Kāhuna Hoʻoulu ‘Ai - Botany and Agriculture

Hoʻoulu ‘Ai was practiced by all people who raised their food or accessed the forest for supplies, food and ceremonial needs. Kāhuna understood the seasons, connections of plants with their counterparts and the medicinal uses, planting seasons, physical requirements of the plants and the variability between ecosystems. Observational skills formed the basis for the knowledge.

Botanists and Agriculturists study the science of plants and their uses. While botanists may focus on the distribution, classification and ecology, agriculturists focus on the food and benefits derived from plants.
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Forestry and Wildlife Technician III-IV

Perform a variety of technical assignments in support of the development, maintenance, and research activities of the forestry, wildlife, and other natural resources management programs; Gathers and analyzes data regarding overall condition of forest tracts. Fight forest fires; enforce laws, rules and regulations governing forest areas. Assist with weed and invasive species control, monitor plant communities.

Education

High school diploma with 2-4 years of experience in the field or in a related area.

Skills & Knowledge

One year of manual labor or semi-skilled work experience in forestry, wildlife or other natural resource oriented program. Game and non-game birds and animals and their habitats; forestry, wildlife, and other natural resource management research and survey techniques; and basic carpentry, plumbing, and masonry used in forest, wildlife, and natural resource development and maintenance projects, and wildland fire control techniques and practices.

Yearly Salary

$27,732 - $30,012

Projects in Hawaii

- Botanical field surveys
- Recommend plants for protection
- Assess potential impacts of uses on native species
- Fencing & trapping

Employers

Government: Fish and Wildlife, National Park, Biological Resources Division, Land and Natural Resources

Private: Kamehameha Schools, Office of Hawaiian Affairs, Castle and Cook, Timber Companies

Non-Profits: The Nature Conservancy, Audubon

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Forester

Assist in observations and surveys to collect data concerning details of forest land, resource characteristics, conditions, practices or treatments and ecological, silvicultural, economic or other technical/administrative considerations; summarize findings into reports, annotated maps, memoranda, etc.; search for new plant species and gather selected seeds for propagation; revise maps to show forest boundaries, road changes, trails and lava flows; fight forest fires; enforce laws, rules and regulations governing forest areas; and perform other related duties as assigned.

Education

May require a bachelor’s degree in a related area and at least 7 years of experience in the field.

Skills and Experience

Work outdoors and in adverse conditions. Able to drive 4WD vehicles and traverse rough terrain.

Projects in Hawaii

• Biological surveys
• Forest plans
• Implement prevention and management projects
• Environmental assessments
• Promoting awareness of the importance of forests

Employers

Government: Fish and Wildlife, National Park, Biological Resources Division, Land and Natural Resources
Private: Kamehameha Schools, Office of Hawaiian Affairs, Castle and Cook
Non-Profits: The Nature Conservancy

Yearly Salary

$32,319 - $57,985.00

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**Nursery / Greenhouse Manager**

Manages the daily operations of a greenhouse and/or nursery. Plans, schedules, and directs the performance of assigned staff. Generally manages a group of tradesman. Relies on experience and judgment to plan and accomplish goals. Typically reports to top facilities personnel.

**Education**

May require an associate's degree or its equivalent with at least 5 years of experience in horticulture.

**Skills and Experience**

Work in a greenhouse raising plants. Nurture plants from seedling to bloom.

**Yearly Salary**

$35,133 - $52,066

**Projects in Hawaii**

- Native Gardens
- Biological surveys
- Hotel Landscaping
- Nurseries and Large retailers

**Employers**

**Government:** Fish and Wildlife, National Park Service, Biological Resources Division, Land and Natural Resources, Parks and Recreation

**Private:** Nurseries, Walmart, Home Depot

**Non-Profits:** Audubon, National Tropical Botanical Gardens, Lyon Arboretum
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Pest Controller

Inspects insect infestations and uses chemical mixes to exterminate. Has knowledge of commonly-used concepts, practices, and procedures within a particular field. Relies on instructions and pre-established guidelines to perform the functions of the job. Works under immediate supervision. Primary job functions do not typically require exercising independent judgment. Typically reports to a supervisor/manager.

Education

Requires a high school diploma or its equivalent and 0-2 years of experience in the field or in a related area.

