

GREENING MEASURES FOR HAWAII'S HERITAGE HOMES

CLASS 5: LANDSCAPE

HHF PLANNERS

ROTH ECOLOGICAL DESIGN INTERNATIONAL, LLC



HISTORIC HAWAI'I FOUNDATION

A statewide non-profit advocacy organization, Historic Hawai'i Foundation encourages the preservation of historic buildings, sites and communities relating to the history of Hawai'i.

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Each session qualifies for 1.5 AIA/CES (HSW).
AIA Honolulu is the registered provider.

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OUTLINE OF TODAY'S CLASS

- ❑ Welcome and Overview (5 min.)
- ❑ Assessing & Preserving Historic Landscapes (20 min.)
- ❑ Permaculture & Preservation (10 min.)
- ❑ Permaculture & Sustainability (10 min.)
- ❑ Native Plants in Landscaping (20 min.)
- ❑ Discussion (15 min.)

PRESENTERS

Wendie McAllaster, ASLA, HHF Planners

Wendie is a registered landscape architect and land use/environmental planner with over 30 years' experience in Hawai'i. As a Principal with HHF Planners, she specializes in historic preservation planning and landscape architecture, with an emphasis on cultural landscapes. Wendie was the project manager and primary author for the award-winning Pearl Harbor Integrated Cultural Resources Management Plan, for seven Cultural Landscape Assessments for historic neighborhoods at Pearl Harbor, and the Rural Historic Landscape Assessment for the Robinson Family Homestead on Kaua'i. She has also prepared numerous Historic American Landscapes Survey (HALS) reports, including for the Wake Island National Historic Landmark.

PRESENTERS

Hunter Heaivilin, Roth Ecological Design International, LLC

Hunter has been a permaculture design educator and consultant for the past decade. From homesteads in Hawaii to disaster response in Haiti he has worked with individuals and communities to navigate social and ecological systems towards the development sustainable human habitats. He is currently pursuing his PhD at UH Manoa researching the impacts of climate change on agriculture across the state. He has worked as a systems planner for Roth Ecological Design International for many years, most recently on development planning for public agricultural lands. As the Chair of the **Sierra Club** Oahu Group's Executive Committee he focuses on agricultural policy and watchdogs the consumptive use of our productive lands. He also works as the market manager for **Farm Link Hawaii**, helping Oahu's organic farmers connect with local buyers through an online marketplace and island-wide delivery service.

PRESENTERS

Richard “Rick” Quinn, ASLA, LEED AP, Certified Arborist HHF Planners

Rick, both landscape architect and planner, joined HHF Planners in 2000 and became a principal in 2006. He has over thirty-three years of landscape design and construction observation experience in Hawai‘i and throughout the Pacific Region. Rick serves as Vice-President, heading the company’s landscape architecture department. His extensive experience and unique approach to planting design has resulted in the creation of very special and distinctive landscapes. Under Rick’s direction, the company has excelled in the detailed planning and design of ecosystem restoration projects, commercial developments, and residential communities. The incorporation of the principles of sustainable and regenerative designs have become integral part of the company philosophy.

GOALS OF THE SERIES

- ❑ To share measures homeowners can implement to save energy, conserve resources and integrate respectfully with local culture and natural geography in a way that is harmonious and compatible with a property's historic character and features.
- ❑ To help historic homeowners reduce their homes' carbon footprint while retaining the properties' historic integrity.
- ❑ To provide information and knowledge to help owners preserve the historic property; save energy, money and resources; and contribute to the natural health and vibrancy of their neighborhoods
- ❑ To encourage historic homeowners to approach maintenance of their properties through the lens of sustainability in order to provide affordable and accessible sustainability tools and techniques to incorporate into their preservation maintenance plans.

CULTURAL LANDSCAPES

ASSESSING & PRESERVING HISTORIC LANDSCAPES



CULTURAL LANDSCAPES

A *cultural landscape* is

"a geographic area (including both cultural and natural resources and the wildlife or domestic animals therein) associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values." (NPS)



TYPES OF CULTURAL LANDSCAPES

Historic Designed Landscapes

Consciously designed by landscape architect or master gardener according to design principles.



TYPES OF CULTURAL LANDSCAPES

Historic Vernacular Landscapes

Evolved through use by the people whose activities or occupancy shaped the landscape.



CULTURAL LANDSCAPE APPROACH

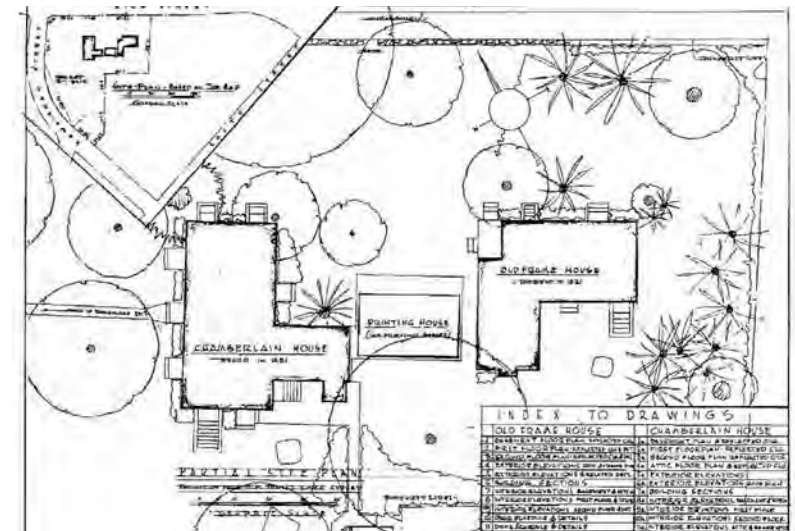
- Holistic view
- Comprehensive
- Relationships



CULTURAL LANDSCAPE PLANNING PROCESS

Historical Research

- Ground & Aerial Photos
- Plans & Drawings
- Age & Types of Vegetation
- Materials
- Family, Neighbors
- Past Owners,
- State Archives, Libraries
- Internet



CULTURAL LANDSCAPE PLANNING PROCESS

Analysis

- Development Periods
- Compare Past and Present

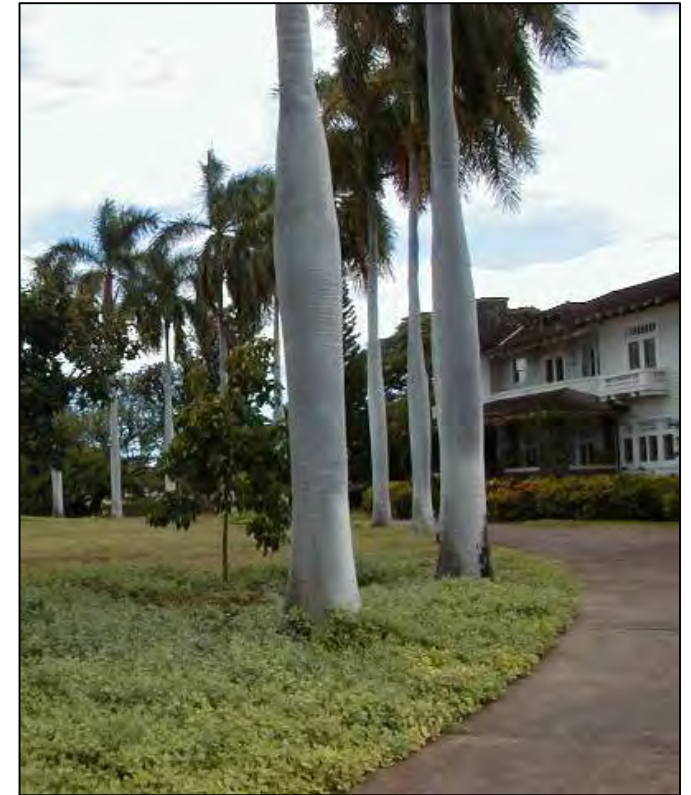


LANDSCAPE CHANGES AND PRESERVATION



STANDARDS FOR REHABILITATION OF LANDSCAPE

- Manage Change and its effect on historic features while allowing some repair, alteration and additions for compatible new use
 - Retain historic character
 - Repair rather than replace deteriorated features
 - Additions shouldn't destroy historic materials, features, spatial relationships
 - Change should be Reversible



