common in many parts of the world, including Alaska. They live by feeding on the blood of other animals. Some infected ticks can transmit pathogens (bacteria or viruses that cause disease). Non-infected ticks do not spread pathogens, but some kinds of ticks can cause anemia (blood loss) on a single animal from feeding on it if the tick population gets too large.

Some species of ticks bite (feed) on humans. In the contiguous United States, there are several different human-biting ticks. Not all of these tick species have been found in Alaska, but it is important that we are aware of these ticks. Alaskans could bring these ticks back with them when they travel to other parts of the United States. Similarly, it is important to be aware of ticks that have been found in [British Columbia, Canada](#) because of its proximity to Alaska.

TICKS IN ALASKA

Alaska is home to six native tick species, or ticks that have historically been found in the state. These native ticks generally feed on squirrels, rabbits, other small wild mammals, and birds. However, it is not uncommon to find these ticks feeding on moose, dogs, or cats. In rare cases, they may be found on humans. These six native tick species are as follows:

SCIENTIFIC NAME

COMMON NAME

QUICK LINKS

[TICKBORNE DISEASES](#)

[TICK REMOVAL](#)

[TICK IDENTIFICATION](#)

[SUBMIT-A-TICK PROGRAM](#)

[ALASKA TICK SURVEILLANCE RESULTS](#)

[TICK OUTREACH MATERIALS](#)



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Tick Submission Form

Recent passive surveillance efforts in Alaska have revealed that non-native ticks – some with significant medical and veterinary importance – are present in the state. This pilot project, a collaboration with the University of Alaska, the Alaska Department of Fish and Game, and the Office of the State Veterinarian, aims to better understand the risk of ticks and tick-borne pathogens in Alaska. The personal information collected on this form and the ticks that are submitted will be used for the surveillance of ticks in Alaska. Lab testing is most effective on fresh samples, so we ask that you send in your submissions as quickly as possible. Individuals interested in the final testing results of submitted specimens should select that option within the submitter information section and receive an official update in 4-6 months.

Complete this form and include it with your tick specimen

Date: _____

Method of submission: Mail Alaska Department of Fish and Game: _____ Veterinarian: _____

Instructions for tick submission

- Place the tick into a clean small plastic or metal container (i.e., vial or small pill bottle) with a damp cotton ball or paper towel.
- Place the bag into an envelope or small box.
- Complete the *submitter information* section of this form and mail it with the tick to the Office of the State Veterinarian: **5251 Dr. Martin Luther King Jr. Drive, Anchorage 99507**

OR

Deliver (both the form and tick) to a local Alaska Department of Fish and Game office

Find your nearest ADF&G office here:
<http://www.adfg.alaska.gov/index.cfm?adfg=contacts.main>

OFFICE USE ONLY

Sample #: _____
Date Received: _____
Date Entered: _____
Identified as: _____
Notification Date: _____

Thank you for your submission. We will contact the submitter for more information, if needed.

Submitter information

Date the tick was collected: _____

Describe the geographic location where tick exposure likely occurred (landmarks, GPS coordinates, address, zip code etc.):

Traveled outside Alaska in the past two weeks? No Yes, where?

Approximate dates of travel? Leave _____ Return _____

Activity when the tick was acquired:

Hiking Dog walking Gardening Camping Other: _____

Tick was found on:

Human Dog Cat Other animal: _____

If the tick was found on a person or an animal, was the tick attached (feeding)? No Yes

Personal information (optional)

Name _____

Phone _____

E-mail _____

Would you like to receive testing results? No Yes

If needed, may we contact you for more information? No Yes

Submit-A-Tick // Form

Where do you think you got the tick?

Did you find the tick on yourself, your pet, wildlife...?

Have you traveled outside of Alaska in the past two weeks?

Have you traveled inside Alaska in the past two weeks?

DO WE HAVE TICKS IN ALASKA?



YES! Alaska is home to several kinds of ticks. Recently, several new kinds of ticks have been found on people and pets in the state. We need your help to learn more!

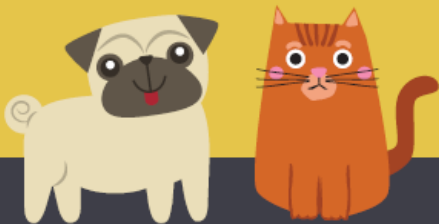
HOW CAN YOU HELP KEEP YOUR PETS AND FAMILY SAFE?

