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## 1. **INVASIVE SPECIES: Federal, state agencies struggle with best programs to protect forest health**

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*The second in an ongoing series of reports.*

You would be hard pressed to find anyone in the public sector who thinks there is much of a chance of completely eradicating destructive invasive species once they have established a foothold in forests and woodlands. So, increasingly, education, prevention and management practices are taking a higher priority for federal and state agencies trying to marshal scarce resources.

Invasive species, defined in federal policy as both nonnative and having the potential to cause serious economic harm or health impacts, can rival such native pests as the pine beetle in their destructive potential to trees and woods.



Adult beetles. Photo courtesy of USDA Animal and Plant Health Inspection Service.

During a recent conference of Agriculture Department officials, environmental groups and others invested in invasives and their effect on forests, multiple speakers expressed various levels of pessimism on funding, public education and past approaches. Nonetheless, most also expressed optimism that efforts were faring better than in the past.

Forest invaders, including the emerald ash borer, Asian longhorned beetle and siren woodwasp are likely to proliferate because it is impossible to guard against all their possible methods of transmission, admitted USDA Deputy Undersecretary Dave Tenny.

Overall, the federal government budgets about \$1.2 billion per year for all invasive species efforts. The Forest Service requires matching funds or equivalent spending from recipients; the FS budget for the four states affected by the ash borer is \$10 million this year, according to the Ohio Agriculture Department's emerald ash borer program spokeswoman Melissa Brewer.

USDA Forest Health Programs Director Rob Mangold said the Forest Service spends \$60 million to \$80 million per year on all forest health programs, including invasive plants, insects and pathogens.

Agencies are trying to concentrate spending where it will do the most good -- USDA's Animal and Plant Health Inspection Service is spending \$250,000 to

monitor nine Russian ports for Asian gypsy moth. The last outbreak of the moth, in Wilmington, N.C., in 2002, cost \$30 million to suppress, according to Mangold.

USDA estimates that costs of removing and replacing ash trees in urban and suburban areas killed by the ash borer could reach \$7 billion over the next 25 years across the country.

The key to the U.S. battle may be raising public awareness and involvement, Tenny said. For example, residents of New Jersey, New York and Illinois noticed strange insects and called inspectors, who discovered Asian longhorned beetle infestations. The beetle -- which USDA says could cause more damage than Dutch elm disease, chestnut blight and the gypsy moth combined -- is believed to have entered the country in crates from China.

USDA officials admitted their previous effort -- "protection through inspection" -- was flawed, since it allowed an invader to enter the country before its detection. The agency's new policy of prevention, detection, rapid response and recovery is aimed at improving front-line defenses, they said.

Efforts now are focused on "slowing the spread." Current mitigation mainly entails removing infected trees and chipping or burning them. Public-education campaigns like those in Michigan, exhorting residents to avoid transporting firewood, are also proving effective.

But, Tenny said, "no matter how well we communicate, we can never communicate well enough."

Other officials struck a similar note of futility. Bruce Knight, USDA undersecretary for marketing and regulatory programs, said, "Even if we had a blank check, it wouldn't be enough." Knight, noted that more invasives entered the country in the past 15 years than in the previous 60 years ([Greenwire](#), Nov. 15).

### **Emerald ash borer -- a most insidious invasive insect?**

States are finding that even approaches that proved moderately effective two years ago are useless now. Indiana, which sighted its first emerald ash borer in Steuben County in 2004, cut down 120,000 trees before concluding in January that it was a lost cause. "We don't believe it's efficacious because the beetle has probably moved beyond the cut zone," said state entomologist Bob Waltz.

The emerald ash borer, a beetle from Asia that first surfaced here in the Detroit

area five years ago, has killed more than 20 million ash trees in Michigan, Ohio and Indiana, most recently entering Maryland. It likely arrived in packing crates and continued its spread through firewood and living trees.

Waltz noted that the beetle's spread was well beyond its natural range of a half-mile per year -- its movement had to have been human-caused, either from logging, nursery stock or firewood transport. Late last year, the state found a 3.5-mile patch of beetle-infested ash in Huntington County, with additional infestations in LaGrange, Adams, Marion and Hamilton counties. "It would've taken several million dollars to cut down," Waltz said.

Indiana now relies on tree and root injections, as well as research efforts by Purdue University and Michigan State University. Quarantine is still used, as well, as are "trap trees," which are intentionally injured to attract the beetle and then checked later for larvae. Late last month, the insect was found anew in three trap tree locations, including an initial incursion into DeKalb County.

"Controlling may be more realistic" than eradicating, Waltz said. "Using existing technology, it's very unlikely."

Overall, the beetle poses a threat to 300 million ash trees in Indiana: 147 million in standing timber, wood lots and forests, and another 145 million or so in the "urban landscape."

Other threats in Indiana include the Asian ambrosia beetle, gypsy moth and the sirex woodwasp, which is not yet present in the state but was found once in a shipment of marble from Italy. Surveys over the past three years of pine trees within a 30-mile radius of the warehouse where the insect was found have shown no sign of infestation.

Ohio's Agriculture Department also runs monitoring surveys that look for sirex woodwasp, viburnum lead beetle, chrysanthemum white rust, sudden oak death and soybean rust. Its emerald ash borer eradication program began in 2002 when the insect was detected just below the Michigan border. Tools include quarantine, spreading the word at trade shows and public educational methods like bumper magnets, TV ads, road signs and billboards. Earlier this month, the state Agriculture Department announced that taking ash wood out of three counties was prohibited and could bring a fine of \$4,000.

