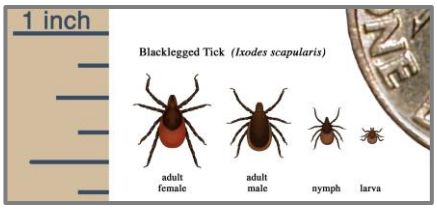
Ticks and Your Health

Preventing tick-borne illness in Michigan

Michigan Department of Health and Human Services
Michigan Department of Natural Resources
Michigan State University

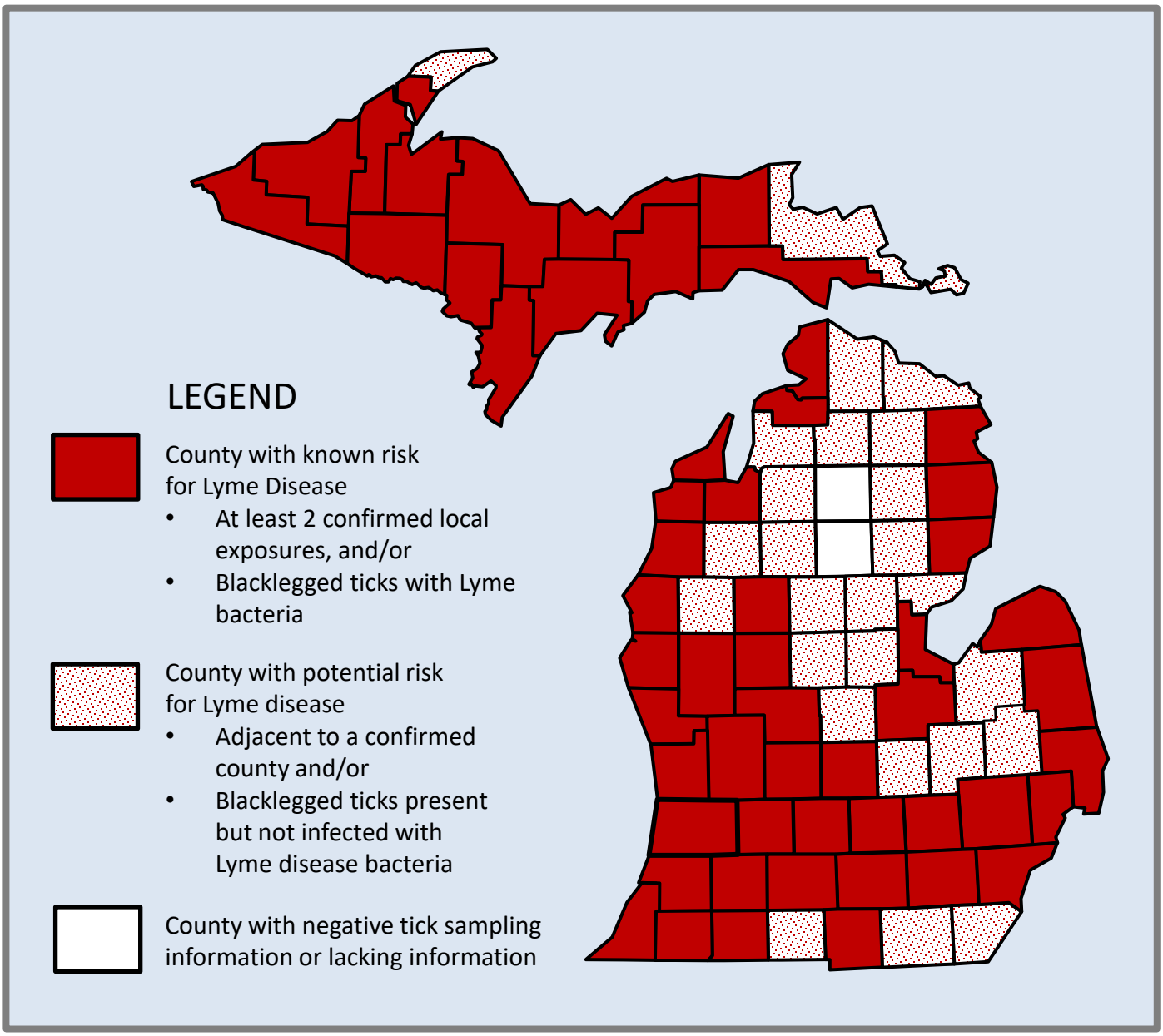
2025 Michigan Lyme Disease Risk Map

Lyme disease is an emerging disease transmitted by the blacklegged tick in Michigan. Local risk for Lyme disease varies depending on whether infected ticks are in the area. Several local and state agencies partner to conduct surveillance for Lyme disease in people and animals. The below map classifies risk based upon field collected and infected ticks and reported human cases of Lyme disease in Michigan (see the legend for specific criteria). The map is updated as new information becomes available.



Blacklegged ticks are active from March to November in Michigan. They are commonly found in wooded and brushy habitats.

For more information about Lyme disease prevention, visit www.michigan.gov/lyme



Updated June 2025

MDHHS Michigan Department of Health & Human Services

EMERGING & ZOONOTIC INFECTIOUS DISEASE

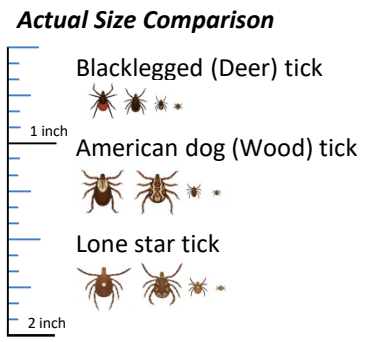
General Information

Ticks are closely related to insects and spiders, and there are over 20 known tick species in Michigan. Usually they feed on wildlife, however people may be bitten when they spend time in areas where ticks live. Ticks are most often found in natural areas such as tall grasses, wooded areas, or fields near wooded areas. Ticks do not normally come indoors unless they are carried inside on people or pets.

Several kinds of ticks will bite people and pets, and some can carry dangerous bacteria, viruses, or parasites. Not all tick bites will make you sick, but tick-borne diseases do occur in Michigan, and can be serious or fatal if not properly treated.

Ticks have three life stages – larvae, nymph and adult (see size comparison photo). All stages can bite people.

