

Healthy Forests in Kentucky

N EARLY 50 % OF THE LANDMASS IN KENTUCKY IS FORESTED, AND THESE FORESTS ARE AN INCREDIBLY IMPORTANT RESOURCE FOR OUR CITIZENS—ECONOMICALLY, ECOLOGICALLY, AND SOCIALLY. MORE THAN 37,000 JOBS ARE DIRECTLY RELATED TO THE FOREST INDUSTRY IN KENTUCKY. WOOD AND WOOD PRODUCTS GENERATE OVER \$8 BILLION ANNUALLY. THE ESTIMATED ECONOMIC IMPACT OF FISHING, HUNTING AND WILDLIFE WATCHING ON THE ECONOMY OF KENTUCKY, ALL OF WHICH DEPEND ON HEALTHY FORESTS, IS OVER \$3 BILLION ANNUALLY. PROTECTING THE HEALTH OF KENTUCKY'S FORESTS IS VITALLY IMPORTANT, AND REQUIRES MODERN SUSTAINABLE FOREST MANAGEMENT PRACTICES. CRITICAL ASPECTS OF SUSTAINABLE FOREST MANAGEMENT REQUIRE PREVENTING THE ESTABLISHMENT AND SPREAD OF INVASIVE PEST SPECIES THROUGH MONITORING, SUPPRESSION, AND PUBLIC AWARENESS.



Threats to Healthy Forests in Kentucky

Continued globalization and rapid worldwide movement of goods have led to increases in the importation of exotic pathogens, plants, and insects. Many of these exotic species are potentially invasive species that can alter forest ecosystems and threaten the health of Kentucky's forests. In addition, endemic pests continue to plague our forests; the severity of their impact is often exacerbated by forest fragmentation and changing climatic conditions. Increasing commercial and recreational activities pose additional pressures on our forests and natural resources.

Goal: Healthy Forests in Kentucky

Our long-term goal is to maintain forests in Kentucky that have the capacity for renewal, for recovery from a wide range of disturbances, and for retention of their ecological resiliency, while meeting societal needs for uses, products, and services.

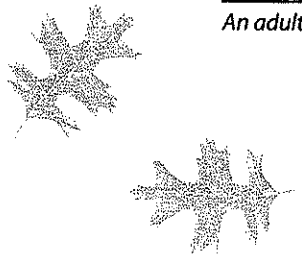
Invasive Pests Threatening Kentucky's Forests

Sudden Oak Death—Kentucky is at high risk for Sudden Oak Death because of our optimal climate and forest composition (red oaks are highly susceptible; 72% of our forests are the oak-hickory forest type). A proactive monitoring program for Sudden Oak Death in forests and nurseries has been in place for over four years, sampling tens of thousands of plants (www.KYforesthealth.org). There have been no positive finds in Kentucky. Additional information about the types of samples taken and the results of these samples can be found at http://www.ca.uky.edu/caps/sudden_oak_death.asp.

Emerald Ash Borer—This exotic invasive insect was first discovered in Michigan in 2002, and has since expanded its range into several adjacent states and parts of Canada (www.emeraldashborer.info). The emerald ash borer has killed more than 40 million ash trees in Michigan and cost municipalities and the forest industry tens of millions of dollars. Active infestations exist within 1 mile of Kentucky, just across the Ohio River in the Cincinnati area. Emerald ash borer is a wood-boring insect that feeds on the vascular system and kills its hosts, which include virtually all eastern ash species. It is a major threat to the ash in our forests, and could devastate landscape plantings and urban forests (www.KYforesthealth.org). In 2007, the State Parks in Kentucky banned out-of-state firewood as a proactive measure to prevent the spread of the emerald ash borer and similar exotic pests to state campgrounds. In 2008, over 3500 traps were placed in trees in Kentucky to capture adults of the Emerald Ash Borer. As of November 2008, the Emerald Ash Borer had not been detected in Kentucky. The Kentucky Forest Health Task Force is developing a response plan for when the Emerald Ash Borer is found in Kentucky. To report a suspected infestation of the emerald ash borer in Kentucky - Call 1-866-322-4512 or the Office of the State Entomologist. (859) 257-5838. For more information see <http://pest.ca.uky.edu/EXT/EAB/welcome.html>.



An adult emerald ash borer.



Hemlock Woolly Adelgid—

First discovered in Kentucky in March 2006, this insect has killed over 75% of the hemlocks in neighboring Virginia's Shenandoah National Park. The potential loss of hemlocks in eastern Kentucky would have major ecological and environmental effects on forest health, including soil erosion, water quality, and biodiversity (www.KYforesthealth.org). State agencies and private citizens are treating adelgid infestations, and long-term monitoring to assess its effects on forest composition and structure have been implemented. In spring 2008, in collaboration with the US Forest Service over 3000 infested trees were treated with soil injections at Bad Branch and Blanton Forest State Nature Preserves. An additional 500 trees were treated at Lily Cornett Woods. Nine thousand predatory beetles (*Sasajiscymnus tsugae*) were released on state nature preserves in spring 2008. In February 2008 approximately 700 predatory beetles (*Laricobius nigrinus*) were released in Bell and Letcher counties. Private citizens and government agencies have joined together to raise awareness and funds to combat the spread of hemlock woolly adelgid in Kentucky. For more information on this effort, please go to <http://kyhemlocks.org/> A detailed map of adelgid surveys in the state is at <http://www.uky.edu/~sfei2/hwa.htm> Additional information on the adelgid can be found at <http://pest.ca.uky.edu/EXT/HWA/welcome.html>.