LANDSCAPE CHARACTERISTICS

What to look for when assessing historical character, current conditions, and possible changes?



- Natural Features
- Spatial Organization
- Land Use
- Circulation
- Views and Vistas
- Vegetation
- Buildings and Structures
- Small-scale Features
- Archaeological Sites

LANDSCAPE CHARACTERISTICS

Natural Features

- Topography
- Streams, Shorelines
- Drainageways



LANDSCAPE CHARACTERISTICS

Spatial Organization



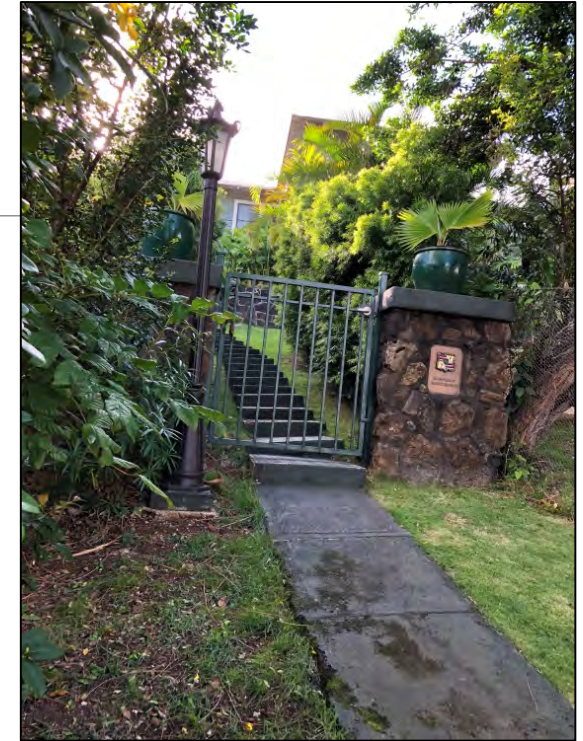
LANDSCAPE CHARACTERISTICS

Land Use



LANDSCAPE CHARACTERISTICS

Circulation



LANDSCAPE CHARACTERISTICS

Views and Vistas



LANDSCAPE CHARACTERISTICS

Vegetation



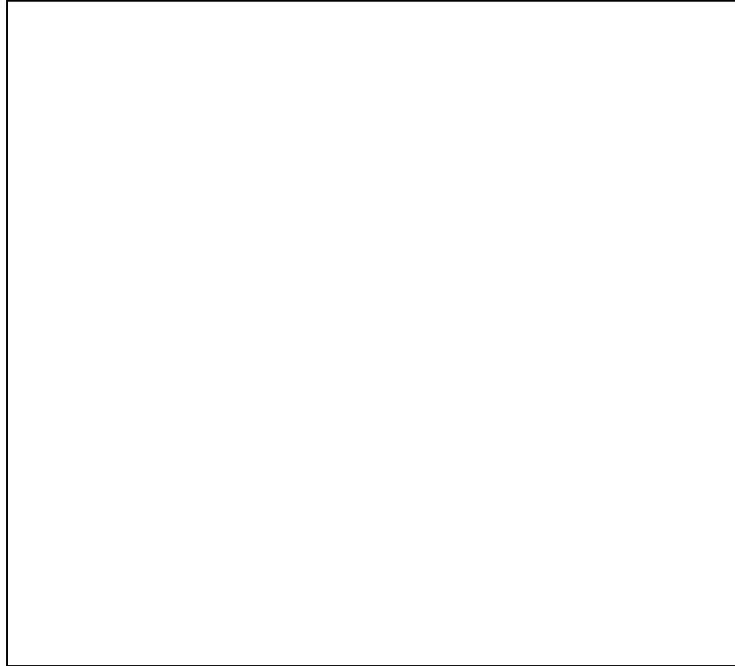
LANDSCAPE CHARACTERISTICS

Buildings and Structures



LANDSCAPE CHARACTERISTICS

Small-scale Features



LANDSCAPE CHARACTERISTICS

Archaeological Sites



ADDITIONAL RESOURCES

- National Park Service, Cultural Resources, Preservation Brief 36: Protecting Cultural landscapes
- Guidelines for the Treatment of Cultural Landscapes
www.nps.gov/history/hps/tps/standards_guidelines.htm

PERMACULTURE & PRESERVATION

Quick Bio



UNIVERSITY
of HAWAI'I®
MĀNOA



SIERRA CLUB
OF HAWAI'I
O'AHU GROUP



Permaculture is..

- Design for sustainable human ~~settlement~~ habitats
- From lifestyle to livelihood

“The only ethical decision is to take responsibility for our own existence and that of our children.”

–*Bill Mollison*



The 'permaculture flower' adapted from David Holmgren's book '*Permaculture: Principles & Pathways Beyond Sustainability*'.

TELLING STORIES — PLANTING PLACES

- ☐ Fancy Gardening Tricks?
- ☐ Growing from from spaces to places
- ☐ Using plants to tell the natural and human histories of your homesite
- ☐ The ecological and socio-cultural histories can help to inform/understand the modern world
- ☐ As stewards of theses places you can help turn histories into stories
- ☐ You are also a part of the narrative of place now, and you get to add your own page to the book
- ☐ Planting to tell the story of the past and the present

Why Permaculture

- ❑ Ecological degradation
- ❑ Social injustice
- ❑ Economic inequality

“Issues of climate change, land degradation and decreasing biodiversity are everyone’s problems with local and global impact”

