



Exotic Shrubs

Description

- Refer to the DCNR Invasive Plant webpage - (<http://www.dcnr.state.pa.us/forestry/plants/invasiweplants/>) pages for 26 invasive shrubs, including:
 - Japanese barberry (*Berberis thunbergii*)
 - autumn olive (*Elaeagnus umbellata*)
 - privets (*Ligustrum spp.*)
 - shrub honeysuckles (*Lonicera spp.*)
 - multiflora rose (*Rosa multiflora*)
- As a group, they are adapted to a wide range of habitats, and plague almost every plant community type worth protecting.
- The exotic shrubs tend to leaf out sooner and drop their leaves later than native shrubs.
- None of these shrubs strongly sucker (produce new shoots from their roots).

Management Keys

The exotic shrubs that plague Pennsylvania are not difficult to control. They are prolific, and there are often too many of them. However, compared to other species, they are not hard to kill.

Target the 'Tops'

None of the problem shrubs are suckering (root sprouting) species. If you effectively treat the top of the plant and kill the stem tissue, the roots will die.

Timing Flexibility

Because they leaf-out early and drop their foliage late compared to most native woody species, and do not sprout from their roots, you have a longer operational window to manage exotic shrubs compared to rhizomatous or root-creeping species. Foliar treatments are an option for most species from mid-May into October. Stem treatments can be done all year, weather permitting (Figure 1).

Foliar Treatments

Typically, you will have several of the shrub species present on your site. These species vary in their response to different herbicides, so it is important to use a treatment that is effective against all of the

species. Use a mixture of herbicides to provide a broad spectrum of control.

A treatment we like for shrub suppression is a mixture of *glyphosate* and *triclopyr* at a 2:1 ratio, respectively, targeting 3.0 lbs *glyphosate*-acid and 1.5 lbs *triclopyr*-acid per acre (Table 1). This mix provides a broader control spectrum than either ingredient alone, is non-selective, but has practically no soil activity, and both herbicides are available as aquatic-labeled products.

Stem and Stump Treatments

Stem treatments are effective against the exotic shrubs, and you can implement them throughout the year, giving you scheduling flexibility. Treatment options include basal bark, hack-and-squirt, and stump treatment.

Basal bark treatment uses a concentrated mixture of the herbicide *triclopyr* in oil that is applied to the entire circumference of the lower 8 to 18 inches of the stem, depending on its size. 'Pathfinder II' is a ready-to-use *triclopyr* product available on the Pennsylvania statewide herbicide contract.

For hack-and-squirt, apply a concentrated herbicide mixture to fresh cuts in the stem. During the dormant season, the cuts need to girdle the stem, but they can be spaced – about an inch between cuts - during active growth. You can use a 1:1 mixture with water of either *glyphosate* product, or the water-soluble formulation of *triclopyr* ('Triclopyr 3').

If you want to remove the topgrowth of larger shrubs, the preferred approach would be cutting the stems close to the soil line, and treating the stump. Oil-based 'Pathfinder II' can be applied anytime after cutting – as long as you can find the stumps - while water-based treatments using *glyphosate* or *triclopyr* need to be applied as the stems are cut.

Mechanical Control

Small infestations of young plants - particularly the shrub honeysuckles, multiflora rose, and barberry - can be pulled by hand effectively – and make for a useful volunteer activity.

Mowing effectively eliminates the shrub canopy, and eliminates the need to drag and chip or burn the stems after cutting. There is a wide array of mowers – choose the equipment that can not only adequately cut the size of brush you have but also chop the debris small enough that you easily traverse the field after mowing. A large implement that gets through a field quickly but leaves large slash that makes future work difficult is not productive. Smaller stems are readily dispensed with heavy-duty rotary or flail cutters (i.e. 'brush hogs'). For larger stems, fixed-tooth, drum-type forestry cutters not only have the capacity to cut down large stems to ground line, but also chop the

debris quite small.

