

Creating Tick Safe Schools Using IPM



Center of Expertise for School IPM

Presenters - in order of presentation



- ▶ **Dr. Thomas Mather**, Dir. Univ. of RI, Center for Vector-Borne Diseases



- ▶ **Dr. Marcia Anderson**, EPA School IPM Center of Expertise



- ▶ **Dr. Kathy Murray**, Coordinator of Maine School IPM, Maine Dept. of Ag., Conservation and Forestry.



- ▶ **Ms. Christine Dunathan**, Dir. of Advancement, Friends Community School, College Park, MD



TickSafe Schools

Integrated Tick Management Practices & More...

**Thomas Mather, PhD
Director, URI TickEncounter Resource Center**

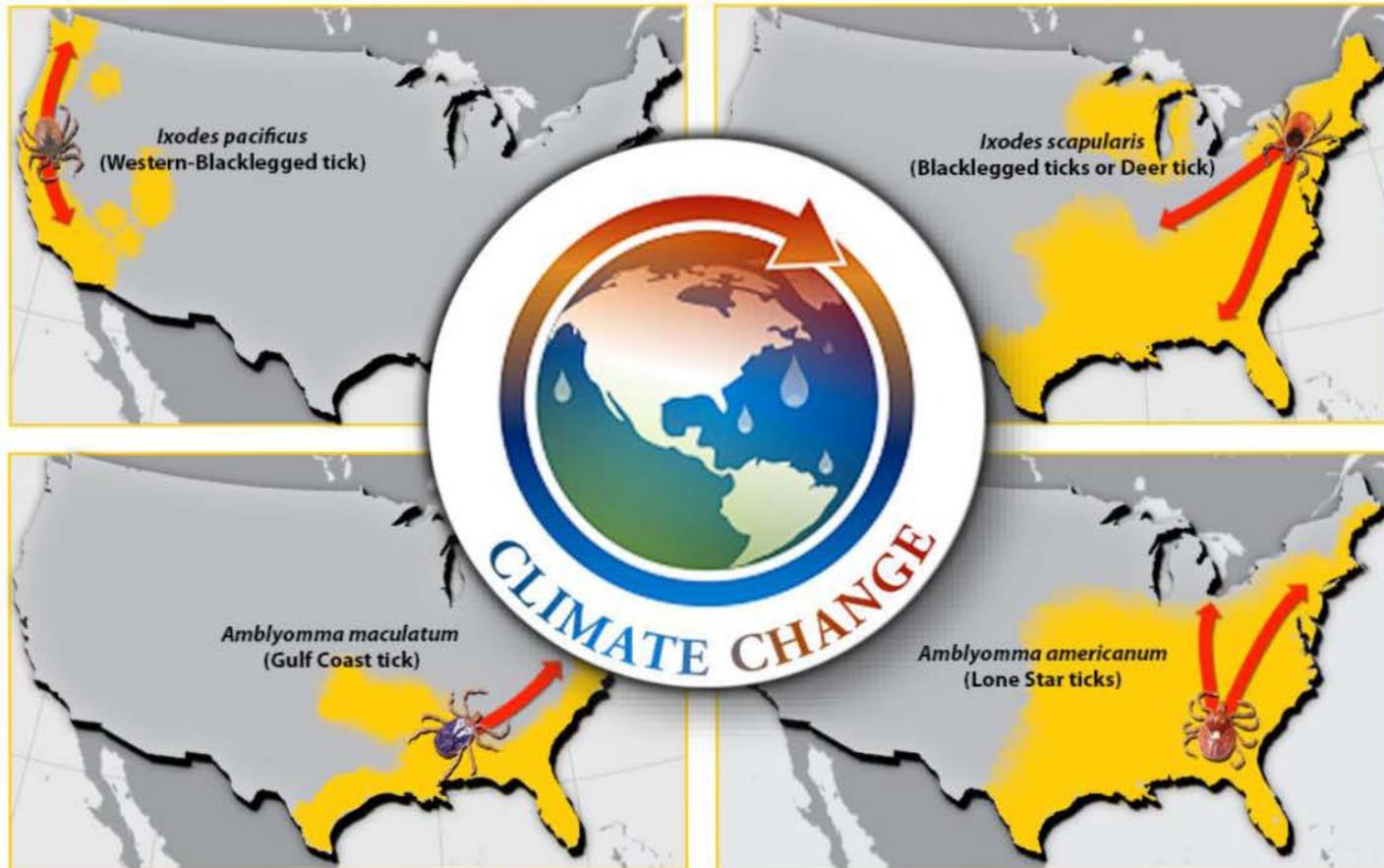
More Ticks In More Places...

...and likely even more to come!



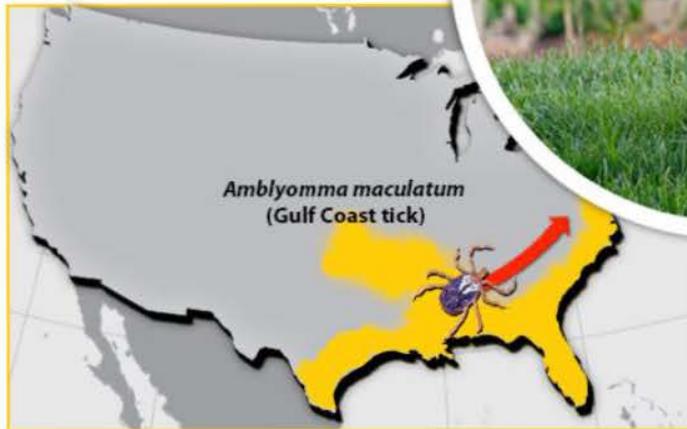
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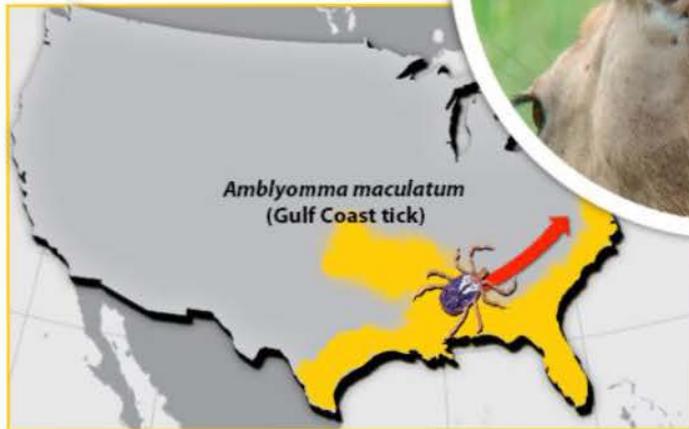
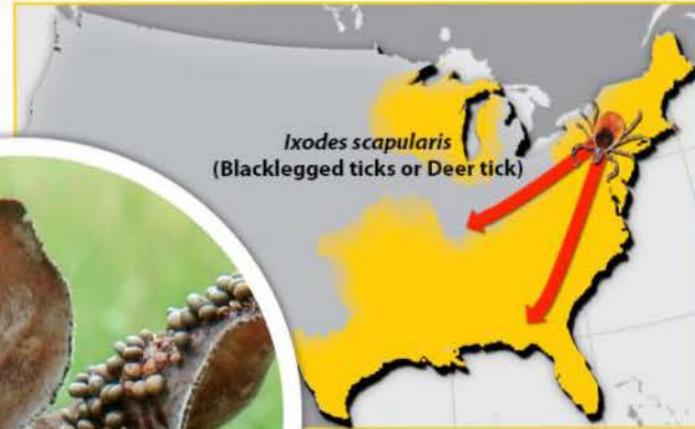
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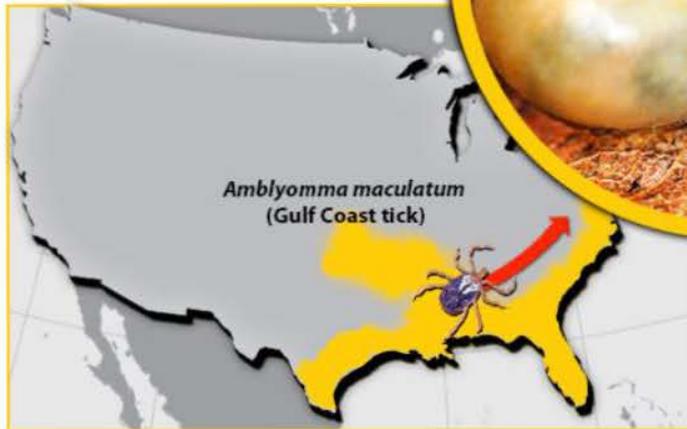
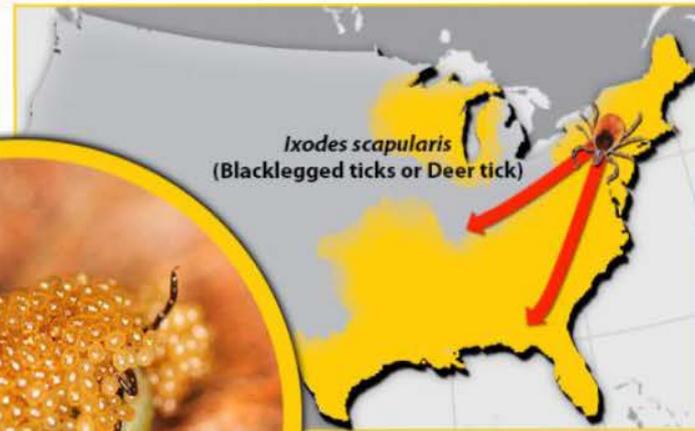
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...and likely even more to come!



More Ticks In More Places...

...and likely even more to come!



