

Resources

There are many good resources on the Internet that offer more detailed information about invasive plants and their control. Here are the addresses for some of the better sites:

- Massachusetts Association of Conservation Commissions (MACC) has an Invasive Plant Information and Resources section on their web site. http://maccweb.org/resources_invasive.html.
- The Nature Conservancy's Global Invasive Species Team website has current information on individual invasive species, their identification and control. They also have a control manual and other information. tncweeds.usdavis.edu.
- Invasive Plant Atlas of New England. <http://nbii-nin.ciesin.columbia.edu/ipane/>
- Weeds Gone Wild. <http://www.nps.gov/plants/alien/index.htm>

A good article that was referenced for this publication can be found in the New England Wild Flower Society's (NEWFS) Conservation Notes, Volume 10, No.3, 2006, a special edition on invasive plants. www.newfs.org.

"A Guide to Invasive Plants in Massachusetts" (2006) is available from NEWFS or the Massachusetts Division of Fish & Wildlife. www.masswildlife.org.

Sudbury Valley Trustees (SVT) is a regional land trust that conserves land and protects wildlife habitat in the Concord, Assabet, and Sudbury river basin for the benefit of present and future generations. SVT carries out its mission through land acquisition and stewardship, advocacy, and education throughout a 36-town region. SVT protects and cares for over 100 properties of conservation land that include wetlands, sensitive habitats, trails and other open spaces. SVT reservations are open to the public free of charge. Please consider joining SVT as a member. For more information see www.svtweb.org.

Establishing Wildlife Habitat

Once invasives are under control, creating wildlife habitat in your backyard can be a lot of fun! The basic components for wildlife habitat are food, water, and shelter. You may or may not have a water source in or near your yard, but you can focus on providing food and shelter. You can creatively design your yard with native plants to produce an attractive landscape for you and wildlife.

As part of an Ecological Landscaping demonstration project at SVT's Wolbach Farm in Sudbury, we developed several brochures on creating better wildlife habitat and conserving water resources. Please refer to these brochures for more information on this topic. There are four informational brochures at www.svtweb.org:

- "Ecological Landscaping" - general lawn and yard care practices.
- "Butterfly Gardens"
- "Bird Gardens"
- "Rain Gardens"



Common Yellowthroat

Thanks to Crossroads Community Foundation for financial support of the bird garden expansion, to Genzyme Corporation for financial and volunteer support, to SavATree for herbicide application, Sudbury Scout Troop 63 for garden maintenance and plantings, and to the many, many other volunteers that have assisted throughout the years.



IMPROVING WILDLIFE HABITAT IN YOUR BACKYARD

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"On a global basis...the two great destroyers of biodiversity are, first habitat destruction and, second, invasion by exotic species"
 - E.O. Wilson

of non-native plants. We pulled up as much of the bittersweet vine and invasive shrubs (honeysuckle and multiflora rose) as possible. The refuse was piled and burned. We let the plants grow back and then conducted a foliar spray in the late summer. This method was repeated for several years.

In the woods just beyond the bird garden, we cut the invasive shrubs and vines down to the ground and dabbed on herbicide. We also used mechanical control, pulling up the plants by the roots with a weed wrench. The target plants in this area were burning bush, Oriental bittersweet vine, glossy buckthorn, and honeysuckle. These efforts are being continued.

After six years of repeated control applications, we were able to reduce sufficiently the density of invasive plants in the area directly abutting the bird garden so that we could expand it by planting native plants.

By reducing the extent of invasive plants and re-establishing native plants, we are providing better food for birds and other wildlife.

Where Did Invasive, Non-Native Plants Come From and Why Are They a Problem?

They are exotic plants that were introduced to the area by human activity and displace native flora. They come from all over the globe, brought here for cultivation or inadvertently with animal fodder on ships. While most non-native plant species are economically important and do not cause problems, a small percentage become invasive and seriously degrade our natural habitats and landscapes.

