

Non-Native Invasive Plant Management Plan

April 2003
Update and Status - November 2007

Park Planning and Stewardship Division
Natural Resources Stewardship Section



MONTGOMERY COUNTY DEPARTMENT OF PARKS
THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION



ABSTRACT

Title

Non-Native Invasive Plant Management Plan

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Abstract

This document details a plan to protect and enhance natural communities and natural diversity on Montgomery County Parklands in regards to the removal of non-native invasive plants, restoration and maintenance of natural communities, and the education of staff and citizens about the threat of non-native invasive species.



NON-NATIVE INVASIVE PLANT MANAGEMENT PLAN

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Montgomery County Department of Parks

**Park Planning and Resource Stewardship Division,
Natural Resources Stewardship Section**

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Introduction

The Department's mission is "to improve the quality of life by conserving and enhancing the natural and developed environment for current and future generations". Key to this mission is the preservation and stewardship of the resources and natural diversity within our parks. This natural diversity is being seriously threatened by the proliferation of non-native invasive plants (NNIs). Without major efforts to manage and control this growing problem the Department will lose the very resources it is supposed to be stewarding. This is particularly true in parks that protect exemplary natural communities of countywide or regional significance. The purpose of this plan is to outline a strategy to reduce NNIs within parkland.

Goal: Protect and enhance natural communities and natural diversity on County Parkland by removing non-native invasive plants, restoring and maintaining natural communities, and educating staff and citizens about the threat of non-native invasive species.

Background

Up until 20 years ago, simply designating land as parkland and protecting it from development was a good strategy for protecting natural systems. Under this "hands-off" management approach, natural communities generally thrived; vegetation matured and often, over time, the ecological value of the land would increase. This is no longer the case. Today, thousands of acres of land set aside for conservation purposes in our parks are threatened by non-native invasive plants which are degrading and destroying the natural communities that we are charged with stewarding. In order to protect and restore these communities, active management efforts need to be initiated.

NNIs are species that have been introduced to local areas from other geographical regions often far away. In their new environment these plants are free from the herbivores, diseases, and other environmental influences that naturally keep them in check in their native lands. Without environmental controls, these plants can quickly expand their range. NNIs have the ability to out compete and replace many native species of plants. Several non-native vines regularly overgrow and kill mature trees. This reduces biodiversity and can have negative impacts on stream buffers, reforestation efforts, wildlife and entire natural communities. The problem is considered by most scientists to be the 2nd most important threat to biodiversity nationwide (outright destruction of habitat by humans is first). The severity and importance of this problem was emphasized in an executive order issued by the Clinton Administration in 1999.

Impacts of NNIs

1. They rapidly invade new areas and out-compete native plants for light, water, and nutrients.
2. They produce significant changes in ecosystem composition, structure, and/or function which can eliminate entire native plant communities.
3. They alter ecosystem processes such as natural succession - e.g. they prevent seedling establishment of native plants, reduce vigor and kill native vegetation through shading and girdling; the weight of vines can cause mature trees to topple.
4. They replace native food sources depended upon by wildlife and reduce or eliminate host plants for native insects and other wildlife.

Since the mid-1990s there has been growing concern from park staff and the public regarding the dramatic increase of NNIs in many county parks and their long-term impact on species

diversity and natural communities. In 1999 NRS established the “Weed Warrior Program”. This volunteer based program enlists and trains volunteers to remove NNIs on parkland. Despite this valuable work, volunteer efforts are clearly not enough.

In 2002 the first draft of this plan was developed to outline a strategy to better address the NNI problem. Since then numerous steps have been taken. This update reviews progress and highlights future needs.

Non-Native Invasive Plant Management Plan

This plan outlines 5 strategies for reducing NNIs on County Parkland – 1) Prevent Invasion 2) Inventory, Monitor and Prioritize NNIs infestations, 3) Manage NNIs, 4) Educate staff and the public, and 5) Evaluate and improve the program..

