

# **POLICY ON THE USE OF NON-NATIVE PLANTS IN CORNELL PLANTATIONS' ACCESSIONED COLLECTIONS**

## **Guidance Statement**

Plants from all over the world form the basis for American agriculture and horticulture. Some of the plant species that were first introduced to our region as ornamentals have proven to be invasive species, which threaten the long-term conservation of biodiversity and the integrity of natural areas. As a public garden, it is inherent in Cornell Plantations' mission that we "preserve and enhance diverse horticultural collections and natural areas for the enrichment and education of the academic audience and the public."

The primary purpose of this policy document and the recommendations within it is to balance our public garden mission of holding diverse horticultural collections with our conservation mission of preserving natural areas and the broader environment. This mission is further detailed in Plantations' Envisioning Goals, which provides that Plantations "will serve as a model for the control of invasive plant species."

The invasive species policy is based on the Voluntary Code of Conduct for Botanic Gardens and Arboreta, and will serve to direct how invasive plants are managed in Plantations' collections.

By identifying the known invasive taxa currently held in our collections and requiring that all of these be removed using best practices in a multi-year process, we are taking a measured but highly responsible approach to invasive species management consistent with Plantations' Envisioning Goals of providing collections with "less invasive tendencies." Furthermore, by monitoring all new species and cultivars for potential invasiveness before entering them into the collections, we are providing a long-term strategy for ensuring that Plantations will be "an exemplary green garden by being environmentally progressive in our collections and operations."

For the purpose of this document, an invasive species is defined as a plant that is non-native to the ecosystem under consideration, and whose introduction causes or is likely to cause ecological or environmental harm.

## **Cornell Plantations Invasive Species Policy Committee**

### **Co-Chairs**

Todd Bittner, Director of Natural Areas

Mary Hirshfeld, Director of Horticulture

### **Committee Members**

Robert Wesley, Natural Areas Botanist

Joe Buttafuoco, Natural Areas Steward

Jules Ginenthal, Natural Areas Steward

Sarah McNaull, Horticulture Plant Record Manager

Donna Levy, Horticulture Plant Health Care Supervisor

Sarah Fiorello, Education Interpreter

October, 2009

## **Plantations Code of Conduct Principles**

**1. Do not add known invasive species to the cultivated collections.**

Conduct risk assessment and evaluation protocol.

**2. Remove, phase out, and contain existing invasive species in the cultivated collections.**

**3. Monitor and evaluate new species and cultivars added to the cultivated collections for potential invasive characteristics as identified in Monitoring Protocols for Plant Species of Concern (Appendix 6).**

**4. Do not distribute plants or propagules of known invasive species.**

Plantations pledges to not sell, trade, or distribute known invasive plants or propagules.

**5. Work to control invasive species in the Natural Areas.**

**6. Educate the public, green industries, and the University about invasive species and the threats they pose to local and global biological diversity.**

**Appendix 1.** Cornell Plantations' Invasive Species Risk Assessment and Evaluation Protocol.

This protocol will be used prior to adding species, hybrids, and cultivars to the collections:

If the taxon is listed as an invasive species in Appendix 2, 3, or 4, it will not be added to the collections, and will be added to BG-Base as invasive.

If the taxon is listed as an invasive species in Appendix 2, 3, or 4, and an exemption for educational use or research is requested, a written proposal and monitoring plan is required. Proposal review and approval will be conducted by the Plantations' Invasive Species Policy Committee.

If the taxon is listed as a species of concern in Appendix 5 or is a hybrid or cultivar of a taxon in Appendix 2-5, a written proposal and monitoring plan is required. Proposal review and approval will be conducted by the Plantations' Invasive Species Policy Committee.

**Appendix 2.** This list includes plant species that are considered highly invasive to natural areas in the central Finger Lakes region. This list also includes plant species that are not presently known from the region, but are considered highly invasive and would pose a significant threat to natural areas if they were to establish in the region.

Cornell Plantations commits that all listed species will be removed from the accessioned collections, and that future introductions of listed species will not be permitted, except where species may be retained for educational purposes consistent with these guidelines. If present in the accessioned collections, species from this list are the highest priority for removal.

