

Ola Honua

Kipahulu, Maui

**Organic and Sustainable Management, Agroforestry and Timber Production,
Conservation Easement**



The Ola Honua Forest Stewardship Project

The Ola Honua project is located on the southeastern slope of Haleakala in the district of Kipahulu, Maui. The 175 acre property leased by Neulani, Inc., is managed by Rich von Wellsheim of Whispering Winds Bamboo Cooperative. The landowners filed a conservation easement surrendering developmental rights in April 2002, which requires a management plan for harvesting trees within the easement area for commercial sale. In 2005, Rich enrolled in the Forest Stewardship Program (FSP) and created a management plan for a 121 acre forestry project.

The Ola Honua FSP project is dedicated to restoring the native forest by creating a 40 acre corridor of native plant species. Portions of the project area were reforested with ‘ōhi‘a lehua and koa to attract and sustain the native bird populations and the native forest wildlife habitat will never be commercially harvested.

Sustainable agroforestry, the agriculture practice that incorporates the cultivation and conservation of trees, is a primary management objective at Ola Honua. This practice ensures a commercially viable timber production and agriculture products. Ola Honua plans is cultivating 81 acres of the property for commercial harvesting.

The Ola Honua FSP project is dedicated to working together with local community groups by providing educational opportunities in aspects of reforestation and farm life.

Prepared with support from
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OLA HONUA FOREST STEWARDSHIP PROJECT



Site History

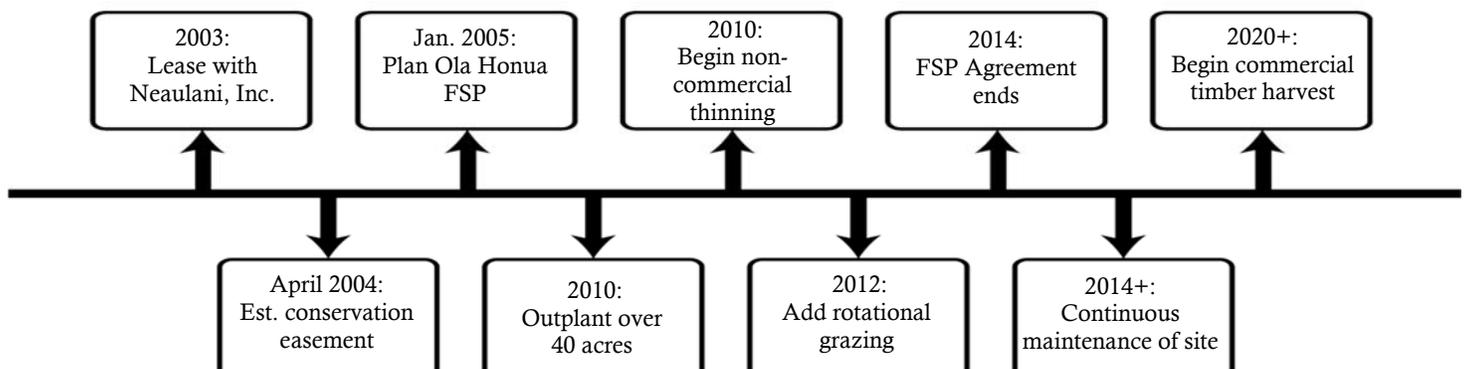
The Ola Honua property was previously used for sugarcane cultivation and then converted to pastureland. This land use included 40 years of overgrazing that led to the establishment of guava trees, bunch grass, and lantana. The last of the cattle were removed at the start of the forestry project in the summer of 2003.

To protect the site and reduce the spread of weedy species, a fence was installed along the perimeter of the property to remove and deter all feral animals (pigs and goats) and promote the establishment of a natural ecosystem. Throughout the project history, vandals have cut holes in the fence to gain access, which reintroduces pigs to the site. Rich found that routine walks of the fence line were needed to ensure it has not been tampered with. Allowing limited access to community members in exchange for fence monitoring also discourages damage to the fence and helps control ungulate pressure.

The site spreads across 121 acres; however due to buildings, access roads (that double as fire breaks), and a steep gulch along the western side, only 83 acres were outplanted under the FSP.

Hawaii Forest Stewardship Program

The Hawaii Forest Stewardship Program provides technical advice and financial assistance on a cost-share basis to promote the stewardship, enhancement, conservation, and restoration of Hawaii's forests. The FSP funds long-term forest management planning and supports implementation of this plan for 10+ years. The FSP focuses on the following objectives: forest productivity, native ecosystem health and biodiversity, watershed quality, wildlife habitat, and recreation.



Organic & Sustainable Management Practices

Organic Soil Amendments

Ola Honua highly recommends locally composted organic soil amendments to promote ecosystem health. In order to convert grassland soils to soil that can support forests, the soil bacteria to fungal ratio needs to be balanced. Grasslands grow in a predominately bacterial soil while trees require a fungal dominant soil for optimal growth. Diversity of soil microbes is essential for disease and pest resistance as well as nutrient cycling. Rich experimented with the Korean Natural Farming techniques for this project, which use indigenous micro-organisms to provide nutrients to the plants. Only organic fertilizers were applied and they followed a strict NO herbicide or pesticide policy.