More Ticks In More Places...
...and likely even more to come!

**THAT'S
A PROBLEM**



Sources of Ticks At School

- Encountered at school – *playground, nature hikes, outdoor classroom*
- Encountered getting to school – *bus stop, walking on sidewalks, paths*
- Encountered at home – *yard, neighborhood, sports & activities*

South Rd (South Kingstown, RI) 30 yds



Male
028

Female
017





Ixodes scapularis

Infections





bottom line...

More Ticks = More “Spill-over” Potential

Blacklegged
or Deer ticks



American
Dog ticks

Lone Star
ticks



DIFFERENT TICKS

DIFFERENT DISEASES

Blacklegged
or Deer ticks



American
Dog ticks

Lone Star
ticks



Lyme Disease

Human babesiosis

Human anaplasmosis

***Miyamotoi* Relapsing
Fever**

Powassan encephalitis

DIFFERENT TICKS / DIFFERENT DISEASES

Blacklegged
or Deer ticks



American
Dog ticks

Lone Star
ticks



Rocky Mountain spotted fever

Tularemia

DIFFERENT TICKS / DIFFERENT DISEASES

Blacklegged
or Deer ticks



American
Dog ticks

Lone Star
ticks



Human Ehrlichiosis

Borrelia lonestari

Rocky Mountain spotted fever

TickSmart Towns Have...

TickSafe Schools

TickEncounter's TickSmart™ Programming

- High quality resources
- Support use of best practices
- Engage the entire community
- Unique learning tools





University of Rhode Island

TickEncounter Resource Center



HOME ABOUT TICKSMART F.A.Q. TICK IDENTIFICATION PREVENTION TICKSPOTTERS BLOG PARTNER RESOURCES NEWS

Did you know you can turn your own favorite clothes into [tick repellent clothes](#)?

What's The Difference Between Inside Ticks And Ticks Inside?

PLENTY!

Tick Note: What's The Difference Between Inside Ticks And Ticks Inside - [PLENTY!](#)



TERC resources to help you learn and promote the most up-to-date, effective, tick-bite prevention techniques

- Make Your Clothes Tick Repellent**
▶ Clothes treatment, made easy
- Treat Your Yard Perimeter Spray**
▶ Target tick habitat at home
- How To Remove A Tick**
▶ Best practice tick removal
- Tick Bite? Tick Testing**
▶ Tick Testing Labs Info
- Tick Identification**
▶ Tick Identification Chart

Did you know you can turn your own favorite clothes into [tick repellent clothes?](#)

Treat your shoes.

May							June							July							August						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
4	5	6	7	1	2	3	8	9	10	11	12	13	14	6	7	1	2	3	4	5	3	4	5	6	7	1	2
11	12	13	14	15	16	17	15	16	17	18	19	20	21	13	14	15	16	17	18	19	10	11	12	13	14	15	16
18	19	20	21	22	23	24	22	23	24	25	26	27	28	20	21	22	23	24	25	26	17	18	19	20	21	22	23
25	26	27	28	29	30	31	29	30	27	28	29	30	31	24	25	26	27	28	29	30	24	25	26	27	28	29	30
																											31

It's May, blacklegged nymph stage [ticks the size of a poppy seed](#) are here. [Treating your shoes](#) is the best TickSmart action against tick-bites.



TERC resources to help you learn and promote the most up-to-date, effective, tick-bite prevention techniques

- Make Your Clothes Tick Repellent**

▶ Clothes treatment made easy
- Treat Your Yard Perimeter Spray**

▶ Target tick habitat at home
- How To Remove A Tick**

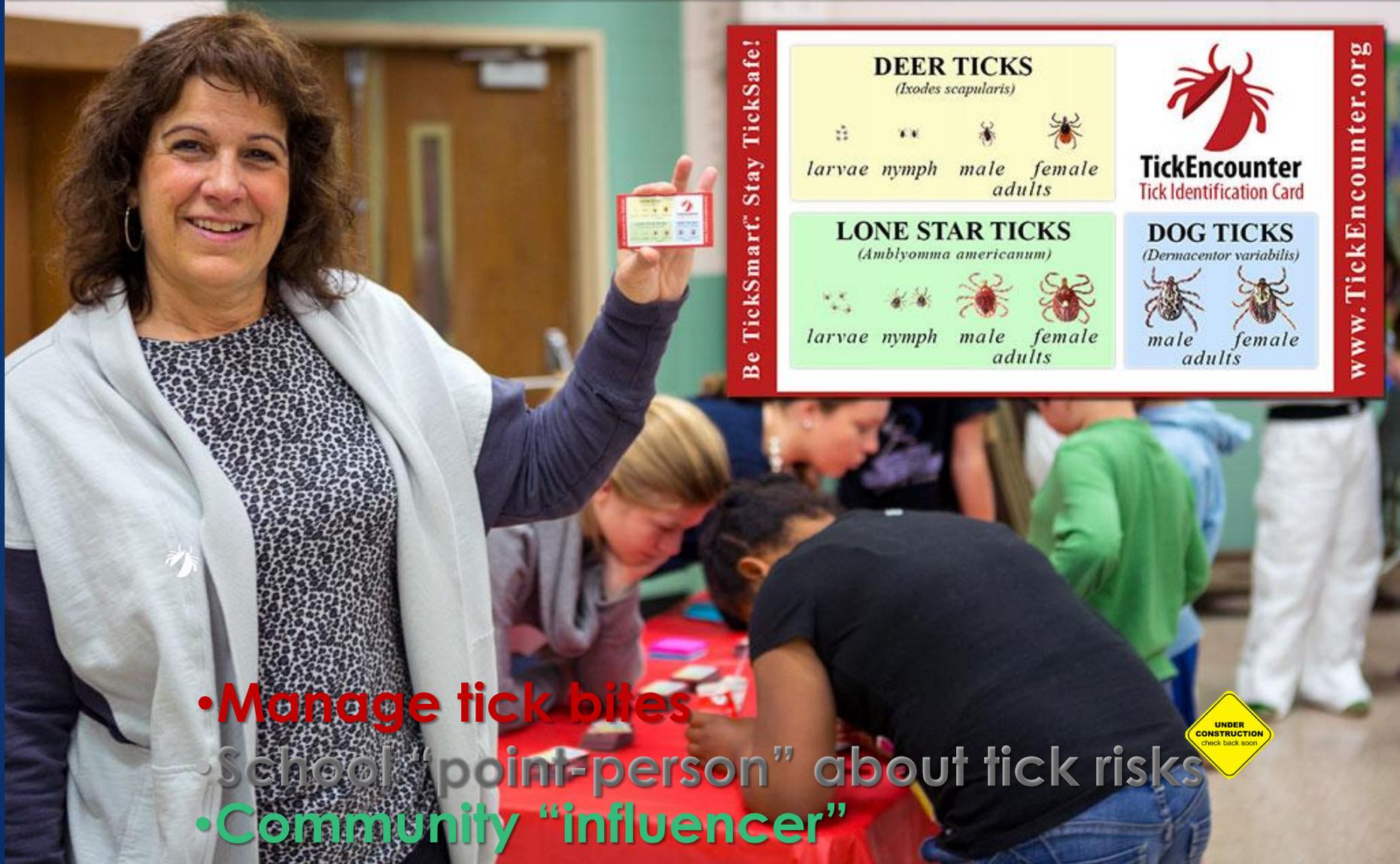
▶ Best practice tick removal
- Tick Bite? Tick Testing**

▶ Tick Testing Labs Info
- Tick Identification**

▶ Tick Identification Chart



TickSafe schools have... confident TickSmart School Nurses!!



Be TickSmart. Stay TickSafe!

DEER TICKS
(Ixodes scapularis)

larvae nymph male female adults

TickEncounter
Tick Identification Card

www.TickEncounter.org

LONE STAR TICKS
(Amblyomma americanum)

larvae nymph male female adults

DOG TICKS
(Dermacentor variabilis)

male female adults

- Manage tick bites
- School “point-person” about tick risks
- Community “influencer”



5 Top TickSmart™ Actions to Keep You *TickSafe*



Know

The kind of ticks active throughout the year where you live, and identify any ticks you find biting.



Treat

Your yard with tick-killing insecticides



Perform

Daily TickChecks, especially checking below the belt for tiny nymph ticks.



Protect

Your pet using products with rapid kill or knock-down

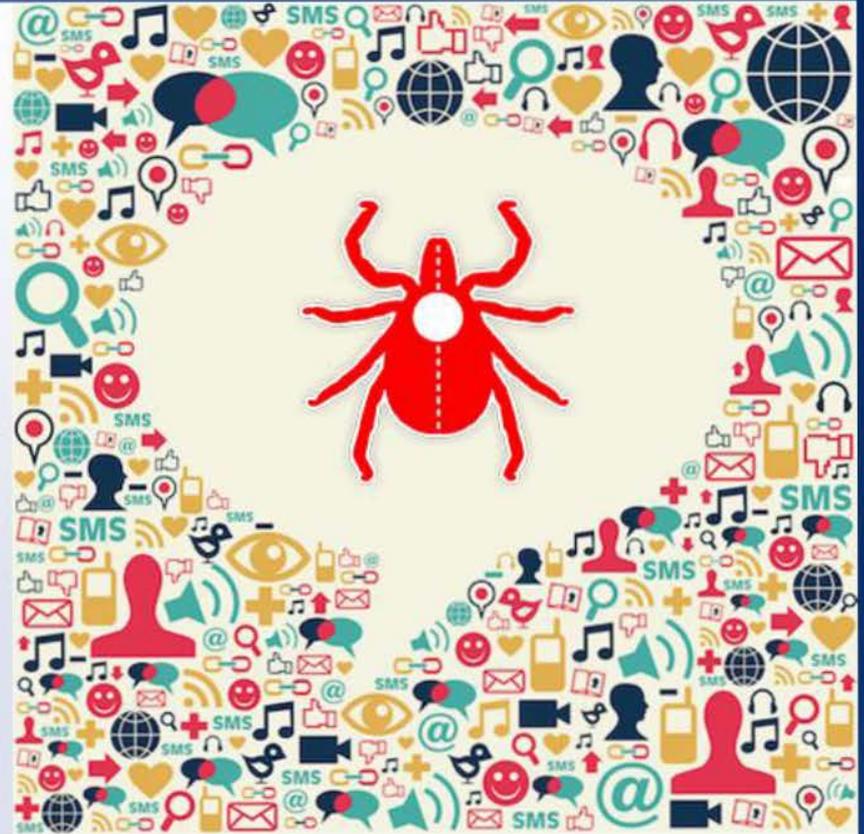


Turn

Clothes into tick repellent clothes.

facebook

Facebook helps you connect and share with the people in your life.