This list was developed using information from invasive plant lists for the surrounding states and provinces with similar growing conditions, continuing field observations, input from other knowledgeable persons, and all other credible web-based or published sources. Species were included if they are listed as invasive for one or more state or province in the Northeast, Mid-Atlantic, and upper Midwest (generally plant hardiness zones 4, 5, & 6), and are considered invasive in the central Finger Lakes region based on field observations and scientific publications. Species were also included if they are documented to be invasive in New York or nearby states or provinces and if introduced, could become established in the central Finger Lakes region in the future (indicated by an asterisk \*). Species were not listed if they are not known to be invasive in the region, or are listed in other Appendices. This list reflects the current knowledge and will be reviewed and updated annually.

<b>Species name</b>	<b>Common name</b>	<b>Family</b>
<i>Acer platanoides</i>	Norway maple	Aceraceae
<i>Ailanthus altissima</i>	ailanthus, tree-of-heaven	Simaroubaceae
<i>Alliaria petiolata</i>	garlic mustard	Brassicaceae
<i>Artemisia vulgaris</i>	mugwort	Asteraceae
<i>Berberis thunbergii</i>	Japanese barberry	Berberidaceae
<i>Brachypodium sylvaticum</i>	false brome-grass	Poaceae
<i>Celastrus orbiculata</i>	Asian bittersweet	Celastraceae
<i>Cirsium arvense</i>	creeping thistle	Asteraceae
<i>Coronilla varia</i>	crownvetch	Fabaceae
<i>Cynanchum rossicum (Vincetoxicum rossicum)</i>	pale swallowwort	Apocynaceae
<i>Elaeagnus umbellata</i>	autumn olive	Elaeagnaceae
<i>Fallopia bohemica (Polygonum bohemicum)</i>	giant knotweed	Polygonaceae
<i>Fallopia japonica (Polygonum cuspidatum)</i>	Japanese knotweed	Polygonaceae
<i>Hydrilla verticillata*</i>	hydrilla	Hydrocharitaceae
<i>Ligustrum obtusifolium</i>	Amur River privet	Oleaceae
<i>Lonicera maackii</i>	Maack's honeysuckle	Caprifoliaceae
<i>Lonicera morrowii</i> and hybrids	honeysuckle	Caprifoliaceae
<i>Lonicera tatarica</i> and hybrids	Tartarian honeysuckle	Caprifoliaceae

APPENDIX 2 (CONTINUED)

<b>Species name</b>	<b>Common name</b>	<b>Family</b>
<i>Microstegium vimineum</i>	stilt-grass	Poaceae
<i>Persicaria perfoliata</i> * ( <i>Polygonum perfoliatum</i> )	mile-a-minute weed	Polygonaceae
<i>Phragmites australis</i> ssp. <i>australis</i> (introduced haplotype)	phragmites	Poaceae
<i>Ranunculus ficaria</i>	lesser celandine	Ranunculaceae
<i>Rhamnus cathartica</i>	buckthorn	Rhamnaceae
<i>Rhamnus frangula</i> ( <i>Frangula alnus</i> )	alder buckthorn	Rhamnaceae
<i>Rosa multiflora</i>	multiflora rose	Rosaceae
<i>Trapa natans</i> *	water-chestnut	Trapaceae

\* Not presently known to occur within the central Finger Lakes region.

**Appendix 3.** This list includes plant species that are considered moderately to highly invasive to natural areas in the central Finger Lakes region. This list also includes plant species that are not presently known from the region, but are considered moderately to highly invasive and would pose a significant threat to natural areas if they were to establish in the region.

Cornell Plantations commits that all listed species will be removed from the accessioned collections, and that future introductions of listed species will not be permitted, except where species may be retained for educational purposes consistent with these guidelines. If present in the accessioned collections, species from this list are a high priority for removal.

