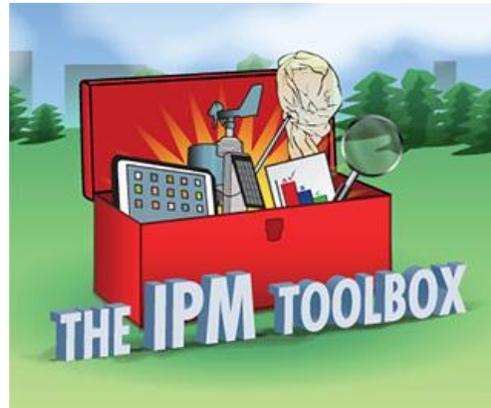




Tick IPM Series

Part 5: Pathogens Found in Ticks Collected on School Grounds and Public Parks

September 14, 2020



Cornell University
College of Veterinary Medicine



United States
Department of
Agriculture

National Institute
of Food and
Agriculture



Cornell Cooperative Extension



Integrated Pest Management

Welcome

A recording of this webinar will be available
within a week at

<http://www.neipmc.org/go/ipmtoolbox>

We Welcome Your Questions

- Please submit a question **at any time** using the Q&A feature to your right at any time
- If you'd like to ask a question anonymously, please indicate that at the beginning of your query.



Cornell University
College of Veterinary Medicine

Presenters



Dr. Jody Gangloff-Kaufmann
Senior Extension
Associate NYS IPM
Program at Cornell
University



Dr. Laura Goodman
Assistant Research
Professor, College of
Veterinary Medicine
at Cornell University



Dr. Matt Frye
Extension Educator
NYS IPM Program at
Cornell University



Cornell Cooperative Extension



Integrated Pest Management



Some Questions for You



Don't Get Ticked NY!

A campaign for tick avoidance

Matt Frye, PhD



Cornell Cooperative Extension



Integrated Pest Management

NYS IPM and Tick Education



2014: NYS IPM receives requests for tick education

-review literature & evaluate outreach efforts-



Tick outreach efforts are “inaccessible” to key audiences

-text heavy, overwhelming, must be retrieved

-limited information available for children despite risk

Lyme disease is caused by the bacterium *Borrelia burgdorferi* and is [transmitted](#) to humans through the bite of infected blacklegged ticks. Typical [symptoms](#) include fever, headache, fatigue, and a characteristic skin rash called erythema migrans. If left untreated, infection can spread to joints, the heart, and the nervous system. Lyme disease is [diagnosed](#) based on symptoms, physical findings (e.g., rash), and the possibility of exposure to infected ticks. Laboratory testing is helpful if used correctly and performed with validated methods. Most cases of Lyme disease can be [treated](#) successfully with a few weeks of antibiotics. Steps to [prevent](#) Lyme disease include using insect repellent, removing ticks promptly, applying pesticides, and reducing tick habitat. The ticks that transmit Lyme disease can occasionally transmit [other tickborne diseases](#) as well.



Lyme Disease Stories

SIGNS AND SYMPTOMS OF UNTREATED LYME DISEASE
Signs and symptoms of illness...

TICK REMOVAL AND TESTING
How to remove a tick...

Get Email Updates
To receive email updates about this page, enter your email address:

What's this?

TREATMENT
Lyme disease is treated with antibiotics...

POST-TREATMENT LYME DISEASE SYNDROME
If symptoms persist after treatment...

DIAGNOSIS AND TESTING
Recommended tests...

HEALTH CARE PROVIDERS
Clinical care information, CME links, and references...

DATA AND STATISTICS
How many people get Lyme disease?

EDUCATIONAL MATERIALS
Brochures, fact sheets, trail signs, and more...

PREVENTING TICK BITES
Avoid getting infected...

LYME DISEASE FREQUENTLY ASKED QUESTIONS (FAQ)
All about Lyme disease...

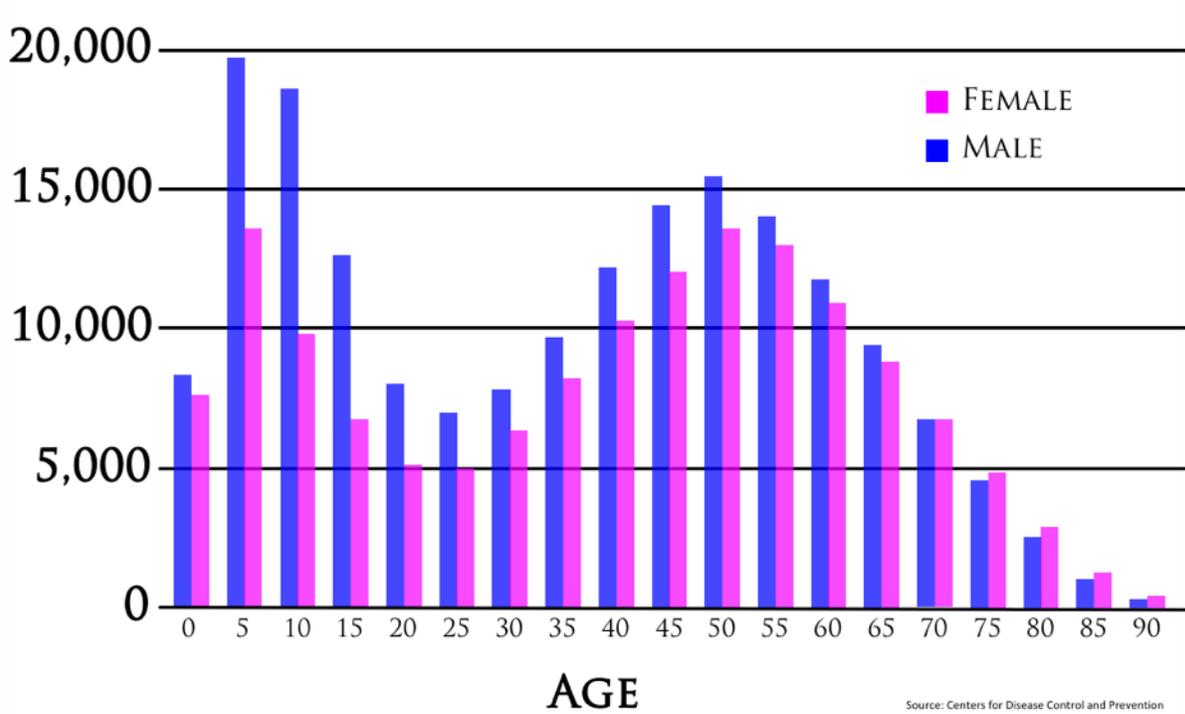
TRANSMISSION
How ticks spread Lyme disease...

WHY IS CDC CONCERNED ABOUT LYME DISEASE?
And what we're doing to address these concerns...



Prevent Lyme disease!
Wear repellent
Check for ticks daily
Shower soon after being outdoors
Call your doctor if you get a fever or rash
Share this widget | More info
www.cdc.gov/Lyme
CDC

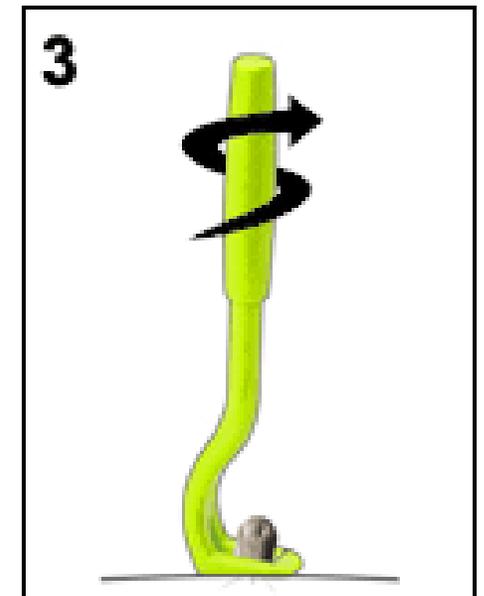
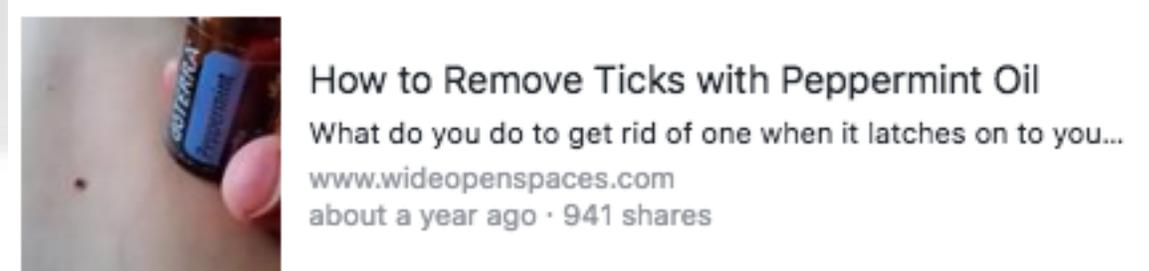
CONFIRMED CASES OF LYME DISEASE 2001 - 2015



Source: Centers for Disease Control and Prevention
www.cdc.gov/lyme/stats/graphs.html

Misconceptions about ticks & tickborne disease common

-tick prevention, removal and identification



www.amazon.com/Tick-Twister-Remover-Small-Large/dp/B00X7072HY

Prevention is possible - strategies ignored/overlooked



Matt Frye

July 7, 2016 · 1 person

Trying to plan future programming and could use your input!

If you go outdoors but don't regularly check yourself (or your kids) for ticks, why not? Please comment.

- not sure what to look for
- forget to look
- too busy to look
- ticks are not a problem in my area
- don't care/not worried about ticks
- other (please explain)

“Too busy” “I’m Lazy” “Forget”

“I’ll feel them crawling on me”

“Depends on exposure and risk”

“I’m too hairy”

“I’ve had Lyme already..”



Too busy to look then I forget to look later

Like · Reply · 2y



I usually don't check right away after coming indoors because we are always so busy, but I usually look over the kiddos each night at bath time.

Like · Reply · 2y



Same here. I check at bath time but not right away

Like · Reply · 2y



Write a reply...



I might be a special case, but for me it's sometimes a matter of "Eh, I've already gotten all the tickborne diseases known to man..." 😊 Just kidding, I always try to check. Good luck with the future programming!

Like · Reply · 2y



Usually too busy or I forget

Like · Reply · 2y



Ticks are a problem in my backyard so I try to check every time I go outside. Even though I sprayed this year I could only reach part of the yard so there is always a chance. It is hard though because I am constantly going outside and inside working ar... [See More](#)

Like · Reply · 2y

NYS IPM and Tick Education

2017: Senate Task Force (Serino) funds NYS IPM to create tick outreach and education program

Don't Get Ticked NY campaign launched

- reduce human exposure to ticks and TBD
- promote IPM: monitoring, personal protection, BMPs

Make tick avoidance easy to understand and accomplish

Website

www.DontGetTickedNY.org

Claymation video

53 question FAQ

Blog posts

DON'T GET TICKED NY

Ticks

[Home](#) / [What's Bugging You?](#) / Ticks

Ticks and tick-borne diseases have become a significant public health issue in New York, with different tick species and diseases currently present and spreading within the state and region.



More ticks in more places also increases your risk of tick encounters. Changes in land use such as construction of new neighborhoods and shopping centers leave small patches of wooded areas, and these are great habitat for deer and mice. More hosts means more ticks! In addition, a warming climate expands the areas and seasons where ticks actively feed and reproduce.

We help you use IPM to avoid ticks and tick-borne disease.

What Do Ticks Look Like?

Learn More

Definitions

- Ectoparasite: a parasite that lives on the outside of its host
- Parasite: a living thing which feeds in or on another living thing

NYS IPM Program links

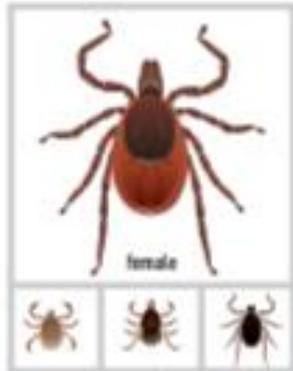
- [Frequently Asked Questions About Ticks](#)
- [Tick Infographic Posters](#)
- [See tick-tagged blog posts at Think IPM](#)
- [See tick-tagged blog posts at The ABCs of School and Childcare Pest Management](#)
- [NYS IPM YouTube Playlist for Ticks](#)
- [NYS IPM Image Gallery - Ticks](#)

Related Links

- [ALERT! Longhorned tick found in NY - NE Vector Borne Disease Center Fact Sheet](#)
- [Governor Cuomo Announces Lyme and Tick-Borne Disease Control Plan](#)
- [Tick Biology for the Homeowner - Cornell](#)
- [Deer Tick Factsheet - Cornell's Insect Diagnostic Laboratory](#)
- [Northeast Regional Center for Excellence in Vector-Borne Diseases](#)
- [Center for Disease Control and Prevention - Ticks](#)

TICK IDENTIFICATION CARD

A QUICK GUIDE TO THE 3 MOST COMMON TICKS IN NEW YORK

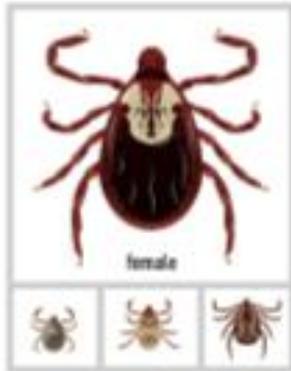


female



larva nymph male

Blacklegged (Deer) Tick



female



larva nymph male

American Dog (Wood) Tick



female



larva nymph male

Lone Star Tick

(enlarged to show details)

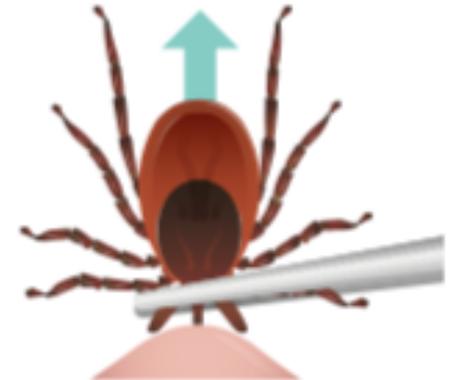
DAILY TICK CHECKS



A tick found crawling on you has not yet bitten you.

