

NEWFS Conservation Policies and Guidelines

for Native Plant Collection, Native Plant Distribution and Invasive Plants

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The purpose of these policies is to provide ethical, rational, and practical guidelines for the varied activities of the New England Wild Flower Society (NEWFS). The complex nature of the issues covered by these policies makes it difficult to define “absolute” principles to govern NEWFS’ conduct. Although the intent of these policies is to guide actions by NEWFS’ staff, volunteers, and, members, the policies may be useful in providing standards for others to evaluate their own conservation-related activities.

Note: These policies are for native plant species. NEWFS does not propose policies on collection of non-native species except to recommend that collection or use of non-native species—seeds, plants parts, or whole plants— should not aid in the dissemination of non-native invasive species in any manner. Because most states consider plants to be the property of the landowner, landowner permission and permits from public agencies are also likely to be required in order to collect non-native species.

I. Collection of Native Plant Materials from the Wild

NEWFS strongly recommends purchasing propagated native plants from reputable dealers as an alternative to wild collection. Propagated plants usually perform better in cultivation than plants collected from the wild. The overriding concern regarding plant collection or divisions of plants from the wild is the risk of destruction or decline of local populations through intentional or unintentional over-collection.

NEWFS approves collection of plants, seeds, or cuttings from the wild only if the collection does no permanent harm to the local population of plants and/or furthers the conservation of the plants collected. Before collection, collectors should know the identity of a species, whether or not it is rare in the State of collection (see State Natural Heritage program list – Appendix I.), the best propagation and cultural practices, and the relative regenerative capabilities of the collected species. In all cases, landowner permission and all applicable state and federal permits must be obtained.

The following guidelines differentiate between:

- rare and common species
- collecting for:
 - individual use,
 - scientific/educational/research use by nonprofit or academic institutions
 - commercial use
- Collecting seeds, plant parts, or whole plants

I (A). Collection of Rare Plant Species

Collection of whole plants, seeds, or plant parts in any state where the plant is considered endangered, threatened, or rare should occur only when collection will enhance the conservation of the species, or for scientific/educational purposes through a botanical or academic institution or their assignees. In all cases, landowner permission and all applicable state and federal permits must be obtained. Lists of endangered, threatened, or rare plants are available through the Natural Heritage programs (or their equivalent) in each New England state (see Appendix I.).

Wild collection of rare species for individual or commercial use is not appropriate. Exceptions may be made under special circumstances to allow collection under the auspices of appropriate state or federal agencies. The circumstances of collection in these cases must be examined on a case-by-case basis.

I (B). Collection of Common, Widespread Plant Species

NEWFS strongly recommends purchasing propagated native plants from reputable dealers as an alternative to wild collection. Propagated plants usually perform better in cultivation than plants collected from the wild. The overriding concern over collecting plants from the wild is the risk of destruction or decline of local populations through intentional or unintentional over-collection.

NEWFS acknowledges that limited personal collection of a few plants, seeds, or cuttings of common, widespread native plant populations is possible without causing permanent damage to wild populations. Responsible practice requires that all of the following criteria be met:

- Before collection, collectors should know the identity of a species, whether or not it is rare in the state of collection (see Natural Heritage Program Address list – Appendix 1.), the best propagation and cultural practices, and the relative regenerative capabilities of the collected species.
- Only species with a reasonable chance of survival in cultivation should be collected. See Appendix 2 for a partial list of references on growing native plants.
- Collection should occur only from robust populations at a rate that allows the populations to sustain themselves. Collection limits given below are the cumulative collection by all collectors at a given site.
- Collection should occur only after obtaining landowner permission and all necessary permits. (Note: permits are generally required for collection on public lands.)

I (B) 1. Collecting Whole Plants of Widespread and Common Species

Individual or Scientific/Educational/Research Uses. Collection of a few plants of a common, widespread species for personal or educational uses will probably not cause damage to a large local population. However, if more than one person collects from the same site, a population could be severely damaged. When asking permission to collect, collectors should always ask the landowner if others have requested permission to collect at the same site. If others have collected at the site, no further collection should occur. Landowners should be wary of issuing permission for multiple uncoordinated collections. If unsure whether prior collection has occurred, or if there is evidence of prior collection at the site (digging, trampling, etc.), no collection should occur. As a general rule, no more than 2% of the plants at any site should be collected in a single year, meaning that a population would have to be larger than 50 plants before a single plant could be collected. Similarly, two plants might be collected from a population containing 100 plants.