When a tick bites, it does not hurt. It will stay attached for several days as it swells up with blood to several times its normal size (see photo below). Ticks can attach anywhere on the body, but are often found in the hairline, ears, waistline, armpit, and groin.



Tick stages: female, male, nymph, larva

It is important to take steps to prevent tick bites when spending time in wooded or grassy environments. Examples include avoiding areas with a lot of ticks, using insect repellents, checking skin and clothing for ticks often, and showering after coming indoors (see page 10 for more information).

Tell your doctor if you are ill and have had a tick bite, or been in an area with ticks. This may help them decide how best to treat your illness.

Left to right: American dog tick female, Lone star tick female, engorged blacklegged tick female, blacklegged tick female, blacklegged tick nymph.

Common Ticks in Michigan

Ticks are best identified by an experienced professional. See the section on "Tick Identification" (page 11) for information on how to get your tick identified by an expert.

The most common ticks submitted by Michigan residents are:

American dog tick (wood tick)

70%
of all ticks submitted in Michigan

Where found:
Widespread throughout the Lower and Upper Peninsulas of Michigan in wooded and grassy areas.

Diseases they may carry:
Rocky Mountain spotted fever and tularemia

Key facts:
American dog ticks are large brown ticks with ornate white markings. It is mainly the adult ticks, active from April through July that will bite people and pets.

Blacklegged tick (deer tick)

20%
of all ticks submitted in Michigan

Where found:
Spreading throughout the Lower and Upper Peninsulas of Michigan in wooded and grassy areas.

Diseases they may carry:
Lyme disease, anaplasmosis, babesiosis, deer tick virus, and *Ehrlichia muris*-like disease

Key facts:
The blacklegged tick is a small tick with black legs, and has a round black shield behind its head. The adult tick is active in the spring and the fall, and the nymph stage is active throughout the summer months. Both stages can transmit diseases.

