



## Exotic Woody Vines

### Description

- Refer to the DCNR Invasive Plants pages under 'Vines'- (<http://www.dcnr.state.pa.us/forestry/plants/invasivereplants/index.htm>), for information on invasive woody vines including five-leaved akebia (*Akebia quinata*), porcelainberry (*Ampelopsis brevipedunculata*), Oriental bittersweet (*Celastrus orbiculatus*), Japanese honeysuckle (*Lonicera japonica*), kudzu (*Pueraria montana*), and Chinese wisteria (*Wisteria sinensis*).
- Exotic vines grow more aggressively than native vines such as grape (*Vitis* spp.) Virginia creeper (*Parthenocissus quinquefolia*), or poison ivy (*Toxicodendron radicans*), and do not provide the same habitat value.
- Invasive woody vines exert mechanical stress on their 'host' trees through extra weight, and some species spiral around the tree and can girdle them by strangulation.
- Woody vines behave as suckering species, and produce many stems from their root system.

### Management Keys

Ultimately, you need to control the roots to be successful, but you often need to first control the aerial stems before you can address the root system.

#### Long Term Goals

You need to kill the root system of the vine. However, the root system may be supporting dozens of stems, and many of these stems may be very small, or wrapped around a desirable tree, making them impractical to treat. Often, the most practical approach is going to be to cut the existing stems, force the roots to send up new shoots, and foliar treat this regrowth.

#### Mechanical Control Methods

On well-developed vines, most of the leaf area is out of reach for herbicide application. Cutting the vines kills the portion hanging in the trees, and forces the roots to generate new growth. The cutting can be done any time, and is a very useful activity for volunteers seeking to assist with invasive species efforts. Use the

'window-cut' method, where the vines are cut at the ground and high as practical above ground. This ensures all the vines are located and cut, clears the site a ground level to facilitate a follow-up spray, and reduces 'Tarzan' ropes. Do not pull the cut vines from trees and shrubs. It will shed its leaves and dry, so that the weight will not longer be a significant issue. Additionally, it is quite likely you will damage the tree while trying to pull down the vines, and you may pull branches onto yourself.

Cutting alone will only be effective if it is continued until the roots are exhausted. This will take multiple cuts over multiple seasons, and it is likely that a cutting will be overlooked, and the vines will recover.

#### Stem Herbicide Treatments

Ideally, all herbicide treatments to vines would be later in the growing season to enhance translocation to the root system. However, treating all the vines on a well-developed infestation with stem treatment is challenging, or not practical at all if the vines are wrapped around desirable trees. Treating stumps after cutting, or stems – either intact or with hatchet cuts to expose the vascular tissue – will likely reduce the amount of regrowth you have to treat. However, it will not eliminate it. It may be less work to simply cut all the vines and wait to foliar treat the regrowth.

If you use an oil-soluble product such as 'Pathfinder II' (*triclopyr*), do not get the spray on the bark of desirable trees and shrubs. The water-soluble form of *triclopyr* ('Triclopyr 3') reduces the risk of bark penetration. Using concentrated *triclopyr* mixtures around the base of desirable trees poses a potential risk of injury through root pick-up. Using *glyphosate* ('Rodeo') reduces this risk of injury because it has no soil activity.

#### Foliar Herbicide Treatments

The most practical method to injure the root system of invasive vines is to treat the regrowth with a foliar application after cutting the vines. Ideally, this should be done after the regrowth has had at least six weeks to grow. If you treat too soon, the new foliage will still be using all the energy it derives from photosynthesis to produce more foliage, and the herbicide will not get

to the roots. The challenge will be treating the new vines before they get a chance to intermingle with the foliage of desirable plants. In this scenario, either treat the foliage and be prepared to spray again; or cut again, and treat the new regrowth after six weeks.

Use a mix of *glyphosate* ('Rodeo') and *triclopyr*

('Triclopyr 3'), with an aquatic surfactant (e.g. 'Alligare 90'). This mix will not only suppress the vine regrowth, but also give you the latitude to treat any other invasive species you encounter during the operation.

Well-developed vines will require ongoing monitoring to ensure you achieve complete control.

Figure 1. The management calendar for woody vines emphasizes injuring the root system with late-season herbicide applications, but this may need to follow a cutting of the existing vines to force new regrowth. The ranges for growth characteristics are wide because several species are considered.

