



TICK BLITZ

Community-Based Science

Guide for Participants

Program Contact:
tickblitz@cornell.edu

Outline for Today's Training

- **Background and Purpose of the Tick Blitz**
- **Contents of your Tick Blitz kit**
- **Collection Methods / Sampling Protocol**
 - **Who, What, When, Where, How**
- **Question & Answer Session**

Who We Are

Cornell University Department of Entomology

New York State Integrated Pest Management Program

Northeast Regional Center for Excellence in Vector-Borne Diseases



NEWBD
NORTHEAST REGIONAL CENTER FOR
EXCELLENCE IN VECTOR-BORNE DISEASES

Cornell CALS
College of Agriculture and Life Sciences



What is a Tick Blitz?



Citizen Science Opportunity

- Get community outdoors
 - See what types of ticks are in your area
 - Educate the public about ticks and potential diseases
 - Quick & efficient way to collect ticks across a large area
-

Tick Blitz Map:



Why a Tick Blitz in New York?



 Blacklegged tick

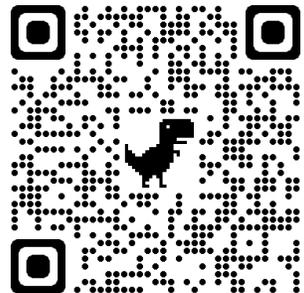
 Asian Longhorned tick

 Lone Star tick

Ticks We Are Looking For

 TickEncounter Resource Center

Amblyomma americanum (Lone Star ticks)



https://tickencounter.org/tick_identification/tickid_nonflash

Why Do These Ticks Matter?

Lone star tick



- Human Ehrlichiosis
- RMSF
- Tularemia
- Bourbon Virus
- Heartland Virus
- Alpha gal Syndrome

Asian longhorned tick



- Bovine Theileriosis
- Other diseases currently unknown
- Known to bite pets

Ticks you May Also Come Across

 TickEncounter

American Dog Tick (*Dermacentor variabilis*)



Larva



Nymph



Adult Male



Adult Female

 TickEncounter

Blacklegged Tick or Deer Tick (*Ixodes scapularis*)



Larva



Nymph



Adult Male



Adult Female

 TickEncounter

Gulf Coast Tick (*Amblyomma maculatum*)



Larva



Nymph

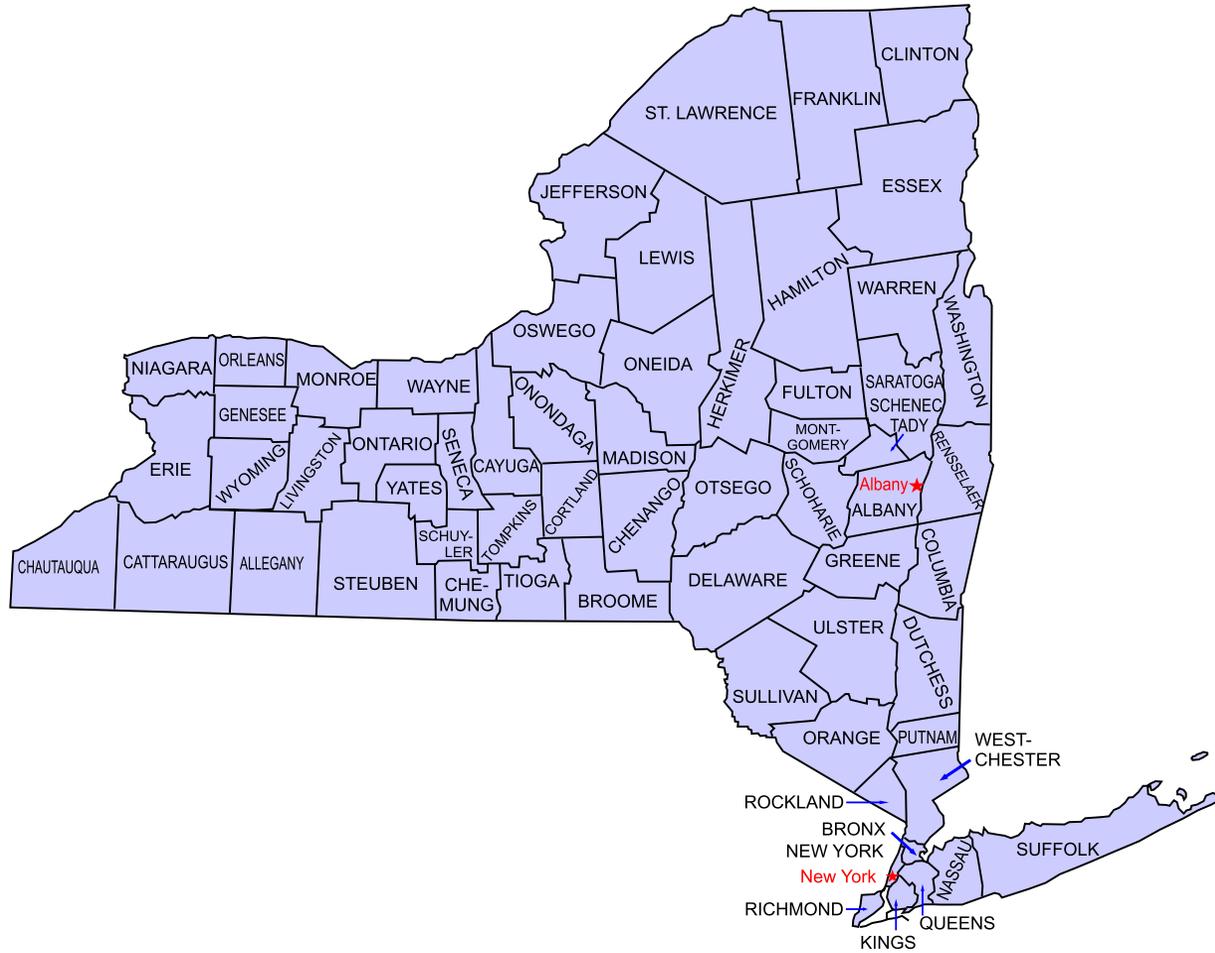


Adult Male



Adult Female

Tick Blitz Event: Location



Western Region

- Allegany
- Cattaraugus
- Chautauqua
- Erie
- Niagara
- Ontario
- Orleans
- Wayne

Northern Region

- St. Lawrence

2024 New York State Tick Blitz

- Sample at least once between June 16 and June 29, 2024
- You can sample one time, or up to seven times – one sampling event per day
- Do not sample the same location more than once per day
- Need to collect for a total of 300 meters (984 feet) each time
- Ticks you send back to Cornell University will be identified and results shared later in the summer

Tick Blitz Kit: What is in it?



Other Items You May Consider Bringing...

