Ticks in a changing environment

FAST FACTS

- Ticks can be found in **many environments**, but are commonly found in wooded areas with leaf litter, tall grassy areas, shrub layers and along forest edges.
- Ticks can infect humans with pathogens that can lead to illnesses such as Lyme disease, anaplasmosis, and Babesiosis, among others.
- The number of places where ticks can survive and thrive in Canada is growing due to climate change, animal migration, deforestation and urbanization.
- Landscapes can be designed and managed to minimize tick and animal host (e.g., deer and rodents) habitats.

National Collaborating Centre for Environmental Health

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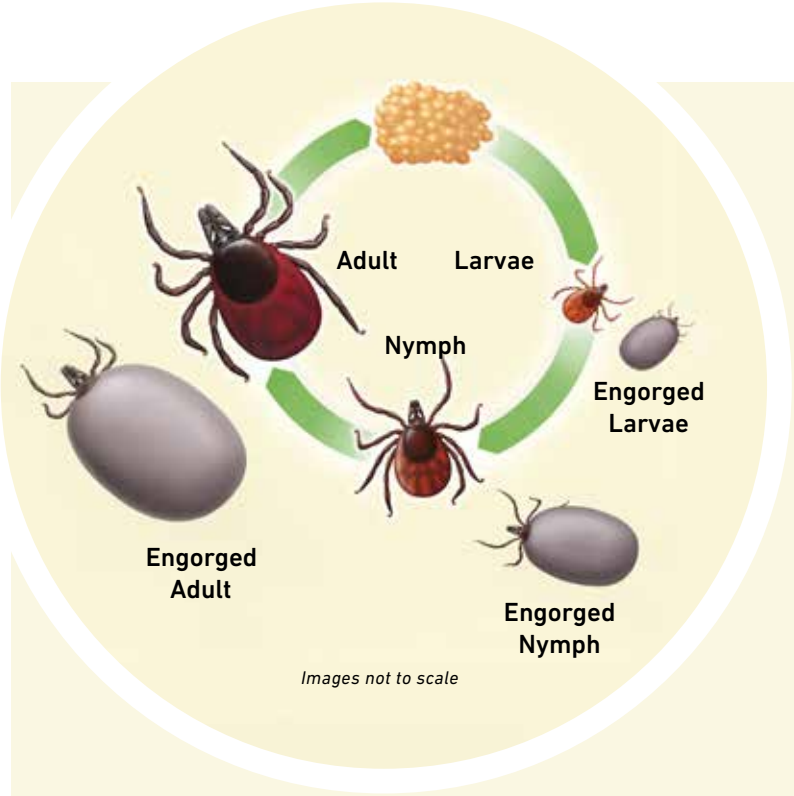
May 2023

www.ncceh.ca

TICK LIFE CYCLE AND HABITAT

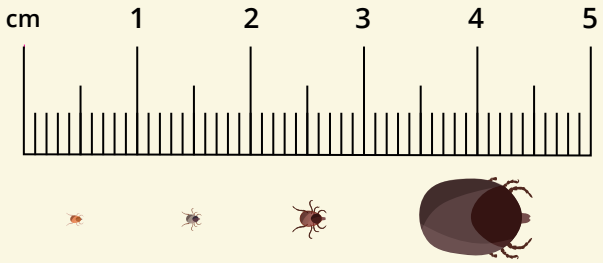


Ticks are small arthropods. They are slow moving and their bodies have a flat tear drop shape. They go through 3 life stages:

Larvae | 6-legged, become engorged after feeding

Nymph | 8-legged, become engorged after feeding

Adult | 8-legged, become engorged after feeding



Larvae | Nymph | Adult | Engorged Adult — *shown at 1.5x actual size*

Tick species and habitats

SPECIES / COMMON NAME	TYPICAL RANGE*	HABITAT PREFERENCES
Ixodes scapularis Blacklegged tick	East of Rocky Mountains	Prefer high moisture areas; often found in leaf litter and under forest canopy.
Ixodes pacificus Western blacklegged tick	West of Rocky Mountains	
Dermacentor variabilis American dog tick	Eastern Canada *Eastern AB and SK, MB, ON, QB, NB, NS*	Prefer drier environments; often found in grass and shrubs.
Dermacentor andersoni Rocky mountain wood tick	Western Canada *BC, AB, SK*	
Amblyomma americanum Lone Star	Canada wide	Often found in wooded areas and leaf litter.

