

**An invasive-exotic plant control project along the Mill River in the town of Williamsburg, MA initiated by Lincoln Fish, Bay State Forestry Service during the summer of 2010.**

**Background:** This property is located between Route 9 and the Mill River on the downstream side of the Skinnerville Bridge in Williamsburg. An easy to find landmark is the Village Green plant nursery and ice cream shop, which is directly across Route 9 from the subject property. Our project area stretches from the Skinnerville Bridge downstream (southeast toward Haydenville) to the end of the highway guardrail almost across from McFadden’s Restaurant. Japanese knotweed, Asiatic bittersweet and other invasive-exotic plants have spread along the Mill River and Route 9 in recent years, and this property has been severely infested.

We desire to control invasive-exotic plants for many reasons, but foremost is their effect on wildlife and the ecosystem. Invasive-exotics crowd out native vegetation. Our native insects are not adapted to use exotic plants for food<sup>1</sup>, so you will not find insect larvae feeding on them. Insect larvae are in many ways the basis of the food chain. Most bird species depend on insect larvae to feed their young. A landscape dominated by exotic plants is disconnected from the food chain and has little to offer to the ecosystem.



**Knotweed downstream from Skinnerville Bridge June 2010**

Many people believe that trying to control knotweed is a futile effort, and that knotweed will always sprout back. Our past experience shows us that this is not true. Our objective in taking on this project is to control invasive-exotics, restore the dominance of native vegetation on the property and show that

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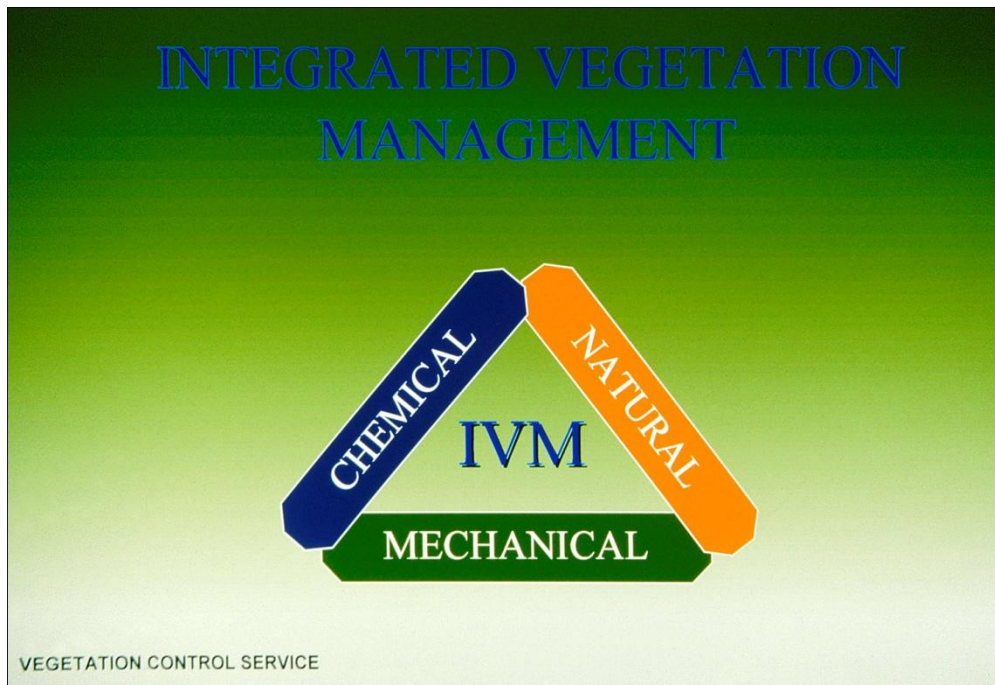
<sup>1</sup>Tallamy, Douglas W. *Bringing Nature Home: How Native Plants Sustain Wildlife in Our Gardens*. Timber Press, 2007.

exotics can be controlled with minimal impact to the environment. Our hope is that this demonstration will stimulate many more knotweed control projects in the region.

Since the property is located within 200 feet of a river, it was necessary to apply for a permit to do this work in a riverfront area from the Williamsburg Conservation Commission. This was done as a request for determination (RDA). Detailed plans were submitted describing the project, the site and the proposed work, including chemicals and their methods of application. All abutters to the property, including those across Route 9 and across the Mill River were notified and invited to a public hearing held by the conservation commission. After the public hearing, the commission approved the project.

Spraying herbicides along a public highway may require a separate set of permits under some circumstances. This project was deemed by the MA Pesticide Bureau's officer to lie outside of that permitting requirement, as the project was based on the abutting property and maintenance of the highway was not part of project's goals.

Our philosophy for the control of invasive-exotics is based on Integrated Vegetation Management (IVM). IVM involves the judicious use of mechanical and chemical controls to re-establish the dominance of native plants on the landscape. This three-pronged approach allows for far greater success in controlling invasives than would be possible via any single method.



