

LEGS-Sustainability Conference
12-13 October 2007

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at Kauai Community College

Kauaï Land Use

a presentation of
www.islandbreath.org

Definition: Sustainability

“Using unrennewable resources no faster than they are recycled.

Not using renewable resources faster than they are replaced.

Maintaining the variety ad balance of living species.

Maintaining the art and knowledge of human cultures.

Sustainability is not, however, the continuation of the status quo.”

- Juan Wilson, May 2007

Why is sustainability an issue on Kauai? In a word: FOOD. There is convincing evidence that the future will not have the cheap source of petrochemicals we do now. As a result, the future will not have a smoothly running reliable transportation and distribution system. And not least of all, the world will be without the quantity of petroleum based fertilizers, chemicals and pesticides used in modern food production.

In effect, in future we will not have an umbilical cord from the Mainland, running across the Pacific Ocean, to supply us with ninety percent of our nourishment. Like a prenatal infant, we are about to breath on our own or not breath at all.

How will we fend for ourselves?

FOOD PRODUCTION

Human nutrition relies on five major food production roles. Sometimes people combine two or more of these roles into a food gathering technique. These five roles are:

- FORAGERS (Hunter-Gatherers)
- HORTICULTURISTS (Gardeners)
- AGRICULTURALISTS (Farmers)
- PASTORALISTS (Herders-Ranchers)
- INDUSTRIALISTS (Chemists-Manufacturers)

I call the food production technique we are using Petroculture. It relies on the last three roles - the agriculturist, pastoralist and industrialist. It needs lots of petrochemicals to for synthetic fertilizer, heavy mechanization, energy intensive distribution systems, chemical treatment and packaging.

With less oil in the future we should be using the first three food gathering roles and just a small amount of petrochemicals.

Permaculture is the food production technique to meet the Post Peak Oil future. Measured by return on energy invested, it is can be the most efficient method for obtaining food. It blends a bit of Foraging, with some Farming but mostly it relies Gardening. Permaculturists gather some wild food, like Foragers; farm some domesticated plants and animals, like Agriculturists; but mostly they garden, like the Horticulturists.

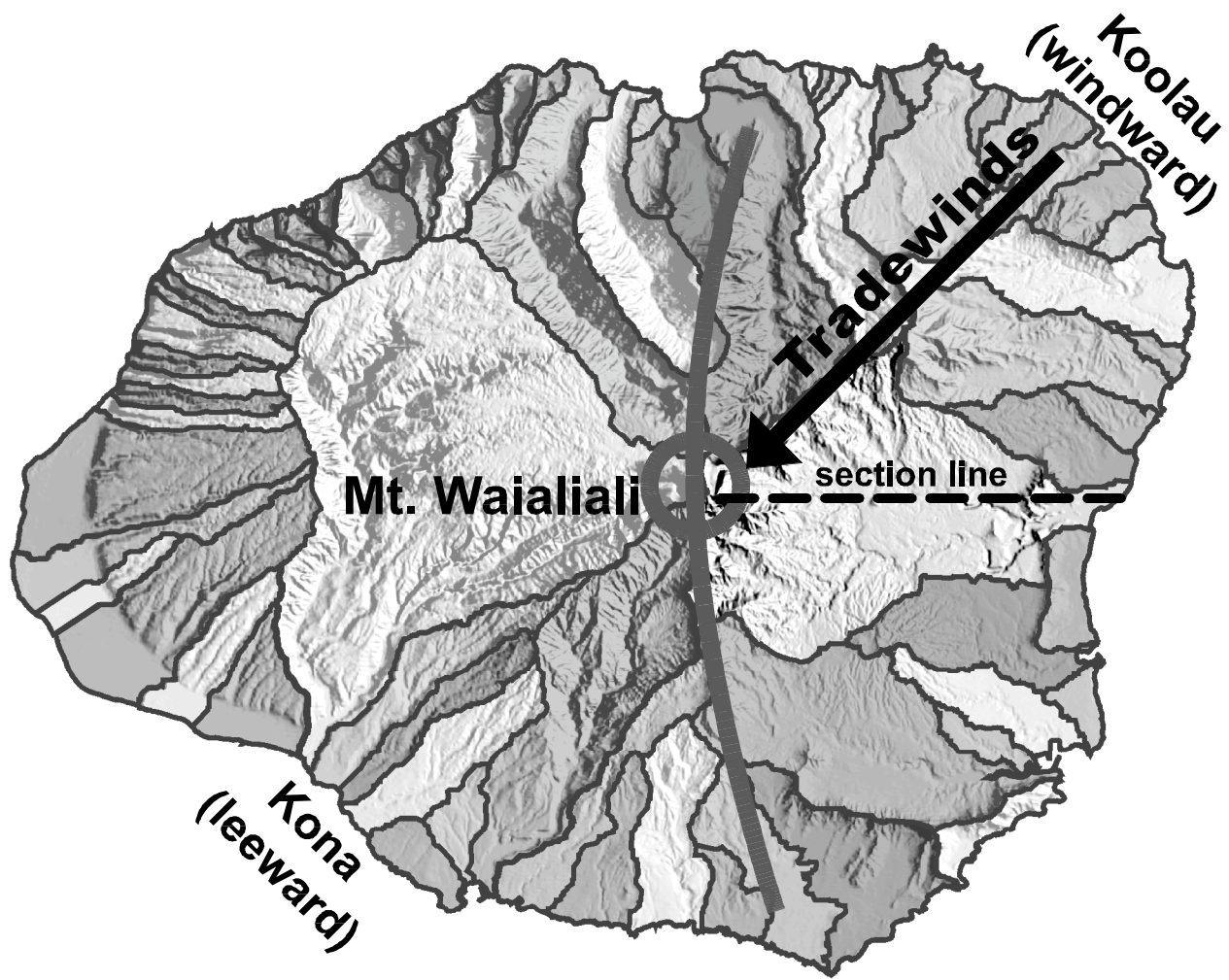
In the past the Hawaiians practiced Permaculture using their system of Ahupuaa land management. They hunted, picked fruit and grew taro.

