

Invasive Alien Plant Management Plan

For

Waterford Park

**City of Frederick
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and

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**On the South Side of Rock Creek Drive,
Between Baughman's Lane and Route 15.**

**Coordinates
Maryland Grid North 583, East 683**

In

Frederick County

**9.5 acres forest
8.5 acres field**

Prepared By

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Regional Watershed Forester**

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Background

This plan is an addendum to the Forest Stewardship Plan prepared for this property by Michael Kay, Project Manager, Maryland Forest Service, in August 2005. It is intended to provide information regarding invasive alien plants found on the property, and guidance in their management and control.

What are invasive alien plants?

Alien plants, also known as exotic plants or non-native plants, are ones originating outside the U.S., or in some cases from distant areas of the U.S. Alien plants have been imported – either intentionally or accidentally. Many are valuable for food or ornamental purposes, and many are not invasive. Invasive plants are usually ones that tend to reproduce and spread quickly, out-compete native plants, and establish themselves in areas where they are not wanted. Native insects, diseases and animals that normally keep plant populations in check often do not affect alien plants. Some of our worst invasive alien plants were intentionally imported and sold for purposes of improving wildlife habitat and for ornamental and landscape purposes, and many of these are still sold for these purposes.

Why be concerned about invasive alien plants?

Invasive alien plants can cause significant economic and ecological damage. They out-compete and displace native plants, changing the species composition, vegetative structure and soil chemistry. Invasive plants often take over an area to a degree that they become the dominant vegetation, creating a monoculture rather than a diverse ecosystem. This changes the ecosystem in ways that we can observe, and in ways that we may never fully understand. Since our native insects, birds and mammals are adapted to live and reproduce along with native plants, replacing the native plant community with alien plants usually has negative impacts. For example, native insects, birds, and animals sometimes show a preference for feeding or reproducing on non-native plants, leading one to think that this is beneficial. However, this can negatively affect their diet, lead to reproductive failure, make them vulnerable to pests and predators, or prevent the pollination or seed dispersal of native plants.

Invasive Alien Plant Species Observed on this Property

<u>Species</u>	<u>Common Name</u>	<u>Type</u>	<u>Occurrence</u> <u>Rating*</u>
<i>Acer platanoides</i>	Norway Maple	tree	3
<i>Ailanthus altissima</i>	Tree-of-Heaven	tree	3
<i>Allaria petiolata</i>	Garlic Mustard	biennial broadleaf	2
<i>Carduus acanthoides</i>	Plumeless Thistle	biennial broadleaf	3
<i>Carduus nutans</i>	Musk Thistle	biennial broadleaf	3
<i>Cirsium arvense</i>	Canada Thistle	perennial broadleaf	3
<i>Cirsium vulgare</i>	Bull Thistle	biennial broadleaf	4
<i>Elaeagnus umbellata</i>	Autumn Olive	shrub	3

<i>Euonymus fortunei</i>	Creeping Euonymus	perennial vine	2
<i>Hedera helix</i>	English Ivy	perennial vine	2
<i>Humulus japonicus</i>	Japanese Hops	annual vine	1
<i>Hemerocallis fulva</i>	Common Daylily	perennial broadleaf	4
<i>Ligustrum spp.</i>	Privet	shrub	4
<i>Lonicera japonica</i>	Japanese Honeysuckle	perennial vine	1
<i>Lonicera maackii</i>	Amur Honeysuckle	shrub	1
<i>Microstegium vimineum</i>	Japanese Stiltgrass	annual grass	1
<i>Perilla frutescens</i>	Beefsteak Plant, Perilla	annual broadleaf	3
<i>Polygonum perfoliatum</i>	Mile-a-minute	annual vine	4
<i>Rosa multiflora</i>	Multiflora Rose	shrub	1
<i>Rubus phoenicolasius</i>	Wineberry	perennial shrub	3

* Occurrence Rating on this Property

- 1 – common and widespread
- 2 – common in some areas
- 3 – fairly uncommon
- 4 – uncommon

Invasive Alien Plants not observed as invaders on this site. Based on site location and conditions these may also be present, or are likely to appear later.