Get
TickSmartTM

Linking Tick Science With
People's Lived Experiences

Recent Posts by Others



Liz Hart



Can you tell me if this is a deer tick or a dog tick? It was found today just in back of my granddaughter's ear.



APRIL 21, 2014

facebook

Recent Posts by Others

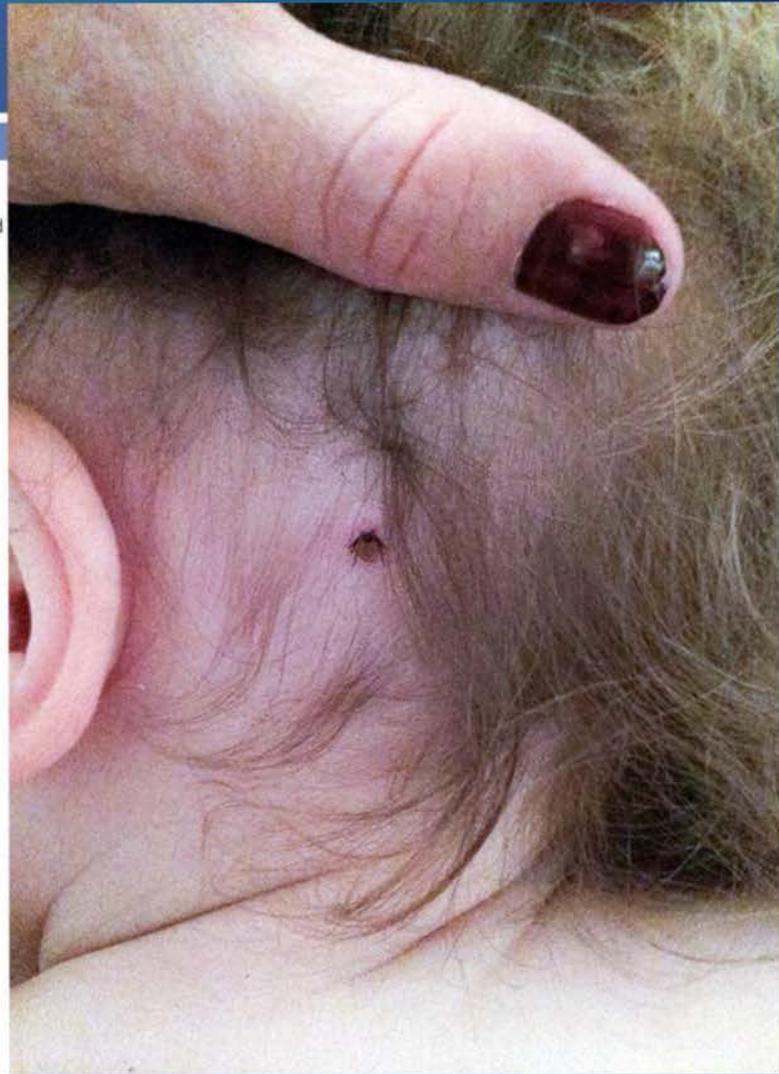


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APRIL 21, 2014



Carla Flanagan-Morin i am not sure but they say remove ticks and bring to er or pediatrician as they know and also can test it for lyme



Maha Janik This tick is not a deer tick. If the redness does not spread she should be OK.

Like · Reply · 1 · 4 hours ago



Liz Hart I found it hard to tell looking at all the pictures online. Thank you!



Like · Reply · 17 hours ago · Edited



Elaine Houle Brothers it looks to big to be a deer tick. I hate ticks.

Like · 16 hours ago



Liz Hart I thought so too. I'm hoping this tick resource center will be able to tell me. Makes me nervous!

Like · 16 hours ago



Write a reply...



Paula Sa Deer ticks are almost microscopic. That look as like an ordinary tick to me.

Like · Reply · 1 · 13 hours ago

Recent Posts by Others



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TickEncounter Resource Center Liz Hart, Maha Janik, Carla Flanagan-Morin This is definitely a female blacklegged (deer) tick-- probably attached for about 2.5 days. We have some very helpful guides on the TickEncounter tick identification tab, including a series of pictures on how ticks change their appearance as they feed. Since about 50% of adult deer ticks are infected, we highly recommend having this tick tested. See our tick testing resources for where you can have it tested.

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Like · Reply · 31 · 4 hours ago

[HTTP://WWW.TICKENCOUNTER.ORG/TICK_IDENTIFICATION/DEER_FEMALE_TICK_GROWTH_COMPARISON](http://www.tickencounter.org/tick_identification/deer_female_tick_growth_comparison)



Unfed



Day 1.5



Day 2



Day 3



Day 4



Day 7

Like · Reply · 17 hours ago · Edited



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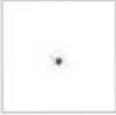
Like · Reply · 1 · 4 hours ago

5 Top TickSmart™ Actions to Keep You *TickSafe*



Know

The kind of ticks active throughout the year where you live, and identify any ticks you find biting.

Species	Larva	Nymph	Male	Female	Partially Fed Female	Fully Fed Female
Deer Tick <i>Ixodes scapularis</i>						
Dog Tick <i>Dermacentor variabilis</i>						
Lone Star Tick <i>Amblyomma americanum</i>						
Brown Dog Tick <i>Rhipicephalus sanguineus</i>						

Region select
Left-click a region below in order to load ticks from that region



CT, RI, MA, NH, VT, ME

New England

Mid Atlantic

South Atlantic

E/N Central

E/S Central

W/N Central

W/S Central

Mountain

Pacific

High ——— Relative abundance in this region ——— Low

Left-click a tick in order to view seasonal activity, known diseases transmitted, and larger images



Current Tick Activity

Powered by TickSpotters

Current Tick Activity - New England Region - September 16 - 30



- PACIFIC
- MOUNTAIN
- W/S CENTRAL
- W/N CENTRAL
- E/S CENTRAL
- E/N CENTRAL
- SOUTH ATLANTIC
- MID ATLANTIC
- NEW ENGLAND

Ticks biting in your area - **Most prevalent tick highlighted in red**

BLACKLEGGED OR "DEER" TICKS. (JUST A FEW MALE & FEMALE ADULT TICKS)



LARVA



MALE



FEMALE

LONE STAR TICKS



LARVA



New England

TickEncounter Index:
Medium

Data contributors: TickSpotters New England,
Thomas N. Mather

Find a tick on you, your family, or your pets this month?

Please let us know if you do find a tick in on you, your family, or your pet by completing the form to the right. Your submission will help monitor tick population trends and tickborne disease risk! You can use our

TickSpotters



Please let us know if you've found a tick! And remember, **TAKE A PICTURE!** Your submissions will help TickEncounter collect data for our [Current Tick Activity](#) In Your Area application.

Do you know what kind of tick it was? *

- Blacklegged or Deer tick (Ixodes scapularis)
- American Dog tick (Dermacentor variabilis)
- Lone Star tick (Amblyomma americanum)
- Brown Dog tick (Rhipicephalus sanguineus)
- Pacific Coast tick (Dermacentor occidentalis)
- Western-Blacklegged tick (Ixodes pacificus)
- Rocky Mountain Wood tick (Dermacentor andersoni)
- Gulf Coast Tick (Amblyomma maculatum)
- Cayenne Tick (Amblyomma cajennense)
- I don't know

Do you know what stage of tick it was? *

- Larva
- Nymph



Current Tick Activity

Powered by TickSpotters

Current Tick Activity - South Atlantic Region - September 16 - 30

- PACIFIC
- MOUNTAIN
- W/S CENTRAL
- W/N CENTRAL
- E/S CENTRAL
- E/N CENTRAL
- SOUTH ATLANTIC
- MID ATLANTIC
- NEW ENGLAND

Ticks biting in your area - **Most prevalent tick highlighted in red**

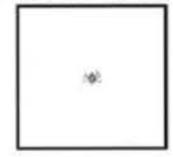
LONE STAR TICKS



LARVA

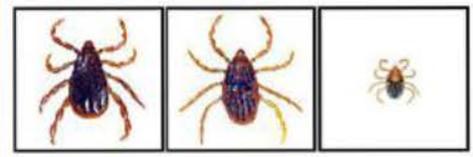
NYMPH

"DEER" TICKS



LARVA

BROWN DOG TICKS

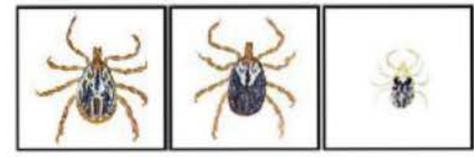


MALE

FEMALE

NYMPH

GULF COAST TICKS



MALE

FEMALE

NYMPH



South Atlantic

TickEncounter Index: Low

Data contributors: TickSpotters South Atlantic, Melissa Miller, Daniel Sonenshine, James Oliver