Strategy 1 – Prevent Invasion

Preventing the introduction of NNIs is a critical step to reducing their impacts on parkland and arguably the most efficient and economical means of management. NNIs are introduced into parkland continuously in many ways. Seeds are transported by wind, water, wildlife, people, vehicles, on the hooves and in the droppings of horses and other domestic animals to name a few. Many NNI species are still used in landscaping creating a seed source for infesting new areas.

Several steps have been or can be taken by the Department through the regulatory and park development review processes to help reduce the potential for new infestations of NNIs. Some examples are listed below.

Recommendations	Status as of Nov. 2007
1. Review of all park development plans, landscape plantings, reforestation and mitigation projects, etc. to be sure that no NNI species are planted on parkland.	Implemented, ongoing
2. Develop NNI list and guidelines for installation of plants for all landscaping on parkland.	NNI list is complete and part of park standards
3. Incorporate NNI plant management information at all levels of park training, including planning/design, management, construction, interpretation, maintenance, law enforcement, and resource management.	Partially implemented
4. Specify responsibilities for NNI management in all permits, contracts, leases and other agreements for non-park use of parkland (e.g. agricultural leases, WSSC sewer line and other utility construction, etc.)	Implemented August 2007. Standardized NNI mgt requirements are included in park permits.
5. Incorporate changes into MNCPPC’s “Tree Technical Manual” that guides implementation of the County’s Forest Conservation Law that include: a. A list of NNIs that are <u>not</u> to be planted as part of this program. b. Requirements for the removal and control of NNIs as part of all reforestation/afforestation projects	In progress through Environmental Planning.
6. Cooperate with other agencies and participate in professional organizations or societies concerned with NNI management.	Implemented. M-NCPPC is represented on board of MISC*, MAEPPC**
7. Work within the Department to incorporate NNI management techniques into pesticide applicator training courses.	Scheduled for In-service training February 2008

*Maryland Invasive Species Council

** Mid-Atlantic Exotic Pest Plant Council

Strategy 2 – Inventory, Monitor and Prioritize NNI Infestations

There are more than 50 species of NNIs growing in the county and nearly every corner of Montgomery Park’s 34,000 acres of parkland has several species established and spreading. All park areas are not equally impacted; some are already totally overwhelmed while others are relatively weed-free. Inventorying and monitoring efforts will be needed to evaluate impacts of NNIs at park sites. All park areas are not of equal value in their importance regarding preservation of natural communities – some contain examples of high quality natural communities while others are heavily impacted by human activities. Similarly, each species of NNI impacts natural communities differently. Some are extremely aggressive and capable of killing acres of forest canopy or understory in a matter of years. Others are less aggressive and their impacts increase more slowly. For these reasons it is imperative that the first step in any program to manage NNIs must be to identify, evaluate and prioritize where problems are the most critical and require the most immediate action.

Inventory and Monitor NNIs on Parkland

Natural Resources Management (NRM) will establish protocols to inventory, monitor and map on the Department’s geographic information system (GIS) the level of NNI infestation within select park areas. Monitoring will be done at two levels of intensity – Park-wide and site specific.

Recommendations	Status as of Nov. 2007
8. Develop a GIS model to be applied park-wide to identify areas with high potential for NNI infestation. This will allow staff to focus and prioritize field assessments.	Completed
9. Develop and implement a “Rapid Assessment” Protocol to assess levels of NNI infestation and prioritize management needs and work efforts. This coarse filter will help identify priority sites, where management efforts are most needed, and allow staff to track changes over time.	In progress. Field surveys to begin this year.
10. Develop and implement a more intensive monitoring protocol, using treatment plots and photographic documentation to monitor priority sites and evaluate long-term results of management efforts.	In progress. Field surveys to begin this year.

Prioritize Infestations

The outline below lays out a strategy for setting priorities for monitoring and treatment based on ecological importance of park areas, levels of infestation, species involved and social concerns.