<u>Species</u>	<u>Common Name</u>	<u>Type</u>
<i>Ampelopsis brevipedunculata</i>	Porcelain-berry	vine
<i>Berberis thunbergii</i>	Japanese Barberry	shrub
<i>Buddleja spp.</i>	Butterfly Bush	shrub
<i>Celastrus orbiculatus</i>	Oriental Bittersweet	perennial vine
<i>Centaurea maculosa</i>	Spotted Knapweed	annual broadleaf
<i>Euonymus alata</i>	Winged Burning Bush	shrub
<i>Lespedeza cuneata</i>	Chinese Lespedeza	perennial broadleaf
<i>Lonicera tartarica</i>	Tartarian Honeysuckle	shrub
<i>Pyrus calleryana</i>	Callery Pear (Bradford, etc.)	tree

Recommendations
Prevention

First of all, do not plant any invasive alien plants. Many invasive alien plants are still sold in the nursery trade. Some, which are not too aggressive and do not normally spread by seed (ex. periwinkle, some bamboos) can be acceptable in specific landscape situations where they can be confined, but definitely not adjacent to woodland or other natural areas. Other invasive alien plants that are widely acknowledged to be serious problems - and usually spread quickly by wind, birds, animals or water - should never be planted. A list of invasive alien plants sometimes sold for landscaping or wildlife purposes is attached. It is

always good to plant native plants. Some nurseries are now specializing in sale of native plants suited for landscape use.

Control

The most important species to control first are the ones that are just getting started on the site, and which also have the highest potential for rapid spread – Japanese Stiltgrass, Mile-a-Minute, and Japanese Hops. Preventing these annual plants from going to seed, and following up each year to prevent new ones from becoming established is both important and feasible. This can be done with a combination of manually pulling and cutting the plants, mowing in open areas, or spraying them with herbicide, depending on the location and extent of the infestation. Also, the shrubs Autumn Olive and Privet, which are still fairly uncommon on this site, should be eliminated soon before they begin to reproduce significantly. In order to prevent further seed dispersal, large female Tree-of-heaven trees should be treated by basal bark application. The male trees are a lower priority, and can be treated later in one-acre blocks as described below.

A secondary priority is to control the thistles that will undoubtedly come up in the disturbed area associated with the sewer construction. Controlling these with selective herbicide application, along with establishing a good cover of grass or other meadow vegetation will gradually reduce the work needed.

A lower priority, but still important, is to eliminate the relatively small, accessible and confined populations of Creeping Euonymus and English Ivy. This can be done by cutting the vines climbing on the trees and shrubs, and cutting or pulling the vines growing on the ground. This will probably need to be repeated for several years to finally get rid of them.

A variety of the smaller species such as Garlic Mustard, Beefsteak Plant, Daylily, and Wineberry can be cut, pulled or sprayed as opportunity and resources allow.

The heavy infestation of Bush Honeysuckle, Japanese Honeysuckle and Multiflora Rose that dominate the forest understory, along with the Tree-of-Heaven and Norway Maple that occur in patches, should be attacked in sections of perhaps one acre per year. This will require herbicide use, or a combination of herbicide and mechanical means. Re-treat each area for at least a year to allow control of any regrowth from the roots of the alien trees, vines and shrubs. Recheck these areas at least annually to prevent development of new infestations.

As this is completed in each section, openings should be replanted with native trees and shrubs, and protected from invasive vegetation and deer. Refer to the Forest Stewardship Plan for further information on planting and forest management.

Identification, Early Detection and Rapid Response

Information on the particular species found on the property can be obtained through the sources of information referenced later in this plan. Persons working with the identification and control of invasive alien plants should become familiar the species of concern.

It is important for anyone involved in the control work to be able to identify the invasive alien plants so that native or non-target plants are not unnecessarily damaged. It is also important to identify any new populations of invasive plants and initiate prompt treatment to prevent them from becoming established.