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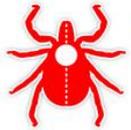
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- Cayenne Tick (*Amblyomma cajennense*)
- I don't know

Do you know what stage of tick it was? *

- Larva
- Nymph



Tracking tick activity trends in America

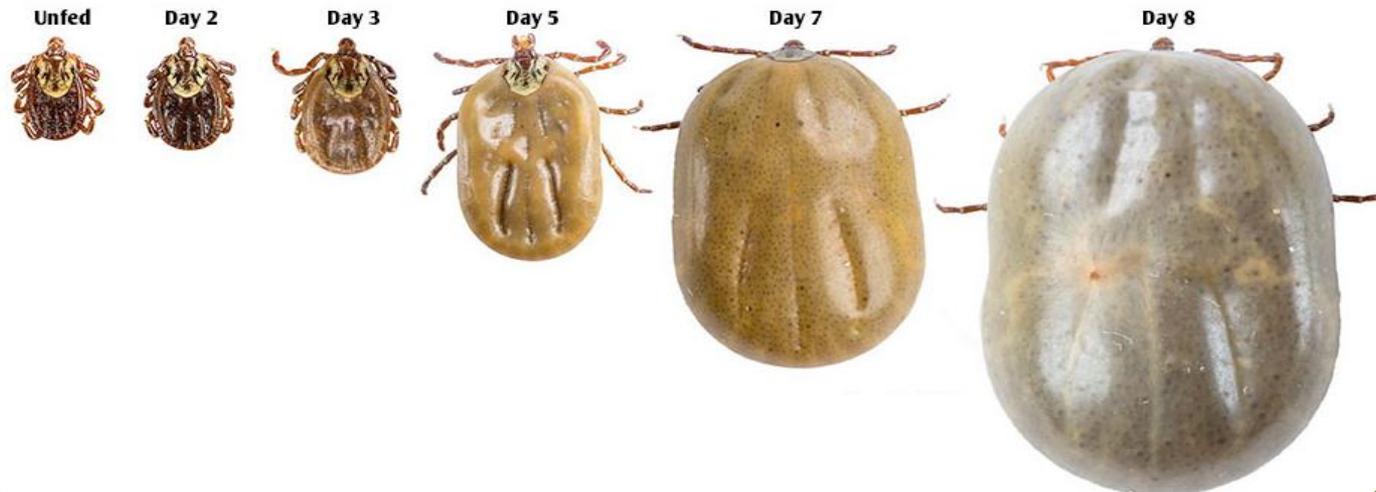
TickSpotters

*Ticks change their appearance as they feed...
And it can make identification challenging!*

Female adult stage blacklegged ticks



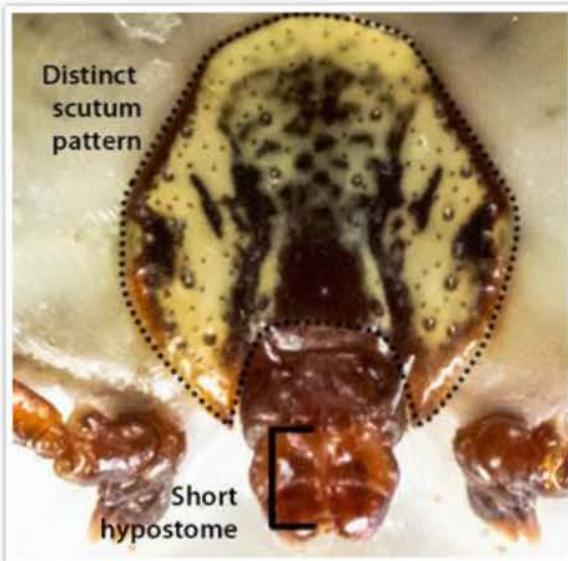
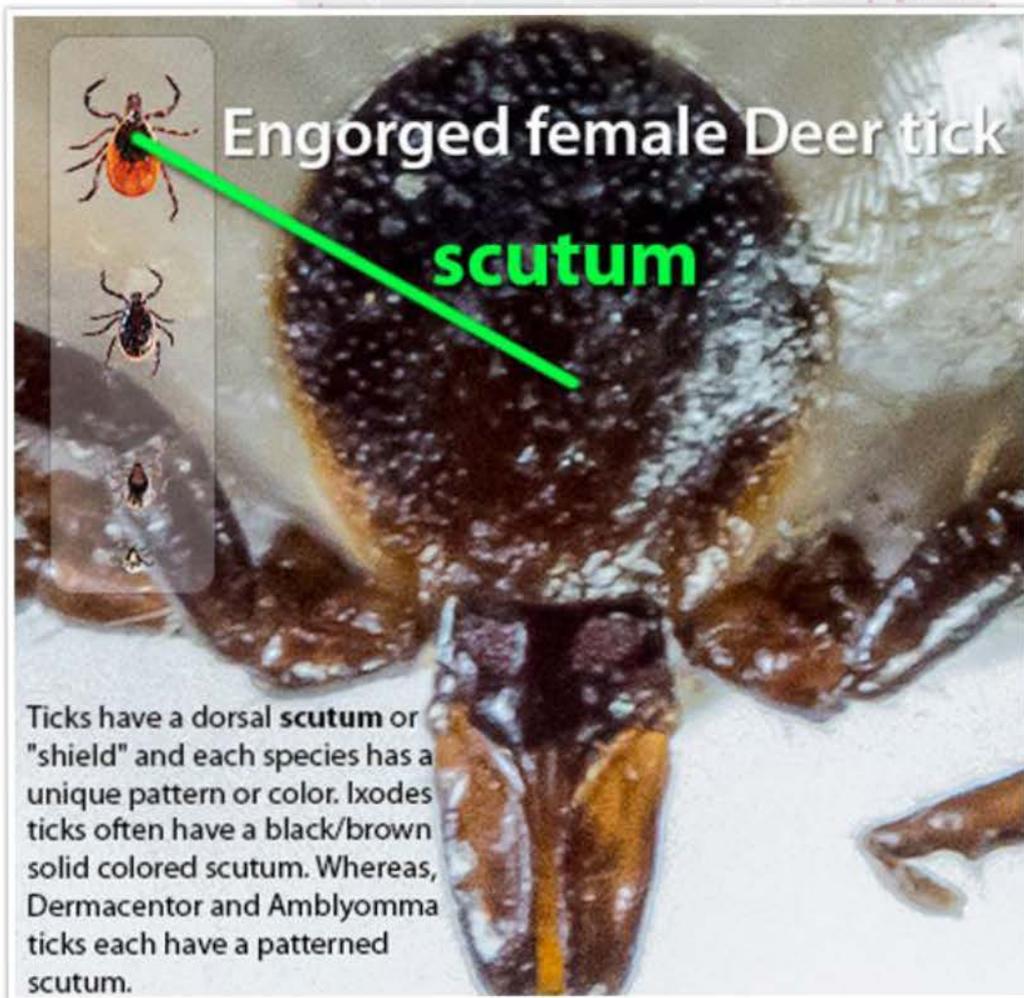
Female adult stage American dog ticks





Tracking tick activity trends in America

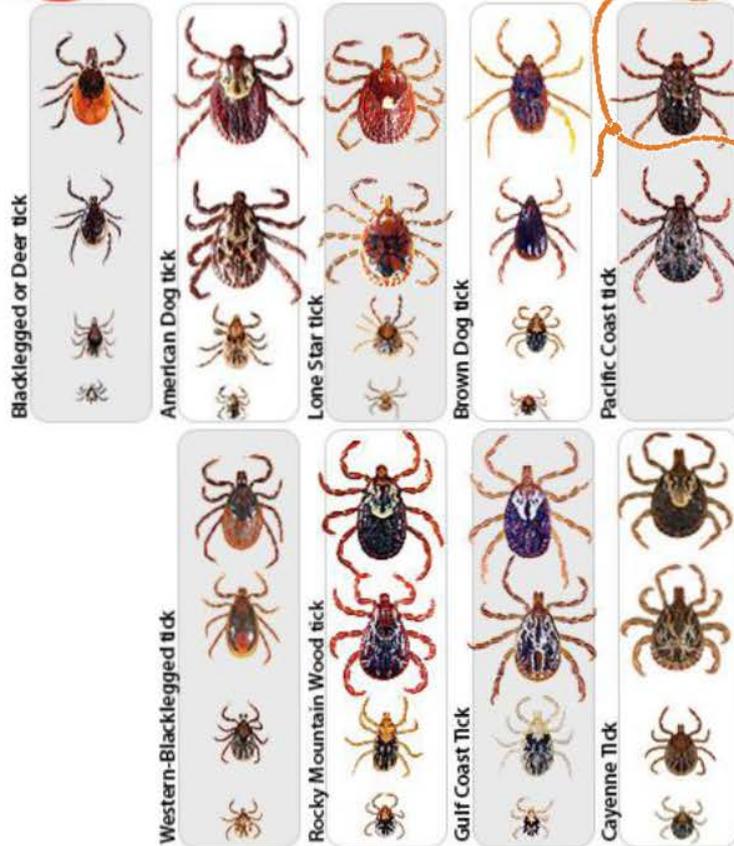
TickSpotter





SPOT A TICK - SUBMIT A PIC!

Life stages are Top to Bottom:
Adult Female, Adult Male, Nymph, Larva



TickSpotters



Please let us know if you've found a tick! And remember, **TAKE A PICTURE!** Your submissions will help Tick Encounter collect data for our [Current Tick Activity](#) In Your Area application.

