Lake Wise Info Sheet

Shoreland Best Management Practices for Lake-friendly Living.

Benefits

- Water Quality
- Wildlife Habitat
- Visual Appeal
- Low Cost
- Protection & Resiliency

VT DEC suggested BMPs for shorelands

Related Info Sheets:

Lakeshore Buffers

Restore Natural Plant Communities

Bioengineering

Lake-friendly Yard Maintenance

Ticks & Shorelands

MANAGING INVASIVE PLANTS

Methods to minimize shoreland invasive species

VTinvasives.org

Garlic mustard is toxic to other plants and each plant can produce about 600, up to 7,900 seeds! Prevent flowers going to seed - pull root or cut for large areas.

Description.

Invasive species are non-native plants, animals, algae, fungi, or pathogens that threaten and often outcompete native species and undermine the function and integrity of an ecosystem. They are typically a result of human degraded environments and introduction. Limiting the growth or eradicating invasive species is critical to protecting the survival and diversity of native plant species, which are the foundation for ecosystem health, wildlife habitat, water quality protection, and aesthetic and recreational value.

Applicability.

Invasive plants along lakeshores pose a significant threat to lakeshore habitats. They tend to spread along waterways and it is very important for lakeshore landowners to be able to identify, prevent, contain, and eradicate invasive species. There are a variety of management methods that are dependent on the species, location, and extent of the infestation. Landowners that manage invasive species timely and properly help to protect their land, lake, and community.

5 Steps for Successful Invasive Plant Management.

See more in-depth guidance at **VTinvasives.org**

1. Prevention

Avoid disturbance and degradation to natural areas. Do not use fill from a location where invasive species are found. Do not take ornamental plants from friends or neighbors that are invasive (e.g., Bishop's Weed is an invasive garden perennial that is also called Snow-on-the-mountain) or have invasive plant material in the soil (e.g., areas that have a lot of Garlic Mustard nearby tend to have seeds in the soil). Clean tools, machinery, boots, and clothes after working in areas with invasive species. These are primary ways invasives are spread.

National Park Service

Invasive seeds can spread by shoes - clean shoes in place.

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DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION

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Common invasive plant species along Vermont lakeshores.

Photos: VTinvasives.org & Wikimedia Commons

Common Buckthorn, *Rhamnus cathartica*
- woody shrub/small tree
- harmful to birds, wildlife; seeds contain a laxative
- creates dense thickets

Japanese Knotweed, *Reynoutria japonica*
- herbaceous perennial
- dense thickets take over
- harmful to fish, wildlife
- causes bank erosion

Garlic Mustard, *Alliaria petiolata*
- herbaceous perennial
- toxin inhibits other plants
- forms dense stands
- edible shoot and leaves

Honeysuckle shrubs, *Lonicera morrowi, maackki, tatarica, x bella*
- berries harmful to birds
- hollow pith differentiates from native honeysuckles

Goutweed/Bishop's Weed, *Aegopodium podagraria*
- creeping herb. perennial
- blocks native plants, trees
- root fragments resprout
- do not plant in gardens!

Japanese Barberry, *Berberis thunbergii*
- woody shrub, sharp spines
- host for deer ticks

2. Early detection

Learn to identify common invasive species and promptly eradicate new invasions before they can spread. Your chances of eradicating or controlling an invasive plant are far greater the sooner you detect it and make a systematic effort to remove it. You don't need a **Shoreland Protection Permit** to remove species on the **VT DEC Noxious & Nuisance Plants** list.

There is a variety of invasive plants along lakeshores; you can view them at **Vermont Invasives > Gallery of Land Invasives > Terrestrial Plants**. You can also use a plant identification app on your phone like **Seek from iNaturalist** where you can add your observation to **'Mapping for Healthy Forests: Vermont'**.

3. Assess the situation

Identify the invasive species, the locations and extent, and how established they are. Identify nearby areas that could be vulnerable to invasion, such as a new planting, area of erosion, compaction, or other area with disturbed soil. It can be helpful to print or hand draw a map of your property to mark areas of invasive species and describe the population. Ask yourself: What types of species are present? Is the area small or large? Are they scattered, growing in clumps, or a dense monoculture? Mark nearby areas of importance such as native plant communities, water bodies, wildlife paths, and drinking water sources. Keep the map for reference and to record progress.

Common Reed, *Phragmites australis*
- herbaceous perennial grass
- colonizes wet areas via rhizomes
- exudes toxins, kills other plants
- causes higher fish mortality rates

Wild *Poison* Parsnip, *Pastinaca sativa*
- herbaceous biennial/perennial
- phototoxic sap causes burns, blisters, rash!!!

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4. Develop a long-term treatment plan

Treatment of invasive plants is sometimes a process that takes place over years. Writing a simple management plan that outlines the invasive treatment using a timeline is helpful. Make sure the amount of work you plan is realistic to accomplish each season. If you need help, you could try to engage your neighbors or the local lake association to help with a volunteer removal effort.

