Taking down purple loosestrife, one beetle at a time!

Purple Loosestrife: Why is it a problem? What can be done?

MAY 24, 2011
This blog will be a chronicle of a four-month project that will result in the rearing and release of a beetle (*Galerucella calmariensis*) for biological control of purple loosestrife, an invasive plant.

This project is my major AmeriCorps project for the Appalachian Forest Heritage Area AmeriCorps group. I am stationed in Elkins, West Virginia, and am working on invasive plant species control projects with the Partners for Fish and Wildlife program.

Purple loosestrife is an invasive perennial plant that has caused serious problems for wetlands. It can grow to 5 feet tall each year, can produce thousands of seeds per plant, and can create large monocultures that choke out all other wetland plants (even cattail, which are tough characters themselves!). Wetlands are vital habitats for several reasons. They provide a significant buffer against flooding events. They are sinks for pollution and sediment, effectively acting as water purification systems. They provide critical food sources for a myriad of insect, bird, mammal, amphibian and fish species. They provide breeding habitat for an enormous number of bird species, as well as other animals. These are just a few of the reasons wetlands are important to plants and animals (including humans).

Purple loosestrife displaces native wetland plants, resulting in reduced ecological function of the wetland. Habitats and food sources are lost for species, and the flood prevention and pollution control abilities of a wetland can be considerably reduced by a purple loosestrife infestation. Purple loosestrife is also notoriously difficult to control. Purple loosestrife has extensive root systems, making mechanical removal difficult and expensive, as well as highly disruptive to the wetlands they infest. Chemical control is a challenge, as the only herbicides that can be used must be approved for aquatic habitats to prevent harm to animals.

On top of that, those thousands of seeds per plant I mentioned? They can survive in the soil for up to seven years. If you're able to get good control on one year's crop of loosestrife, you'll have at least seven more years of control to go in order to exhaust the seed bed, and that is if you manage to kill all the plants before they go to seed. Purple loosestrife is also very easy to transport, as the plants can re-grow from both seeds and root pieces. Any mud in a purple loosestrife-infested wetland can contain seeds, and any mud moved from one place (on things such as shoes, pets and tires) to another can transport the invasive plant.

Controlling purple loosestrife can be an exhausting and expensive process that may have limited success. Thus, the use of a biological control agent has been a handy tool to reduce the effort needed to considerably reduce the threat of purple loosestrife to our wetlands. Biological controls are animals, bacteria, fungus or viruses that are released into an infestation of an invasive species to consume or infect and kill the invasive species.

Biological controls must be thoroughly and extensively researched to ensure there are no secondary effects of the control, such as another species being killed by the control. Biological controls do not usually eradicate an invasive species, but they provide a level of control that can significantly reduce the species presence, making it either inconsequential or easier to control via other methods.

This blog will explore biological control, invasive species issues, and provide a step-by-step guide to how to responsibly raise and release Galerucella beetles for the control of purple loosestrife.

Sources:

PCA Alien Plant Working Group Invasive Species Profile
Purple Loosestrife (*Lythrum salicaria*)
http://www.nps.gov/plants/alien/fact/lysa1.htm (http://www.nps.gov/plants/alien/fact/lysa1.htm)

Restoration, Creation, and Recovery of Wetlands
Wetland Functions, Values, and Assessment
By Richard P. Novitzki, *ManTech Environmental Technology, Inc.*
R. Daniel Smith, *U.S. Army Corps of Engineers*
Judy D. Fretwell, *U.S. Geological Survey*
http://water.usgs.gov/nwsum/WSP2425/functions.html (http://water.usgs.gov/nwsum/WSP2425/functions.html)

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Pest Management – Invasive Plant Control
Japanese Knotweed – *Polygonum cuspidatum*
Conservation Practice Job Sheet NH-595

Japanese Knotweed (*Polygonum cuspidatum)*

Japanese Knotweed, leaves

Japanese Knotweed
Japanese knotweed, also known commonly as 'bamboo', is a native of Japan that was brought to the US from Britain in the late 1800's as an ornamental. It quickly naturalized and spread throughout the Northeast. It is found throughout the US and in all of New England.

Japanese knotweed is a shrub-like, herbaceous perennial (but dies back to ground each fall) that can grow to ten feet in height and form dense thickets that exclude native vegetation and greatly alter natural ecosystems. It poses a significant threat to riparian areas, where it can survive severe floods and is able to rapidly colonize scoured shores and islands. Once established, populations are extremely persistent and difficult to control.

Japanese knotweed is most commonly found in areas with full sunlight and where the soil has been disturbed. It is often seen along stream banks (erosion and deposition areas), roadways and waste places. Knotweed reproduces sexually as well as vegetatively through an extensive network of rhizomes (roots that can sprout new stems) that may spread up to 65 feet from the parent plant.

Knotweed may colonize new areas through wind dispersed seed as well as through transported root and stem fragments as small as ½ inch. Knotweed is often transported to new sites in floodwaters and as a contaminant in fill (along roads).

Description
Japanese knotweed's stout, hollow, bamboo-like stems and the large (3 to 6 inches long), broadly ovate, alternate leaves are distinctive. Tiny white or greenish-white flowers develop in August and September and grow in numerous linear clusters that form a mass of white over the plant when in full flower (see picture above). The plant is insect pollinated. Frost-killed stems turn bronze colored and may remain upright through winter.

Similar Natives
There are no similar natives in New Hampshire.

Control
Japanese knotweed control should take a watershed perspective, from the headwaters downstream, as the primary dispersal mechanism is by water (both seeds and plant fragments). Control of knotweed must be well thought out due to the extensive root system and sprouting ability as well as the site limitations.