

RESOURCES FOR CONTROLLING JAPANESE KNOTWEED

from: <http://www.deerfieldriver.org/KnotweedControl.htm>

Successful eradication of Japanese knotweed can be achieved through a three-part process of removal, disposal, and re-vegetation. However, eradication becomes more difficult as the size of the area covered by plants increases. And no matter which method is used, the process will take a considerable amount of time and effort. In areas where the patches are large and dense, preventing the spread of knotweed may make more sense than trying to control it.

Methods that have been used to successfully control knotweed include: mechanical means (cutting, pulling by hand, mowing, grazing), using herbicides, or a combination of both. The particular method chosen should depend on the size of the infestation or patch, ease of access to the site, presence of rare or sensitive plants or communities, cost, and the preference of the landowner. Landowners should be aware that removal of any type of knotweed or other plants that occurs in or near a wetland (and this includes stream or river banks) needs to be cleared through the local Conservation Commission. Regardless of the method used, it pays to be pro-active: if you have a patch of knotweed on your property take care of it right away.

Mechanical Control Methods

Knotweed plants can be cut using a variety of tools: a brush cutter, lawnmower, machete, or loppers. Keep in mind; however, that even small pieces of the plant have the potential to cause a new infestation so be careful not to spread it when cutting.

Landowners using mechanical methods of control should keep the following in mind:

Cutting knotweed plants eventually kills the plant by starving the roots

Use several different methods to eradicate the plants

It will likely take several years to get rid of knotweed completely

Extreme vigilance is necessary to make sure that the plants do not re-infest a site

A. Cutting or Mowing :

Whether cutting or mowing, it should be done at least four times a year between April and September. Some land managers recommend cutting plants every 2-3 weeks between April and September 1st and less frequently thereafter (until plants die back in fall). Make the last cut when the plant is about to go dormant (e.g., has stopped growing).

Knotweed plants should be cut at ground-level. Make sure to check the surrounding areas (up to 20 feet away) for re-sprouts. At a site owned by the Conte National Fish and Wildlife Refuge, biologists found that cutting a patch of knotweed approximately 300 ft by 300 ft in size, 2-3 times a year during the growing season was enough to control the knotweed after 3 years. They were careful not to cut the

native vegetation growing in adjacent areas because encouraging re-vegetation helps prevent knotweed from dominating the site.

Some land managers do not recommend mowing the plant as it can still spread by the small pieces that are generated by this method. Do not “chip” knotweed for the same reason – small pieces can regenerate.

B. Grazing:

If you have grazing animals, Japanese knotweed can be safely eaten by sheep, cattle, horses, and goats. They prefer the new shoots, though. Grazing will not completely remove the plant from an area, but will prevent it from spreading into adjacent areas.

C. Pulling or Grubbing:

You can also try pulling out small plants, which can be successful because they don't have long roots. Pulling the entire plant out of the ground is most effective when the infestation is new, plants are small, and you can get the entire plant. If any parts of the roots are left behind, these have the potential to re-sprout. At a site in Great Britain, a small patch was eradicated using this method after three years. Plants were pulled out during the growing season. Initially, this patch was only about 6 sq ft in size.

Disposal of Plants

You're probably wondering what to do with the knotweed once it's been cut. This step is one of the most crucial in terms of preventing new infestations. Improper disposal of knotweed can lead to new infestations in areas that were previously knotweed-free.

Japanese knotweed can be burned or buried, but it cannot be composted while “green”. You can pile it up and make sure it dries out thoroughly but you must monitor the pile to make sure it doesn't re-sprout or get blown into new areas or washed into a stream or pond. Placing plant remains on plastic or some other impermeable surface is recommended. If the plants are buried, make sure they are buried at least 10 feet deep! Please do not cut or pull plants and throw them in the river or stream, or on someone else's property. Plants can also be burned if it's the proper time of year.

Site Re-vegetation and Restoration

As knotweed is removed from a site, you will want to encourage the growth and establishment of native plants. If you are working in your yard or garden, choose either native species or non-natives that do not have invasive properties. In some situations native plants will readily re-establish themselves without any help. However, you may want to replant the area to jumpstart the process of re-vegetation. Regardless of whether you have removed knotweed in your yard or at a natural area it is essential that the site is monitored to make sure that re-infestation does not occur.