Skills and Experience

Yearly Salary

$23,600 - $35,359

Projects in Hawaii

- Native Gardens
- Biological surveys
- Hotel Landscaping
- Nurseries and Large retailers

Employers

Government: Fish and Wildlife, National Park Service, Biological Resources Division, Land and Natural Resources, Parks and Recreation, Airports, Department of Agriculture

Private: Nurseries, Walmart, Home Depot, Shipping Companies, Exterminators

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Ranch Manager

Manages the overall daily operations of a farm/ranch. Provides supervision and direction to staff. Responsible for purchasing tools, equipment and materials. Relies on experience and judgment to plan and accomplish goals. He/She will monitor the condition of infrastructure including but not limited to buildings, fences, feeders, blinds and roads as well as making repairs consistent with his/her capabilities. This person may reside on the ranch and have control access to the ranch.

Education

May require a bachelor’s degree or its equivalent with at least 5 years of related experience.

Skills and Experience

Ability to communicate and supervise a diverse range of people. Previous experience on a ranch necessary.

Yearly Salary

$37,004 - $44,752

Projects in Hawaii

• Large agricultural fields
• Dairy and cattle farms
• Free-range and organic farms
• Small-scale and large-scale operations
• Sustainable use of land

Employers

Government: Fish and Wildlife, National Park, Biological Resources Division, Land and Natural Resources

Private: Land Owners, Kamehameha Schools, OHA, Castle and Cook

Non-Profits: The Nature Conservancy
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Arborist

Plans, directs, and coordinates arboriculturist programs encompassing research, evaluation, cultivation, propagation, care and maintenance activities of trees, palms and woody species within the specialized area of arboriculture; serves as primary resource specialist and technical expert in arboriculture; and performs other related duties as required.

Education

Equivalent to graduation from an accredited college or university with major work in horticulture, landscape architecture, or a related field.

Skills and Experience

Three years of progressively responsible experience in the field of arboriculture, horticulture or landscape architecture, one of which must have demonstrated technical knowledge, research and application of arboricultural practices, including training or experience in tree climbing utilizing climbing saddles, safety ropes and appropriate tools.

Yearly Salary

$43,824

Projects in Hawaii

• Native Gardens
• Endangered species survey
• Biological surveys
• Biodiversity
• Forest plans

Employers

Government: National Park Service, Biological Resources Division, County Parks Department
Private: Land Owners, Kamehameha Schools, OHA, Castle and Cook, Small Businesses
Non-Profits: Outdoor Circle

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Botanist IV

Independently perform the full range of activities relative to the identification, protection and enhancement of native plant species and ecosystems; conduct botanical field surveys to locate, identify and determine the quantity, health and distribution of plant species; assess existing and potential threats and habitat requirements; recommend plans for the protection and enhancement of rare, threatened and endangered native plant species; and assess potential impacts of existing and/or proposed uses of the area on native species and determine possible mitigating measures; provide specialized botanical assistance and technical advice to Foresters and others regarding rare, threatened and endangered native plants.

Education

A bachelor’s degree with a major in botany or a closely related field which included courses in general botany and plant morphology, plant taxonomy, plant physiology and plant ecology.

Skills & Experience

Job requires knowledge of Hawai‘i’s environments including challenges to their integrity, restoration strategies and the regulations that guide natural resources stewardship. Between three to five years of related work experience.

Yearly Salary

Starting at $43,824.00

Projects in Hawaii

• Botanical field surveys
• Recommend plants for protection
• Assess potential impacts of uses on native species

Employers

Government: US Fish and Wildlife Service, Pacific Islands Forestry, US Forest Service, Department of Land and Natural Resources

Private: Land Owners, Agricultural companies

Non-Profit: The Nature Conservancy, Audobon

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**Assistant Ecologist**

Duties include assessing existing ecological conditions and undertaking needed surveys and assessments to develop or revise natural resource management strategies. Other responsibilities include supporting the development of educational and research collaborations, ongoing monitoring and assessment and communication of project objectives and outcomes to various audiences.

**Education**

Bachelors Degree in Ecology, Biology, Zoology, Botany, Natural Resources and Environmental Management, Wildlife Management, or Forestry

**Skills & Experience**

Job requires knowledge of Hawai'i’s environments including challenges to their integrity, restoration strategies and the regulations that guide natural resources stewardship. Between three to five years of related work experience.