The specific strategy for control of knotweed on the property, submitted as part of the RDA to the Williamsburg Conservation Commission and accomplished during the summer of 2010 is as follows:

1. All knotweed will be cut during June with a brush saw in preparation for a foliar spray in late August. The knotweed roots will resprout, and the plants will grow to a height of 3-5' rather than the 8'+ knotweed would attain without the June cutting. Spraying of the 3-5' clumps of knotweed sprouts can then be done precisely with little impact to adjacent native plants. Cut stems will be left in place, but no cut stems will be allowed to remain below the top of the river bank.



**Knotweed being cut with brush saw June 2010**

2. Also in June, large (greater than 6' tall) Asiatic bittersweet, multiflora rose and bush honeysuckle plants will be cut with a chainsaw and stump-treated with a solution of 25% triclopyr in order to prevent re-sprouting. This cutting of large plants will enable the late-summer foliar spraying to focus on small plants and thereby be more precise with minimal impact to native plants.
3. Between August 15 and September 10, the knotweed and all other invasive-exotics will be foliar sprayed with a 5% solution of glyphosate. On the same date, the Asiatic bittersweet will be foliar sprayed with a 5% solution of triclopyr.



**Knotweed Re-sprouts Ready for Spraying September 1, 2010**

Results: By mid-September 2010, the knotweed had turned brown as a result of spraying with glyphosate. The success of the project in killing knotweed roots will be known by June 2011, by which time any surviving root systems will have sent up sprouts. The sprayed bittersweet vines also yellowed and died during September. In some areas of the property the large dead bittersweet vines that were cut and stump-treated in June can readily be seen hanging from the trees that they once smothered.



**Foliar Spray of Knotweed with Backpack Mist-blower Sept. 1, 2010**

Based on the author's past experience, the demise of knotweed root systems in such a rich soil environment leads to rapid re-colonization of the site by well-adapted native plants such as jewelweed, goldenrod, swamp milkweed, and ironweed. It is anticipated that touch-up spraying will be done on the surviving invasive-exotics during August of 2011 and 2012. After that time, it is anticipated that control will be achieved with a combination of native plants re-occupying the site, along with volunteer monitors to identify and hand pull the invasive-exotic plants.

One interesting "discovery" on the site is the presence of Dutchman's-Pipe (*Aristolochia durior*), a vine with large heart-shaped leaves that is native in the U.S. from Pennsylvania south. Its presence here is probably a relic from the time when the Skinner houses were located across the street before the flood of 1874. We decided to leave it on the site because although not technically native to Williamsburg, it likely has some native insects that feed on its foliage, such as the pipevine swallowtail butterfly.



#### **Dutchmans-Pipe Vine Growing Across from the Village Green Parking Lot**

We welcome interested citizens to view this project, but be warned that traffic is extremely fast and dangerous on Route 9 here. One safe and comfortable way to view the site this summer would be from across the street, eating lunch at a picnic table at the Village Green!

**SUMMARY:** The ability of the Williamsburg Conservation Commission to approve this proposal was contingent on at least three factors: 1) the chemicals to be used were known to be as non-toxic as possible and approved for use adjacent to wetlands<sup>2</sup>; 2) the project would be accomplished with the minimum amount of herbicide possible and 3) the application method would be selective and minimize damage to non-target native vegetation. These three important issues are addressed in the paper entitled Knotweed Control, written by Lincoln Fish and attached as a separate document.

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<sup>2</sup> [http://www.mass.gov/agr/pesticides/rightofway/Sensitive\\_Area\\_Materials.htm](http://www.mass.gov/agr/pesticides/rightofway/Sensitive_Area_Materials.htm) This link is to the MA Pesticide Bureau's Sensitive Area Materials List for right-of-way weed control.

Also attached is a bibliography of suggested readings for anyone concerned with the problem of invasive-exotic plant species.

References:

1. Tallamy, Douglas W. *Bringing Nature Home: How Native Plants Sustain Wildlife in Our Gardens*. Timber Press, 2007. Written by an entomologist, this book explores the connection between native plants, insects, wildlife and a healthy ecosystem. His research focuses on gardening and landscaping around our homes and he presents a compelling argument for landscaping with native plants. This is a hugely important book about a critical environmental issue.
2. The MA Pesticide Bureau maintains a Sensitive Area Materials List of herbicides suitable for use in sensitive (e.g. wetland or riverbank) areas. This list is the result of a cooperative effort between MA DAR and DEP. Much research has gone into selecting the chemicals on this list that those of us who work on invasive control in sensitive areas can benefit from. The link is: [http://www.mass.gov/agr/pesticides/rightofway/Sensitive\\_Area\\_Materials.htm](http://www.mass.gov/agr/pesticides/rightofway/Sensitive_Area_Materials.htm)