Horticultural Moment

"Ticked off – A Surprising Connection" *

Ticks just left us in December and are due back as early as February. They don't understand social distancing and certainly don't double mask as they spread their pathogens and put us and our pets at risk. During the pandemic, more people are heading outside for walks and hikes and ticks are waiting for their first "blood meal" of the season. As it turns out, there is one plant with a particularly close relationship with the black-legged or deer tick: the Japanese Barberry.

With plenty of research behind him, Scott C. Williams, PhD, Wildlife Biologist for the Connecticut Department of Forestry and Horticulture spoke to the Worcester Garden Club in a Zoom call on January 28, 2021. His topic was "Making the Connection Between Japanese Barberry and Lyme Disease" *. His 10-year controlled study proved that an infestation of the invasive Japanese Barberry (Berberis thunbergii) creates a perfect microclimate for deer ticks (Ixodes scapularis) and a protected home for white-footed mice, a host for the pathogen that causes Lyme disease. When white-tailed deer (+ dogs and people) walk by and birds land, the ticks hop on for a ride and a meal and - ta da – Lyme disease spreads. Reducing the barberry reduces the Lyme disease; it is a direct correlation.

Japanese barberry came to the US in 1864 and to the Arnold Arboretum as a seed in 1875. It was thought to be a "harmless" alternative to common barberry which spread the black storm rust disease threatening wheat and other grain crops. It also became the multi-million dollar darling of the landscape industry for its attractive appearance, sun/shade and drought tolerance, low maintenance and deer resistance. When it escaped cultivation with no disease, insect, or animal enemies, the Japanese barberry invaded abandoned farmlands, wetlands, and forests, and now permanently inhabits 32 states in eastern and midwestern US and 5 Canadian provinces. It leafs out earlier than the tree canopy above and stays green longer, thereby outcompeting the native seedlings needed to rejuvenate woodlands. It spreads by seeds, rhizomes, and stem layering (when a branch touches the ground and roots) creating an "umbrella" and the 85% humidity perfect for the life cycle of the black-legged tick.

With no competition and no enemies, the Japanese barberry has blanketed the forest floor in many areas with dense thickets of thorny shrubs 3-7' tall. Displacing native trees and shrubs, it reduces beneficial leaf litter and alters the soil structure, ph, nitrogen, site conditions, biodiversity and natural habitat for animals.

Many of us have the beautiful burgundy Japanese barberry and abundant red berries in our own yards, having inherited them from previous owners or planted them ourselves. We have pulled a multitude of their seedlings from our garden beds, never realizing these seedlings are also spreading to neighboring forests and fields to eventually make thick stands of green (no longer deep red) barberry and a perfect habitat for the deer ticks we dread.

The smartest thing we can do is eliminate these thugs and plant alternatives. Cut the existing plant to the ground (mind the thorns!!) and *immediately* paint the stump with an herbicide containing glyphosate or triclopyr (i.e., Roundup). This is the most efficient way to destroy the shrub and will use the least amount of chemical. If you are uncomfortable with chemicals, continue to cut emerging sprouts at 3–6-week intervals as long as necessary to weaken and eventually kill the plant.

U. Conn is working on sterile cultivars of Japanese barberry, but meanwhile be reminded that "importation, distribution, trade, and sale of Japanese barberry" has been banned in MA since January 1, 2009 (and that means no ordering from catalogues). It is best to replant the empty spot to avoid other invasives, and there are many attractive native alternatives. Dwarf fothergilla (Fothergilla gardenia), high bush blueberry (Vaccinium corymbosum), winterberry (Ilex verticillata), inkberry (Ilex glabra), ninebark (Physocarpus opulifolius), New Jersey tea (Ceanothus americanus), and Virginia sweetspire (Itea virginica) are better for wildlife, reduce invasives, protect local ecosystems and help safeguard our safety and that of our families and pets.

According to Dr. Williams, "Management of Japanese barberry and other invasives serves to benefit not only the health of native ecosystems, but also the health of the public."

What are we waiting for? *Tick* tock, *tick* tock.

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