* This table represents available research as of 2023. Surveillance is limited in many areas and this information could be an underrepresentation of the actual presence of tick species in a particular area. The range of tick species will also change with climate change.

The range of ticks is expanding

- It is estimated that the range of ticks will expand northwards by 35-55 km per year.
- Increasing ambient temperature and high relative humidity can increase tick population and activity.

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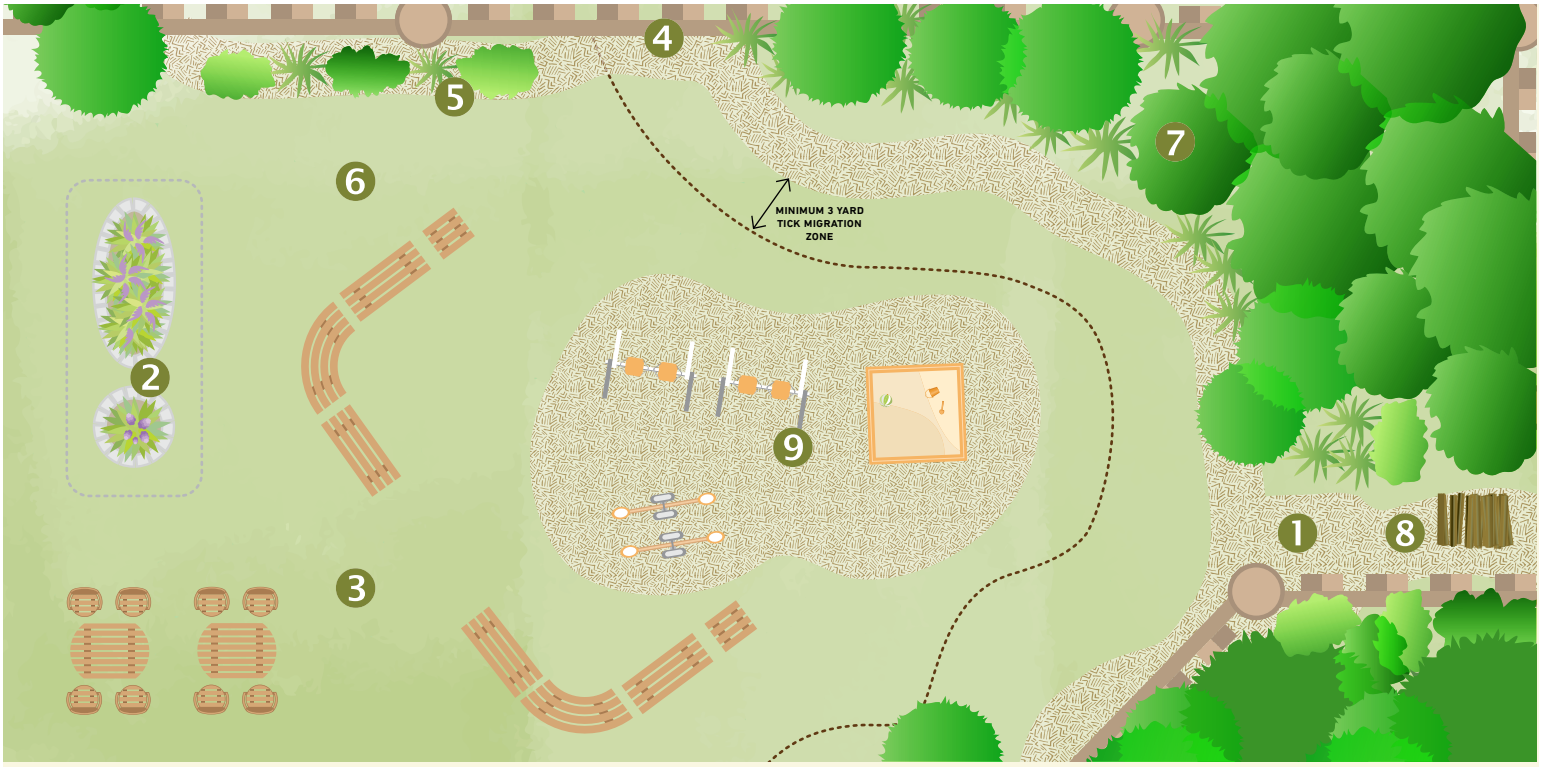
LANDSCAPE DESIGN TO MINIMIZE TICK HABITAT SUITABILITY



Landscape design considerations

1. **Create clear pathways.** Use hardscaping materials such as gravel, stones, bare soil, and cedar chips or sawdust to create a path or to delineate a border at least 3 inches wide. Research shows that woodchip borders along trails effectively suppress *Ixodes scapularis* activity.