This list was developed using information from invasive plant lists for the surrounding states and provinces with similar growing conditions, continuing field observations, input from other knowledgeable persons, and all other credible web-based or published sources. Species were included if they are listed as invasive for one or more state or province in the Northeast, Mid-Atlantic, and upper Midwest (generally plant hardiness zones 4, 5, & 6), and are considered invasive in the central Finger Lakes region based on field observations and scientific publications. Species were also included if they are documented to be invasive in New York or nearby states or provinces and if introduced, could become established in the central Finger Lakes region in the future (indicated by an asterisk \*). Species were not listed if they are not known to be invasive in the region, or are listed in Appendices. This list reflects the current knowledge and will be reviewed and updated annually.

<b>Species name</b>	<b>Common name</b>	<b>Family</b>
<i>Acer campestre</i>	hedge maple	Aceraceae
<i>Acer ginnala</i>	Asian maple	Aceraceae
<i>Aegopodium podagraria</i>	goutweed, bishop's weed	Apiaceae
<i>Allium vineale</i>	wild onion, onion-grass	Alliaceae
<i>Alnus glutinosa</i>	European black alder	Betulaceae
<i>Anthriscus sylvestris</i> *	wild chervil	Apiaceae
<i>Berberis vulgaris</i>	European barberry	Berberidaceae
<i>Cabomba caroliniana</i> *	fanwort	Cabombaceae
<i>Cardamine hirsuta</i>	hairy cress	Brassicaceae
<i>Centaurea stoebe ssp. micranthos (C. maculosa)</i>	spotted knapweed	Asteraceae
<i>Centaurea jacea</i>	black or brown knapweed	Asteraceae
<i>Cynanchum louiseae (Vincetoxicum nigrum)</i>	black swallowwort	Apocynaceae
<i>Euonymus alata</i>	burning-bush, winged euonymus	Celastraceae
<i>Euphorbia esula</i>	leafy spurge	Euphorbiaceae
<i>Fallopia sachalinensis (Polygonum sachalinense)</i>	Sakhalin knotweed	Polygonaceae
<i>Galium mollugo</i>	white bedstraw	Rubiaceae

APPENDIX 3 (CONTINUED)

<b>Species name</b>	<b>Common name</b>	<b>Family</b>
<i>Hedera helix</i>	English ivy	Araliaceae
<i>Hemerocallis fulva</i>	daylily	Hemerocallidaceae
<i>Heracleum mantegazzianum</i>	giant hogweed	Apiaceae
<i>Hesperis matronalis</i>	dame's rocket	Brassicaceae
<i>Hydrocharis morsus-ranae</i> *	frog-bit	Hydrocharitaceae
<i>Iris pseudacorus</i>	yellow iris	Iridaceae
<i>Ligustrum ovalifolium</i>	California privet	Oleaceae
<i>Ligustrum vulgare</i>	common privet	Oleaceae
<i>Lonicera japonica</i>	Japanese honeysuckle	Caprifoliaceae
<i>Lysimachia nummularia</i>	moneywort, creeping jenny	Primulaceae
<i>Lythrum salicaria</i>	purple loosestrife	Lythraceae
<i>Myosotis scorpioides</i>	forget-me-not	Boraginaceae
<i>Myriophyllum spicatum</i>	Eurasian water-milfoil	Haloragaceae
<i>Phalaris arundinacea</i>	reed canary grass	Poaceae
<i>Potamogeton crispus</i>	curly pondweed	Potamogetonaceae
<i>Pueraria lobata</i> *	kudzu	Fabaceae
<i>Robinia pseudo-acacia</i>	black locust	Fabaceae
<i>Rubus caesius</i>	European dewberry	Rosaceae
<i>Solanum dulcamara</i>	bittersweet nightshade	Solanaceae
<i>Torilis japonica</i>	Japanese hedge parsley	Apiaceae
<i>Viburnum opulus ssp. opulus</i>	European cranberry viburnum	Caprifoliaceae
<i>Vinca minor</i>	periwinkle	Apocynaceae

\* Not presently known to occur within the central Finger Lakes region.

**Appendix 4.** This list includes plant species that are considered moderately invasive to natural areas in the central Finger Lakes region. This list also includes plant species that are not presently known from the region, but are considered moderately invasive and would pose a significant threat to natural areas if they were to establish in the region.