Volunteer Activities

Some species can be controlled by hand pulling, cutting, or weed-whacking. Good candidates for this are the Japanese Hops, Mile-a-Minute, and Japanese Stiltgrass. All of these can be controlled by preventing seed from being produced, though re-treatment for several years is usually needed to deplete the seed bank. The Hops and Mile-a-Minute are prickly and can get long and tangled, so pulling is easiest while they are still small. Pulling Stiltgrass is most productive in August, just before the seed head is formed, and this timing allows follow-up in early September for any that are missed.

Pulling and cutting the Creeping Euonymus and English Ivy is a good autumn, winter or early spring activity, provided the soil is not frozen.

Locating, marking with plastic ribbon, and mapping the locations of large female (seed-bearing) Tree-of-heaven trees can be done in the fall or early winter. These can then be treated during the summer by professional staff.

It can be effective to pull or cut Garlic Mustard in April and May, cut or pull Beefsteak Plant in July and August, cutting of Daylily or Wineberry repeatedly throughout the growing season. Small seedlings of any alien tree or shrub species can be pulled up at any time during the growing season.

In the heavily infested areas, following treatment and re-establishment of native vegetation, volunteers can be effectively used to check for re-occurrence of alien plants and cut or pull them before they become established.

It is essential that volunteers working on these activities take all appropriate measures for personal protection, including sturdy shoes, long pants, long-sleeved shirts, hats, gloves, and protective eyewear. At the end of each work-day, tools and clothing should be cleaned to remove any poison ivy sap, and all persons should shower and check for ticks. Take precautions to prevent health problems from heat or exertion.

Tools that may be of value in carrying out these volunteer activities:

- A high-quality (such as Stihl, Husqvarna, Echo) gasoline (oil-mix) powered weed and brush cutter. These can be fitted with nylon string for cutting small herbaceous plants or steel blades for cutting tough herbaceous weeds and small woody plants.
- A Weed Wrench (www.weedwrench.com) is a good tool for pulling woody plants such as tree seedlings and small shrubs.
- Long-handled loppers, used for cutting vines and small woody plants.

Be sure to obtain approval from City personnel before initiating any activity or using any new tool or method of alien plant control.

Professional Activities

City of Frederick staff, Frederick County Weed Control Program, or private contractors under the direction of the City should perform any herbicide application or mowing. Field areas that are to be kept open can be mowed, though mowing should be minimized in areas with populations of desirable native broadleaf plants. Specific recommendations for the appropriate product and timing for each species can be provided as needed. Generally glyphosate herbicides (Roundup, Accord, etc.) can be used on most of the target species where temporary elimination of other herbaceous vegetation is acceptable, and triclopyr herbicides (Garlon, etc.) used where retention of grasses is desirable. Both glyphosate and triclopyr work well on most of the species listed. Norway Maple, Tree-of-Heaven, Autumn Olive, Creeping Euonymus, English Ivy, Japanese Hops are better controlled by triclopyr based herbicides. Stiltgrass and Amur Honeysuckle are better controlled by glyphosate herbicides. Where selective control of Stiltgrass or other annual grasses are desired, leaving perennial grasses, broadleaf herbaceous plants and woody plants, sethoxydim herbicides (Vantage, etc.) are best. Pathfinder II is a good product for basal bark treatment of Tree-of-heaven, and is best applied during the summer.

