

Kitsap County Knotweed Control Recommendations 2006

CONTROL METHODS FOR JAPANESE, GIANT AND BOHEMIAN KNOTWEED (Fallopia japonica ssp. japonica, F. sachalinensis, and F. x. bohemica)

PLANT DESCRIPTION

The knotweeds are herbaceous perennials which forms dense clumps 1-3 meters (3-10 feet) high. Its broad leaves are somewhat triangular and pointed at the tip. Clusters of tiny greenish-white flowers are borne in upper leaf axils during August and September. The fruit is a small, brown triangular achene. Knotweed reproduces via seed and by vegetative growth through stout, aggressive rhizomes. It spreads rapidly to form dense thickets that can alter natural ecosystems. Japanese knotweed can tolerate a variety of adverse conditions including full shade, high temperatures, high salinity, and drought. It is found near water sources, in low-lying areas, waste places, and utility rights of way. It poses a significant threat to riparian areas, where it can survive severe floods.

Knotweed Management information:

1. If growing beside water (stream or ditch that frequently holds moving water), do not mow. Plant parts move by water and will re-grow elsewhere.
2. Do not mow green canes in the fall; stem pieces can re-sprout and you'll scatter seed.
3. Burn or chip up old canes in early spring (March and April) if you want to clean up an area, cut old canes obscuring site distance, or get ready for an herbicide application. This does nothing to control the growth or spread, it only "cleans up" last year's growth.
4. It is not cost-effective to control only part of a stand due to the plants ability to spread through rhizomes, any adjacent populations not controlled will move into the "clean" areas.
5. It is not cost-effective to dig knotweed. Roots and rhizomes grow deep and far; you'll probably never get them all, nor be able to screen them from the dirt excavated; and you'll have a huge spoils pile to deal with for years.
6. When using any herbicide it is recommended that you either treat 3 times per growing season (Mid-spring when plants are 3-4 ft tall, mid-summer when plants are 4-5 feet tall, and late summer when plants are 7-10 feet tall) or one time in the fall when plants are flowering. You may also choose to inject knotweed stems with an herbicide but you must inject all stems, and I recommend finding a certified applicator.
7. The best control is an integrated approach to remove plants mechanically and follow up with herbicide treatments.
8. Monitor all knotweed sites for 5-6 years and treat all new growth.
9. Replant knotweed control areas with desirable plants to ensure healing of the system.

MANAGEMENT OPTIONS

1. Digging

Effectiveness:

This method is appropriate for very small populations.

Methods:

Remove the **entire plant including all roots and runners** using a digging tool. Juvenile plants can be hand-pulled depending on soil conditions and root development.

Cautions:

Care must be taken not to spread rhizome or stem fragments. Any portions of the root system or the plant stem not removed will potentially re-sprout.

Disposal:

All plant parts, including mature fruit, should be double bagged and disposed of in the trash to prevent re-establishment (dispose of in an approved landfill or incinerate with appropriate permits).

Sanitation:

Clean all clothing, boots, & equipment to prevent spread of seed.

Cost estimates:

**(All estimates are based on figures for disposal and do not take in an hourly wage for work done by any crew. All estimates will vary depending on your proximity to a disposal site and the variable costs of disposal in your area.)*

For a population sizes:

- less than 5 sq feet: about \$25
- between 5 to 10 sq feet: \$45-120

Hand removal is not recommended beyond this point

If you rent any large equipment add on about \$100- \$150 and transfer fees (these are dependent on where you get your equipment from) for the equipment, also then add on \$25-\$35 for an hourly fee for equipment operators.

2. Cutting

Effectiveness:

Repeated cutting may be effective in eliminating very small knotweed populations. Manual control is labor intensive, but is a good option where populations are small and isolated or in environmentally sensitive areas.

Methods:

Cut the knotweed close to the ground at least 1 time a month for approximately 5-10 years. Keep the plant as whole as possible, never mow and try not to weed-whack. Ensure that the majority of the knotweed is controlled and then plant native species as competitors as an alternative to continued treatment.

Cautions:

This strategy must be carried out for several years to obtain success. Both mechanical and herbicidal control methods require continued treatment to prevent reestablishment of knotweed.

Disposal:

All plant parts should be double bagged and disposed of in the trash to prevent re-establishment (dispose of plants in an approved landfill or incinerate with appropriate permits).

Sanitation:

Clean all equipment thoroughly including clothing, boots, & cutting equipment to prevent spread of plant fragments. NEVER leave stems on site, they will re-root.