- **Clipboard** – writing surface for your collection sheet
- **Safety vest / bright clothing** – if sampling near roads
- **Trash bag** – to store your tick drag during transport
- Water and snacks

- **YOU MAY NEED ADDITIONAL:**
 - Ziploc bags
 - Lint rollers



Habitat Considerations for Sampling Our Targeted Tick Species

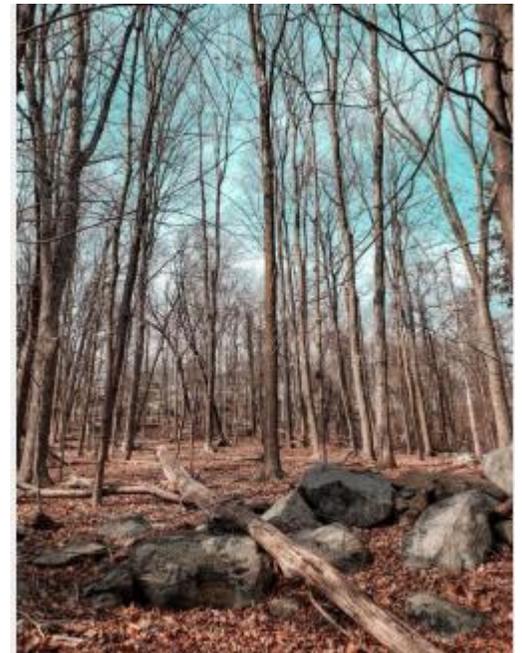
GOOD HABITAT

- Forest edges
- Grassy areas (tall or short)
- Meadows / fields
- Pasture



BAD HABITAT

- Wooded areas with leaf litter

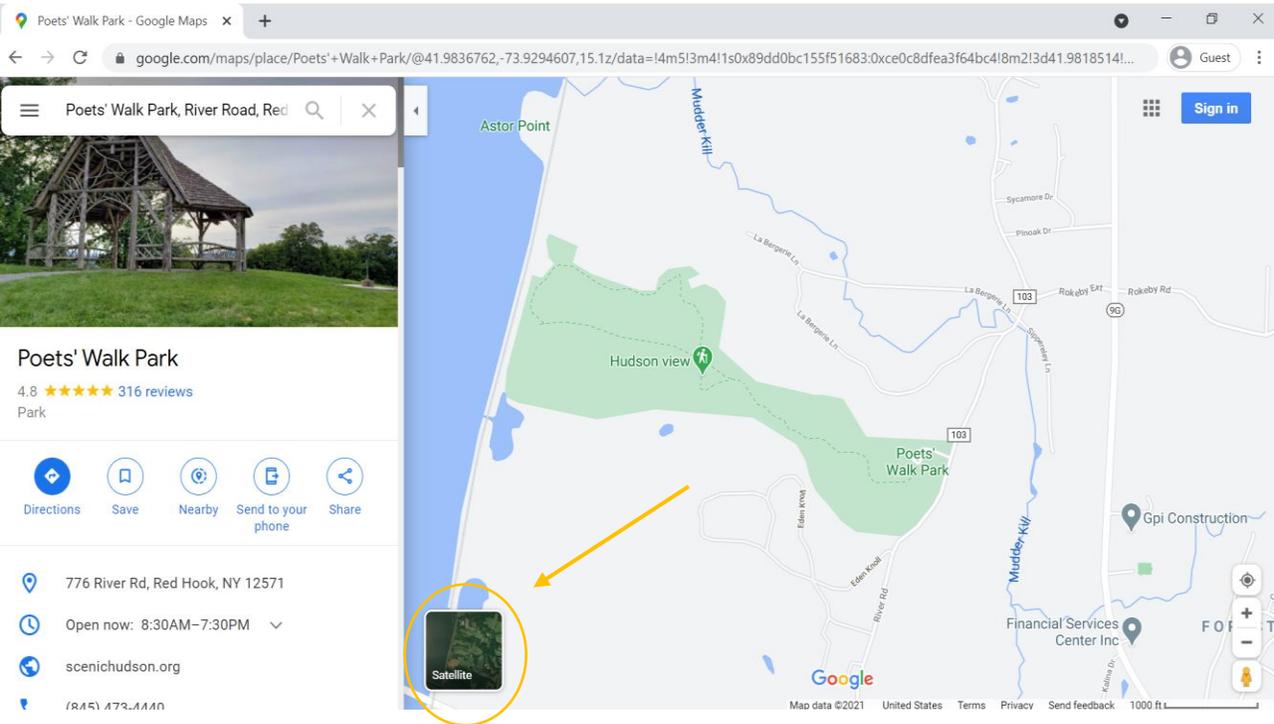


How to Pick a Sampling Location

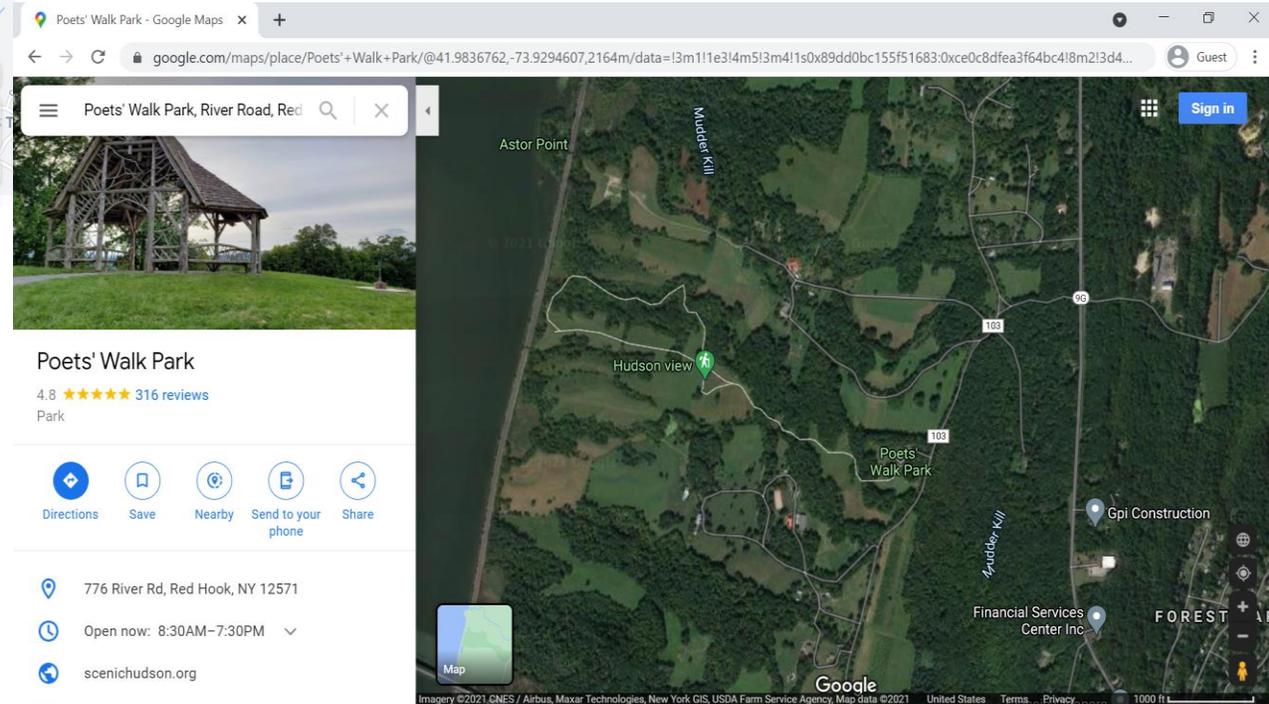
- Think of places that are:
 - Easy to access
 - Have lots of visitors
 - Have enough space for sampling 984 feet/300 meters
- Places to Consider
 - Public parks
 - City/Town/State
 - Recreational areas
 - Your property
- Places **NOT** to sample:
 - National park lands
 - Private property without permission

You can start doing this now!

