

Important Hawaiian Tree Species in Need of Genetic Conservation¹

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Abstract

Resource managers in Hawaii face unique forest conservation challenges. Invasive species continue to inundate the remote island archipelago, directly threatening its forest resources. Hawaii has the largest number (> 400) of endangered plants in the United States, and managers use genetic approaches to preserve these small populations which are often island endemics. Many of the common forest tree species that grow throughout the islands face threats from pests and disease, but in most cases, little is known about their genetics and whether breeding resistance is a viable option. This presentation will highlight three important native Hawaiian forest trees that are currently threatened by disease or insect pests. While one species, *Acacia koa* A. Gray has been the focus of a 10-year long program for breeding disease resistance, others are still only in the conceptual phase. The recent outbreak of *Ceratocystis fimbriata* on the most common Hawaiian tree species, *Metrosideros polymorpha* Gaud., has managers struggling for solutions, and genetic approaches are urgently needed to restore affected forests. A thrips insect (*Klambothrips myopori*) that causes mortality in *Myoporum sandwicense* (A. DC.) A. Gray cannot be managed through classical biological control, and trials looking for resistance in local populations are planned. The resources needed for genetic approaches to tree conservation are limited locally, and national and international partnerships will be vital for the success of any project.

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