

## **An Initiative for Management of Hemlock Woolly Adelgid**

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### **Abstract**

The potential ecological impacts of hemlock woolly adelgid are enormous and in response to this threat, a 5-year initiative calling for expanded research and technology development has been proposed. Biological control activities will be the cornerstone of the initiative.

### **Keywords:**

Hemlock woolly adelgid, research and management initiative.

### **An Exotic Pest Threat to Eastern Hemlock**

Hemlock woolly adelgid is the single greatest threat to the health and sustainability of hemlock as a forest resource in eastern North America. The potential ecological impacts of this exotic insect pest can be compared with those of gypsy moth, Dutch elm disease, and chestnut blight.

The USDA Forest Service, in cooperation with the National Association of State Foresters and the National Plant Board, is proposing an expanded program to develop and implement hemlock woolly adelgid management strategies with a goal of reducing the impact and slowing the spread of this exotic pest. This 5-year initiative calls for expanded research and technology development combined with accelerated management efforts to implement existing and newly developed control techniques. This document briefly describes this initiative's goals and needed funding requirements.

## Background

In the early 1950s, a small, aphid-like insect was first observed feeding on hemlock in Virginia. This insect was the hemlock woolly adelgid (HWA), *Adelges tsugae* (Annand), an exotic pest native to Japan and China. The HWA has since spread to 13 eastern states where it attacks two species of hemlock – the eastern hemlock and Carolina hemlock. The HWA is responsible for extensive mortality and decline of hemlock trees in the eastern United States. The insect has steadily spread from its point of introduction and is a serious threat to survival of hemlocks throughout eastern North America.

## Key Issues

### *Infestation by the HWA continues to grow.*

- Half the range of hemlock in the East is now infested.
- The entire range of eastern hemlock is at risk.
- In the past year, HWA was found in isolated locations in Maine and Michigan.

### *Forest Resources are severely threatened.*

- Extensive tree mortality and decline are found throughout the infested region.
- Severe impacts to date are in Virginia, New Jersey, and Connecticut.
- In New Jersey, hemlock mortality in heavily infested stands is estimated at 36 to 86%.
- Scientists predict significant tree mortality throughout the range.
- Harvesting of hemlock is proceeding at a rapid pace in an attempt to salvage value from threatened and dying trees.
- Impacts to hemlock forests and ecosystems are expected to intensify.

### *There is a need for accelerated development of and implementation of technology to control the pest.*

- HWA is an exotic species and there are no native enemies to keep it in balance.
- Detection of low-level populations is difficult.
- Current survey and monitoring activities are not adequate.
- Control with insecticides is expensive and limited to accessible areas.
- Biocontrol presently offers the only means to manage HWA in forest environments.
- Additional investments are needed to develop, refine, and implement management tools and strategies.

## Program Components

***Research and Development.*** Research will focus on identifying and providing environmentally safe control options, developing a means to recognize the susceptibility of individual trees and the vulnerability of stands, using improved methods to survey populations and damage, predicting

spatial and temporal movement and impacts, developing a knowledge base for restoration of damaged stands, and improving understanding of HWA biology and interactions with other pests.

**Management.** The goals include implementing control tactics by expanding technical assistance and use of cost-share programs; establishing a program that will slow the spread of HWA; identifying ecological and economic impacts so that management activities can be properly directed; providing guidelines and demonstrations of BMPs for the harvest and reforestation of damaged stands; and jointly with research, accelerating development of new management tactics and tools to assist forest managers, forest health specialists, and homeowners.

**Funding Needs.** Based on initial analysis and review of the HWA threat, an estimated \$25 million in federal funds is needed over the next 5 years to develop necessary management tools to mitigate HWA impacts and slow the spread of this pest. Table 1 illustrates these estimates.

**Table 1. Estimated Funding Needs for Accelerated HWA Initiative (\$\$ in thousands)**

Program Component	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Total
Research & Development	\$3,000	\$3,000	\$2,500	\$2,000	\$1,500	\$12,000
Management	\$1,940	\$1,900	\$2,350	\$2,800	\$3,250	\$12,240
Information Transfer	\$60	\$100	\$150	\$200	\$250	\$760
Totals	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$25,000

Funding Requirements by Expanded Budget Line Item

Program	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Total
Forest and Range Lands						
Research	\$3,000	\$3,000	\$2,500	\$2,000	\$1,500	\$12,000
State and Private Forestry						
Federal Lands FHM	\$746	\$640	\$940	\$1,240	\$1,555	\$5,121
Cooperative Lands FHM	\$1,254	\$1,360	\$1,560	\$1,760	\$1,945	\$7,879
Totals	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$25,000