

February 2023

Impacts of Invasive Plants on Human Health

by Mark Peterson

Invasive plants are well known to alter ecosystems, in many cases crowding out native species and degrading wildlife habitat. However, these invasives may also put people at risk as well.

Most of us who spend time in the outdoors probably dread ticks more than most other hazards found there. They can carry life-altering diseases such as Lyme, Rocky Mountain Spotted Fever, and a host of others. I vividly recall the panic I felt when I saw the bullseye rash of Lyme disease appear from a tick bite on my daughter's upper arm. Fortunately, her infection was cured by a round of antibiotics. Many others are not so lucky. There are primarily three disease-vectoring tick species in Indiana (1), the American dog tick or Eastern wood tick (*Dermacentor variabilis*), the Lone Star tick (*Amblyomma American*), and the Black-legged tick or Deer tick (*Ixodes scapularis*). Of these, the Black-legged tick is the most concerning, since it is a primary vector of Lyme disease.



Black-legged tick. (Photo credit: Jim Gathany, CDC)

Several research studies have demonstrated that infestations of invasive brush can create environments that favor disease-carrying ticks, either by improving tick survival in the forest canopy, increasing the number of tick hosts (e.g. deer and mice), or increasing the proximity of ticks to hosts. A study of infestations of Japanese barberry (*Berberis thunbergii*) in Connecticut found the number of adult black ticks in barberry infested areas was 3-4X that of areas where barberry was controlled (2). The authors attributed this mainly to a more favorable environment for mice and deer, both primary hosts for black-legged ticks. A similar study of Amur honeysuckle (*Lonicera maackii*) infestations in Missouri found that eradication of this invasive shrub can significantly reduce the number of lone star ticks and the associated risk of disease infection to humans in these areas (3). Research in south central Wisconsin found that removal of honeysuckle reduced the cumulative 5-year density of disease-carrying ticks by 70% (4).

Invasive brush provides an excellent vegetative scaffold for tick questing. Questing is the term used to describe the means by which ticks ascend to the leaves of grasses and shrubs and then wait for hosts to brush up against them. Contrary to what you may have heard, ticks do not "jump" from branches onto their prey. They really do not have the legs for jumping. Some researchers hypothesize that dense canopies of these brush species elevate humidity and decrease temperature, increasing the survival of nymphal ticks as they hang out waiting for a victim. Invasive brush usually leafs out very early in the spring and gives ticks a head start in their questing behavior.



Invasive honeysuckle in early spring (Photo credit: Denis Conover, University of Cincinnati)

This also provides a good reason to take precautions when working to control invasive plants. The use of insect repellent, permethrin-treated clothing, and/or carefully checking for ticks once you finish your work, are all good practices to avoid being bitten. Even though ticks are much less active in the colder months, some research (5) has found that winter questing activity can be greater than one might expect, so always be vigilant!

- (1) Gibb, TJ. Ticks. Purdue University Extension. https://extension.entm.purdue.edu/publications/E-71/E-71.html 2016.
- (2) Williams, Scott C., et al. "Managing Japanese barberry (*Ranunculales: Berberidaceae*) infestations reduces blacklegged tick (*Acari: Ixodidae*) abundance and infection prevalence with *Borrelia burgdorferi* (*Spirochaetales: Spirochaetaceae*)." Environmental entomology 38.4 (2009): 977-984.
- (3) Allan, Brian F., et al. "Invasive honeysuckle eradication reduces tick-borne disease risk by altering host dynamics." Proceedings of the National Academy of Sciences 107.43 (2010): 18523-18527.
- (4) Mandli, Jordan T., et al. "Integrated tick management in south central Wisconsin: Impact of invasive vegetation removal and host-targeted acaricides on the density of questing *Ixodes scapularis* (acari: Ixodidae) nymphs." Journal of Medical Entomology 58.6 (2021): 2358-2367.
- (5) Raghavan, Ram K., et al. "Unexpected winter questing activity of ticks in the Central Midwestern United States." Plos one 16.11 (2021): e0259769.

Volunteers Needed to Plant Native Seeds

Looking for something fun to do to chase away the winter blues? Sign up to help at Greenhouse Planting Days at Prophetstown State Park on **February 14-18**.



Register

Advocate for Clean Water Indiana Program Funding



Contact your legislators to show support for the Next Level Conservation for Indiana's Working Lands Initiative. This would allocate an additional \$8.6 million dollars per year for the Clean Water Indiana Program (CWI). CWI provides financial assistance to landowners and conservation groups across the state. It is the only state funding mechanism for the 92 Soil and Water Conservation Districts (SWCDs) and State of Indiana Cooperative Invasives Management (SICIM) and partially funds the Indiana Invasives Initiative. Support from SICIM assists SWCDs in the facilitation of local Cooperative **Invasive Species Management** Areas (CISMAs).

<u>Locally, CWI has funded the SWCD's Invasive Species Technician, invasive species removal cost-share program, invasive species education and equipment.</u>

TICT has created a template for you to fill out and send to your legislators to increase CWI funding.

Find your legislators here: https://iga.in.gov/legislative/find-legislators/

Click the button below, go to File, and download as a Microsoft Word document to edit the letter template!

Letter Template to Increase CWI Funding



Winter is a great time to work on pulling honeysuckle and digging out invasive English Ivy or wintercreeper. Borrow some tools from WREC's Tool Library!

WREC Tool Library

Volunteer Groups



We are looking for businesses, organizations, clubs, and other groups to volunteer for invasive removal projects in our community! No experience necessary—all tools provided! It's a great opportunity for team-building and making a difference in the community. Contact TICT at TICTaboutinvasives@gmail.com to learn more.

NICHES is Hiring!



Our friends at NICHES Land Trust are hiring a full-time Development Director. Their ideal team member has a strong fundraising or business development background, is passionate about NICHES' mission, and is a visionary thinker for a future with large, connected tracts of biodiverse habitats.

Full position and application details here: https://www.nicheslandtrust.org/.../development-director...

Photo Credit: Chad Phelps

Upcoming Events

Invasives Workday at Wolf Park



Join us in removing invasive bush honeysuckle (Lonicera spp.) at Wolf Park.

Stay afterwards for a *FREE* tour of the park!

Saturday, Feb. 18 -- 10am to 1pm

Location:

 Wolf Park (4004 E 800 N, Battle Ground, IN 47920)

What to bring:

- Warm clothes, boots/sturdy shoes, gloves, lunch, water bottle
- We will provide tools, water, restrooms, and a place to eat lunch





• Saturday, February 18 from 10 am -1 pm at 4004 E 800 N, Battle Ground

RSVP



Landscape Management Workshop

- Thursday, March 9 from 10 am -12:30 pm at Tippecanoe County Public Library Wea Prairie Branch
- More information: Landscape Management Workshop

Register



Herbicide 101 How to Control Invasives with Herbicide



MARCH 20, 2023

When: 2 pm - 4 pm

Where: Lilly Nature Center

1620 Lindberg Rd.

West Lafayette, IN 47906

Open to all who are interested, no registration required!

Control Invasives with Herbicide Workshop

 Monday, March 20 from 2 pm - 4 pm at Lilly Nature Center at the Celery Bog Nature Area

Watch your email or our Facebook page for pop-up workdays as weather allows this winter!





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