Site Selection with Google Maps

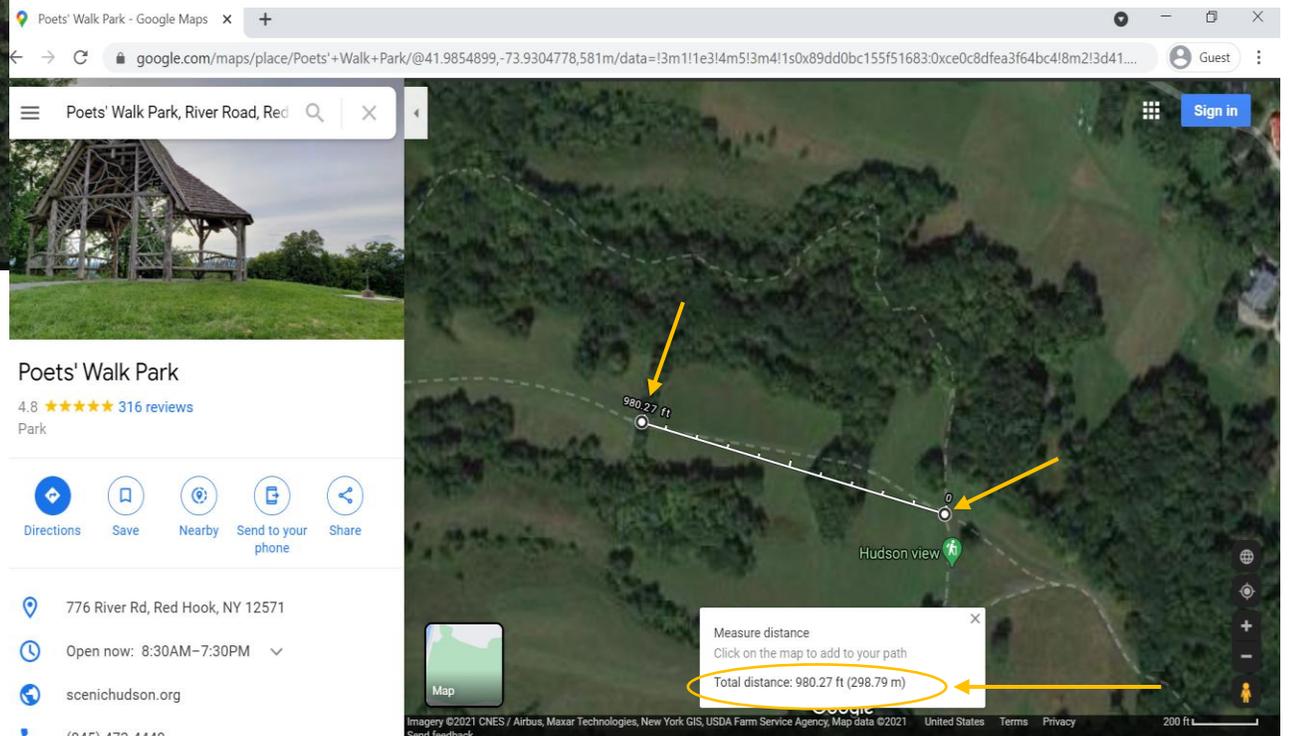
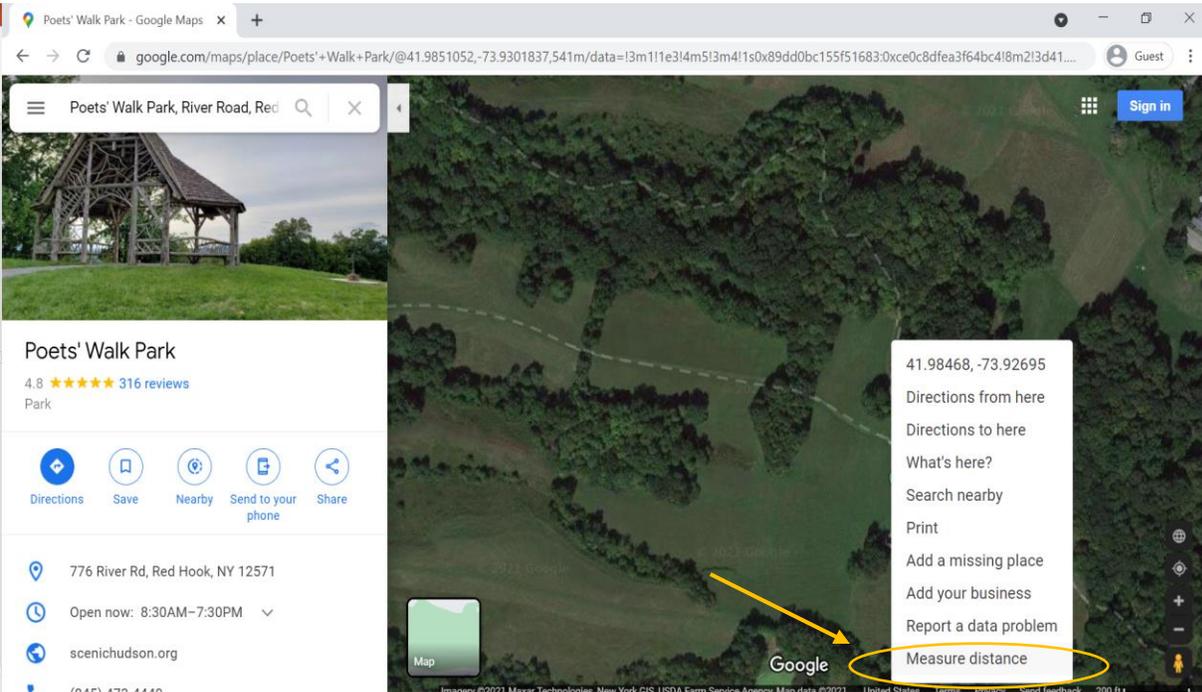


- Enter an address in the Google maps search bar
- Switch to satellite view



Site Selection with Google Maps

- Right click at a location on map where you want to sample and click “measure distance”
- Click to choose an end point
- Provided distance for straight line



How to Measure Distance on Your Phone

- Android, Google Maps
 - <https://support.google.com/maps/answer/1628031?co=GENIE.Platform%3DAndroid&hl=en&oco=1>
- iPhone/iPad, Google Maps
 - <https://support.google.com/maps/answer/1628031?co=GENIE.Platform%3DiOS&hl=en&oco=1>
- iPhone/iPad, Apple Maps
 - <https://www.techgenesis.net/user-guide-on-how-to-measure-distance-on-apple-maps/>



What Time of Day to Sample

Morning after the ground is dry

9:30am to 11:00am

Late-afternoon

After 3:00pm

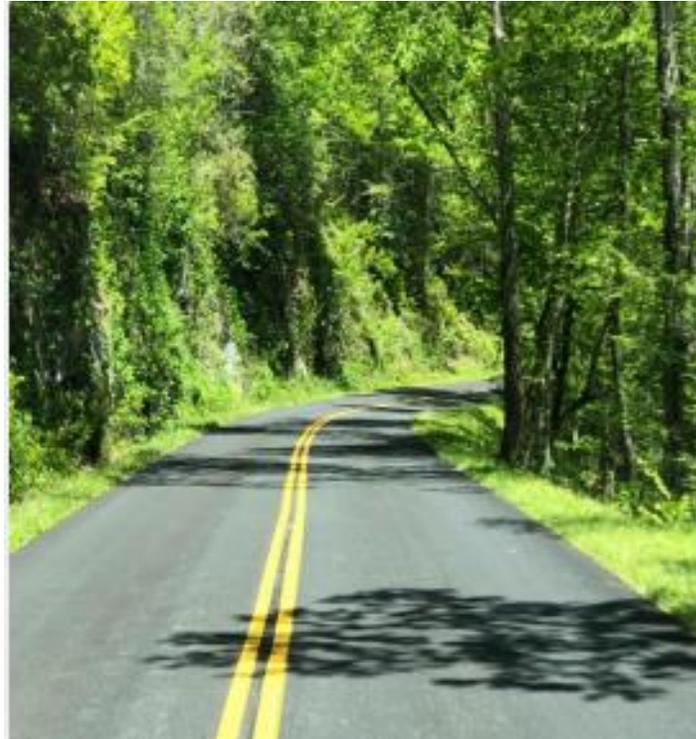
NOTE: Be cautious sampling between 10:00am to 2:00pm