Do you know what kind of tick it was? *

- Blacklegged or Deer tick (*Ixodes scapularis*)
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- Gulf Coast Tick (*Amblyomma maculatum*)
- Cayenne Tick (*Amblyomma cajennense*)
- I don't know

Do you know what stage of tick it was? *

- Larva
- Nymph
- Adult
- I don't know

When did you find the tick? *

/ / 

MM DD YYYY



TickSpotters

#6403

Do you know what kind of tick it was? * I don't know [REDACTED]

Do you know what stage of tick it was? * Nymph

When did you find the tick? * Wednesday, June 18, 2014

State * Rhode Island

Canadian Provinces

Zip code * 02919

Where was the tick(s) found? * On a person

Email * danisenbergh@gmail.com



Please submit a picture of the tick. It's important!



[tick_61814.jpg](#)
1005.38 KB · JPG

Created

18 Jun 2014

2:25:07 AM

PUBLIC

132.121.253.2

IP Address



TickSpotters

#6403

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Life stages are Top to Bottom:
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1005.38 KB · JPEG

Created
18 Jun 2014
2:25:07 AM

132.121.253.2
IP Address

PUBLIC



They're all nymphal Blacklegged (Deer) ticks

Unfed

Day 1.5

Day 2

Day 2.5

Day 3

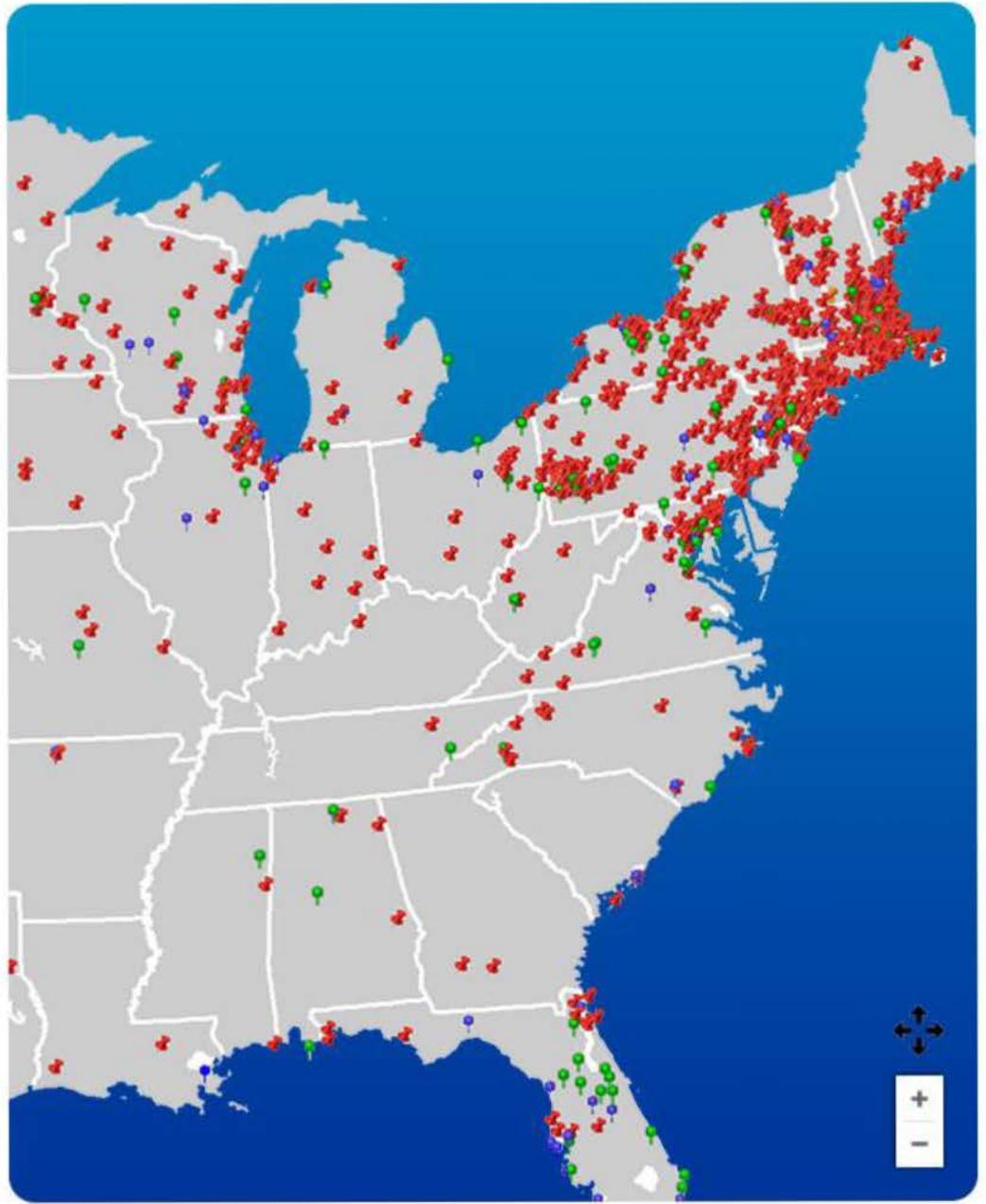


[CLICK HERE TO WATCH THEM GROW](#)



TickSpotters Submissions
Oct 15 – Dec 31, 2013

- Blacklegged or Deer tick (*Ixodes scapularis*)**
79.5%
- Brown Dog tick (*Rhipicephalus sanguineus*)**
8.4%
- Western-Blacklegged tick (*Ixodes pacificus*)**
3.0%
- Other**
9.1%



**BEST ONE
OF THE WEEK!**



Acme, PA. TickSpotters submission, 03.03.2014
Adult female blacklegged (deer) tick

Monthly TickSpotters Reports for America



**YOU KNOW
IT'S TIME TO
TAKE ACTION**



**When you've got this
much skin in the game.**



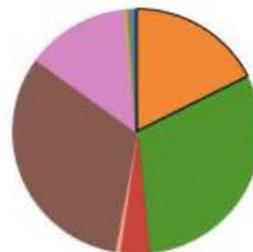
**Ann Arbor, MI TickSpotters submission, 05.28.2014
Female American dog tick biting a person**

TickSpotters: Crowd-sourced Tick Surveillance for America



Tick Species

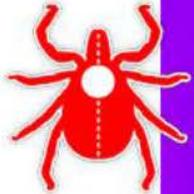
May 2014



Do you know what kind of tick it was?

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- Pacific Coast tick (*Dermacentor occidentalis*)
- Rocky Mountain Wood tick (*Dermacentor andersoni*)
- Western Blacklegged tick (*Ixodes pacificus*)

Monthly TickSpotters Reports for America



**Near Jacksonville, FL?
Yep, it's a deer tick!**

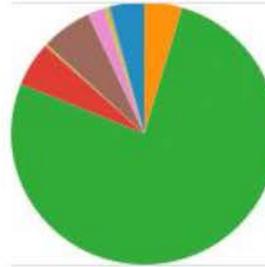


Jacksonville, FL TickSpotters submission 11.14.2013
Female blacklegged (deer) tick. Feeding fo ~4 days.