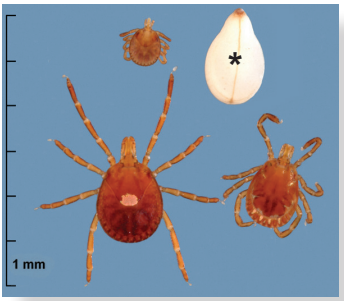
* Sesame seed

Lone star tick

5%
of all ticks submitted in Michigan

Where found: Rare in Michigan, but becoming more common. Usually found in wooded areas.

Key facts: The adult female has a distinctive “lone star” marking. All stages of this tick will readily bite people and their pets.



Diseases they may carry: Ehrlichiosis and tularemia

Woodchuck tick

3%
of all ticks submitted in Michigan

Where found: Normally found in the dens of wild animals such as woodchuck and skunk dens.

Key facts: Normally bite pets when they are near animal dens. People spending time in the woods near animal dens may also be bitten.

Diseases they may carry: Powassan encephalitis, a potentially serious viral illness

Brown dog tick (kennel tick)

1%
of all ticks submitted in Michigan

Where found: Able to survive and breed in indoor environments as well as outdoors in grassy and brushy areas.

Key facts: May be hard to distinguish from other ticks because of “plain” brown appearance. It is often found in shelters, breeding facilities, and dog kennels. Proper cleaning in these facilities can prevent infestations.

Diseases they may carry: Rocky Mountain spotted fever, canine babesiosis, and canine ehrlichiosis

* Sesame seed

Other tick species

There are many other tick species in Michigan. Most are seen less frequently on people and pets, and are not associated with human illness.

Lyme Disease

Lyme disease is an illness caused by the bacterium *Borrelia burgdorferi.* In the midwestern and eastern U.S. people and animals get Lyme disease from the bite of an infected blacklegged tick. In most cases, the tick must be attached for 36 to 48 hours or more before the Lyme disease bacterium can be transmitted. **Avoiding tick bites and promptly removing ticks are the best ways to prevent infection.**

The most important factors in preventing Lyme disease are:

1. Knowing where blacklegged ticks can be found (see the map at the front of this brochure)
2. Preventing tick bites
3. Removing ticks promptly if they do bite
4. Seeking prompt medical care if illness occurs after a tick bite

The symptoms of Lyme disease may include:

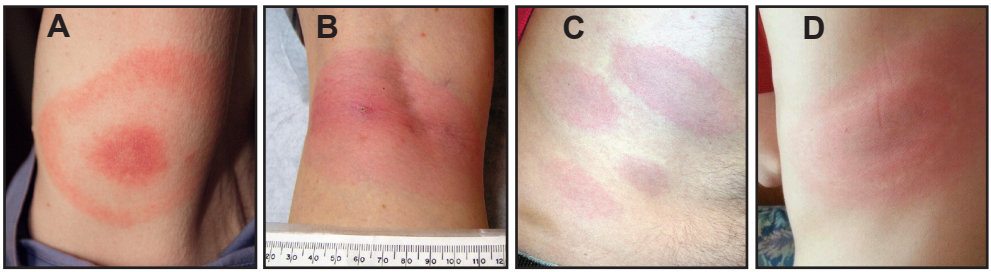
3-30 days
after a bite from an infected blacklegged tick

Early localized Lyme disease

- Chills and fever
- Headaches
- Muscle and joint pain
- An expanding skin rash, called erythema migrans, in 70% to 80% of people

Erythema migrans (EM) rash: It's not always a "bull's eye"

Most people recognize the classic target or bull's-eye shaped rash. However, most EM rashes actually look like a solid red or reddish-blue oval. There may also be multiple rashes. An EM rash may begin at the site of a tick bite and expand over a period of days. The rash may feel warm to the touch, but is not usually itchy or painful.