A branch infested by the hemlock woolly adelgid.

Gypsy Moth—The invasive gypsy moth remains a constant threat to Kentucky's forests. In neighboring West Virginia the gypsy moth has caused 20% oak mortality, resulting in \$20M in revenue losses and a shift in forest species composition away from susceptible oaks and to less valuable hardwood species. Ohio's recent decision to stop surveying for the gypsy moth increases the risk of infestations in Kentucky. The composition of Kentucky's oak-dominated forests makes them extremely susceptible. An active program over the past 15 years involving surveying, monitoring, and eradication have kept the effects of gypsy moth on Kentucky's urban and rural forests to a minimum. In 2008, 180 adult male gypsy moths were collected in Kentucky; over 100 adults were collected from one location in Campbell County. Intensive

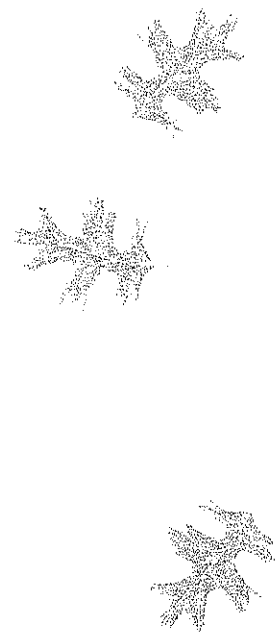
egg mass surveys and additional trapping are planned for this problem area. Results of recent gypsy moth surveys in Kentucky can be found at <http://www.uky.edu/Ag/NurseryInspection/gypsymoth/gminfo.html>.

Sirex wood wasp—In 2008, members of the Kentucky Division of Forestry, USDA-APHIS and the State Entomologists Office began trapping and monitoring for Sirex wood wasp, a new threat to North America's pine. In its native range, spanning from Europe and northern Africa to Mongolia and southern Russia, Sirex is considered a minor pest. In contrast, this wasp is considered a major pest in areas it has invaded, including New Zealand, Australia, South Africa and South America. It has recently invaded North America where it was detected across the pine-heavy southeastern US and in New York, Michigan, Pennsylvania and Ontario. As of November 2008, no Sirex have been collected in Kentucky. For additional information on the Sirex wood wasp, see <http://www.ca.uky.edu/caps/siricid.asp> and <http://www.na.fs.fed.us/fhp/sww/>.

Non-native Invasive Plants—Asian bittersweet, several honeysuckle species, garlic mustard, tree-of-heaven, and kudzu are examples of the exotic invasive plants changing the face of Kentucky's forest landscape. These invaders compromise forest health by reducing productivity and biodiversity. Increased education and awareness, and improved management practices are essential to minimize the impact of non-native invasive plants. Information about invasive plants in Kentucky can be found at <http://www.naturepreserves.ky.gov/inforesources/factsheets.htm>. For information on the distribution of invasive plants in Kentucky or to report sightings <http://www.se-eppc.org/eddmaps/distribution.cfm>.



Bush honeysuckle.



**We must find ways to curtail the explosive growth of invasive species
and protect Kentucky's forests for future generations.**

Additional support required for combined federal/state/university programs
in management, research and education:

\$10 million total (\$2 million for each of the next 5 years represents
less than 0.2% of the economic value of Kentucky's forests).

A \$10M investment in Kentucky's forest health will provide . . .

Surveys—systematic aerial and ground surveys of Kentucky's
threatened resources, including old growth hemlocks, oak, and
ash (\$2M)

Detection—detection surveys for invasive species, including sud-
den oak death, hemlock woolly adelgid, emerald ash borer, gypsy
moth, invasive plant species (\$2M)

Management—including use of both traditional and novel ap-
proaches (natural enemies for hemlock woolly adelgid control,
goats for suppression of invasive plants) (\$2M)

Education—human activities influence the spread of many in-
vasive species; Kentucky's citizens need to be informed. K-12
programs must be developed to educate our young people.
Enhanced extension activities to inform special interest groups
(\$2M)

Restoration—replanting and restoring natural, urban, and mu-
nicipal areas (\$2M)

We must respond to these invasive species using a coordinated
and intelligent approach, or the composition and integrity of
Kentucky's forests will be irreversibly altered. The many eco-
nomic benefits derived from our forests will be dramatically re-
duced. We need to act now to prevent the loss of oaks, ash, and
hemlocks, and many native wildflower and under-story plant
species from Kentucky's forests.

Organizations with representatives on the KY Forest Health Task Force:

- Kentucky Woodland Owners Association
- Kentucky Forest Industries Association
- US Department of Agriculture
 - Forest Service and Daniel Boone National Forest
 - Animal Plant Health and Inspections Service
- State of Kentucky
 - Division of Forestry
 - Division of Fish & Wildlife
 - Department of Agriculture
 - Nature Preserves Commission
- University of Kentucky
 - Department of Entomology
 - Department of Forestry
 - Department of Plant Pathology

This report was printed by:

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*For information about the KY Forest
Health Task Force KYForestHealth.org.*

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