Learn how to identify ticks and search for them on yourself, your pets, and wildlife.

If traveling out of state with your pet, ask your veterinarian about tick and flea prevention.

If you find a tick, SUBMIT IT!

1. Put the tick in a clean container.
2. Download and fill out the Submit-A-Tick form from the website below.
3. Mail to the Office of the State Veterinarian.



Learn more about ticks in Alaska and the Alaska Submit-A-Tick Program

Questions?
Email alaskaticks@alaska.edu

www.dec.alaska.gov/eh/vet/ticks



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WE ARE ON THE HUNT FOR TICKS!



Alaska is home to several kinds of ticks. Recently, several new kinds of ticks have been found on people and pets in the state. We need your help to learn more!

HOW CAN YOU HELP PROTECT YOUR FAMILY, PETS, AND WILDLIFE?



Check the ears, neck, jaw line, eyes, and feet of hunted animals for ticks.



Comb through the mammal's fur with your fingers to find ticks.

If you find a tick, SUBMIT IT!

1. Put the tick in a clean container.
2. Download and fill out the Submit-A-Tick form from the website below.
3. Mail to the Office of the State Veterinarian.

Learn more about ticks in Alaska and the Alaska Submit-A-Tick Program

Questions?
Email alaskaticks@alaska.edu

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TICKS IN ALASKA

Ticks are common in many parts of the world, including Alaska. However -

several new tick species have been found in Alaska. Many of these new tick species bite humans and domestic and wild animals and are capable of transmitting diseases.

What are we doing to monitor ticks in Alaska?

The University of Alaska is working with the Alaska Department of Fish and Game and the Office of the State Veterinarian to monitor ticks and tick-borne diseases in Alaska. Monitoring provides information about the risk of tick exposure in Alaska and helps identify where in the state ticks are present.

Anyone can contribute to ongoing efforts by submitting found ticks through the Alaska Submit-A-Tick program.

For more information, visit: <http://dec.alaska.gov/eh/vet/ticks>

TICK-all-the-boxes

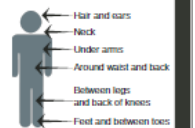
- Learn how to identify ticks and how to search for them on yourself, your pet, and wildlife.
- Traveling with your pet? Talk to your vet about whether you should consider using flea or tick prevention. And remember to check your pet for ticks before returning home.
- Take appropriate precautions when traveling outside of Alaska: know where to expect ticks; take steps to avoid contact with ticks; treat clothing and gear; and use EPA-registered insect repellents.

SAFE TICK REMOVAL



- Use fine-tipped tweezers to grasp the tick as close to the skin's surface as possible.
- Pull upward with steady, even pressure. Avoid twisting or jerking the tick.
- After removing the tick, clean the bite area and your hands with rubbing alcohol, or soap and water.
- Place the tick in a clean sealed bag or container, and submit it through the Alaska Submit-A-Tick Program.

CHECK FOR TICKS



Find a tick? Submit it!

[Reverse for details](#)



