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Removal of Invasive Tree Improves Health of American Samoa Forests

HILO, Hawaii—Removal of the Tamaligi tree (*Falcataria moluccana*), an invasive and destructive non-native tree on Tutuila Island, American Samoa greatly improves the health of its diverse native forests, according to a recently published study appearing in the journal *Biological Invasions*.

A team of scientists from the USDA Forest Service’s Pacific Southwest Research Station—Hilo and the National Park of American Samoa (NPSA) investigated how Tamaligi trees affected the composition, biomass, and soil nitrogen in forests within or adjacent to the NPSA. The team sampled both forests with Tamaligi, and forests where Tamaligi had been present, but subsequently removed.

Native to the Moluccas, New Guinea, New Britain, and the Solomon Islands, Tamaligi was introduced to Tutuila Island in the early 1900s. Aided by its nitrogen-fixing capacity, Tamaligi—among the world’s fastest growing trees—thrives on a variety of soil types, including degraded sites and acidic or nutrient-poor soils. By 2000, 35 percent of Tutuila Island was infested with the invasive tree, prompting NPSA to begin control of this species.

Since 2001, there has been an aggressive field campaign to eliminate the Tamaligi tree within the boundaries of the NPSA and surrounding areas. Invasive species control in general, and control of the Tamaligi tree in particular, is considered a high priority as Samoa’s forests are important constituents of the Pacific Ocean’s Polynesia/Micronesia biodiversity hotspot. These islands support some of the most intact native ecosystems of any Pacific Island group, including shoreline, or littoral, communities, wetlands, and lowland, montane and cloud rainforests.

Findings from the current study demonstrated the strong influence of Tamaligi on the structure, composition, and functioning of American Samoa native forests. That Tamaligi-invaded forests exhibited equivalent levels of total biomass, but significantly lower biomass of native tree species, suggests that this invasion replaces, rather than augments, the biomass of native trees in these forests. But once Tamaligi trees are controlled, the native trees quickly recover and shade out any future Tamaligi regeneration.

“The effort to eliminate Tamaligi populations from the NPSA is a great and inspiring example of successful control of an invasive species,” says Dr. R. Flint Hughes, a PSW research ecologist who led the study. “Funding effectively supported the control efforts. Widespread public support was garnered through outreach with local village leadership, employment of villagers, and use of the media. And even though Tamaligi is a daunting invasive, it can be controlled, and when it is, many of the native Samoan tree species recover and persist.”

To read the full article, go to: <http://treesearch.fs.fed.us/pubs/40018>

Headquartered in Albany, Calif., the Pacific Southwest Research (PSW) develops and communicates science needed to sustain forest ecosystems and other benefits to society. It has research facilities in California, Hawaii and the U.S.–affiliated Pacific Islands. For more information, visit www.fs.fed.us/psw/. PSW’s Institute of Pacific Islands Forestry, located in Hilo, Hawaii, is a leading research institution addressing many critical natural resource-related issues in the Pacific. <http://www.fs.fed.us/psw/locations/hilo/>

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