Cost estimates:

**(All estimates are based on figures for disposal and do not take in an hourly wage for work done by any crew. All estimates will vary depending on your proximity to a disposal site and the variable costs of disposal in your area.)*

For a population sizes:

Annual reoccurring costs for 3-7 years dependent on the size of the population

- less than 5 sq feet: about \$15
- between 5 to 10 sq feet: \$35-75
- between 10-20 sq feet: \$100-\$175

Cost to rent a large disposal container (this is recommended for any sites larger than 20 sq. ft.) \$345 plus \$.45- \$.50 per-mile to disposal site with the addition of the disposal fee.

If you rent any large equipment add on about \$100- \$150 and transfer fees (these are dependent on where you get your equipment from) for the equipment, also then add on \$25-\$35 for an hourly fee for equipment operators.

3. Herbicide

Effectiveness:

Many products are effective on controlling knotweed populations but can not be used near water. Glyphosate, has been formulated to be used near water, treatments in late summer or early fall are much more effective in preventing re-growth of knotweed the following year. Multiple treatments throughout the year will encourage depletion of the roots and also will keep growth at a manageable level.

Methods:

Follow all label application directions, especially when applying near sensitive and their buffers.

When using any herbicide it is recommended that you either treat 3 times per growing season (mid-spring when plants are 3-4 ft tall, mid-summer when plants are 4-5 feet tall, and late summer when plants are 7-10 feet tall) or one time in the fall when plants are flowering. You may also choose to inject knotweed stems with an herbicide but you must inject all stems, and I recommend finding a certified applicator.

The use of glyphosate formulations are recommended in our area due to the presence of water. In late June/early July cleanly cut or mow down existing stalks/canes (clean all equipment). Allow the knotweed to re-grow. After August 15th, spray knotweed all re-growth with ROUNDUP®, RODEO®.

A cut-stem treatment utilizing glyphosate formulations can be an effective control for smaller colonies of knotweed. In early to mid-July cut the existing stems just below the 2nd or 3rd node above the soil surface. Immediately after cutting apply by swab or small spray bottle a 50% solution of glyphosate to the freshly-cut cross section and into the internodal cavity of each stalk/cane. Monitor treatment area by early to mid-August and repeat cut-stem treatment to any residual stems.

Stem injection is another promising control method for smaller colonies of knotweeds. Currently, a supplemental label for AQUAMASTER® (glyphosate) herbicide exists for this stem injection method. In late June/early July inject 5 mLs of AQUAMASTER® below the 2nd node above the ground of each stem in the clump. Use suitable equipment that must penetrate into the internodal region. JK International manufactures a stem injection tool that is suitable and recommended for this control method.

Cautions:

Established stands of knotweed are difficult to eradicate even with repeated herbicide treatments. However, herbicide treatments will greatly weaken the plant and prevent it from dominating a site. Adequate control is usually not possible unless the entire stand of knotweed is treated (otherwise, it will re-invade via creeping rootstocks from untreated areas).

These herbicides are not selective (kills both monocots & dicots), thus should be applied carefully to prevent killing of non-target species. All tank mixes should be mixed with clean (ideally distilled) water because glyphosate binds tightly to sediments, which reduces toxicity to plants.

Do not apply in windy conditions because spray will drift and kill other plants. Do not apply if rain is forecast w/in 12 hours because herbicide will be washed away before it can act. Choose Rodeo® formulation for applications in standing water or along a shoreline.

Cost estimates:

**Variable costs based on size of populations and travel requirements for the applicator.*

- less than 5 sq feet:
- between 5 to 10 sq feet: \$35-75
- between 10-20 sq feet: \$100-\$175

I would recommend that the land owner treat these populations with the caveat that if you are near water you will need to use a certified applicator. The chemical will run you between \$36- \$48 per container and should last you for about a year if you follow the herbicide label and the recommendation of treating 3 times a year, this is variable based on your population size and the chemical that you choose to use.

Professional herbicide application:

Usually, applicators have a minimum fee that ranges from \$200- \$300 and will go up depending on the size and location of the population.

Chemical costs vary based on amount used per site. On average for an acre you would pay approximately \$400- \$600.

To inject companies charge about \$100-\$200 per hour per person and it takes approximately 1 hr to treat a site that is 20-30 sq feet.

All estimates provided are meant to be a guide line and are based on my best guess for companies. I recommend that you contact 3 applicators to get competitive bids for each site.

The BEST management is to get control of the knotweed quickly and maintain your work. Most patches need to have only one or two years worth of professional treatments followed up by minimal landowner maintenance. Maintenance is the key to controlling knotweed, it will do you no good to treat only one year and walk away!