In addition, the 50-plant population figure should serve as a guide, not a minimum threshold for “relatively harmless” collection. Collecting from

some populations containing 50 plants could still be damaging to a population. For example, if there was a population of 50 plants, but only one of them was flowering and producing seed, collecting the only reproductive plant would more likely affect the population over time than collecting a non-reproductive plant.

After collection, no further collecting should occur until the population recovers to the original number of plants. If there is more than one person collecting at the same site (presumably unbeknownst to each other), the original number will be known only to the initial collector. If there is evidence of prior collection at the site, no collection should occur. Always check again with the landowner before re-collecting. It should be noted that for some species, i.e. some ferns, Orchidaceae, and Liliaceae in particular, ten years might be required for the population to return to the original threshold.

Commercial Use. NEWFS does not condone the purchase of wild-collected plants. Ethical, commercial (for sale to the public) wild collection of common, widespread plant species on a sustained-yield basis may be feasible with some common species, but short of direct monitoring, there is never assurance that the collecting is not depleting local populations beyond their capacity to regenerate. **Therefore, NEWFS cannot recommend purchase of wild-collected plants.**

Groups of plants that collectors often remove from the wild for commercial use include terrestrial orchids (*Cypripedium* species, for example), carnivorous plants (*Sarracenia* species, for example), *Trillium* species, hardy ferns, and a number of common, often spring-blooming wildflowers. Some shrubs, including *Rhododendron* species, are dug from the wild, cut back strongly for easier shipment, and sold in the commercial trade. Wild-collected plants in the above groups are sometimes offered in large quantities (at the rate of 10, 100, or even 1000 plants) at very low prices. Again, NEWFS

strongly recommends purchase of propagated plants only. On an equal size basis, propagated plants are already adapted to cultivation and are more likely to survive.

NEWFS recognizes, however, that for a nursery selling propagated plants, cost-effective production of species that are slow or difficult to propagate often requires an adequate number of stock plants. As an alternative to repeated collection of these species from the wild, collection for propagation purposes may be acceptable, usually on a one-time basis if no other sources, including other commercial sources, are available. Again, collection should remove no more than 2% of the plants at any one site. This scenario assumes that proper propagation practices have been researched before any collection occurs, **and that only plants actually propagated from this collection, not the collected stock itself, are eventually sold.**

I (B) 2. Collecting Seeds of Common, Widespread Species

To maintain the reproductive potential of a local population, generally no more than 10% of the total seed production should be collected from any population within a single year. In order to achieve this figure, no more than 10% of the fruits (seed capsules, berries, achenes, seed heads, etc.) should be collected. Collection should be made only from healthy, large populations where the collection of a few seeds will not damage the population. In order to avoid wasting seed, seed should be collected only when ripe (generally when the seed is beginning to naturally disperse or dehisce). Specifying a minimum population size for seed collection without significant population damage is difficult, but as a general rule, at least 20 herbaceous plants or 10 woody plants should be present at a site before any collection of seed is made. Collection of 10% of the fruits in a population can be accomplished by collecting 10% of the fruits from each individual plant, or 10% of the total number of fruits, but collectors should avoid taking all the fruits from a few individuals.

These collection numbers should be used as guide, however, not a minimum threshold for “relatively harmless” collection. EXAMPLES: For species, that produce only one or two capsules per plant, seed collectors must be careful. *Trillium grandiflorum* produces one seed capsule per plant. Since it is essentially impossible to collect only part of a capsule, a population of *Trillium* needs to contain at least 10 reproductively fruiting plants before collection of one capsule can occur. On the other hand, some woody plants, *Viburnum* species for example, can produce copious seed, and seed collection from a population with a few fruiting individuals may not reduce the overall vigor of a population. The collector must always consider the effects of the collection on each species as well as the effects on each local population.

Note that the seed collection quotas given above include all collections made at a site in a single year. Collectors should avoid sites where seed collection has already occurred unless they are certain that they will not exceed the total collection of 10% in a single year. When asking permission to collect, collectors should always ask the landowner if others have requested permission to collect at the same site. If unsure whether prior collection has occurred, or if there is evidence of prior collection at the site, no collection should occur.