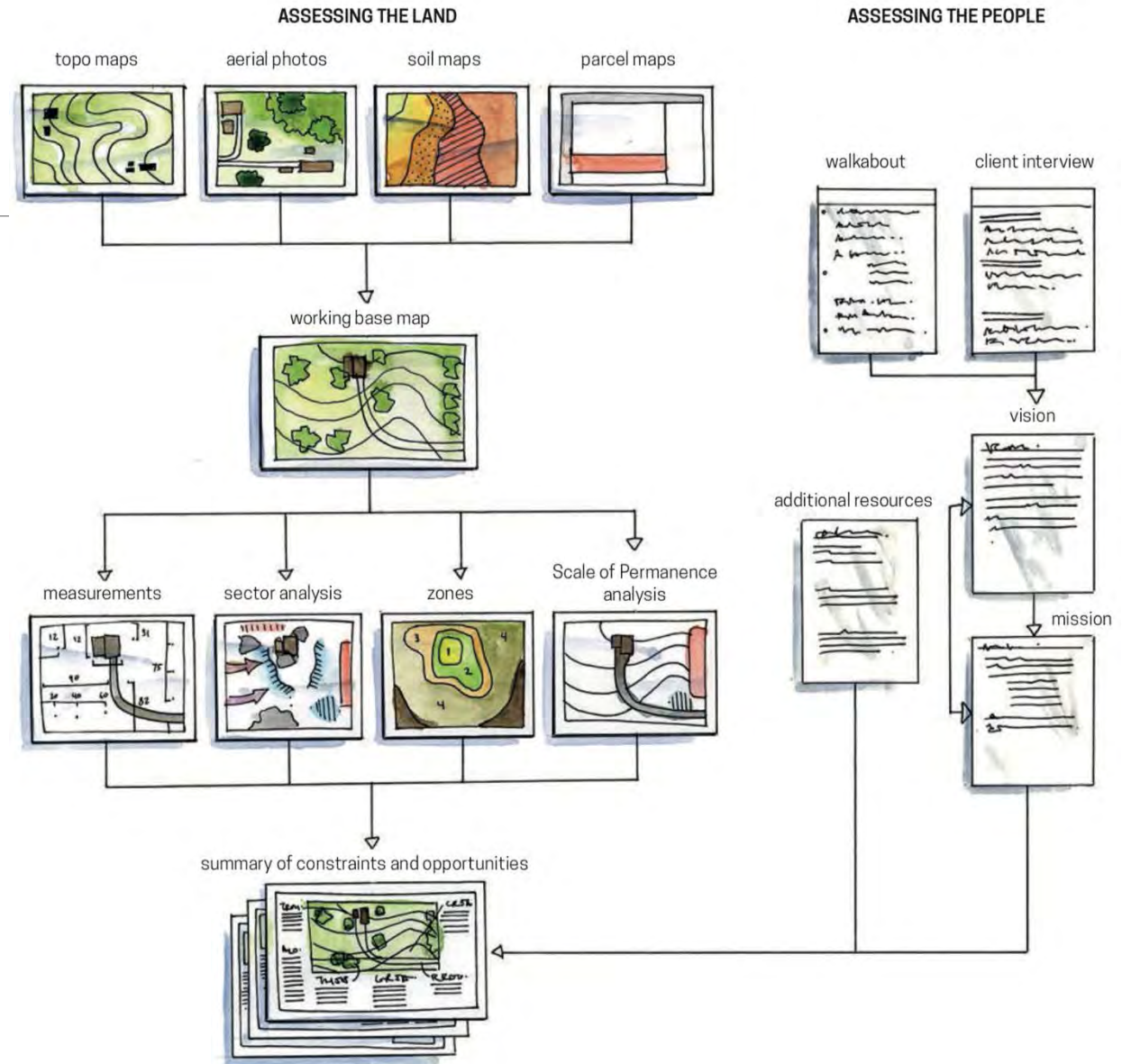
– *Rosemary Morrow*



SAMPLE DESIGN PROCESS

Data Collection

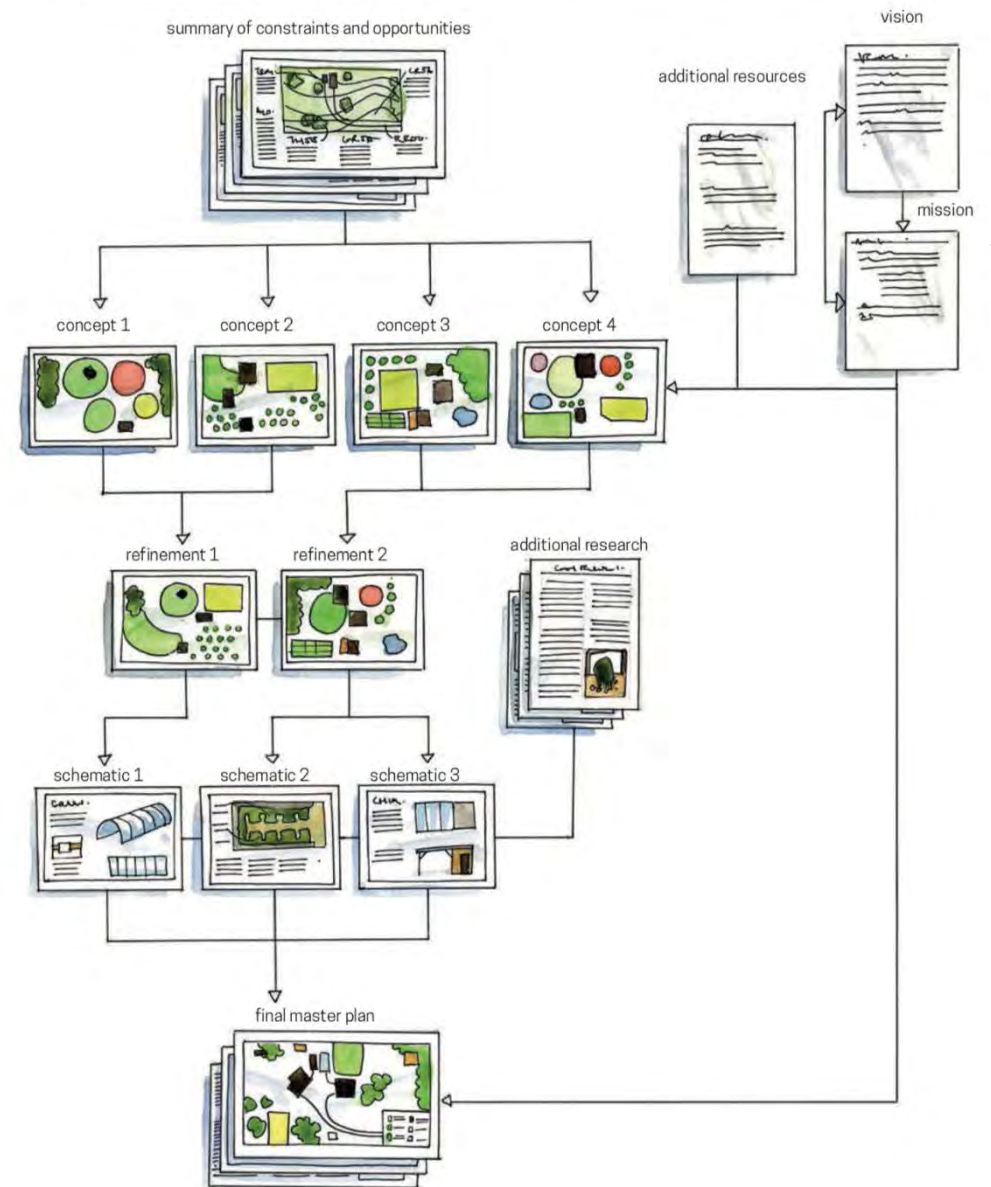
- ☐ Topography
- ☐ Photos
- ☐ Soils
- ☐ Climate
- ☐ Parcel
- ☐ Client Goals