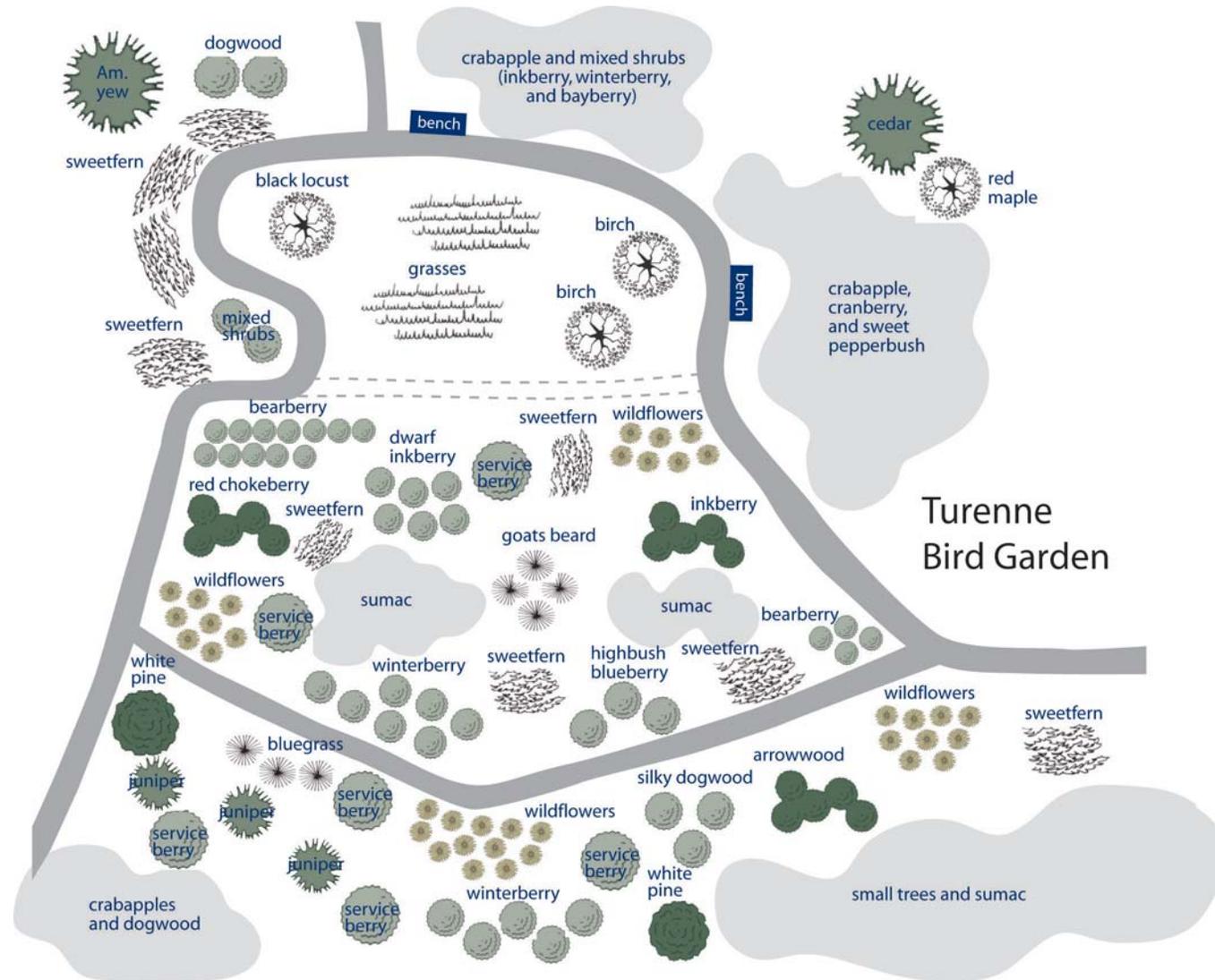
Invasive and non-native plants form dense growth that can displace native plants that once provided food and shelter for our native wildlife. They have faster growth rates, efficient dispersal mechanisms, and tolerance of a wider range of conditions. They especially thrive on disturbed sites. Some of them, such as garlic mustard, secrete toxins into the soil that inhibit the growth of other vegetation.

The Turenne Habitat Restoration Story

Over the past 12 years, hundreds of SVT volunteers have been involved in this on-going project. In 1996, while establishing a native-plant bird garden, the volunteers noticed that Oriental bittersweet was strangling nearby trees and shrubs, so they began pulling the vines from the trees and cutting the vine stumps, providing temporary relief.

In 2001, SVT recognized that the bird garden required a more comprehensive management plan that would provide sustainable, long-term results, target other invasive plants at the site, and provide for habitat restoration. Pulling and cutting were used to dramatically thin the quantity of invasive plants; however, without chemical control the invasive weeds would quickly re-establish their dominance, particularly Oriental bittersweet vine.

