

Identification and control of knotweeds – Marianna Szucs, Michigan State University; szucsmar@msu.edu

	Japanese	Bohemian	Giant
Leaf shape	squared-off base, pointed tip	more heart-shaped lower on stems and more spear shaped at branch ends	heart-shaped at base, tapering tip, wavy margins
Leaf size	3-7" long, 2.5" wide	intermediate	6-12"+ long, 4-10" wide
Leaf underside	hairless	small bumps or small, triangular hairs	long, fine, wavy hairs
Plant height	up to 10'	up to 13'	up to 13'
Stems	reddish when young, green later	reddish brown	always green
Flower clusters	longer than subtending leaf	same length as subtending leaf	shorter than subtending leaf

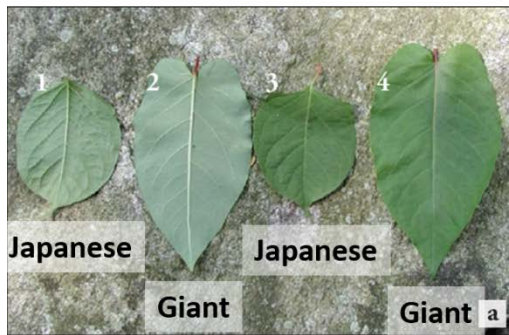


Table 1. Species that resemble or related to knotweeds in North America. This table and the pictures above are from a publication (Grevstad et al. 2018) that can be downloaded for free from the following link:

www.fs.fed.us/foresthealth/technology/pdfs/FHTET-2017-03_Biocontrol_Knotweeds.pdf












SPECIES	IMAGE	CHARACTERISTICS
Bamboo <i>Phyllostachys</i> spp. Grass family Exotic perennial grasses		Bamboo species are similar to knotweeds by having jointed, hollow stems and rhizomatous root systems. They differ by growing much taller (up to 40 feet or 12.2 m), lacking ocrea, having very narrow, lance-shaped leaves, and rarely flowering.
Black bindweed <i>Fallopia convolvulus</i> Buckwheat family Exotic annual vine		Black bindweed has similar ocrea and flowers. It differs from knotweeds by being a vine, growing as an annual, lacking rhizomes, having slender stems, and having smaller heart-shaped leaves up to 2.5 inches (6 cm) long.
Bukhara fleecflower <i>Fallopia baldshuanica</i> Buckwheat family Exotic perennial vine		Bukhara fleecflower has similar ocrea and flowers. It differs from knotweeds by flowering more profusely, growing as a vine, lacking rhizomes, having slender stems, and having smaller triangular leaves up to 4 inches (10 cm) long.
Climbing false buckwheat <i>Fallopia scandens</i> Buckwheat family Native perennial vine		Climbing false buckwheat has similar ocrea and flowers. It differs from knotweeds by growing as a vine, lacking rhizomes, having slender stems, and having smaller heart-shaped leaves up to 4 inches (10 cm) long.
Copse bindweed <i>Fallopia dumetorum</i> Buckwheat family Exotic annual vine		Copse bindweed has similar ocrea and flowers. It differs from knotweeds by being a vine, growing as an annual, lacking rhizomes, having slender stems, and having smaller heart-shaped leaves up to 2.5 inches (6 cm) long.
Fringed black bindweed <i>Fallopia cilinodis</i> Buckwheat family Native perennial vine		Fringed black bindweed has similar ocrea and flowers. It differs from knotweeds by growing as a vine, lacking rhizomes, having slender stems, and having smaller heart-shaped leaves up to 2.5 inches (6 cm) long with a fringe of hairs along their margins.
Himalayan knotweed <i>Persicaria wallichii</i> Buckwheat family Exotic perennial forb		Himalayan knotweed resembles knotweeds with its similar jointed, hollow stems and rhizomatous root system. It differs by having narrower, lance-shaped leaves up to 10 inches (25 cm) long by 2 inches (5 cm) wide. Its papery ocrea are also long and pointed.
Lilac <i>Syringa vulgaris</i> Olive family Exotic perennial shrub		Lilac resembles knotweeds in stem height and growth form. Lilac also has heart-shaped leaves, clustered flowers, and a suckering root system. It differs by having smaller, opposite leaves (up to 5 inches or 13 cm long), solid stems, and purple flowers.
Maidenhair vine <i>Muehlenbeckia complexa</i> Buckwheat family Exotic perennial vine		Maidenhair vine has similar ocrea and flowers. It differs from knotweeds by growing as a sprawling vine, lacking rhizomes, having slender stems, and having very small round, leathery leaves 0.4 inches (1 cm) long.
Redosier dogwood <i>Cornus sericea</i> Dogwood family Native perennial shrub		Redosier dogwood resembles knotweeds in stem height, growth form, and preferred riparian habit. It also has clusters of small white flowers and a spreading root system. It differs by having smaller, opposite leaves (5 inches or 13 cm long), solid stems, and berry fruit.
Wirevine <i>Muehlenbeckia hastulata</i> Buckwheat family Exotic perennial vine		Wirevine has similar ocrea and flowers. It differs from knotweeds by growing as a woody vine, lacking rhizomes, having slender stems, and having small oval to triangular leaves up to 1.5 inches (4 cm) long that are sometimes leathery.

Table 2. Summary of treatment approaches used by practitioners to control knotweeds. From Clements et al. 2016. *Invasive Plant Science and Management*

Management approach	Simple description	Reason for approach
Stem injection of herbicide	Direct injection of systemic herbicide into stem of plant	Working near or in water Working in proximity to water or nontarget vegetation Public perception of herbicide use a concern Only application method allowed by local government
Cut and inject herbicide	Cut plant just above third node, inject herbicide into top of stem, dispose of biomass or allow to desiccate	Working near or in water Working in proximity to water or nontarget vegetation Public perception of herbicide use a concern Large infestations making access difficult
Painting of foliage with herbicide	Painting foliage with herbicide using a wick applicator or paint brush	Working near or in water Working in proximity to water or nontarget vegetation Public perception of herbicide a concern New growth of small plants
Foliar application of herbicide	Application with backpack sprayer Applications with power assisted sprayer Application which includes spraying underside of leaves Cutting/mowing of mature plants, allowing plants to regrow for 2 wk and spray One application per growing season, usually in the fall Multiple applications per growing season	Spot applications of young or mature plants. Used for small and large infestations Large infestations where access is difficult and plants are very large Large, extensive infestations where greater coverage can be achieved more efficiently Thought to allow for better uptake of applied herbicide through plant stomata Reduces aboveground biomass, and herbicide applied to new growth allows for translocation of herbicide to the rhizome Thought to allow for better uptake of applied herbicide as plant stores resources into root system prior to dormancy Thought to improve efficacy by aggressively treating infestations in one growing season
Excavation	Excavation of infested sites including biomass and potentially infested soil	Infestations at sites slated for development where herbicide cannot be used
Hand pulling	Repeated pulling of the same infestation over a long period of time	Infestations at sites where herbicide cannot be used
Mowing	Repeated mowing of the same infestation over a long period of time	Infestations at sites where herbicide cannot be used
Covering	Laying tarp or other materials on top of knotweed plants	Infestations at sites where herbicide cannot be used
Grazing	Targeted, repeated grazing knotweed foliage using goats or sheep	Infestations at sites where herbicide cannot be used