INVADERS IN THE SUGARBUSH *Reprinted from Farming, The Journal of Northeast Agriculture May, 2009*

Imagine that you are walking through your sugarbush one summer day and you notice that the vegetation is strange and unfamiliar. In places, dense waist-high bushes covered with millions of tiny thorns impede your progress. Weren't there just a few of these bushes a couple years ago? Farther on, the tubing is invisible through an impenetrable tangle of shrubs that also hide rocks, fallen branches and anything else that you could trip over. In other places, the forest floor is no longer covered with the familiar flowers and maple seedlings; instead, a uniform layer of an alien plant is everywhere. Near the roads, huge vines have climbed to the top of maples, their foliage smothering the trees in a thick blanket. Elsewhere, another vine seems to be clinging to everything, and when you try to pull it away, hooked thorns on the underside of the leaves slice your hands.

Land managers in many parts of the US have been battling invasive plants for decades, but this is a war that we could eventually lose. While the impact of wetland invaders such as purple loosestrife and water milfoil is probably familiar to most people, woodland invaders also pose a serious threat in terms of access, aesthetics, and vitality of our forests, including sugarbushes. In Vermont, for example, which is currently less affected by invasives than most states to the south, several shade tolerant exotic plants already thrive in some of our forests, including Japanese barberry, Oriental honeysuckle, garlic mustard, Oriental bittersweet, burning bush (euonymus) and buckthorn—while other plants with picturesque names such as "dog strangling vine" and "mile-a-minute weed (or Devil's tear-thumb)" are near or already across our borders. These and other plants are fully capable of enacting the scenario described above. Some of these alien plants are introduced to our landscape accidentally, as are dangerous alien insects such as Emerald Ash Borer and Asian Longhorned Beetle; but many others arrive in our forests by escaping from gardens and commercial plantings. Japanese barberry or burning bush planted at a highway rest stop or alongside your house produce seeds that birds are quite willing to carry into the forest. Plants brought to the US for their "medicinal" qualities, such as garlic mustard, produce prodigious quantities of offspring that do just as well in the forest as in the garden. Every year more invaders are added to the list of plants that threaten our landscape.

Once established, most alien plants are here to stay unless a serious effort is made to eradicate them. What makes the species we call "invasive" more insidious than most alien species (many of our common roadside flowers, such as dandelions and daisies, are also not native to North America) is their ability to spread rapidly and crowd out native plants, including maples. Invasive plants often produce massive quantities of seed, or reproduce easily from tiny fragments of the plant left in the soil. They often have noxious properties and chemical defenses—sharp thorns, unpalatable leaves—that make them unappealing to animals that eat plants. They have high growth rates, employing strategies such as early leaf out (one way to identify oriental honeysuckle), so that they can shade out slower growing native plants like young maples. In some cases they transform the soil (garlic mustard does this), reducing the opportunities for native plant to reproduce. Alien, invasive plants also have a great advantage over native species in the broad oceans separating them from their homelands—they have left the insects, diseases, and competing vegetation behind in Asia or on another continent, so there are no natural controls to their aggressive growth and spread.

Sugarmakers and other woodland managers can best control the invasion of these noxious plants by identifying small populations, and removing them before they spread. It might be possible to pull, or

otherwise kill a few dozen buckthorns, or a small patch of garlic mustard, but when the plants number in the tens of thousands and are scattered over a wide area, they will probably never be successfully eliminated. Of the few species mentioned here, each has a preferred method and timing of control, and these methods are best learned by reading material developed by land managers whose business is invasive plant control. A few good websites include www.stewardshipbestpractices.org/files/2006_toolkit.pdf and www.nature.org/wherewework/northamerica/states/vermont/files/mechanic_short_ver_for_web.pdf, both developed by the Nature Conservancy—and an internet search for woodland invasive plant control will bring up many more useful sites. Basically, the choice for plant control is either mechanical or chemical (herbicide) or both. Mechanical control may involve pulling or cutting the plant, then removing the plant if seeds have already been produced, and repeating the process for several years to eliminate dormant seeds remaining in the soil, or sprouts emerging from the cut stump. Herbicides can be very effective if used by properly trained personnel, but many effective chemicals are not legal in most states for use in a sugarbush. Hiring a company that specializes in chemical control of invasives can be an effective but quite costly strategy. In sugarbushes that are certified organic, even glyphosate (e.g., Roundup), which is considered one of the least noxious herbicides for woodland plant control, cannot be used—and with a large infestation of some species, the producer would then be doomed to endless hours of cutting and pulling.

Invasive exotic plants have the ability to transform the landscape, and maple producers should not assume that this is a problem of only roadsides and wetlands. The best defense is to be well informed and vigilant—know what to look for, how to control the plants, and when to take action. For example, a sudden infusion of light in the forest—which might be caused by an ice storm, or a thinning, could turn a mild infestation into a major one. Remember that these noxious plants are bullies, and that without your assistance they could overwhelm native species—and you could wake up to find that your treasured sugarbush is a much less inviting and healthy plant community.

A sugarbush in Southern Vermont heavily infested with Japanese Barberry

Dense euonymus (burning bush) seedlings in a sugarbush.

Honeysuckle has taken over the understory of this Southern Vermont sugarbush.