TICK REMOVAL

- 1 Use fine-tipped tweezers to grasp the tick as close to the skin as possible
- 2 Pull upward with steady, even pressure
- 3 If mouthparts break off, treat like a splinter

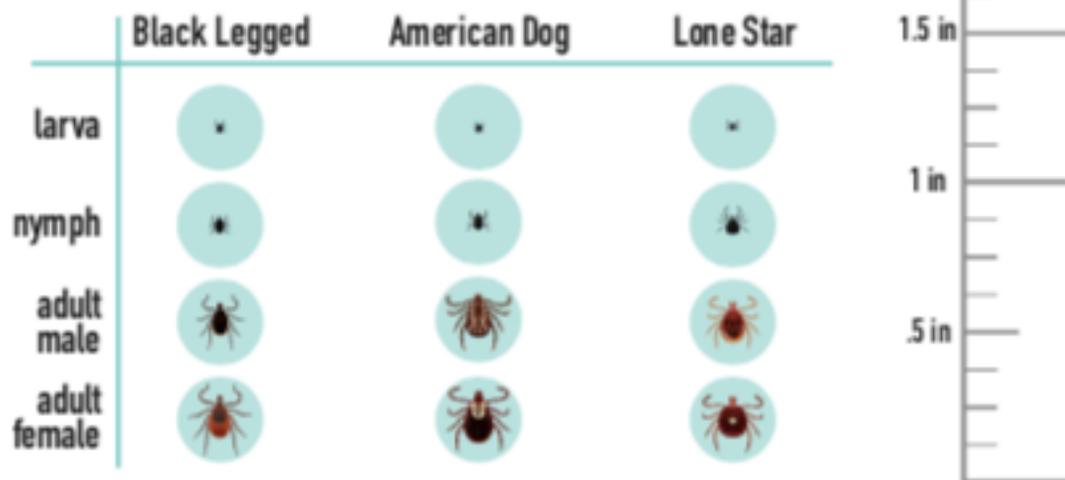


WHAT TO DO IF YOU HAVE BEEN BITTEN

If you have been bitten by a tick, follow these simple steps:

- Remove tick and save it in a container with the date.
- Disinfect the bite site with soapy water, peroxide or rubbing alcohol.
- Visit NYSDOH at tinyurl.com/ybanravn for symptoms of tick-borne disease.
- Visit "Don't Get Ticked NY" website for tick avoidance tips.
- **Do NOT apply kerosene, vaseline or a lit match to attached ticks.**
- **Do NOT squeeze a tick's body during removal.**

ACTUAL TICK SIZE larger when fed



dontgettickedny.org • nysipm.cornell.edu

IDENTIFICACIÓN DE GARRAPATAS

UNA GUÍA PARA LAS GARRAPATAS MÁS COMUNES EN NUEVA YORK



la hembra



larva la ninfa macho

Garrapata de patas negras



la hembra



larva la ninfa macho

Garrapata canina americana



la hembra



larva la ninfa macho

Garrapata estrella solitaria

Agrandado para mostrar detalle

TAMAÑO REAL

Más grande cuando se alimenta

	Garrapata de patas negras	Garrapata canina americana	Garrapata estrella solitaria
larva			
la ninfa			
el adulto macho			
el adulto la hembra			

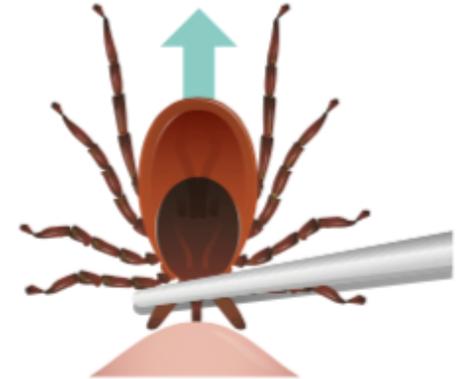


INSPECCIÓN DIARIA



QUITAR UNA GARRAPATA

- 1 Use una pinza de punta fina para agarrar la garrapata lo más cerca posible de la superficie de la piel
- 2 Jale hacia arriba con presión constante
- 3 Si partes de la boca se quedan pegadas en la piel tratar esto como una astilla



QUÉ HACER EN CASO DE UNA PICADURA DE GARRAPATA

Si usted tiene una picadura de garrapata seguir estos pasos simples:

- Quite la garrapata y guárdela en un frasco con la fecha.
- Desinfecte el lugar de la picadura con alcohol, peróxido, o con agua y jabón.
- Visite NYSDOH en tinyurl.com/ybanravn para los síntomas de la enfermedad transmitida por garrapatas.
- Visite dontgettickedny.org para consejos para evitar garrapatas.
- **No aplique queroseno, vaselina ni encienda un fósforo sobre las garrapatas en la piel.**
- **No apriete el cuerpo de una garrapata durante la extracción.**

dontgettickedny.org • nysipm.cornell.edu

Tick Infographic Posters (13)

Communicate 1-2 key ideas each

Image-based information accessible to more audiences

Captures interest compared to text-based documents

Less “work” to understand concept

Daily Tick Check

When to look?

Where to look?

What to look for?

How to look?

What to do with attached tick?

**LIVE IN TICK COUNTRY?
DO A DAILY TICK CHECK!**

**DON'T GET TICKED
NEW YORK**

Time for a tick check!

Use a mirror to inspect those hard to see areas

**If a tick is found
REMOVE IMMEDIATELY**

dontgettickedny.org • nysipm.cornell.edu

Funded by NYS Senate Task Force on Lyme and Tick-Borne Diseases. Illustrations by Christopher Madden, Coburn Design.

**LIVE IN TICK COUNTRY?
DO A DAILY TICK CHECK!**

**DON'T GET TICKED
NEW YORK**

Time for a tick check!

Along hairline

Inside and behind ears

Armpits

Bellybutton

Groin

Use a mirror to inspect those hard to see areas

If a tick is found

Between fingers

Behind knees

Between toes

Legs

REMOVE IMMEDIATELY

dontgettickedny.org • nysipm.cornell.edu

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daily tick check – target audience variants

Where are Ticks?

What habitats support ticks
(three common species)?

What activities might expose
someone to ticks?

Interpretation and learning

TICK HABITATS
For the three most common ticks found in New York

Black Legged Tick Lone Star Tick Dog Tick

DON'T GET TICKED NEW YORK

Trail Edge Vegetation

Understory Vegetation

Woods Edge and Grassy Areas

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IPM

Funded by NYS Senate Task Force on Lyme and Tick-Borne Diseases. Illustrations by Christopher Madden, Coburn Design.

The infographic is a vertical poster with a teal header. The header contains the title 'TICK HABITATS' and a subtitle 'For the three most common ticks found in New York'. Below the subtitle are three circular icons of ticks: a Black Legged Tick, a Lone Star Tick, and a Dog Tick. To the right of the header is a logo for 'DON'T GET TICKED NEW YORK' featuring a map of New York with a tick on it. The main body of the infographic is divided into three horizontal panels, each illustrating a different habitat. The top panel, labeled 'Trail Edge Vegetation', shows a hiker, a runner, a cyclist, and a child playing in a wooded area. The middle panel, labeled 'Understory Vegetation', shows a person with binoculars, a deer, a person fishing in a stream, and two people with a clipboard. The bottom panel, labeled 'Woods Edge and Grassy Areas', shows a car, a child playing soccer, a child on a swing set, and an elderly person sitting on a bench. At the bottom of the infographic are the website addresses 'dontgettickedny.org' and 'nysipm.cornell.edu', the IPM logo, and a small line of text: 'Funded by NYS Senate Task Force on Lyme and Tick-Borne Diseases. Illustrations by Christopher Madden, Coburn Design.'

Personal Protection

Permethrin treatments for clothing to kill ticks

[or lower chance of attachment]

- DIY treatment
- Professional treatment

Clothing Treatment
Permethrin treated clothing can kill ticks

DONT GET TICKED NEW YORK

OPTION 1
INSECT REPELLENTS
FOLLOW ALL LABEL INSTRUCTIONS
Lasts up to 6 washes

OPTION 2
Send out clothing
Buy treated clothes
PRE-TREATED PERMETHRIN CLOTHING
PLACE ORDER NOW!
Lasts up to 70 washes

dontgettickedny.org • nysipm.cornell.edu

IPM

Funded by NYS Senate Task Force on Lyme and Tick-Borne Diseases. Illustrations by Christopher Madden, Coburn Design.

Personal Protection

Options for repellent use to reduce risk of tick encounter

- What products work?
- How products work
- How to apply?
- **READ THE LABEL!**



Pet Protection

Pets are affected by ticks too

- Options for pet protection
- How to remove a tick
- Reduce exposure to ticks



MONITOR FOR TICKS

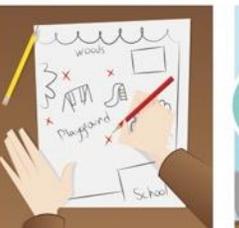
in your school yard



- 1 Sew sleeve in to cloth
- 2 Slide dowl into sleeve
- 3 Or staple cloth to dowl
- 4 Tie rope to dowl



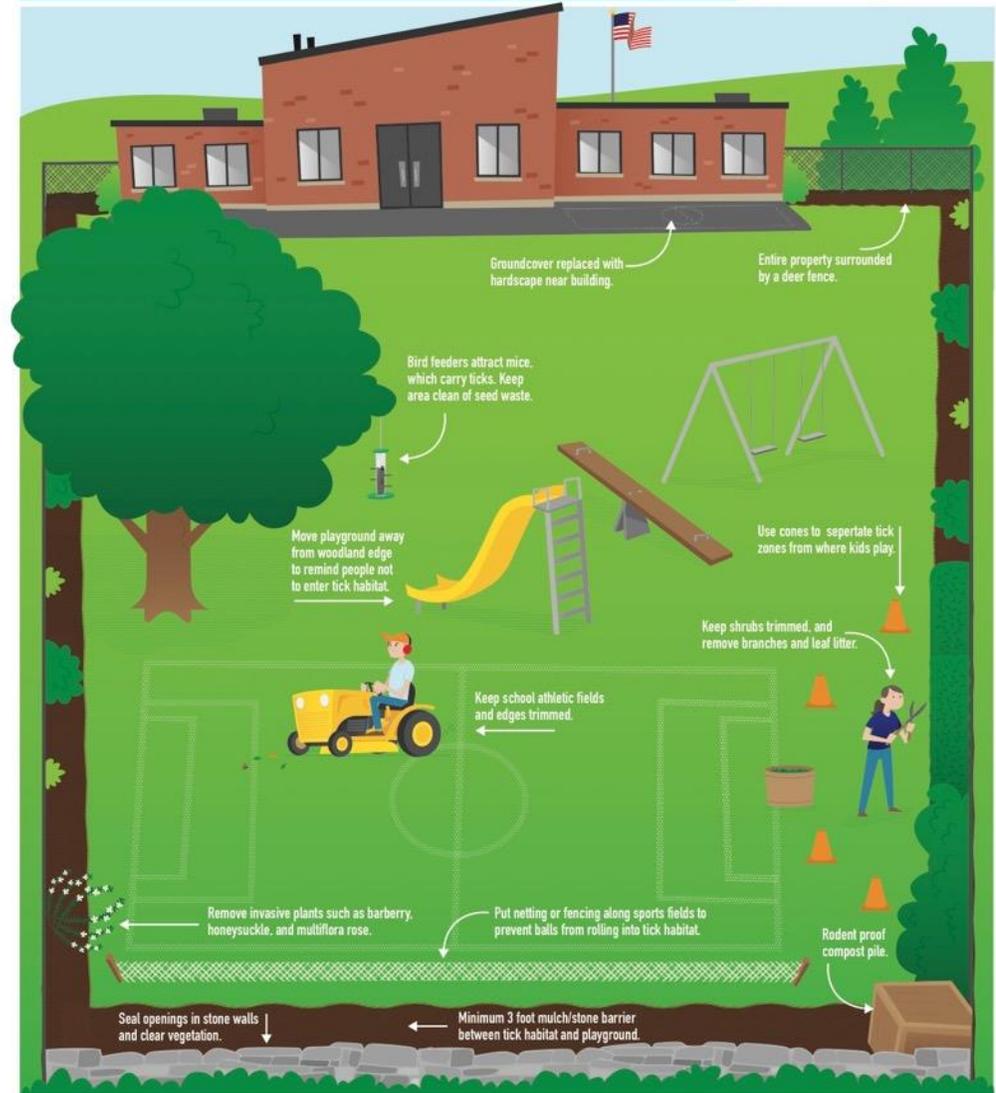
1 step/second for 30 seconds



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Minimize Ticks in School Yard



dontgettickedny.org • nysipm.cornell.edu



Protecting Campers

What to do before and after camp to reduce risks for kids



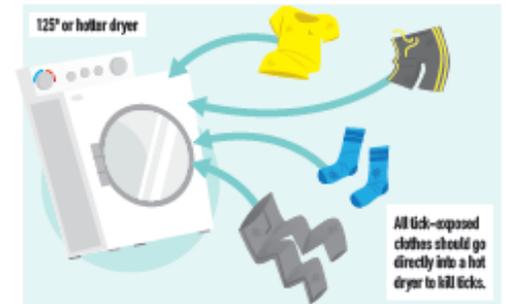
PREPARE FOR CAMP



PREPARING BEFORE CAMP:

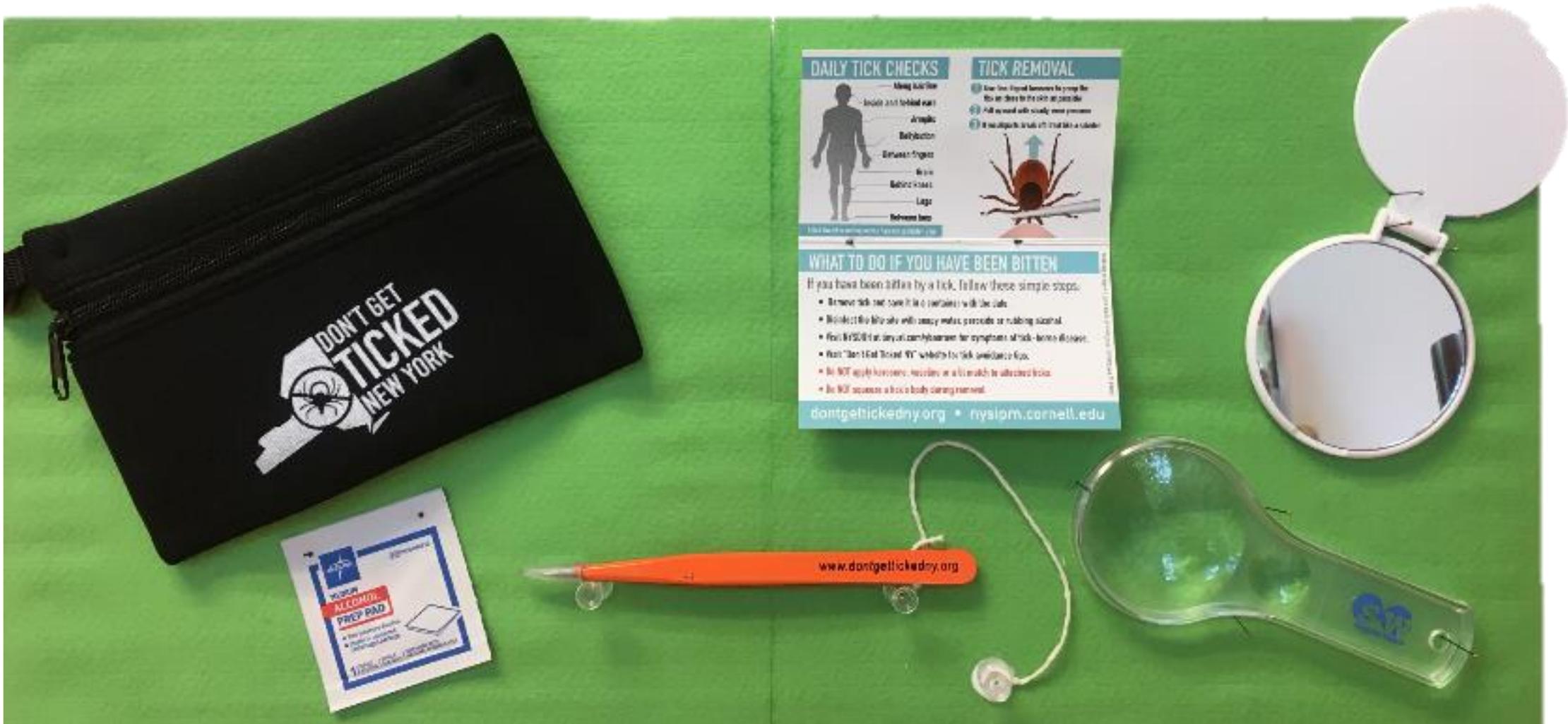


WHEN YOU RETURN FROM CAMP:



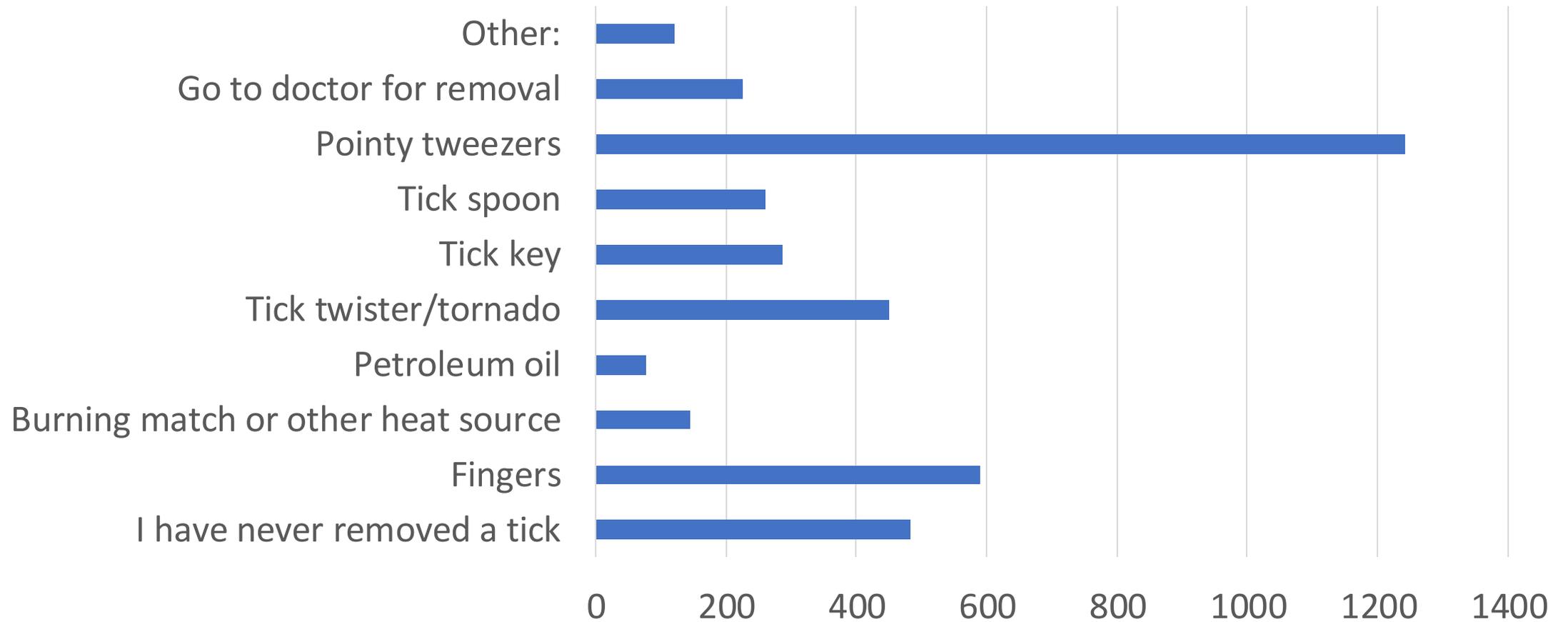
Tick Removal Kits

Data collection on tick removal



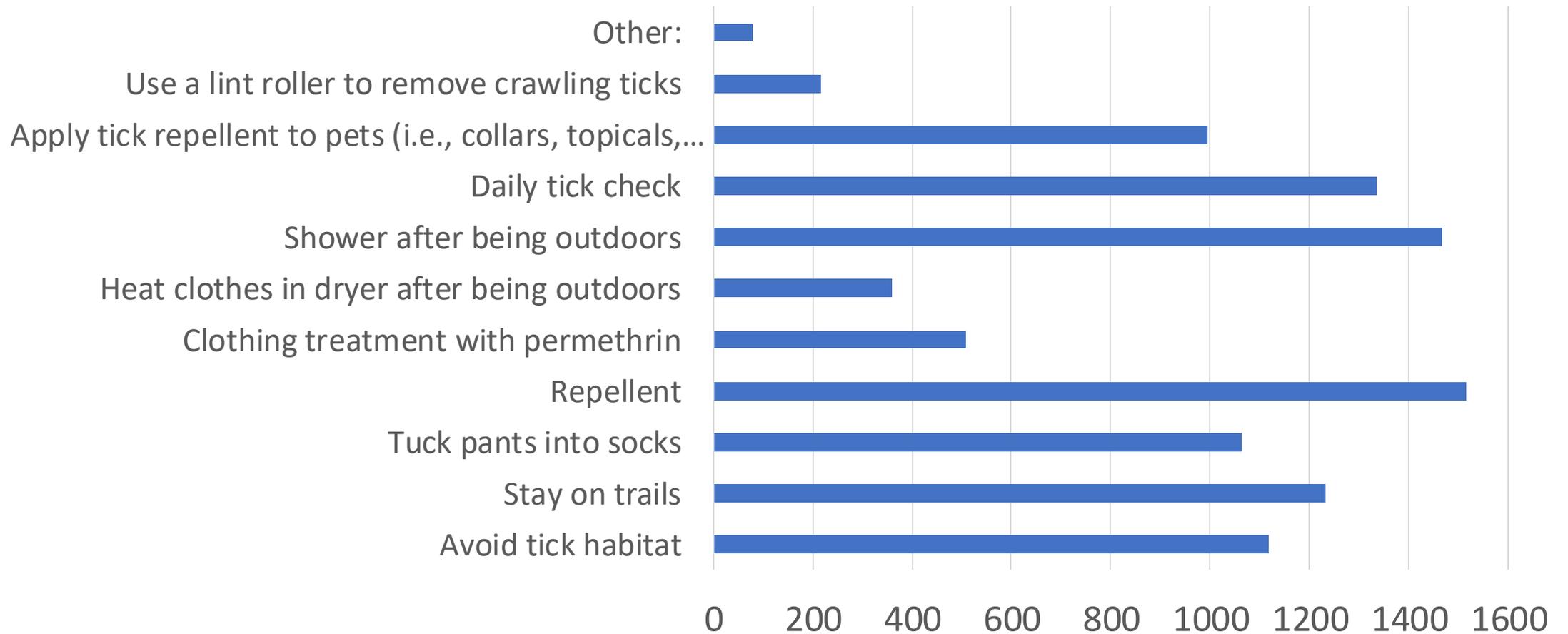
Survey Results

How have you removed embedded ticks in the past?



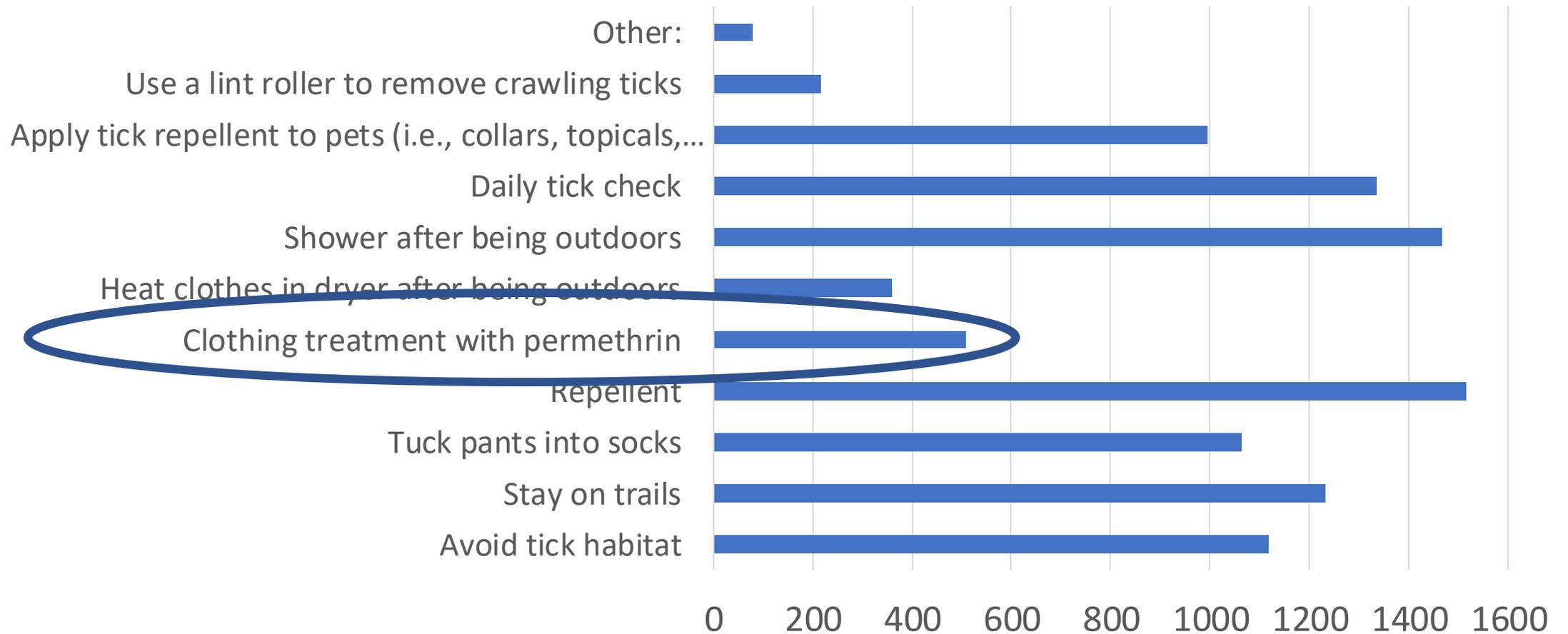
Survey Results

What avoidance techniques have you used?



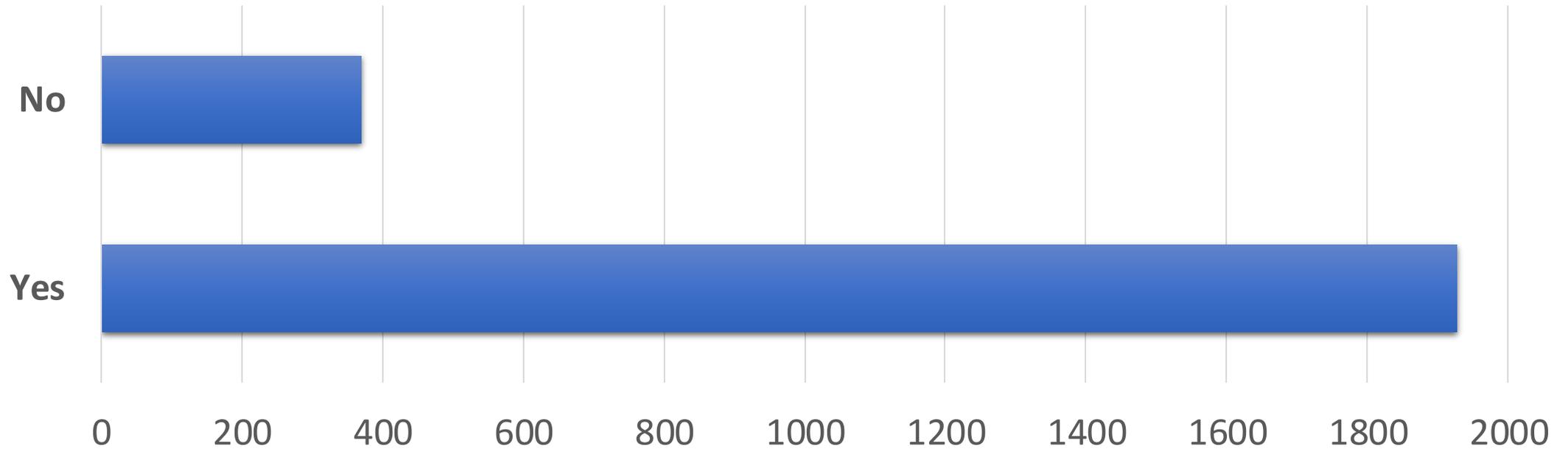
Survey Results

What avoidance techniques have you used?



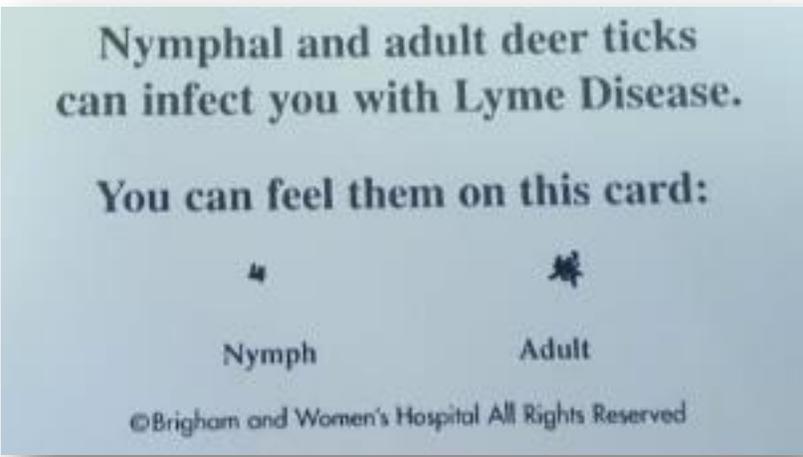
Survey Results

Do you plan to change your tick avoidance or tick removal behavior as a result of what you learned?

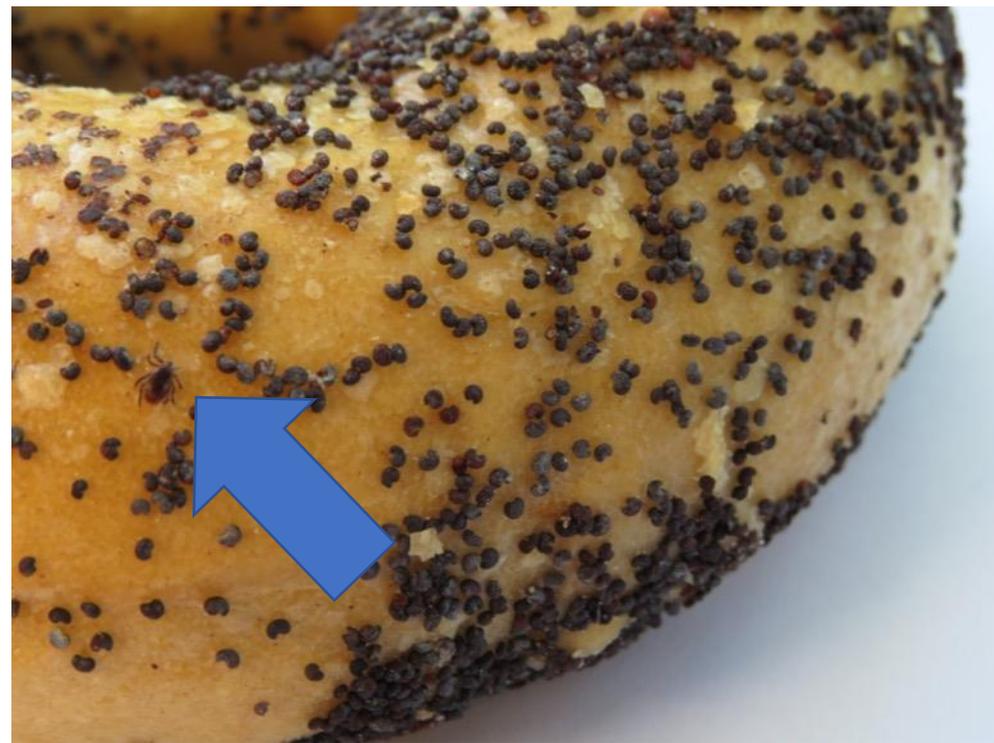


Expanding the Reach Education Kits

feel cards



tick vials



tick bagels



tick tattoos

Mirror and Window Clings

Tick Check Time!