Brewer said that especially in the case of the ash borer, public outreach is critical because of the huge role people play in spreading the insect. "We urge them to do their part in detection and limiting spread," she said.

Federal officials also stressed the importance of public education in dealing with forest pests. "The Southwest might not be fully aware" of the threat invasives pose, Tenny said. But "the Northeast, yes."

#### Other tools

Conventional tools for combating invasive plants and insects include biological, mechanical and chemical controllers. The National Park Service's Plant Conservation Alliance Alien Plant Working Group emphasizes stopping invasives before they start: by limiting people-caused spreading, which can include transporting livestock and firewood, moving from one state to another or buying infected trees from nurseries.



Tunnels made by emerald ash borer larvae. Photo courtesy of USDA Animal and Plant Health Inspection Service.

#### Prescriptions and recommendations

Although there remains controversy about how placing new federal restrictions on certain plants and species may affect private property rights, managers of public lands and trust properties appear to agree that safeguards are a necessity.

Frank Lowenstein, the Nature Conservancy's director of forest health programs, said the problem of invasives was rooted in policy, not biology, because while the "patterns of trade have changed, policies haven't yet changed to keep up with them." While the eventual goal should be reducing the amount spent on eradication, he said that cannot happen until there are better methods of keeping species out.



A female beetle. Photo courtesy of USDA Animal and Plant Health Inspection Service.

Once a species is found, methods include mowing, burning, pesticide application, introducing biological predators (insects and fungus) and quarantine.

Additionally, researchers are studying the effect of forest fires on invasives. In a study with the University of Idaho, Rocky Mountain Research Station research engineer Pete Robicheau is examining the August 2005 School Fire of southeast Washington. He started looking at weed responses and satellite imagery of weeds last season and said he has not seen a dramatic increase yet but has noted a change in species mix: The species that emerged immediately after the fire have died, and other species have appeared. "It had weed issues before, and they're still going to be there after," he said. The forest consists mainly of coniferous trees -- Ponderosa pine and Douglas fir -- and now is seeing a growing population of yellow star thistle and three species of knapweed.

Steve Sutherland, research ecologist with RMRS Missoula's fire sciences lab, is working on a study on fires in western Montana in 2000. He found that invasives' incursion varied according to the fire's severity and the type of vegetation in the area. Namely, he found that areas with Douglas fir, Ponderosa pine and riparian vegetation were the most susceptible to invasive plants, which included spotted knapweed, boll thistle and Canada thistle.

The conservancy has in its 55 years of operations conserved over 117 million acres of property and 5,000 miles of rivers, located in all 50 states and in 30 other nations. The group is involved in over 300 programs meant to limit the effects of invasive species on its lands and takes a leadership role in promoting efforts by government agencies.

Lowenstein called for increased spending on invasives, saying that the federal budget for protection is one-tenth of the wildfire budget, yet "the damage to the forest [from invasives] is longer-lasting, perhaps ecologically greater and certainly geographically greater."

He recommended APHIS speed up the revision of its "plants for planting" list of allowed plants from 10 years to two or three. He also said the agency should enact its proposed shortcut for declaring pests harmful, known as the "Not Allowed Pending Pest Risk Assessment," to reduce the backlog of pests to be analyzed. Shifting the burden of proof to assuming a pest is harmful until proven otherwise will drastically reduce the number of invasives allowed in, Lowenstein said. "It's like saying, 'Come in, potential criminals, and we'll wait until you commit a crime to deport you.'"

Lowenstein pointed out that investing in border control policies is insufficient because "a significant number of pests causing major devastation" -- including sudden oak death and chestnut blight -- "were unknown to science when introduced." Inspection is ineffective because authorities are "inherently searching for something they know is there."

He praised APHIS for its new "pathway" approach, which entails asking how pests would get into the country and has resulted in new rules that have effectively removed the threat of invasives like Asian longhorned beetle, emerald ash borer and Dutch elm disease entering the country through packing crates.

While Lowenstein said educating the public is important, he pointed out that small entities like municipalities and independent timber companies, nurseries and firewood packagers would also benefit from collaboration and instruction. He also proposed using market-based initiatives, which could include crop insurance and joint marketing or branding, to encourage lower-risk practices.

Despite the grim-looking outcome, USDA's Tenny said there was reason for optimism. "We can always do better, but we're encouraged by the trajectory we're on," he said. "Everybody in the room recognizes the gravity of the situation, but at the same time, we're doing better than we ever have."

#### Electronic public discussion

USDA's Animal and Plant Health Inspection Service is hosting an electronic public discussion on methods that can be used to evaluate the potential of imported plants to become invasive species if they are introduced into the United States. Any interested person can participate in the electronic discussion, which will allow participants to upload files and interact with other participants and with APHIS staff. The electronic public discussion is being held now until Jan. 26, 2007.

[Click here](#) for the *Federal Register* notice -- "Evaluating the Invasive Potential of Imported Plants; Electronic Public Discussion."

[Click here](#) to join the discussion via the USDA web site.

*In the coming weeks, Land Letter continues this series with reports on how invasive species affect forests, grasslands and waterways, plus a review of legislation and some success stories in the control of invasive species.*

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