We used an intensive control approach for the area directly abutting the bird garden, where there was a very thick invasion



How to control Invasive Plants in Your Backyard

The first step is to assess the over-all situation in your backyard. Conduct a walk-through to see which invasive plants you have, where they are located, and the extent of the invasion. Make sure that you know how to identify invasive plants before you begin. You may want to invite a good naturalist or botanist to your yard, or look up each plant on the Internet where photographs and descriptions will help you identify them. Clearly determine your goals and strategy for control. Pick your battles; all control requires a long-term effort to be successful. In this brochure, we provide information and recommendations for methods you may want to use.

Mechanical Control

The most practical control method for most homeowners is to uproot the invasive plant. It can be done in any season except when the ground is frozen. Plants will come out more easily when soils are moist (spring and early summer). The process is time-consuming and typically takes years of repeated effort (although the time required should be minimal after the first few years). Some plants are more easily uprooted than others. Most of our invasive shrubs can be successfully controlled with mechanical pulling because they have discrete root balls. However, digging and pulling are not recommended for Oriental bittersweet vine and Japanese knotweed because this technique promotes more growth of the remaining root (rhizome) fragments.

The most important factors in manual control are removing as much of the root mass as possible and minimizing soil disturbance. Any root pieces left underground will resprout, and many invasive plants have the ability to do that from plant parts left lying on the ground. For small plants that have not been previously cut or mowed, you can easily pull them up by the roots. For larger, shallow-rooted plants, you can use a weed wrench. Due to brittle stems and roots, some shrubs, such as Japanese barberry and honeysuckle may require a combination of a weed wrench and shovel. Unfortunately, this can cause a great amount of soil disturbance. Try to pat down the soil and replace surface material after removal.

You can suffocate small seedlings and herbaceous plants. Place double or triple layers of thick UV-stabilized plastic sheeting, either clear or black, over the infestation and secure the plastic with stakes or weights. Make sure the

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Oriental bittersweet (*Celastrus orbiculatus*)
Vine with wavy-edged leaves; flowers/fruits arise along the stem (native bittersweet has flowers only at end of stem); red fruit enclosed in yellow-orange capsule.



Burning bush (*Euonymus alatus*)
Green and brown twigs have corky “wings.” Opposite, elliptical finely toothed leaves that turn bright red in fall.



Glossy buckthorn (*Frangula alnus*)
Wavy-edged, egg-shaped leaves with parallel veination; leaves often shiny on upper surface; gray bark with white speckles.



Honeysuckle (*Lonicera spp.*)
Opposite, oval to egg-shaped leaves; tan to gray shreddy bark. Cut stems reveal a hollow pith (core of stem).



Japanese barberry (*Berberis thunbergii*)
Spiny shrub with small spatula-shaped leaves in tufts along stem. Inner bark and roots are bright yellow.



Garlic mustard (*Alliaria petiolata*)
Biennial herb; stem leaves alternate and coarsely toothed, with basal leaves scallop-edged, and round; white four-petaled flowers. Crushed leaves smell strongly of garlic.



Multiflora rose (*Rosa multiflora*)
Thorny shrub with long, arching branches. Fringed (feathery) stipule at base of leaf stem. Small rosehip fruits (< 1/2 inch).



Japanese knotweed (*Polygonum cuspidatum*)
Deciduous, perennial herb grows 4-15' tall. Large, alternate leaves egg- to heart-shaped arise from swollen nodes along stem.



Tree of Heaven (*Ailanthus altissima*)
Large compound leaves with 11-25 leaflets (looks like walnut leaves); crushed foliage and twigs have disagreeable odor.



Norway maple (*Acer platanoides*)
Looks very similar to sugar maple; however, oozes milky sap when you pull the leaf stem from the twig and bark is tighter with vertical furrows. Produces “pinocchio nose” winged seeds.

plastic extends at least five feet past the edge of the infestation on all sides. Leave the plastic in place for at least two years. This technique will kill everything beneath the plastic – invasive and non-invasive alike. Once the plastic is removed, you can sow a cover crop such as annual rye to prevent reinvasions or design a custom planting plan.