SAMPLE DESIGN PROCESS

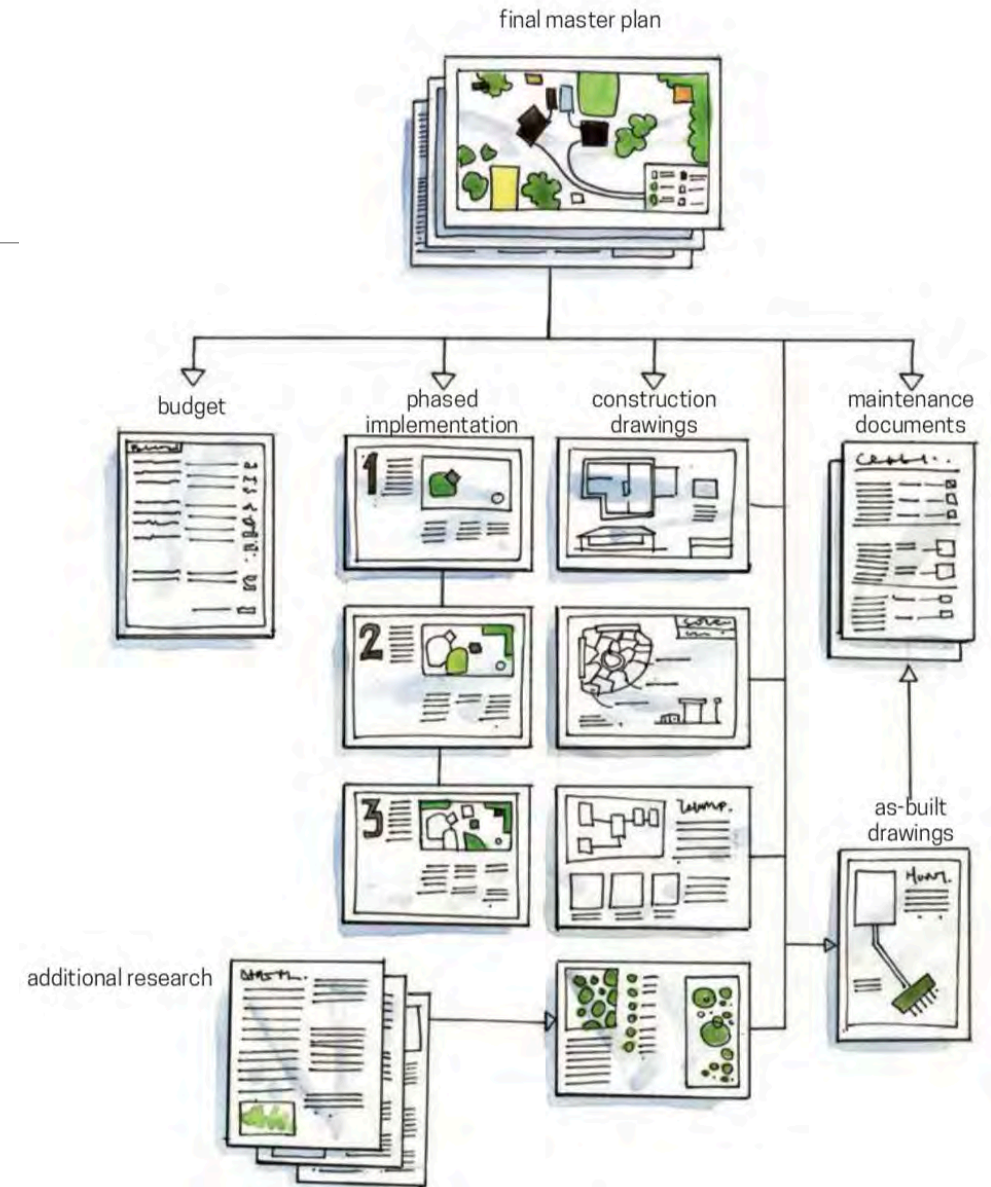
Dream and draw..

DESIGN PROCESS, PART 2: PUTTING THE DESIGN TOGETHER



SAMPLE DESIGN PROCESS

.. From Patterns to Details



PERMACULTURE & SUSTAINABILITY

Sustainability, like Permaculture, is the carrot we amble after.

A complex adaptive process that is never static. We can term sustainable systems are those that are able to maintain their desired functions over time and in the face of disturbances.

This cannot be accomplished by attempting to implement a static system.

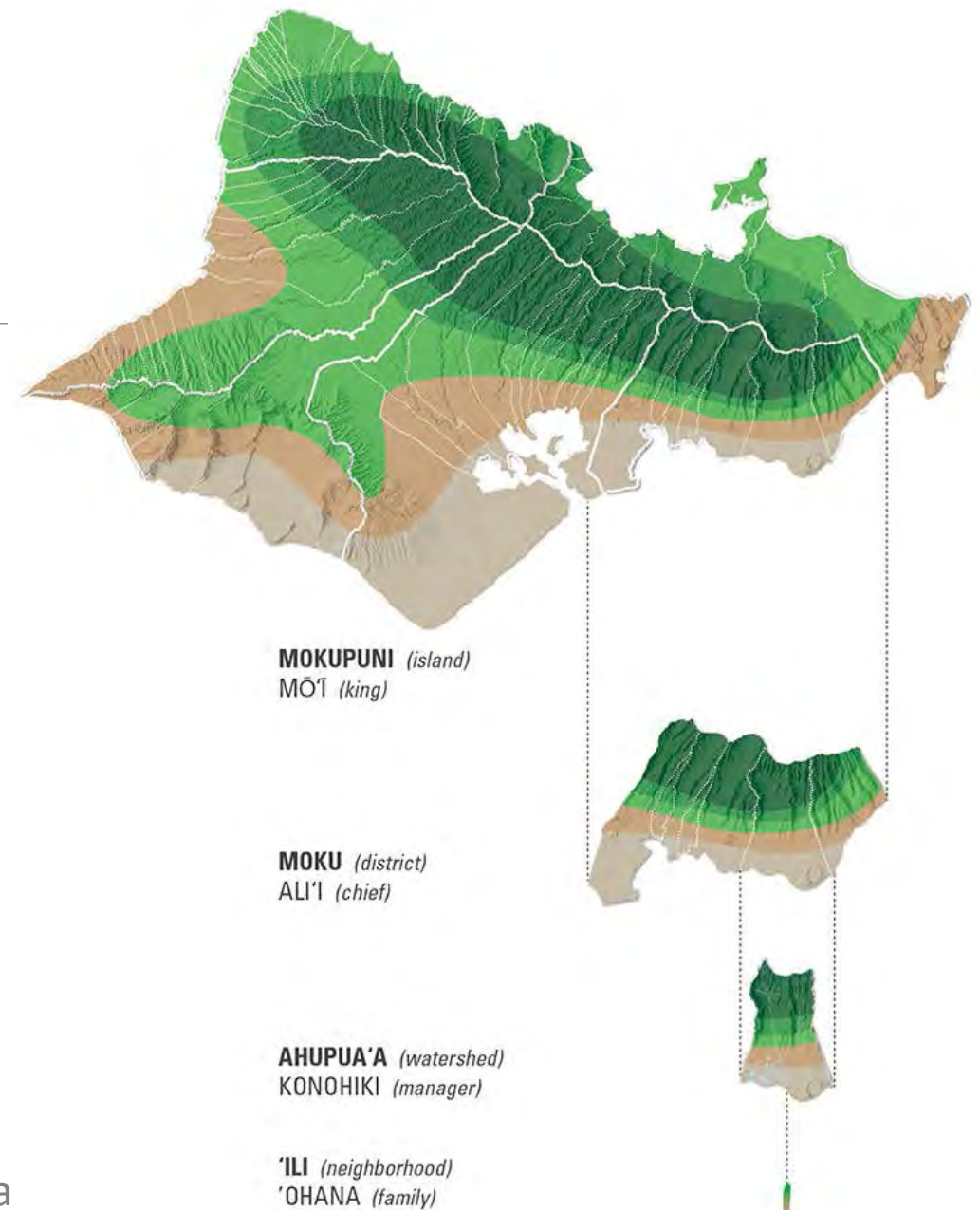


The Home in the Landscape

When and where are you?