SUBMITTING A TICK

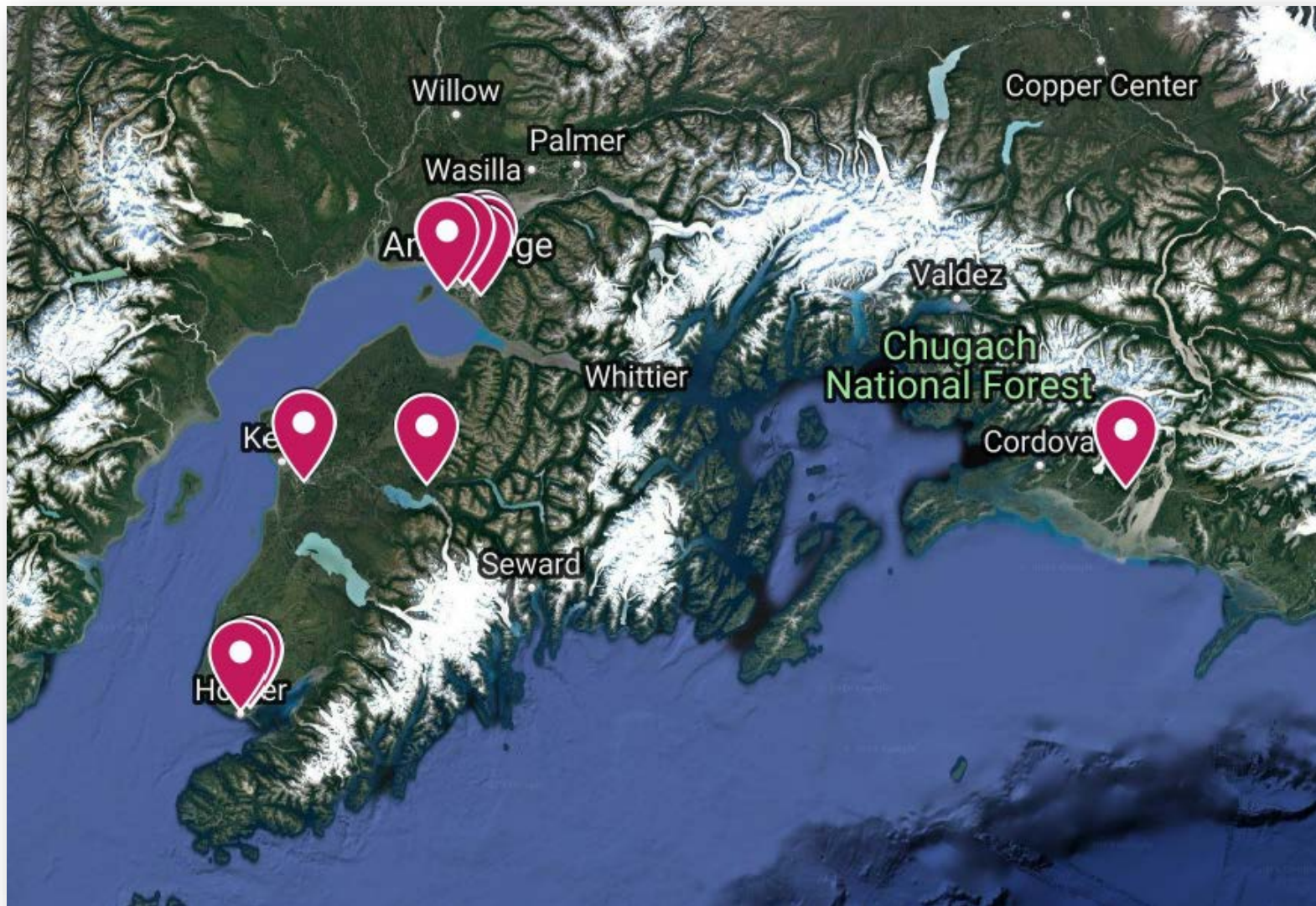


Active surveillance (i.e. Field work!)

Sampling technique // Tick dragging

- 10 sites in Southcentral Alaska
- Every two weeks between mid-May and September 2019
- Timed to overlap with tick seasonal activity