Cornell Plantations commits that all listed species will be removed from the accessioned collections, and that future introductions of listed species will not be permitted, except where species may be retained for educational purposes consistent with these guidelines. If present in the accessioned collections, species from this list are a lower priority for removal than species listed in Appendix 2 and 3.

This list was developed using information from invasive plant lists for the surrounding states and provinces with similar growing conditions, continuing field observations, input from other knowledgeable persons, and all other credible web-based or published sources. Species were included if they are listed as invasive for one or more state or province in the Northeast, Mid-Atlantic, and upper Midwest (generally plant hardiness zones 4, 5, & 6), and are considered invasive in the central Finger Lakes region based on field observations and scientific publications. Species were also included if they are documented to be invasive in New York or nearby states or provinces and if introduced, could become established in the central Finger Lakes region in the future (indicated by an asterisk \*). Species were not listed if they are not known to be invasive in the region, or are listed in Appendices. This list reflects the current knowledge and will be reviewed and updated annually.

<b>Species name</b>	<b>Common name</b>	<b>Family</b>
<i>Akebia quinata</i>	akebia	Lardizabalaceae
<i>Ampelopsis brevipedunculata</i>	porcelain-berry	Vitaceae
<i>Campanula rapunculoides</i>	creeping bellflower	Campanulaceae
<i>Convallaria majalis</i>	lily-of-the-valley	Convallariaceae
<i>Euonymus fortunei</i>	evergreen bittersweet	Celastraceae
<i>Lonicera xylosteum</i>	honeysuckle	Caprifoliaceae
<i>Malus baccata, floribunda, sylvestris</i> and hybrids	crabapple	Rosaceae
<i>Picea abies</i>	Norway spruce	Pinaceae
<i>Rubus phoenicolasius</i>	wineberry	Rosaceae
<i>Rumex acetosella</i>	sheep sorrel	Polygonaceae
<i>Wisteria sinensis</i>	wisteria	Fabaceae

\* Not presently known to occur within the central Finger Lakes region.

**Appendix 5.** Plant species of concern (Watch List) within the central Finger Lakes region are listed below. Species on this list may or may not be invasive, and additional information or monitoring is needed to make this determination.

Cornell Plantations commits to implement a monitoring program for listed species presently within the accessioned collections and for future introductions of listed species consistent with these guidelines.

