Japanese knotweed

Fallopia japonica (Houtt.) R. Decr. or *Polygonum cuspidatum* Sieb. & Zucc.

Giant knotweed

Fallopia sachalinensis (F. Schmidt ex Maxim.) R. Decr. or *Polygonum sachalinense* F. Schmidt ex Maxim.

Bohemian knotweed

Fallopia × *bohemica* (Chrtek & Chrtková) J. P. Bailey or *Polygonum* ×*bohemicum* (J. Chrtek & Chrtkovß) Zika & Jacobson [*cuspidatum* ×*sachalinense*]

Family: Polygonaceae

Synonyms for *Fallopia japonica*: *Pleuropterus cuspidatus* (Sieb. & Zucc.) Moldenke, *P. zuccarinii* (Small) Small, *Polygonum cuspidatum* Sieb. & Zucc. var. *compactum* (Hook. f.) Bailey, *P. zuccarinii* Small, *Reynoutria japonica* Houtt.
Other common names: Japanese bamboo, fleeceflower, Mexican bamboo

Synonyms for *Fallopia sachalinensis*: *Reynoutria sachalinensis* (F. Schmidt ex Maxim.) Nakai, *Tiniaria sachalinensis* (F. Schmidt) Janchen
Other common names: none

Synonyms for *Fallopia* x *bohemica*: none
Other common names: none

Invasiveness Rank: **87** The invasiveness rank is calculated based on a species' ecological impacts, biological attributes, distribution, and response to control measures. The ranks are scaled from 0 to 100, with 0 representing a plant that poses no threat to native ecosystems and 100 representing a plant that poses a major threat to native ecosystems.

Description
Japanese knotweed is a perennial plant that grows from long, creeping rhizomes. Rhizomes are thick, extensive, and 5 to 6 meters long. They store large quantities of carbohydrates. Stems are stout, hollow reddish-brown, swollen at the nodes, and 1 ¼ to 2 ¾ meters tall. Twigs often zigzag slightly from node to node. Leaves are alternate, 5 to 15 cm long, and broadly ovate with more or less truncate bases and acuminate tips. They have short petioles. Plants are dioecious, with male and female flowers on separate plants. Inflorescences are many-flowered, branched, open, and lax. Flowers are approximately 2 mm long. Japanese knotweed is pollinated by insects (Whitson et al. 2000).
Similar species: All native species of *Polygonum* in Alaska are considerably smaller and lack broad leaves. Giant knotweed has more heart-shaped leaf bases and less tapered leaf tips than Japanese knotweed (Zika and Jacobson 2003). Bohemian knotweed may also occur in Alaska. It is a hybrid between Japanese knotweed and giant knotweed.

Inflorescences and foliage of *Fallopia japonica* (Houtt.) R. Decr.

Infestation of *Fallopia japonica* (Houtt.) R. Decr.

Ecological Impact
Impact on community composition, structure, and interactions: Japanese knotweed forms monocultures that reduce plant species diversity by shading native vegetation. It clogs waterways and lowers the quality of habitat for wildlife and fish. It reduces the food supply for juvenile salmon in the spring. Japanese knotweed hybridizes with giant knotweed (Saiger 1991).
Impact on ecosystem processes: Japanese knotweed increases the risk of soil erosion. Dead stems and leaf litter decompose very slowly and form deep organic layers. These thick layers prevent native seeds from germinating and thus alter the natural successional processes of native plant species. During dormant periods, dried stems and leaves and can increase the risk of fires.