2019 tick sampling sites



(A few) 2019 tick sampling sites



Far North
Bicentennial Park
Anchorage



Centennial Park
Soldotna



University Lake
Anchorage

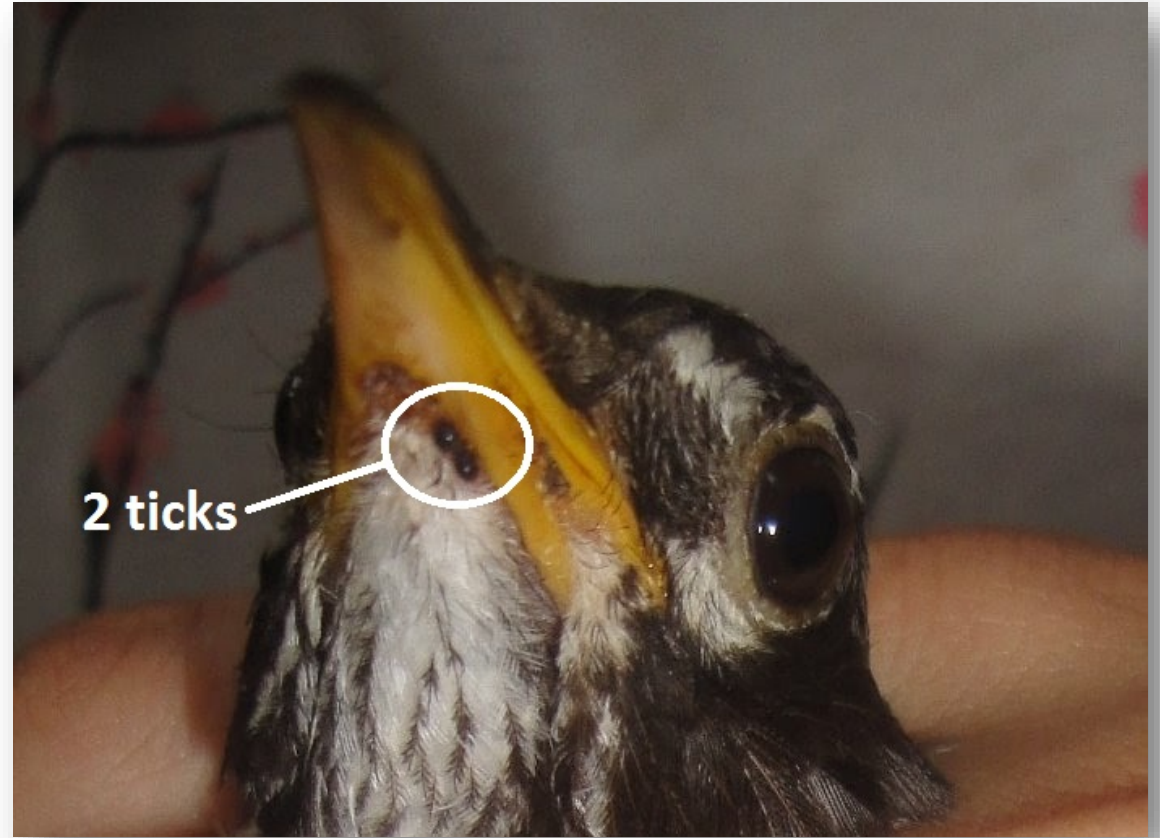


Slidehole
