



Highlight –

Keeping the Forests Safe from Insect Pests

As trade among nations of the world has flourished, the door has opened wide enough to enable exotic insect pests to crawl through. Our entomologists working in East Lansing, Michigan, provide basic information on the biology and ecology of exotic forest insects so managers can formulate proper management strategies. Our work over the years has influenced development of policy and regulations to control various pests on regional, national, and international scales.

Finding and Controlling the Asian Longhorned Beetle

The Asian Longhorned Beetle (ALB) is the most serious exotic invasive forest insect to have entered the United States in recent years. ALB was first discovered in New York City in 1996 and then in Chicago in 1998. Through studies of different insecticides and application techniques conducted in the U.S. and China, our entomologists identified the most promising treatment for controlling the pest. Based in part on these findings, the Animal and Plant Health Inspection Service (APHIS) treats susceptible host trees in New York and Chicago with insecticide injected into tree trunks to inhibit infestation by ALB. To date more than 35,000 trees in Chicago and 23,000 trees in New York have been treated.



Our scientists also developed acoustic technologies that would allow detection of ALB larvae as they feed inside the tree. Working with acoustic engineers at the Oak Ridge National Laboratory, we developed a fully portable data collection and analysis system. APHIS will use this hand-held field instrument as part of the ALB eradication program and at ports of entry to detect infested wood packing materials.

Developing a Monitoring System for a New Exotic Bark Beetle

The Eurasian red-haired pine bark beetle was first detected in the U.S. in November 2000 in a Christmas tree plantation near Rochester, New York. This beetle is a good vector of certain root rot fungi and threatens pine forests nationwide. Our entomologists have determined the most effective way to lure and trap these insects and have learned their seasonal flight pattern. These findings will help APHIS and others select the best trap, lure, and time of year to conduct surveys to monitor the spread of this new exotic forest pest.

Improving Treatments for Gypsy Moth Control

Gypsy moth is an exotic species that can cause major damage to forests in Michigan and the Northeastern U.S. Our meteorologists and entomologists developed a model that shows the relationship between air temperatures and gypsy moth egg hatching. This work can improve the efficiency and timing of gypsy moth control spraying in the spring, thereby reducing management costs and damage to trees.

Stopping the Spread of Pine Shoot Beetle

Since 1992 the Christmas tree industry in Michigan and 11 other States has been under Federal quarantine due to discovery of the exotic pine shoot beetle. The quarantine was put in place to control movement of pine logs, pine bark and boughs, pine Christmas trees, and pine nursery stock from infested to uninfested areas and requires inspection or treatment prior to shipping trees and other pine wood materials.



Our entomologists and their cooperators have been providing research information on the pine shoot beetle life cycle to APHIS for more than 10 years. Based in part on this information, APHIS re-evaluated the pine shoot beetle quarantine in order to ease restrictions on the movement of forest products. In 2000, the beetle threat was downgraded to a rank of medium risk pest (as compared to its high risk pest rating in 1992). As it stands today, the quarantine is still in effect.

A Pocket Guide to Christmas Tree Diseases

Growing Christmas trees is a big business. More than 30 million trees are harvested each year in the United States, with nearly 10 million harvested in the Lake States. We produced the “Pocket Guide to Christmas Tree Diseases” as a user-friendly tool for identifying tree pests. The guide is now being used by the Christmas tree industry and local growers to identify and treat pests affecting their trees.