Unlike Petroculture, Permaculture can be best done at a small and intimate scale. Typically, the social organization needed is at the tribal or village level. Also, unlike modern large scale Petroculture, Permaculture does not require synthetic fertilizer, heavy mechanization, energy intensive distribution systems or chemical treatment. It can be done in your yard.

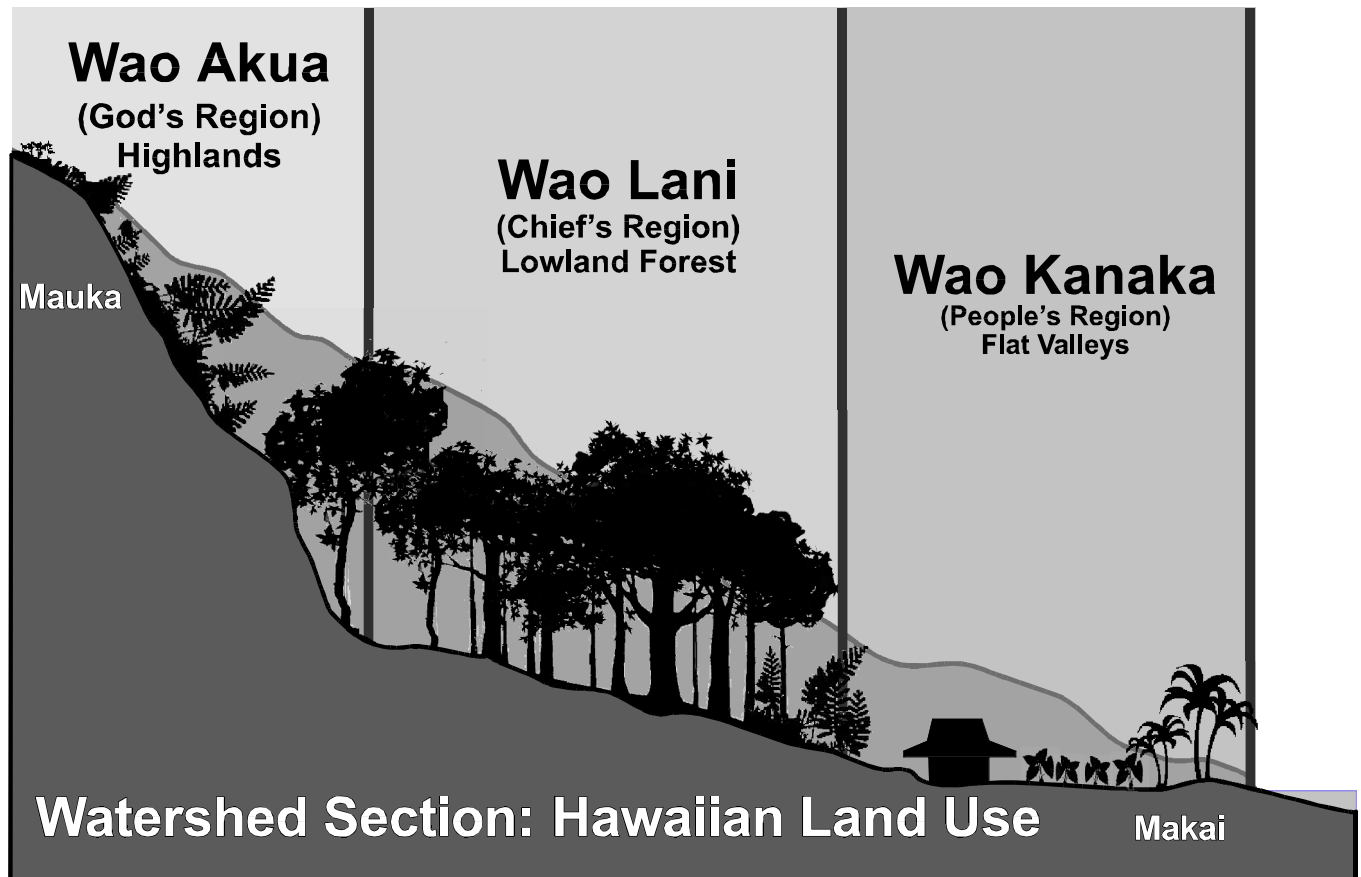
In conclusion, we on Kauai should begin the transition from Petroculture to Permaculture. That will require significant Land Use changes. So how do we get where we need to go? Certainly not with the automobile. Removing the automobile from the planning of our future is the most crucial decision we can make to obtain sustainability.