Sources of Further Information

A wealth of information on invasive alien plants is available via the Internet, including photos and descriptions of the individual plants, the problems associated with them, and how to control them. Here are some of the most valuable ones:

Maryland Invasive Species Council

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

Mid-Atlantic Exotic Plant Pest Council

<http://www.ma-eppc.org/>

Weeds Gone Wild, Plant Conservation Alliance

<http://www.nps.gov/plants/alien/index.htm>

Invasive.org

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

Montgomery County Dept. of Park and Planning, Weed Warriors

http://www.mc-mncppc.org/Environment/weed_warriors/intro.shtm

U.S. Forest Service, Northeast Area, Invasive Plants

http://na.fs.fed.us/fhp/invasive_plants/

Home and Garden Information Center, Maryland Cooperative Extension

www.agnr.umd.edu/users/hqic/invasives/invasive.html

Maryland Cooperative Extension, Natural Resources Publications

www.naturalresources.umd.edu/Publications.cfm#invasive

MANAGEMENT PRACTICE SCHEDULE

COMPLETION DATE	PRACTICE	STAND	ACRES
Professional Activities – also see schedule for volunteer activities			
Summer 2006	Spray Autumn Olive and Privet	2	5.5
Summer 2006	Basal bark spray female Tree-of-heaven	all	8.3
Summer 2006	Mow and/or spray fields, streambanks, openings and edges where J. Hops, J. Stiltgrass, or Thistles occur.	all	~4
Summer 2006	Select and control all invasive alien plants (Incl. trees & shrubs) on 1 acre via basal bark and/or foliar spray.	2a	1
Summer 2007	Re-treat 1 acre area above	2a	1
Summer 2007	Select and control all invasive alien plants (Incl. trees & shrubs) on 1 acre via basal bark and/or foliar spray.	2b	1
Summer 2008	Re-treat 1 acre area above	2b	1
Summer 2008	Select and control all invasive alien plants (Incl. trees & shrubs) on 1 acre via basal bark and/or foliar spray.	2c	1
Summer 2009	Re-treat 1 acre area above	2c	1
Summer 2009	Select and control all invasive alien plants (Incl. trees & shrubs) on 1 acre via basal bark and/or foliar spray.	2d	1
Summer 2010	Re-treat 1 acre area above	2d	1
Summer 2010	Select and control all invasive alien plants (Incl. trees & shrubs) on 1 acre via basal bark and/or foliar spray.	2e	1
Summer 2011	Re-treat 1 acre area above	2e	1
Summer 2011	Select and control all invasive alien plants (Incl. trees & shrubs) on 1 acre via basal bark and/or foliar spray.	2f	1
Summer 2012	Re-treat 1 acre area above	2f	1
Continue as above until all infested areas are treated and native vegetation restored			
Ongoing	Mow and/or spray fields, streambanks, openings and edges where J. Hops, J. Stiltgrass, or Thistles occur.	All	~4

To provide you further assistance and advice in carrying out the recommended practices, please contact the Maryland DNR Forest Service, Potomac Watershed Project, 301-791-4010.

MANAGEMENT PRACTICE SCHEDULE

COMPLETION DATE	PRACTICE	STAND	ACRES
<u>Volunteer Activities</u> – also see schedule for professional activities			
Winter 2005/2006	Manual Control of Creeping Euonymus and English Ivy	1	1
Winter 2005/2006	Identify, mark and map locations of female Tree-of-heaven		
Spring 2006	Manual Control of Garlic Mustard	1,2,3	8.3
Summer 2006	Manual Control of Mile-a-Minute, Japanese Hops, and Japanese Stiltgrass (in general sequence), in areas not to be mowed or sprayed (coordinate w/ City).	1,2,3	8.3
Summer/Fall 2006	Manual Control of Common Daylily, Beefsteak, Wineberry, Stiltgrass	1,2,3	8.3
Winter 2006/2007	Manual Control of Creeping Euonymus and English Ivy	1	1
Spring 2007	Manual Control of Garlic Mustard	1,2,3	8.3
Summer 2007	Manual Control of Mile-a-Minute, Japanese Hops, and Japanese Stiltgrass (in general sequence), in areas not to be mowed or sprayed (coordinate w/ City).	1,2,3	8.3
Summer/Fall 2007	Manual Control of Common Daylily, Beefsteak, Wineberry, Stiltgrass	1,2,3	8.3
Summer/Fall 2007	Prepare site for planting, order plants and materials.	2a	1
Spring 2008	Plant trees, shrubs, install deer protection measures	2a	1
Summer/Fall 2008	Maintain trees, control competing vegetation	2a	1
Summer/Fall 2008	Prepare site for planting, order plants and materials.	2b	1
Spring 2009	Plant trees, shrubs, install deer protection measures	2b	1
Summer/Fall 2009	Maintain trees, control competing vegetation	2b	1
2009 -2015	Continue to control and replant 1 acre/year	1,2,3	6.3
Ongoing	Check and re-treat as needed	1,2,3	8.3

