



Exotic Shrubs

Description

- Refer to the DCNR [Invasive Plants](#) webpage - which features factsheets for 25 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 plant growth types, they are not hard to kill. When prioritizing work, consider working from “Good to Bad”, focusing first on sites with native vegetation that you are releasing, rather than starting on sites overrun with exotic shrubs. Think in terms of maximizing “Acres Protected” when working, to optimize productivity and ecological benefit.

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 early-June into October. Stem treatments can be done all year, weather permitting (Figure 1).

Foliar Treatments

Spot-treatment with a backpack sprayer is the most effective means to treat sites with low to moderate target density. Typically, you will have several of the shrub species present on your site. Use a mixture of herbicides to provide a broad spectrum of control.

A useful treatment for shrub suppression is a mixture of *glyphosate* and *triclopyr* at a 2:1 ratio, respectively, targeting 3.0 lbs *glyphosate* and 1.5 lbs *triclopyr* per acre (Table 1). [Calibrate](#) your spray application to achieve the desired dosage. Aquatic-labeled *glyphosate* products on the PA state contract typically include ‘Rodeo’, ‘Aquaneat’, and ‘Glyphomate 41’. Aquatic-labeled *triclopyr* products include ‘Garlon 3A’ and ‘Vastlan’. This mix provides a broader control spectrum than either ingredient alone, is non-selective, and poses minimal risk to non-targets via root absorption of herbicide.

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 intact stem, depending on its size. ‘Pathfinder II’ is a ready-to-use *triclopyr* product available on the PA statewide herbicide contract.

For hack-and-squirt, apply a concentrated herbicide mixture to fresh horizontal cuts (e.g. hatchet) in the stem. Make downward-angled cuts to better contain the herbicide mixture. During the dormant season, the cuts should girdle the stem, close to the ground. You can space the cuts – about an inch between cuts - during active growth. Use a 1:1 mixture of water with a *glyphosate* or water-soluble *triclopyr* product, and saturate the cut, but avoid runoff.

If you want to remove the top growth of 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 any time after cutting – as long as you can find the stumps - while water-based (1:1 mixture) treatments using *glyphosate* or *triclopyr* should 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 provide 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 brush cutters. 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 finely chop the debris.

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 fall foliar application (or the next season) 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 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.

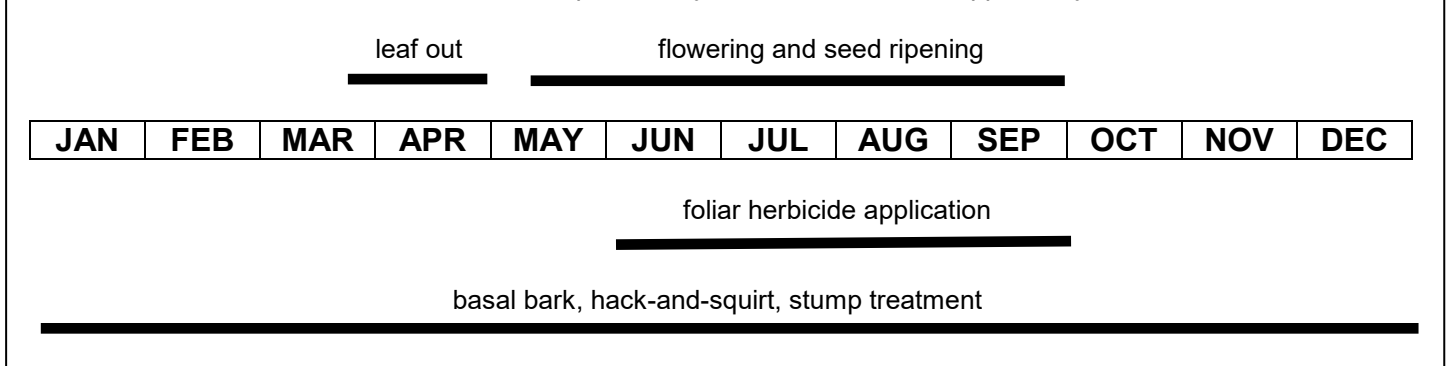


Table 1. The invasive shrub 'complex' that plagues Pennsylvania can be treated throughout the year. These shrubs leaf out early and drop their leaves late, providing a long foliar application window. Basal stem and stump treatments can be made anytime the weather permits. Product names reflect the current 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	'Aquaneat' (or equivalent) plus either 'Garlon 3' or 'Vastlan'	3 qts/ac plus 2 qt/ac or 1.5 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. 'Garlon 3A' and 'Vastlan' are aquatic-labeled <i>triclopyr</i> products, but have different concentrations. Use an aquatic-labeled surfactant, such as 'CWC 90'.
Stem & Stump: year-round	'Pathfinder II'	ready-to-use	'Pathfinder II' is an oil-based <i>triclopyr</i> mixture for basal bark and stump treatment. Basal bark applications wet the entire circumference of the lower 8 to 18 inches of the stem, with more coverage on larger stems, without running off. Stump treatments can be made any time 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	'Aquaneat' (or equivalent) or 'Garlon 3' or 'Vastlan'	1:1 mix with water	Unlike the oil-based 'Pathfinder II', this water-based treatment should be applied as the stems are cut. A water-soluble colorant should be added to improve tracking and avoid skips and duplicate treatment. Hack-and-squirt treatment in the dormant season should girdle the stem. During active growth, the cuts can be spaced, with up to 1-inch between cuts.

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