Hairline, Ears & Neck



Between Fingers & Toes

Armpits

Belly button

Groin

Behind Knees



- Look and feel for ticks
- Remove tick ASAP!
- Use fine tweezers
- Pull straight up

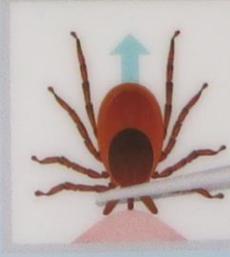


DontGetTickedNY.org

Find Ticks Before They Bite!



- Look and feel for ticks
- Remove tick ASAP!
- Use fine tweezers
- Pull straight up



DontGetTickedNY.org

Prompt tick check at critical times/places [bathroom/car]

Expanding the Reach

YouTube Videos: presentations & tips

The image shows a YouTube video player interface. The main video is titled "How to Remove a Tick" and features an illustration of a tick with a white tool being used to remove it. The video player includes a search bar, navigation icons, and a progress bar showing 0:00 / 1:10. To the right of the video player is a list of related videos:

- Ticks and the Diseases They Carry**
NYSIPM - 7 / 12
- 5 **Don't Get Ticked New York**
Dutchess County
19:45
- 6 **Don't Get Ticked New York!**
NYSIPM
51:04
- How to Remove a Tick**
NYSIPM
1:11
- 8 **Reported Cases of Lyme Disease in the United States 2001-2016**
NYSIPM
0:17
- 9 **Life Cycle of the Black-Legged Tick (and Lyme Disease Prevention!)**
NYSIPM
2:59

Expanding the Reach

Branded slide sets for various audiences

- General public
- Landscapers
- Schools (maintenance staff/administration)
- Hunter/naturalist
- Campers
- Children
- Others?

Partnering with statewide agencies: NYSTA | NYPMA

Expanding the Reach



www.poughkeepsiejournal.com/story/news/2015/06/30/public-forum-talks-lyme-disease-cause-prevention/29515525/

community forums



monitoring workshops

Future Directions

- **Follow-up survey to assess impact and guide further outreach**
- **K–12 Activities**
 - Classroom lessons
 - Research projects



The New York State IPM Program



@NYSIPM



&



NYSIPM



www.dontgettickedny.org

nysipm.cornell.edu

<https://blogs.cornell.edu/nysipm/>



Cornell Cooperative Extension

*Cornell Cooperative Extension provides
equal program and employment opportunity.*

Research Project

Surveillance: schools & parks

- Hudson Valley
- Nassau County

What ticks are present?

Abundance

Distribution

Test for pathogens



Questions?



Questions?



ACTIVE SURVEILLANCE OF PATHOGENS FROM TICKS IN NEW YORK STATE SUBURBAN PARKS & SCHOOL YARDS

Laura Goodman

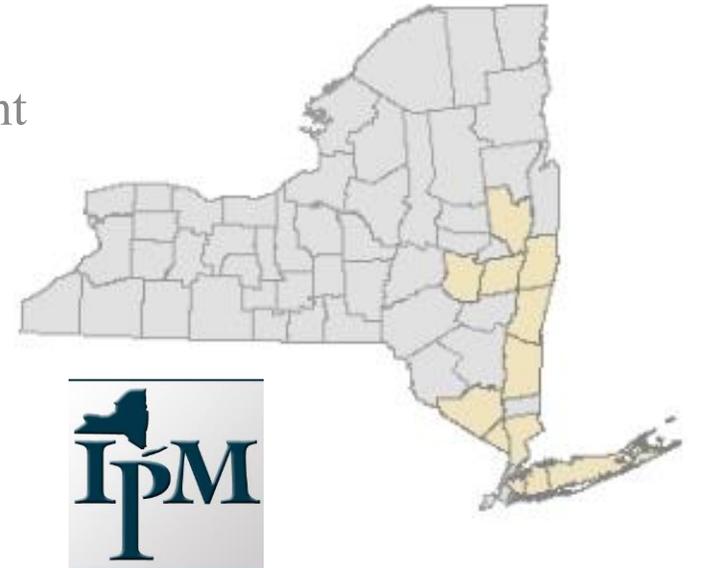
Cornell University College of Veterinary Medicine
Animal Health Diagnostic Center &
NY State Veterinary Diagnostic Laboratory Ithaca, NY



Qin Yuan,
Cornell MPH 2019

Jody Gangloff-Kaufmann

The New York State Integrated Pest Management
Program, Cornell University



Project support by NY Senator Sue Serino – NYS Senate Lyme and TBD Task Force



<http://toll.hardenet.com/7813/57240>

MONITOR FOR TICKS

in your school yard

DON'T GET TICKED NEW YORK

1 square yard of white cloth
4 feet rope
Staple gun or thread
3 1/2 foot pole

1. Show where to lay cloth
2. Slide cloth into clove
3. Or staple cloth to doorknob
4. Tie rope to doorknob

Dress Accordingly

- Long Sleeve Shirt
- Long Pants tucked into socks
- Tall Socks
- Shoes or Boots

1 step/second for 30 seconds

dontgettickedy.org • nysipm.cornell.edu

IPM

Provided by NY Senate Task Force on Lyme and TBD. Illustrations by Christine Wadden, Cornell College.

Objectives of the project

- Test TBD risks thru transects of school properties (woods to field), tick abundance,
- TBD testing of ticks collected in a variety of efforts in NY,
- Describe tick distribution in Nassau County, NY,
- Characterize TBD in Nassau County, NY.



Study aims

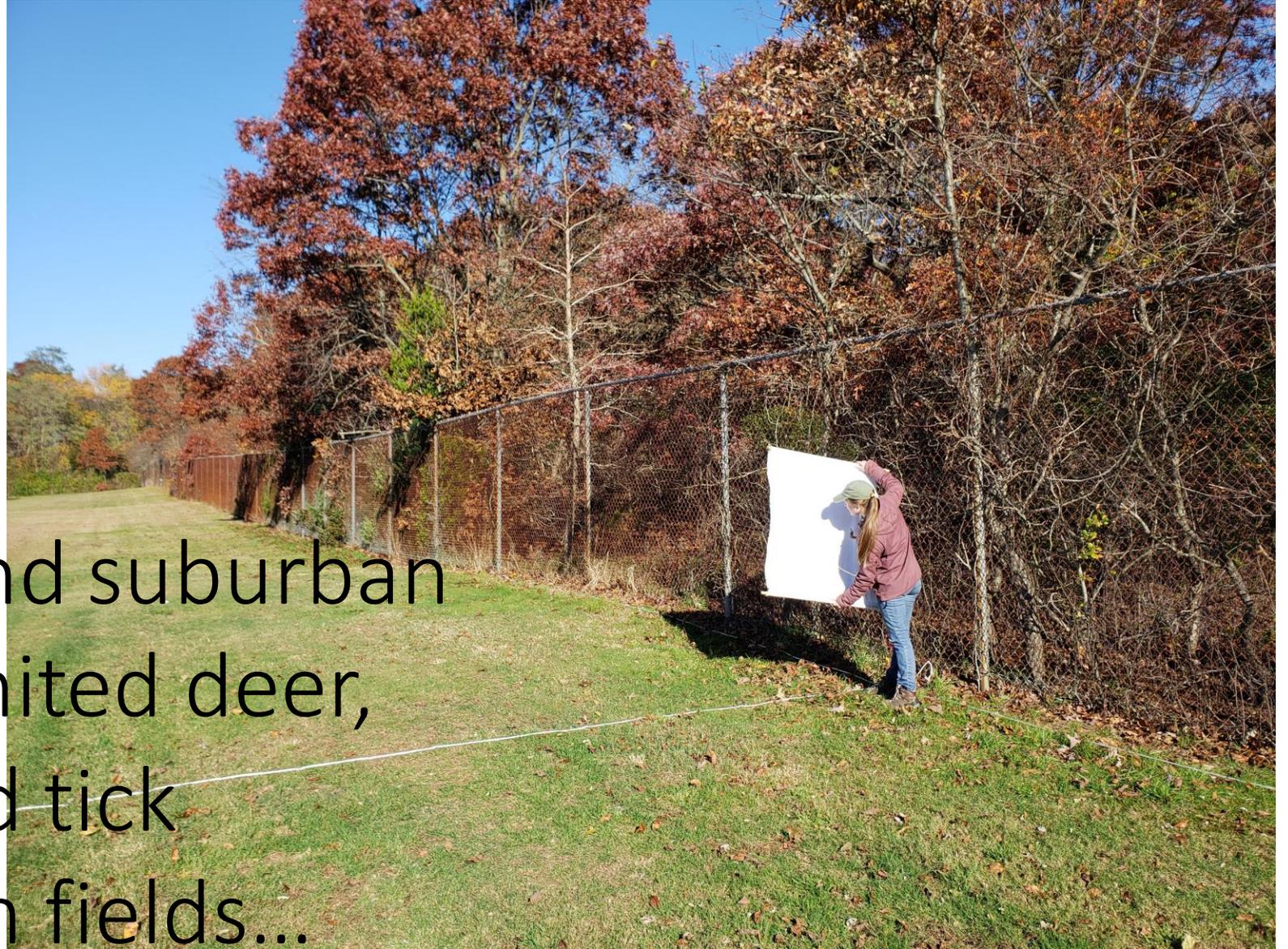
- Improve the understanding of tick-borne pathogen prevalence on school properties and in parks in NYS;
- Highlight the importance of active surveillance for tick-borne diseases.



Study limitations

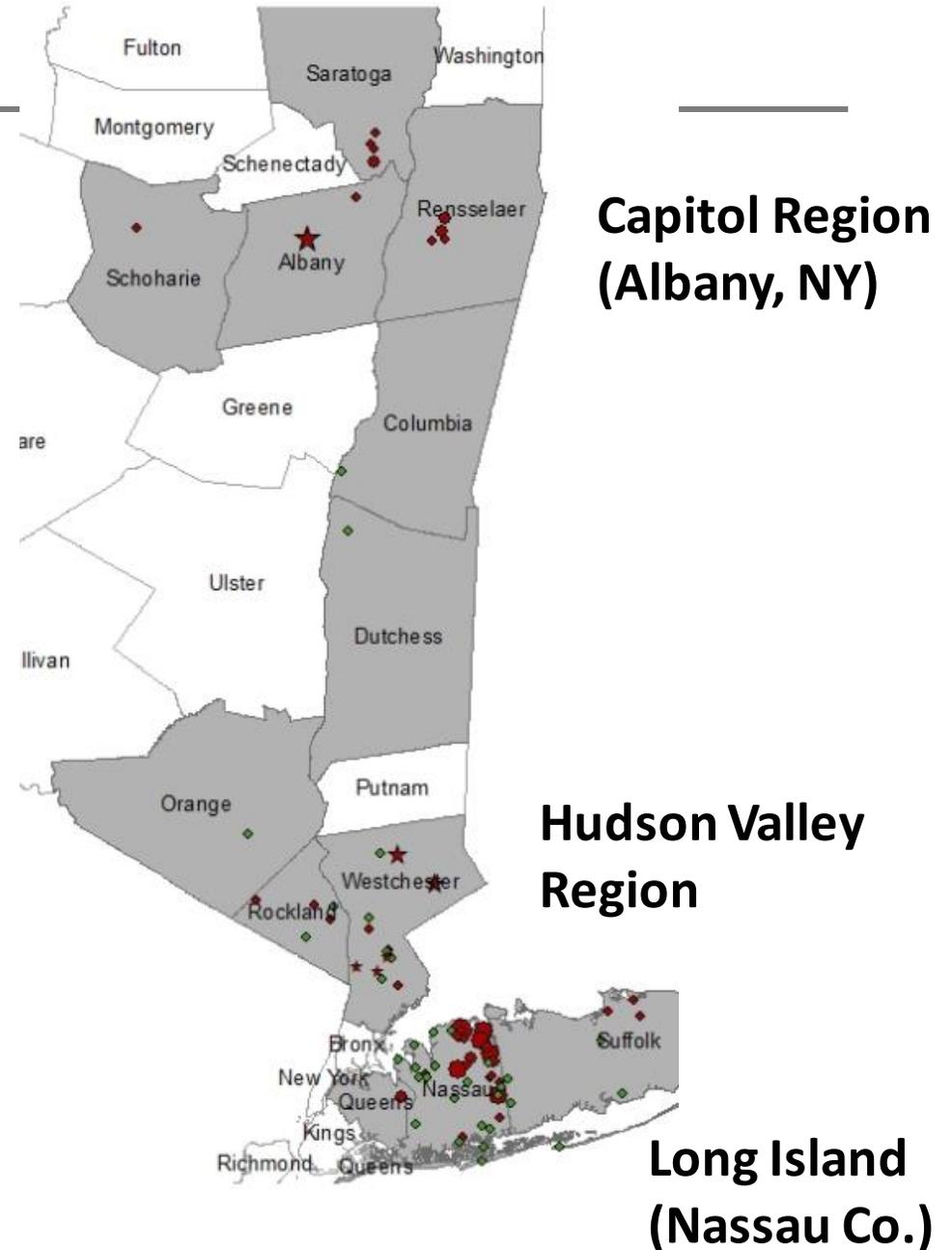
- Funding came in October 2018, period of funding ended March 2019.
- Fall sampling hindered by very cold weather, rain, snow.
- Sampling - Oct 18 to December 21
- Mainly *Ixodes scapularis* adults collected.
- Schools in Nassau generally urban, lacking habitat

Fences around suburban
LI schools limited deer,
transects and tick
abundance in fields...

