Polygonum cuspidatum Siebold & Zucc.; Japanese knotweed
(= *Fallopia japonica* (Houtt.) Ronse Decr.)
Polygonum sachalinense F. Schmidt ex Maxim.; Sakhalin or giant knotweed
(= *Fallopia sachalinensis* (F. Schmidt ex Maxim.) Ronse Decr.)
Polygonum × *bohemicum* (J. Chrtek & Chrtkova) Zika & Jacobson [*cuspidatum* × *sachalinense*]; bohemian knotweed
(= *Fallopia* × *bohemica* (Chrtek and Chrtkova) J. Bailey)
Polygonum polystachyum Wall. ex Meisn.; Himalayan knotweed
(= *Persicaria wallichii* Greuter & Burdet)

Japanese, Sakhalin, Bohemian, and Himalayan knotweeds


P. cuspidatum


P. sachalinense


P. x bohemicum


P. polystachyum

Family: Polygonaceae
Range: Alaska, British Columbia, Washington, Oregon, Idaho, Montana, California, Utah, Colorado, South Dakota, Nebraska, Kansas, and Oklahoma.
Habitat: Riparian areas/floodplains, forest edges, meadows, rights-of-way, and parks.
Origin: Native to Japan, China, and eastern Asia. Apparently escaped from cultivation.
Impacts: All species are partially shade tolerant and frequently found along river corridors. They form dense colonies, almost eliminating other plants within these stands.
Western states listed as Noxious Weed: *P. cuspidatum*, California, Colorado, Oregon, Washington; *P. sachalinense*, California, Colorado, Oregon, Washington; *P.* x *bohemicum*, Colorado, Washington; *P. polystachyum*, California, Colorado, Oregon, Washington
California Invasive Plant Council (Cal-IPC) Inventory: *P. cuspidatum* and *P. sachalinense*, Moderate Invasiveness (Alert)

These species are all herbaceous rhizomatous perennials to 12 ft tall or more. Leaf shape and size vary by species. Japanese knotweed leaves are thick and leathery, about 4 to 5 inches long, bearing few hairs, square across the base, and with an abruptly tapered tip. Sakhalin knotweed leaves are heart-shaped in outline, up to 12 inches across and 18 inches long, and bearing a few hairs along the margin and on the underside along the veins. Leaves of the hybrid Bohemian knotweed are mid-range between Japanese and Sakhalin knotweeds, usually with more or less square bases, and a few rough hairs on the undersurface and along the margins, but usually only bluntly tipped. Himalayan knotweed leaves are slender, up to 12 inches long but only 3 inches wide, bearing hairs along the margins and on the main veins. The stems of all species are smooth, somewhat waxy, and hollow. They superficially resemble bamboo, with enlarged nodes. Sakhalin knotweed stems may be as much as 2 inches thick at the base, with Bohemian, Japanese, and Himalayan knotweed stems progressively thinner to about 0.5 inch thick. Stems of Japanese and Bohemian knotweed tend to be spotted with reddish-purple.

Flowers of all species are white, about 3 mm across, each bearing 3 to 5 petals and borne in racemes from 2 to 4 inches long that arise in the upper leaf axils. In Japanese knotweed, male and female flowers are on separate plants, but Himalayan and Sakhalin knotweeds have perfect (male/female combined) flowers. Female and perfect flowers may bear teardrop-shaped fruits, each with a 2- to 3-mm reddish brown to black, prism-shaped seed. All species spread primarily, or perhaps exclusively, by woody rhizomes, or from fragmented stem sections that can root at the nodes. They can move long distances in streams and other water sources.

NON-CHEMICAL CONTROL

Mechanical (pulling, cutting, disking)	These knotweed species are nearly impossible to control by digging. Their extensive rhizomes are difficult to remove intact, and fragments easily resprout. Mowing can reduce growth, but will seldom, if ever, eliminate these plants. Repeated cutting at least every 4 weeks and at least 7 weeks before senescence can give effective suppression. Cultivation appears to be effective if conducted with enough frequency and for a sufficient number of years. Mulching with plastic or fabric sheets for 2 years or more may result in some control. Fabric mulches have been reported to produce better results when applied loosely over the colony and stems walked on or otherwise crushed when their growth pushes up the fabric.
Cultural	None of these knotweeds are known to be toxic to animals and, in fact, Japanese knotweed is edible to humans. Grazing by livestock may provide some growth reduction, but has not been shown to eliminate colonies.
Biological	There are no biological control agents currently available to aid in the control of these knotweeds. However, a species of sap sucking psyllid (*Aphalara itadori*) has been released on Japanese knotweed in Europe, and at some future date may be cleared for release in the United States and Canada. There are also other biological control candidates under investigation, including a leaf spot pathogen in the genus *Mycosphaerella*.

CHEMICAL CONTROL

The following specific use information is based on published papers and reports by researchers and land managers. Other trade names may be available, and other compounds may also be labeled for this weed. Directions for use may vary between brands; see label before use. Herbicides are listed by mode of action and then alphabetically. The order of herbicide listing is not reflective of the order of efficacy or preference.

GROWTH REGULATORS	
Aminopyralid *Milestone*	**Rate:** 7 oz product/acre (1.75 oz a.e./acre) or spot treatment at 14 oz product/acre **Timing:** Postemergence to foliage in mid-summer to autumn, when plants are fully leafed. Optimum results when plants are 3 to 5 ft tall in early to mid-summer. Good, thorough coverage of foliage is necessary for control. **Remarks:** Repeat applications will be necessary.
AROMATIC AMINO ACID INHIBITORS	
Glyphosate *Aquamaster*, *Rodeo*, *Roundup*, and others	**Rate:** Broadcast foliar treatment: 4 qt product (*Rodeo* or *Aquamaster*)/acre (4 lb a.e./acre). Spot treatment: 2.5 to 8% v/v solution. Individual stem injection treatment: 5 ml undiluted product/stem up to a maximum 2 gallons product per acre (8 lb a.e./acre) **Timing:** Postemergence to foliage in mid-summer to autumn, when plants are fully leafed out. For injection treatment, inject full-strength product into the stem about 3 nodes above the soil line. **Remarks:** Use 0.25% non-ionic surfactant to improve herbicide uptake. Repeat applications will be necessary. Glyphosate is nonselective and will injure or kill other plants growing near treated knotweed that are oversprayed or drifted on. Glyphosate applied by injection technique to plants growing in sandy or gravelly soil will sometimes leak out into soil and be taken up by roots of adjacent vegetation.
BRANCHED-CHAIN AMINO ACID INHIBITORS	
Imazapyr *Habitat*	**Rate:** Broadcast foliar treatment: 3 to 4 pt product/acre (0.75 to 1 lb a.e./acre). Spot treatment: 1% v/v solution **Timing:** Postemergence to foliage in mid-summer to autumn, when plants are fully leafed out. **Remarks:** Imazapyr is considered the most effective treatment method for control of the large

	knotweeds. Use of 0.25% non-ionic surfactant or 1 qt/acre methylated seed oil may improve herbicide uptake. Repeat applications will be necessary. Imazapyr is nonselective and will injure or kill other plants it contacts.

RECOMMENDED CITATION: DiTomaso, J.M., G.B. Kyser et al. 2013. *Weed Control in Natural Areas in the Western United States*. Weed Research and Information Center, University of California. 544 pp.