Campground
Anchor Point

Additional sampling methods



small mammal trapping



bird checks

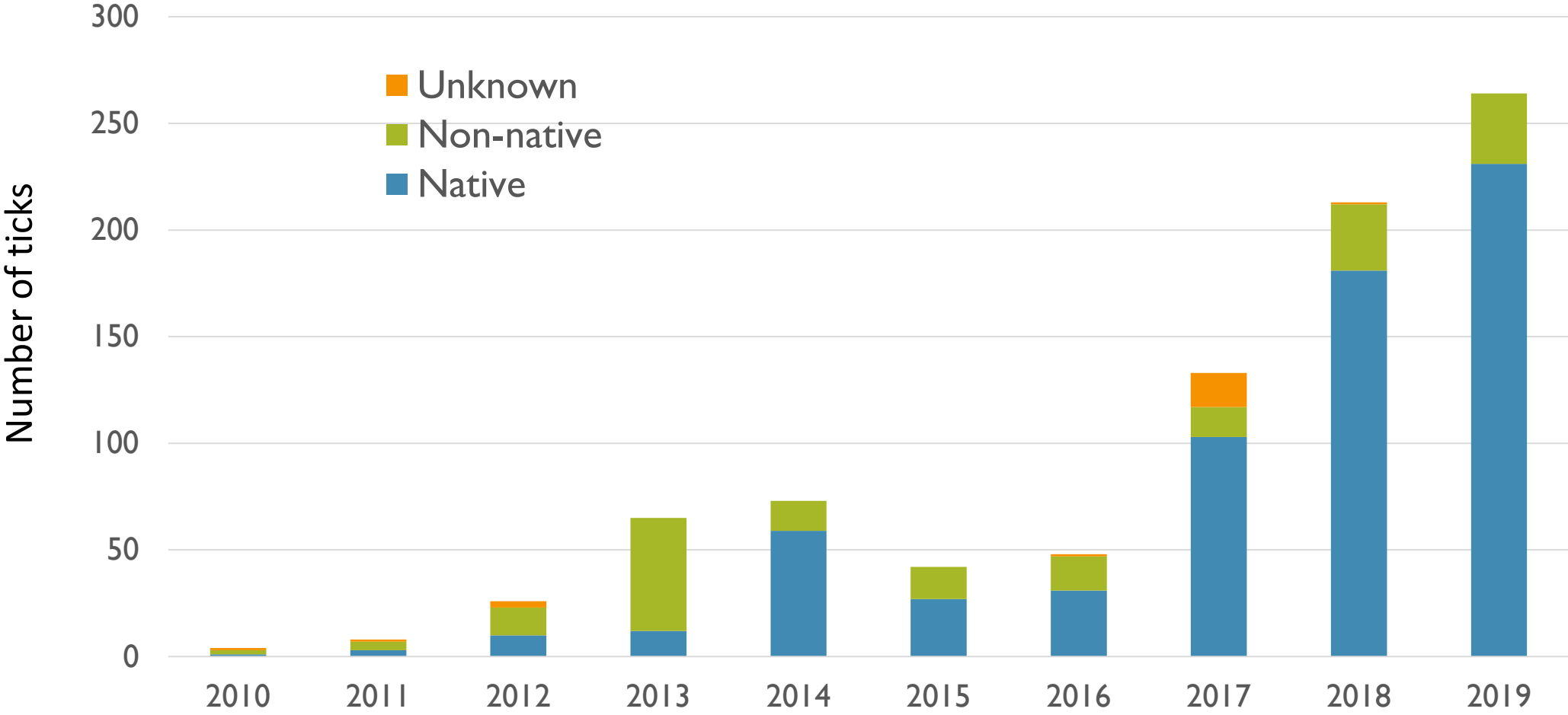
Results



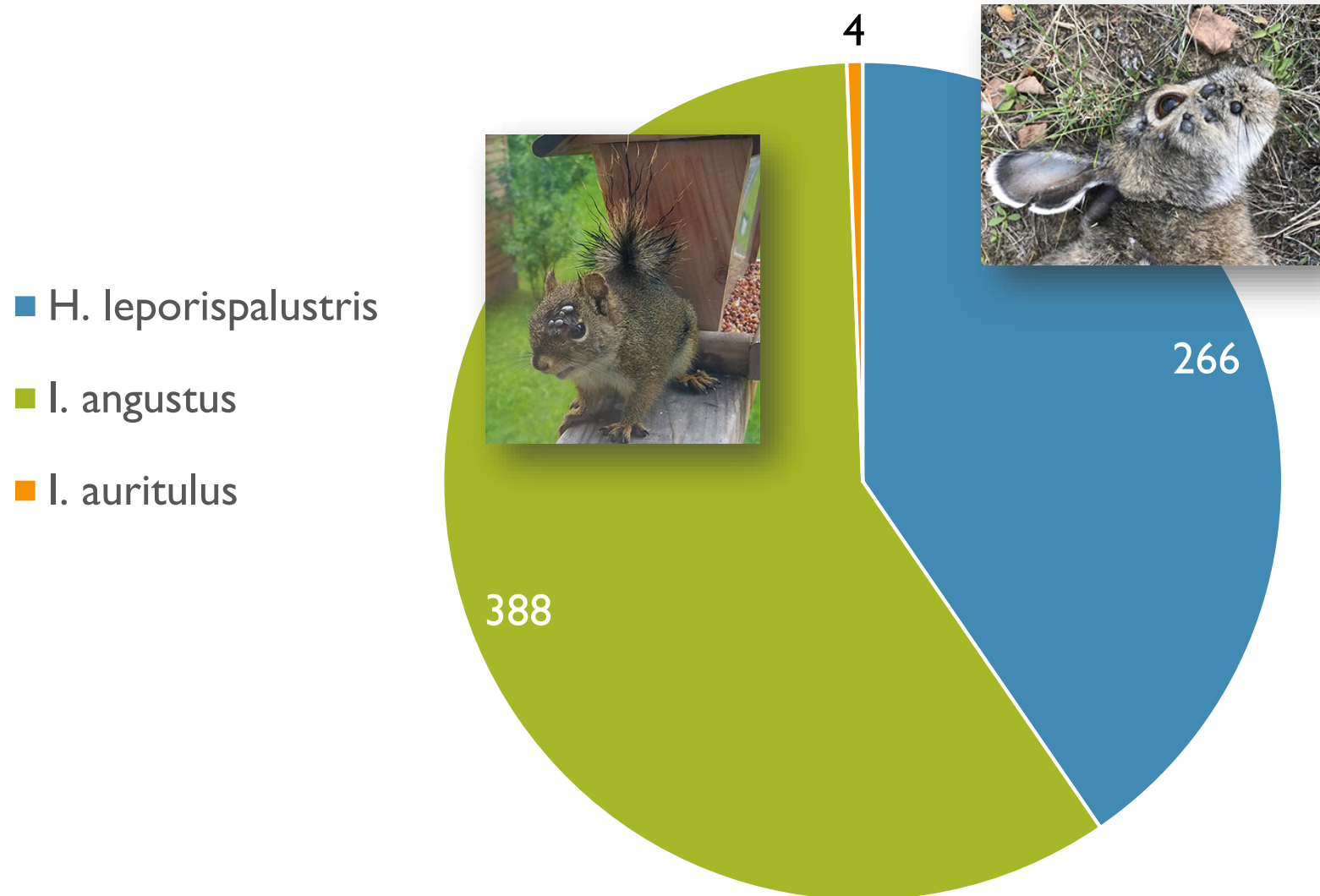
What did we find?