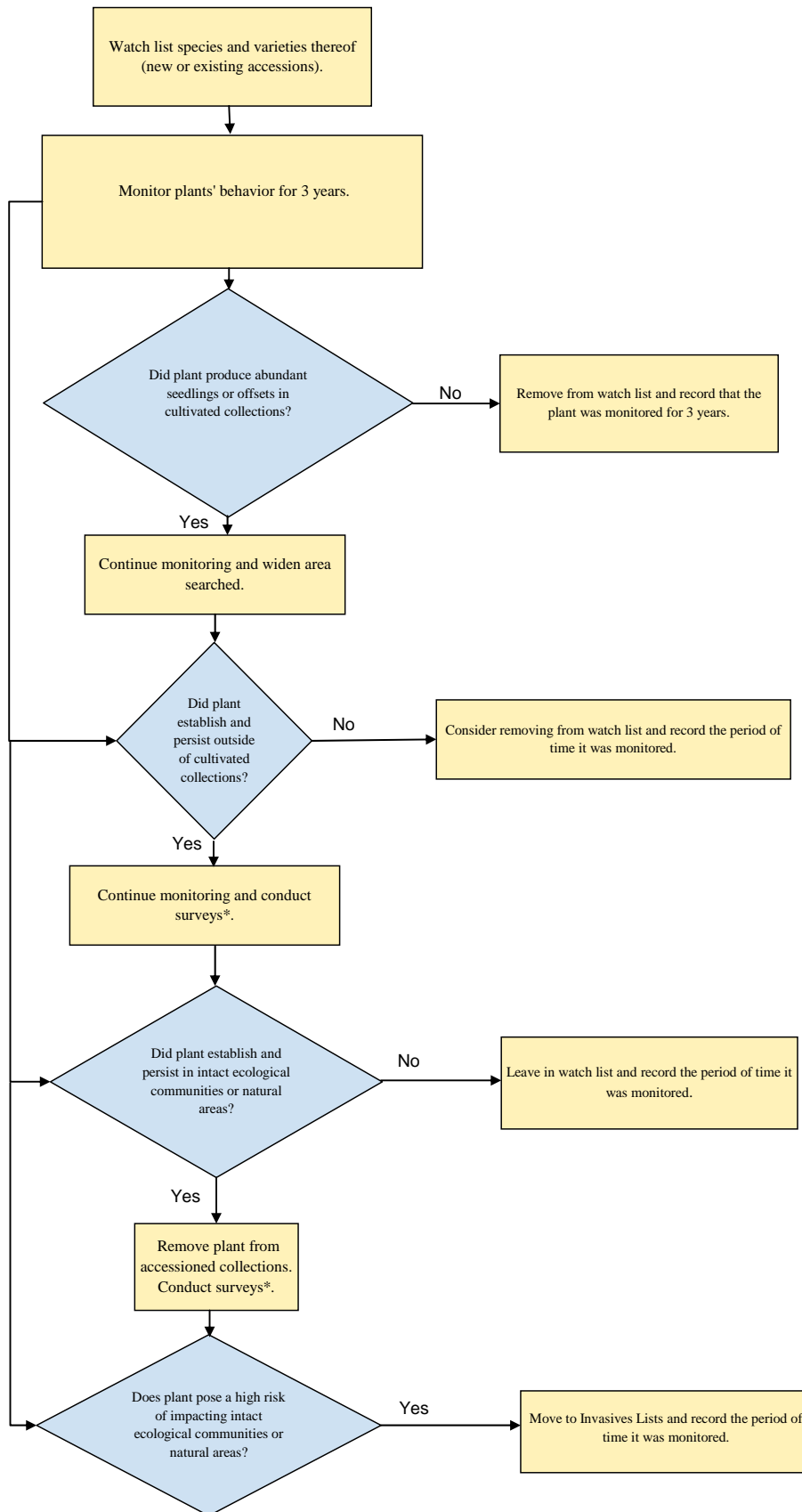
This list was developed using information from invasive plant lists for the surrounding states and provinces with similar growing conditions, continuing field observations, input from other knowledgeable persons, and all other credible web-based or published sources. Species were included if they are listed as invasive for one or more state or province in the Northeast, Mid-Atlantic, and upper Midwest (generally plant hardiness zones 4, 5, & 6), and the possibility exists they may become invasive in the central Finger Lakes region based on field observations and scientific publications. While many of the listed species have long been naturalized, additional monitoring is warranted, as many appear to be becoming more invasive. Species were not listed if they are considered invasive (Appendix 1), or are not documented to be invasive in the region, adjacent states, or provinces. The list reflects the current knowledge, and will be reviewed and updated annually. With sufficient information from field observations, Plantations' monitoring, or other sources, species may be removed altogether or moved to the known invasive species list (Appendix 1).

<b>Species name</b>	<b>Common name</b>	<b>Family</b>
<i>Acer pseudoplatanus</i>	sycamore maple	Aceraceae
<i>Aesculus hippocastanum</i>	horse chestnut	Hippocastanaceae
<i>Ajuga reptans</i>	bugleweed	Lamiaceae
<i>Bromus inermis</i>	smooth brome grass	Poaceae
<i>Butomus umbellatus</i>	flowering rush	Butomaceae
<i>Convolvulus arvensis</i>	field bindweed	Convolvulaceae
<i>Crataegus monogyna</i>	English hawthorn	Rosaceae
<i>Elaeagnus angustifolia</i>	Russian olive	Elaeagnaceae
<i>Euonymus europaea</i>	spindle tree	Celastraceae
<i>Glechoma hedracea</i>	ground ivy	Lamiaceae
<i>Luzula luzuloides</i> ssp. <i>luzuloides</i>	European woodrush	Juncaceae
<i>Malus prunifolia</i> and hybrids	crabapple	Rosaceae
<i>Melilotus alba</i>	white sweet-clover	Fabaceae
<i>Miscanthus sinensis</i>	silver-grass	Poaceae
<i>Ornithogalum umbellatum</i>	star-of-Bethlehem	Hyacinthaceae