- ☐ Natural history of site
- ☐ What made this place
- ☐ climate (water & weather)
- ☐ landform (topography)
- ☐ Life and soils (vegetation & wildlife)

http://www.kumukahi.org/units/ka_honua/onaepuni/ahupuaa



The Home in the Landscape

Home landscapes as ecological kipuka:

- ❑ Weaving landscapes back together
- ❑ Use the land help tell the story of the home
- ❑ Homes as historical kipuka/refuges
- ❑ Permaculture design to craft kipuka for habitat & species regeneration



The Landscape of the Home

Synthesis between built & ecological environments

Using the land, help enhance historic landscape

Using landscape, help enhance historic value of the property



Where to Begin

Get outside and observe!

“The attempt **to derive meaning from landscapes** possesses overwhelming virtue. It **keeps us constantly alert to the world around us**, demanding that we pay attention not just to some of the things around us but to all of them—the whole visible world in all of its rich, glorious, messy, confusing, ugly, and beautiful complexity.”

– *Pierce Lewis in ‘Common landscapes as historic documents’, 1993*



Where to Begin

Take yourself on an observational site tour of your home and neighborhood

Thematic

- ☐ Sun & wind patterns, water movement, potential energy sources

Instrumental:

- ☐ Temperature measurement, wind speeds, slopes

Experiential

- ☐ What senses are engaged
- ☐ Who did you meet, and what do they know



“Read from the book of nature” – *Sepp Holzer*

Where to Begin

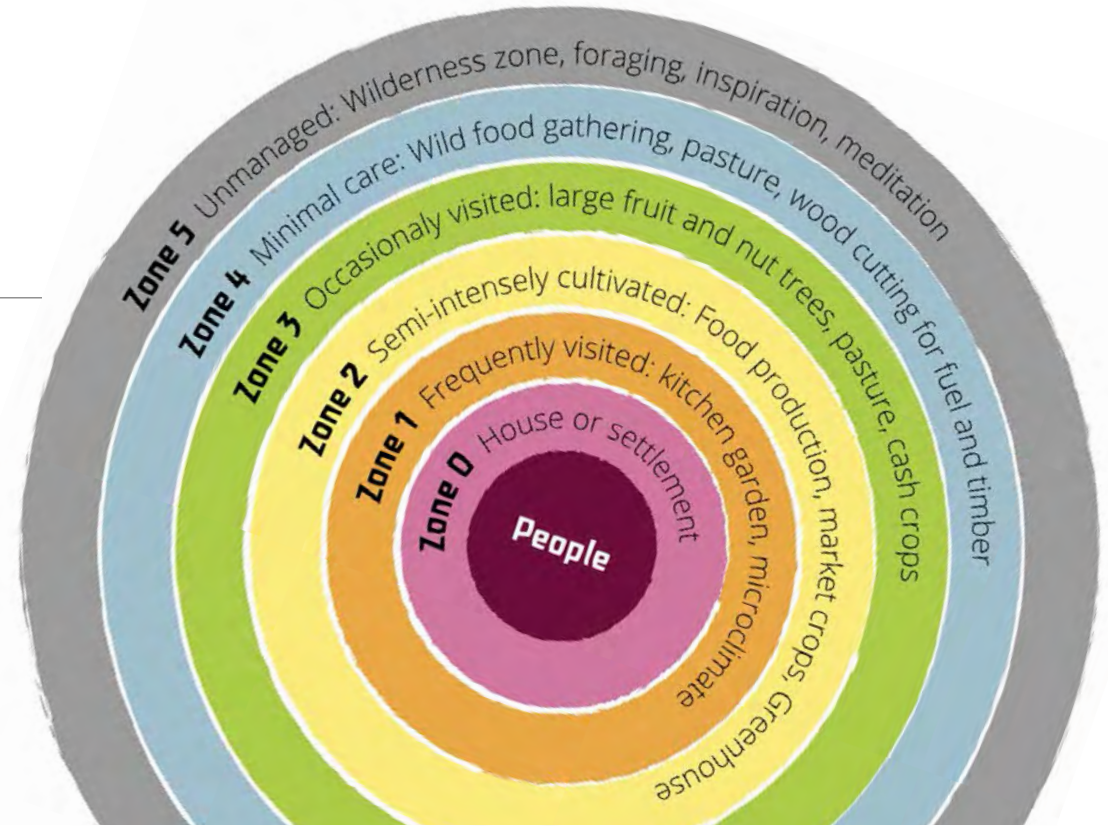
1. **THE AXIOM OF LANDSCAPE AS CLUE TO CULTURE** The man-made landscape – the ordinary run-of-the-mill things that humans have created and put upon the earth – provides strong evidence of the kind of people we are, and were, and are in process of becoming. In other words, the culture of any nation is unintentionally reflected in its ordinary vernacular landscape.
2. **THE AXIOM OF CULTURAL UNITY AND LANDSCAPE EQUALITY** Nearly all items in human landscapes reflect culture in some way. There are almost no exceptions. Furthermore, most items in the human landscape are no more and no less important than other items - in terms of their role as clues to culture.
3. **THE AXIOM OF COMMON THINGS** Common landscapes – however important they may be – are by their nature hard to study by conventional academic means.
4. **THE HISTORIC AXIOM** In trying to unravel the meaning of contemporary landscapes and what they have to "say" about us as Americans, history matters.
5. **THE GEOGRAPHIC (OR ECOLOGIC) AXIOM** Elements of a cultural landscape make little cultural sense if they are studied outside their geographic (i.e., locational) context.
6. **THE AXIOM OF ENVIRONMENTAL CONTROL** Most cultural landscapes are intimately related to physical environment. Thus, the reading of cultural landscape also presupposes some basic knowledge of physical landscape.
7. **THE AXIOM OF LANDSCAPE OBSCURITY** Most objects in the landscape – although they convey all kinds of "messages" – do not convey those messages in any obvious way.

