

The background of the slide is a close-up photograph of Koa tree branches. The leaves are long, narrow, and pointed, with a vibrant green color. Interspersed among the leaves are clusters of small, round, yellowish-white flowers. The overall image has a soft, slightly blurred quality, giving it a natural and serene feel.

# **The Maui *Koa* Network: Deploying Wilt Resistance *Koa* for Watershed Restoration**

NS Dudley, Hawaii Agriculture Research Center

# **Ecological Importance of Koa**

- **Provides habitat to many native bird and insect species**
- **Most important native nitrogen fixing tree species**
- **Important role in watershed health**
- **Dominant tree species in many native ecosystems**



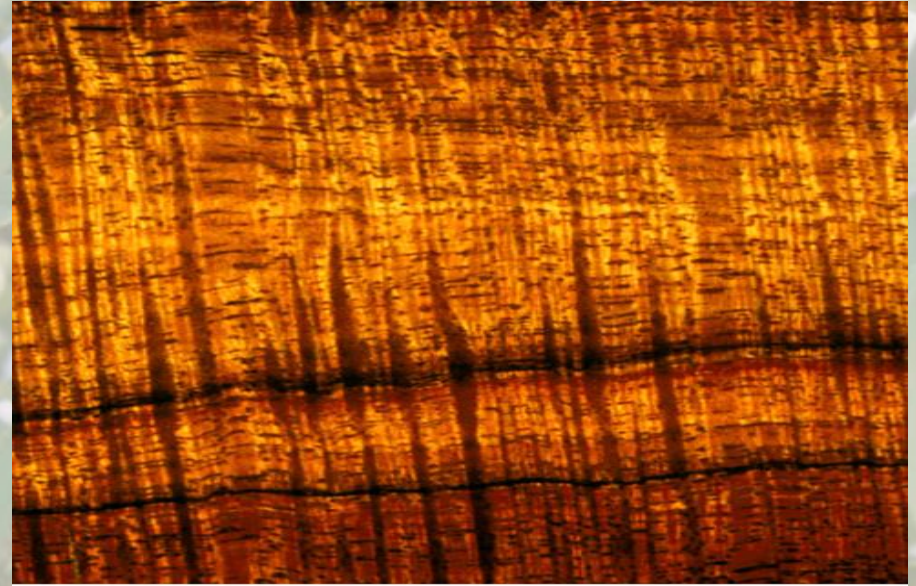
# Cultural Importance of Koa

- Native Hawaiian's primary wood for canoes
- Tannins from bark used as red dye for kapa cloth
- Integral part of many Hawaiian ceremonies



# Economic Importance of Koa

- Koa represents 90% of the Hawaiian Forest Products Industry
- Valued at \$30 million dollars annually
- Harvested primarily from native forests
- Koa is the preferred wood of the Hawaiian Specialty Hardwood Market
- Koa is one of the most valuable woods in the world, with prices exceeding \$125 per board foot



# The Problem: Koa Wilt Disease

High mortality of koa seedlings, saplings, and crown dieback in older stands

The primary pathogen:  
*Fusarium oxysporum* f.  
sp. *koa* (FOXY)  
Causes vascular wilt disease



