

Dealing with Invasive Plants in Southern Maine

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*Project funded in part with a
grant from The National Fish
and Wildlife Foundation*

WHAT IS AN INVASIVE PLANT SPECIES?

- **Exotic (Non-native) species** – a non-native plant or animal introduced into a new location by human activity, either intentionally or by accident.
- **Invasive species** – a non-native species that is capable of moving aggressively into a habitat and monopolizing resources such as light, nutrients, water, and space to the detriment of other species.

What Is The Problem?

- Alter natural ecology
- Reduce biodiversity, creating monocultures
- Create poor wildlife habitat
- Displace native species
- Alter soil characteristics
- Lower property values
- Invasives feed into the cycle of disturbance



Invasive Plants Have The Edge

- Produce large numbers of new plants each season
- Tolerate many soil types and weather conditions
- Spread easily and efficiently, usually by wind, water, or animals
- Grow rapidly, allowing them to displace slower growing plants
- Spread rampantly when they are free of the natural checks and balances found in their native range

Hidden Costs

According to the North Carolina Botanical Gardens "Biota of North America" study, at least 4,000 species of non-native plants occur outside cultivation in the United States. Most of these escaped species cause few problems, but **79 species cost the U.S. economy more than 97 billion dollars annually** in lost crops, failed recovery efforts for endangered species, and control efforts. (TNC)



Top Invaders



- i Japanese & European Barberry
- i Oriental/Asiatic Bittersweet
- i Common & Glossy Buckthorn
- i Burning Bush-Euonymus
- i Honeysuckle - Bells, Morrows, Tartarian & Japanese
- i Japanese Knotweed
- i Purple Loosestrife
- i Norway Maple
- i Autumn and Russian Olive
- i Garlic Mustard
- i Multiflora Rose
- i Phragmites

Phragmites or Common Reed (*Phragmites australis*)

- Thrives along freshwater and brackish waters where there has been disturbance
- Displaces short grass nesters
- Dead stems are a fire hazard
- Not tolerant to high salinity levels



Illustration of the nonnative phragmites plant

[USDA NRCS PLANTS DATABASE]

SEED HEAD PLUMES

purple-brown - silver,
6-20 inches long and up to 8 inches broad

FLAT, STIFF LEAVES

0.5-2.0 inches wide near the base,
tapering to a point at the end

RHIZOME

horizontal, underground stems;
send out roots and shoots from its nodes



Habits and Risks

- Crowds out native plants
- Changes marsh hydrology
- Alters wildlife habitat
- Increases fire hazard
- Starts sparse but rapid growth of rhizomes can spread 10' in one year



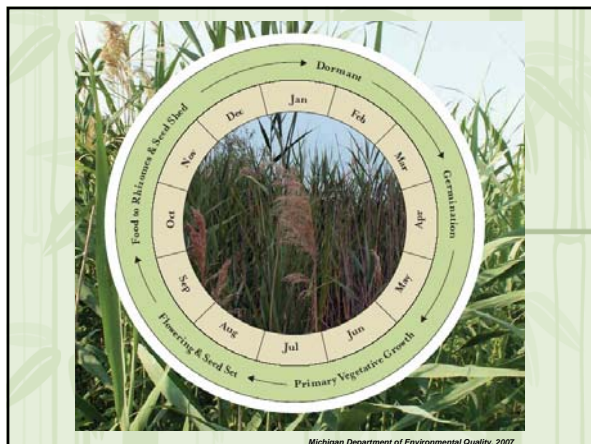
Growth and Spread

➤ Individual plants produce hundreds to thousands of seeds per year. While seed viability is typically low, sufficient seed is dispersed to overcome these obstacles.

➤ Along rivers and shorelines fragments of rhizomes that break off are transported by water, vehicles or other means settle and become rooted.



