

Invasive-Exotic Plant Information with Bibliography
Compiled 11-7-10 by Lincoln Fish, Bay State Forestry Service

IDENTIFICATION:

MA Prohibited Plants List: www.mass.gov/agr/farmproducts/prohibitedplantlist.htm

List of plants considered exotic-invasive in MA

Least Wanted Plants: <http://www.nps.gov/plants/alien/factmain.htm>

This site contains a few dozen fact sheets with helpful information about identification and plant characteristics.

Somers, Kramer, Lombard and Brumback , "A Guide to Invasive Plants in Massachusetts". MA Division of Fisheries and Wildlife, 2006. Helpful booklet about problem species in MA with identification pointers and pictures. Available for \$5 from:

http://www.mass.gov/dfwele/dfw/nhesp/publications/nhesp_pubs.htm

BACKGROUND INFORMATION:

Czarapata, Elizabeth J. *Invasive Plants of the Upper Midwest*. University of Wisconsin Press, 2005.

Excellent treatment of invasive plant issue in general along with valuable information about exotics in the Midwest, most of which are also a problem in New England. Includes detailed section on control methods, including info on different herbicides and their characteristics.

Tallamy, Douglas W. *Bringing Nature Home: How Native Plants Sustain Wildlife in Our Gardens*. Timber Press, 2007. Written by an entomologist, this book explores the connection between native plants, insects, wildlife and a healthy ecosystem. His research focuses on gardening and landscaping around our homes and he presents a compelling argument for landscaping with native plants. This is a hugely important book about a critical environmental issue.

Rawinski, Thomas J. "Deer and Forests, and the People Who Love Them". *Massachusetts Wildlife* Vol. LX No. 1, 2010. A very interesting article exploring the connection between deer over-browsing, the disappearance of many native wildflowers (such as lady slippers) and widespread infestation of invasive-exotics. http://www.mass.gov/dfwele/dfw/publications/publications_home.htm

Garlic mustard impact on West Virginia white butterfly:

http://www.natureconservancy.ca/site/News2?page=NewsArticle&id=10198&news_iv_ctrl=0&abbr=on_ncc_

CONTROL:

It is difficult to generalize about the best method for control, since there are huge variations in the characteristics of different invasive-exotics plus differences in terrain, soil fertility and amount of light between sites. The best answer is often "It depends!".

Many small infestations can be adequately controlled with **hand-pulling**. If the invasive-exotic infestation is in a field, it may be controlled by regular **mowing**. Preventing new infestations may be accomplished by regular **monitoring** plus hand-pulling or spot herbicide treatment.

Successfully treating older infestations with large invasive-exotics which readily re-sprout or infestations on uneven, rocky terrain may require more intensive methods. In my work, I have found that the best long-term results are achieved by using **Integrated Vegetation Management (IVM)**. **IVM** uses well-timed **mechanical** and **chemical** treatments to release the **natural** control provided by native vegetation. When native plants are restored on the site, they provide a barrier to re-infestation by exotics. **IVM**, with its combination of three strategies, can achieve what would be impossible using any single method. It will also reduce the amount of herbicide used to the minimum amount necessary to accomplish the task. Herbicides are a necessary part of **IVM** in order to prevent the vigorous re-sprouting of the invasive-exotics, which would otherwise make control impossible to keep up with.

On projects heavily infested with invasive-exotics, a goal that we shoot for is to kill the root systems of established exotics and reduce the infestation to a few seedlings within three years. These seedlings would be controllable by hand-pulling, or at worst, limited spot spraying, thereby largely weaning the project from herbicide use. To be consistent with the principles of **IVM**, herbicide damage to native and non-target plants must be minimized by achieving separation between the target (invasive-exotics) and natives. This separation can be accomplished by cutting/stump-treating exotics, using a selective herbicide, timing applications when exotics are vulnerable and natives are not, and/or by using a small backpack sprayer that can be aimed precisely. **IVM** contrasts sharply with the broadcast spraying of herbicides, which does an unnecessary amount of damage to native plants.

On many properties, the prospects for long term control are bleak unless there is also control on abutting land. Groups of abutting landowners and other interested parties can organize to form **Weed Management Area** agreements. It is not necessary that every property owner use the same control strategy, only that the mechanisms for the spread of invasive-exotics (such as berry production or soil movement) are stopped.

Some funding is available for planning (NRCS and MA Forest Stewardship Program) and also for control practices (NRCS). Generally a minimum number of acres (5-10) are required.

Caution:

Many herbicides are available in garden or hardware stores. Before using any of these products in an effort to control invasive-exotics, first:

- 1) Read the manufacturer's label thoroughly and comply with all requirements listed.
- 2) Consult with experienced professionals, and/or the Czarapata book listed above to make sure that your herbicide is actually effective on your problem species. For example, Asiatic bittersweet is resistant to glyphosate, a commonly used herbicide, and spraying of glyphosate to control bittersweet may actually make the problem worse by killing competing plants.
- 3) Be sure that your application method will not eliminate the native plants that you want to save. By carefully choosing the proper chemical and application method, the invasive-exotics can be eliminated while leaving the native plant community largely intact.
- 4) With few exceptions, you will need an applicator's license plus insurance to apply pesticides in Massachusetts.

HERBICIDE TOXICITY and ENVIRONMENTAL IMPACT:

It is difficult to find objective information on the subject. One of the best sources is the MA Pesticide Bureau, which maintains a "Sensitive Areas Materials List" of chemicals most appropriate for use in Right-of-Way maintenance in sensitive (e.g. wetland) areas. The chemicals on the list are chosen for their low toxicity, ability to decompose in a relatively short time and lack of soil mobility. In addition, there are fact sheets detailing the properties of each chemical on the list.

<http://www.mass.gov/agr/pesticides/rightofway/index.htm>