

# Exotic-Invasive Plants in the Southern Appalachians

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The word “exotic” usually invokes things tropical, lush, and mysterious. We don’t often think of exotic as something “not native to a place,” but, thanks to 150 years of plant introductions to the Southern Appalachians (and indeed – around the globe), we now host an array of exotic (not the lush, mysterious type) and highly invasive plants, a.k.a “Exotic-Invasive” or “EI” species.

Thanks to years of study, it is now well known that EI plants markedly disrupt and alter native ecosystems, rare species populations, stream and wetland dynamics, and wildlife habitat. EI plants often out-compete native plants through rapid growth and shading or smothering. Although some ecologists feel that trying to eliminate these plants is a waste of time considering how extensive the invasions are, strategic control of EI plants can protect sensitive areas, rare plants and wildlife, thus helping preserve our unparalleled biodiversity—several thousand native plant & wildlife species.

This article highlights the major EI plants in the mountain region, some control methods, strategies and considerations, two SAHC easement control examples, and a few online resources for further study. This discussion excludes the numerous introduced-but-naturalized and mildly invasive plants species and does not address management of aggressive early-successional native species. In the frequent case of disturbed areas, these species’ dominance reflects our historically harsh land-use history. One redemptive feature of these plants is that they often provide reliable sources of food and escape cover for wildlife species trying to make a living in these depauperate but recovering natural areas.

## **Pre-Control Work**

Before control efforts begin, EI species must be identified, mapped, and described in terms of their locations, number of stems or square-foot coverage, and impacts estimated on natural areas. This information helps prioritize which species may be treated, when, and by what methods. In some cases, mass infestations cannot be treated at all. For example, huge invasions of Japanese Stiltgrass or Japanese Knotweed are often “intractable” as a whole, but may be strategically removed in key areas where rare species or rare habitats exist such, as streams and wetlands, or where they are found in very small numbers in order to preclude their spread.

## **Planning the Removal**

A plan is then devised to control the greatest number of plants (or coverage) in the most important areas in the least amount of time. Many factors guide a removal action including time of year, rare species considerations, weather and temperature, location within the property, colony size, and accessibility.

## **Control Methods**

Control of EI plants may be done by hand (manual controls) or in combination with herbicide applications (chemical controls). Smaller control projects can sometimes be done by simply hand-pulling or cutting without herbicide usage – an option some landowners prefer. Large infestations however, often have numerous species to control and typically require herbicide applications to be effective. When properly performed, they work much faster and more efficiently than manual controls alone. This is primarily because most EI plants simply re-sprout after pulling or cutting even from the smallest root-sections left in the soil, making this a poor option for large areas.

The two primary herbicide application methods are the “hack & dab” method and foliar spraying; the latter being used only for mass infestations of large colonies (at the appropriate time of year). Hack & dab is easy – the EI plant is cut or girdled at ground level and carefully dabbed or sprayed with the herbicide immediately, taking care to prevent overspray. Larger trees only need to be sprayed within the outer 3 to 4 inches of diameter (where the cambium is). Vines growing on trees (or hanging) are then cut again at eye-level and these sections are removed to allow you to see your work.

Foliar spraying is used for very large, low-growing infestations of colony-forming plants like Japanese Honeysuckle, Privet, Bittersweet, or Silvergrass - and only when absolutely necessary. Foliar sprays usually take out the majority of an EI colony in no time, allowing you to re-spray or even hack & dab the remnants until

the invasion is gone

The most effective chemicals are available by permit only, such as Accord or Garlon 3A. These chemicals have been shown to break down in plant tissues into inert organic compounds (which is another topic as well). Understand however, that one treatment might be insufficient – follow-up and monitoring are necessary for successful control, and this requires patience and persistence. Do not attempt to apply herbicides yourself.

### **SAHC Easement Control Examples**

MTS has performed two removals on SAHC easement properties for landowners concerned with the health of their land: -the Hultquist Easement, adjacent to the Great Smoky Mountain National Park in Haywood County, and the Dalton Easement in the Spring Creek Township of Madison County.

The Hultquist property protects a block of high elevation forest with seeps, streams, forests, and a meadow where elk have recently been born. It was never continually farmed or timbered and thus, many EI plants are absent from the tract. About sixty years ago, English Ivy was planted near the old homestead, which over time grew to cover nearly an acre in two areas. In early 2007, MTS hand-raked and sprayed the colonies. This plant is very slow to show response but by July, we observed a 95%-plus success rate and re-treated again in fall 2007. To our surprise we observed several enormous “grandmother” root systems deeply embedded in the soils, which simply could not be removed without labor we did not foresee. Thus, in late 2008, a final (we hope) treatment will be applied to these massive remnants to complete the removal.

Maxine & Jack Dalton’s Spring Creek property has a very different scenario. Maxine writes:

“We moved to Madison County in the mid 1990’s and immediately noticed a multiflora rose infestation. Our first year Jack cut down several huge shrubs in the pasture, but they came back in the spring with vigor. As we began to grasp how cleverly they could take over entire coves and hillsides, I decided to cut them all myself.

“Each year I would set aside one area to tackle, but I was completely overwhelmed. However satisfying a cleared 100-foot square project might be when done, one look around showed that the roses grew faster than I could take them out. Not wanting to use chemicals, I tried to find someone who could pasture goats on the colonies, but I found no one and I’m no goat farmer. Finally, a friend of mine told me that there was someone who could help me get rid of the roses.”

And that’s how I met Maxine. In November 2007, the MTS team spent a little under three days using small chainsaws and hedge-trimmers to cut woody stems, with ultra-precise follow-up applications of Garlon 3A (while avoiding the 4.2 million box turtles on-site) to eliminate all Multiflora shrubs within Maxine’s major target areas. Though many plants are entirely dead, some have predictably re-sprouted, though at a rate far below what would be expected without herbicide treatments. There are still plants to control and 100 years of seed-banking to contend with – an invasion of such lengthy time span can’t be controlled in just one treatment. But the land is breathing a sigh of relief at present.

### **Resources**

1) Invasive.org - <http://www.invasive.org/>. The premier invasive plant & animal species website that is a joint project of the USDA Forest Service, USDA APHIS PPQ, University of Georgia’s Warnell School of Forestry and Natural Resources / College of Agricultural and Environmental Sciences / Department of Entomology, and the Bugwood Network.

2) Southern Appalachian Man and the Biosphere’s (SAMAB) “Invasive Species Focus Area” - <http://www.samab.org/Focus/Invasive/about.html>. SAMAB hosts a website with more educational features than can be listed in this article. Give it a look. Also has curriculum material for schools.

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