TickSpotters: Crowd-sourced Tick Surveillance for America

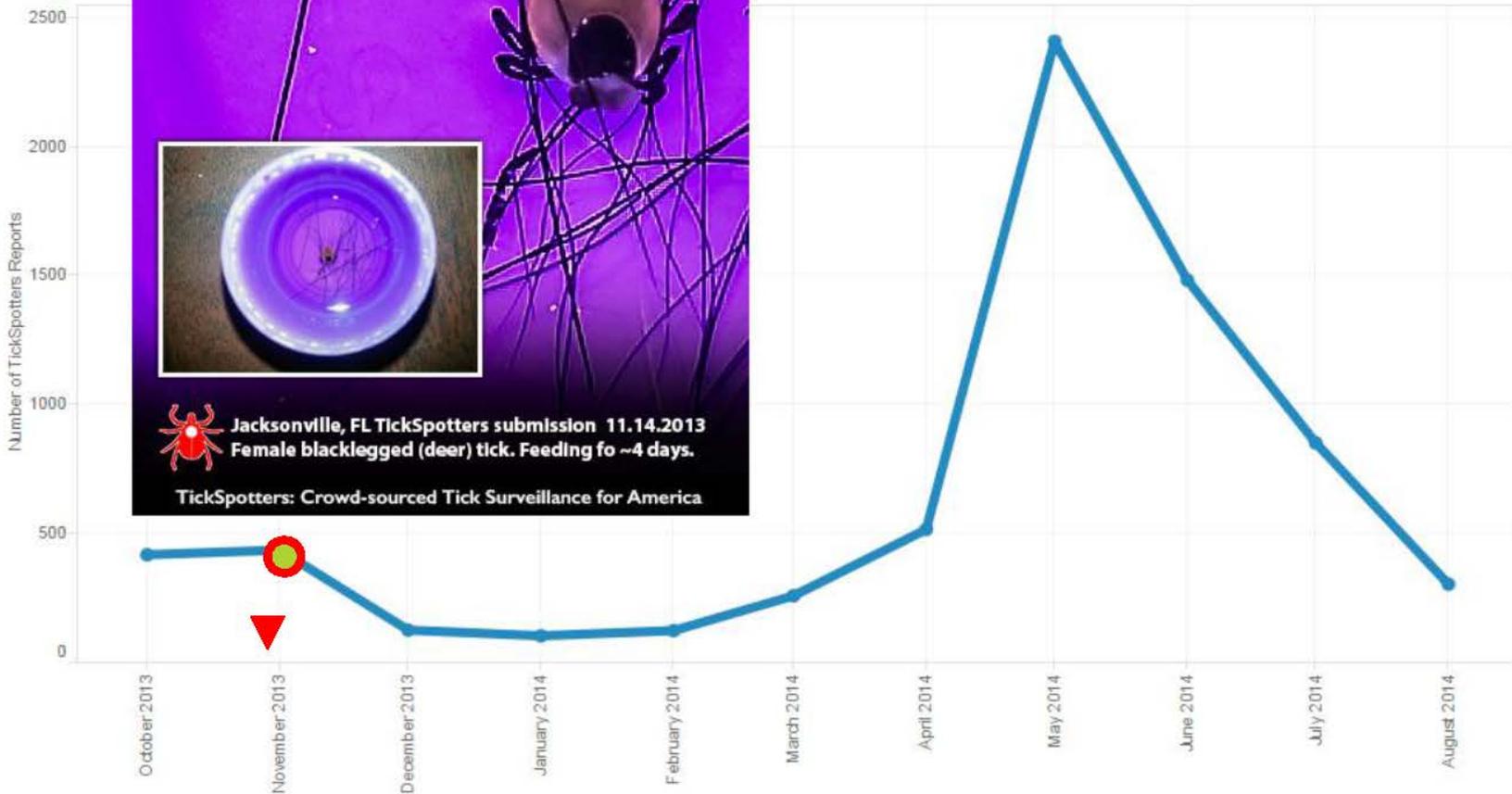
Tick Species

November 2013



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- Western-Blacklegged tick (*Ixodes pacificus*)



Ticks so small they go right through your socks...

Larvae have 6 legs.



Another good reason to wear tick repellent socks with permethrin.

**5 Top TickSmart™ Actions
to Keep Your Family
TickSafe**



Perform

Daily TickChecks, especially checking below the belt for tiny nymph ticks.



Kids can...

Know where
to look



And what to look for











Be TickSmart. Stay TickSafe!
Check for ticks every day.



Check for ticks every day.

1. Scalp
2. Ears
3. Underarms
4. Belly Button
5. Waist & Back
6. Behind Knees
7. Pubic Area
8. In Between Legs

© 2012 American Red Cross



TickSmart Daily TickCheck Reminder Card

CHECK "BELOW THE BELT" FOR POPPY-SEED SIZED TICKS WHILE SITTING ON THE TOILET.



Get **TickSmart**

Safely remove any attached ticks promptly with pointy tweezers.



Ixodes scapularis (Blacklegged ticks or Deer ticks)



Dermacentor variabilis (American Dog ticks)



Amblyomma americanum (Lone Star ticks)



© TickEncounter Resource Center. Visit www.TickEncounter.org For More Information!





EXIT

How to Start With a Bulb
No Room for Bulbs!

Sharing
Editing
Final Draft
Publishing

Word Choice
Sentence Fluency
Conventions
Presentation



WWW.TICKENCOUNTER.ORG



KEEP
CALM
AND
CHECK
FOR
TICKS

DON'T GET SICK,
CHECK FOR TICKS!



WWW.TICKENCOUNTER.ORG



LEAN
OVER
AND
LOOK

DON'T GET SICK,
CHECK FOR TICKS!



WWW.TICKENCOUNTER.ORG

FIND
A TICK?



BAG IT!

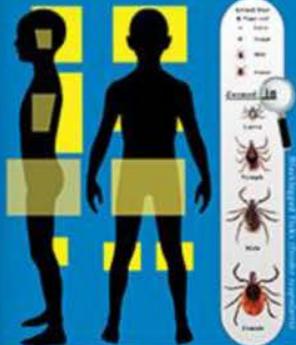
HOW ELSE WILL YOU BE ABLE TO
IDENTIFY IT?

DON'T GET SICK,
CHECK FOR TICKS!



WWW.TICKENCOUNTER.ORG

KNOW
WHERE TO LOOK
& WHAT TO LOOK FOR



Feel for bumps & look for tiny brown spots

DON'T GET SICK,
CHECK FOR TICKS!



How To Remove A Tick: <http://www.youtube.com/TickEncounter>



Pointy tweezers best for removing ticks



Blunt tweezers risk tearing tick or even squeezing germs into bite site



Grasp tick close to the skin



Knowing where
ticks ARE, and
where they AREN'T
is a great starting
point for making
TickSmart decisions.

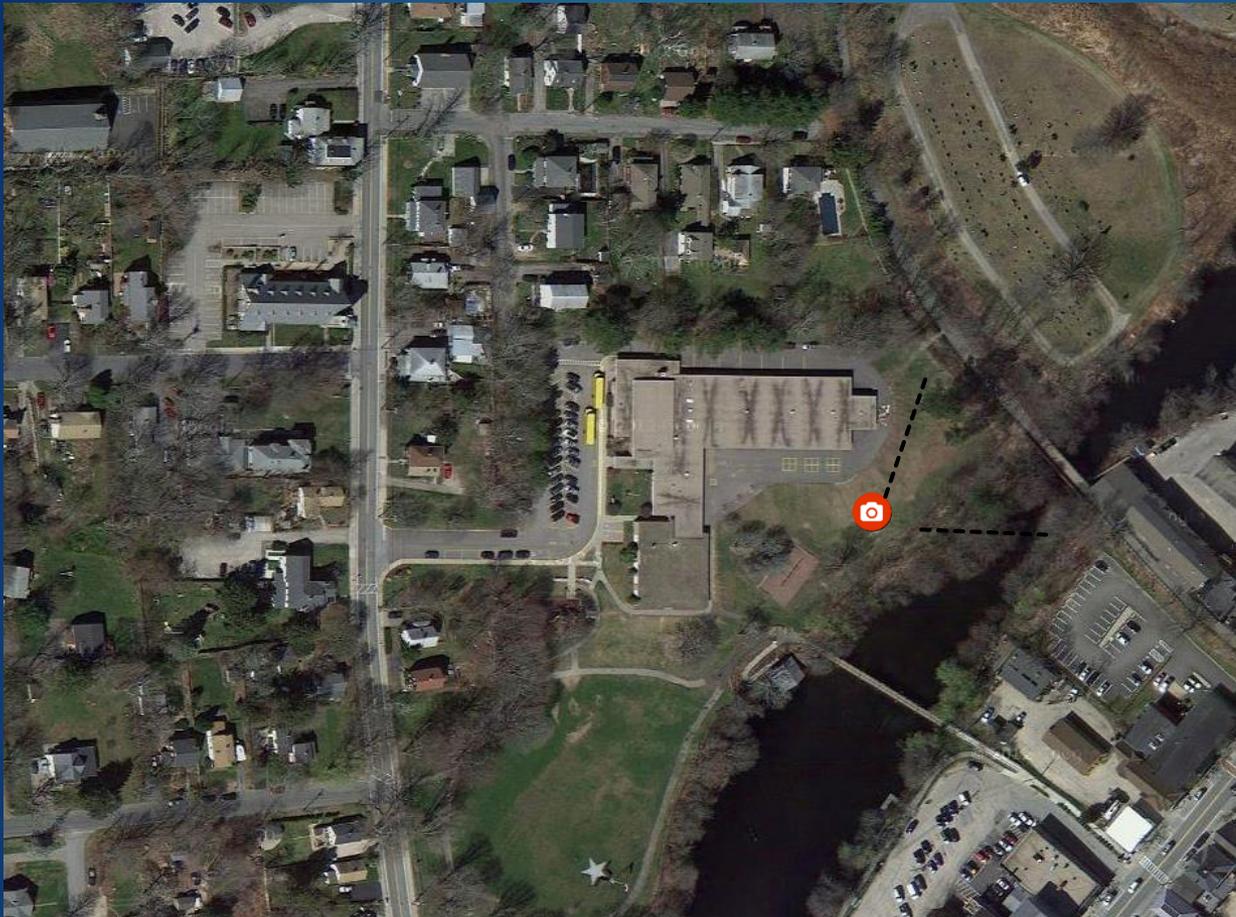




Looks risky ... right?



TickSmart Towns Have TickSafe Schools



0
ticks/hr
LOW
TickEncounter Risk

-  **TickSmart Actions**
- high risk
 - Perimeter treatment + moderate + low risk
 - moderate risk
 - Students do not chase balls or play
 - near shrub border + low risk
 - low risk
 - Tick checks upon returning inside

Tick Encounter Risk Assessment

-- part of school **I**ntegrated **P**est **M**anagement (**IPM**) Plan --







TickSmart Towns Have TickSafe Schools



120
ticks/hr
HIGH
TickEncounter Risk

TickSmart Actions

high risk

- Perimeter treatment + moderate + low risk

moderate risk

- Students do not chase balls or play near shrub border + low risk

low risk

- Tick checks upon returning inside

Tick Encounter Risk Assessment

-- part of school Integrated Pest Management (IPM) Plan --





University of Rhode Island

TickEncounter Resource Center

<http://www.TickEncounter.org>

Can't find an answer? Want to stay current on the latest tick happenings?

Stay Connected with TERC!



Like us on Facebook!