Ecological Priorities

- a) Most important biodiversity areas – “Top 13” See appendix I
- b) Other biodiversity areas
- c) Other unique natural communities or populations of RTE species that don’t fall within biodiversity areas (e.g. high quality upland forests, wetlands, meadows)
- d) Stream buffers
- e) Other natural areas

Levels of infestation priorities

- a) Areas where NNIs are advancing into important ecological areas; treat NNIs to protect core areas and then work back to more infested areas.
- b) Areas where NNIs are not yet well established but threaten important ecological resources -
- c) Areas where impact is moderate
- d) Areas where native vegetation is heavily impacted

NNI species priorities

- a) Vines that threaten high quality forests, and stream buffers.
- b) Species that impact forest interior shrub and herbaceous layer
- c) Species that impact old field and hedgerow habitat

Social priorities

- a) Locations where citizen interest and volunteerism is high – allows for maximum use of volunteers.
- b) Locations that are focal points for parks or communities (e.g. Park entrances, viewscapes on parkways, etc.)

Strategy 3 – Manage Non-Native Invasives

This section outlines methods of managing NNIs on parkland. It recommends ways of utilizing existing staff and volunteers as well as establishing new staff and volunteer positions. The roles of different park work units are outlined and a brief overview of management methods available for controlling NNIs is provided.

General Approach

Recommendations	Status as of Nov. 2007
11. Develop Best Management Practices and update regularly to ensure use of the safest, most environmentally friendly, effective and efficient methods of control.	Completed 2003, being updated annually.
12. Utilize volunteers (e.g. WeedWarriors, scout groups, community groups etc.) to cut, hand pull NNIs where this is the best approach.	- Weed warrior program initiated 1999 has trained over 500 volunteers who work in over 40 parks and have contributed over 23,000 hours. - Volunteer Group Program initiated 2007- 22 projects scheduled for FY08
13. Where appropriate, utilize volunteers and staff to cut and mow NNIs prior to herbicide treatment to reduce the amount of vegetative growth and the amount of herbicide required.	Done where possible
14. Utilize park staff and Contractors trained and certified in herbicide application to apply chemicals in areas where this is deemed the most effective and long-term control method.	- Initiated limited spraying by staff FY00 - Initiated regular herbicide application by contractors FY05
15. Where herbicides are required utilize the least toxic, shortest lived chemicals, and lowest concentrations that will effectively kill target species.	This was standardized in BMPs in 2002 and added to Department Pesticide Application training FY08

Recommendations	Status as of Nov. 2007
16. Utilize volunteers to monitor and maintain areas that have received initial NNI management efforts.	Initiated in Sligo water shed in 2004 and is being extended to others.
17. Institute “NNI Workdays” for region staff to focus NNI work in important park areas	Initiated in 2002, this program has evolved into more regular/on-going coordinated efforts between region staff and Natural Resource Stewardship staff.
18. Implement efforts on three fronts: a. Start in high quality areas least impacted and work towards heavier impacted areas. b. Start along trail edges and work outward into the forest. c. Choose some heavily impacted areas that are highly visible and can serve to educate the public, muster support for and demonstrate progress in reducing NNI infestations.	In progress since 2003

Human Resources

Recommendations	Status as of Nov. 2007
19. Utilize existing region, horticultural Services, and Central Maintenance Staffs as available, to initiate park-wide NNI management program.	Continue to gain and expand support
20. Establish 4 full-time positions to be specially trained and certified to work as a NNI management crew year-round.	Have determined that use of contractors is better approach.
21. Utilize contractors to supplement NNI work done by staff especially for spraying of herbicides and removal of large areas of woody vegetation that must be cut by hand.	Initiated in FY06 with new funding and has proven to be a highly successful and effective management effort.
22. Continue to expand WeedWarrior volunteer program (augment their work with judicious herbicide applications by park staff and specially trained volunteers).	Staff hired in FY 07 to focus on this effort. Program expanding.
23. Establish “Master level” WeedWarrior category for volunteers that receive additional specialized training to 1) inventory and monitor park areas and/or 2) become registered to apply herbicides.	In progress
24. Develop an aggressive group volunteer program - Work through Volunteer Services to find and recruit groups of volunteers to work when and where hand removal is required.	Staff hired in FY 07 to focus on this effort. Program expanding.
25. Re-evaluate reforestation efforts park-wide and determine what portion of current effort and money might be better spent protecting existing forest from NNIs. Adjust work programs accordingly.	In progress
26. Explore grants and other alternative funding sources for implementing NNI management	In progress