- The sun is out and strong during this time of day
 - UV light exposure can result in **sunburns**
 - **Heat exhaustion** can happen during the hottest part of the day

Additional Sampling Site Considerations

If sampling alongside a roadway:

- Always face traffic
- Wear bright clothing



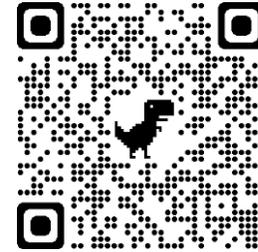
What to Wear While Sampling

- Long sleeved shirts that are tucked into your pants
- Long pants that are tucked into your socks
- Boots / sneakers with the long white socks provided in your kit
- Use masking tape where your socks meet your pants



What to Wear While Sampling

- Sunscreen
- EPA-Registered Insect Repellent
 - Look for ingredients like DEET, Picaridin, Oil of Lemon Eucalyptus, or IR3535
- Clothing treated with 0.5% permethrin



<https://www.epa.gov/insect-repellents/find-repellent-right-you>



https://www.neregionalvectorcenter.com/pdf/ire_guide.pdf



<https://www.cdc.gov/mosquitoes/mosquito-bites/how-to-use-permethrin.html>

Field Collection Sheet

TICK BLITZ DATA COLLECTION SHEET

FIRST NAME: LAST NAME: COLLECTION SITE:

DATE: MONDAY JUNE 20
 TUESDAY JUNE 21
 WEDNESDAY JUNE 22
 THURSDAY JUNE 23
 FRIDAY JUNE 24
 SATURDAY JUNE 25
 SUNDAY JUNE 26
 MONDAY JUNE 27
 TUESDAY JUNE 28
 WEDNESDAY JUNE 29
 THURSDAY JUNE 30
 FRIDAY JULY 1

START TIME: END TIME:
 AM PM AM PM

GROUND WETNESS: SOGGY
 DAMP
 MOSTLY DRY
 DRY

SUNSHINE: ☀️
 ☁️☀️
 ☁️

OTHER: OTHER: *Please use the space below to describe*

LAST RAINFALL: YESTERDAY 4-5 DAYS AGO
 2-3 DAYS AGO > 5 DAYS AGO

TEMPERATURE: °F
 °C

LOCATION: GPS coordinates and nearest street intersection.

Example: 42.44698, -76.47942 and Tower Rd / Garden Ave., Ithaca NY



TICKS COLLECTED PER STOP: Indicate # of ticks placed in vial and # of lint roller sheets used at each stop.

# vial	# sheets	# vial	# sheets	# vial	# sheets	TOTAL # TICKS IN VIALS:
1		11		21		
2		12		22		
3		13		23		
4		14		24		
5		15		25		
6		16		26		
7		17		27		
8		18		28		
9		19		29		
10		20		30		

TOTAL # LINT ROLLER SHEETS:

REMEMBER! TAKE A PHOTO OF YOUR COLLECTION SITE & COLLECTION SHEET

TICK BLITZ DATA COLLECTION SHEET

FIRST NAME: Jane LAST NAME: Doe COLLECTION SITE:

DATE: MONDAY JUNE 20
 TUESDAY JUNE 21
 WEDNESDAY JUNE 22
 THURSDAY JUNE 23
 FRIDAY JUNE 24
 SATURDAY JUNE 25
 SUNDAY JUNE 26
 MONDAY JUNE 27
 TUESDAY JUNE 28
 WEDNESDAY JUNE 29
 THURSDAY JUNE 30
 FRIDAY JULY 1

START TIME: 9:00 END TIME: 9:45
 AM PM AM PM

GROUND WETNESS: SOGGY
 DAMP
 MOSTLY DRY
 DRY

SUNSHINE: ☀️
 ☁️☀️
 ☁️

OTHER: OTHER: *Please use the space below to describe*

LAST RAINFALL: YESTERDAY 4-5 DAYS AGO
 2-3 DAYS AGO > 5 DAYS AGO

TEMPERATURE: 72 °F
 °C

LOCATION: GPS coordinates and nearest street intersection.

Example: 42.44698, -76.47942 and Tower Rd / Garden Ave., Ithaca NY

41.981675, -73.918361
 Poet's Walk Park / River Rd.



TICKS COLLECTED PER STOP: Indicate # of ticks placed in vial and # of lint roller sheets used at each stop.

# vial	# sheets	# vial	# sheets	# vial	# sheets	TOTAL # TICKS IN VIALS:
1	3	0	11	0	0	
2	1	0	12	0	0	
3	0	0	13	4	0	
4	0	0	14	3	0	
5	9	1	15	0	1	
6	3	0	16	0	0	
7	0	0	17	1	0	
8	0	0	18	2	0	
9	1	0	19	9	1	
10	2	0	20	0	0	
			21	6	1	<input type="text"/> 5
			22	1	0	
			23	3	0	
			24	5	1	
			25	2	0	
			26	1	0	
			27	0	0	
			28	0	0	
			29	2	0	
			30	1	0	

TOTAL # LINT ROLLER SHEETS:

REMEMBER! TAKE A PHOTO OF YOUR COLLECTION SITE & COLLECTION SHEET

How to Find GPS Coordinates on Your Phone

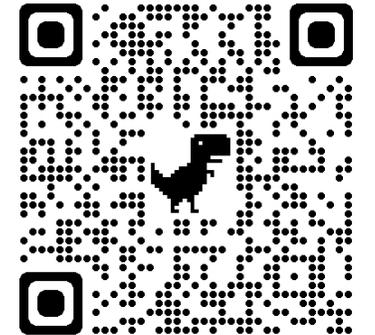
- Android, Google Maps

- <https://support.google.com/maps/answer/18539?co=GENIE.Platform%3DAndroid&hl=e>