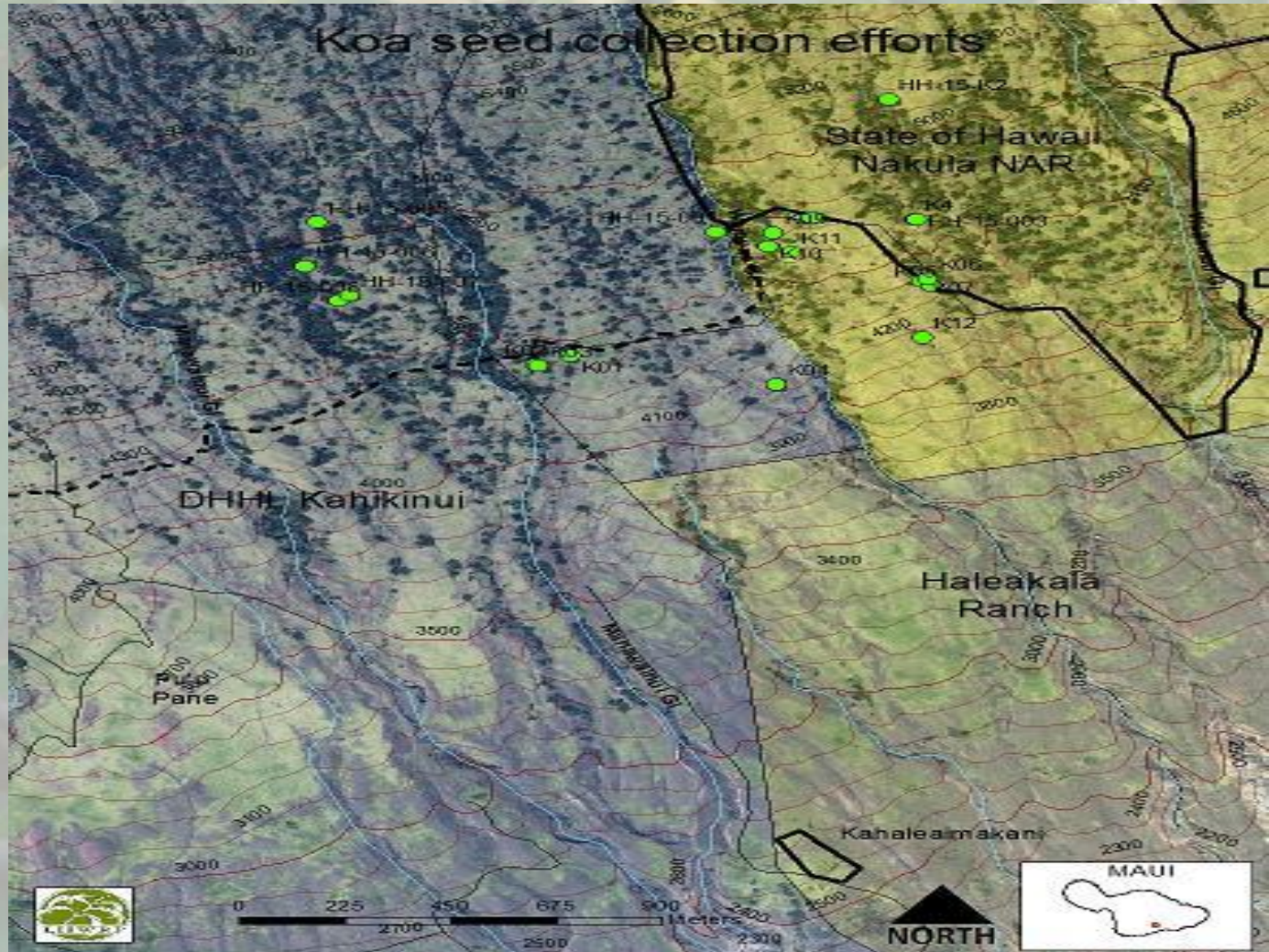
# **The Solution:**

## **Plant Wilt Resistant Koa**

**Land managers now have a tool (genetic resistance) to  
use for restoration and sustainable koa resource  
development  
to  
Ensure healthy koa forests and biosecurity**



# Recent Koa Seed Collection

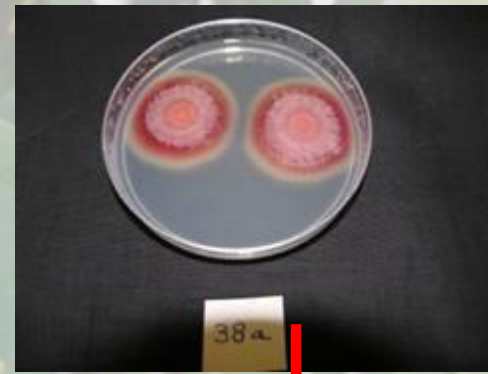






# Screening for wilt resistance: materials & methods

- Inoculum ‘powder’ mixed with peat moss & perlite medium
- Medium mixed placed into ‘dibble tubes’
- Germinating seedlings transplanted to containers containing inoculum





