

**WRITTEN FINDINGS OF THE  
WASHINGTON STATE NOXIOUS WEED CONTROL BOARD  
(November 1998)**

Scientific Name: *Polygonum sachalinense* F. Schmidt ex Maxim.

Common Name: giant knotweed

Family: Polygonaceae

Legal Status: Class C

Description and Variation: *Polygonum sachalinense*, or giant knotweed, is closely related to *P. cuspidatum* (Japanese knotweed), and they are similar in appearance. The main difference is size, a somewhat variable characteristic. Both the leaf size and overall plant size are bigger in giant knotweed.

Giant knotweed (*P. sachalinense*) is an herbaceous perennial, strongly rhizomatous, growing over 12 feet tall. The hollow stems are jointed and swollen at the nodes, giving a bamboo-like appearance. The leaf arrangement is alternate. Leaves are petiolate, and they often exceed 12 inches long, and are 2/3 as wide - twice the size of Japanese knotweed (*P. cuspidatum*). The leaf shape of giant knotweed is strongly cordate (Hitchcock and Cronquist 1973). The flowers are gynodioecious, with the inflorescence producing pistillate flowers and perfect flowers on separate plants (Bailey 1990). The inflorescence of giant knotweed is sparse, with axillary panicles producing a more greenish flower (Fernald 1950 as cited in Seiger 1995; Hitchcock et al. 1964). The flower size does not increase with maturity. As a comparison, the inflorescence of Japanese knotweed is larger, the flowers are prominently winged, and their size increases significantly with age. (Hitchcock and Cronquist 1973). Giant knotweed stems die back with the first frost (Pridham and Bing 1975).

Giant knotweed produces viable pollen, and hybridizes with Japanese knotweed. This hybrid is morphologically similar, and often confused with Japanese knotweed in the UK. This hybrid is the source of viable pollen in England, since Japanese knotweed does not produce fertile male plants in England (Bailey 1990; and as cited in Seiger 1995). The hybrid has a very low fertility rate (Bailey 1990).

In Europe and the United Kingdom, *P. sachalinense* is synonymous with *Reynoutria sachalinensis* (Seiger 1995). Furthermore, some taxonomists believe that the correct generic name is *Fallopia*, based on recent morphological and biosystematic evidence (Bailey 1990). Garden ornamentals of these two knotweed species are found under all three generic names.

Economic Importance:

*Detrimental:* Once established, giant knotweed spreads by rhizomes, enabling this species to dominate and out compete native or beneficial plants. Research indicates that giant knotweed produces allelochemicals from the roots, which aids in the aggressiveness and rapid colonization strategy (Inoue et al. 1992). Giant knotweed is a viable pollen source for Japanese knotweed, resulting in male fertile hybrids in Britain (Bailey 1985, 1988, 1990; and as cited in Seiger 1995).

*Beneficial:* The rhizomes are mentioned as an herbal source for laxatives and diuretics (Inoue et al. 1992). The young shoots are edible, if not eaten excessively, and taste somewhat like rhubarb (Pojar and MacKinnon 1994). Introduced as a garden ornamental, it is considered overly aggressive. (Seiger 1995; Hitchcock and Cronquist 1973; Hitchcock et al 1964; Pridham and Bing 1975).

Habitat:

Giant knotweed shares habitat with Japanese knotweed. Both species are found along streambanks, in moist waste places, neglected gardens, roadsides and railroad right-of-ways. In Washington it is more commonly found west of the Cascade Mountains.

Geographic Distribution: Giant knotweed is native to the Sakhalin Islands of northern Japan (Seiger 1995). The species name translates ‘from Sakhalin Island’ (Pojar and MacKinnon 1994). This garden ornamental escaped, and was commonly found in the north eastern United States by the 1950’s (Patterson et al. 1977). Giant knotweed is considered naturalized in the British Isles. (Bailey 1990). Giant knotweed is listed as a ‘B’ Designated Weed on the 1996 Oregon Noxious Weed List.

History: Giant knotweed was introduced from Japan as a garden ornamental and as forage in 1894. It escaped, and established in the eastern United States by the 1950’s (Patterson et al. 1977). It was also introduced for erosion control along roadsides and railroad right-of-ways (Pridham and Bing 1975). In Washington, giant knotweed is reported from Whatcom, Skagit, Snohomish and King Counties, where it is often found in riparian areas along riverbanks, railroad right-of-ways and roadsides (Skorheim correspondence 1997). Personal observations include locations in Lewis and Cowlitz Counties, both as a planted ornamental and as a roadside species.

