



Managing Invasive Plants

Controlling invasive plants safely

Lake friendly living
means using lakeshore
BEST MANAGEMENT
PRACTICES

BMP

Managing Invasive Plants

STANDARDS

Shorefront

- Natural conditions
- No dirty runoff to lake

LAKE BENEFITS

Managing invasive plants responsibly on and around your lakefront property and shoreline is important to lake health. By controlling and eradicating invasive species wildlife habitat is preserved and species diversity, water quality, aesthetic and recreational value, and healthy fisheries is maintained.

Understanding the implications and rules surrounding pesticide use for invasive species removal close to or in water bodies is crucial. Following label instructions for storage, application and disposal ensures that minimal harmful chemicals will enter the water supply, protecting human health and natural resources.

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Description: *Invasive species* are nonindigenous plants, animals, algae, fungi or pathogens that threaten the diversity and survival of native species or the ecological stability of infested ecosystems, or commercial, agricultural or recreational activities dependent on these natural resources.

Invasive plants along shorefronts pose a significant threat to landowners and lakeshore habitats. Among the threats is a loss of ecosystem services (i.e. water filtration, wildlife habitat, flood protection, pollination, etc.) provided by native species. Knowing the correct way to manage invasive species on your land reduces these threats to your family, neighbors and community.

This worksheet will provide you with:

- ◆ The specifics on invasive species management for three common species found along shoreline properties.
- ◆ Rules and permitting related to pesticide application in Vermont.
- ◆ Tips for safe and effective herbicide application.
- ◆ Useful links for invasive species management.

5 Steps for Successful Invasive Plant Control:

- 1. Prevention and early detection.** Do not use fill from a location where invasive species are found—this is probably the most prevalent way they are spread. Learn to identify invasive species and promptly eradicate new invasions.
- 2. Assess the situation.** Print or hand draw a map of your property. Mark the areas of invasive species and describe the population: Is it small (list # of plants), is it in clumps, and/or is it a large dense monoculture? Include areas of importance such as: swimming areas, wildlife paths, buildings and drinking wells. Keep the map for reference and to gauge progress.
- 3. Develop a long-term treatment plan.** Treatment of invasive plants is sometimes a process that takes place over a number of years. Writing a simple management plan that outlines invasive treatment using a simple timeline is helpful. Make sure the amount of work you've planned is realistic for you to accomplish each season. If you need help, try to engage your neighbors or the local lake association.
- 4. Understand herbicide application.** Treatments differ by plant species and size of population. If using herbicide near a water source, follow the *Rules for Efficient and Safe Use of Herbicides* and *State Regulations for Applying Herbicide Near Water Bodies* (pages 3 & 4). Herbicides should be used as a last resort.

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5. Follow through. The secret to the successful treatment of invasive species is early detection and sticking to your plan. Keep notes about each treatment and track your progress.

JAPANESE KNOTWEED (*Fallopia japonica*)

Background Information. Japanese knotweed is an herbaceous plant that looks similar to bamboo and grows in dense monocultures up to 10 feet tall. It reproduces by roots, shoots and seeds (not common). It tolerates a variety of conditions including full sun, drought and moist environments. It is most common along riparian areas and roadside ditches.

Mechanical removal. Cut stalks at least once per month throughout the growing season (every two weeks if possible). Use a scythe, loppers or even a lawn mower, depending upon the ground surface you are working on.



Young Japanese knotweed shoots (left) and mature plant foliage (right).
Source: www.knoottybits.com

Repeat cuts for five years. Do not replant until the knotweed is under control and the plants are much smaller and have lost their vigor. Replant with good sized natives.

Chemical removal. For small infestations: Cut stalks of knotweed in late June. Cut again after August 1 and drip a 18-25% glyphosate herbicide solution into the stems. An injector gun can also be used for application. For larger infestations: Cut the plants back in June. In late summer, when other populations are flowering, use a low volume foliar spray of 3-8% glyphosate. Spray only on nonwindy days and in patches that are absent of native species. Any time you are near water, use aquatic formulations; foliar sprays are not recommended for shorefront treatment. The following year, spot-treat remaining plants. For a detailed treatment guide visit:

www.vtinvasives.org/invaders/japanese-knotweed.

COMMON REED (*Phragmites australis*)

Background Information. Common

reed is a tall graceful grass that can reach heights of 10 to 12 feet. It grows in dense patches most commonly found in gravelly to sand substrate in wetlands, roadside ditches, and lakeshores.

Mechanical control. Hand-cut individual stems at the end of July when most of the plant's food reserves are in the aerial portion of the plant, before the flowers produce seed. Plants should be cut below the lowest leaf, leaving a 6 inch or shorter stump. Hand-held cutters, gas-powered hedge trimmers and weed whackers with a circular blade are particularly efficient. Repeat in second year and then every three to five years. Cut stems can be composted or allowed to decay in a dry area. Some patches may be too large to cut by hand, but repeated cutting of the perimeter of a stand can prevent vegetative expansion. Mow large stands of



Common reed provides poor wildlife habitat and fish populations suffer higher mortality in areas inundated with it.
Source: sr.wikipedia.org

What is Glyphosate?

Glyphosate is non-selective, meaning it kills all plant material it contacts. Choose the correct form of application to avoid damage to non-target plants. Glyphosate acts by interrupting the photosynthetic processes of plants. In low concentration, this chemical does not negatively impact insects, mammals or birds. It is considered to be safe* for terrestrial and aquatic systems.

*However, the surfactant in RoundUp can be harmful to fish and amphibians, so Rodeo is more appropriate to use near wetlands.



