

Conservation Committee Workshop 2013

Abstract

The Conservation Committee is planning a workshop that allows up to forty participants hands-on experience in habitat restoration. This will be a half day commitment and participants will provide the labor needed in a certain step in the habitat restoration process. Participants will learn about invasive plant species, practices done to remove them, and the methods used to restore native species, both plant and animal. This may include one or more of the following: non-native invasive plant removal, taking inventory of returning plant species, seed collection, installation of informational and educational signs, and maintenance of the project site. Piedmont Land Conservancy and Greensboro Parks and Recreation are the project managers in this endeavor. Both were instrumental in the restoration of a grassland area now called Meadowlark Sanctuary Piedmont Prairie in the city of Greensboro, North Carolina. Participants of this workshop will walk away with a better understanding of what is needed to reclaim a natural habitat and how to find local projects in their home towns.

What?

Eradication of non-native invasive plant species. A preliminary plant inventory revealed there are several species of non-native plants that are aggressively forming monocultural colonies at the sanctuary. Whenever possible, these plants will be eradicated by hand or with power tools. It will be necessary to use some herbicides on difficult species such as *Elaeagnus pungens* (Silverberry), *Pyrus calleryana* (Callery Pear), and *Celastrus orbiculata* (Asian Bittersweet). Licensed City employees will use the “cut and paint” method of lopping the plants low to the ground and then coating the stumps with herbicides.

Where?

The Meadowlark Sanctuary Piedmont Prairie

Why?

Participants will learn about invasive plant species, practices done to remove them, and the methods used to restore native species, both plant and animal. This may include one or more of the following: non-native invasive plant removal, taking inventory of returning plant species, seed collection, installation of informational and educational signs, and maintenance of the project site.

What is an Invasive Plant?

An invasive plant has the ability to thrive and spread aggressively outside its natural range. A naturally aggressive plant may be especially invasive when it is introduced to a new habitat. An

invasive species that colonizes a new area may gain an ecological edge since the insects, diseases, and foraging animals that naturally keep its growth in check in its native range are not present in its new habitat. Some invasive plants are worse than others. Many invasive plants continue to be admired by gardeners who may not be aware of their weedy nature. Others are recognized as weeds but property owners fail to do their part in preventing their spread. Some do not even become invasive until they are neglected for a long time. Invasive plants are not all equally invasive. Some only colonize small areas and do not do so aggressively. Others may spread and come to dominate large areas in just a few years. Below are some categories to illustrate degree of invasiveness.

Where are they a problem?

Invasive plants disrupt many natural habitats. They are most threatening in ecosystems such as wetlands, sand dunes, fire prone areas, and serpentine barrens where rare native plants are found. Invasive plant species thrive where the continuity of a natural ecosystem is breached and are abundant on disturbed sites like construction areas and road cuts. Even foot traffic can create a temporary void that is quickly invaded—some national parks have restricted the areas where visitors are allowed to walk with the warning, "we can watch purple loosestrife grow from people's footsteps."

Why are they a problem?

It's a matter of ecology. In many cases, plants from other parts of the world are welcomed, manageable additions to our gardens. However, in some situations these non-native species cause serious ecological disturbances. In the worst cases, invasive plants like mile-a-minute, purple loosestrife, and kudzu ruthlessly choke out other plant life. This puts extreme pressure on native plants and animals, and threatened species may succumb to this pressure. Ultimately, invasive plants alter habitats and reduce biodiversity.

Where do they come from?

In some cases, invasive plants arrive purely by accident, as seed in agricultural products, or on shipments from overseas. In other cases, invasive plants are selected for their horticultural attributes. Beautiful, unusual, exceptionally hardy, drought-tolerant, or fast-growing plants are sought by gardeners the world over. Unfortunately, plants selected for their resilience may be invasive because of their adaptable nature. Plants selected for their aesthetic value may be hard to banish from your garden even after their invasive tendencies are revealed.

Invasive Plants:

- ⚠ Produce large numbers of new plants each season.
- ⚠ Tolerate many soil types and weather conditions.
- ⚠ Spread easily and efficiently, usually by wind, water, or animals.
- ⚠ Grow rapidly, allowing them to displace slower growing plants.
- ⚠ Spread rampantly when they are free of the natural checks and balances found in their native range.

Who will we be working with?

Piedmont Land Conservancy is a non-profit, grassroots land trust in nine North Carolina Counties: Alamance, Caswell, Forsyth, Guilford, Randolph, Rockingham, Stokes, Surry, and Yadkin.

Piedmont Land Conservancy permanently protects important lands to conserve our region's rivers and streams, natural and scenic areas, wildlife habitat, and farmland that make the Piedmont a healthy and vibrant place to live, work and visit for present and future generations

The Friends of the Meadowlark Sanctuary Piedmont Prairie are initiating a project to restore and preserve native species and their habitats on a property that currently supports a mixture of native and invasive exotic plants. The group intends to reintroduce native Piedmont prairie species and will apply for appropriate permits to include endangered species in the project. This property is regulated under a conservation easement with the Piedmont Land Conservancy as the land steward and maintained by the City of Greensboro Parks and Recreation Department.