Any of the above rashes could be a sign of Lyme disease (from left to right): A) Classic bull's eye rash with "target" appearance; B) Solid red lesion; C) Multiple red, oval lesions; D) Reddish-blue rash with expanding and clearing ring.

Weeks to Months
without treatment

Disseminated Lyme disease

- Additional EM rashes on other parts of the body
- Loss of muscle tone or droop on one or both sides of the face (facial palsy)
- Headache or stiff neck
- Arthritis with joint swelling, usually in one or more large joints, especially the knees
- Heart palpitations or dizziness due to changes in heart rhythm

Consult with your physician if you think you have Lyme disease. If your doctor wants to order a blood test, the MDHHS laboratory offers the nationally-standardized test for Lyme disease.

Other Tick-Borne Illnesses

Ticks may spread other diseases to people and pets and although they are less common than Lyme disease, it is just as important to protect yourself. If you are bitten by a tick, monitor your health. If you have symptoms of fever, headache, body aches, or rash within a month after being bitten by a tick, or after being in an area with ticks, see your healthcare provider. Tick-borne diseases often begin with "flu-like" symptoms, but may rapidly progress to more serious illness.

Treatment

Most tick-borne diseases, including Lyme disease, tularemia, Rocky Mountain spotted fever (RMSF), anaplasmosis, and ehrlichiosis, are treatable with antibiotics. People and pets treated in the early stages of these diseases usually recover rapidly and completely. The antibiotic doxycycline is the most effective treatment of Lyme disease and ALL rickettsial diseases, including RMSF, anaplasmosis, and ehrlichiosis. Doxycycline is the treatment recommended by the American Academy of Pediatrics (AAP) and the Centers for Disease Control and Prevention (CDC) for patients of ALL ages.

For additional details about Lyme disease and other tick-borne diseases in Michigan, please see the table on the next page.

Rocky Mountain spotted fever usually causes a rash that begins on the arms or legs, and spreads to the trunk of the body.

Diseases Spread by Ticks in Michigan

Disease	Tick Vector (in Michigan)	Time from bite to symptoms	Signs & Symptoms	Rash Appearance	Treatment and Comments
Lyme disease (*Borrelia burgdorferi*)	*Ixodes scapularis* (blacklegged tick)	3-30 days	**Early localized disease:** • Fever and chills • Headaches • Muscle and joint pain • Erythema migrans rash **Disseminated disease: (weeks to months after exposure):** • Multiple EM lesions • Arthritis in large joints, especially the knee • Facial palsy • Meningitis • Irregular heart beat or palpitations • Shooting pains, numbness or tingling in the hands or feet	**Erythema migrans (EM):** Occurs 3-30 days after tick bite. Red or reddish-blue rash expands slowly from the bite over several days into a circle or oval shape. It may eventually look like a "target" or "bull's eye." The rash may feel warm to the touch, but is not usually itchy or painful.	Disease transmission does not occur unless tick is attached longer than 24-48 hours. Treatable with antibiotics, preferably doxycycline.
Rocky Mountain spotted fever (*Rickettsia rickettsii*)	*Dermacentor variabillis* (American dog tick)	2-14 days	• Fever and chills • Rash • Severe headache • Muscle pain • Nausea, vomiting, abdominal pain • Red eyes	Rash has both flat discolored areas of skin and small raised bumps that expand over time. Occurs 2-5 days after fever onset, does not occur in up to 10% of people. Later, rash might evolve to pinpoint-sized red dots under the surface of the skin.	Rash often begins at the extremities, including palms and soles between days 3-5, then makes its way centrally towards the body's trunk. Disease transmission can occur in as little as 4-6 hours after tick attaches. Treatable with doxycycline.
Anaplasmosis (*Anaplasma phagocytophilum*)	*Ixodes scapularis* (blacklegged tick)	7-14 days	• Fever and chills • Headache or fatigue • Muscle aches • Other signs may include nausea, abdominal pain, cough, confusion	Rare	Serious illness that can be fatal if not treated early. Treatable with doxycycline.