Cutting or mowing will temporarily increase root mass and vigor. However, eventually, you will exhaust the root reserves because you have cut off the photosynthetic energy supply from the above-ground portions of the plant. A general rule of thumb is to cut three or four times a year for up to five years. For Japanese knotweed, cut two times each month during the growing season; for glossy buckthorn, cut 4–6 times per season. This process takes many years so you have to remain committed; otherwise, the treatment will backfire and make the problem worse.

WETLANDS WATCH

ANY control activity in or adjacent to a wetland is regulated by the Massachusetts Wetlands Protection Act (WPA). You may not realize that you have a wetland in or near your backyard so it is best to check with your local conservation commission before initiating any management. The local conservation agent or commission member can also offer helpful advice on invasive control methods.



Chemical Control

Herbicides are often required for effective control of invasive plants. Use caution and follow label directions. We recommend that you consult with a knowledgeable practitioner or professional before using herbicides. Homeowners can legally use over-the-counter herbicides, such as those available at home and garden centers, in their yards. However, on property owned by an organization, such as conservation lands, the law requires someone with a certified applicator license. The two most common chemicals in use for invasive-plant control are glyphosate (found in Roundup™ and Rodeo™) and triclopyr (found in Brush-B-Gone™ and Garlon™). These are relatively benign herbicides, but if improperly used they can still cause both short and long-term health and environmental problems.

There are four methods of application.

1. Cut and Dab—This method works best on woody shrubs in late summer and early fall when the plant is senescing (drawing its juices into the roots). Cut the plant stem as close to the ground as possible. Make the cut clean and horizontal to the ground surface to facilitate herbicide application. Paint the cut stump with herbicide within 30 minutes because plants will create scar tissue very quickly. Use 25-35% percent solution of the active ingredient. This method is very target specific and avoids impacts to non-target vegetation and soils.

2. Cut and Squirt—This technique is best for phragmites and Japanese knotweed. Treat plants in late summer. Cut the stems halfway between two leaf nodes. Inject (or squirt) a 25-35% herbicide solution into the hollow stem. A chemical wash bottle is very effective, but you can also use an eye-dropper or spray bottle.

3. Stem Painting—This method must be applied with great caution to avoid spillage and dripping. Several people have developed home-made tools for this method. It will only work on plants with thin bark such as glossy buckthorn and burning bush.

4. Foliar spray—This method works best in late summer after a spring cut and thinning. Cut back the invasive plant growth in the spring and then let the invasive plants grow. In late summer, spray the regrowth with a backpack sprayer. The herbicide mixture should contain no more than 5% of the active ingredient. We highly recommend that you have an experienced certified applicator conduct this treatment. It is recommended only in areas of severe infestation because it can impact non-target vegetation.

It often helps to mix a dye in with the herbicide solution so that you can more easily see which plants you have already treated. Food coloring or laundry dyes work well.



Monarch Butterflies

Tools

Tools can be purchased on-line, occasionally at hardware stores, or made at home.

Complete tool descriptions can be found on The Nature Conservancy's website: <http://tncweeds.ucdavis.edu/tools.html>.

- Weed wrench™: www.weedwrench.com
- Root Talon
- Cut stump herbicide wand
- KutnKill Shears
- Woody Painter (Paintenator or Death Stick)
- Tongs of Death: <http://www.for-wild.org/download/tongs.pdf>

Disposal

Proper disposal of invasive plants is essential and must render the plants non-viable. You can pile and burn them. You can “bake” the plants in large black plastic bags prior to landfill disposal to ensure that the plants are dead. If you have plants without seeds, you can compost them. Seeds may remain viable after composting or burning. If the plants have set seeds, maintain one pile location for biodegradation or burning and do not use any of the compost elsewhere. Extra care should be taken with the disposal of invasive plants that have the ability to resprout vigorously from cut fragments; these include Oriental bittersweet, multiflora rose, Japanese honeysuckle (vine), phragmites, and Japanese knotweed.

Photographs and Illustrations [© 2008]:

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Oriental bittersweet, Glossy buckthorn, Honeysuckle, Japanese barberry, Norway maple, Tree of Heaven, Multiflora rose © John M. Randall/The Nature Conservancy

Burning bush © Barry A. Rice/The Nature Conservancy

Garlic mustard © Leslie J. Mehrhoff/Univ. of Connecticut

Japanese knotweed © Britt Slattery/US Fish & Wildlife Service