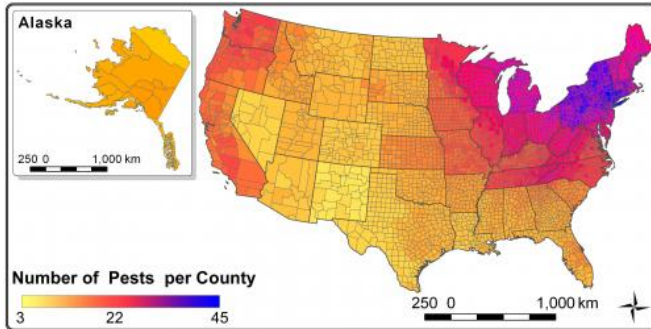


Damaging non-native forest pests at home in northeastern US

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The Alien Forest Pest Explorer is a web tool that gives users a county-by-county look at geographical distributions of damaging forest invasive pests throughout the nation. Credit: US Forest Service image

Beginning with early colonists who landed in the New World loaded with dreams, grit and perhaps the continent's first alien forest pests, and continuing today with the expansion of global trade, the northeastern United States has been ground zero for damaging non-native forest pest invasions.

In a study recently published on-line in the journal *Diversity and Distributions*, U.S. Forest Service researchers Andrew Liebhold, Laura Blackburn, Susan Frankel and partners used spatial data to demonstrate that the distribution of invasive forest pests is highly focused, with a particularly large number of species established in the northeastern region and then moderate but still troublesome numbers radiating to the west and south. The study, "A highly aggregated [geographical distribution](#) of forest pest [invasions](#) in the USA," is available at: <http://www.nrs.fs.fed.us/pubs/43853>

As the landing place for early American colonists, and continuing with the [industrialization](#) and proliferation of cargo imports, the Northeast has been receiving invasive forest insects far longer

than anywhere else in the nation. The earliest record associated with the 79 invasive forest pests used in the analysis dates back to 1794, and 19 species were detected before 1900. Seventy-five percent of the invasive forest pests included in the study were detected before 1940.

In terms of invasive forest insects, tree species diversity works against Northeastern forests.

"The Northeast has an abundance of diverse hardwood tree species, and 65 percent of the insect and pathogen invaders included in this study colonize hardwood tree species," said Liebhold, a research entomologist with the U.S. Forest Service's Northern Research Station. "Had these non-native insects disembarked in a forest that is predominately pine for example, most wouldn't have survived to become the damaging non-native forest pests that they are today."

Establishment of both European and Asian [forest insects](#) and [pathogens](#) in North America has likely been facilitated by the similarity of the flora among these three continents, the study suggests.

Industrialization and forest susceptibility to invasion also contributed to alien pests' ability to spread. In the most populated corner of the United States, inadvertent human assistance has greatly enhanced insects' ability to spread from the initial point of invasion throughout a region.

While the study illustrates a concentration of alien forest pests in the Northeast, it also shows that forest pests are taking a toll throughout the nation. "There are plenty of highly-damaging invasive species in Western United States forests, such as sudden oak death and white pine blister rust," according to Frankel, a plant pathologist with the Forest Service's Pacific Southwest Research Station. "This study shows that when non-native pests are introduced, it is just a matter of time until they spread. With shipping patterns shifting to

Western ports, we are concerned that the West will catch up over the next century."

The study is based on data from the Alien Forest Pest Explorer, a web tool that gives users a county-by-county look at geographical distributions of damaging [forest](#) invasive pests throughout the nation. Created by Forest Service scientists, the Alien Forest Pest Explorer is a collaboration between the Northern Research Station and the Forest Service's Forest Health Technology Enterprise Team and is available at:

<http://www.nrs.fs.fed.us/tools/afpe/>

"Forest Service science touches almost everyone, every day," according to Michael T. Rains, Director of the Forest Service's Northern Research Station. "The Alien Forest Pest Explorer is an example of the innovative tools Forest Service scientists are developing to give everyone from homeowners to land managers information that leads to better decisions and more sustainable forests."

More information: The recently released revised version of the Alien Forest Pest Explorer was created with ArcGIS API for Flex and works across all browsers using a Flash plugin and leverages Adobe's web design tools. The Alien Forest Pest Explorer was created as a component of FHTET's "Pest Portal:" foresthealth.fs.usda.gov/portal

Provided by USDA Forest Service

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