Zones of Use

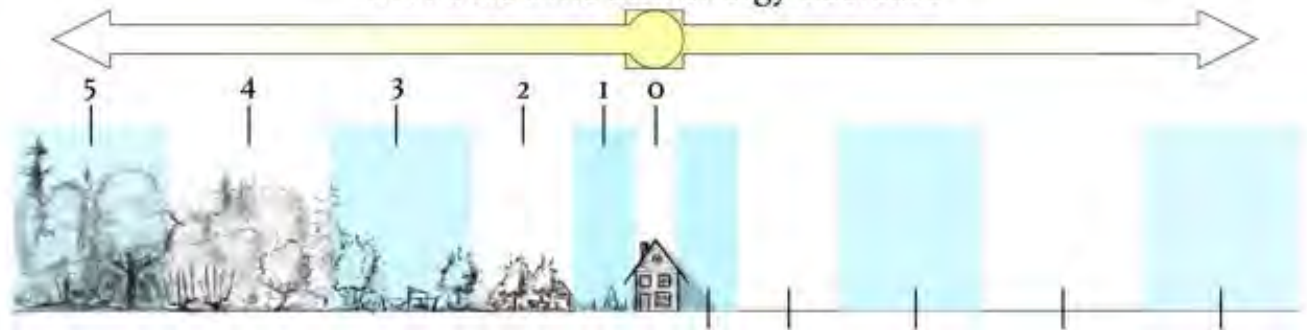
Gradient of management

Intensity of interaction

For example, cooking herbs near the kitchen



As distance from center increases,
available time and energy decrease



Zones of Preservation

Gradient of historical value

Preservation focuses on the **maintenance and repair of existing historic materials** and **retention of a property's form** as it has evolved over time.

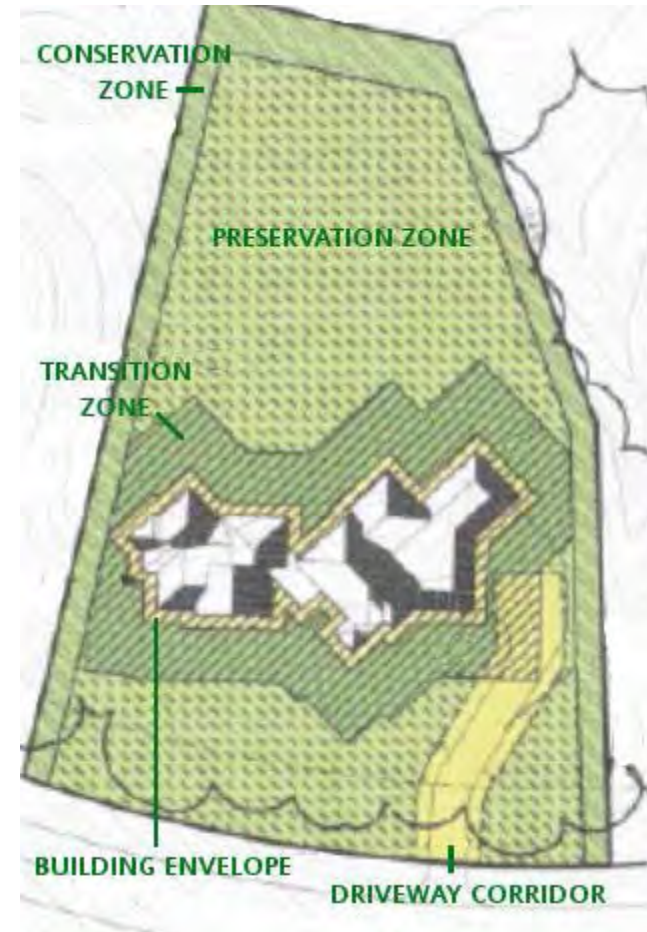
Rehabilitation acknowledges the need to **alter or add to a historic property** to meet continuing or changing uses while **retaining the property's historic character**.

Restoration **depicts a property at a particular period** of time in its history, while removing evidence of other periods.

Reconstruction **re-creates vanished or non-surviving portions** of a property for **interpretive purposes**.

Where to Begin

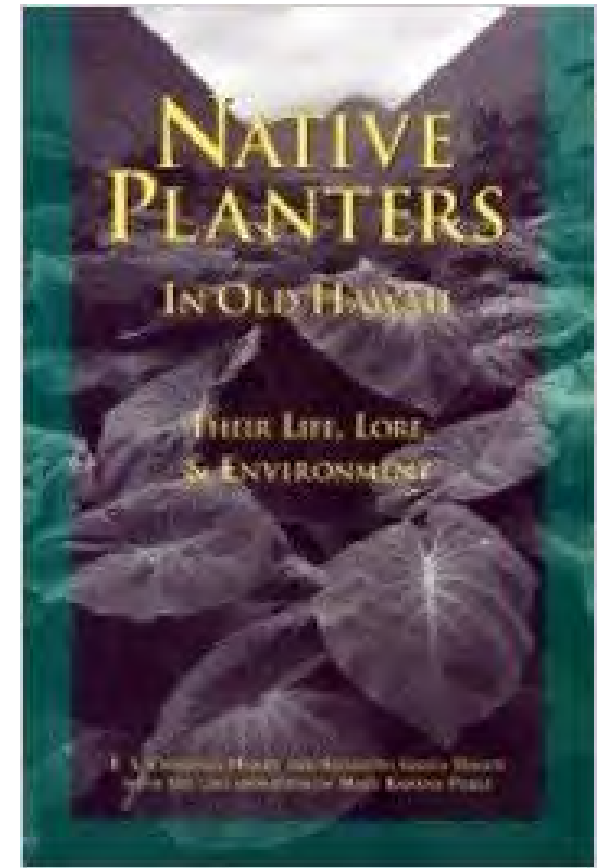
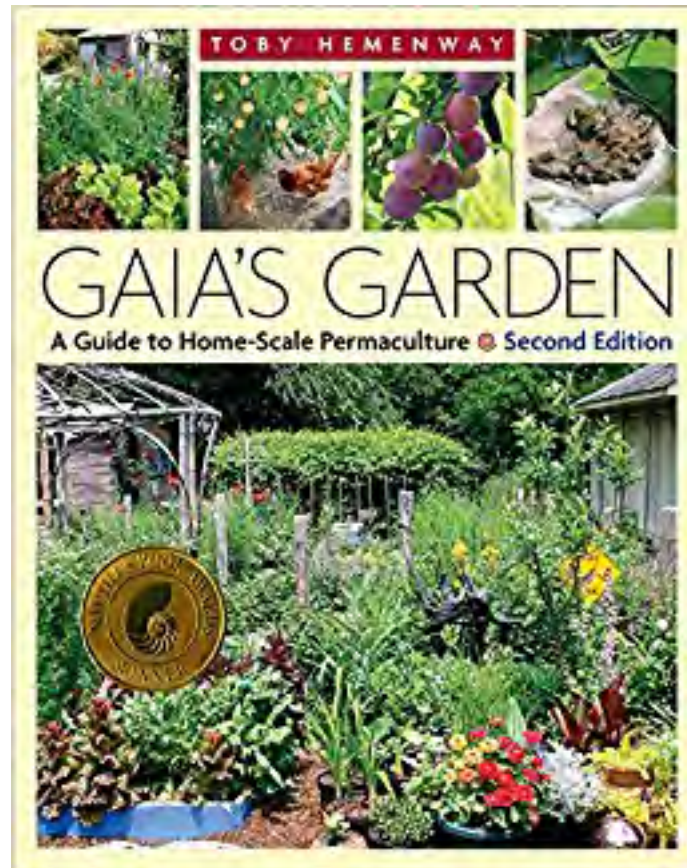
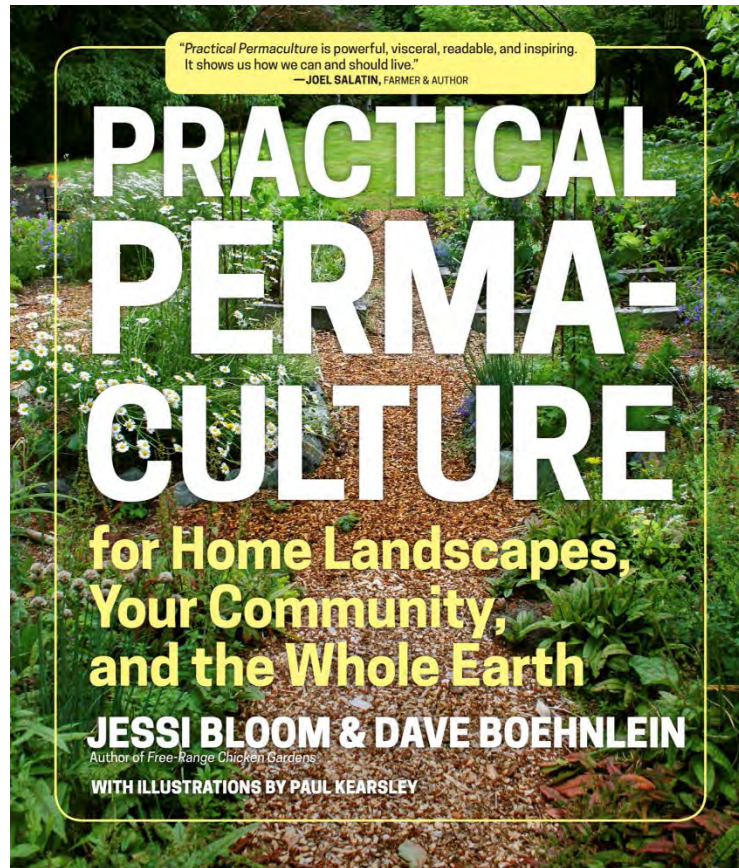
- ❑ Read your landscape
- ❑ Map your use and preservation needs
- ❑ Weave together your story and history
- ❑ What does your plan and planting demonstrate about the values and priorities of our time?



