Hemlock Woolly Adelgid

The Threat

Hemlock woolly adelgid (*Adelges tsugae*; HWA) is an Asian insect that feeds on the sap of hemlock trees (*Tsuga spp.*). Infestation is always fatal to the tree; from initial infestation to mortality takes four to ten years. In North America, this pest has infested hemlocks in at least 16 states and is a critical threat to the Eastern hemlock (*T. canadensis*) and other North American hemlocks.

In eastern North America, hemlocks are known both for their beauty and ecological importance. They are very long-lived, often surviving in the understory of deciduous trees for decades, then becoming dominant. Hemlocks cast very deep shade and their leaf litter is highly acidic – the combined effects have a significant impact on understory composition, soil nutrient status, and fire regimes. They are often the only conifer in the moist, sheltered forests of the Appalachians and provide unique habitat for breeding birds, freshwater fish, and a diverse array of aquatic invertebrate species. Removal of hemlocks from Eastern forests would have a profound effect – no other tree species can play a similar ecological role. Hemlocks are also popular as ornamentals due to their soft, dark green foliage. Many state and national parks, state forest campgrounds and forested trail systems feature majestic hemlocks because of their stature, beauty, and sense of ecological and historical significance.

The Situation

In 2006, Michigan officials verified an infestation of HWA around Harbor Springs. Infested hemlocks from an Eastern state had been planted in 2003 by a landscaper. This infestation, if left unchecked, would have killed vast numbers of hemlocks and greatly increased the range of this invasive insect.

The Response

University, state and federal partners initiated an intensive, rapid response. All the infested trees, as well as many adjoining native trees, were immediately removed to eradicate the infestation. State officials preventatively treated a perimeter of hemlock with insecticide for three consecutive years to prevent spread of the pest and reinfestation. Ongoing surveys of the area are monitoring the success of these efforts.

To prevent future infestations, Michigan established a quarantine prohibiting the importation of all hemlock material from regions with known infestations. Though the hemlock woolly adelgid will continue to kill hemlocks in the established introduced range, the response in Michigan succeeded in preventing a huge range expansion.

Based on text from Robert L. Heyd, Michigan Department of Natural Resources

Connecticut Agricultural Experiment Station Archive, Connecticut Agricultural Experiment Station, Bugwood.org

Hemlock woolly adelgid

William M. Ciesla, Forest Health Management International, Bugwood.org

Hemlock woolly adelgid damage

ELEMENTS OF SUCCESS!

- Early detection and reporting by an informed member of the green industry
- Rapid eradication response by responsible agencies and Michigan State University
- Intensive and ongoing survey and monitoring, both locally and statewide
- Strengthening of existing quarantine

Great Smoky Mountains National Park Resource Management Archive, USDI National Park Service, Bugwood.org

Treatment for hemlock woolly adelgid

If this infestation had not been eradicated, hemlock woolly adelgid would have rapidly and dramatically expanded its range into the forests of the upper Great Lakes and Canada.

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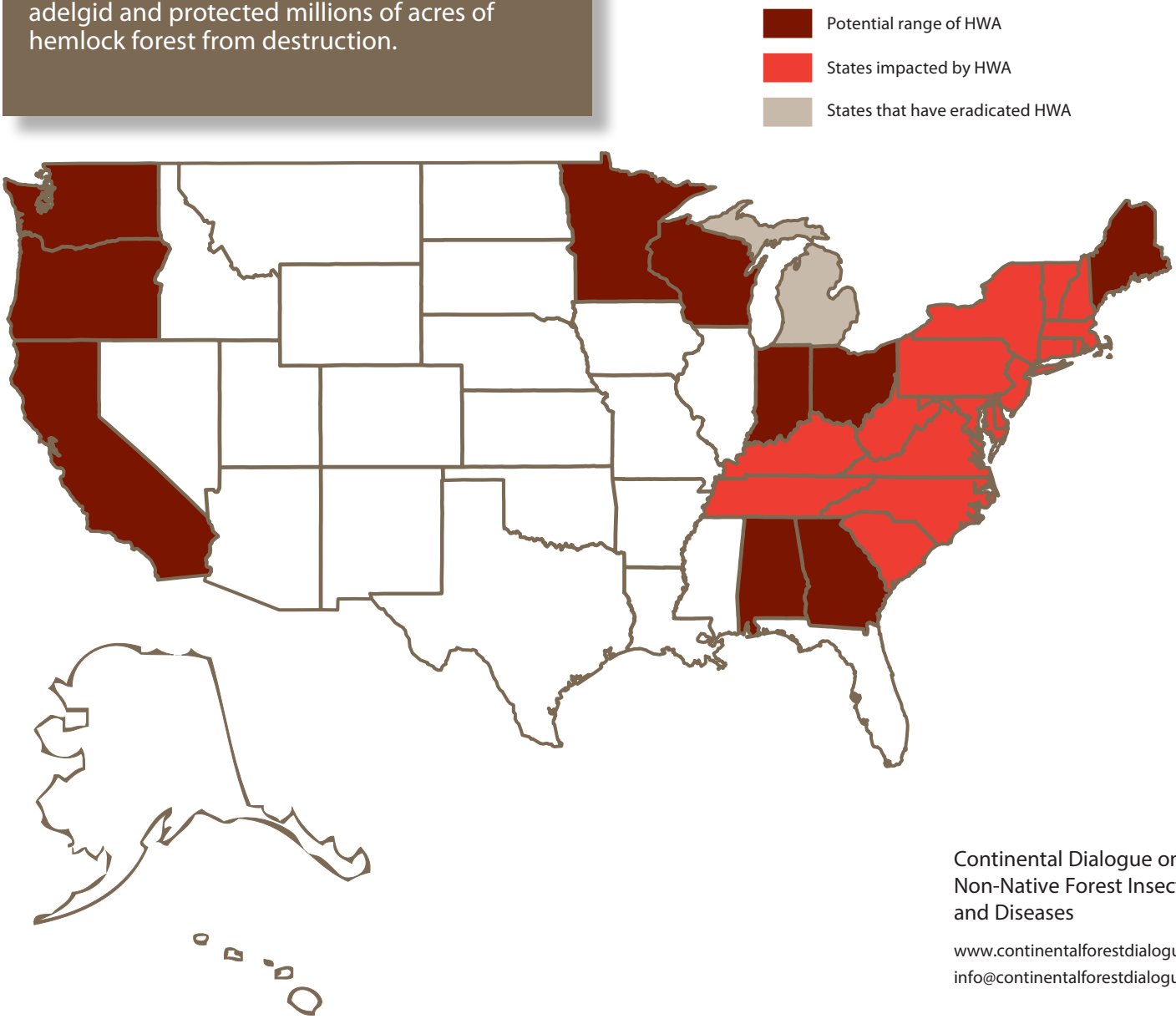
Although the valuable hemlock stands of the upper Great Lake States are geographically isolated, the importation of hemlock nursery stock from eastern regions considered generally infested with hemlock woolly adelgid place this important resource at risk. This successful collaborative effort eradicated an accidental introduction of hemlock woolly adelgid and protected millions of acres of hemlock forest from destruction.



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