

Tick season is starting sooner, and they are showing up in new places

July 6 2023, by Adrienne Berard



The American Dog Tick or *Dermacentor variabilis* is one of the most well-known ticks in North America. Credit: Jerry Kirkhart

As tick season gets into full swing, we spoke with two experts who study them to learn about the latest in tick research and how to stay protected. Emily Struckhoff is a vector-borne disease program specialist with Penn State Extension and Erika Machtinger is an assistant professor of entomology at Penn State.

Let's start with the latest news on ticks. What are new trends that you are seeing?

Emily Struckhoff: The biggest thing we are starting to see is [tick species](#) are popping up in new areas where we have never seen them before. That's concerning because when new species of [ticks](#) move into new areas, they bring the pathogens with them. This is the biggest news that people should be aware of when it comes to ticks and [tick-borne diseases](#).

Erika Machtinger: Just in Pennsylvania, we are seeing pathogens pop up in areas where they haven't been seen before. For example, the [tick](#)-borne Heartland virus was one that popped up recently in in the Northeast for the first time, so it's clear pathogens are moving with the ticks to new places. This presents a challenge for those of us who research this, because it's relatively new, so we're dealing with both known and unknown impacts of tick-borne pathogen spread.

What can people do to protect themselves?

Machtinger: It sounds obvious, but the most important thing you can do to prevent tick-borne diseases is stop the tick from biting. That starts with protecting yourself using repellent or permethrin-treated clothing, remembering to do regular tick checks and taking showers after being outside.

Struckhoff: The number one defense against tick-borne disease is preventing tick bites in the first place and the easiest way to do that is personal protection measures, but there are measures you can take when it comes to landscape. Some general tips to taking control of your yard are clearing out [leaf litter](#) and mowing the lawn at the shortest possible setting to reduce the areas that are good for ticks and their hosts. Ticks can't withstand drying out, so they won't survive in [direct sunlight](#) or under direct heat, so you can keep that in mind to cut back on habitats that could harbor ticks.

What about if you are bitten by a tick? What should you do?

Machtiger: Don't panic. There's some good-ish news. For most tick-borne diseases, not all of them, but for the majority of them, the tick needs to be attached for at least 24 to 36 hours in order for whatever pathogen it has to go from the tick into you. There are exceptions, but if you miss a tick after conducting your tick checks and find it within a day, you have a lower risk of infection than if it is attached for a longer period.

Struckhoff: When it comes to actually removing the tick, you want to get it out as quickly as possible and avoid doing anything that would disturb the tick. Use a pair of fine-tipped tweezers to grab the tick as close to the skin as possible and pull it straight out. It's really the simplest measure. You'll hear people talk about lighting a match or freezing or smothering it, but all of those measures agitate the tick, which increases the likelihood that it will regurgitate anything that's in its body into yours, which is both disgusting to think about and could increase the risk of transmission. So, just go simple and quick to get it out.

What about the news of the development of a Lyme

disease vaccine? I understand Penn State is one of the institutions currently conducting clinical trials for the vaccine.

Machtinger: Yes, it's in phase three [clinical trials](#) right now, which is exciting. There are [human trials](#) going on right now in Pennsylvania and throughout the Northeast, but it's important to keep in mind that the earliest the vaccine would be available is in 2025, so we're still a few years out.

Struckhoff: It looks like it's going to be a promising vaccine that's going to be very useful in reducing tick-borne [disease](#) in the United States, but there are still other tick-borne diseases out there that it won't cover, so it's going to be important that people still use these personal protective measures like repellents to protect themselves even after that vaccine comes to market.

What are ways the changing climate may impact ticks and the spread of tick-borne pathogens in the future?

Machtinger: Ticks are not insects but, like many insects, they become active when it's warm. They are always here, but they only come out when the environment allows them to do so.

Struckhoff: Exactly and this year in Pennsylvania is a good example. We started seeing ticks starting in April, which is very early. Ticks can be active any time the temperature is above 40°F, so if you have a really warm day in January and it gets above 40°, ticks will be out looking for a host. A [warmer climate](#) means a lot more tick activity, which could lead to much more pathogen spread.

Provided by Pennsylvania State University

Citation: Tick season is starting sooner, and they are showing up in new places (2023, July 6)
retrieved 27 April 2024 from <https://medicalxpress.com/news/2023-07-season-sooner.html>

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