Number of ticks collected, 2010-2019

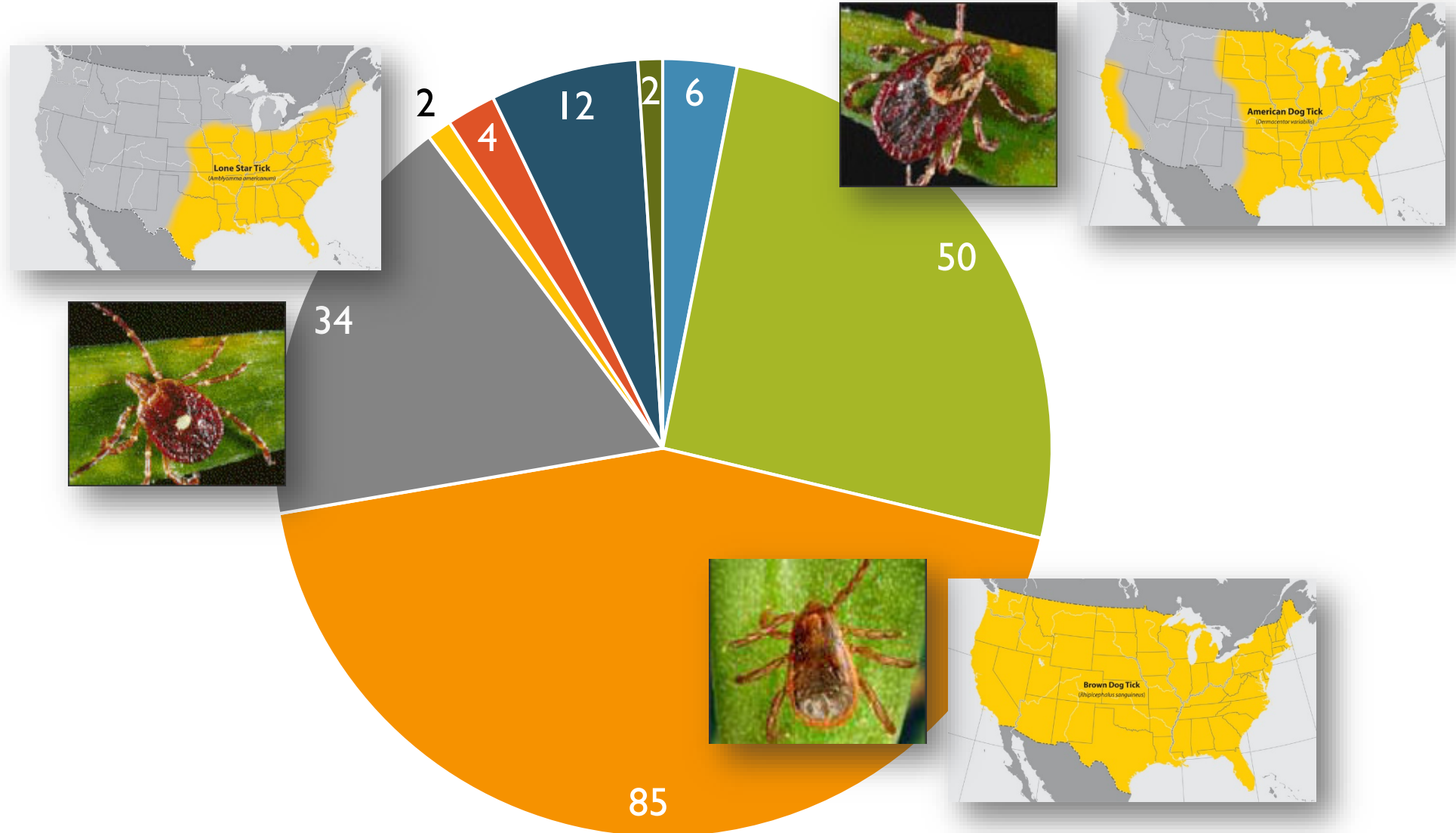


Native ticks collected by species, 2010-2019 (n=658)