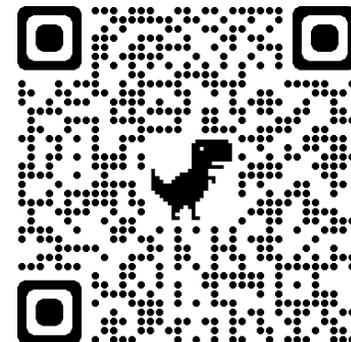
- iPhone/iPad, Google Maps

- <https://support.google.com/maps/answer/18539?co=GENIE.Platform%3DiOS&hl=en>



- iPhone/iPad, Apple Maps

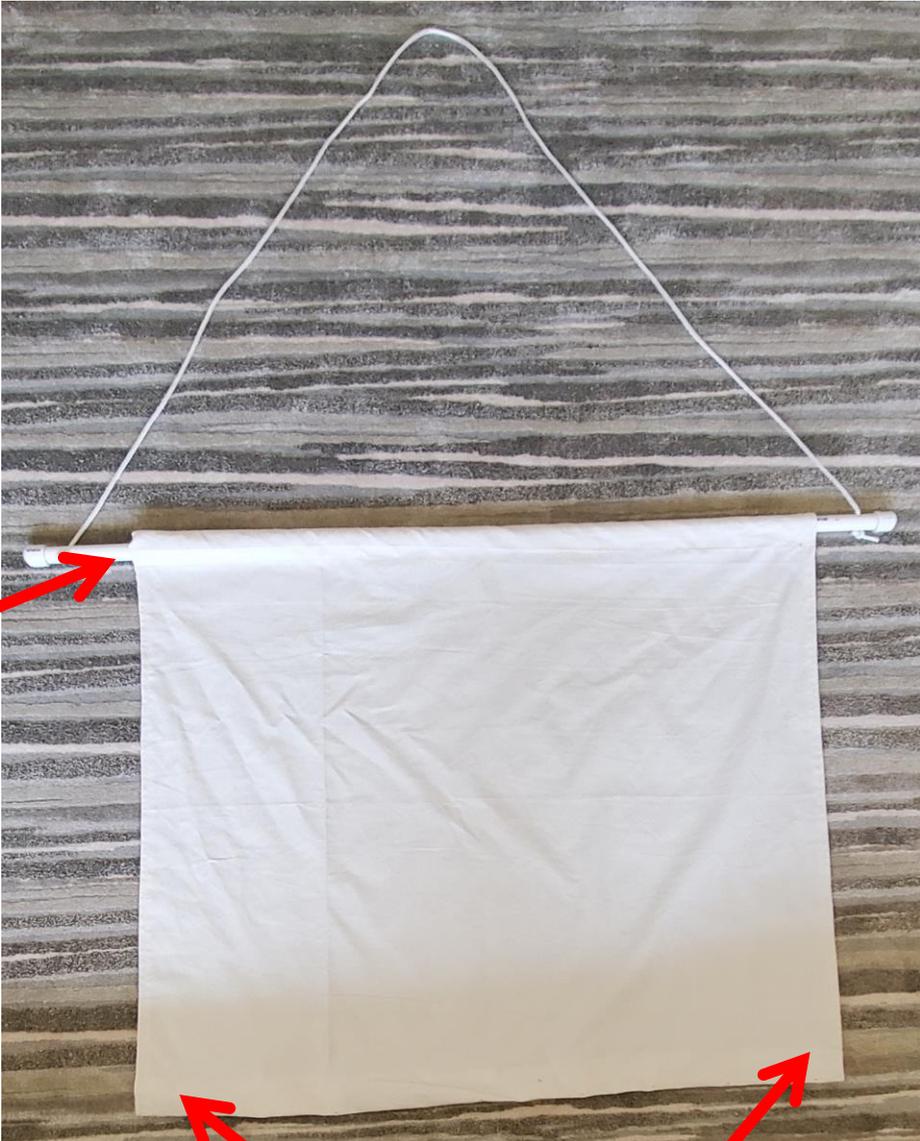
- <https://www.howtogeek.com/695123/how-to-find-latitude-and-longitude-in-apple-maps/>



Tick Drag Overview

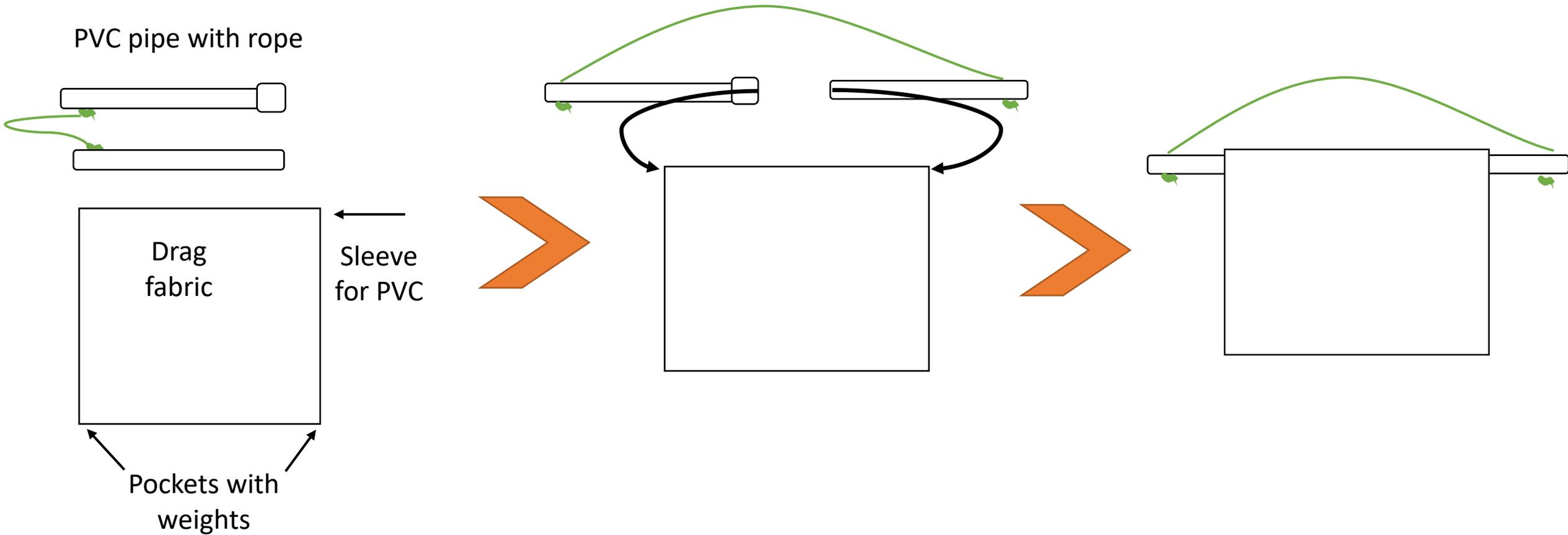
Make sure no repellent or permethrin gets on your tick drag!

Sleeve for PVC



Pockets with weights

Tick Drag Assembly



- Insert the two PVC pipes into the sewn sleeve at the top of the tick drag
- Ensure the two pipes are securely connected with the coupler

How to Determine Your Steps

Use the mason line and stakes included in your kit to help you determine your step count



1. Place one stake into the ground
2. Carry the mason line in your hand and walk forward until the line is taut. Place the second stake into the ground.
3. Now, walk the mason line and count the number of steps you take.
4. Do this five times, entering your numbers on the sampling guide sheet.
5. Add up each of your walks and then divide by 5



SAMPLING GUIDE

This document goes through each step for collecting ticks successfully

1 COUNTING YOUR STEPS TO REACH 10 METERS

- Use the mason line and stakes to measure out 10 meters.
- Walk the length of the mason line and count the number of steps you take.
- Do this five times and enter your numbers below.
- Add up each of your walks and then divide by 5. This is the number of steps to walk at each interval before stopping to check the drag for ticks.