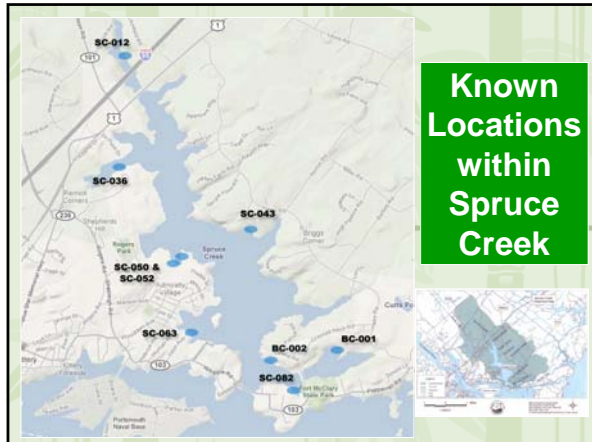
Jill M Swearingen, National Park Service, 2008



Four pronged strategy



1. Prevention
2. Early Detection-Rapid Response
3. Control/Management
4. Restoration



Control Methods

Mowing

- Repeated mowing within a season and continued over several years can eventually deplete energy stored in the rhizomes and kill the plants.

Flooding

- In settings where water levels can be controlled, deep flooding can control Phragmites. The rhizomes must be flooded continuously for four months during the growing season.

Fire

- Fire in Phragmites stands clears away dead material and allows light to reach the soil, which encourages the germination of native wetland plants but can actually invigorate Phragmites and promotes its spread.

Biological Control

- Scientists are studying insects known to feed exclusively on Phragmites in Europe. Even if biological control methods are eventually discovered and approved, this technique is many years away from being available in the United States.

Control Methods

Chemical control

- Chemical control, or the use of herbicides, is the most effective method for controlling invasions of Phragmites.
- **Glyphosate**
 - Roundup for terrestrial use
 - **Rodeo** must be used near wetlands

Glyphosate is nonselective and will enter any plant species through contact with the leaves or stems. Therefore, impacts on other native plants may occur if the product is applied incorrectly.

Maine Board of Pesticides Control



A commercial license is required for any one of the following situations:

- Application of any restricted/limited use pesticide for purposes other than producing and agricultural commodity
- Use of any pesticide as a service for which compensation is received (examples include lawn care, pet grooming, tree & shrub care and pest control)
- Use of any pesticide on sites open to public use. Property is considered open to use by the public when the owner permits routine access by the public, even if a fee is charged for such use. Examples range from office and apartment buildings to golf courses and other outdoor recreation facilities.

Use of Herbicides in Wetlands in Maine



Maine State Law (38 M.R.S.A):

- 413.1-No person may directly or indirectly discharge or cause to be discharged any pollutant (to a water of the state) without first obtaining a license from the department.

Glyphosate Facts

- Glyphosate acts by inhibiting a biochemical pathway important to the normal functioning of plants.
- By disrupting the pathway, compounds necessary for the plants survival cannot be made.
- This biochemical pathway is found only in plants and microorganisms.
- Glyphosate binds strongly to soil and is broken down by microorganisms

Chemical Control Method

Method	Phragmites Stand Characteristics	Site Conditions	Treatment Technique	Precautions
Injecting Stems	Scattered or isolated	Effective in areas where impacts to desirable native plants must be avoided.	Cut plants waist height. Add one drop of herbicide to hollow stems with a squirt bottle of syringe.	Seed heads should be removed from the site after cutting to prevent seed spread.



Application of Rodeo must take place after the tasseling stage when the plant is supplying nutrients to the rhizome

Control Strategy

1. Treat Phragmites stands with herbicide in late summer, wait at least 2 weeks to allow plant exposure to the herbicide.
2. Mechanically treat site beginning in late summer or fall until prior to spring green-up, or when the ground is frozen for wet sites with hand tools, weed whips or small mowers where dense stands of Phragmites are present.
3. Check site the following growing season for Phragmites regrowth and spot-treat with herbicide.

Long Term Management

- ✓ **Integrated Pest Management (IPM)** integrate a combination of strategies for control and management
 - ✓ **Creating multiple stresses on the plants is the most effective way to control Phragmites.**
 - ✓ **Herbicide treatment in conjunction with mechanical treatment has proven to be effective in controlling Phragmites and allowing native plants to reestablish.**
 - ✓ **Establish controls and monitor/evaluate/adjust strategies over 3 or more growing seasons**
 - ✓ **Early detection/rapid response**
- Spread the word!



Visit our website for a list of plants and info
www.yorkswcd.org

Other resources

Invasive Plant Atlas of New England:

www.ipane.org

New England Wildflower Society:

www.newfs.org

Connecticut Invasive Plant Working Group

www.hort.uconn.edu/CIPWG/

References

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