Resources



permacultureprinciples.com



Resources



www.HawaiiHGG.com



Resources

SURFBLITZ




CREATING HEALTHY, EDIBLE LANDSCAPES

FOR MORE INFORMATION: OAHU.SURFRIDER.ORG & PERMABLITZHAWAII.COM

Consult the genius of the place in all;
That tells the waters or to rise or fall;
Or helps th' ambitious hill the heav'ns to scale,
Or scoops in circling theatres the vale,
Calls in the country, catches opening glades,
Joins willing woods, and varies shades from shades,
Now breaks, or now directs, th' intending lines;
Paints as you plant, and as you work designs.

By Alexander Pope in Moral Essays: Epistle IV – Of the Use of Riches. 1731



Using Native Plants in Landscaping

RICHARD QUINN

HHF Planners

Why Use Native Plants in Heritage Home Landscapes ?

- ❑ **Preservation of species and bio-diversity**
- ❑ **Story of Pre-history and culture**
 - Educational / Interpretive value
 - Time line connections
- ❑ **Sustainability / Storm Water / Carbon Foot Print**
- ❑ **Celebration of the Uniqueness of Hawai'i**
 - Non-native Tropical Ornamental landscapes look the same everywhere
 - 90% of Hawai'i's native plants are found nowhere else on earth



Indigenous vs. Endemic



Hawai'i &
Elsewhere



*Only
Hawaii*



10%



90%

Indigenous vs. Endemic



**In general, are good
ornamental plants**



**In general, are not good
ornamental plants**

Hawaiian Cultural Plants

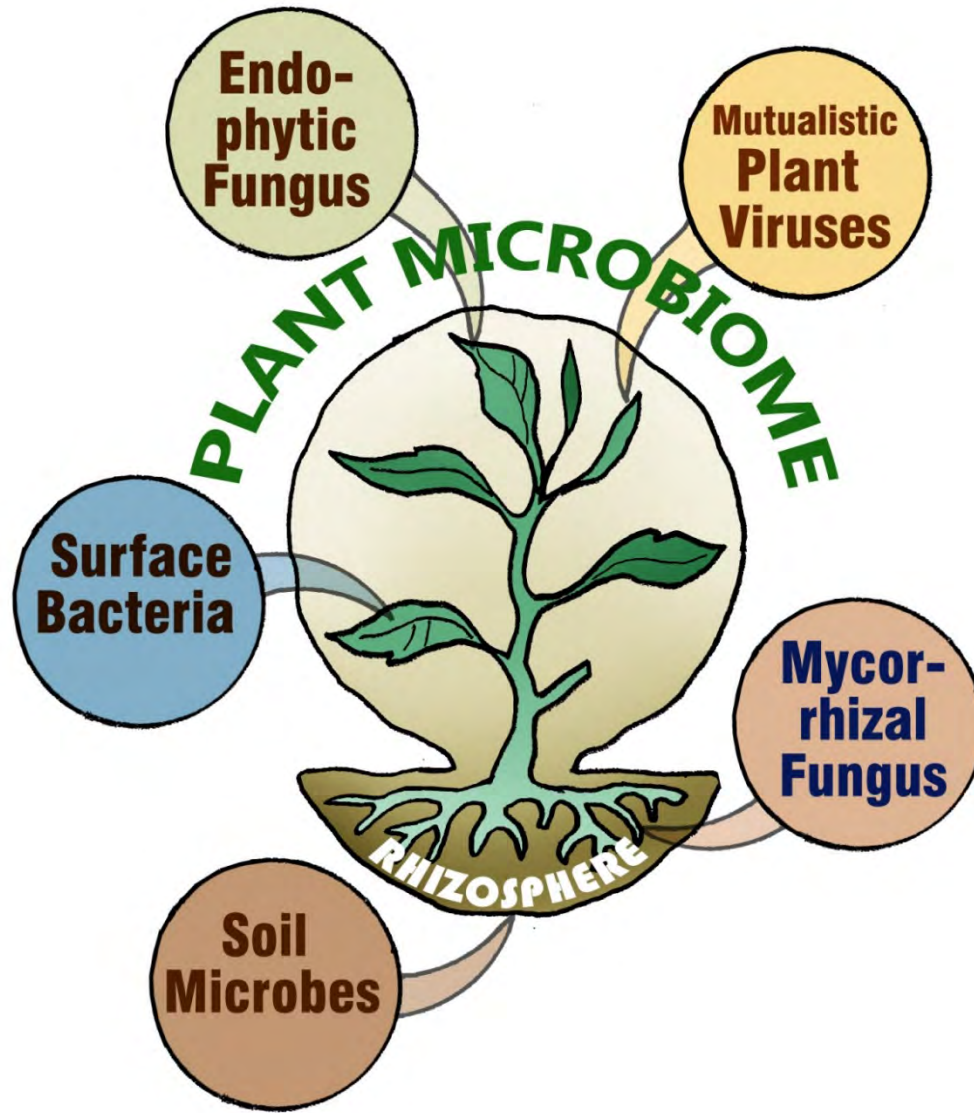
“ canoe plants ”



Typical Features of Hawai'i's Native Ecosystem

- Poor soil conditions
- Low level of nutrient cycling
- Low pH soils
- High diversity of plant species in close proximity
- High level of endemic species
- Co-Evolution with specialized soil and plant microbes





Plant Microbiome: Interaction and interdependence between a plant and essential micro-organisms.