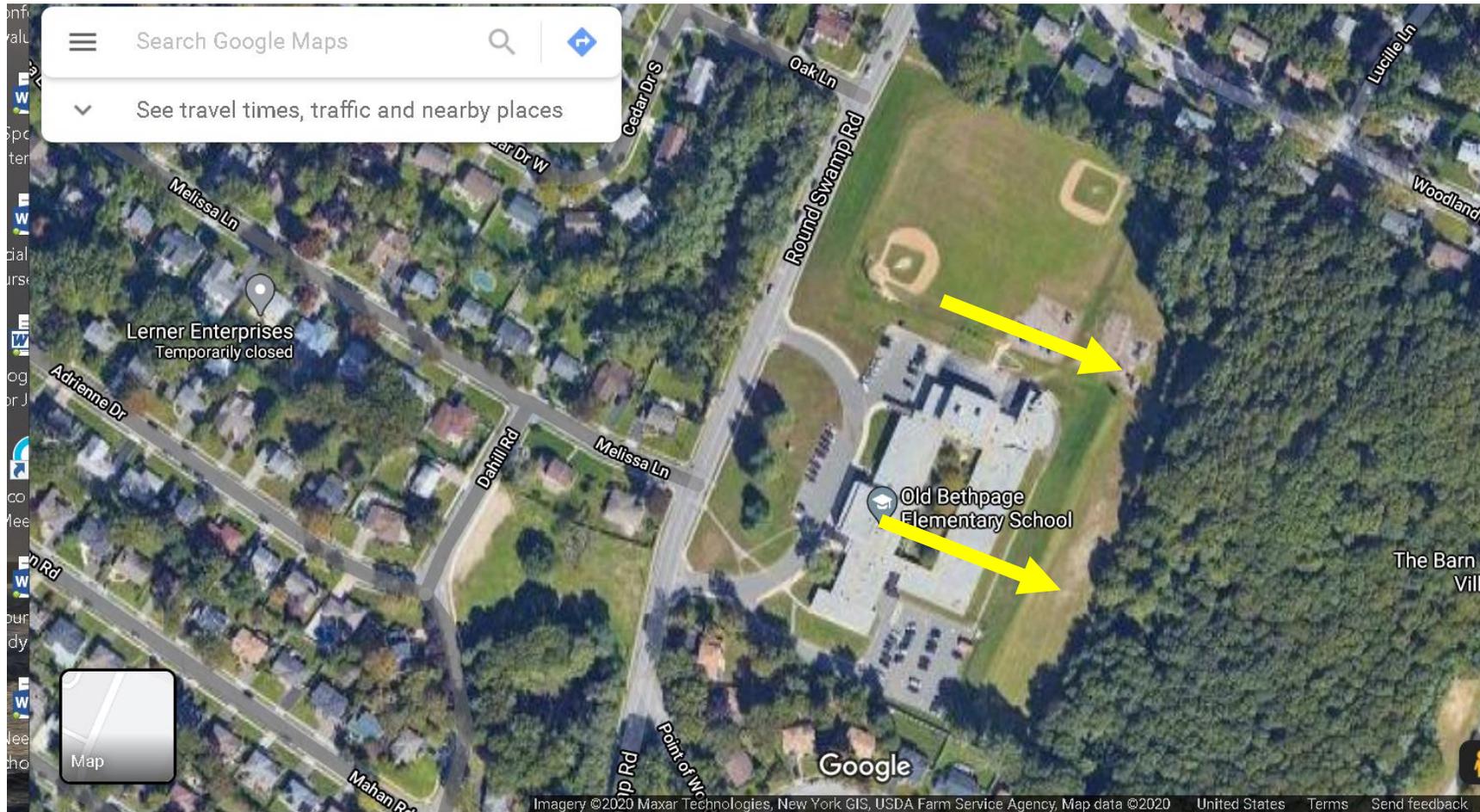


Sampling Methods

- Selection of study area sites
 - School grounds (mainly Capitol region),
 - State and county parks,
 - Public and private wildlife preserves,
 - Added ticks collected from a Christmas tree farm survey.
 - A total of 19 schoolyards and 32 parks were sampled.



We visualized sites using Google Maps



Sampling method for school transects

- Flannel cloth (1 Y²)
- Temperature > 37F, no rainfall

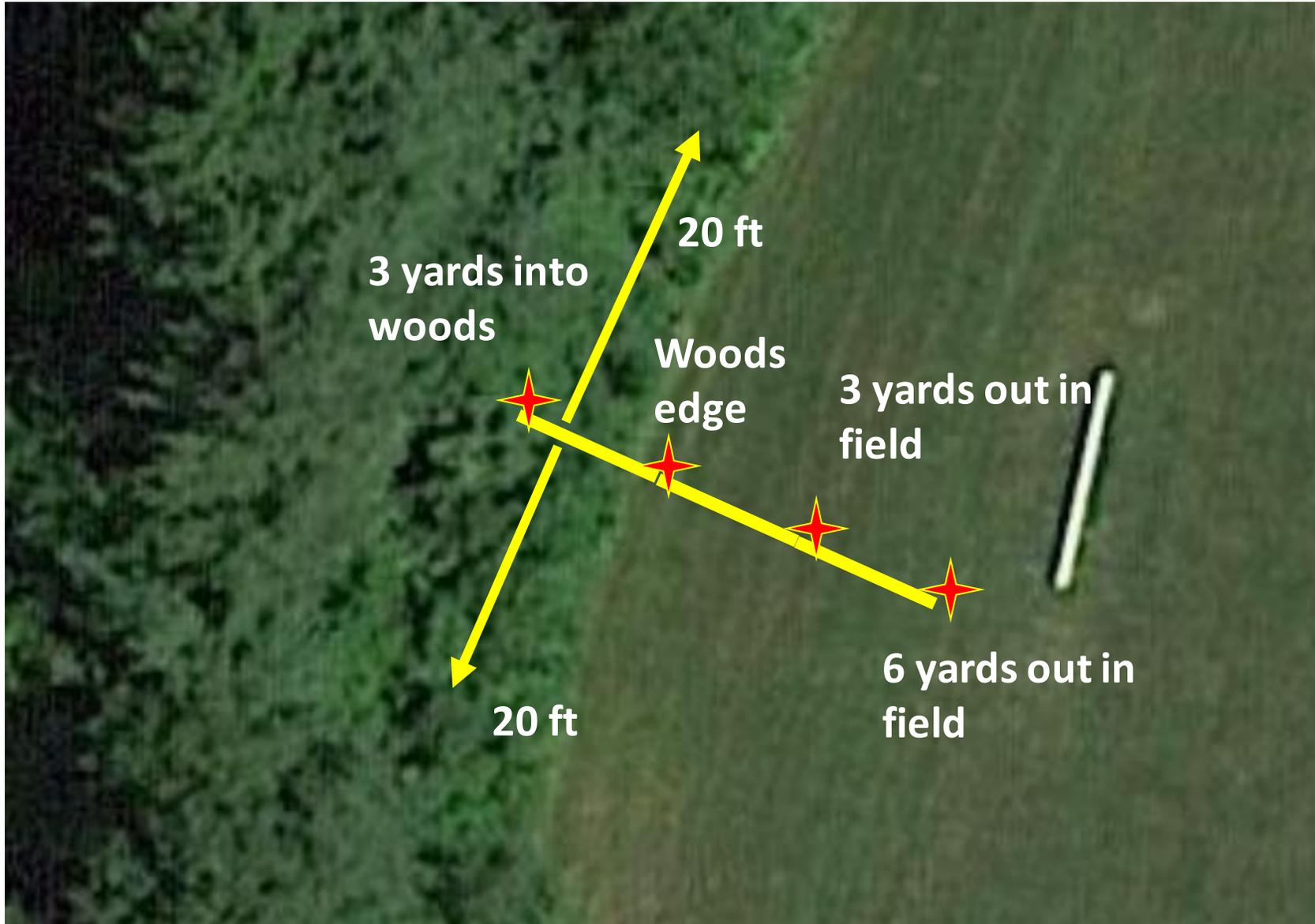


School transect sampling scheme

Dates
October 23 to
Nov 29

Recorded:

- Date, time
- Temperature
- Humidity
- Cloud cover/sun
- Previous rainfall



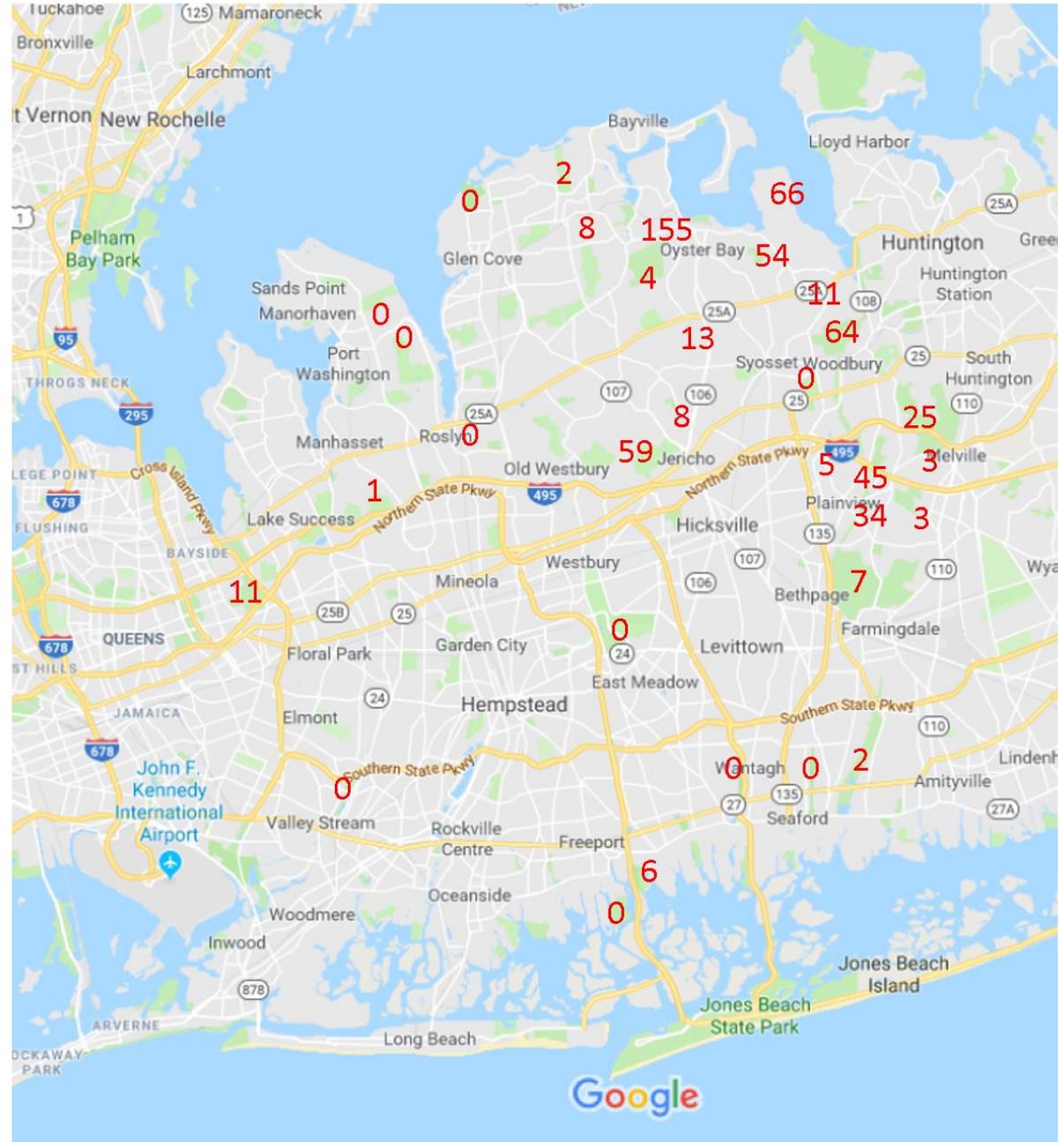
Sampling method for HV and NC parks/preserves

- Nassau - Document presence/absence of ticks, not abundance.
- 1 Y² cloth drag along pathways, into brush,
- Sampled most of Nassau's wooded parks and a few HV locations.
- HV - low tick collections



