



Forest Service
U.S. DEPARTMENT OF AGRICULTURE

INTERNATIONAL PROGRAMS | OFFICE OF THE CHIEF

INVASIVE SPECIES FACTSHEET

U.S. Department of Agriculture Forest Service International Programs support global collaborations to improve management of forest invasive pests and to prevent or minimize new infestations in the United States.

WHY IT MATTERS



Invasive species significantly threaten the health of U.S. forests and grasslands and inflict massive economic costs.

The forest products industry loses an estimated \$4.2 billion each year due to invasive species.

The emerald ash borer, left, is a destructive wood-boring beetle that has already killed millions of ash trees in North America. Photo by David Cappaert.

WHY THE USDA FOREST SERVICE WORKS INTERNATIONALLY ADDRESSING INVASIVE PESTS REQUIRES INTERNATIONAL EFFORTS TO:



Exchange information



Identify control measures
for invasive pests



Predict the next
threats to U.S. forests

WHAT WE DO

UNDERSTAND AND MITIGATE IMPORT PATHWAYS

Exchange information and identify control measures

The wood pallet and horticultural industries are the two main sources of non-native forest pests entering the United States.

Our projects reduce risks from solid wood packaging imports through education and advocacy work with industry, government, and nonprofit sectors. We also support research to evaluate the effectiveness of international policies for risk reduction and improve understanding of the socioeconomic drivers of insect invasions. Publications from this work shed light on how to minimize and detect invasive species spread globally.



A customs agent and a USDA specialist examine a wooden pallet for signs of insect infestation. Wooden pallets are a main source of entry for non-native, wood-boring insects. Photo by Toby Petrice.

MONITOR SENTINEL TREES

Predict next threats

We support the planting and monitoring of high-value American tree species abroad to see how new plantings and mature trees fare against foreign insects and pathogens. Working with partners, we have established seven sentinel gardens in Asia, Europe, and the United States. We also partner with global botanic gardens to monitor mature American trees in their collections. Our observations provide critical information about potential threats and provide historical data on insects and pathogens. We could not do this without international collaboration and partner support in monitoring.

TARGET SPECIFIC THREATS

Identify control measures

We support multiple projects to improve management of non-native forest pests already in the United States. Examples include:



European Woodwasp

The European woodwasp (*Sirex noctilio*) has caused extensive damage to pine plantations in South America and Africa, and it has reached the Northeastern United States. However, it has not yet reached the areas of the United States that have extensive pine plantations. Forest Service International Programs is partnering with Mississippi State University to research the effects of drought and stand management on woodwasp activity in North America, South America, and Europe. Their goal is to understand how to prevent *Sirex* damage in the Lake States and the Southern United States, where pine plantations are mostly privately owned enterprises estimated to contribute more than 2 percent of the regional economic output.



Wood-Boring Insects

Introductions of wood-boring insects to the U.S. have increased dramatically over the past two decades. Awareness of the ecological and economic impacts associated with introduced insect pests has been heightened in recent years by highly damaging and invasive wood-boring beetles such as the Asian longhorned beetle, emerald ash borer, and various ambrosia beetles, all of which arrived from Asia.

Forest Service International Programs is supporting researchers at USDA Agricultural Research Service and the Smithsonian to map the genetic aspects of the wood-boring beetle genus *Agrilus* (which includes the emerald ash borer) and to develop online, rapid identification tools that will allow practitioners to accurately identify *Agrilus* species in the field. Forest Service International Programs helped fund the Smithsonian's purchase of the world's largest collection of *Agrilus* specimens to facilitate the use of genetic sampling and images to support rapid and improved identifications.



Chestnut Gall Wasps

Forest Service International Programs supports research to protect the millions of dollars invested each year in American chestnut restoration. We work with USDA Agricultural Research Service and researchers in Asia to develop effective methods for identification and management of the American chestnut's main invasive pest, the chestnut gall wasp.



What is a Sentinel Tree?

Sentinel trees are planted outside of their native range to monitor vulnerability to insects and pathogens. This approach allows for early detection of damaging non native species before they arrive in the tree's native range.

Caption: The browning leaves on top of this sentinel tree are a sign of disease. Photo: USDA Forest Service

FOR MORE INFORMATION

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