Roles of Park Divisions/Sections

Natural Resources Stewardship (NRS)

Responsibility	Current Status
Coordinate and train staff, collect and maintain GIS database on NNI infestation levels in parks as described above under “monitoring”.	yes
Establish work priorities for parks, areas within parks, specific work sites, schedules, and species.	yes
Coordinate, in cooperation with park managers, schedule of NNI workdays.	yes
Conduct/coordinate trainings for staff on NNI identification and eradication methods.	yes
Research available control methods and develop best management protocols and practices.	yes
Fund supplies and equipment for volunteers.	yes
Coordinate NNI data collection and photographs as described under “program evaluation.”	yes
Coordinate long and short term volunteers	yes
Explore grants and other alternative funding sources for implementing NNI management.	Have done

Horticultural Services

Responsibility	Current Status
Work cooperatively as available on meadow restoration efforts to remove NNIs and re-plant warm-season grasses and native meadow plants.	TBD
Work closely with NNI programs to ensure all herbicide applications follow local, state and federal regulations	yes

Volunteer Services

Responsibility	Current Status
Maintain all paperwork on WeedWarrior (WW) volunteer program.	Done by NRS
Assist with organizing and participant sign up for WW trainings	Done by NRS
Develop shared database with NRM to track volunteers and efforts of WW program.	In progress
Work with Web Master to develop a web-based program to track volunteer hours.	In progress
Advertise for and recruit volunteer groups on seasonal basis as outlined by NRM.	Done by NRS
Coordinate purchases of supplies and equipment for volunteers (e.g. gloves and hats).	Share w/NRS
Provide recognition opportunities for volunteers.	Share w/NRS

Regions

Responsibility	Current Status
Provide staff and equipment for NNI Workdays and at other times to control NNIs.	Yes
Budget up for necessary equipment and supplies to the extent possible.	TBD
Cooperate with NRM to identify NNI management needs.	yes
Incorporate education efforts into Nature Center Programs.	In progress

Management Methods

A variety of methods and chemicals are available to control unwanted vegetation. Each is usually most effective during a certain season of year and on particular species of plants. There is no one method that can be employed to control all NNI species. Appendix II, Best Management Practices for Control of Non-native Invasive Species in Montgomery County Parks, lists non-native invasive species and the preferred methods for controlling each at different seasons of the year and under different conditions. As more research is carried out and new methods and products become available, recommended methods will likely change. Therefore, this section will be continually revised to assure that the Department utilizes the most efficient, effective and safest methods and chemicals available. The table below is provided as a brief example of various methods and chemicals that can be used at various seasons.

Strategy 4 – Educate Staff and Public

An aggressive education program is needed to increase awareness of Park staff, County Officials, businesses and the general public to this issue. The following steps should be taken as time and staffing permit.