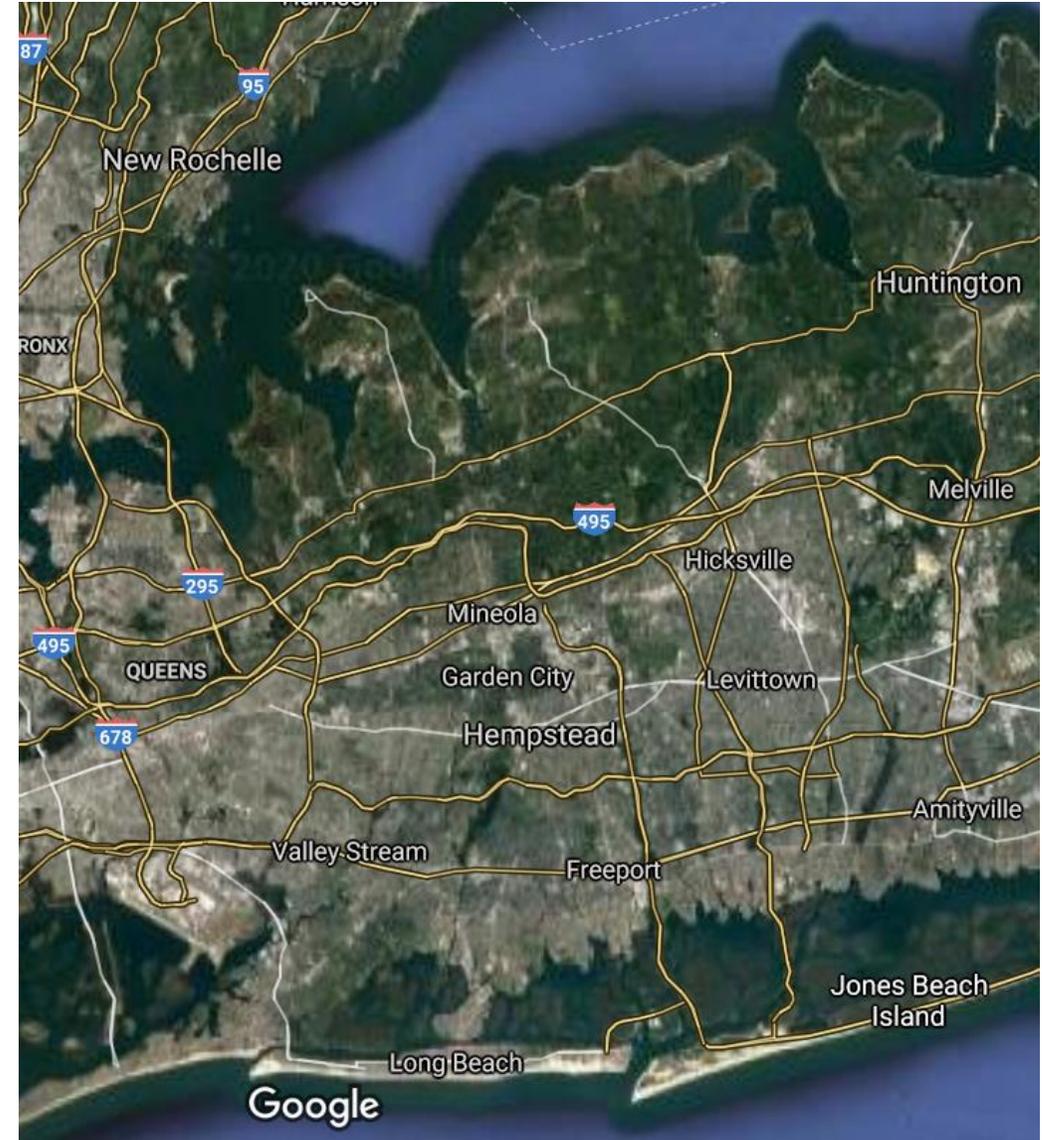
Nassau County sampling

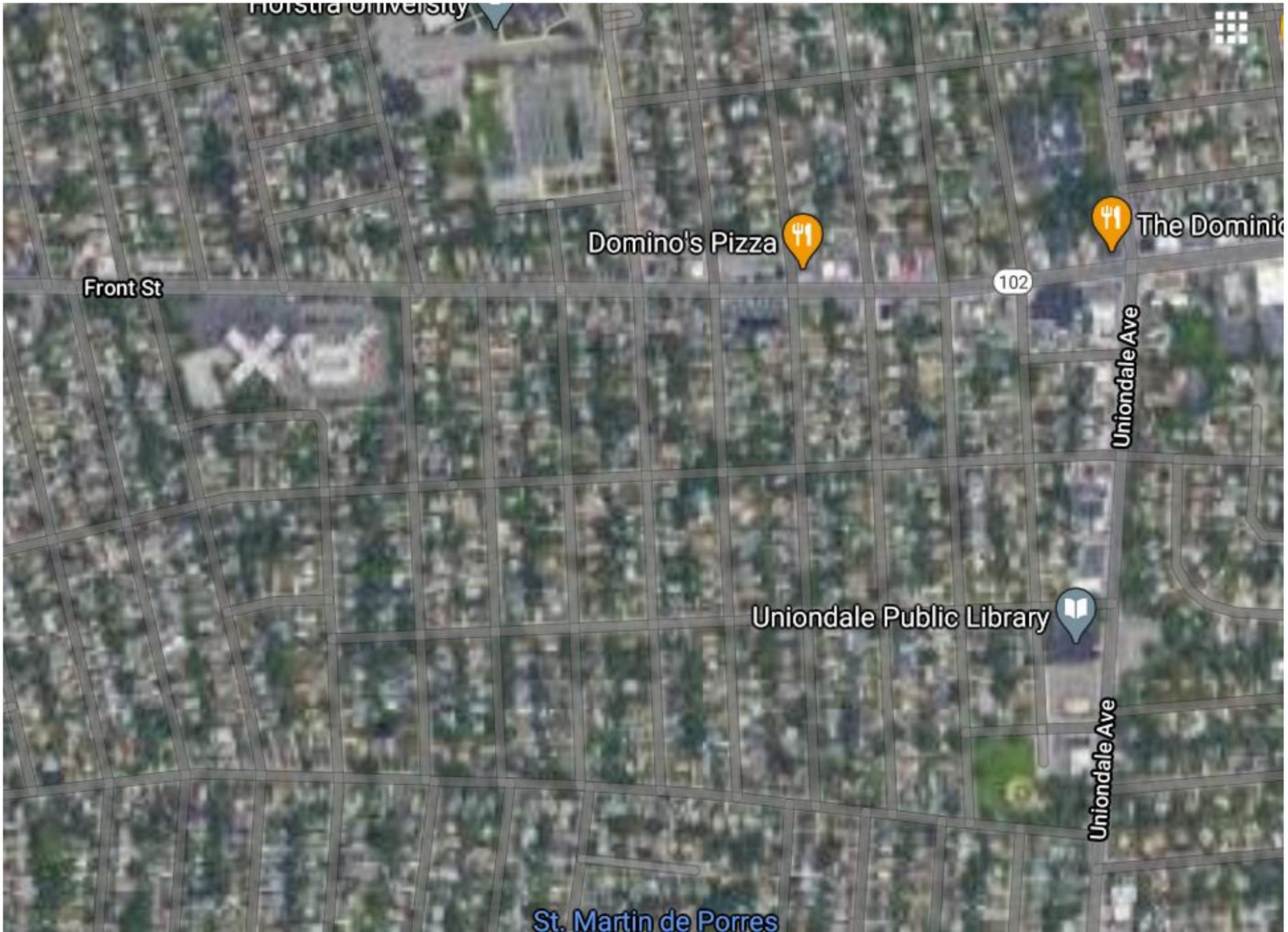
- Many locations lacked ticks.
- Many other places were loaded with ticks.
- Deer and wildlife were noted via anecdotes and physical evidence.
- Deer are more abundant than is obvious.



Urban nature of Nassau County

- As you'd expect, greener spaces have more ticks.
- Many neighborhoods cannot support large wildlife.





Takeaways from prelim surveillance work



- Urban and suburban areas should not be overlooked for tick surveillance.
- Nassau County, while low TBD rates, has ample tick populations.
- Distribution of ticks and risk of TBD is unknown for school properties in NY.

Questions?



Pathogen Testing

- Dr. Laura Goodman's team at AHDC tested a total of 769 *Ixodes scapularis* collected in 2017 (Christmas tree project) and 2018 (all other sites).

Pathogen testing

- ❑ Homogenization with hollow brass beads followed by zirconia beads + chemical lysis
- ❑ Extracted DNA and RNA using magnetic bead based robotic method
- ❑ Tested for the presence of 17 pathogens by nanochip tick array



Statistical Methods

- County-level prevalence was calculated using the percentage of ticks carrying any one pathogen in question.

- Fisher's exact test was used to evaluate if carriage of any pathogen differed by:
 - Life stage (Nymph vs. Adult; Westchester Co. 2017)
 - Adult tick sex (Female vs. Male; all sites)
 - Habitat (edge of woods, 3 m into woods, not in woods; Capital Region 2018)

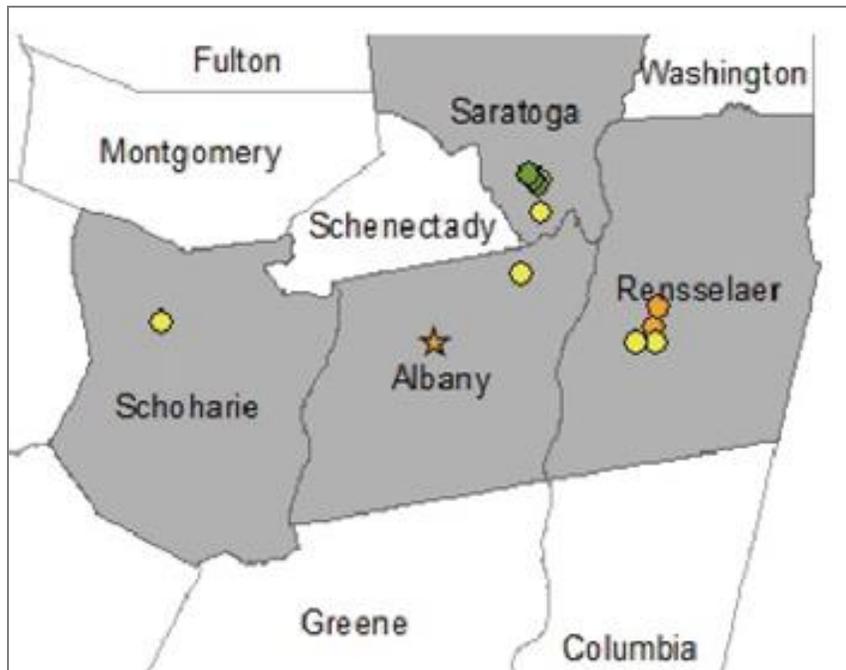
Results – Tick collection (769 in total)

Year	Location	Simple size	Collection period	Life stage			Collect in the morning (%)	Clear sky cover (%)
				Female (%)	Male (%)	Nymph (%)		
2017	Albany	47	Oct 25	38.3	61.7	0	0	0
	Westchester*^	45	Apr 26 - Jun 23	32.6	23.9	41.3	42.2	0
2018	Long Island Region	594	Oct 18 - Dec 4	51.7	48.1	0	40.9	67.3
	Nassau	573	Oct 18 - Dec 4	51.3	48.5	0.2	38.9	68.8
	Queens	11	Nov 12	81.8	18.2	0	100	0
	Suffolk	10	Nov 1 - Nov 7	40	60	0	90	60
	Capital Region	72	Oct 23 - Nov 11	50	50	0	8.3	30.6
	Albany	4	Oct 23	50	50	0	0	75
	Rensselaer	42	Nov 8 – Nov 11	50	50	0	14.3	0
	Saratoga	19	Oct 25 – Oct 30	47.4	52.6	0	0	63.2
	Schoharie	7	Oct 31	57.1	42.9	0	0	100
	Lower Hudson Valley	11	Nov 29 – Dec 4	72.7	27.3	0	72.7	72.7
	Westchester	7	Nov 29 – Dec 4	71.4	28.6	0	85.7	75
	Rockland	4	Nov 29 – Dec 3	75	25	0	50	71.4

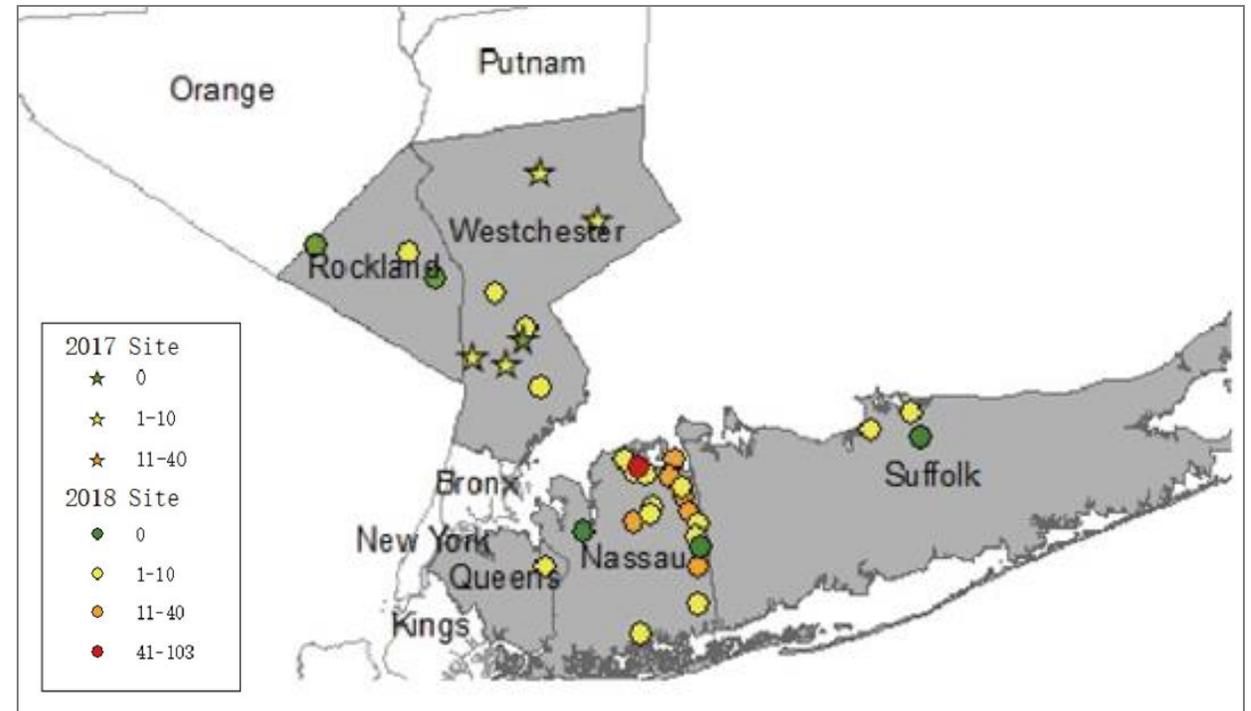
*1 nymph tick was lost and not tested.