I (B) 3. Collecting Stem Cuttings for Propagation Purposes

Although taking stem cuttings may actually increase shoot production of plants in some instances, removal of too many stems can damage or weaken plants. The collector should know whether the species is likely to propagate successfully from stem cuttings before taking cuttings from wild plants, and should be aware of the proper time to take cuttings. Collection of stem cuttings should never permanently harm individual plants or cause extensive damage to seed production, but removing a few sterile stems or stem tips from a large plant is unlikely to harm the vigor of any plant.

I (B) 4. Collecting Foliage or “Greens” for Decorative Purposes

NEWFS does not condone any collecting, either for commercial or individual use, of foliage or “greens” that permanently damages plants, their populations, or their habitats.

Individual Use. In many cases, taking foliage or “greens” for decorative purposes for individual use will not permanently damage either an individual plant or a population. In some cases, however, even small quantities may have a damaging affect on certain species. Because of the wide range of circumstances and plant species involved in cutting for decorative purposes, no guidelines can be given for individual use other than to know the regenerative capabilities of the species before collection. For example, cutting of white pine or other evergreen tree branches, if done properly, is unlikely to damage most trees. However, because certain species such as ground pine, princess pine, or other *Lycopodium* species regenerate very slowly, collecting greens from these species, even for individual use, could have a damaging effect on a small population.

Commercial Use. Again, NEWFS does not condone any commercial collection of foliage or “greens” that harms local populations. The potential for decimating local populations of native plants is generally much greater with commercial collection because of the quantities collected. Commercial collection of stems of some species, if done in an ethical manner, may theoretically cause little damage.

I (C). Collection of Native Herbal and Edible Plants from the Wild

Collection of native herbal and edible plants should follow the collection guidelines listed above for either Rare or Endangered Species or for Common, Widespread Species, depending on the species, the state where collecting occurs, and the part(s) of the plant being collected. Collectors should be knowledgeable about recovery rates for plants they are

collecting and exert caution not to permanently damage a population. If collecting seeds, they should take no more than 10% of the seeds present. If collecting leaves or stems, they should take no more than 10% of the leaves or stems. Collectors should take no more than 2% of plants or plant divisions in any population, meaning that a population would need to contain at least 50 individuals before one plant could be collected.

Ideally, once collection occurs, no further collection should occur until the population recovers to the original threshold. If there is more than one person collecting at the same site (presumably unbeknownst to each other), the original threshold will be different for each collector. If unsure whether prior collection has occurred, or if there is evidence of prior collection at the site, no collection should occur. It should be noted that for some species, i.e. some ferns, Orchidaceae, and Liliaceae in particular, ten years might be required for the population to return to the original threshold.

The minimum population size of 20 plants should only serve as a guide, not a minimal threshold above which collection can begin. Collecting from some populations containing only 20 plants could, in fact, be damaging to the long-term growth of a population for species with slow regeneration rates. Collectors should be aware of the reproductive potential of the species being collected and modify the amount of collection accordingly.

Obviously, the part of the plant collected will affect a population's reproductive potential differently. Collecting fruits from abundantly producing plants such as Blueberries (*Vaccinium* species) will not usually have a great effect, but collecting seeds of Ginseng (*Panax quinquefolius*), for example, could affect a population greatly. Collection of leaves, roots or whole plants of species such as *Echinacea* species will likely have a large impact.

NEWFS does not propose policies on collection of non-native herbal or edible species except to recommend that collection or use of non-native species – seeds, plants parts, or whole plants—should not aid in the dissemination of non-native invasive species in any manner. Because most states consider plants to be the property of the landowner, landowner

permission and permits from public agencies will likely be required in order to collect non-native species.

I (D). Plant Rescue or Salvage

Plant rescue, also known as plant salvage, is the removal of plants from the wild shortly before their anticipated destruction as part of a last-minute effort to save them. Plant rescue is a complicated issue. Rescuing plants that would otherwise be destroyed seems logical, but there is a risk that development of a market in rescued plants could possibly facilitate future destruction of plants at other sites. There is also a risk that “plant rescues” will make it easier for plant destruction to occur by promoting the perception that it is an acceptable substitute for habitat preservation. Furthermore, not all destruction or disturbance of habitat, i.e. some logging operations or mowing, is destructive to the point where plant rescue is necessary.

I (D) 1. Plant Rescue of Rare or Endangered Plants

The primary and most important method of conserving rare species is to preserve the habitats in which they exist. Rescue of endangered plants from the wild should occur only after consultation with state and/or federal authorities and only as a last resort when the habitat is threatened. If rescue is deemed necessary, rare plants should be moved to appropriate habitat on protected land, but may be held in an established botanical garden or university facility until a plan is devised for their reintroduction, introduction, or use for public education. Cultivating/maintaining endangered plants in botanical gardens should always be considered a complement, not an alternative, to conserving plants in the wild.