Mulching

The practice of mulching recycles plant biomass back into the ecosystem while adding organic matter to provide a healthy and fertile soil environment for new seedlings. The soils on this site are very nutrient poor due to constant leaching caused by high rainfall and past agricultural uses; therefore it is necessary to preserve all biomass and topsoil. Mulch piles were layered with plant chippings that included nitrogen fixing trees (that are high in nitrogen and phosphorus), then mixed with water and covered with a black tarp to heat to 135-150° F for 5 days. The tarp is removed and the mulch ferments in the piles for 5 months before being applied to the newly planted seedlings. Mulching greatly helped their efforts to suppress weeds, improve site nutrients, and control moisture.



Quick Rotational Grazing

Extensive California grass and other invasive grass species proved overwhelming to eradicate. California grass vigorously outcompetes the newer plantings resulting in more time dedicated to maintenance. By year 8, the management team implemented a quick rotation animal control practice under their forest plantation. The cattle not only eat the California grass, but trample the ground, which mixes organic matter and nutrients in the soil and provides a natural fertilizer. Rich sets up the water trough at a central location for approximately one month and rotates the portable electric fence and the cattle in adjacent plots around the trough every week, keeping the grazing pressure light. Each plot rests for about 6 months. Ideally, Rich would like smaller plots with more cattle and the rotation to come full cycle every 30-40 days. Starting a cattle rotation earlier on would have reduced total labor costs and time.

Agroforestry & Timber Production

Tree Establishment/Planting: Both native and timber seedlings are propagated in the Ola Honua nursery and receive homemade compost enriched with calcium and seabird guano. This process gives the seedlings a competitive advantage over non-native grasses. Collecting seeds, including koa, from nearby the site helps ensure that the seedlings adapt to the sites environmental conditions.

Crimping: When outplanting seedlings, the management team utilized a forestry practice known as crimping. Crimping is the manual bending or “stomping” of plants surrounding the outplanting site. Rich recommends this practice over cutting because the vegetation dies slowly reducing the immediate regrowth of new weeds and the grass is able to be recycled back into the system. The process was found to be very effective because it ensures mycorrhiza and other important organic matter to be left at the site.



Experimenting with Agroforestry Species:

Understory Species

- **Mamaki:** Needs high rain, moist soil, and partial sunlight
- **Awa:** Thrives in deep shade locations and resilient to dry conditions in times of drought
- **Noni:** Vigorous but slow to mature
- **Cardomon:** Needs high sunlight

Timber Trees

- **Teak:** Not successful-lack of necessary nutrients onsite
- **Mahogany:** Most successful for timber production, however some species of mahogany have been overharvested and have lost most of its genetic diversity so seed selection is important



Thinning: Forestry thinning began in year 5 due to phenomenal growth of the first year plantings. Thinning is necessary to open up canopy space to encourage upward growth and reduce competition for target trees, which is key for timber species. The right stand density directly affects the growth rate. Rich recommends thinning 30% of the canopy on a frequent repeated cycle to improve growth. After year 15, management will consist of commercial and non-commercial thinning until the trees are large enough for timber when selective and sustainable commercial harvesting at approximately 30 years.

Nitrogen Fixing Trees (NFTs): NFTs were planted with each of the timber trees to suppress weeds, fix nitrogen, act as a windbreak, and hold moisture. Rich found that planting one NFT downwind about 6 to 9 feet from the newly planted timber tree was most effective for improving growth. Rich recommends pruning or removal of the NFTs to reduce resource competition with the timber trees.



Hawaiian Islands Land Trust (HILT) Conservation Easement

“To protect the lands that sustain us for current and future generations”

Hawaiian Islands Land Trust (HILT) acquires conservation easements, which are voluntary agreements in which the landowner permanently limits the development on a parcel of land. This type of agreement requires the non-profit Land Trust to protect the land forever, even when ownership of the land changes (www.HILT.org).

Ola Honua Conservation Easement

Size: 74 acres (portion of FSP project)

Year Protected: 2004

Purpose: Establish and maintain sustainable forest resources and agricultural activities

Priority 1: Preservation of primary forestry

Priority 2: Watershed protection

Limited Uses: Disturbing the integrity of soil, mineral resources, or natural deposits, commercial harvesting, construction, destroying vegetation, feedlots, etc.

Other Limitations: Sustainable farming goals and maintaining organic certification



World Wide Opportunities on Organic Farms

WWOOF Workers

Ola Honua hosts about 15-20 WWOOF members as part of their work force. WWOOF is an educational work exchange program that builds a global community conscious of ecological sustainable farming practices.

Rich's Suggestions

1. Spend more time researching and developing an all-encompassing management plan, especially research on effective management practices, site-specific species, what species will thrive, and which have the highest market values.
2. Do ALL the outplanting in the first 5 years, when energy is high and equipment is new. This will save time, money, and labor for maintenance during years 5-10.
3. Three years before entering into the FSP, strategically plant trees for windbreaks to promote healthy growth of timber trees. Examples of good windbreak trees include avocado, cook pine, or clumping bamboo varieties.
4. Designate and commit a specific person to record all monitoring and maintenance data – it will improve efficiency and provide data to help people in the future.

