

## Managing Invasive Plants in the Sugarbush

*Peter Smallidge, NYS Extension Forester and Director, Arnot Teaching and Research Forest, Department of Natural Resources, Cornell University Cooperative Extension*

Many maple producers have some invasive plants on their property. Invasive plants are alien or exotic species that significantly limit economic or ecological opportunities. Not all exotic plants – think corn and apples – cause economic or ecological problems. Interfering plants, a more general term than invasive, includes native species that interfere with an owner's objectives.

The need and urgency to control invasive plants depend on the owner's long-term goals of the sugarbush, the plant species present, the vigor of trees in the sugarbush, and recent and near-term management activity. Not all invasive plants require an urgent response, but all should be identified, and their extent assessed. Ignoring invasive or interfering plants can have significant consequences. Most Cooperative Extension units, state and provincial natural resource agencies, and many nature-based organizations have extensive Internet resources on invasive plant identification and management.

The origin of our problem with many invasive plant species was their anticipated value for wildlife or landscape benefit which led to deliberate planting. The anticipated advantages have given way to a recognition of concerns. Invasive plants are seldom browsed by deer and reproduce, establish, and grow more effectively than most native species. As a result, the sugarbush

or woodlot can become dominated by the invasive plant. Because most owners have multiple objectives for their property and those objectives often seek some diversity of plant species, domination by a single plant species becomes problematic.

The problems caused by an interfering plant depend on both the characteristics of the plant and the objectives of the owner. Many interfering plants have a physically obstructive nature, for example the bush honeysuckles, that restricts movement into an area. Others have plant structures, for example the thorns on multiflora rose, that are uncomfortable. Japanese barberry, also having thorns, provides favorable habitat for deer mice and a higher incidence of the pathogen that causes Lyme disease. Other invasive plants, such as garlic mustard, isn't visually or physically problematic but can alter soils in a way that restrict the mycorrhizal associations on roots of some plants. Thus, interfering plants can limit most of the common ownership objectives, such as aesthetics, biodiversity, access, and plant productivity.

Interfering plants become dominant because they are particularly successful in at least one of the stages of arrival, establishment, growth or reproduction. There are several distinct theories that describe how species might become

*Invasive plants: continued on page 16*

### ***Invasive plants: continued from page 15***

dominant. All theories relate to single or combined success with producing and distributing seeds, gaining access to resources such as soil minerals or light, avoiding controls on their survival such as herbivory, or gaining some competitive advantage against native species. Controlling one species may simply allow success for another, so removal of the undesirable species may need to be coupled with deliberate establishment of desired plant species that can occupy the site. All efforts need regular monitoring to allow for adaptation to your management approach.

### **Identification of Invasive Plants Common in the Sugarbush**

The history of introduction of invasive plants into the US is varied, but there are many examples of species that have become interfering after introduction in the middle 1800's. In most cases the introduction was intentional because of the expectation of a benefit for humans or wildlife. Following are several invasive shrub species common in many areas of the maple syrup producing region of North America.

Bush honeysuckle (*Lonicera* spp.) There are at least three species included in the cluster of invasive bush honeysuckle. These are identified by a multi-stem clump of hollow woody stems, simple opposite (paired) leaves that have smooth edges and a paired fleshy fruit that is red to orange depending on the species (Figure 1). They grow best in full sunlight but can be found in partial shade of the forest. They can be more than 8 feet tall and 8 feet wide. A non-problematic native species known

as "bush (or fly) honeysuckle" (*Diervilla lonicera*) is less than 24 to 30 inches high. Its leaf margins are serrate or toothed (Figure 2), and its fruit is a dry capsule. Its stem is not hollow.

European buckthorn (*Rhamnus cathartica*) The European or common buckthorn has dark green and glossy foliage. The leaves are sub-opposite, meaning they are consistently paired with another leaf, but not directly opposing on the stem. The vein arrangement on the leaf is arcuate, meaning the leaf's veins all arch from the mid-



Figure 1: The three common invasive species in the genus *Lonicera* have paired opposite simple leaves, the leaf margin or edge is smooth, and have a double fleshy fruit.



Figure 2: The native bush or fly honeysuckle lacks a hollow stem, has paired leaves that have a toothed edge, and dry capsule as a fruit.

rib towards the edge but terminate as they approach the tip of the leaf (Figure 3). Many branches end in a thorn-like structure. It can be single-stemmed or two- or three-stemmed. The diameter of the trunk can be up to about 8 inches and height of 25 feet. The fruit is black and fleshy.

Garlic mustard (*Alliaria petiolata*)  
Garlic mustard is an herbaceous biennial plant commonly found in the forest understory, more so than in open habitats. As a biennial it lives for two years, the first year as a low rosette of



Figure 3: European or common buckthorn has glossy dark green leaves with a toothed margin that are sub-opposite.