I (D) 2. Plant Rescue of Common and Widespread Plants

Plant rescue should only occur if: 1) the destruction of plants is certain, i.e. all construction permits are in place, and 2) the destruction will proceed whether or not a plant rescue takes place, i.e. the rescue does not in any way aid, abet, or provide leverage to allow the destruction to proceed.

Plant rescue should not be considered an acceptable alternative to plant destruction and plant rescue does not ensure plant survival. The likelihood of survival after rescue is usually low and requires a commitment of time and effort both when digging and for several years afterward. Plant rescue should be considered a “last ditch effort.” All parties should agree to a publicity plan, which might include not publicizing or otherwise promoting the rescue.

Developers should be encouraged to responsibly restore or improve degraded habitats. Ideally, developers should stockpile rescued plants for replanting on the original site. If not used to revegetate after the habitat is destroyed, rescued plants should be either introduced (or reintroduced) to protected land (especially to restore degraded land), or used for public education. The plants might need temporary storage at a suitable location off-site until their reintroduction.

Generally, rescued plants should not be purchased or offered for sale because of real or perceived conflicts of interest (i.e. the institution is taking advantage of habitat destruction in order to raise funds for itself). There conceivably may be situations where NEWFS could use rescued plants ethically to raise money for its conservation efforts, but the Conservation Policy Committee should review the re-sale of these plants before NEWFS organizes such action. .

Buyers of rescued plants should be wary. Dealers have offered some wild-collected plants, *Cypripedium* and *Trillium* species for example, as “rescued” plants, but without details of the circumstances involved in the rescue. Therefore, purchase of “rescued” plants is discouraged.

II. Invasive Plant Species

Although approximately 1/3 of the flora of New England is not native to this region, most of these non-native species cause little concern to biologists. Relatively few species, including plants native to regions of North America, invade and alter natural and managed areas when released from the natural controls present in their region of origin. These invasive, species have the potential, however, to overwhelm the regional landscape and alter New England ecosystems.

Because of the potential ecological damage from invasive plants, the New England Wild Flower Society will:

- Not knowingly distribute seeds or plants of any species (native or non-native) to any area (state, province, region, or country) where it is held to be invasive. Exceptions to this policy would only be made for research projects involving the species.
- Discourage the planting of any non-native species that has, after authoritative review, been deemed invasive within New England.
- Encourage the restoration of habitats that have been degraded by non-native invasive plant species.

Sources of New England lists of invasive species are given in Appendix 3. More detailed guidelines on distribution and ecological restoration are covered in the following sections.

III. Distribution of Plants and Seeds

NEWFS distributes plants and seeds of garden worthy native and non-native plants. The Society strongly promotes the use of native plants in the landscape for both horticultural value and the joy of gardening. NEWFS recognizes, however, that non-invasive, non-native plants and their cultivars also have a place in horticulture. Distribution of all plants or plant parts by NEWFS will be for two distinct purposes: 1) ecological restoration using genetically appropriate plants or plant parts and 2) ecological landscaping, public education, garden use, or other use not considered true ecological restoration.

III (A). Distribution for Ecological Restoration and Ecological Landscaping

NEWFS distinguishes between ecological restoration and ecological landscaping or gardening in distribution of plants and seeds. “Ecological restoration is the process of assisting the recovery and management of ecological integrity. Ecological integrity includes a critical range of variability in biodiversity, ecological processes and structures, regional and historical context, and sustainable cultural practices.” (Society for Ecological Restoration website, 2001 - Note: a detailed description of attributes of the definition is in development by SER).

Ecological landscaping adopts an ecologically minded approach to gardening and landscaping to conserve resources, promote biodiversity, and limit adverse effects on the environment. This approach emphasizes a partnership with nature, rather than opposition, and advocates conservation of soil and water resources. Techniques employed include using ecologically adapted plants in the appropriate location (often, but not exclusively, plants native to the area being landscaped), minimal use of chemical fertilizers, minimal use of herbicides and pesticides, recycling of organic wastes, and building healthy soils.