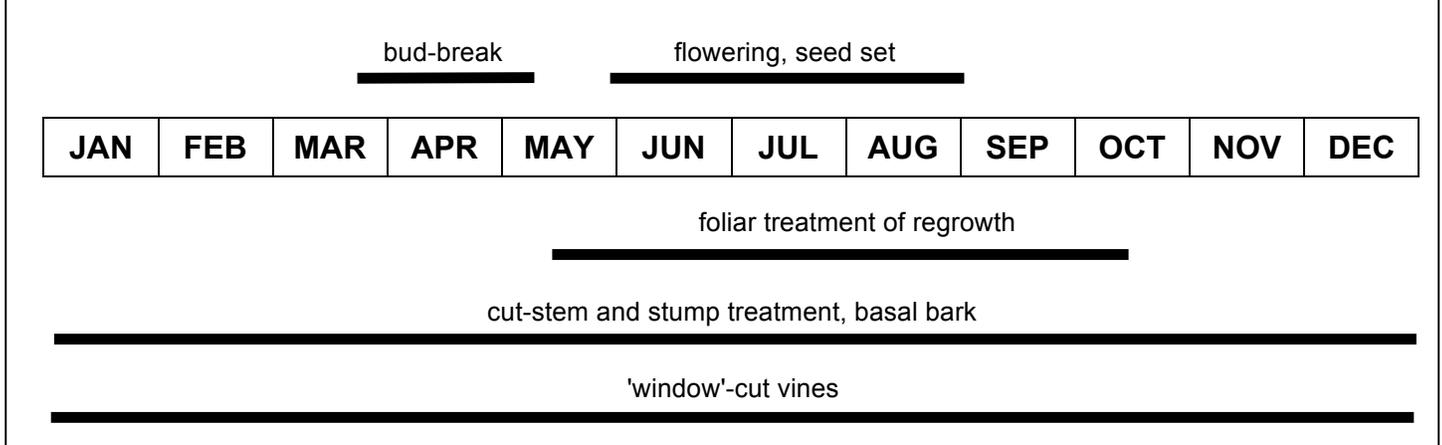


Table 1. Prescriptions for controlling invasive woody vines emphasize removing the aerial growth to facilitate a foliar treatment to injure the root system.

Timing	Treatment	Product Rate	Comments
Any time	'window' cut	n/a	'Window' cut means cutting the vine at the ground, and also a few feet in the air. The advantages are it eliminates missing vines during cutting, and it clears the ground level zone so that the regrowth can be sprayed more easily. DO NOT PULL THE CUT VINES FROM TREES.
Any time	Stump or Stem Treatment: 'Pathfinder II'	RTU	Treating the stumps after cutting or treating intact stems (basal bark) with 'Pathfinder II' ( <i>triclopyr</i> ) will reduce the number of stems that regrow. The question becomes, is it more efficient to treat twice – at cutting time and on the regrowth – or just once by only treating the regrowth. Vine diameter makes a difference, as fewer, larger vines are easier to treat than many small-diameter vines. Additionally, 'Pathfinder II' should not be used in settings where you get spray solution on the stems of desirable plants. <i>Triclopyr</i> can cause injury through root pick-up to desirable plants, so avoid treating if there are a lot of stumps under the dripline of desirable trees.
Any time	Stump or Stem Treatment: 'Triclopyr 3' or 'Rodeo'	Apply either undiluted or mixed 1:1 with water	Treating stumps after cutting or treating fresh cuts on larger stems with water soluble formulations of <i>triclopyr</i> ('Triclopyr 3') or <i>glyphosate</i> ('Rodeo') will reduce resprouting, but not eliminate it. Therefore, you still need to treat the regrowth. These water-soluble forms are less likely to penetrate bark of desirable trees. If stumps are close to desirable trees, <i>glyphosate</i> poses less risk, as it has no soil activity.
mid-May to October	Foliar Herbicide 'Rodeo' plus 'Triclopyr 3'	96 oz/ac + 64 oz/ac	Apply this treatment to regrowth after enough foliage is present for a practical treatment. Waiting six weeks is desirable to ensure translocation to the roots, but rapidly growing shoots should be treated before they start vining around desirable trees and shrubs. Use aquatic-labeled surfactant such as 'Alligare 90'.

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