How to Support a Healthy Plant Microbiome

- Have a diversity of species
- Water and fertilize for survival, not for maximum growth
- Allow for attrition and re-generation
- Use nitrogen fixing plants, and mycorrhizal encouraging plants (ferns) together
- Allow dead things to remain (leaf litter, tree stumps, logs)
- Accept a “natural” aesthetic, not an “ornamental” one



Caring for a Native Garden

DO'S

- Get a soil test for pH, Phosphorus and nitrogen
- Use Mulch top dressing
- Remove any and all weed species
- Control for Ants
- Replant and Experiment
- Use plants from multiple sources
- Grow your own native plants from seed
- Loosen the root ball before planting
- Dig a hole just big enough

DON'TS

- Don't over water!
- Don't plant too deeply!
- Don't till the soil. Don't use soil amendments
- Don't remove leaf litter.
- Don't use high nitrogen or phosphorus fertilizers
- Minimize the use insecticides and herbicides
- Don't use fungicides or pre-emergents after planting
- Do not over trim!

Challenges

- ☐ Plant Availability
- ☐ Insect, & Disease Problems
- ☐ Weed Control
- ☐ Urban Conditions –drainage/soil/heat
- ☐ Lack of knowledge and research
- ☐ Aesthetics
- ☐ Needs Patience

Native Plants in Urban Honolulu

EXAMPLES

Honolulu Museum of Art



BEFORE

AFTER

New native garden features:

- 12 species
- River stone swale
- Lower water use
- Unique theme relates to other themed areas
- Opportunity for sculpture display

Honolulu
Museum of Art





UH Mānoa

Shidler College of Business

BEFORE



UH Mānoa

AFTER

Diamond Head Residence



BEFORE



Diamond Head Residence

AFTER



IBM Building

BEFORE





IBM Building

AFTER

The Native Hawai'ian Garden at the IBM Building

Hawai'i has a truly unique and special ecosystem, with over 1,000 species of plants that are found nowhere else on earth. Many of these plants are highly endangered. The native garden at the IBM Building is a celebration of the biodiversity of Hawai'i and the inherent beauty of the natural Hawai'ian landscape.

The use of ferns is an important component of this native garden. The endemic native plants of Hawai'i have evolved to have an interdependence with each other, and to have an association with a native soil ecology that is essential for the plants survival. In this garden, the use of native ferns encourages the establishment of the soil micro-organisms that will benefit the other native plants, such as the 'Ohi'a lehua.



'Uki'uki i
Dianella lavarum

'Uki'uki produces attractive purple fruits used for making lei or dye. Leaves were used to decorate the Maniolo (helmet) and braided for cordage. Leaves were also used in house construction.



Hala i
Pandanus tectoris

This indigenous tree is found on all islands except Kaho'olawe. Every portion of this plant was used by Hawaiians; such as leaves for weaving mats, sails and thatch, fruits for leis and dye brushes, and roots for cordage and medicine.



'Ohi'a Lehua E
Metrosideros polymorpha

This beautiful tree has adapted to live in a variety of conditions throughout the Hawai'ian islands so that its forms are varied. The blossoms range from yellow, salmon pink to crimson and sometimes even white. Two different forms are used in this garden; one with dark green leaves with a dark red flower and the other with fuzzy pale green leaves with a salmon pink flower. Within native Hawai'ian tradition, the 'Ohi'a lehua tree is sacred to Pele, the volcano goddess.



These **Rounded River Stones** were a part of the original landscape, installed in the 1960's with this iconic building designed by the late architect Vladimir Ossipoff.



Koki'o Kea E
Hibiscus waimeae

This Native White Hibiscus has an attractive large flower which opens up in the morning and lasts for two days. They slowly fade to a light pink and begin to close up before falling off. Koki'o Kea has a delicate subtle fragrance.



Palapalai i
Micrdeopia strigosa

Palapalai Ferns are indigenous to Hawai'i and thrive under the shade of trees in cooler mountainous areas of all the major islands. The delicate fronds are traditionally used in making leis and it was one of the plants placed on the altar of Laka, the hula goddess.



Naupaka i
Scaevola taccada

Native to beach areas in Hawai'i and throughout the tropical Pacific. The branches and large leaf rosettes are used in arrangements and white flowers, fruit, and young leaf rosettes are used in leis.



Kupukupu i
Nephrolepis cordifolia

The word "kupu" means "to sprout" in Hawaiian Language. This fern was often used to decorate hula alters, symbolizing a place of learning or sprouting knowledge.



Koki'o E
Hibiscus kokia

Koki'o can be a shrub or small tree. It has small red flower blooms year round. Hawai'ians planted Koki'o Hibiscus near their house to enjoy the flowers. It was also used as a medicinal plant to purify blood or as a laxative.

Hapu'u E
Cibotium glaucum

Beautiful Tree Fern with large fronds that have bluish green undersides and soft "pulu" (silky material from fiber of Hapu'u) at the base of the fronds and new frond fiddle heads. The Hapu'u is referred to as the mother of the forest since the seeds and spores of many other native plants will germinate, grow and possibly take over the Hapu'u.



Ho'awa E
Pittosporum confertiflorum

Beautiful shrub or tree with a dense canopy of leaves with bronze color backside. Ho'awa has a cluster of creamy white flowers and they are highly fragrant at night. It also has a fascinating fruit that resemble walnuts. Hawaiians used the wood to construct the gunwales of canoes.

WHAT IS AN INDIGENOUS PLANT AND AN ENDEMIC PLANT?

i Indigenous plants are plants that came to Hawaii via wind-currents or storms, birds, or ocean currents and remained unchanged by their new environment—they are native to Hawai'i but can also be found in other parts of Polynesia.

E Endemic plants are unique to Hawaii. These plants came to Hawai'i via wind-currents or storms, birds, or ocean currents and evolved into forms uniquely suited to their new environment—these plants can be found nowhere else on Earth.

Interpretive Information



Mānoa Heritage Center





THANK YOU

By: Richard Quinn, ASLA

HHF Planners



ADDITIONAL RESOURCES

Local nursery sources for Native Plants:

- ❑ Hui Ku Maoli Ola : www.hawaiiannativeplants.com (largest selection of small native plants)
- ❑ Home Depot Garden Center : native plants supplied by Hui Ku Maoli Ola
- ❑ Contemporary Nursery – Waimānalo (native trees)
- ❑ Tien Nursery – Waimānalo (shrubs and groundcovers)

Local information sources:

- ❑ <http://www.nativehawaiiangarden.org/home> (general information about common native plants)
- ❑ <http://www.botany.hawaii.edu/faculty/carr/natives.htm> (photos)
- ❑ <http://nativeplants.hawaii.edu/> (general information about planting and care for a wide variety of native plants)
- ❑ <http://www.hawaiiannativeplants.com/ourplants/> (information about plants available at Hui Ku Maoli Ola plant nursery)

DISCUSSION