Growth and Development: Giant knotweed is a perennial. It is not considered as invasive as Japanese knotweed, in Britain. However, the hybrid of giant knotweed and Japanese knotweed is common in the British Isles, and it is similar in morphology and invasiveness to Japanese knotweed (Bailey 1990).

Reproduction: Giant knotweed spreads mainly by rhizomes. Rhizome and root fragments are dispersed by natural causes (flood, erosion) or man-made dispersal (road side clearing, fill dirt). Giant knotweed also has the capability to produce a very small amount of viable seed. Giant knotweed produces viable pollen, and is then able to hybridize with Japanese knotweed. This hybrid is morphologically similar, and often confused with Japanese knotweed in the UK. This hybrid is the source of viable pollen in England, since Japanese knotweed does not produce fertile male plants in England (Bailey 1990; and as cited in Seiger 1995). Giant knotweed is insect pollinated. This species is not capable of self-pollination (Bailey 1990).

Response to Herbicide: No specific information available on this particular species. The literature treats both *P. sachalinense* and *P. cuspidatum* similarly when discussing habitat, rhizomes and the difficulty in controlling established populations.

Response to Cultural Methods: No specific information available on this particular species. The literature treats both *P. sachalinense* and *P. cuspidatum* similarly when discussing habitat, rhizomes and the difficulty in controlling established populations.

Response to Mechanical Methods: No specific information available on this particular species. The literature treats both *P. sachalinense* and *P. cuspidatum* similarly when discussing habitat, rhizomes and the difficulty in controlling established populations.

Biocontrol Potentials: None known.

References:

- \*Bailey, J.P. 1990. Breeding Behaviour and Seed production in Alien Giant Knotweed in the British Isles. In: The biology and control of invasive plants. Conference organized by the Industrial Ecology group of the British Ecological Society at the University of Wales College of Cardiff. September 20-21, 1990.
- \*Hitchcock, C. L. and A. Cronquist. 1973. Flora of the Pacific Northwest. University of Washington Press. Seattle and London. P. 89.
- \*Hitchcock, C. L. and A. Cronquist, M. Ownbey and J. W. Thompson. 1964. Vascular Plants of the Pacific Northwest. University of Washington Press. Seattle and London. Vol. 2. Pp. 166.
- \*Muenscher, W. C. 1955. Weeds (2<sup>nd</sup> edi.). Cornell University Press. Ithaca NY. P. 167.
- \*Inoue, M. and H. Nishimura, H.H. Li and J. Misutani. 1992. Allelochemicals from *Polygonum sachalinense*. Journal of Chemical Ecology. Vol. 18, No. 10. Pp. 1833-1840.
- \*Oregon State Noxious Weed List. 1996
- \*Patterson, D. T and D. Longstreth and M. Peet. 1977. Photosynthetic Adaptation to Light Intensity in Sakhalin Knotweed (*Polugonum sachalinense*). Weed Science. Vol. 25 Issue 4 (July), 1977. Pp. 319-323.
- \*Pojar, J. and A. MacKinnon. 1994. Plants of the Pacific Northwest Coast. Lone Pine Publishing. Redmond, WA., Vancouver B. C. and Edmonton, Alberta, Canada. P. 126.
- \*Pridham, A.M.S. and A. Bing. 1975. Japanese-Bamboo. Brooklyn Botanic Garden Record Plants and Gardens. Vol. 31 (2), Summer (Aug.) 1975. Pp. 56-7.
- \*Seiger, L. 1995. *Polygonum cuspidatum*. The Nature Conservancy Element Stewardship Abstract. Internet Web Site: <http://www.consci.tnc.org/src/weeds/polycusp.htm>.
- \*Skorheim, K. T. 1998. Correspondence to the Washington State Noxious Weed Control Board. Requesting listing of giant knotweed by the USFS.

\* **References available from the Washington State Noxious Weed Control Board Office in Kent.**

Rationale for Listing:

Giant knotweed (*P. sachalinense*) is closely related to Japanese knotweed (*P. cuspidatum*), a Class C noxious weed in Washington state. They are similar in their appearance, invasiveness, habitat choices, their impacts to riparian areas and they both have extensive rhizomes which make established populations very difficult to control. Once established, giant knotweed also dominates and out competes native or beneficial plants. Giant knotweed produces viable pollen, which Japanese knotweed does not do in the UK, where researched. The result is a fertile hybrid that is similar to Japanese knotweed in appearance and aggressiveness.