Disease	Tick Vector (in Michigan)	Time from bite to symptoms	Signs & Symptoms	Rash Appearance	Treatment and Comments
Ehrlichiosis (*Ehrlichia chaffeensis*)	*Amblyomma americanum* (Lone Star tick)	7-14 days	• Fever and chills • Headache or fatigue • Muscle aches • Other signs may include nausea, vomiting, diarrhea, red eyes, confusion and occasionally rash	Rash may look like red splotches or pinpoint dots in <30% of adults and ~60% of children	Treatable with doxycycline.
Babesiosis (*Babesia microti*)	*Ixodes scapularis* (Blacklegged tick)	1-8 weeks	• Fever (may come and go) • Chills and sweats • Headache or fatigue • Body ache • Nausea	None	Treatable with a combination of antibiotics and other drugs. Some infected people may have no symptoms.
Tularemia (*Francisella tularensis*)	*Dermacentor variabilis* (American dog tick) *Amblyomma americanum* (Lone Star tick) Deer flies	On average 3-5 days, but can vary from 1-21 days	• Fever and chills • Headache • Muscle pain and joint stiffness • Lymph node swelling • Pneumonia • Skin ulcer at site of bite or wound	None	Other routes of infection include contact with blood or tissue of infected animals, especially rabbits. Symptoms vary depending on the route of exposure. Treatable with antibiotics.
Deer tick virus or Powassan Encephalitis (*Flavivirus*)	*Ixodes scapularis* (Blacklegged tick) *Ixodes cookei* (Woodchuck tick)	1-4 weeks	• Fever and chills • Headache • Nausea, vomiting • Confusion, seizures, weakness and movement disorders • Meningitis or encephalitis	None	May start as a flu-like illness, and may progress to meningitis or encephalitis. No specific anti-viral therapy is available, treatment is supportive.

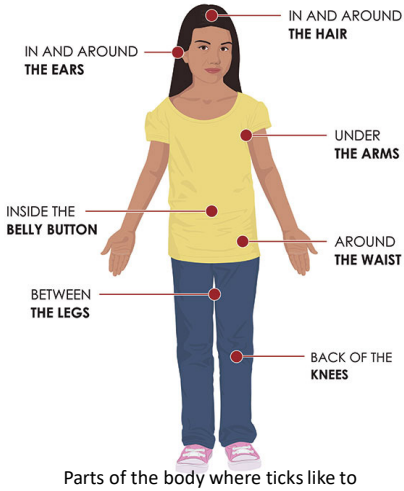
Prevention

Avoid areas with a lot of ticks

- Ticks like shady, moist areas in wooded and grassy locations. Be extra careful in warmer months (April-September) when ticks are most active.
- When spending time in areas with ticks, try to stay on well groomed trails and avoid contact with high grass, brush and ground that's covered in fallen leaves.

Check your skin and clothes for ticks every day

- Wear light-colored clothing so ticks can be spotted easily.
- Perform tick checks after being outdoors, even in your own yard. Use a mirror to inspect all parts of your body carefully, including your armpits, scalp, and groin.
- Shower soon after coming indoors to find and wash off ticks.
- Remove ticks from your clothes before going indoors. To kill ticks that you may have missed, place clothes in a dryer on high heat for at least ten minutes.



Parts of the body where ticks like to bite or attach

Use of insect repellents

- Insect repellents can be applied to clothing and skin –
  - Environmental Protection Agency (EPA) approved repellents registered for ticks include products containing:
    - DEET
    - Picaridin
    - Oil of Lemon Eucalyptus

  - Store repellents away from children and pets, and follow label guidelines for proper application.
  - For children, spray repellent onto your own hands and then apply it to the child's skin, avoiding the hands, eyes, nose and mouth.

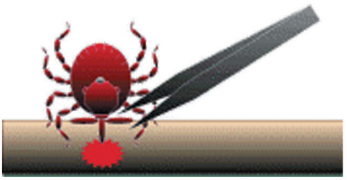
- Permethrin is another type of repellent that can kill ticks. Permethrin should NOT be applied directly to skin, but can be applied to clothing, shoes, and outdoor gear. Such products once applied will continue to repel ticks even after several washings.
- Whenever using an insect repellent, always read and follow the label directions for proper application and safety concerns.