^1 larva tick was not list in the table

Pathogen positive tick distribution

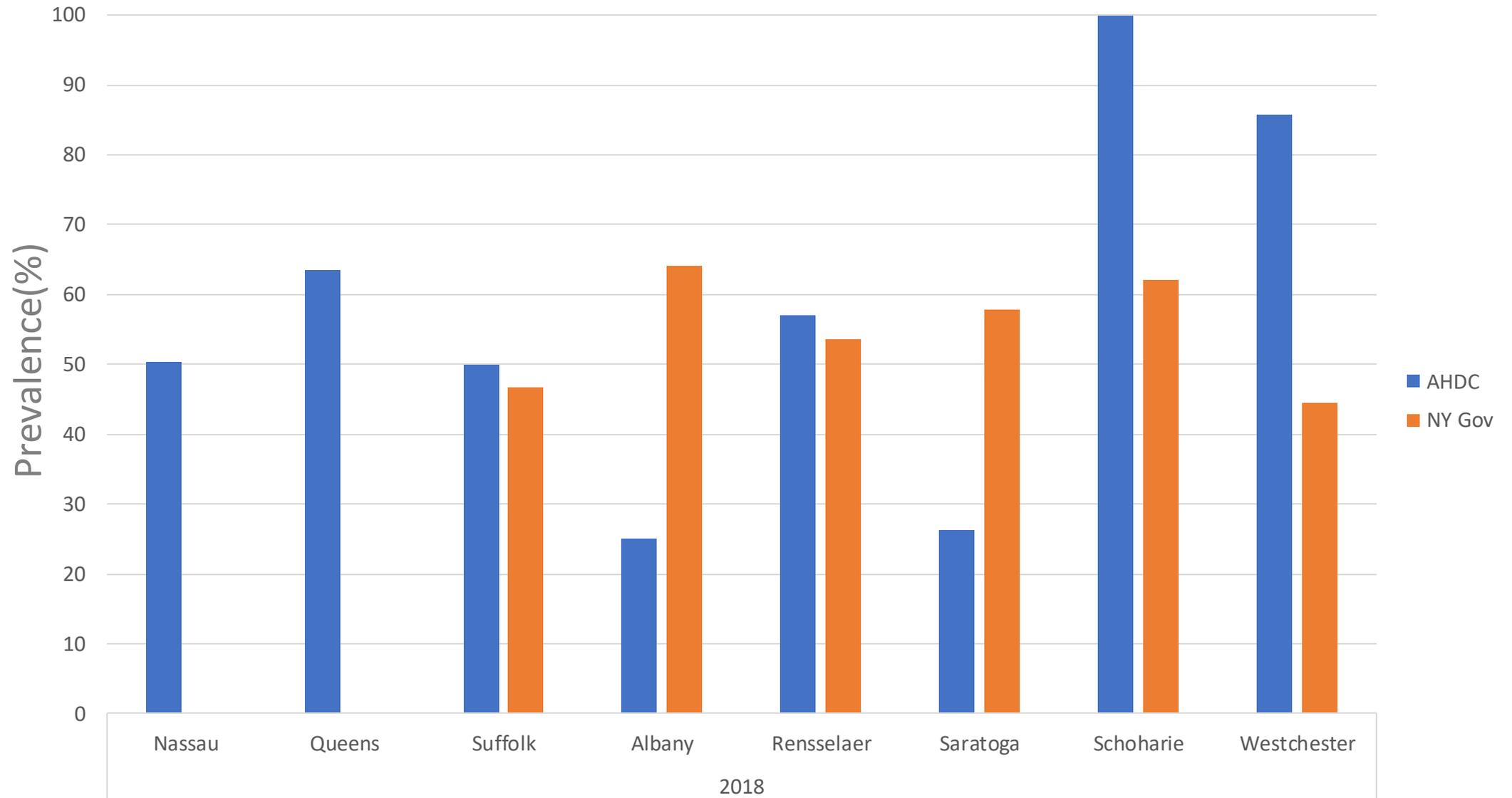


Capital Region

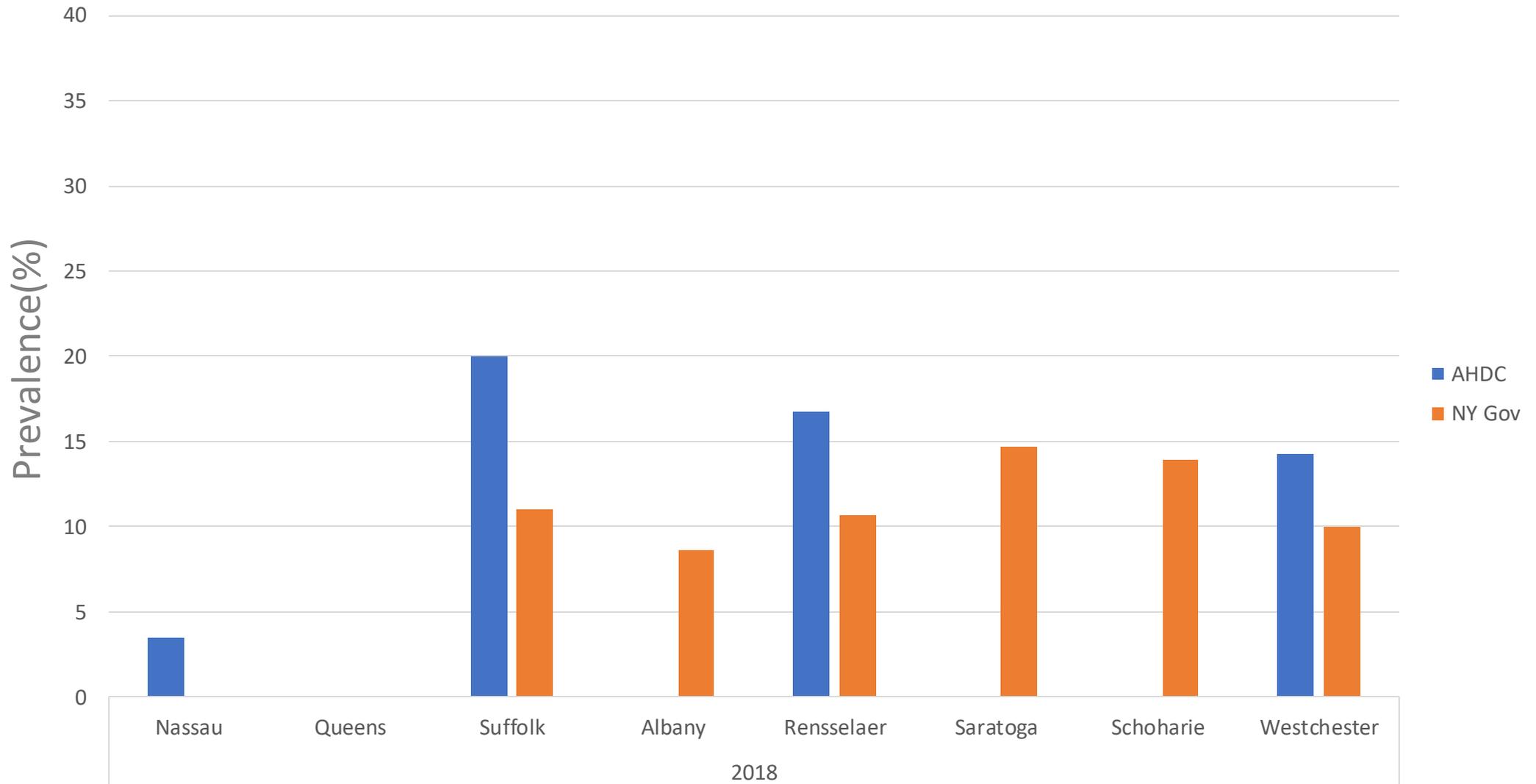


Long Island Region + Lower Hudson Valley

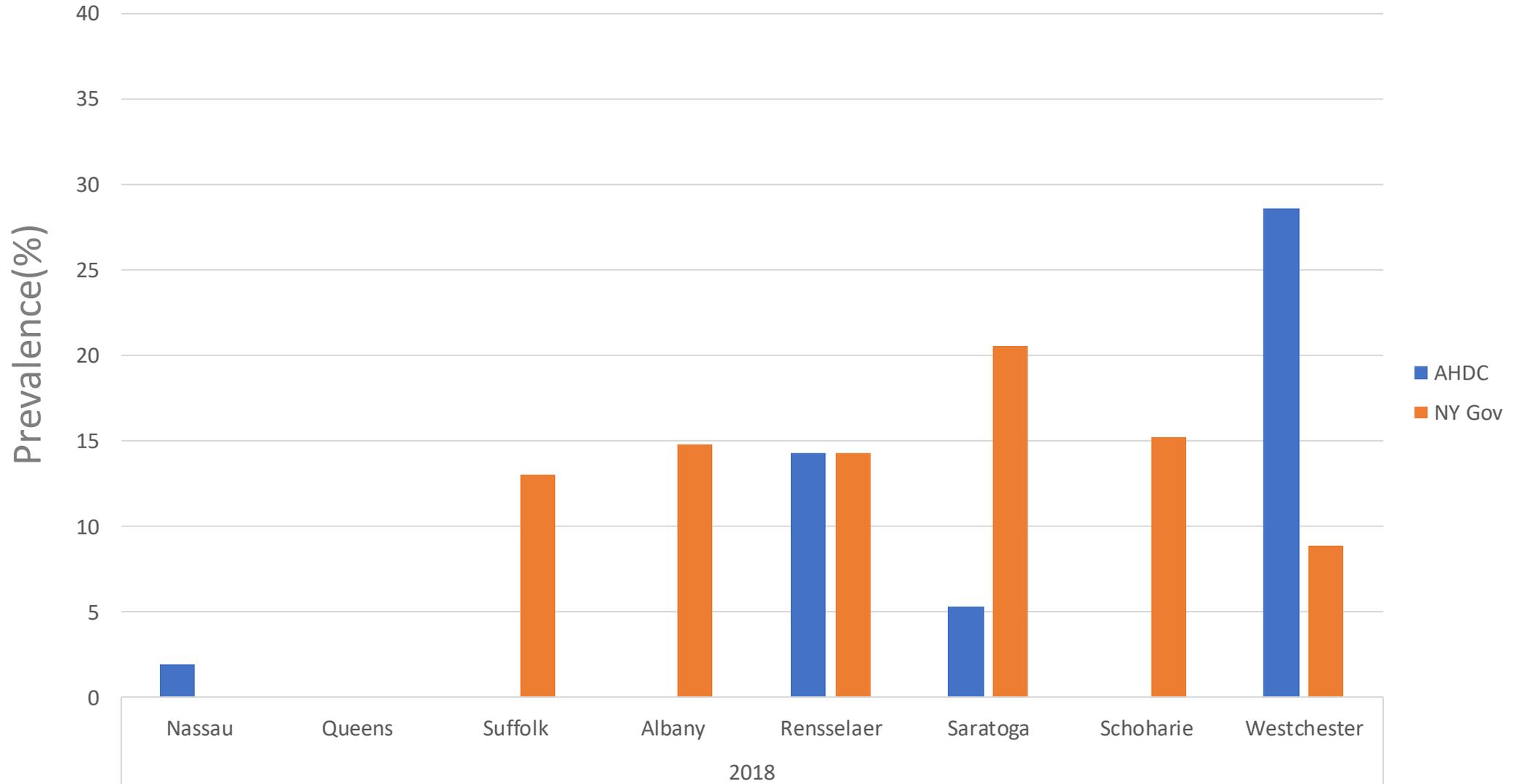
Prevalence of *B. burgdorferi* in adult *I. scapularis* in Southern Counties in 2018



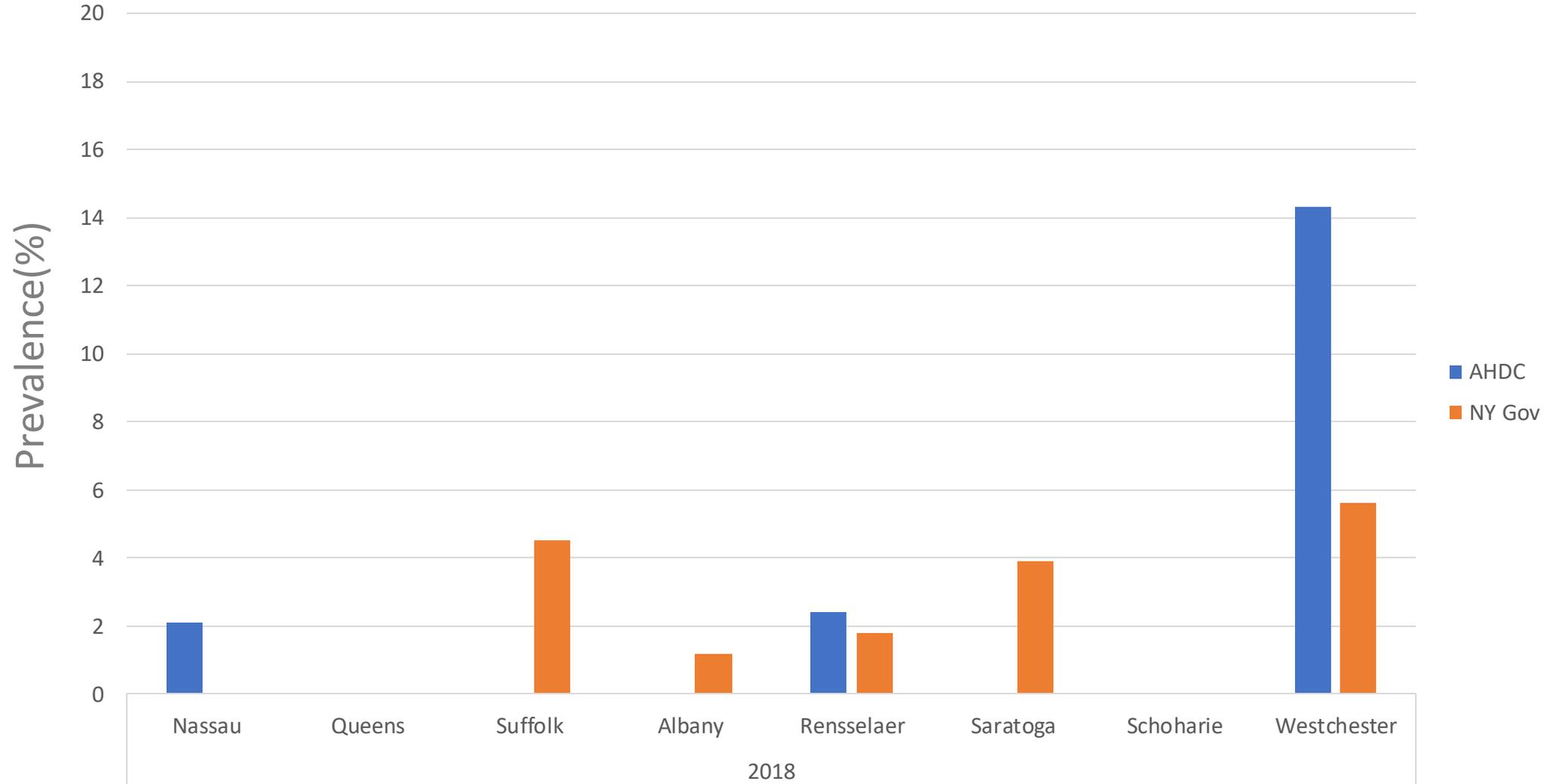
Prevalence of *B. microti* in adult *I. scapularis* in Southern Counties in 2018



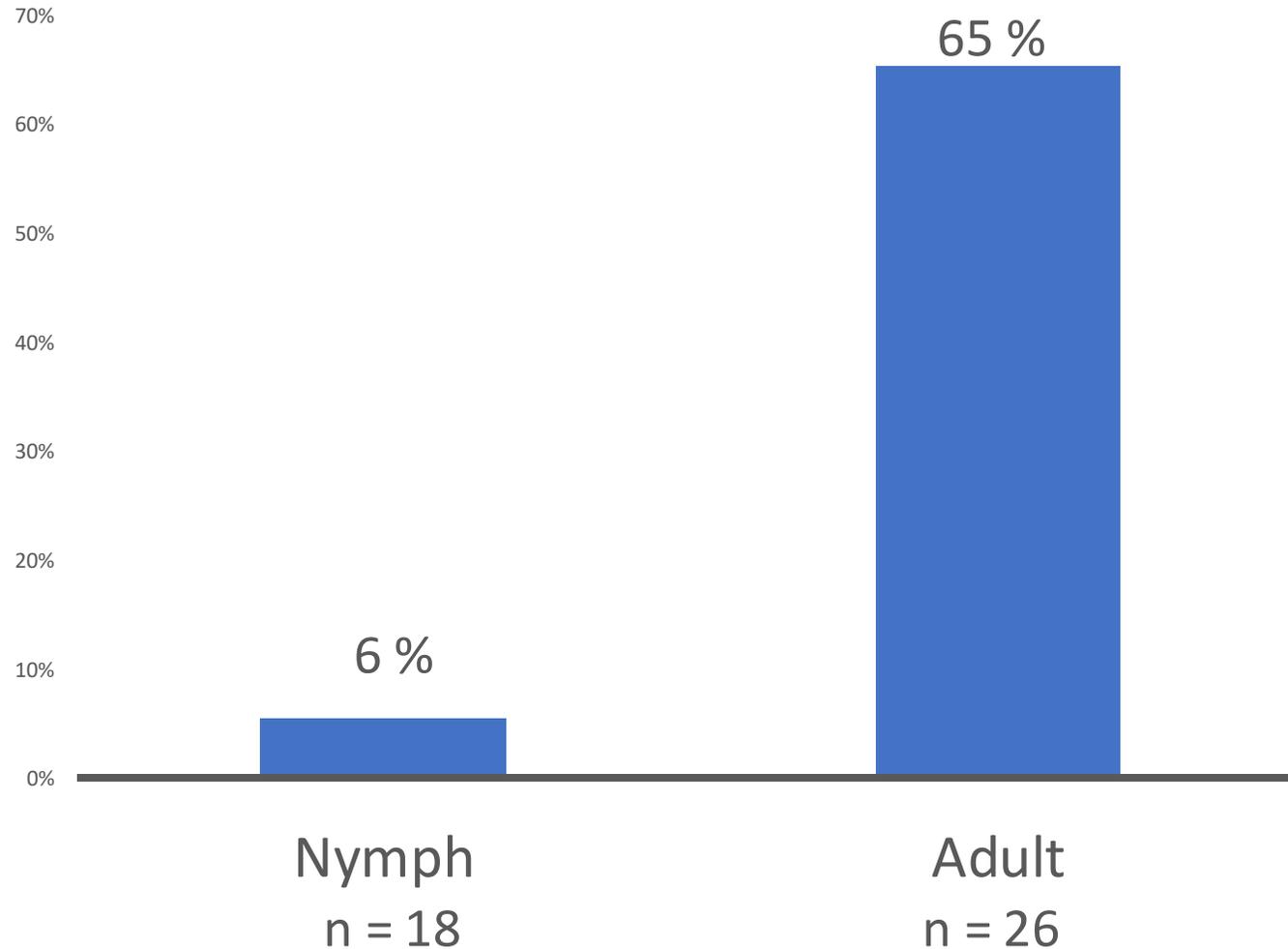
Prevalence of *A. phagocytophilum* in adult *I. scapularis* in Southern Counties in 2018



Prevalence of *B. miyamotoi* in adult *I. scapularis* in Southern Counties in 2018