Although there are elements of ecological restoration inherent in ecological landscaping, the emphasis of ecological restoration is on preserving biodiversity and genetic variation at all levels as well as maintaining and restoring ecosystem function and values, whereas ecological landscaping is concerned mainly with appropriate use of plants and resources in

landscaping. Ecological landscaping uses communities or ecosystems as a model for gardening and landscaping, but does not attempt to recreate the model in all its functions.

NEWFS strongly supports both ecological restoration and ecological landscaping, but recognizes that ecological restoration embraces a more stringent set of criteria in the genetics and uses of native plants, both common and rare. Therefore, as mentioned previously, distribution of all plants or plant parts by NEWFS will be for purposes of garden use, ecological landscaping, public education, or other uses not considered true ecological restoration unless the plants or plant parts have been designated as suitable for restoration purposes using appropriate genetic material.

Guidelines for what constitutes appropriate local genotypes of native plants for ecological restoration are not available at present. Genetic isolation between populations, one of the main causes of local adaptation, may possibly occur at distances of 50 miles (Brumback and Mehrhoff, 1996), but research to scientifically establish the ranges of local genotype of native plants has yet to be established for virtually all plants. NEWFS recognizes its responsibility to provide plant material that is ecologically appropriate. As guidelines for local genotypes are developed, they will be added to this document.

III (B). Distribution of Rare or Endangered Plant Species

The primary and most important method of conserving rare species is to preserve the habitats in which they exist. Endangered plants and seeds in botanical gardens should always be considered a complement, not an alternative, to conserving plants in the wild. Endangered plant collections in botanical gardens can provide public education on the plight of endangered plants. These collections may also provide material for research (especially propagation research) and may serve as a reserve for wild populations in the event of catastrophe in the wild.

Although cultivation of endangered species by organizations and home gardeners may have educational value, and knowing a plant is endangered may add to its perceived value, in most instances, growing an endangered species in a private garden will not contribute significantly to conservation of the species in the wild. Similarly, the commercial propagation of an

endangered species for garden use will generally not aid in its conservation in the wild. In circumstances where a plant is threatened by wild collection, however, commercial propagation for sale to the public may relieve collection's pressures on wild populations.

In some instances, distribution of propagated endangered plants could even be detrimental to the health of wild populations. If propagated plants from non-local populations are reintroduced into the wild and cross with local wild populations native to that area, the potential of introducing disadvantageous genes to the local wild populations exists.

Assuming that native wild populations have developed local adaptation, the introduction of new genetic material to wild populations could theoretically change the genotype of our wild plants, making them less adaptable to their current environment. (Note: in some situations, small populations of plants may contain low amounts of genetic variability, and their fitness could theoretically be enhanced by the introduction of non-local genes. The decision to introduce these genes, however, should be made by appropriate state/federal authorities.)

Augmentation, reintroduction, or introduction of endangered plants to the wild should only occur as part of a conservation plan under specific guidelines governing the source material being used. Unsupervised introductions of endangered plants, if successful, could raise the number of populations in the wild beyond their true number, which could, in certain states, remove legal protection from a species.

In certain instances, sale of propagated plants of rare species is permissible under a state's laws and regulations, and some species commonly used in horticulture may be rare in a particular state. For example, blue lobelia (*Lobelia siphilitica*) is ubiquitous in the perennial nurseries, yet is listed as threatened in Massachusetts. Trying to restrict horticultural use of species already well established in the horticultural trade would be futile, so Massachusetts' law does not prohibit the use of propagated plants of rare species in the nursery trade, but does ban collection in Massachusetts of rare plants or plant parts for sale, propagation, or any other purpose. Thus, nurseries and the public can freely sell and purchase Blue Lobelia as long as it is not obtained from seed or plants from wild Massachusetts's populations.

In consideration of the above, NEWFS will provide seeds and plants of endangered species to the public only for garden use or public education, not for conservation purposes. These plants are not to be planted outside of gardens or cultivated areas and should not be knowingly planted near areas where wild populations of the same rare species occurs. NEWFS will inform the public that plants or seeds offered by the Society to the public should not be planted in the wild.

Also, NEWFS will carefully evaluate the sale or new introduction (i.e. not already in the nursery trade) of any plant considered rare in a New England state. Questions to be asked include:

- What are the chances that this cultivated plant could cross with wild populations?
- Do the horticultural qualities of this plant warrant the potential risks inherent in the introduction of a cultivated rare plant to gardens in an area?
- Will the introduction of this plant raise awareness of the plight of endangered species?
- Will the introduction of this plant relieve or increase collection pressures on wild populations?