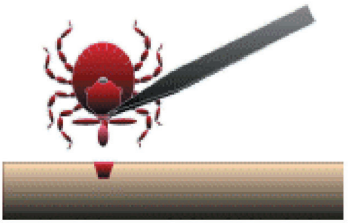
Tick Removal

Ticks can attach to any part of the body, but prefer areas such as the groin, armpit, ankle and scalp.

To remove attached ticks:

1. Use fine-tipped tweezers to grasp the tick as close to the skin surface as possible.
2. Pull upward with steady, even pressure. Do not twist or jerk the tick; this can cause the mouth-parts to break off and remain in the skin. If this happens, remove the mouth-parts with tweezers. If you are unable to remove the mouth easily with clean tweezers, leave it alone and let the skin heal.
3. After removing the tick, thoroughly clean the bite area and your hands with rubbing alcohol or soap and water.





Tick Identification

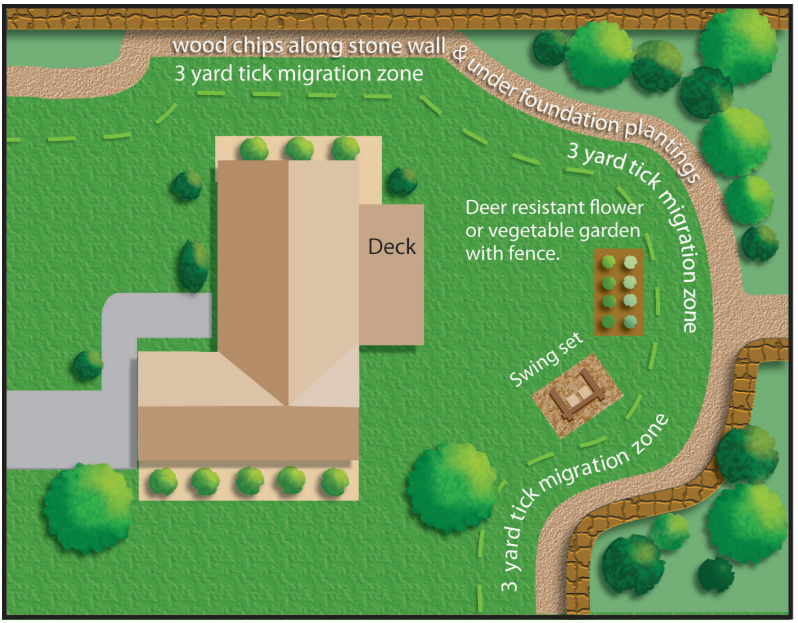
Expert tick identification is available free of charge for Michigan residents through the Michigan Department of Health and Human Services (MDHHS). You can either email a picture of the tick to MDHHS-Bugs@michigan.gov, or you can mail the tick to the MDHHS for identification. Free tick submission kits are available from your local health department.

For more information go to **www.michigan.gov/lyme**

Ways to keep your home tick free

If your yard has grassy or wooded areas with wildlife, including deer and small mammals, there are ways you can create a “tick safe zone” around your home. Ticks need moist, shaded places to survive. While it is not always possible to keep all ticks away, these steps will help to reduce ticks around the home:

- Keep grass mowed and remove dead leaves, brush and weeds that may give ticks a place to live
- Move wood piles and bird feeders away from the home
- Seal small openings around the home, garage or shed to reduce rodent activity
- Keep dogs and cats out of wooded and grassy areas to reduce ticks brought into the home by pets
- Move swing sets and sand boxes away from the woodland edge and place them on a bed of wood chips or mulch
- Trim shrubbery and branches around the yard to let in sunlight
- A well sunlit three-foot wide barrier of wood chips, mulch, or gravel between lawns and wooded or shrubby/grassy areas will help to keep ticks from surviving or reaching the yard
- Pesticides can be applied to reduce tick populations or create a barrier for the yard. Do not use pesticides near streams or any body of water, and **always follow the label directions**