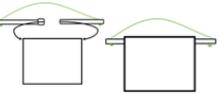
_____ + _____ + _____ + _____ + _____ = _____ / 5
[Walk 1] [Walk 2] [Walk 3] [Walk 4] [Walk 5]



Number of steps to walk before checking the drag for ticks:

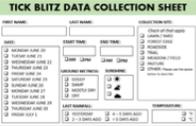
2 ASSEMBLE YOUR TICK DRAG

- Run the PVC pipe through the top sleeve of your drag cloth.
- Connect the PVC pipe in the middle



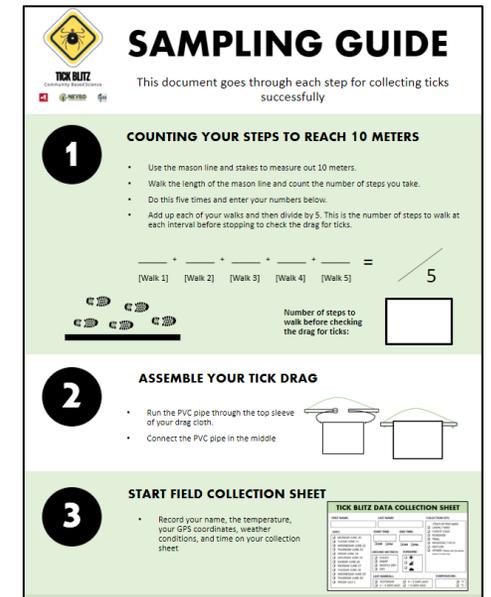
3 START FIELD COLLECTION SHEET

- Record your name, the temperature, your GPS coordinates, weather conditions, and time on your collection sheet



How to Sample for Ticks

1. Use the Sampling Guide worksheet to count the number of steps you will take to reach 10 meters
2. Walk 10 meters while pulling the drag cloth behind you
3. Stop and check your drag. Remove ticks from the fabric.
4. Record the number of ticks placed in the vial and the number of lint roller sheets used on your data collection sheet.
5. Repeat until you reach 300 meters (30 drag & checks total)



TICK BLITZ DATA COLLECTION SHEET			
FIRST NAME:	LAST NAME:		COLLECTION SITE:
<input type="text"/>	<input type="text"/>		<input type="checkbox"/> LAWN / YARD <input type="checkbox"/> ROBERT EXCISE <input type="checkbox"/> ROADSIDE <input type="checkbox"/> TRAIL <input type="checkbox"/> HABITATS / FIELD <input type="checkbox"/> MAINTENANCE <input type="checkbox"/> OTHER: Please enter the specific location in this space.
DATE:	START TIME:	END TIME:	
<input type="checkbox"/> MONDAY JUNE 20 <input type="checkbox"/> TUESDAY JUNE 21 <input type="checkbox"/> WEDNESDAY JUNE 22 <input type="checkbox"/> THURSDAY JUNE 23 <input type="checkbox"/> FRIDAY JUNE 24 <input type="checkbox"/> SATURDAY JUNE 25 <input type="checkbox"/> SUNDAY JUNE 26 <input type="checkbox"/> MONDAY JUNE 27 <input type="checkbox"/> TUESDAY JUNE 28 <input type="checkbox"/> WEDNESDAY JUNE 29 <input type="checkbox"/> THURSDAY JUNE 30 <input type="checkbox"/> FRIDAY JUNE 1	<input type="text"/> AM <input type="text"/> PM	<input type="text"/> AM <input type="text"/> PM	
CALCULATE THE DATA:		SURROUNDING:	
<input type="checkbox"/> WINDY <input type="checkbox"/> SUNNY <input type="checkbox"/> MOISTLY DRY <input type="checkbox"/> DRY		<input type="checkbox"/> CLEAR <input type="checkbox"/> CLOUDY	
LAST RAINFALL:		TEMPERATURE:	
<input type="checkbox"/> YES/PROB <input type="checkbox"/> 1 - 2 DAYS AGO <input type="checkbox"/> 3 - 5 DAYS AGO		<input type="checkbox"/> 0 - 5 DAYS AGO <input type="checkbox"/> 6 - 7 DAYS AGO <input type="checkbox"/> 8 - 9 DAYS AGO <input type="checkbox"/> 10 - 15 DAYS AGO <input type="checkbox"/> 16 - 20 DAYS AGO <input type="checkbox"/> 21 - 30 DAYS AGO <input type="checkbox"/> 31 - 60 DAYS AGO <input type="checkbox"/> 61 - 90 DAYS AGO <input type="checkbox"/> 91 - 120 DAYS AGO <input type="checkbox"/> 121 - 150 DAYS AGO <input type="checkbox"/> 151 - 180 DAYS AGO <input type="checkbox"/> 181 - 210 DAYS AGO <input type="checkbox"/> 211 - 240 DAYS AGO <input type="checkbox"/> 241 - 270 DAYS AGO <input type="checkbox"/> 271 - 300 DAYS AGO	