To provide you further assistance and advice in carrying out the recommended practices, please contact the Maryland DNR Forest Service, Potomac Watershed Project, 301-791-4010.

**Invasive Alien Plants To Avoid In Wildlife and Landscape Plantings
These Plants are Often Sold By Nurseries**

<u>Species Name</u>	<u>Common Name</u>	<u>Also Known As</u>	<u>Type of Plant</u>
<i>Acer platanoides</i>	Norway Maple		tree
<i>Akebia quintata</i>	Chocolate Vine		perennial vine
<i>Albezia julibrissin</i>	Mimosa	Silk Tree	tree
<i>Ampelopsis brevipedunculata</i>	Porcelain Berry		perennial vine
<i>Bambusa spp.</i>	Bamboo species		perennial grass
<i>Berberis thunbergii</i>	Japanese Barberry		shrub
<i>Buddleja spp.</i>	Butterfly Bush		shrub
<i>Celastrus orbiculatus</i>	Oriental Bittersweet		perennial vine
<i>Elaeagnus umbellata</i>	Autumn Olive		shrub
<i>Euonymus alata</i>	Winged Burning Bush		shrub
<i>Euonymus fortunei</i>	Creeping Euonymus		perennial vine
<i>Hedera helix</i>	English Ivy		perennial vine
<i>Hemerocallis fulva</i>	Daylily	Common Daylily	perennial broadleaf
<i>Humulus japonicus</i>	Japanese Hops		annual vine
<i>Lespedeza cuneata</i>	Chinese Lespedeza		perennial broadleaf
<i>Ligustrum japonicum</i>	Japanese Privet		shrub
<i>Ligustrum obtusifolium</i>	Border Privet		shrub
<i>Ligustrum sinense</i>	Chinese Privet		shrub
<i>Ligustrum vulgare</i>	European Privet		shrub
<i>Lonicera maackii</i>	Amur Honeysuckle		shrub
<i>Lonicera morrowi</i>	Morrow's Honeysuckle		shrub
<i>Lonicera standishii</i>	Standish's Honeysuckle		shrub
<i>Lonicera tartarica</i>	Tartarian Honeysuckle		shrub
<i>Lonicera x bella</i>	Bell's Honeysuckle		shrub
<i>Lonicera xylosteum</i>	Dwarf Honeysuckle		shrub
<i>Lythrum salicaria</i>	Purple Loosestrife		perennial broadleaf
<i>Miscanthus sinensis</i>	Eulalia	Chinese Silvergrass	perennial grass
<i>Paulownia tomentosa</i>	Paulownia	Princess Tree	tree
<i>Phyllostachys spp.</i>	Bamboo species		perennial grass
<i>Pseudosasa species</i>	Bamboo species		perennial grass
<i>Pyrus calleryana</i>	Callery Pear	Bradford Pear, etc.	tree
<i>Quercus acutissima</i>	Sawtooth Oak		tree
<i>Ranunculus ficaria</i>	Lesser Celandine	Fig Buttercup	perennial broadleaf
<i>Rhodotypos scandens</i>	Jetbead		shrub
<i>Spiraea japonica</i>	Japanese Spirea	Japanese Meadowsweet	shrub
<i>Vinca minor</i>	Periwinkle		perennial vine
<i>Wisteria floribunda</i>	Japanese wisteria		perennial vine
<i>Wisteria sinensis</i>	Chinese wisteria		perennial vine