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common reed annually between July and September to reduce plant vigor and stem density. Common reed will spread by seed or root pieces, so be sure to thoroughly clean all mowing equipment after its use to prevent the reed's spread. After cutting, lay a sheet of black plastic over the area if on land. Use sand bags or bricks to secure the edges and keep covered for a year. Check for new growth around the plastic.

Caution! *Since common reed is a grass, cutting several times during a season at the wrong times may increase stand density.*

Chemical control. *For small infestations:* Cut the plants back in the winter. In late summer, cut stems of common reed and drip an 18-21% glyphosate solution into the stem if on land. If on water, follow permitting rules and use aquatic formulations.

For larger infestations: Cut the plants back in the winter. In late July or early August, when the plants are flowering, use a car wash mitt to wipe a 2% glyphosate solution onto the entire plant. Repeat in following years as necessary. For a detailed treatment guide visit: www.vtinvasives.org/invaders/common-reed.

PURPLE LOOSESTRIFE (*Lythrum salicaria*)

Description: Purple loosestrife is a perennial plant with magenta blooms that reaches heights of 3 to 5 feet. Because of its beauty, landowners often overlook the threats of this plant that invades wetlands, lake and pond shores and fields. Each plant can produce 1,000,000 seeds, 97% of which are viable.



Mechanical Control. For small infestations: Hand pull individual plants by grasping each stem at its base and pulling slowly to remove all the root. Break off flower heads before they go to seed. Put the discarded vegetation into a plastic garbage bag to decompose.

DO NOT COMPOST THIS PLANT!
Plant fragments can re-sprout.

State Regulations for Applying Herbicide Near Water Bodies

- ◆ A permit is required for activities used to control nuisance aquatic plants IN WATERS of the State of Vermont if controlling with pesticides or biological control. Hand pulling is okay. Permitting is managed by VT Department of Environmental Conservation (DEC). Contact: Matthew Probasco (802) 490-6133.
- ◆ A Vermont Shoreline Encroachment Permit may be needed if the removal of plants along the shoreline is below the mean water level or would disturb the underlying substrate and cause erosion.
- ◆ The Vermont Wetland Rules prohibit the use of any invasive plant management, except hand pulling of invasive plants, in state-classified wetlands. If you have a Class 1 or Class 2 wetland on your property you must obtain permission from the VT DEC. Contact: Alan Quackenbush (802) 490-6179.
- ◆ Herbicides cannot be applied within 200 feet of a Public Water Source Protection Area unless the Water Supply Division is notified. Call 1-800-823-6500 for more information.
- ◆ You need to be certified to apply herbicides on land that you do not own. Contact the VT Department of Agriculture at 802-828-3482 or go to <http://www.vermontagriculture.com/ARMES> for more information.
- ◆ You can not apply herbicides within 100 feet of a well-head. Contact VT DEC at (802) 490-6179 for more information.

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Galerucella spp.

Biological Control. For large infestations: Mechanical means are ineffective against large well-established purple loosestrife populations. In addition, these methods can inadvertently damage native plant communities. Instead bio-agents are used in the form of two beetle species that feed on purple loosestrife without harming farm crops or native plant species. If you are interested in beetle control contact Ryan Crehan, U.S. Fish and Wildlife Biologist, at 802-872-0629 ext. 24 or ryan_crehan@fws.gov.

Information for Invasive Plant Mechanical and Biological control was sourced from the "Wise on Weeds" Fact Sheet Series.

Helpful Links:

Vermont Landowner's Guide to Invasive Terrestrial Plant Management: www.nature.org/ourinitiatives/regions/northamerica/unitedstates/vermont/volunteer/nature_conservancy_invasives_landowner_guide_april_2010.pdf

Comprehensive Website on Invasive Species Information in Vermont: www.vtinvasives.org

Invasive Species Prevention: www.weedcenter.org/store/docs/CIPM_prevention.pdf

Helpful FAQs About Invasive Species: www.fws.gov/invasives/faq.html#q2

Economic Impacts of Invasive Species: www.invasivespeciesinfo.gov/economic/main.shtml

Rules for Efficient and Safe Use of Herbicides

Adapted from the Vermont Landowner's Guide to Invasive Terrestrial Plant Management

- 🌍 **Develop an Integrated Plant Management approach.** Use chemical control as only ONE piece of your prevention and management strategy. Chemicals should only be used when another approach will not be effective.
- 🌍 **Hire a contractor to manage large infestations.** In order to ensure effective treatment and minimal damage to non-target species, it is recommended that a landowner contract a certified herbicide applicator who specializes in invasive plant management. This is especially true for medium to large infestations where it is easy to exceed the legal application limits.
- 🌍 **The label found on the pesticide container is the law.** Read this label in its entirety. It will teach you what concentrations to use, what protective clothing to wear, how to apply the product, and what environmental and human health hazards are associated with the chemical. Pesticide labels can also be found at <http://www.msds.com/>
- 🌍 **Follow directions precisely for both environmental and personal safety.** Before you purchase or begin using herbicides, take a workshop and consult other resources. Improperly used herbicides can cause both short- and long-term health and environmental problems. More is not better!
- 🌍 **A pesticide applicators license is required to purchase certain chemicals.** Go to <http://www.vermontagriculture.com/ARMES/am/pesticide.html> for more information.
- 🌍 **Do not use higher concentrations than are required by the label.** It is critically important to apply the correct formulation and concentration of herbicide with the appropriate method at the appropriate time of year. This will depend upon the invasive, the site, and the size of the infestation. Using more herbicide does NOT make the formulation more effective.
- 🌍 **Use aquatic formulations within ten feet of water.** Commonly available glyphosate formulations are not permitted to be used in wetland areas. Use of Class A restricted herbicides, which are designed for use in and near wetlands, requires a Vermont Pesticide Applicator's License.