Do's and Don'ts for Mechanical Control

Do make sure to clean all cutting equipment to prevent the spread of knotweed to new areas

Do use protective clothing and/or glasses with brush cutters

Do not burn actively growing plants

Do not dig out large stands of knotweed – this will result in an increase in stem density from the fragmented root pieces

Do make sure that knotweed is disposed of correctly

CONTROL METHODS

from: <http://counties.cce.cornell.edu/oneida/home%20garden/WEEDS/Japanese%20Knotweed.pdf>

The best suggested control for Japanese knotweed is the prevention of establishment, as it is very difficult to eradicate once established. The plant should be destroyed as soon as it appears by cutting, chopping, herbicide treatment and subsequent disposal of any cut vegetation. The growth of the rhizomes can be slowed by cutting back the stalks as much as three times during the growing season, reducing rhizome reserves for successful plant generation. After cutting back the foliage, an application of a glyphosate based herbicide has been discovered to be particularly effective. Glyphosate (Round Up) application should be performed in late summer through early fall when the translocation of herbicides to the plants root system is maximal. In order to be sure that the rhizomes have been thoroughly eradicated, a few years of treatments may be necessary. One technique that has proven effective for managing small stands of Japanese knotweed is the application of concentrated glyphosate directly to the plant root system by injection into the hollow stem at approximately the 3rd stem node or below. This syringe injection technique is labeled in New York State with Aquamaster herbicide, and has proven effective with small managed stands. Other herbicides have proven ineffective for control due to limited translocation into the rhizomes. Not surprisingly, the rhizomes are difficult to remove by hand digging and can penetrate soils up to a depth of 10 feet or more after a year of establishment. Interestingly, the rhizomes have been shown to be a potent source of the antioxidant and cancer suppressive compound resveratrol. Perhaps new uses for this plant can be deduced, based on the need for easily extractable resveratrol sources.

HUDSONIA RECOMMENDATIONS

http://www.catskillstreams.org/pdfs/Hudsonia_knotweed.pdf

Based on our results, both herbicide injection and frequent cutting have the potential to successfully manage knotweed stands on a small scale. These treatments may also have the potential to contain larger areas if used around the edges of the patches. Cutting, however, may require more maintenance or a longer treatment period than herbicide injection. In the woody planting plots, the planted trees did not survive and therefore were not successful in shading knotweed stems. We believe the plants did not thrive because they were too small to compete with the knotweed. Planting larger or faster growing trees and shrubs, or cutting larger areas of knotweed before planting, may allow woody plants to thrive in, and eventually shade out, knotweed patches.

While both cutting and herbicide injection treatments allowed species richness in the plots to increase, introduced and native plant vigor and moss diversity were higher in the herbicide plots – likely due to the lack of frequent cutting disturbance. Therefore, if primary management goals are to increase plant diversity, herbicide injection may be the better management technique of the two.

The NYCDEP has a strong preference to avoid chemical treatment, because of the potential for chemical contamination of the water supply. If herbicides are used, they should first be tried on a limited basis with monitoring for herbicide residues and toxic breakdown products. In addition, smaller amounts of glyphosate may be used; Hagen and Dunwiddie (2008) found no difference in knotweed control between 3 ml and 5 ml glyphosate applications. However, if primary management goals are to stabilize stream banks, cutting, possibly combined with woody plantings, may be the better alternative because it alleviates concerns about chemical contamination of the water supply and replaces knotweed with deep-rooted species.

Given that the treatment methods we used require intensive effort and lengthy maintenance to achieve success in reducing knotweed and facilitating colonization by alternate flora, a strategy other than large scale eradication of knotweed may be appropriate. Such a strategy could include removal of small patches of knotweed (e.g., < 10 m diameter), containment of large patches where expansion would threaten important resources, the creation of openings or corridors of alternate vegetation to promote the colonization of alternate vascular flora and mosses and provide access to the stream for fishing, and the planting of fast-growing, tall, deeply rooted native trees to stabilize stream banks. Effort and maintenance would still be required, but goals could be achieved without massive investment of resources to eradicate large knotweed stands. Remaining knotweed would potentially continue to emit vegetative propagules (stem or rhizome fragments) capable of initiating new stands when dispersed by water, ice, or machinery.

Recommendations for further study include:

- Installing saplings that are substantially taller than the knotweed in the woody plantings plots and then monitoring these plantings to determine whether this method alone can be successful in reducing knotweed stands or at least in stabilizing the stream banks.

- Mowing for an extended period of time in the frequent cutting plots to determine whether knotweed can be eliminated by mowing alone.

- Creating plots with combined treatments, e.g. cutting and woody plantings or cutting and an alternative shading technique.