<http://www.facebook.com/TickEncounter>



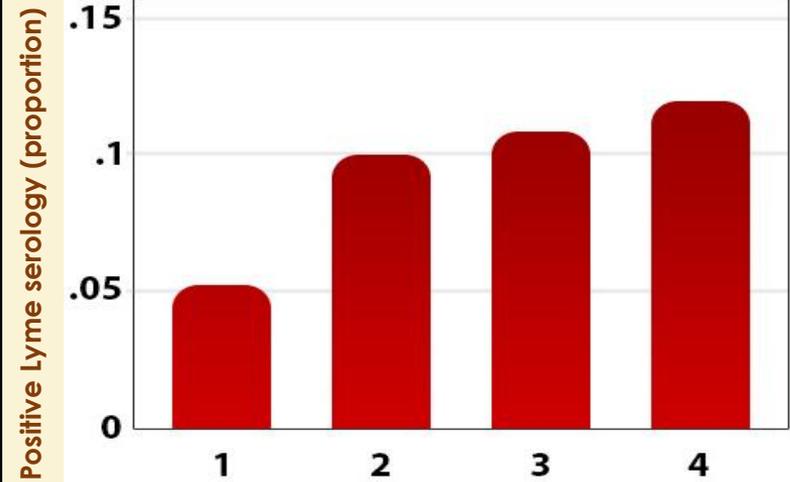
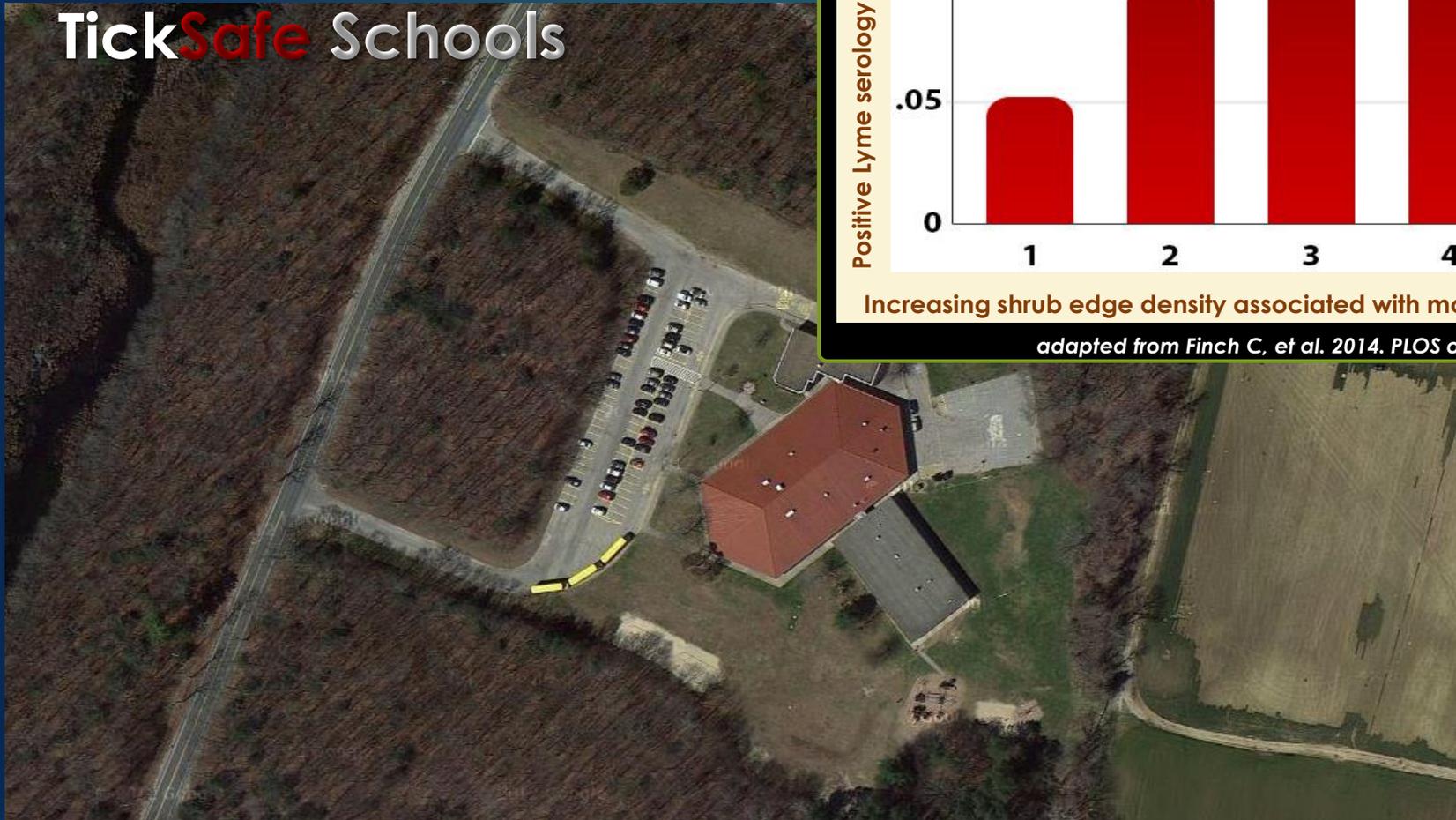
Follow us on Twitter!

<http://twitter.com/tickencounter>

Tick Id Learning Kit for Schools & Camps



TickSmart Towns Have TickSafe Schools



Increasing shrub edge density associated with more ticks

adapted from Finch C, et al. 2014. PLOS one 9(1):1-8.

Tick Encounter Risk Assessment

-- part of school **I**ntegrated **P**est **M**anagement (**IPM**) Plan --



TickSmart Towns Have TickSafe Schools



0
ticks/hr

LOW
TickEncounter Risk

-  **TickSmart Actions**
- high risk
 - Perimeter treatment + moderate + low risk
 - moderate risk
 - Students do not chase balls or play near shrub border + low risk
 - low risk
 - Tick checks upon returning inside

Tick Encounter Risk Assessment

-- part of school **I**ntegrated **P**est **M**anagement (**IPM**) Plan --



EPA's School Integrated Pest Management (IPM)

- ▶ **Integrated Pest Management (IPM) is an effective and environmentally sensitive approach that makes use of a variety of pest control tools to reduce risk.**
- ▶ **IPM relies on a combination of common-sense practices and science-based strategies.**
- ▶ **Know what the problem is before you apply pesticides- fundamental for a successful IPM program.**



Implementing a Tick IPM Plan

- Tick IPM is a Smart, Safe, and Sustainable way to help control ticks and tick borne diseases.
 - 1) Set action thresholds
 - 2) Identify and monitor tick species
 - 3) Identify and promote effective prevention tools
 - 4) Control tick populations to reduce risks
- Activities may include workshops, conferences, presentations, webinars, and publications
- Accomplish in collaboration with local, state, federal, NGO, and academic partners



Remove leaf litter



- ▶ Remove leaf litter, brush, and weeds at the edge of the lawn.
- ▶ Study Results: Removal of leaf litter in spring and summer (March + June) resulted in reductions in nymph tick density ranging from 73% to 100%.

Keep grass mowed



► **Keep grass mowed** on all school grounds including sports fields

Create a nine foot (9') buffer zone



- ▶ Create a nine foot (9') buffer zone between wooded and unmowed vegetation on all school grounds

Clear ground cover around walls, trails, etc.

- ▶ Clear ground cover and vegetation around stonewalls, wood piles, and play equipment.
- ▶ Trim tree branches and shrubs around lawn edge.
- ▶ Clear woodland trails.



Adopt hardscape landscaping techniques



- ▶ Adopt landscaping techniques with gravel pathways and mulches
- ▶ Create a 3-foot or wider wood chip, mulch, or gravel pathway



Exclude deer



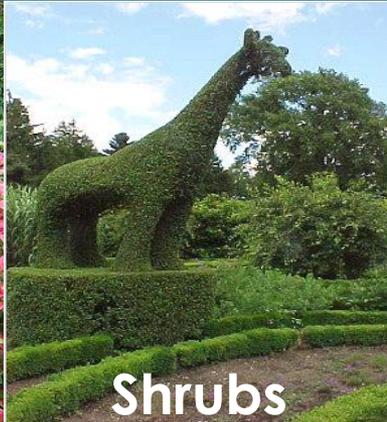
© John Brian Silverio

More Deer Resistant Plants



Herbaceous Perennials & Bulbs

More Deer Resistant Shrubs



Avoid / Remove these plants



Honeysuckle



Barberry



Plants Susceptible to Deer Browsing



Center of Expertise for School IPM



Plants Susceptible to Deer Browsing



EPA's Role in Tick IPM

Licensing of repellents and tick control pesticides

- ▶ All registered pesticides required to satisfy data requirements to assess:
 - ▶ human health
 - ▶ ecological risk
 - ▶ exposure
 - ▶ efficacy
- ▶ Pesticides registered for tick control

<http://npirspublic.ceris.purdue.edu/public.html>



EPA's Role in Tick IPM

Partnerships and Collaborations

- ▶ Outreach and education
- ▶ Leveraging resources
- ▶ Information sharing
 - ▶ Centers for Disease Control and Prevention
 - ▶ US Department of Agriculture
 - ▶ National Science Foundation
 - ▶ National Institutes of Health
 - ▶ Department of Defense
 - ▶ Local and state governments, academia, NGO's, EPA's Environmental Stewards, and the public



Reducing Tick Populations via IPM



Tick Safe Schools

Monitoring, Management and Personal Protection

Kathy Murray, IPM Entomologist, Maine Department of
Agriculture, Conservation and Forestry

The logo for Maine.gov, featuring the text "Maine.gov" in a white serif font, with a blue oval underline that is slightly offset to the right.