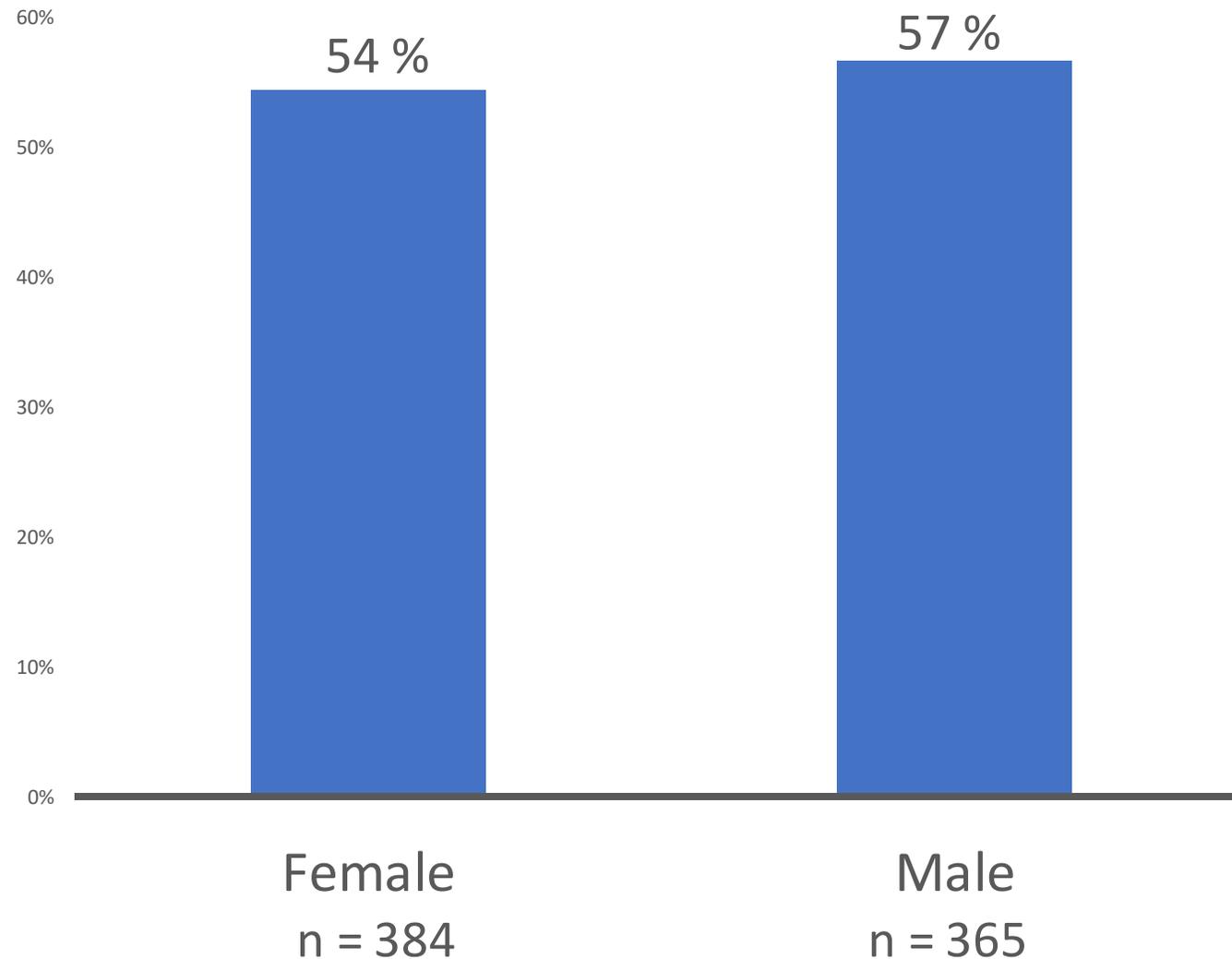


Pathogen Carriage by Life Stage



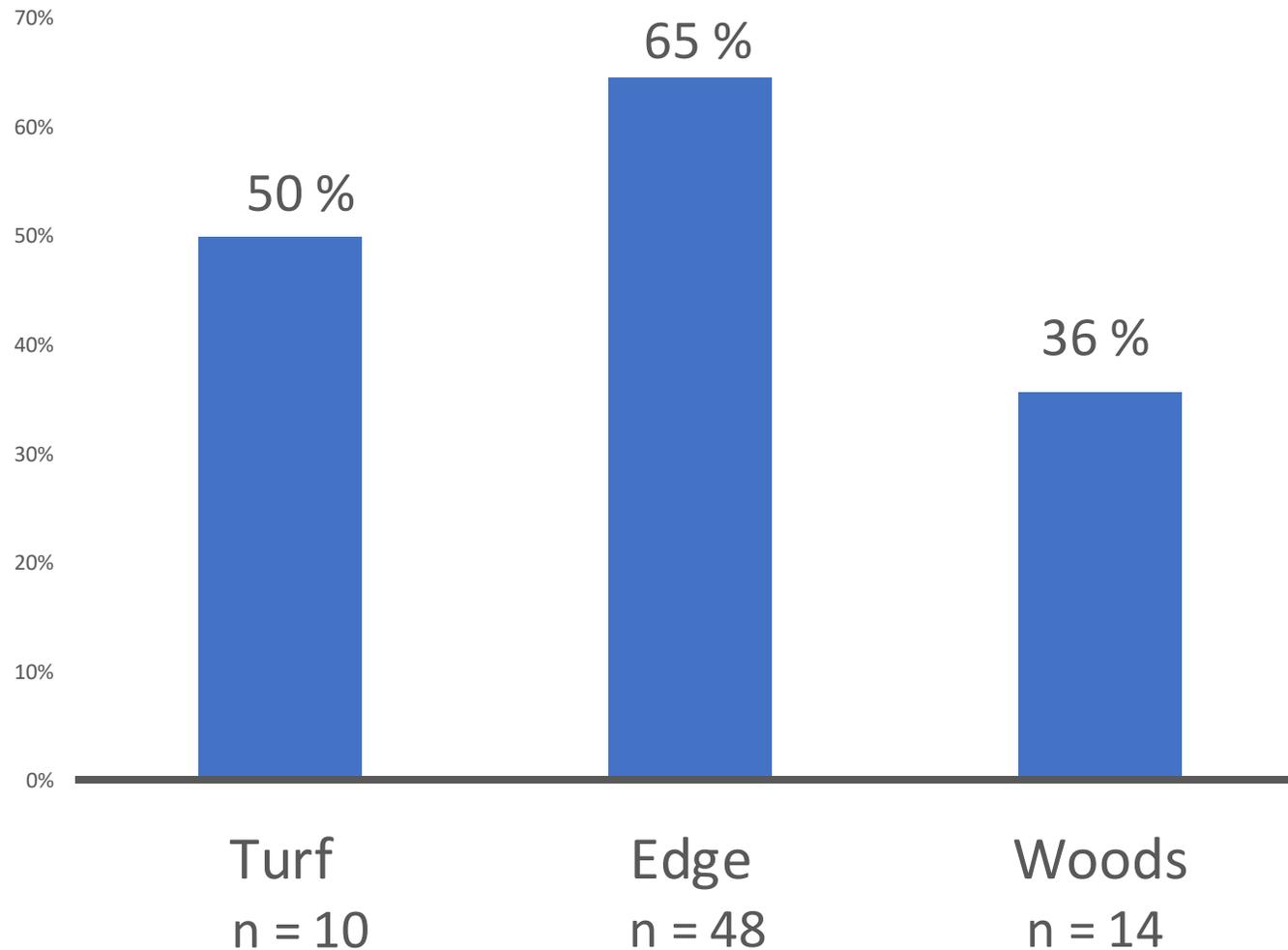
Higher pathogen prevalence in adults than nymphs ($p < 0.001$)

Pathogen Carriage by Sex



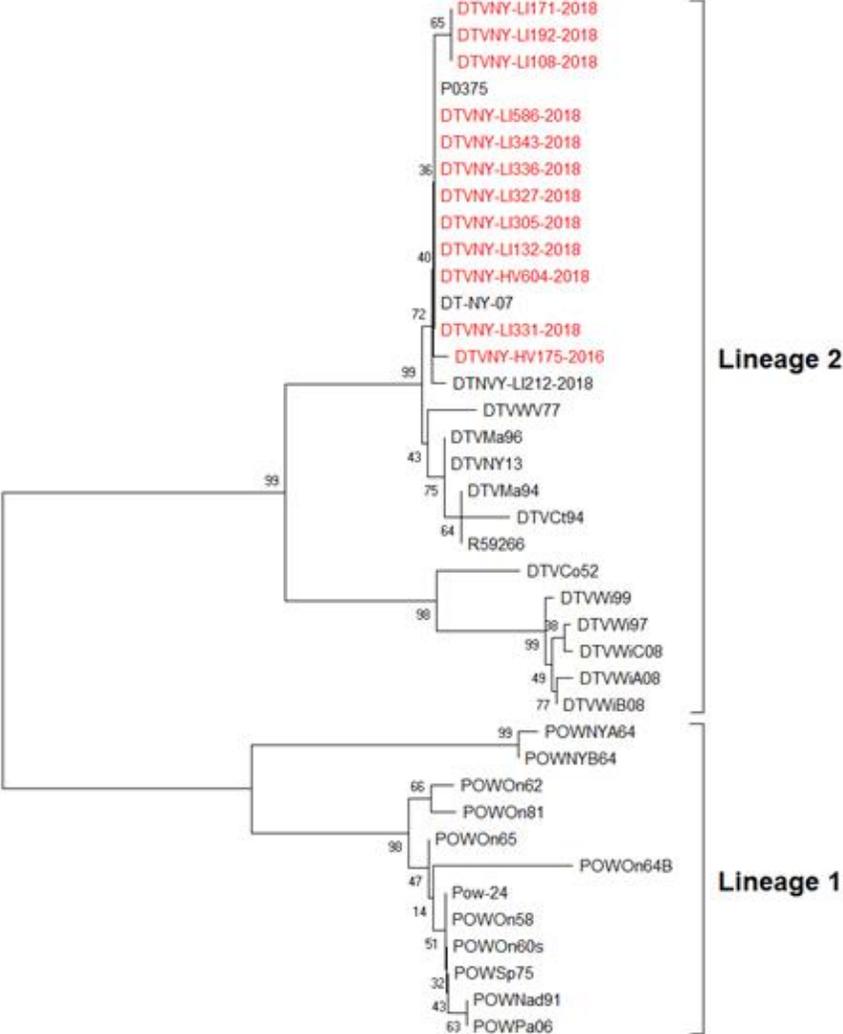
**No difference
in pathogen
prevalence by sex
($p = 0.56$)**

Pathogen Carriage by Habitat



**No difference
in pathogen
prevalence by
habitat
($p = 0.14$)**

Powassan virus in Nassau county, Hudson Valley



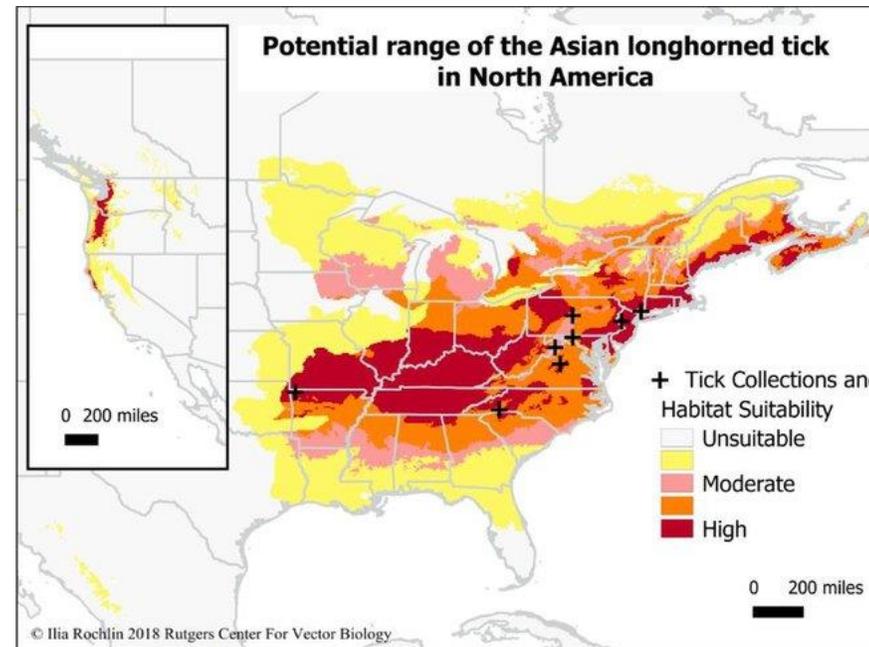
First documented *Haemaphysalis longicornis* in New York State



Photo from Mani Lejeune



NY County	First collected
Bronx	June 2018
Dutchess	August 2018
Richmond	June 2017
Rockland	June 2018
Suffolk	August 2018
Westchester	June 2017



Rochlin J Med Entomol. 2018

Summary

- ❑ High prevalence of *B. burgdorferi*, presence of POWV in ticks in Nassau county
- ❑ Pathogen prevalence was equivalent in turf and woods
- ❑ Coordinated strategic surveillance collaborations are needed



Article published July 2020 (open access)

<https://onlinelibrary.wiley.com/doi/full/10.1111/zph.12749>



ORIGINAL ARTICLE |  Open Access | 

Active surveillance of pathogens from ticks collected in New York State suburban parks and schoolyards

Qin Yuan, Sebastian G. Llanos-Soto, Jody L. Gangloff-Kaufmann✉, Joellen M. Lampman, Matthew J. Frye, Meghan C. Benedict ... [See all authors](#) ▾

First published: 22 July 2020 | <https://doi.org/10.1111/zph.12749>

Yuan and Llanos-Soto contributed equally.

Funding information:

This work was supported by a grant from the New York State Senate Task Force on Lyme and Tick-Borne Disease to the New York State Integrated

Acknowledgments

Cornell MPH Program

- Qin Yuan
- Yihong Li
- Gen Meredith

NYS IPM Program

- Jody Gangloff-Kaufmann
- Joellen Lampman
- Matt Frye
- Betsy Lamb

Other organizations

- American Association of Veterinary Laboratory Diagnosticians (AAVLD)
- Northeast Regional Center for Excellence in Vector-Borne Diseases (NEVBD)

Funding

- New York State Senate Task Force on Lyme and Tick-Borne Disease

Cornell Animal Health Diagnostic Center / NY State Veterinary Diagnostic Laboratory

- Sebastian Llanos-Soto
- Meghan Benedict
- Rebecca Tallmadge
- Patrick Mitchell
- Renee Anderson
- Brittany Chilson
- Bryce Stanhope
- Mani Lejeune
- Randall Renshaw
- Melissa Laverack
- Amy Glaser

Questions?





Some Questions for You

Request for Proposals

- Due date: November 12, 2020
- <https://www.northeastipm.org/grant-programs/ipm-center-grants/ipm-partnership-grants/>

Find a Colleague

- To post a profile about yourself and your work:
 - <http://neipmc.org/go/APra>
 - “Find a Colleague” site
 - <http://neipmc.org/go/colleagues>

Upcoming Webinars

- **Tick IPM #6: Host-Targeted Tick Control – What Works, What Doesn't, and What's New**

Dr. Andrew Li , Research Entomologist, USDA-ARS Invasive Insects Biocontrol and Behavior Laboratory, Beltsville, MD. September 30, 2020, 11:00 am

- **Tick IPM #7: Leaf Litter/Snow Removal for Tick Reduction**

Dr. Kirby C. Stafford III, Connecticut Agricultural Experiment Station, October 7, 2020 – 11:00 a.m.

For Updates: <https://www.northeastipm.org/ipm-in-action/the-ipm-toolbox/>

Recording of Tick IPM Webinar Series

- Past recordings and today's Webinar will be available to view **on demand** in a few business days.
- <http://www.neipmc.org/go/ipmtoolbox>
- You can watch as often as you like.

Acknowledgements



This presentation was funded in part by the Northeastern IPM Center through Grant #2018-70006-28882 from the National Institute of Food and Agriculture, Crop Protection and Pest Management, Regional Coordination Program.