In general, NEWFS will be reticent to introduce to the trade, or to create trade in, any plant considered rare in any New England state.

III (C). Distribution of Common Native Plants and Seeds

A few native plants from one region of the contiguous U.S have been become invasive or problematic in other regions of the U.S where they are not native. For example, black locust (*Robinia pseudoacacia*), a southern U.S. native, has escaped from cultivation and become a problem in parts of New England. Cord grass, (*Spartina alterniflora*), a major component of salt marshes in the eastern U.S. has out-competed local native dune species in California. Moreover, just as some Eurasian species have become invasive in the U.S., some U.S. native species have become invasive in other countries, for example Canada goldenrod (*Solidago canadensis*) in Europe.

In consideration of the above, NEWFS will observe the following guidelines in distributing plants:

- NEWFS will not knowingly distribute seeds or plants of species to any area (state, province, region, or country) where it is held to be invasive. Exceptions to this policy could be made for research projects involving the species.
- NEWFS will review its distribution of all plants or seeds for invasive qualities. Any species found potentially invasive or invasive after internal review by NEWFS staff will not be distributed.
- NEWFS will not distribute plants or seeds of any native US species outside the U.S. and Canada unless the species has been determined not to be invasive by authoritative review in that country.

The purpose of these policies is to provide ethical, rational, and practical guidelines for the varied activities of the New England Wild Flower Society (NEWFS). The Conservation Policy Committee will review these guidelines annually, and suggested changes will be presented to the Board of Trustees.

NEWFS thanks the Conservation Policy Committee and reviewers from outside the Society for their contributions to this document. Any comments should be sent to the Conservation Policy Committee, NEWFS, 180 Hemenway Road, Framingham, MA 01701, (conservation@newfs.org).

Appendices

Appendix 1. Sources of Lists of Endangered Species in New England States

Connecticut Natural Diversity Database
Department of Environmental Protection
79 Elm Street, Store Level
Hartford, CT 06106
<http://dep.state.ct.us/cgnhs/nddb/nddb2.htm>
(860) 424-3540

Maine Natural Areas Program
98 State House Station
Augusta, ME 04333
<http://www.state.me.us/doc/nrimc/mnap/home.htm>
207-287-8044

Massachusetts Natural Heritage and Endangered Species Program
MA Division of Fisheries and Wildlife
Rte. 135
Westborough, MA 01581
<http://www.state.ma.us/dfwele/dfw/nhesp/>
508-792-7270 x 200

New Hampshire Natural Heritage Inventory
DRED
P.O. Box 1856
172 Pembroke Road
Concord, NH 03302-1856
<http://www.dred.state.nh.us/forlands/formgt/nhiweb/>
603-271-3623

Rhode Island Natural Heritage Program
RI Department of Environmental Management
235 Promenade Street
Providence, RI 02908
<http://www.state.ri.us/dem/programs/bpoladm/plandev/heritage/index.htm>
401 -222-2776 x 4308

Vermont Nongame and Natural Heritage Program
Department of Fish and Wildlife
103 South Main Street
Waterbury, VT 05671-0501
<http://www.anr.state.vt.us/fw/fwhome/nnhp/index.html>
(802) 241-3700