2. **Select plants to limit deer and/or rodents.** This may also increase insect biodiversity limiting ticks. Consider ornamental deer and rodent resistant plants (e.g. lavender, rosemary, pennyroyal, daffodil, iris, Russian sage). Plant selection will vary according to climate. A landscape specialist can be consulted to guide regional plant selection and their placement.

3. **Increase sun exposure and decrease humidity** through landscape design principals. This can help to reduce tick survival since sun exposure and limited humidity can dessicate ticks.

4. **Use fencing where possible** to limit deer and other host animal movement throughout the landscape. This reduces the risk of ticks becoming dispersed in an environment through animal hosts.

5. **Prune plants** regularly (e.g., trees, shrubs, and bushes).

6. **Maintain lawn** by keeping grass short.

7. **Remove yard waste** such as leaf litter, brush/log piles, weeds, and debris.

8. **Stack wood neatly** in dry area away from the house or other buildings.

9. **Move seating and play structures into open areas** at least 3 yards away from landscape perimeter. Mark area with a 3 inch woodchip border.

Insecticides as a last resort:

- Chemical measures (acaricides, pyrethroids, and permethrin) can be used to complement landscape design and management to limit tick populations in certain areas.
- Consult a certified pest management specialist to see if your park, recreational area, or property is a good candidate for chemical measures.

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BE PREPARED WHEN OUTDOORS

Take action: minimize your risk of tick encounters

Outdoor

- ☐ Avoid high-risk areas with high grass and leaf litter.
- ☐ Walk on cleared trails.
- ☐ Wear light-coloured clothing covering arms and legs (to easily spot ticks on clothing).
- ☐ Tuck clothing (e.g. pants into socks, shirt into pants).
- ☐ Wear closed-toed shoes to create a barrier for skin.
- ☐ Conduct regular checks for crawling ticks.
- ☐ Apply insect repellents approved in Canada.*
- ☐ Wear permethrin-treated clothing. In Canada, this is approved for those over the age of 16. Permethrin sprays and liquids for treating one's own clothes are not approved in Canada.

Returning indoors

- ☐ Check clothing and gear for unattached ticks.
- ☐ Change from your outdoor clothes and put them in the dryer, on high heat, for at least 10 minutes to kill ticks.
- ☐ Take a shower/bath to rinse unattached ticks.
- ☐ Thoroughly check yourself and pets for tick(s). You should check your whole body as ticks can attach anywhere.
- ☐ Pay close attention to your head, hairline, behind your ears, waist, belly button, between the legs, and behind your knees. A hand-held mirror is helpful to see all body parts.
- ☐ Promptly remove tick(s) using a fine point tweezer, grasping ticks neck at a 90-degree angle. Wash the area with soap and water.
- ☐ Keep tick in a jar with moist cotton ball, submit to your health provider for testing. See this instructional video: shorturl.at/hmrJK

* INSECT REPELLENTS APPROVED IN CANADA

As of 2023, there are two approved personal insect repellents: DEET and Icaridin.

DEET
The approved concentration varies according to age:

> 12 years of age	30% DEET
2 – 12 years	10% DEET up to three times a day
6 months – 2 years	10% DEET once a day.
< 6 months	Not recommended for infants under 6 months, use mosquito net instead.

Icaridin
Products containing up to 20% icaridin (also know as picaridin) are safe for children 6 months and older.

Be a citizen scientist!

Encounter a tick? Submit a photo with date and location to www.etick.ca for no-cost identification by a professional. This helps to map tick species to a geographical area and time of year and track changes over time.

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This document can be cited as: National Collaborating Centre for Environmental Health. **Ticks in a changing environment [fact sheet]**. Vancouver, BC: NCCEH; 2023 May. Available from: https://shorturl.at/fixQR

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