Mowing is not a standalone treatment. To be effective, mowing must be followed with an herbicide application to eliminate the resprouts. Treating regrowth with a late-summer foliar application is likely easier than stump or stubble treatments after the mowing because the targets are easier to find, and selectively treating knee-to-waist high resprouts with a backpack sprayer is a relatively quick process. Another advantage to foliar-treating resprouts is it is easier to distinguish exotic species from native sprouts you may wish to release on the site.

Figure 1. The management calendar for exotic invasive shrubs is quite flexible because the foliage emerges early and falls late. Stem treatments to intact or cut stems provide a year-round window of opportunity.

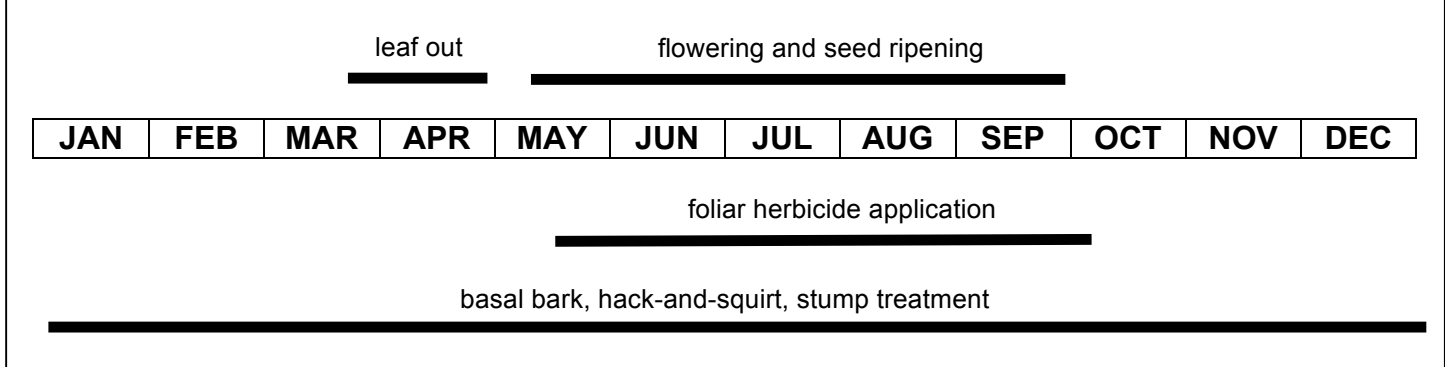


Table 1. The invasive shrub 'complex' that plagues Pennsylvania can be treated throughout the year. These shrubs leaf out early and drop their leaves late, providing a long foliar application window. Basal stem and stump treatments can be made anytime the weather permits. Product names reflect the current PA-Dept. of General Services statewide herbicide contract.

Treatment & Timing	Material	Product Rate	Comments
Foliar: mid-May to onset of fall color or leaf drop	'Rodeo' plus 'Triclopyr 3' plus surfactant	3 qts/ac plus 2 qt/ac	This combination of <i>glyphosate</i> plus <i>triclopyr</i> is effective against a broad spectrum of woody species. Additionally, this mixture reduces risk to non-targets because it has practically no soil activity, and the herbicide products are aquatic-labeled. Choose a surfactant that is aquatic-labeled, such as 'Alligare 90'.
Stem & Stump: year-round	'Pathfinder II'	ready-to-use	'Pathfinder II' is an oil-based <i>triclopyr</i> mixture for basal stem and stump treatment. Basal stem applications wet the entire circumference of the lower 8 to 18 inches of the stem, without running off. Stump treatments can be made anytime after cutting, and should cover the outer edge of the cut surface and the bark of the stump. An oil-soluble dye should be added to improve tracking and avoid skips and duplicate treatment.
Stem & Stump: year-round	'Rodeo' or 'Triclopyr 3'	1:1 mix with water	'Rodeo' is an aquatic-labeled <i>glyphosate</i> product, and 'Triclopyr 3' is an aquatic-labeled <i>triclopyr</i> product. These can be used for hack-and-squirt or stump treatment, and would be the best choice working near water. Unlike the oil-based 'Pathfinder II', this water-based treatment must be applied as soon as the stems are cut. A water-soluble colorant should be added to improve tracking and avoid skips and duplicate treatment.

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