

Controlling Invasive Species in Woodlots

Cornell University Cooperative Extension and
New York State Department of Environmental Conservation
www.ForestConnect.info



It is often difficult for landowners to cultivate desirable plant species on their property. An even more frustrating task is keeping unwanted plants at bay. In recent years, exasperated landowners have struggled with invasive plants on their property, with varying results. This fact sheet describes how plants can become invasive and provides control tips for landowners.



Tree of heaven is a prolific seed producer, grows rapidly, and can overrun native vegetation.^a

'Exotic', 'alien', 'introduced', and 'non-native' are terms used to describe plants that have established themselves in locations outside their known historical ranges. Most plant introductions are done so intentionally - either as ornamentals, crops, or because they are

thought to improve wildlife habitat or assist with erosion control. Many non-natives such as ox-eye daisy (*Chrysanthemum leucanthemum*) and bachelor's button (*Centaurea cyanus*) are so widely naturalized (self-sown) in certain areas of the country that many people assume they are native. Most non-native species are not harmful, and many are considered beneficial. As a matter of fact, the large majority of our agricultural plants are not native!

Some introduced species are extremely aggressive in their growth habits and can overtake desirable species, causing significant damage to the ecosystem. These are what we call 'invasive' plants. Invasive, non-native plants typically have several characteristics that help them thrive in their new areas. They may:

- Grow fast
- Mature quickly
- Produce many seeds, a high percentage of which will germinate
- Spread vegetatively through roots, etc., as well as through seeds
- Cost a lot (time and money) to control
- Are unaffected by native pests and diseases

As invasives occupy an area they form dense single-species stands of growth, limiting the availability of light, water, nutrients, and space to desirable native plants. In doing so, they can alter hydrology and soil composition. Some even hybridize with native species resulting in unnatural changes to the gene pool. Others may harbor pathogens that affect the native species.



Buckthorn forms dense thickets that shade out other shrubs and herbs.^b



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Common Woodland Invasive Plants in New York

| Name | Habitat | Spread | Control |
|--|--|--|--|
| Trees | | | |
| Norway Maple <i>Acer platanoides</i> | Forest Edge, Fencerows Full Sun to Full Shade | By Seed (wind) | Avoid planting near woodlands |
| Tree of Heaven <i>Ailanthus altissima</i> | Forest Edge and Gaps, Disturbed areas, Zone 5 and warmer | By Seed and Root suckers | Avoid planting near woodlands; Hand-pull or Dig up |
| White Poplar <i>Populus alba</i> | Full sun, Forest Edges, Wetland Edges | Root Suckers | Avoid planting near woodlands |
| Black Locust <i>Robinia pseudoacacia</i> | Forest Edge and Interior, Full Sun to Full Shade, Disturbed Sites | Root Suckers (primarily) and Seed | Avoid planting; Dig up seedlings or apply herbicide |
| Shrubs | | | |
| Barberry <i>Berberis thunbergii, vulgaris</i> | Forest Interior and Edge, Full Sun to Full Shade | By Seed (birds) | Cut down/ Dig up or apply herbicide |
| Autumn Olive <i>Elaeagnus umbellata</i> | Open areas, Forest Edge | By Seed (birds) | Avoid planting in woodlands; Cut down/ Dig up |
| Burning Bush <i>Euonymus alatus</i> | Full Sun to Full Shade | By Seed (birds) and Root Suckers (form thickets) | Avoid planting in woodlands; Cut down/ Dig up; Herbicide |
| Privet <i>Ligustrum obtusifolium</i> | Full Sun to Full Shade, Forest Edge and Interior | By Seed (birds) | Avoid planting; Cut down/ Dig up; Herbicide |
| Honeysuckle <i>Lonicera tatarica, maackii, morrowii</i> | Full Sun to Full Shade, Forest Edge and Interior | By Seed (birds) Stump Sprouts | Cut down/ Dig up; Herbicide |
| Buckthorn <i>Rhamnus cathartica, frangula</i> | Full Sun to Full Shade, Upland and Wetland | By Seed (birds) | Same as above |
| Multiflora Rose <i>Rosa multiflora</i> | Full Sun to Full Shade | By Seed (birds) | Same as above |
| Vines | | | |
| Porcelain Berry <i>Ampelopsis Brevipedunculata</i> | Full to Partial Sun, Forest Edge and Gaps | By Seed (birds, mammals), Stems and Roots. | Hand-pull; Herbicide |
| Oriental Bittersweet <i>Celastrus orbiculatus</i> | Full Sun to Partial Shade Forest Edge and Gaps | By Seed (birds, humans) | Hand-pull; Herbicide |
| Japanese Honeysuckle <i>Lonicera japonica</i> | Full Sun to Full Shade Forest Edge | By Seed (birds) | Hand-pull; Herbicide |
| Forbs | | | |
| Garlic Mustard <i>Alliaria petiolata</i> | Full Sun to Full Shade Disturbed Soils, Biennial | By Seed | Hand-pull |
| Purple Loosestrife <i>Lythrum salicaria</i> | Full Sun to Partial Shade, Wetland and Upland Sites, Perennial | By Seed, Underground Stems | Hand-pull; <i>Galerucella pusilla and californiensis</i> leaf-eating beetles |
| Japanese Knotweed <i>Polygonum cuspidatum</i> | Full Sun to Full Shade, almost any site, Perennial | By Seed, and Roots | Hand-pull, Dig up Roots, Smother, Herbicide |



