

KNOTWEEDS

Japanese knotweed, giant knotweed, and their hybrid called Bohemian knotweed (*Polygonum cuspidatum*, *P. sachalinense*, and *Polygonum x bohemicum* respectively) can overtake shorelines, grasslands, forest edges, roadsides, and residential yards. These infestations reduce wildlife habitat, species diversity, and may damage property. Knotweed shoots can grow through pavement and building foundations resulting in costly damage. It is important to find and eliminate knotweed infestations.



Background

Knotweeds were first planted in North America in the late 1800s as ornamental garden plants. They escaped cultivation and have spread to most states. Native to Asia, knotweeds are early colonizers after volcanoes with stems pushing through volcanic rock. Knotweeds are regulated weeds in many states. Synonyms for the genus *Polygonum* include *Fallopia* and *Reynoutria*.

Knotweed Leaf Shapes



Giant



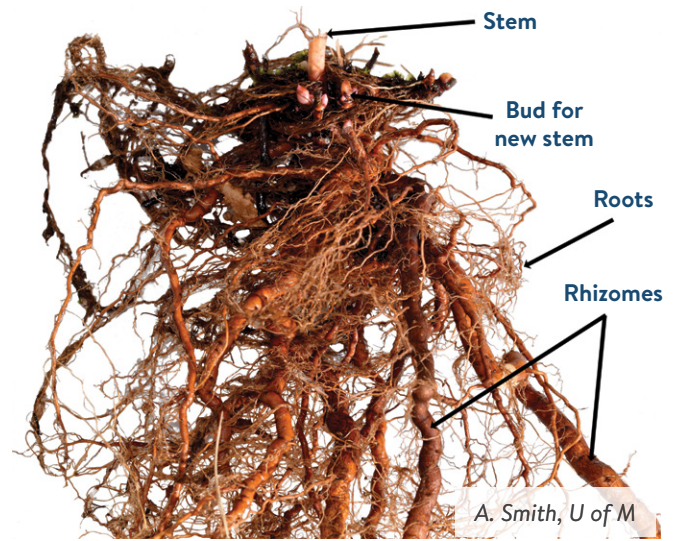
Hybrid (Bohemian)



Japanese

DESCRIPTION

- Knotweeds are herbaceous perennials (non-woody plants that return each year).
- Shrub-like forms can exceed 10 feet (3 meters) tall.
- Multiple, hollow stems form a clump that resembles bamboo.
- Stems die back to the ground after hard frost and new stems emerge in the spring.
- New shoots sprout from spreading rhizomes (underground stems) that can grow to 65 feet (20 meters) long.
- Leaves are alternate, simple, and broadly oval with pointed tips.
- Flowers are produced in white clusters in the late summer.
- Knotweeds are fast growing and can form dense infestations.



Most knotweed plant material is underground with buds, rhizomes (underground stems) and roots.

SPECIES IDENTIFICATION

The characteristics listed below are generally reliable but there is wide variation in characteristics across knotweed species.

- Leaf shape is straight across the leaf base for Japanese knotweed, heart shaped for giant knotweed, and usually in-between for hybrid knotweed.
- Flowering stems emerge to the sides on Japanese and giant knotweeds and are vertical on hybrid knotweed.
- Plant height varies. Japanese knotweed is generally up to 10 feet (3 meters) tall and giant knotweed can exceed 16 feet (5 meters) tall. Hybrid knotweed height is typically between 10-16 feet (3-5 meters).



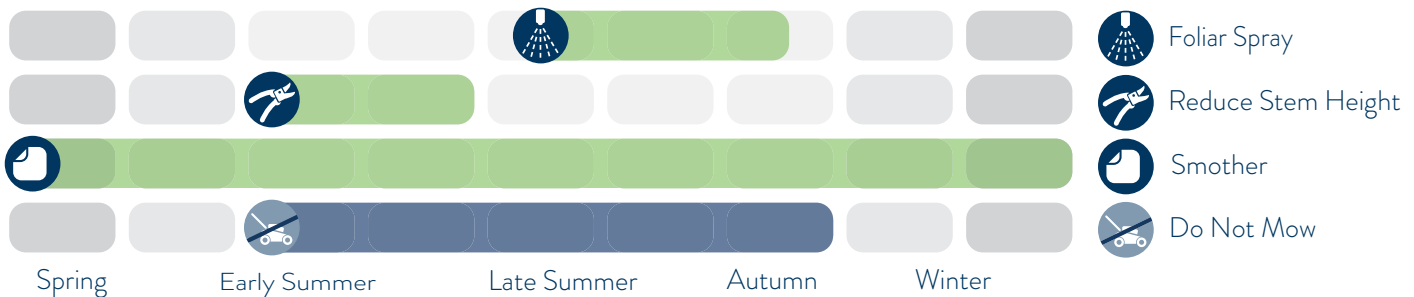
Knotweed overgrowing cars.