Tick IPM



1. Identify and Monitor Ticks

2. Develop Prevention & Action Plan

3. Use Effective Combinations of Prevention & Management Actions

4. Keep Detailed Records, Evaluate Outcomes, Revise Action Plan



POINT COUNT DATA FORM

4 K T S H A S T A B E I V A 6 1 7 1 9 9 2 2

REGION: STATE: MONTH: DAY: YEAR: VISIT NUMBER:

NUMBER	TIME	SPECIES	< 50 M		> 50 M	
			by ovals	by ovals	by ovals	by ovals
1	0540	M T C H	"	2	"	2
		H E T H	"	2	"	2
		M W S P	"	3	"	3
2	0552	R O S P	"	1	"	1
		B E W R	"	2	"	2
		M T C H	"	5	"	5
3	0559	R E C K	"	2	"	2
		R E C K	"	3	"	3
		M F O S	"	1	"	1
		H E T H	"	3	"	3
		M W S P	"	2	"	2
		M W S P	"	2	"	2

1. Monitor and Identify Ticks. Keep Records.



2. Develop your Tick IPM Plan

- ▶ Include plans for
 - ▶ Monitoring and identifying ticks
 - ▶ Prevention, communication and education
 - ▶ Action thresholds
 - ▶ Record-keeping
 - ▶ Regular evaluation



3. Select the Strategies Best for Your School

- ▶ Personal protection
- ▶ Landscape modifications
- ▶ Restrict human traffic
- ▶ Deer fencing
- ▶ Pesticide 'barrier'
- ▶ Tick-control rodent stations



Install Deer Fencing



Widen Trails



Create Tick Safe Zones

Tick Management Handbook, K. Stafford, 2004



tick removal

Remove ticks immediately. They usually need to attach for 24 hours to transmit Lyme disease. Consult a physician if you remove an engorged deer tick.



Using a tick spoon:

- Place the wide part of the notch on the skin near the tick (hold skin taut if necessary)
- Applying slight pressure downward on the skin, slide the remover forward so the small part of the notch is framing the tick
- Continuous sliding motion of the remover detaches the tick

Using tweezers:

- Grasp the tick close to the skin with tweezers
- Pull gently until the tick lets go

1-800-821-5821

www.mainepublichealth.gov



tick ID

KNOW THEM. PREVENT THEM.



Deer Tick (Black-Legged Tick)



(actual size)



Dog Tick



(examples are not actual size, dog tick nymphs are rarely found on humans or their pets)

CDC Home
Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People.™

A-Z Index: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #

Ticks

Avoiding Ticks

- On people
- On pets
- In the yard

STARI
CDC Expert Commentary on Medscape--When a bull's-eye rash isn't Lyme disease
[Learn More >](#)

CDC Expert Commentary
Alison Hinckley, PhD

Bitten by a tick?

- Tick Removal
- Symptoms of tickborne illness

Resources

All about ticks

- Geographic distribution
- Tick life cycle and hosts

Notable tickborne diseases

- Anaplasmosis
- Babesiosis
- Ehrlichiosis
- Lyme disease
- Rocky Mountain spotted fever
- Other tickborne diseases

<http://www.cdc.gov/ticks/>

Maine.gov

Classroom Education





Insect/Tick Repellents



Repellent Choice Tool:
<http://www2.epa.gov/insect-repellents/find-insect-repellent-right-you>

Permethrin-Treated Clothing

- ▶ Spray permethrin on clothing
- ▶ Purchase pre-treated clothing available from retailers (effective for 70 washings) or
- ▶ More info at TickEncounter.org





Photo credit: URI TickEncounter Resource Center

Mouse-Targeted Tick Control Devices



Tickencounter.org

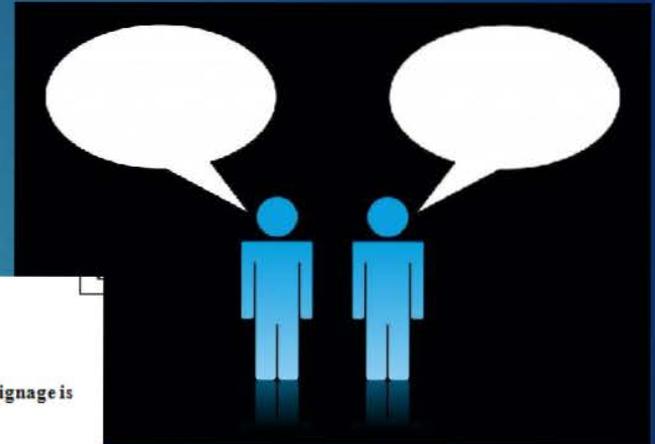


Tickboxtcs.com

Hiring a Pesticide Applicator



Communication Is Critical



Pest Management Activity Log Page 3—Pesticide Application

Use this page when Pesticide Applications are necessary. Use the chart to determine what type of notification and/or signage is required. The Reference number should connect to the last column on Page 1—Monitoring/IPM.

Site _____ (can be building, room, field, playground, etc)

Reference Number from Monitoring/IPM page _____

1) What is the pest? How was the pest identified?

2) How was it determined that a pesticide application was necessary? Include information about the safety, economic or a aesthetic threshold reached (see chapter 27 section 5C)

3) Application information:

Date/Time _____ Applicator Name _____

Product Name _____ Applicator License # _____

EPA Reg # _____ Company _____

Specific Location (under sink, west goal soccer field, etc) _____

4) Identify the type of application from the chart and continue to the required sections below.

Check one	See BPC Chapter 27 Section 3 for details about specific pesticide applications	IPM coordinator authorization	5 day notice to parents, guardians, staff	Signs posted 2 days prior to application
	INDOOR			

Coming Soon?

Tick Robot



A Tick-safe Future is in Your Hands



Resources

- ▶ eXtension action plans:
extension.org ('tick' in search box)
- ▶ TickEncounter.org
- ▶ Tickapp.tamu.edu



Friends Community School



College Park, MD

Friends Community School

USDA tick study

- ▶ *Flagging results showed us tick number, species, and life stage by location.*
- ▶ *Professional testing was key for accurate tick ID.*



Friends Community School



Friends Community School

Steps Taken to Create TICK IPM Plan

- *Resolved to create a plan*
- *Researched extensively*
 - difficult given old data and contradictory sources
 - many toxic approaches masquerading as IPM
- *Developed criteria for elements to be included in the Plan*
 - effective
 - minimum disruption to school operations
 - reasonable cost
 - least toxic to aquatic life given our wetland location
- *Resisted pressure to call for blasting the site with strongest chemicals available*
 - argued that the “let’s bomb them” approach was not safe for anyone, kids or adults, or for wildlife

Friends Community School

Tick IPM Plan Elements

- *Presents the regional context of the tick problem*
- *Articulates the environmental values that underpin the plan*
- *Divides into short, medium, and long term approaches*
- *Emphasizes the evolving nature of the Plan as new data becomes available.*
- *Suggests teacher education at staff meetings*
- *Not used for parent education*



Friends Community School

Basic Plan Content

- *Commitment to testing:* decisions to be based on data
- *Site maintenance:* keep grass short, keep trails clear
- *Evaluate plantings:* remove tall and bushy grasses, add deer-resistant native plantings
- *Mandatory field guidelines:* follow the dress code, teach and do tick checks
- *Mandatory dress code:* long sleeves/pants, socks, closed-toe shoes.

Friends Community School

IPM Plan Year 1

- ▶ *Chickens in movable coop*
- ▶ *Grass kept short; evaluated plantings*
- ▶ *Garlic barrier perimeter spraying program*
- ▶ *Nematode interior spraying program*
- ▶ *No field trips into woods*



Friends Community School

IPM Plan Year 2

- ▶ *Chickens went home*
- ▶ *Added a 4 poster deer feeder*
- ▶ *Added tick tubes spring & fall*
- ▶ *Continued garlic barrier perimeter spraying program*
- ▶ *Continued to keep grass short & to plant deer-resistant plants*
- ▶ *Limited field trips into woods*
- ▶ *To close the gap between pant leg and footwear, we tried:*
 - duct tape applied sticky side out → took too long*
 - repellent treated boots and socks → too hard to store*
 - permethrin treated tennis bands → easy to get on & off, easy to store*
- ▶ *Field trip advisory to parents before and after every field trip*

Friends Community School

IPM Plan Year 3

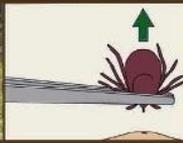
It's Lyme Time! 

Protect Yourself Against Lyme Disease

- 1 Walk in the middle of trails; avoid sitting on logs and leaning on trees.
- 2 Wear a hat, tuck in hair, if possible.
- 3 Wear a long-sleeved shirt fitted at the wrist.
- 4 Wear shoes, no bare feet or sandals.
- 5 Wear long pants tucked into high socks or duct tape around pants.
- 6 Consider Deet for skin and permethrin for clothes.
- 7 Wear white or light-colored clothing to make it easier to see ticks.
- 8 Do tick checks immediately and 3 days after outdoor activity.
- 9 If you find a tick, remove it carefully and save it.
- 10 Ask your veterinarian about protection for your furry friends.




Lyme Disease is transmitted by a tiny tick, about the size of a poppy seed.


Remove tick with tweezers. Pull straight out as close to the skin as possible. Save tick in container and call doctor.

California Lyme Disease Association
www.lymedisease.org

Lyme Disease Association
www.LymeDiseaseAssociation.org

- ▶ Switched to essential oil perimeter spray
- ▶ Added formal parent education program
- ▶ Repellent advised -- applied at home per state regs
- ▶ Incorporated school signage on tick exposure reduction wherever/whenever one ventures outdoors

Friends Community School

IPM Plan Year 4 onward



- ▶ *Continued with Year 3 steps*
- ▶ *Field Guidelines & Dress Code extended to off-site field trips*
- ▶ *Posted tick resources for parent education on school website*
- ▶ *Continue to follow IPM developments*

Friends Community School

- *Testing is key to fact-based dialogue*
- *Education is key for compliance*
- *Get started, then tweak as data comes in*



Reducing Tick Populations via IPM





Center of Expertise for School IPM