## APPENDIX 5 (CONTINUED)

<b>Species name</b>	<b>Common name</b>	<b>Family</b>
<i>Paulownia tomentosa</i>	princess-tree	Paulowniaceae
<i>Pinus sylvestris</i>	Scots pine	Pinaceae
<i>Poa compressa</i>	wiry bluegrass	Poaceae
<i>Populus alba</i>	white poplar	Salicaceae
<i>Prunus avium</i>	bird cherry	Rosaceae
<i>Pyrus calleryana</i>	Bradford pear	Rosaceae
<i>Rhodotypos scandens</i>	jetbead	Rosaceae
<i>Rorippa nasturtium-aquaticum</i>	watercress	Brassicaceae
<i>Salix purpurea</i>	basket willow	Salicaceae
<i>Silphium perfoliatum</i>	cup-plant	Asteraceae
<i>Taxus cuspidata</i>	Japanese yew	Taxaceae
<i>Ulmus pumila</i>	Siberian elm	Ulmaceae
<i>Viburnum lantana</i>	wayfaring tree	Caprifoliaceae
<i>Viburnum sieboldii</i>	Siebold's viburnum	Caprifoliaceae

Appendix 6. Monitoring protocols for plant species of concern. BgBase will be used to record monitoring for each plant.



\* e.g. Photo documentation, demographic or plot-based study, following individual plants for 3 years.

**Appendix 7.** Invasive plant references for New York and surrounding states and provinces.

**New York State**

Invasive Plant Council of New York State. <http://www.ipcnys.org/default.aspx>

Adirondack Park Invasive Plants Program. <http://www.adkinvasives.com/>

**General**

Invasipedia developed by the The Nature Conservancy's Global Invasive Species Team.  
<http://invasipedia.ucdavis.edu/doku.php>

**Other States and Provinces**

Invasive plants of natural habitats in Canada: an integrated review of wetland and upland species and legislation governing their control. [http://www.cws-scf.ec.gc.ca/publications/inv/index\\_e.cfm](http://www.cws-scf.ec.gc.ca/publications/inv/index_e.cfm)

Connecticut Invasive Plants Council – Connecticut Invasive Plants List.  
<http://www.hort.uconn.edu/cipwg/invplantsCT05.pdf>

Invasive Plants of Illinois. [http://www.ill-inps.org/index\\_files/Page815.htm](http://www.ill-inps.org/index_files/Page815.htm)

Noxious and Invasive Weeds and the Weed Laws in Indiana.  
<http://www.btny.purdue.edu/WeedScience/2005/WeedLaw05.pdf>

Invasive Plants of Indiana. <http://www.inpaws.org/InvasivePlants.pdf>

KY-EEPC Kentucky Exotic Pest Plant Council. <http://www.se-eppc.org/ky/list.htm>

Kentucky EPPC – Invasive Exotic Plant List. <http://www.invasive.org/listview.cfm?list=16>

Maine Natural Areas Program. Status of Invasive Plants in Maine.  
[http://www.mainenaturalareas.org/docs/program\\_activities/status\\_invasive\\_plants.php](http://www.mainenaturalareas.org/docs/program_activities/status_invasive_plants.php)

Invasive Species of Concern in Maryland.  
[http://www.mdinvasivesp.org/invasive\\_species\\_md.html](http://www.mdinvasivesp.org/invasive_species_md.html)

The Evaluation of Non-Native Plant Species for Invasiveness in Massachusetts. Massachusetts Invasive Plant Advisory Group. 2005.  
<http://www.newenglandwildflower.org/conserve/docs/MIPAG040105.pdf>

Massachusetts Invasive Plants Advisory Group. Plants voted as invasive.  
<http://www.massnrc.org/MIPAG/invasive.htm>

Massachusetts Prohibited Plant List.  
[http://www.mass.gov/agr/farmproducts/proposed\\_prohibited\\_plant\\_list\\_v12-12-05.htm](http://www.mass.gov/agr/farmproducts/proposed_prohibited_plant_list_v12-12-05.htm)

Michigan Invasive Plants Council – Invasive Plant Information. <http://invasiveplantsmi.org/>

Invasive Plant Atlas of New England. Current Invasive Species List.  
[http://nbii-nin.ciesin.columbia.edu/ipane/ipanespecies/current\\_inv.htm](http://nbii-nin.ciesin.columbia.edu/ipane/ipanespecies/current_inv.htm)

New Hampshire Prohibited Plant Species.