Video of Dragging

Proper technique but
not a good habitat
example



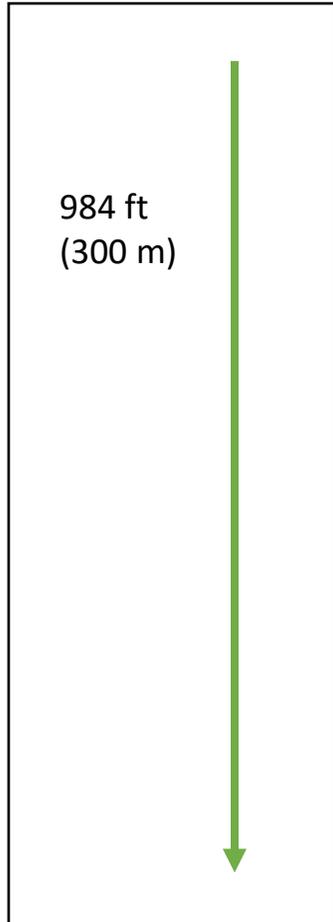
Video of Flagging

**Different technique but
great habitat example**



Examples of Sampling Path Layout

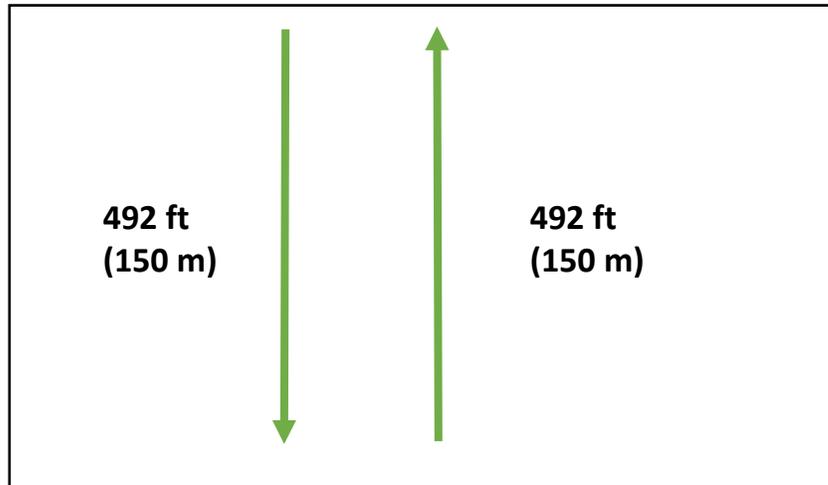
Example 1: One long walk



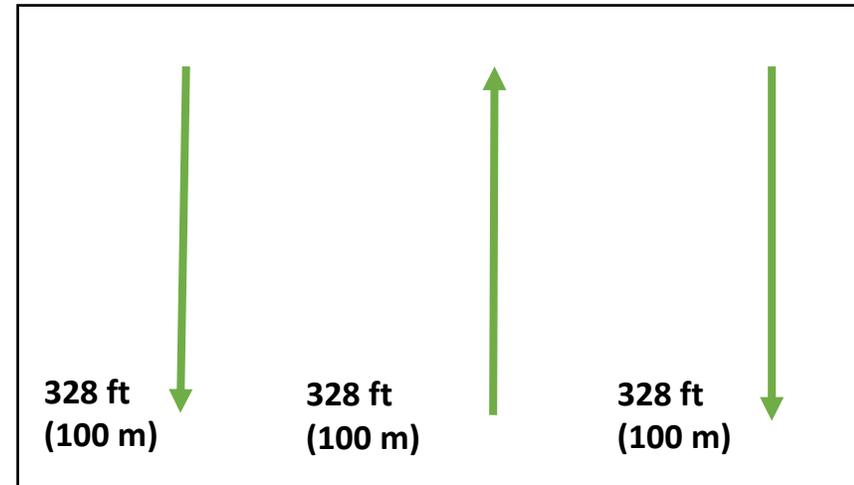
All three examples equal to a total of 984 ft sampled.

- Example 1: Sample in one straight line for 30 intervals.
- Example 2: Sample in two straight lines with 15 intervals each.
- Example 3: Sample in three straight lines with 10 intervals each.

Example 2: Two line back and forth



Example 3: Multiple lines back and forth



How Often to Stop and Check for Ticks?

You will stop a total of 30 times to remove ticks from the drag

You should stop each time you reach the step count you determined using the sampling guide worksheet

Remember to record the number of ticks collected at each stop!

Even if you do not remove any ticks, please write 0 (zero) in the record sheet.

How to Remove Ticks from Drag Cloth

- Using Tweezers
 - Place ticks in a vial
 - Look on the next page for tips to keep the ticks in the vial while sampling
- Using Lint Rollers
 - Only use this option if you find a large number of larvae
 - Place each sheet in its own plastic Ziploc bag
 - Only use one lint roller sheet per stop & check
- Remember to check both the cloth and the rope



How to Keep Ticks in the Vial

Make a dental dam

- Place a piece of the nitrile glove over the opening of the vial and secure it with a rubber band
- Cut a slit in the glove



Use a cotton ball

- Place the cotton ball over the vial opening and remove when placing a tick inside

OR





Images from Minnesota
Department of Health

TICK BLITZ 2021
JUNE 13-19TH



Things to Do At the Sampling Location

1. Place your tick drag in a trash bag for transport
2. Add up the ticks and lint roller sheets from each stop for a grand total
3. Take a photo of the completed collection sheet & sampling area
4. **Send both photos to tickblitz@cornell.edu**
5. Label vials and plastic Ziploc bags with your name and date



TICK BLITZ DATA COLLECTION SHEET

FIRST NAME: **LAST NAME:** **COLLECTION SITE:** *Check all that apply*

DATE: MONDAY JUNE 20 TUESDAY JUNE 21 WEDNESDAY JUNE 22 THURSDAY JUNE 23 FRIDAY JUNE 24 SATURDAY JUNE 25 SUNDAY JUNE 26 MONDAY JUNE 27 TUESDAY JUNE 28 WEDNESDAY JUNE 29 THURSDAY JUNE 30 FRIDAY JULY 1

START TIME: AM PM **END TIME:** AM PM

GROUND WETNESS: SOGGY DAMP MOSTLY DRY DRY **SUNSHINE:**

LAST RAINFALL: YESTERDAY 2-3 DAYS AGO 4-5 DAYS AGO > 5 DAYS AGO **TEMPERATURE:** °F °C

LOCATION: *GPS coordinates and nearest street intersection.*
 Example: 42.44698, -76.47942 and Tower Rd / Garden Ave., Ithaca NY

TICKS COLLECTED PER STOP: *Indicate # of ticks placed in vial and # of lint roller sheets used at each stop.*

#1		#11		#21		TOTAL # TICKS IN VIALS:
# vial	# sheets	# vial	# sheets	# vial	# sheets	
1		11		21		<input type="text"/>
2		12		22		
3		13		23		
4		14		24		
5		15		25		
6		16		26		
7		17		27		
8		18		28		
9		19		29		
10		20		30		

TOTAL # LINT ROLLER SHEETS:

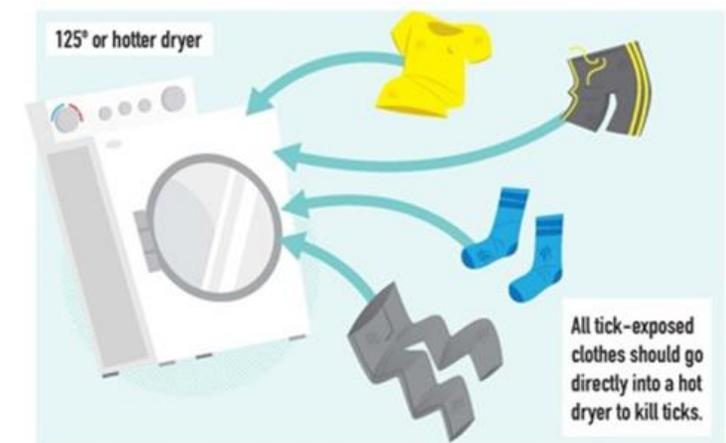
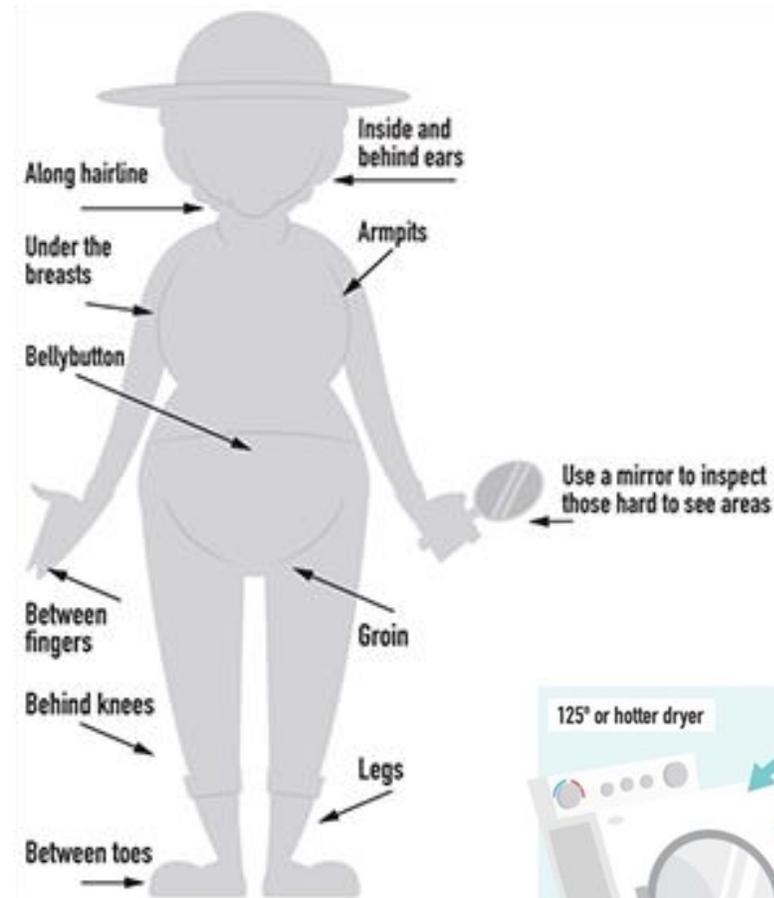
REMEMBER! TAKE A PHOTO OF YOUR COLLECTION SITE & COLLECTION SHEET

