

Scope of work for Hawaii Sandalwood Seed Orchard Project - 2021

In Hawai'i, the native sandalwood (*Santalum spp.*) trees are highly valued economically, ecologically, and culturally. Owing to the multiple threats of fire, predation, and habitat loss, the regeneration of sandalwood is a significant concern. This project will support the establishment of a network of eco-regional specific sandalwood seed orchards by island to produce improved sandalwood seeds to be coordinated with various partners.

Project activities are divided into 3 main parts:

Part 1: Survey, collect seed and develop a data base for Sandalwood species in high priority landscapes across the State.

Collect seeds for propagation from a diverse range of high-quality trees in priority landscapes across the state. Sandalwood seed will be collected from natural populations statewide. The seed from mother trees that are selected for vigor, form and oil quality will be candidates for planting into the orchards. A standardized database for sandalwood mother trees will be developed to include digital photo of individual trees, geo-referenced locations from which seed was collected, amount of seed per tree, and related data. Status: ongoing

VENDOR REQUIREMENTS: Vendor must possess silvicultural expertise and knowledge of sandalwood taxonomy.

Part 2: Survey and sample Sandalwood species in high priority landscapes across the State

Locate, survey and sample leaves for morphological and molecular phylogeny data characterization. Although Hawaiian sandalwood species have been described by taxonomists, there is both significant diversity and potential hybridization between species. Because of this diversity within sandalwood range and within population, morphological and molecular phylogeny data characterization is critical to accurately know which species occurs within each eco-region. Status: ongoing

VENDOR REQUIREMENTS: Vendor must possess silvicultural expertise and knowledge of sandalwood taxonomy.

Part 3: Establishment of Sandalwood seed orchard

DLNR seeks support to identify 3 or more sites across the state, to establish 2-5 acre sandalwood orchards in the Forest Reserves, or on other locations with private partners and to initiate site prep work. These orchards will eventually provide seed for native forestry restoration efforts within the local eco-region. Collect seeds for propagation from mother trees within the local eco-region will be selected for vigor, form, and potential high oil quality for planting into the orchard.

These sites should be selected and developed in cooperation with DOFAW and may include sites in the Forest Reserves or private forest land sites with ownership committed to long-term forestry stewardship. Seed orchard establishment will be coordinated with DOFAW in Forest Reserves and with individual land owners on private sites. Site preparation (e.g., weed control, clearing, disking, ripping) will be

coordinated with DOFAW and private land owners depending on site.

Fencing and rodent control should be deployed at each site to protect the seed orchards. The design and layout for the planting will be conducted by the vendor. The planting of seedlings will be carried out jointly by vendor, DOFAW, and private landowners as appropriate. Follow-up orchard surveys and management will be conducted by the vendor. Status: finish site selection and start establishing seed orchards.

VENDOR REQUIREMENTS: The vendor will need to possess sandalwood seedling stock originating from selected eco-region. Nursery capacity to grow out seedlings for outplanting and experience establishing sandalwood plantations is also required.

Note: Kula Forest Reserve, Maui, Helemano, Oahu, and Kokee, Kauai (Pu'u Ka Pele Forest Management Area) have been identified as locations to establish seed orchards.

Other Activities

Vendor will cooperate closely with DOFAW, US Forest Service and other partners and participate in statewide sandalwood meetings and other activities.

Other Requirements: Vendor will need to secure all required permits for access, seed collection, and wood sampling on DLNR lands, unless accompanied by DLNR staff. Post-award requirements include, 6-month progress reports for the life of the project, including a final report within 30 days of project completions detailing cumulative project accomplishments. All project data should be stored in a secure database will be available and provided to DLNR to support any future work. Work should be coordinated with both DLNR Forestry and Forest Service State & Private Forestry Region 5.

Specifications Contact:

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