

Potential Susceptibility of Eastern Forests to Sudden Oak Death, *Phytophthora ramorum*

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Abstract

Sudden oak death is caused by the fungus-like organism, *Phytophthora ramorum*, and was first discovered in central coastal California in 1995. The non-native disease has killed large numbers of oaks (coast live oak (*Quercus agrifolia*), California black oak (*Q. kelloggii*), and Shreve oak (*Q. parvula* var. *shrevei*)), tanoaks (*Lithocarpus densiflorus*), and Pacific madrone (*Arbutus menziesii*) and has recently been found in coastal Oregon. The organism has not affected California species in the white oak group. Greenhouse tests of eastern oak species pin oak (*Q. palustris*) and northern red oak (*Q. rubra*) have shown these species to be just as susceptible to sudden oak death as their west coast relatives. We developed a preliminary map of the potential risk to eastern forests should this organism become established in the East. The map was developed using FIA plot data for all species in the red oak and live oak groups. Kriging was used to develop a map of potential susceptibility of forests containing those two oak groups for the eastern United States.

Evaluation of the Viability of the Butternut Resource

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Abstract

Butternut (*Juglans cinerea* L.), a widespread but rare tree, is being affected by a lethal canker disease caused by the *Sirococcus clavignenti-juglandacearum* fungus. The fungus was probably introduced from outside North America and is possibly spread by insects. The first butternut deaths were reported in 1967 and butternuts of all ages are dying throughout the range of butternut in North America. We evaluated the distribution of butternut in the eastern United States using U.S. Forest Service Forest Inventory and Analysis (FIA) plot data. Butternut occurrence was then classified by ecoregion province and section levels. Significant differences in butternut occurrence existed at both levels. Kriging was used to initially derive a probability map of butternut occurrence across the eastern United States. This map was then overlaid by forest density data, resulting in an adjusted probability map of butternut occurrence in eastern forests. Candidate areas for butternut reintroduction have been identified by this analysis. In addition, field plots evaluating the progression of butternut canker in natural and planted seedlings in young stands were established.