Resources:

<http://www.usna.usda.gov/Gardens/invasives.html>

<http://www.greensboro-nc.gov/index.aspx?page=1308>

<http://piedmontland.org/>

<http://www.invasivespeciesinfo.gov/plants/main.shtml>

<http://www.anacostiaws.org/programs/stewardship/invasive-plant>

<http://www.weedcenter.org/>

Conservation Committee Workshop 2013

The importance of protected natural habitats

- **Natural flora and fauna**
- **Ecosystem function**
- **Species diversity**

Impacts of human's on habitats

- Modify habitats**
- Degrade habitats**
- **Eliminate habitats**

What can we do once these habitats are altered?

Habitat restoration

- Policy and Protection**
- Funding and Staff**
- Research the habitat pre-degradation**
 - Natural history information**
 - Invasive species**
 - Native species and their level of importance**
 - Ecosystem engineers, keystone species ect...**
- Implement change**
 - Remove invasive species**
 - Mechanical control**
 - Chemical control**
 - Continued maintenance, especially initially**
 - Possible recolonation of native species without further investment**
 - Reintroduction of native species, especially keystone species, ecosystem engineers ect...**
 - Captive propagation- ZOO'S**
- Goals- independently functioning ecosystem**
- Protection**

Habitat Restoration is broadly defined as the act, process, or result of returning a degraded or former habitat to a healthy, self-sustaining condition that resembles as closely as possible its pre-disturbed state. Examples of restoration include removing material from a filled wetland, increasing tidal flow to a restricted wetland, re-establishing natural river flow, enhancing degraded seafloor habitats, treating runoff to improve

water quality, cleaning up contaminated habitats, and managing invasive species. Many projects involve multiple types of restoration and focus on improving the health of whole ecosystems.

Invasive plants have the ability to thrive and spread aggressively outside its natural range. A naturally aggressive plant may be especially invasive when it is introduced to a new habitat. An invasive species that colonizes a new area may gain an ecological edge since the insects, diseases, and foraging animals that naturally keep its growth in check in its native range are not present in its new habitat.

Invasive plant removal

MECHANICAL CONTROL METHODS

Mechanical treatments are usually the first ones to look at when evaluating an invasive plant removal project. These procedures do not require special licensing or introduce chemicals into the environment. They do require permits in some situations, such as wetland zones. [See sidebar on page 23.] Mechanical removal is highly labor intensive and creates a significant amount of site disturbance, which can lead to rapid reinvasion if not handled properly.

Pulling and digging

Many herbaceous plants and some woody species (up to about one inch in diameter), if present in limited quantities, can be pulled out or dug up. It's important to remove as much of the root system as possible; even a small portion can restart the infestation. Pull plants by hand or use a digging fork, as shovels can shear off portions of the root system, allowing for regrowth. To remove larger woody stems (up to about three inches in diameter), use a Weed Wrench™, Root Jack, or Root Talon. These tools, available from several manufacturers, are designed to remove the aboveground portion of the plant as well as the entire root system. It's easiest to undertake this type of control in the spring or early summer when soils are moist and plants come out more easily.

Suffocation

Try suffocating small seedlings and herbaceous plants. Place double or triple layers of thick UV-stabilized plastic sheeting, either clear or black (personally I like clear), over the infestation and secure the plastic with stakes or weights. Make sure the plastic extends at least five feet past the edge of 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 plants alike. Once the plastic is removed, sow a cover crop such as annual rye to prevent new invasions.

Cutting or mowing

This technique is best suited for locations you can visit and treat often. To be effective, you will need to mow or cut infested areas three or four times a year for up to five years. The goal is to interrupt the plant's ability to photosynthesize by removing as much leafy material as possible. Cut the plants at ground level and remove all resulting debris from the site. With this treatment, the infestation may actually appear to get worse at first, so you will need to be as persistent as the invasive plants themselves. Each time you cut the plants back, the root system gets slightly larger, but must also rely on its energy reserves to push up new growth. Eventually, you will exhaust these reserves and the plants will die. This may take many years, so you have to remain committed to this process once you start; otherwise the treatment can backfire, making the problem worse

CHEMICAL CONTROL METHODS

Herbicides are among the most effective and resource-efficient tools to treat invasive species. Most of the commonly known invasive plants can be treated using only two herbicides—glyphosate (the active ingredient in Roundup™ and Rodeo™) and triclopyr (the active ingredient in Brush-BGone™ and Garlon™). Glyphosate is non-selective, meaning it kills everything it contacts. Triclopyr is selective and does not injure monocots (grasses, orchids, lilies, etc.). Please read labels and follow directions precisely for both environmental and personal safety. These are relatively benign herbicides, but improperly used they can still cause both short- and long-term health and environmental problems. Special aquatic formulations are required when working in wetland zones. You are required to have a state-issued pesticide applicator license when applying these chemicals on land you do not own. To learn more about the pesticide regulations in your state, visit or call your state's pesticide control division, usually part of the state's Department of Agriculture. In wetland areas, additional permits are usually required by the Wetlands Protection Act. [See sidebar on page 23.]