It is recommended to hire a **Vermont certified invasive plant control contractor** to manage large infestations, invasives growing in sensitive areas, or projects that involve a diversity of invasive plant species, especially if using herbicides.

Do your research. Select the management control technique(s) that minimizes harm and maximizes efficacy and matches the species, extent of infestation, your maintenance capacity, and budget.

Methods of invasive plant removal.

Manual/mechanical control includes hand-pulling, digging, weeding, cutting, girdling, suffocating, solarizing, and use of large machinery. It is important to do these methods correctly and at the right growth stage. It often requires regular and repeated treatments until all viable plant fragments are removed and seed banks are exhausted. Mechanical removal with large machinery is only appropriate for some scenarios due to the disturbance caused to soils, but can be very effective at removing shallow rooted invasive species. Follow up with site restoration and treatments for any remaining invasive regrowth.

Chemical control includes herbicides applied with direct spray (foliar or basal), wiping (wicks, rollers, brush), and direct stem injection to eliminate an invasive population. Herbicides should be used as a last resort and are often combined with other methods. Glyphosate is an herbicide that acts by interrupting the photosynthetic processes of plants. It is non-selective, meaning it kills all plant material it contacts. Select the appropriate form of application and dilute properly to avoid damage to non-target plants. It is required that all pesticide (including herbicide) applicators adhere to certain standards of operation when applying herbicides in Vermont; follow the state regulations for applying herbicide near water bodies (see next page).

Other control methods include **burning, prescribed grazing, and biological control**. Flame weeding can be done with a propane spot burner to kill individual or small groups of invasive plants. Prescribed grazing employs livestock to graze invasive species in appropriate areas when the invasive is palatable and there is no significant risk of damage to native species. Biological control, or biocontrol, utilizes organisms to weaken, kill, or stop seed production of a targeted invasive plant. Biological controls require extensive research and all biocontrol efforts are regulated and employed by the State of VT.

Removed plant material needs to be dealt with properly so that is does not resprout, often requiring it to be burned or bagged and disposed of in the trash. Generally, invasive plant material should not be put in compost piles or in the woods unless it is rendered inert from solarizing or suffocating in trash bags for a sufficient time.

5. Follow through

The secret to successful treatment of invasive species is sticking to your plan and adapting treatments when thing don't go as planned. Keep notes about each treatment and track your progress.

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State Regulations for Applying Herbicide Near Water Bodies

VT DEC Lakes & Ponds Permitting:

Aquatic Nuisance Control: A permit is required for pesticide or biological control of aquatic invasive plants in Waters of the State of Vermont. Hand pulling does not require a permit.

Lake Encroachment: A permit may be needed if the removal of plants along the shoreline is below the mean water level or would disturb the underlying substrate.

VT DEC Wetlands Permitting:

Vermont Wetland Rules prohibit the use of herbicides in state-classified wetlands without a special permit. Hand pulling of invasive plants is allowed. If you have a Class 1 or Class 2 wetland on your property, you must obtain permission.

Vermont Agency of Agriculture, Food, and Markets Pesticide Programs:

Vermont Regulations for the Control of Pesticides in accordance with 6 V.S.A. Chapter 87 must be followed; see summary.

Certification requirements found on Applicator Types & Resources webpage. List of Vermont certified invasive plant control contractors, found at vtinvasives.org

VT DEC Drinking Water & Groundwater:

Herbicides cannot be applied within 200 feet of a Public Water Source, the Zone 1 Water Source Protection Area, unless the Water Supply Division is notified.

Herbicides, a last resort.

Hire a **certified** invasive plant contractor for help. You need to be certified to apply herbicides in wetlands, on public lands, and on other people's land.

Before you purchase or apply herbicide, be informed. Improperly used herbicides can cause both short and long-term **health and environmental problems**.

Select the most effective and appropriate herbicide for the targeted species that is **least harmful** to other species nearby. Use only **aquatic formulations** within 10 feet of water to protect fish, amphibians, and other aquatic life, e.g., an aquatic glyphosate herbicide formula that is mixed with water-safe surfactant. Do not apply soil-active herbicides **within 50 feet of a drinking water well** or other water source.

The label on a pesticide container is the law. It is important to **follow directions carefully** for transport, storage, mixing, application, and disposal.

More is not better. Herbicides are most effective when used with the least number of applications and the most targeted applications possible. Broadcast application of herbicides is illegal in Vermont.

Apply only during **optimum times of year** (e.g., for foliar-applied herbicides on woody plants, apply only from midsummer to early fall and not later than one month prior to frost date), during the most effective **plant growth stages** (e.g., cut and drip when Japanese Knotweed is flowering), and ideal **weather conditions** (e.g., typically avoid application during very hot, rainy, windy days or during drought).

See VT Regulations for the Control of Pesticides

For more information...

- Vermont Invasives, vtinvasives.org
- VT AAFM Pesticide Applicator Types & Resources
- VT Fish & Wildlife Terrestrial Invasive Plant Resources
- VT Landowner's Guide to Invasive Plant Management

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