Things to Do At Home: Safety Measures

1. Conduct a tick check
2. Place the drag cloth, rope, and clothes worn while sampling in the dryer for 20 minutes on high heat

No Dryer? Try these options:

- Place tick drag in trash bag and leave in trunk of your vehicle
- Place tick drag in bathtub and run hair dryer on low speed, high heat over the fabric
- Use a local laundromat



Things to Do At Home: Tick Storage

1. Place a piece of **lightly** moistened paper towel in the vials and Ziploc bags
 - Wring the paper towel until there is no more water dripping
 - Ticks are sensitive and will die if there is too much moisture on the towel
2. Place vials and Ziploc bags in the refrigerator
3. Make sure all vials and bags are labeled with your name and the collection date
4. Only remove the ticks from the refrigerator when you are ready to mail them to Cornell University

Mailing Ticks to Cornell

1. Remove ticks from the refrigerator. Double check all vials and bags are labeled with your name and the collection date.
2. Place all ticks and completed collection sheets in the pre-labeled padded envelope.
3. Drop the envelope off at a FedEx office or drop box near you.
 - It is best to do this the day you complete all sampling for the week.
 - Find a drop location near you using this link: <https://local.fedex.com/en-us/>

Tick Blitz Kit Return

Please Return:

- Tick drag cloth, PVC pipe, and rope
- Silver tweezers
- Stakes and mason line
- Drawstring bag
- Magnifying glass
- Lint roller

You Can Keep:

- Repellent
- White socks
- Educational materials
- Sharpie pen

Please drop off the kit at your nearest CCE office **by July 12, 2024**. Please email tickblitz@cornell.edu to confirm you dropped off your kit.

If you received your kit in the mail, please save the box and return the kits to the same Cornell address used to return the tick samples.

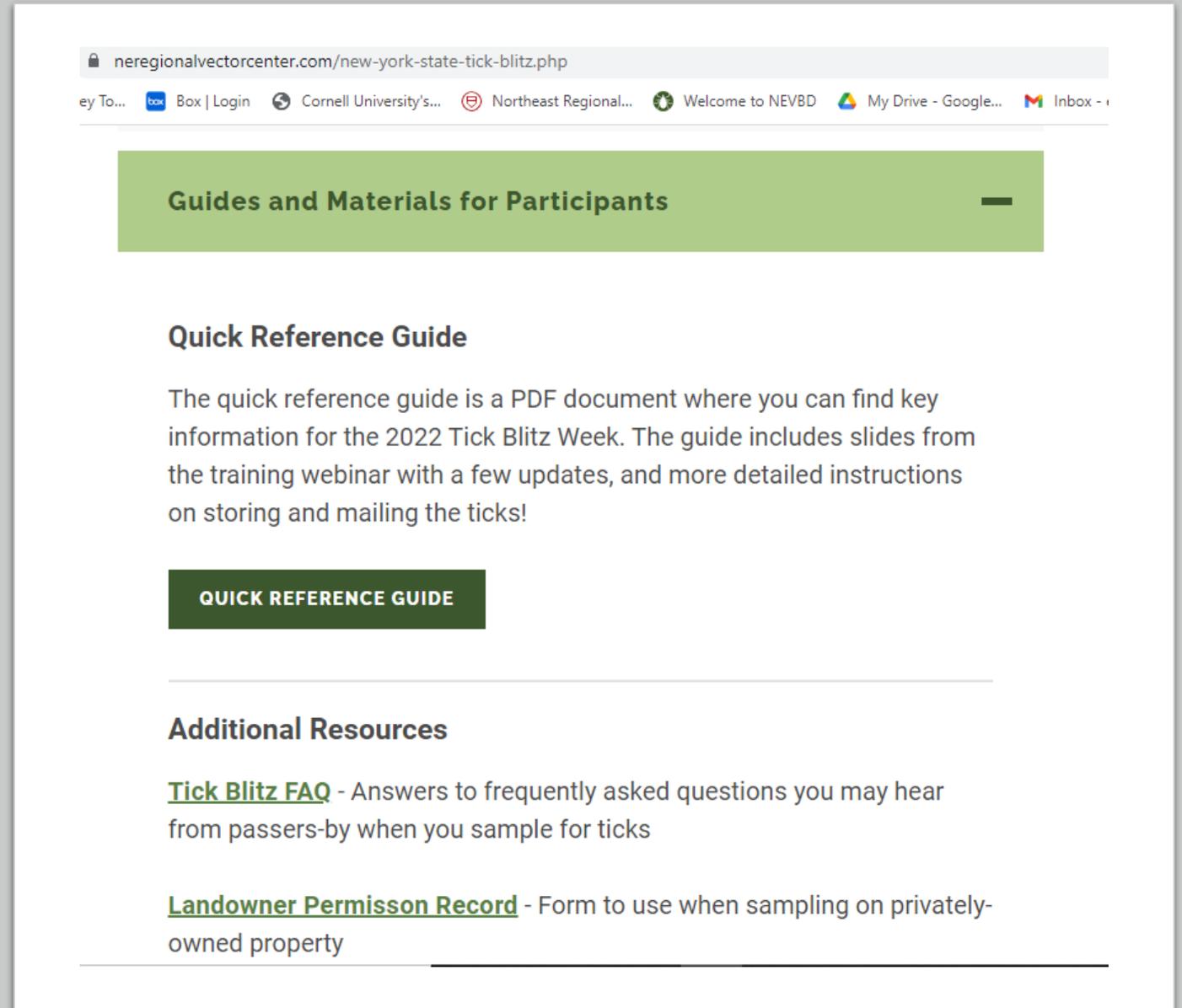
If your kit was mailed to your address...

Please send everything – ticks and all supplies – back to Cornell using the box that your supplies were delivered in.

You can use the pre-addressed FedEx label.

Items Available Online for Printing

- Most of the print materials included in your tick kit are also available on our website
- If you run short of any materials, please go online to print additional copies



The screenshot shows a web browser window with the address bar displaying `neregionalvectorcenter.com/new-york-state-tick-blitz.php`. The browser's address bar and tabs are visible at the top. Below the browser window, there is a green header bar with the text "Guides and Materials for Participants" and a minus sign on the right. The main content area features a section titled "Quick Reference Guide" with a sub-heading "Quick Reference Guide". The text below the sub-heading reads: "The quick reference guide is a PDF document where you can find key information for the 2022 Tick Blitz Week. The guide includes slides from the training webinar with a few updates, and more detailed instructions on storing and mailing the ticks!". Below this text is a dark green button with the text "QUICK REFERENCE GUIDE". Further down, there is a section titled "Additional Resources" with two links: "[Tick Blitz FAQ](#) - Answers to frequently asked questions you may hear from passers-by when you sample for ticks" and "[Landowner Permission Record](#) - Form to use when sampling on privately-owned property".

2024 NYS Tick Blitz Results

- We will do our best to have results of the Tick Blitz up on our website by August 2024.
- We will be sending you an individual report with information on the ticks you collected.
- You can find the overall results on our website at the end of the summer.

<https://www.neregionalvectorcenter.com/new-york-state-tick-blitz.php>



TICK BLITZ

Community-Based Science