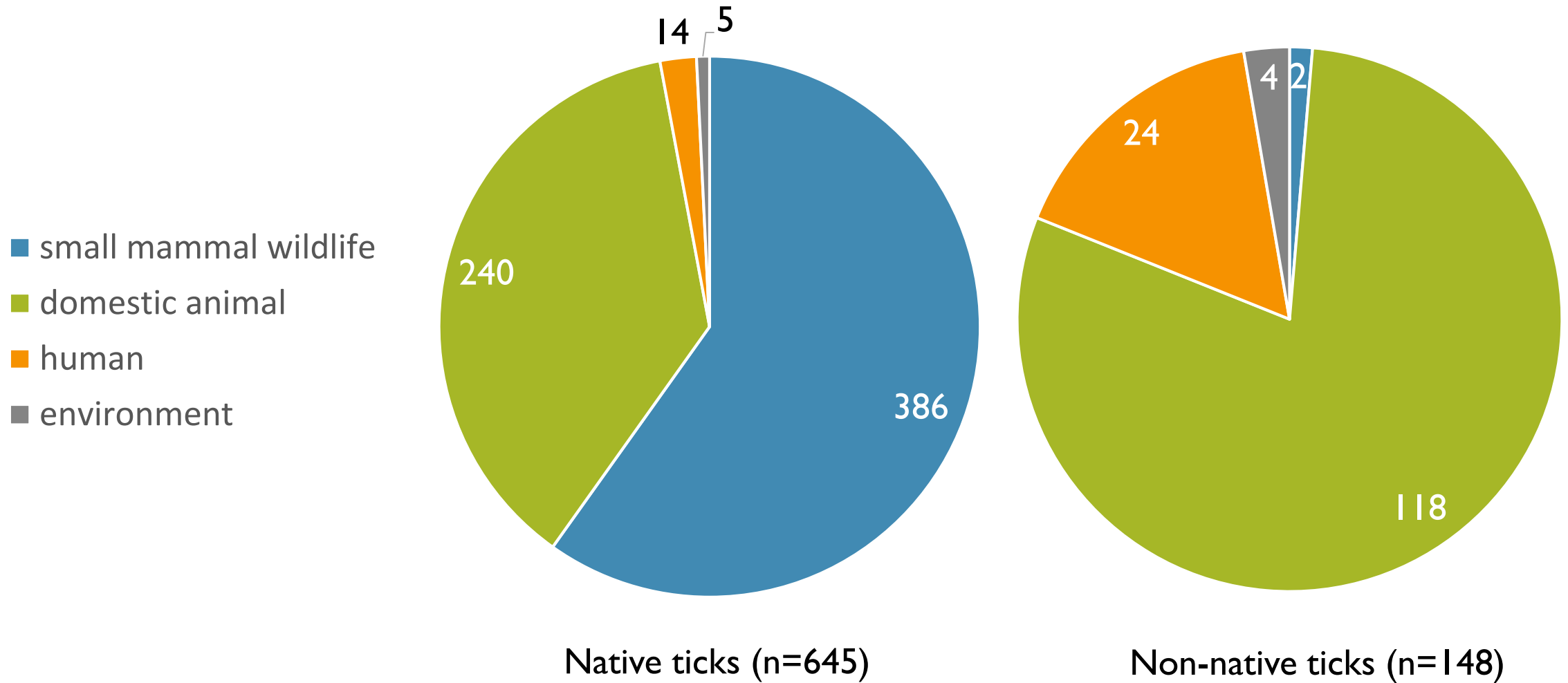


Non-native ticks collected by species, 2010-2019 (n=195)