[http://www.nh.gov/agric/divisions/plant\\_industry/documents/list\\_of\\_invasive\\_species.pdf](http://www.nh.gov/agric/divisions/plant_industry/documents/list_of_invasive_species.pdf)

A Guide to Invasive Upland Plant Species in New Hampshire. New Hampshire Department of Agriculture, Markets and Food, Plant Industry Division & New Hampshire Invasive Species Committee. 2005. <http://extension.unh.edu/forestry/Docs/invasive.pdf>

Invasive Plant Species – Native Plant Society of New Jersey.

[http://www.npsnj.org/invasive\\_species\\_0103.htm](http://www.npsnj.org/invasive_species_0103.htm)

Snyder, David and Sylvan R. Kaufman. 2004. An overview of nonindigenous plant species in New Jersey. New Jersey Department of Environmental Protection, Division of Parks and Forestry, Office of Natural Lands Management, Natural Heritage Program, Trenton, NJ. 107 pages. <http://www.nj.gov/dep/parksandforests/natural/heritage/InvasiveReport.pdf>

Ohio's Invasive Plant Species.

<http://www.dnr.state.oh.us/Portals/3/invasive/pdf/OHIO%20INVASIVE%20PLANTS.pdf>

Invasive Plants in Ontario.

[http://www.city.stratford.on.ca/naturally/documents/fact\\_sheet\\_invasive\\_plants\\_in\\_ontario.pdf](http://www.city.stratford.on.ca/naturally/documents/fact_sheet_invasive_plants_in_ontario.pdf)

Invasive Plants in Pennsylvania. <http://www.dcnr.state.pa.us/forestry/wildplant/invasivelist.aspx>

List of Exotic, Invasive Plants in the Murrysville, PA Area.

[http://www.murrysville.com/documents/parks\\_invasive\\_plants.pdf](http://www.murrysville.com/documents/parks_invasive_plants.pdf)

Invasive Plants of Rhode Island. [http://www.urimnga.org/invasive\\_plants.html#invasive](http://www.urimnga.org/invasive_plants.html#invasive)

The Nature Conservancy. Invasive Species in Vermont.

<http://www.nature.org/wherewework/northamerica/states/vermont/volunteer/art21110.html>

Vermont Land Trust list of Invasive Species in Vermont.

<http://www.vlt.org/invasives/index.html>

Vermont Invasive Exotic Plant Committee. Vermont Invasive Plants.

<http://www.vtinvasiveplants.org/invaders.php>

Invasive Alien Plant Species of Virginia.

[http://www.dcr.virginia.gov/natural\\_heritage/invspinfo.shtml](http://www.dcr.virginia.gov/natural_heritage/invspinfo.shtml)

Invasive Plants of West Virginia. <http://www.wvdnr.gov/wildlife/invasivewv.shtm>

Invasive Plants Association of Wisconsin - Working List of the Invasive Plants of Wisconsin - March 2003. <http://www.ipaw.org/newsletters/issue4.pdf>

Wisconsin Department of Natural Resources. Invasive Species: Plants.

<http://www.dnr.state.wi.us/invasives/plants.asp>

Cofrin Center for Biodiversity, University of Wisconsin - Green Bay Herbarium. Invasive Plants of Wisconsin.

[http://www.uwgb.edu/BIODIVERSITY/herbarium/invasive\\_species/invasive\\_plants01.htm](http://www.uwgb.edu/BIODIVERSITY/herbarium/invasive_species/invasive_plants01.htm)