Appendix 2. Selected References on Native Plant Cultivation and Propagation

- Allen, Carol, editor. North American Native Terrestrial Orchids, Propagation and Production – Conference Proceedings 1996. Germantown, Maryland, North American Native Terrestrial Orchid Conference, 1996.
- Bailey, Liberty H. and Bailey, Ethel Z. et. al. *Hortus Third*. New York, New York, Macmillan Publishing Company, Inc., 1976
- Baskin, Carol C. and Baskin, Jerry M. *Seeds: Ecology, Biogeography, and Evolution of Dormancy and Germination*. San Diego, California, Academic Press, 1998.
- Beckett, Kenneth, editor. *Alpine Garden Society Encyclopedia of Alpines*, volumes 1-2. Dorchester, England, Friary Press, 1994.
- Bir, Richard E. *Growing and Propagating Showy Native Woody Plants*. Chapel Hill, North Carolina, The University of North Carolina Press, 1992
- Case, Frederick W. and Case, Roberta B. *Trilliums*. Portland, Oregon, Timber Press, 1997
- Chevallier, Andrew. *The Encyclopedia of Medicinal Plants*. New York, New York, D K Publishing, 1996
- Cullina, William. *The New England Wild Flower Society Guide to Growing and Propagating Wildflowers of the United States and Canada*. Boston, Massachusetts, Houghton Mifflin Co., 2000
- Cullina, William – *Native Trees, Shrubs, and Vines, A Guide to Growing and Propagating North American woody plants*. Boston, Massachusetts, Houghton Mifflin Co., 2002
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- Dirr, Michael A. *Manual of Woody Landscape Plants*. Champaign, Illinois, Stipes Publishing L.L.C., 1998
- Dirr, Michael A. and Heuser, Charles W. Jr. *The Reference Manual of Woody Plant Propagation: From Seed to Tissue Culture*. Athens, Georgia, Varsity Press, Inc., 1987
- Foote, Leonard E. and Jones, Samuel B. Jr. *Native Shrubs and Woody Vines of the Southeast: Landscaping Uses and Identification*. Portland, Oregon, Timber Press, 1989
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- Hitchcock, C. Leo and Cronquist, Arthur. *Flora of the Pacific Northwest*. Seattle, Washington, University of Washington Press, 1987
- Millspaugh, Charles F. *American Medicinal Plants*. New York, New York, Dover Publications, Inc., 1974

Newcomb, Lawrence. *Newcomb's Wildflower Guide*. Boston, Massachusetts, Little, Brown and Company, 1977

Phillips, Harry R. *Growing and Propagating Wildflowers*, Chapel Hill, North Carolina, University of North Carolina Press, 1985

Sawyers, Claire E., editor. *North American Native Terrestrial Orchids, Propagation and Production – Conference Proceedings 1989*. Chadds Ford, Pennsylvania, The Brandywine Conservancy, 1990

Still, Steven M. *Manual of Herbaceous Ornamental Plants*, Champaign, Illinois, Stipes Publishing Company, 1988

Wyman, Donald. *Trees for American Gardens* (third edition). New York, New York, Macmillan Publishing Company, 1990

Young, James A. and Cheryl G. *Seeds of Woody Plants in North America* (revised edition). Portland, Oregon, Dioscorides Press, 1992

Appendix 3. Sources of Lists and Information on Invasive Species in New England

Connecticut

Geological and Natural History Survey
Connecticut Department of Environmental Protection
Natural Diversity Data Base
79 Elm St.
Hartford, CT 06106
(860) 424-3540

Connecticut Invasive Plant Working Group
G. Safford Torrey Herbarium
Box U-43
University of Connecticut
Storrs, CT 06269-3043
860-486-1889
<http://www.hort.uconn.edu/cipwg/>

Maine

Maine Natural Areas Program
98 State House Station
Augusta, ME 04333
207-287-8044
<http://www.state.me.us/dep/blwq/topic/invasives/>

Massachusetts

Massachusetts Invasive Species Advisory Group
www.mnla.com or www.newfs.org

Massachusetts Natural Heritage and Endangered Species Program
MA Division of Fisheries and Wildlife
Rte. 135
Westborough, MA 01581
508-792-7270 x 200

New Hampshire

New Hampshire Department of Environmental Services
6 Hazen Drive
Concord, NH 03301
603-271-3503
http://www.state.nh.us/agric/topics/plants_insects.htm

New Hampshire Natural Heritage Inventory
DRED
P.O. Box 1856
172 Pembroke Road
Concord, NH 03302-1856

Rhode Island

Rhode Island Natural Heritage Program
RI Department of Environmental Management
235 Promenade Street
Providence, RI 02908
401 -222-2776 x 4308

Rhode Island Natural History Survey
Room 101- Coastal Institute in Kingston
1 Greenhouse Road
University of Rhode Island
Kingston, RI 02881

Vermont

Vermont Department of Environmental Conservation
103. S. Main St., Building 10 North
Waterbury, VT 05671-0408
802-241-3777 (aquatic plants); 802-241-3770 (plants in wetland or riparian areas)
<http://www.vermontagriculture.com/invasive.htm>

Vermont Nongame and Natural Heritage Program
Department of Fish and Wildlife
103 South Main Street
Waterbury, VT 05671-0501
(802) 241-3715

New England Region

New England Invasive Plant Atlas
G. Safford Torrey Herbarium
Box U-43
University of Connecticut
Storrs, CT 06269-3043
860-486-1889
<http://www.eeb.uconn.edu/invasives/ipane/>