Foliar applications

When problems are on a small scale, this type of treatment is usually applied with a backpack sprayer or even a small handheld spray bottle. It is an excellent way to treat large monocultures of herbaceous plants, or to spot-treat individual plants that are difficult to remove mechanically, such as goutweed, swallowwort, or purple loosestrife. It is also an effective treatment for some woody species, such as Japanese barberry, multiflora rose, Japanese honeysuckle, and Oriental bittersweet that grow in dense masses or large numbers over many acres. The herbicide mixture should contain no more than five percent of the active ingredient, but it is important to follow the instructions on the product label. This treatment is most effective when the

plants are actively growing, ideally when they are flowering or beginning to form fruit. It has been shown that plants are often more susceptible to this type of treatment if the existing stems are cut off and the regrowth is treated. This is especially true for Japanese knotweed. The target plants should be thoroughly wetted with the herbicide on a day when there is no rain in the forecast for the next 24 to 48 hours.

Cut stem treatments

There are several different types of cut stem treatments, but here we will review only the one most commonly used. All treatments of this type require a higher concentration of the active ingredient than is used in foliar applications. A 25 to 35 percent solution of the active ingredient should be used for cut stem treatments, but read and follow all label instructions. In most cases, the appropriate herbicide is glyphosate, except for Oriental bittersweet, on which triclopyr should be used. This treatment can be used on all woody stems, as well as phragmites and Japanese knotweed. For woody stems, treatments are most effective when applied in the late summer and autumn—between late August and November. Stems should be cut close to the ground, but not so close that you will lose track of them. Apply herbicide directly to the cut surface as soon as possible after cutting. Delaying the application will reduce the effectiveness of the treatment. The herbicide can be applied with a sponge, paintbrush, or spray bottle. For phragmites and Japanese knotweed, treatment is the same, but the timing and equipment are different. Plants should be treated anytime from mid-July through September, but the hottest, most humid days of the summer are best for this method. Cut the stems halfway between two leaf nodes at a comfortable height. Inject (or squirt) herbicide into the exposed hollow stem. All stems in an infestation should be treated. A wash bottle is the most effective application tool, but you can also use an eyedropper, spray bottle, or one of the recently developed high-tech injection systems. It is helpful to mix a dye in with the herbicide solution. The dye will stain the treated surface and mark the areas that have been treated, preventing unnecessary reapplication. You can buy a specially formulated herbicide dye, or use food coloring or laundry dye. There is not enough space in this article to describe all the possible ways to control invasive plants. You can find other treatments, along with more details on the above-described methods, and species-specific recommendations on The Nature Conservancy Web site (tncweeds.ucdavis.edu). An upcoming posting on the Invasive Plant Atlas of New England (www.ipane.org) and the New England Wild Flower Society (www.newfs.org) Web sites will also provide further details.

Biological controls—still on the horizon

Biological controls are moving into the forefront of control methodology, but currently the only widely available and applied biocontrol relates to purple loosestrife. More information on purple loosestrife and other biological control projects can be found at www.invasiveplants.net.

DISPOSAL OF INVASIVE PLANTS

Proper disposal of removed invasive plant material is critical to the control process. Leftover plant material can cause new infestations or reinfest the existing project area. There are many appropriate ways to dispose of invasive plant debris. I've listed them here in order of preference.

1. Burn it—Make a brush pile and burn the material following local safety regulations and restrictions, or haul it to your town's landfill and place it in their burn pile.
2. Pile it—Make a pile of the woody debris. This technique will provide shelter for wildlife as well.
3. Compost it—Place all your herbaceous invasive plant debris in a pile and process as compost. Watch the pile closely for resprouts and remove as necessary. Do not use the resulting compost in your garden. The pile is for invasive plants only.

Hollow stem injection tools.

Cut stem treatment tools.

Injecting herbicide into the hollow stem of phragmites

4. Dry it/cook it—**Place woody debris out on your driveway or any asphalt surface and let it dry out for a month. Place herbaceous material in a doubled-up black trash bag and let it cook in the sun for one month. At the end of the month, the material should be non-viable and you can dump it or dispose of it with the trash. The method assumes there is no viable seed mixed in with the removed material.**

Over \$100 million a year is spent in the U.S. combating invasive plants in wetlands alone. Rich, diverse plant communities can become barren, inhospitable expanses of invasive plants with little value to wildlife. Invasive plants may even deplete groundwater resources. Plants introduced to North America from other parts of the world have come to dominate millions of acres of forest, desert, prairie, and wetlands. Choosing plants wisely and controlling potentially invasive plants in your garden and on your property are the best ways to preserve healthy native plant habitats. Garden responsibly and control invasive plants while they are still in your garden.

<http://www.watershedactivities.com/projects/summer/invasive.html>