REPRODUCTION

Knotweeds can grow from pieces of stems and rhizomes so pieces must be managed carefully to prevent new infestations. Knotweeds can also spread by seed. There are separate male and female plants. Flowers on female plants are often pollinated by insects carrying pollen from male plants

CONTROL

Ideal Timing for Treatment Options



MANAGEMENT RECOMMENDATIONS

For site specific recommendations, contact your local Extension service. **For herbicide treatments, review and follow product labels and avoid contact with non-target plants because these products may cause severe injury to them.** Resprouting from underground stems and seedling emergence may continue for years, so additional treatments will likely be required.

Knotweeds can sprout from cut stems and roots. It is best to leave knotweed plant material to decompose at the infestation rather than moving it. **Treatments that involve cutting, mowing, or digging require careful management of the cut stems and other plant parts to prevent new infestations.** Contact your local weed experts for disposal guidance.

Apply a foliar spray in the late summer to early fall at least 2 weeks before frost. This timing often coincides with flowering. Choose ONE of the following common herbicides used to control knotweeds. Surfactant can improve control, check the herbicide label for the specific information. It is unsafe to spray above your head. Please use a ladder or other means to avoid overhead spraying or use a method listed below to reduce plant height 1-2 months prior to spraying.

Active Ingredient	Broadcast Spray Rate Per Acre	Spot Spray Rate Per Gallon	Efficacy One Year Post Treatment
Imazapyr ^a	1.5-2 qts	0.5-1%	Good to Excellent
Aminopyralid ^b	7-14 fl oz	Equivalent to Broadcast	Good
Glyphosate ^{a, c}	4.0 qts	2-10%	Moderate to Good
Triclopyr ^a	6-8 qts	2-2.5%	Moderate to Good

- a. Products available for use in aquatic habitats.
- b. Do not treat more than half of any given acre per year at these rates. See label for spot spray dilution tables.
- c. Rate is for a 4.0 a.i./gal formulation of the isopropyl amine salt of glyphosate, adjust accordingly for other formulations. See label to adjust spot spray rates for target volume rates.

Disclaimer: The product label supersedes any recommendations in this bulletin. We make no representation or warranties of any kind, express or implied, about the completeness, accuracy, reliability, suitability, or availability with respect to the information or products in this bulletin. Any reliance you place on such information is therefore strictly at your own risk. References to pesticide products are not an endorsement or guarantee of one product over another.

Summer mowing or hand cutting, in late-June, can reduce overall plant height and vigor before a late summer or early fall herbicide application. Removing shoots stimulates stem production and will not eliminate infestations. Cut stems should remain at the infestation and the mower cleaned to prevent moving stem fragments to new locations where they can root.

Bending or pushing over stems before mid-June may split stems vertically without breaking, reducing overall plant height and provide access for a late summer or early fall herbicide application. Bending stems must be used with other control measures to eliminate infestations.

Stem injection labeled for glyphosate is generally not recommended because only stems directly injected are impacted, many stems are too small or breakable for injection, and if treating large populations, applicators can exceed herbicide application limits within that area. This method is an option where non-target damage to plants growing among knotweed is not acceptable.

Grazing with cattle, sheep or goats can suppress infestations if repeated multiple times throughout the growing season. Supplemental feed may be necessary. Grazing alone will not eliminate knotweeds.

Smothering plants with a tarp (heavy-duty landscape cloth) may suppress and eventually control populations. The tarped area must extend beyond the infestation. Tarps should remain in place for 6 years for most infestations. Monitoring the area and removing sprouting plants beyond the tarped area are critical for success.

Digging is an option for small, new plants but will not eliminate infestations. Rhizomes (underground stems) must be removed multiple times per year for effective control. Consider leaving dug up plants on site to decompose and avoid issues with moving them to new locations.

Biological control is experimental in North America and the United Kingdom. It is not available for knotweed management in the United States.

Most Effective

Least Effective

Considerations for herbicide applications

- Always follow the label for the specific product you are using.
- Apply only to labeled sites. Imazapyr and aminopyralid are not registered for urban areas.
- Refer to the label for additives or surfactant recommendations.
- If the infestation is in or near water where there is any risk of spraying into water, use an aquatic formulation.
- If concerned about trees with roots in the treatment area, do not use products containing aminopyralid or imazapyr.
- Do not exceed the maximum application rate for the site and for the type of application.



Knotweeds can damage property by growing into roads, buildings, and other structures.

Expectations

- Knotweeds are reduced after treatment if recommendations are followed. However, it takes many years of treatment (>3) to eliminate established knotweed plants.
- Monitor infestations for 5 years after treatment to determine if follow up treatments are necessary.
- It can be hard to find small, aboveground stems after treatment.
- After initial herbicide treatment, there is likely to be a bare patch of ground where the knotweed was. If the area is revegetated, consider establishing with grasses only to allow for follow-up treatment with products that are safe for established grasses (aminopyralid and triclopyr). Imazapyr applied at these rates will impact seeding success for at least 1 year.



After initial treatment, it can be challenging to find remaining small knotweed stems.

MORE INFORMATION

U.S. Forest Service

www.fs.usda.gov/database/feis/plants/forb/polssp/all.html

Minnesota Department of Agriculture

www.mda.state.mn.us/plants/pestmanagement/weedcontrol/noxiouslist.aspx



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