

BIOLOGICAL CONTROL FOR KNOTWEEDS

by Larraine Van Slooten

There are three species of invasive knotweeds in North America that were introduced from Japan as ornamentals in the late 1800s. They are *Fallopia japonica* (Japanese knotweed), *F. sachalinensis* (Giant knotweed) and the hybrid *F. bohemica* (Bohemian knotweed). The largest populations are in the northeastern U.S., the Pacific Northwest and eastern Canada, but they have spread throughout most of North America. Knotweeds had been spreading in Europe and the United Kingdom since the 1840s and have now also invaded New Zealand and Australia.

Mature knotweed stems are green with purple splotches, 1 in. in diameter and hollow with segmented joints. The plant grows quickly (up to 8 in. per day in the summer) to 10 ft. tall and is thickly branched. Its rhizomes can grow to 10 ft. deep and 40 ft. long. If broken off, they can stay dormant underground for 20 years. A piece of rhizome as small as ½ in. can eventually sprout and even has the ability to grow through asphalt and concrete!

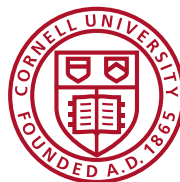
Knotweeds grow along banks of rivers and streams, in wetlands and in disturbed areas where they can limit stream access for recreation, crowd out native plants and inhibit establishment of floodplain trees. This eventually changes forested ecosystems to tall herbaceous ecosystems. Established knotweed is very difficult to completely eradicate using the usual methods of digging, smothering with black plastic or spraying herbicides. It's no wonder that it's listed among the "world's worst invasive species" by the World Conservation Union!

Studies of natural enemies of knotweeds in their native lands have been on-going for several years. It was found that damage to Japanese knotweed by foliage-eating insects (psyllids) was very high in its native ranges. Several insect species were imported into quarantine in the U.S. for assessment. The most promising is the psyllid *Aphalara itadori*. It has been extensively studied and has been proven to be an effective bio-control of knotweeds. Large numbers of the psyllid feeding on the plant's sap can cause the knotweed's leaves to twist into tight knots. In a lab psyllids can kill a plant within a month, which is one generation of the psyllid.

A. itadori has been approved and released in countries in

the European Union. A 4 year study in England and Wales found that the insects limited the growth of knotweed and did not breed successfully on 90 native species growing nearby. In the U.S. the Animal and Plant Health Inspection Service (APHIS) prepared an environmental assessment to permit the release of the psyllid for the bio-control of the three species of knotweeds within the U.S. Based on this assessment along with other data, APHIS has determined that the release of this bio-control insect will not have a significant impact on the human environment. APHIS has made the assessment available to the public for review and will consider all comments received by the end of June.

After APHIS and state release permits are obtained, adult psyllids will be released at five sites in the Finger Lakes area of New York and five sites along five tributaries of the Connecticut River in Massachusetts, Vermont and New Hampshire. All sites have large dense stands of knotweed that are choking out native plants and seedlings of floodplain trees. Control sites will be about 5 miles upstream of the release site. ■



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