**Yearly Salary**

Starting at $32,000

**Projects in Hawaii**

- Integrate knowledge about the complex interactions of climate, soil, plant, and water.
- Quantify how disturbances may alter ecosystem function and services

**Employers**

**Government:** US Fish and Wildlife Service, Pacific Islands Forestry, National Park Service, Land and Natural Resources, University of Hawaii

**Private:** Large land owners, Kamehameha Schools, OHA

**Non-Profits:** The Nature Conservancy

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Restoration Field Crew Member

The Restoration Field Crew Member will be implementing on-the-ground watershed conservation efforts for the KWP. This includes, but is not limited to, weed control, maintaining fences, controlling feral animals, construction of sediment dams, doing biological surveys, seed collection, and native plant restoration, including site preparation, nursery work, and outplanting. This requires an individual who learns quickly, enjoys working daily in outdoor Hawai‘i, is self-sufficient in harsh conditions of rain, heat, wind, and cold, can work cooperatively with a variety of people, and can communicate effectively. The KWP field crew does physically demanding work that requires a committed effort and high level of motivation.

Skills & Experience

Experience in construction, landscaping, plant propagation, and/or weed control in Hawai‘i. Knowledge of Hawaiian culture, ecology, plants, forests, streams, and birds. Possess a valid driver's license, and able to drive standard transmission, off-road vehicles. Safe use of pesticides, hand tools, and power tools. Eagerness and ability to learn new skills, new technology, and new information. Able to maintain a good attitude while working in bad weather under difficult conditions. Carry 50-pound pack over rough terrain.

Yearly Salary

$20,800 - $34,008

Projects in Hawaii

- Botanical field surveys
- Recommend plants for protection
- Forest replanting
- Fencing and invasive species removal

Employers

Government: Fish and Wildlife, National Park, Biological Resources Division, Land and Natural Resources
Private: Kamehameha Schools, Office of Hawaiian Affairs
Non-Profits: The Nature Conservancy, Watershed Partnerships
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Biological Science Technician

Participate in a wide range of duties related to island and coastal ecology, and watershed water-quality monitoring. Use standard sampling techniques to monitor basic water quality parameters, collecting water samples, and performing nutrient analyses on freshwater, brackish, and marine waters; conduct groundwater monitoring. The technician will identify common fish, invertebrates (including snails, corals, and shrimp), and algae to defined taxonomic levels; digitally photograph, record, and download location of all field activities; and create digital maps; enter and compile data into spreadsheets and databases. The technician will maintain all sampling instruments and equipment and identify supply needs.

Education / Skills & Experience

Combination of Education and Experience or Successful completion of one year of graduate level education. Examples of qualifying courses: ecology, zoology, biology, botany, aquatic biology.

Experience: planning and management, as well as performance of, research and resource management activities requiring detailed record keeping and data management.

Yearly Salary

$33,477

Projects in Hawaii

- Survey aquatic fauna
- Monitor water quality
- Nutrient Analysis
- Identify algae, fish and invertebrates
- Maintain sampling instruments

Employers

Government: Fish and Wildlife, National Park, Biological Resources Division, Land and Natural Resources
Private: Kamehameha Schools, Office of Hawaiian Affairs
Non-Profits: The Nature Conservancy, Watershed Partnerships

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GIS Analyst

Help build and maintain GIS and cartographic capabilities. Create, maintain, and quality control/assess geospatial data sets using ArcGIS 9.1x. Conduct spatial and network analyses of geographic data sets. Develop FGDC-compliant metadata to document geographic data sets. Performs complex mathematical calculations, analysis and interpretation of a variety of data and source documents for entry into the GIS system; prepares, creates and maintains the full range and variety of maps, plans, tracings, drawings and other illustrative products including the utilization of complex computerized programs and the development of customized systems, procedures and techniques.

Education

Bachelor’s degree with major course work in geography, planning, ecology or related field with an emphasis in GIS (or GIS certificate). Master’s degree a plus.

Skills & Experience

Expertise using ESRI ArcGIS software and extensions. Database and computer processing proficiency.

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Yearly Salary

Starting $36,516.00

Projects in Hawaii

• Create sophisticated final map products using ArcGIS
• Visualization of resource and species distribution
• Analysis of development
• Calculate forest cover

Employers

Private: Kamehameha Schools, OHA, Castle and Cook, Alexander & Baldwin
Non-Profits: The Nature Conservancy, Trust for Public Lands