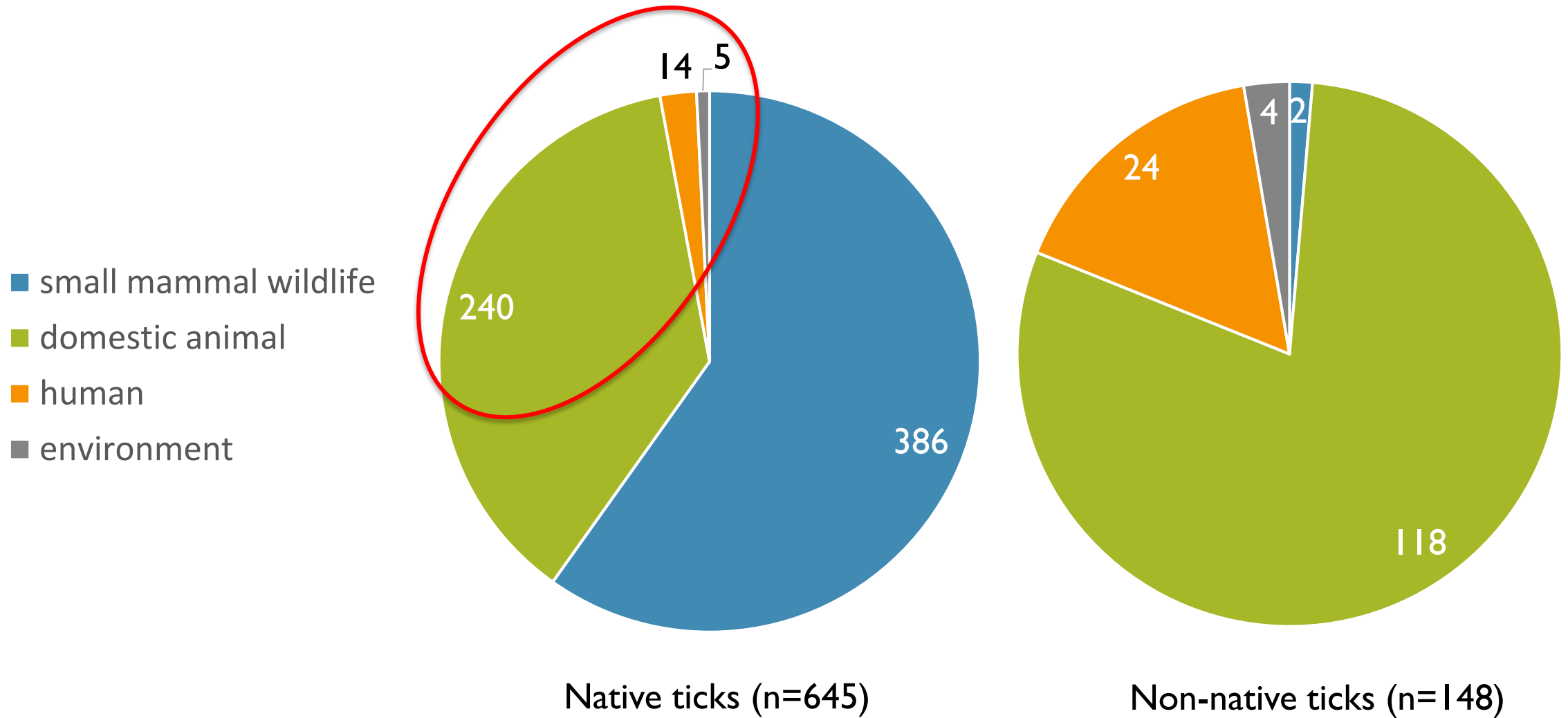
- *D. andersoni*
- *D. variabilis*
- *R. sanguineus*
- *A. americanum*
- *I. pacificus*
- *I. ricinus*
- *I. scapularis*
- *I. texanus*



Hosts of collected ticks, 2010-2019



Hosts of collected ticks, 2010-2019





Travel history of tick hosts, 2010-2019

Travel outside of Alaska in past 2 weeks

	Native ticks	Non-native ticks
Domestic animals	9/95 (4.6%)	46/93 (49.5%)
Humans	1/14 (7.1%)	17/24 (70.1%)



Do we have any non-native ticks
established in Alaska?



To request tick posters or other outreach materials:

alaskaticks@alaska.edu

Alaska Submit-A-Tick Website

<https://dec.alaska.gov/eh/vet/ticks/submit-a-tick>

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