1630007  
NOALOLO  
VALLEY  
T-24

T-24

Koa wilt 2007-03 trial - August 2007



16/10/07  
T-15  
Wilt 25ml

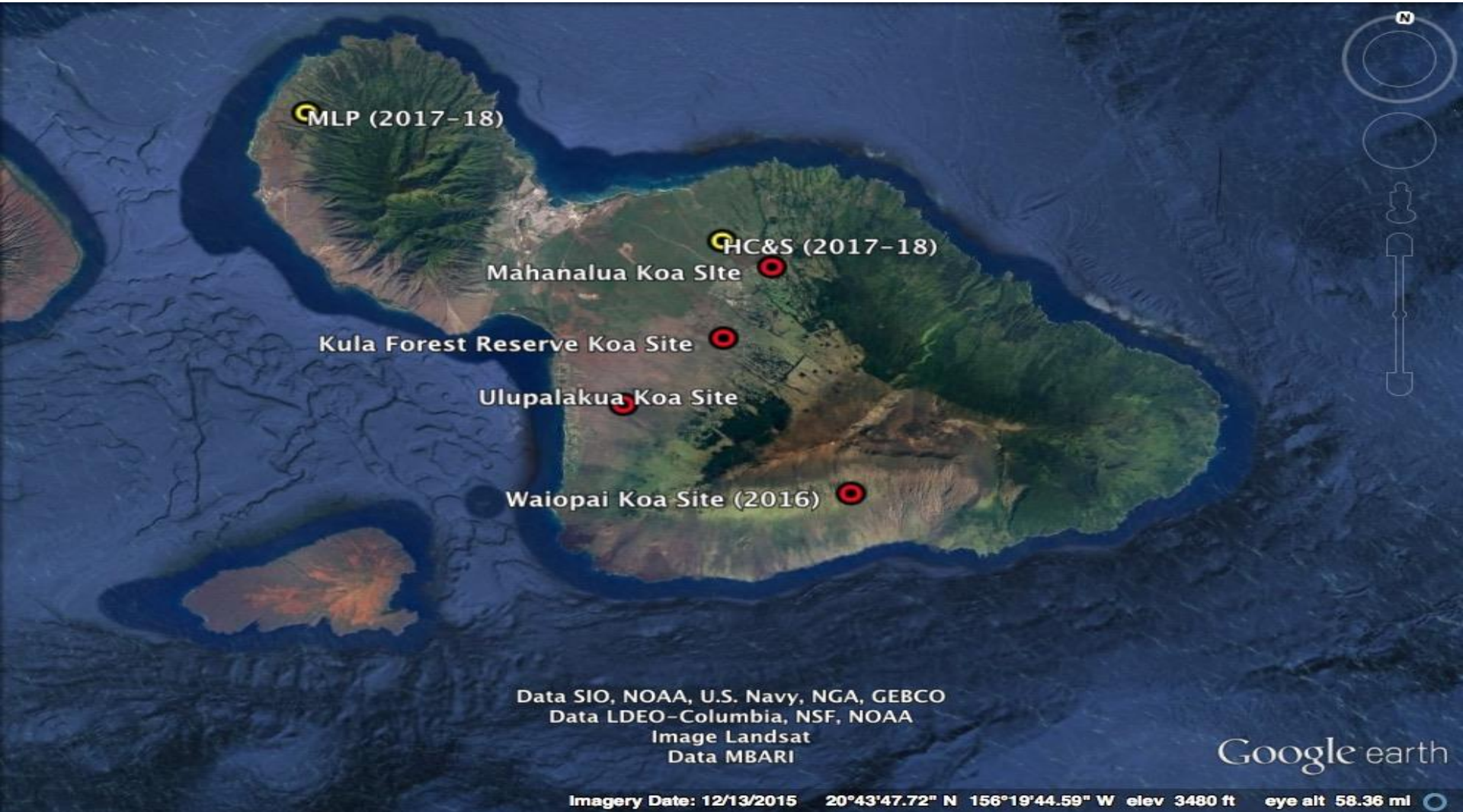
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Koa wilt 2007-03 trial – August 2007

# Wilt Resistant Seed Orchard



# Location of Koa Sites



# Benefits of Watershed Restoration with Koa

- Increased rates of cloud fog interception
- Contribute to Groundwater Recharge: reducing runoff & evapotranspiration
- Assist in the management and control of invasive species
- Increase habitat diversity for native T & E species
- Koa can be a long-term sink for **CO<sup>2</sup>**

# Koa in Mauka Pasture







**Mahalo**

**and**

**Aloha**



The background of the slide is a photograph of a plant with long, narrow, green leaves and clusters of small, white, round flowers. The image is slightly blurred and has a soft, natural light feel.

**•Major Funding Provided by:**

- Maui Department of Water Supply**
- USDA-Forest Service-FHP, S&P Forestry**
- USDA-NRCS**

The background of the slide is a photograph of a plant with long, narrow, green leaves and clusters of small, white, spherical flowers. The image is slightly blurred and has a soft, natural lighting. A semi-transparent light green rectangular box is overlaid on the top half of the image, containing the text.

# **Cooperators:**

**Haleakala Ranch**

**Ulupalakua Ranch**

**Maui Land and Pineapple**

**Leeward Haleakala Watershed Partnership**

**LB Dorcy Trust**