

The Nature Conservancy Approaches to Invasive Plant Species Management in Wetland Resource Areas

The Nature Conservancy (TNC) has been using invasive plant control methods in the southern Berkshires for over 15 years, with documented success at both controlling invasive plants and minimizing non-target impacts. Monitoring treatment success is performed through the use of vegetation monitoring plots, photo monitoring, and pre and post treatment site inspections and evaluations. All herbicide applications are performed by TNC staff, volunteers, or contractors who hold valid pesticide application licenses issued by the Commonwealth of Massachusetts.

TNC has worked to manage and control several invasive plant species including, but not limited to, *Phragmites australis* (Common reed), *Lythrum salicaria* (Purple Loosestrife), *Phalaris arundinacea* (Reed canarygrass), *Berberis thunbergii* (Barberry), *Rhamnus cathartica* and *R. frangula* (Buckthorn), *Lonicera* spp. (Honeysuckle), *Celastrus orbiculata* (Oriental Bittersweet) and *Rosa multiflora* (Multiflora rose). Preferred and alternative methods of control for these invasive plants within and around wetland resources areas are as follows:

Common reed (*Phragmites australis*)

Preferred methods of treatment: Hand-clip *Phragmites* at chest height and apply an approved herbicide to the hollow stems in August through September, or swipe stems with a glove coated with herbicide in mid-July.

Alternative: Apply a foliar treatment of herbicide in mid-July.

Reed canarygrass (*Phalaris arundinacea*)

Preferred method of treatment: Mow during early summer, and apply a foliar herbicide during late summer.

Alternative: Mow up to 4 times during the growing season.

Purple loosestrife (*Lythrum salicaria*)

Preferred method of treatment: Apply a biological control with *Galerucella* spp. beetles.

Alternative: Apply a foliar herbicide through hand swiping.

Barberry (*Berberis thunbergii*), multiflora rose (*Rosa multiflora*), bittersweet (*Celastrus orbiculatus*), and honey suckle (*Lonicera* spp.)

Preferred method of treatment: Apply foliar herbicide, or use a combination of mechanical cutting and herbicide application to the cut stems or stumps.

Alternative: Remove individual plants by hand.

Buckthorn (*Frangula* spp.)

Preferred method of treatment: Mechanically cut and apply herbicide to the cut stumps.

Alternative: Remove individual plants by hand.

Japanese Stiltgrass (*Microstegium vineum*)

Preferred method of treatment: Mechanically cut in late summer but before seeds mature.

Alternative: Remove individual plants by hand.

Our preferred herbicide for use in all habitat types is glyphosate (53.8% active ingredient glyphosate N-(phosphonomethyl) glycine, isopropylamine salt). This product is approved by the Commonwealth of Massachusetts for use within wetlands and it does not come pre-mixed with any surfactants. When working directly in wetland resource areas we prefer to use a glyphosate herbicide without any additional surfactants, which requires a direct application of the glyphosate herbicide either onto/into a cut stump/stem. However, some site conditions require a foliar application of a glyphosate herbicide, and those circumstances will require the addition of a surfactant to the herbicide mixture. Our preferred surfactant is Cide-Kick™ II, which is made of natural limonene taken from the bark of pine trees. It is used in foliar applications because it breaks down the waxy cuticle of the plants, allowing better uptake of the herbicide.

The coloring agent Bullseye™ is added to all herbicide mixes. This allows applicators to see areas that have already been treated, therefore greatly reducing the chances of over application. This is our preferred coloring agent because it is non-toxic, environmentally safe, water soluble, and does not permanently stain clothing or equipment.

As stated above, all herbicide applications are performed by licensed TNC staff, volunteers, or contractors the Commonwealth of Massachusetts. In addition, all herbicide applications are performed in compliance with their respective labels and under the strictest protocols to minimize non-target impacts. These practices include the following protocols:

- To minimize runoff, herbicide will not be applied when there is greater than a 50% chance of rain within 8 hours following application.
- To reduce the risk of drift, foliar applications, via low pressure backpack sprayers, will only occur when wind speeds are between 2 to 10 mph. In addition, drift will be minimized by avoiding foliar applications during periods of temperature inversion.
- Evaporation will be mitigated by avoiding application during the hottest and driest days.

For further information contact Angela Sirois-Pitel, TNC Western Massachusetts Stewardship Manager, asirois@tnc.org, (413) 229-0232.

[Monitor and control every year for 3 years.](#)