Figure 4: Garlic mustard in Pennsylvania. This herbaceous plant lives two years and can dominate the understory.

leaves, and the second year with a flowering and fruiting stalk (Figure 4). This species doesn't cause an obvious or immediate concern for the maple producer, but by changing soil conditions through alteration of mycorrhizal relationships it may result in accumulated issues in the future.

Glossy buckthorn (*Frangula alnus*)  
The buckthorns originated in Europe, northern Africa and western Asia. Glossy buckthorn was formerly known

*Invasive plants: continued on page 18*



Figure 5: The bud on glossy buckthorn lacks scales present on European buckthorn, and edge of glossy buckthorn leaves lack the teeth present on European buckthorn.

***Invasive Plants: continued from page 17***

as *Rhamnus frangula* and is different but looks similar to the native alder-leaved buckthorn (*Rhamnus alnifolia*). Glossy buckthorn is a small shrub that is most common on moist soils, often near wetlands. Its leaves are often paired, but less opposite than for European buckthorn (Figure 5). Curiously it appears that the foliage is less glossy than that of European buckthorn. Glossy buckthorn can form clumps, and its stems are not as large as European buckthorn.

Multiflora rose (*Rosa multiflora*) Multiflora rose is one of the more common invasive forest plants. The leaves are compound, meaning multiple leaflets on a single leaf stem. At the base of the leaf stem are fringed brackets known as stipules. Thorns are prominent on the stem and are recurved, meaning the thorn points backwards on the stem (Figure 6). Stems are green or slightly woody with age. Multi-stemmed clumps can be more than 8 feet wide, and 8 feet tall if free standings. Clumps



Figure 6: Multiflora rose can be a shrubby bush or twining vine. The compound leaves usually have seven leaflets, a fringed stipule where the leaf connects to the stem, and recurved spines. The fruit ripens red, has a round leathery shell and multiple seeds.

can twine up trees for greater height. Fruit is red, round, and dry with multiple seeds.

Vines – (*Vitis* spp, *Persicaria perfoliate*, *Celastrus orbiculatus*) In young forests, vines may occupy and interfere with the growth of maple and other desired species. Vine species in the maple producing region might include grape vine, mile-a-minute, bittersweet, and perhaps others particularly to the southern regions. Vines are problematic because they can overtop the desired hardwood and shade its foliage, but also create a matrix of stem to collect snow and ice that can weight and snap the crown of the tree (Figure 7).

In addition to these common invaders, other species to be alert for include tree-of-heaven, stilt grass, privet, mile-a-minute, swallow wort, burning bush, barberry, autumn olive, Russian olive, and others. This list seems overwhelming, and on some properties it is, but other areas have relatively few. Areas



Figure 7: Grape vines (pictured) and other vines can create a webbing in young forests that shade the trees and collect snow or ice that damage tree crowns.

that have been in continuous forest cover seem to have less abundance of invasive plants.

*Part II, Management Strategies for Invasive Plants in the Sugarbush, will appear in the June issue.*

Peter Smallidge, NYS Extension For-  
ester and Director, Arnot Teaching and  
Research Forest, Department of Natural  
Resources, Cornell University Coopera-  
tive Extension, Ithaca, NY 14853. Contact  
Peter at pjs23@cornell.edu, or (607) 592  
– 3640. Visit his website [www.ForestConnect.info](http://www.ForestConnect.info), and webinar archives at [www.youtube.com/ForestConnect](http://www.youtube.com/ForestConnect)

Support for ForestConnect is provided  
by the Cornell University College of Agri-  
culture and Life Sciences and USDA NIFA

through Hatch, McIntire-Stennis, Smith-  
Lever and the Renewable Resources Exten-  
sion Act.

## Bourbon Maple Syrup

**Did you know that you can buy  
Bourbon Maple Syrup from us?**

- in bulk
- Unlabeled in 375ml flask bottles or 100ml glass barrel bottles

Verified Alcohol Content provided  
Made in our 20C Licensed Kitchen  
Other Specialty Products also available  
Call us for details



**Merle Maple LLC – Attica, NY**  
**585-535-7136**  
**[www.merlemaple.com](http://www.merlemaple.com)**  
**[lyleanddottie@merlemaple.com](mailto:lyleanddottie@merlemaple.com)**

## Simple and Affordable Sugarbush Monitoring



**\$895**



Text Message  
Maple Info Alert:  
Tank Level for Sug-  
arbush #1 is  
greater than alert  
level. Tank Level is  
95.99% Full



**Vacuum**  
(0-29 inHg)



**Temperature**  
(degrees F/C)



**Tank**  
(0-100%)



**Pump**  
(Optional)



**Cellular**  
(Ready to Use)

**[www.SapSpy.com](http://www.SapSpy.com)**

tel: (920) 809-4811  
email: [info@SapSpy.com](mailto:info@SapSpy.com)



**LABEL SLAYER**

**Affordable way to  
quickly and accurately  
apply labels**



Visit our website to see  
**Label Slayer in action!**

**[www.LabelSlayer.com](http://www.LabelSlayer.com)**