Tick Prevention in Pets

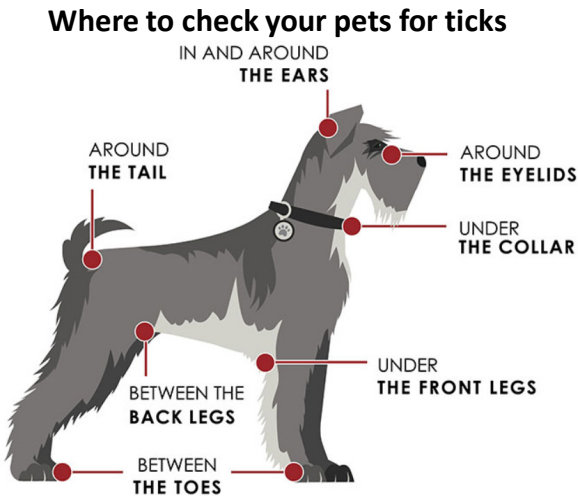
Animals may become sick with the same tick-borne diseases that affect people. Pets may also carry ticks inside, which may then bite people. Tick prevention for your pets is very similar to prevention for people. If your pet spends time in places that may have ticks (high grass, brush and ground that's covered in fallen leaves), tick prevention can protect your pet's and your family's health.

The best way to stop ticks from biting your pets is to use flea and tick preventives and check them regularly for ticks. There are a number of products that can be used to prevent ticks and fleas on pets. Talk with your veterinarian about the best options for tick prevention for your pet.

Note: Cats are extremely sensitive to a variety of chemicals. Do not apply any tick prevention products to your cats without first asking your veterinarian!

Visual and hands-on inspections are especially important to make sure a tick is not hidden in your pet's fur.

- Make sure to run your hands over the animal's body to feel for any bumps.
- Be sure to check around the animal's ears, chest, underbelly, legs, feet (including between the toes) and tail.
- A Lyme disease vaccine for dogs is available. Ask your veterinarian if this is a good choice for your pet.



If a tick is found on your pet, remove it in the same way you would from a person. Signs of tickborne disease may not appear for 7-21 days or longer after a tick bite, so watch your pet closely for changes in behavior or appetite. If you notice any signs of illness, talk to your veterinarian.

Ticks and Wildlife

In Michigan, many species of wildlife including mice, chipmunks, and white-tailed deer, can carry ticks. If you come into contact with wildlife, ticks from those animals could find their way onto you or your pet. Wild animals are the natural hosts for ticks and do not normally show signs of illness from tick-borne diseases. Importantly, hunters and trappers are not at risk of getting a tick-borne disease from directly handling (ie. field-dressing a harvested animal) or eating properly cooked game meat. **There is, however, one exception:** Hunters and trappers handling rabbits, hares, beavers, and muskrats can get tularemia if they get blood or tissue from an infected animal into their eyes, nose, or a cut.

It is always important when skinning/cleaning carcasses to **wear gloves, and wash hands thoroughly with soap and water afterwards**. This may prevent bacteria present on the carcass or in the bodily fluids of wild animals from making you sick.

Additional Information

For more information about ticks and tick-borne diseases, visit the Centers for Disease Control and Prevention website at **www.cdc.gov** or consult one of the agencies listed below:

Michigan Department of Health & Human Services
Bureau of Infectious Disease Prevention
517-335-8165
333 South Grand Ave., 4th Floor
Lansing, MI 48933
www.michigan.gov/mdhhs
www.michigan.gov/lyme

Michigan Department of Natural Resources
Wildlife Disease Laboratory
517-336-5030
4125 Beaumont Rd., Rm 250
Lansing, MI 48910
www.michigan.gov/dnr

Michigan State University
Department of Fisheries and Wildlife
517-355-4478
480 Wilson Rd.
East Lansing, MI 48824

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