Multi-flora rose can form dense thickets in old fields and forests, preventing other species from growing.^c

What can landowners do to combat invasive plants?

Learn what plants are already known to be a problem in your area, and avoid planting them. Some, such as purple loosestrife (*Lythrum salicaria*), are still available as landscape plants and are sold or promoted in nurseries. It is best to err on the side of caution - if you have any doubts about a certain type of vegetation, don't plant it!!

Consider planting native trees and shrubs. Native plants occur naturally in the region in which they evolved. In the United States, native plants are usually defined as those plants that have been present since the time of European contact. Because native plants have evolved and adapted to local conditions, they are vigorous and hardy and able to survive winter cold and summer heat. Once established, they require little or no irrigation or fertilization, thereby saving you energy and water. Native plants also provide food and shelter for birds, butterflies, and other desirable wildlife. However, even some native plants can be quite aggressive so be sure you understand the growth habits of any native plants you decide to use on your property.

Vigor and hardiness are characteristics native plants share with invasive plants, so be sure you understand the growth habits of any native plants you decide to use in your woodland - some are quite aggressive!

If you currently have invasive plant species growing on your land, recommendations for control are listed below. Whichever method you decide to use, realize that controlling invasives is an uphill challenge and requires patience and persistence.



Oriental bittersweet is an aggressive plant that grows over other vegetation at all levels in the forest.^d

Trees, Shrubs and Vines:

- The simplest method to remove woody plants is to cut them down. Once may be enough, but most will sucker from the stump or roots, even those that generally do not reproduce vegetatively. Check for suckering every year, if not more often.
- Dig up stumps/roots.
- Do not plant invasive plants near woodland areas, and resist the urge to buy the many invasives that are still available in the nursery trade.
- Herbicides or a combination of cutting and herbicides is an option. Some of the most effective herbicides for controlling invasive species must be applied by a licensed pesticide applicator. Call your local Cornell Cooperative Extension office for recommendations.



Burning bush outcompetes native species in woodlands and fields.^e

Forbs:

Annuals:

- Pull by hand or apply a herbicide before they go to seed.
- Repeat every year until the seed bank in the soil has been exhausted.

Perennials:

- Pull by hand repeatedly throughout the growing season; many will resprout from the roots.
- Dig out roots if you can get to them. Repeated pulling will diminish the carbohydrate supply in the roots over time.
- Smother with non-permeable plastic. Cover area in early spring and leave for two or more growing seasons.
- Some herbicides can be used, contact Cornell Cooperative Extension for a list.
- Continue control methods until seed bank in the soil has been exhausted.



Garlic mustard can take over the forest floor.^f



Autumn olive grows rapidly and thrives in poor soils, shades out other plants, and is difficult to eradicate.^g

Hope for the future: biological control

A primary reason exotic invasive species are so pervasive is that they have few, if any, diseases or pests in their new environment. Researchers have had some success in finding and propagating native or non-native fungi, viruses, mites and/or insects that help control the target invasive species, without posing a threat to desirable plants. Purple loosestrife has been successfully controlled in this manner in many sites. Research is underway to find biological control agents for garlic mustard, multi-flora rose, kudzu, and other major non-native invasives of old fields and forests in the northeast.

Web Pages of Interest

Ecology and Management of Invasive Plants <http://www.invasiveplants.net/>

USDA Forest Service Invasive Species <http://www.fs.fed.us/invasivespecies/>

Invasive Plant Council of New York: <http://www.ipcnys.ene.com/>

Invasive Plants of New England: <http://invasives.eeb.uconn.edu/ipane/>

Invasive and Exotic Species: <http://www.invasive.org/>