Recommendations	Status as of Nov. 2007
27. Develop and implement an educational program for staff that includes: awareness of the problem, NNI identification and management techniques, field training session/work days, and a reference manual summarizing this information.	In Progress
28. Develop and present an informational program for the Planning Board and County Council.	Provided to PB 2002; Planned for CC Fall'07
29. Create several segments of the Department's cable TV program, "The Park Show" around the NNI issue that focus on the problem, preventing the spread of NNIs from landscaping, and volunteer opportunities.	One segment done; will plan others
30. Develop a bulletin board or poster exhibit that can be duplicated and displayed in Nature Centers, Schools, Libraries, Park Facilities, County Fair booth, etc.	Completed; being updated; additional educational materials and signage being developed
31. Create and maintain a web page on this topic utilizing links available to government and other sites.	Completed 2003; currently being updated
32. Contact Local News media to promote program.	Looking to Community Outreach for assistance.
33. Work through Nature Centers to incorporate NNI information in programs and displays.	In Progress
34. Develop information packet for distribution to interested citizens, teachers, community groups, etc.	Not yet
35. Conduct a limited number of education workshops for large groups including those related to the plant nursery and landscaping trades.	Expanded staff available for this from 1 to 3 in FY07

Strategy 5 –Evaluate and Improve Program

The development and implementation of an evaluation process is essential to determine 1) the effectiveness of the program park-wide and 2) the effectiveness of control efforts on a site-by-site basis (are efforts permanently removing NNIs and are the areas remaining “clean”?) In order to evaluate the program and determine what changes might be made to improve efforts the following steps will be taken.

Evaluating NNI Impacts in Parks Countywide:

Recommendations	Status as of Nov. 2007
36. Employ GIS monitoring program to track levels of NNI infestation in priority parks over time.	In progress; expect implementation Spring 2008
37. At 2-5 year intervals re-evaluate select parks to determine change in infestation.	Implementation will follow above.
38. Adjust management efforts as appropriate.	On-going

Evaluating Management Efforts:

Recommendations	Status as of Nov. 2007
39. Establish test plots/study areas to monitor and assess different methods of NNI control. These will include control plots where no management is implemented. (note: In order to prevent control plots from becoming seed sources for new infestations they will be monitored for 1 or 2 seasons and then treated/destroyed.)	To be done.
40. Using photographs and data collection, document NNI infestation levels before, and after treatment.	In progress
41. Maintain records on staff and volunteer hours, equipment, chemicals, etc. in order to document costs of area treatments and evaluate the program.	In progress
42. Develop an in-house report to document and evaluate program efforts and results.	To be done
43. Adjust program accordingly	On-going

Appendix 1

Top 13 Montgomery County Park Biodiversity Areas Prioritized for NNI Plant Management

Park Area	A	B	Areas to concentrate on for NNI removal
Blockhouse Point Conservation Park	1	1	Trails, floodplain, forest openings
Rachel Carson Conservation Park	1	2-3	Trails, old field areas, edges, forest openings
Little Bennett Regional Park	2	3	Trails, road edges, old field areas, flood plains
Black Hill Regional Park	2	2	Trails, road edges, old field areas
North Branch SVP Unit 2	1	3	Trails, entire forest from Muncaster Mill to wetland area
Little Seneca SVP Units 2, 3 & 4	1-2	2-3	Floodplain -understory and herbaceous levels
Upper Paint Branch SVP (N of Fairland Rd)	3	3	Trail edges, Floodplain -understory and herbaceous levels
Watts Branch SVP Units 1,2, &3	3	3	Trail edges, Floodplain -understory and herbaceous levels
Northwest Branch SVP Units 3&4	2-3	3	Trail edges, Floodplain -understory and herbaceous levels
Cabin John SVP units 1 & 2	2-3	3	Trail edges, Floodplain -understory and herbaceous levels
Hoyles Mill Conservation Park	1	1	Trails, edges, forest openings
Piney Meetinghouse Serpentine	1	1	Trails, edges, forest openings
Potomac Shale barren Acquisition	1	1	Cliffs along road edge

A – Quality of Vegetation Resource 1 (best) - 3

B – Level of NNI infestation 1 (smallest problem) - 3

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Appendix 2

BEST MANAGEMENT PRACTICES FOR CONTROL OF NON-NATIVE INVASIVES

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Non-Native Invasive Plant Management Plan



**Montgomery County Department of Parks,
Park Planning and Resource Stewardship Division,
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