Biology and Invasive Potential
Reproductive potential: Japanese knotweed reproduces sexually by seeds and vegetatively from rhizomes. Very small fragments of rhizomes (consisting of as little mass as 700 mg) can produce new plants. Seed production in Britain varies from none, when fertile male plants are rare, to several hundred per plant, when plants grow in close proximity to Bukhara fleeceflower (*F. baldschuanica*) or giant knotweed (Beerling et al. 1994). No systematic study of seed longevity has been undertaken, but seeds stored at room temperature remained viable for four years.
Role of disturbance in establishment: Japanese knotweed can establish in natural habitats with little or no observable disturbance.
Potential for long-distance dispersal: Plant fragments can be washed downstream where they are capable of producing new colonies. Dispersal across marine waters has also been reported (Beerling et al. 1994). Fruits can be dispersed by wind.
Potential to be spread by human activity: Japanese knotweed has been cultivated as an ornamental plant in southeast Alaska and the Anchorage area. It commonly escapes from gardens. Rhizome fragments can be transported on construction and maintenance equipment.
Germination requirements: Germination rates are high after either 5 months of storage at room temperature or 3 months of storage at 2°C to 4.5°C.
Growth requirements: Japanese knotweed has been observed growing in a variety of soil types, including silt, loam, and sand, with pH between 4.5 and 7.4. It can tolerate high temperatures, salinity, and drought, but it is shade intolerant (Saiger 1991).
Congeneric weeds: Prostrate knotweed (*Polygonum aviculare*), Asiatic tearthumb (*P. perfoliatum*), Himalayan knotweed (*P. polystachyum*), black bindweed (*Fallopia convolvulus* / *Polygonum convolvulus*), spotted ladysthumb (*Persicaria maculosa* / *Polygonum persicaria*), and curlytop knotweed (*Persicaria lapathifolia* / *Polygonum lapathifolium*) are considered noxious weeds in one or more states of the U.S. or provinces of Canada (USDA, NRSC 2006, Invaders 2010). A number of *Polygonum* species that are native to North America have weedy habits and are listed as noxious weeds in some American states. The species listed above are closely related taxa and can be considered congeneric weeds, although the latest taxonomy considers them to be members of three different genera: *Polygonum*, *Fallopia*, and *Persicaria* (FNA 1993+).

Legal Listings for Japanese knotweed
- ☐ Has not been declared noxious
- ☐ Listed noxious in Alaska
- ☒ Listed noxious by other states (AL, CA, OR, VT, WA)
- ☐ Federal noxious weed
- ☐ Listed noxious in Canada or other countries

Legal Listings for giant knotweed
- ☐ Has not been declared noxious
- ☐ Listed noxious in Alaska
- ☒ Listed noxious by other states (CA, OR, WA)
- ☐ Federal noxious weed
- ☐ Listed noxious in Canada or other countries

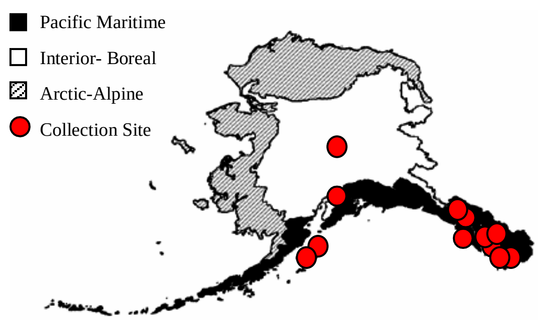
Legal Listings for Bohemian knotweed
- ☐ Has not been declared noxious

☐Listed noxious in Alaska
☒Listed noxious by other states (WA)
☐Federal noxious weed
☐Listed noxious in Canada or other countries

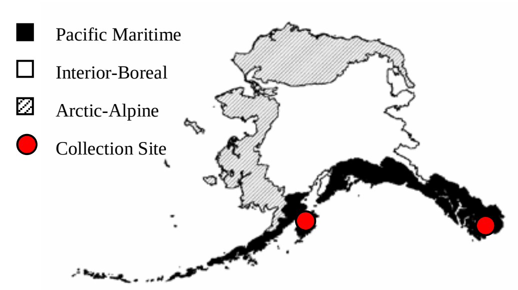
Distribution and Abundance

Japanese knotweed grows in damp areas, riverbanks, waste places, roadsides, neglected gardens, and old home sites (Beerling et al. 1994).

Native and current distribution: Japanese knotweed is native to Japan, northern China, Taiwan, and Korea. It was introduced to North America in the late 19th century. Japanese knotweed grows in much of Canada and 41 states of the U.S. (USDA, NRCS 2006). It is also a serious invasive plant in Europe, the United Kingdom, and New Zealand. In Europe, the northern limit of distribution for Japanese knotweed corresponds with the boundary of no fewer than 120 frost-free days (Beerling et al. 1994). Japanese knotweed has been documented from the Pacific Maritime and Interior-Boreal ecogeographic regions of Alaska (AKEPIC 2010, UAM 2010). Giant knotweed has been documented from the Pacific Maritime ecogeographic region (AKEPIC 2010, UAM 2010).



Distribution of Japanese knotweed in Alaska.



Distribution of giant knotweed in Alaska.

Management

Control methods are expensive and extremely labor intensive. Grubbing and hand pulling can effectively control small populations. Mechanical methods followed by herbicide treatments have proven somewhat successful in heavily infested areas. Herbicide treatments must be repeated four or more times per season for several years to eradicate infestations. Controlled areas should be monitored for at least one growing season after the completion of treatment efforts. No biological control agents are currently available.

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