OUR ISLAND

We can see that the trade winds and current sculpt the basic shapes of the Hawaiian Islands. They bring rain and life in differing patterns to each island. Kauai evolved into a giant rain machine with no easily accessible central valley. It is indeed lucky for us that we live on The Garden Island.



The mountains at the top of our island share their rain radially to the individual valley watersheds that make up Kauai. Each watershed is an environment of its own based on the course of the water within it. A Hawaiian word to describe “watershed” is Ahupuaa. Historically the Hawaiians managed each Ahupuaa as an entity unto itself. How it was managed constituted a Land Use Plan. In developing our Sustainability Plan we should begin by understanding the principles the Hawaiians used to thrive on these islands for a thousand years. **HISTORIC AHUPUAA SECTION**

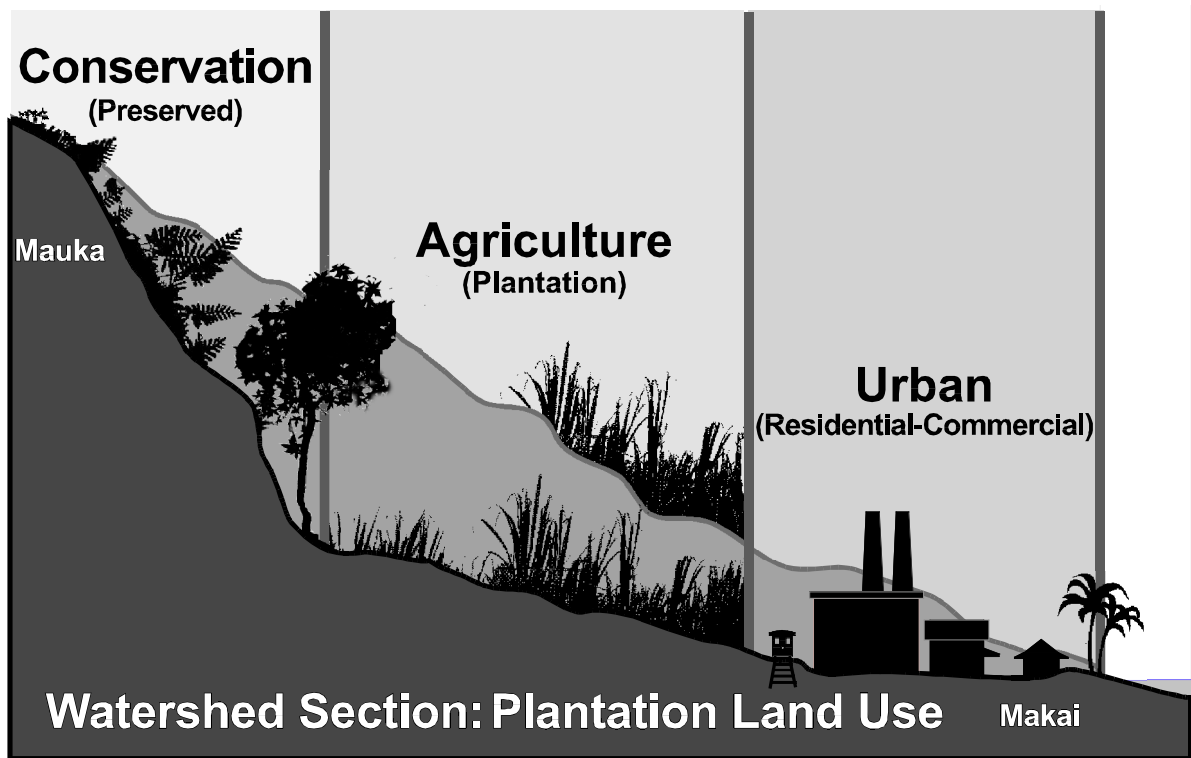


Let's look at a section through an Ahupuaa. Back in 2004, Kehualani Kekua gave a presentation on forest renewal, that also delivered a different perspective from which to view Kauai Land Use. She called the less precipitous island regions as “Wao” and described how they guided Hawaiian culture.

Wao Akua (God's Region) is the high altitude forest in the mist where the forest gods lived. Men very infrequently went there – never without reason – never for recreation – only for special purposes with permission of the gods.

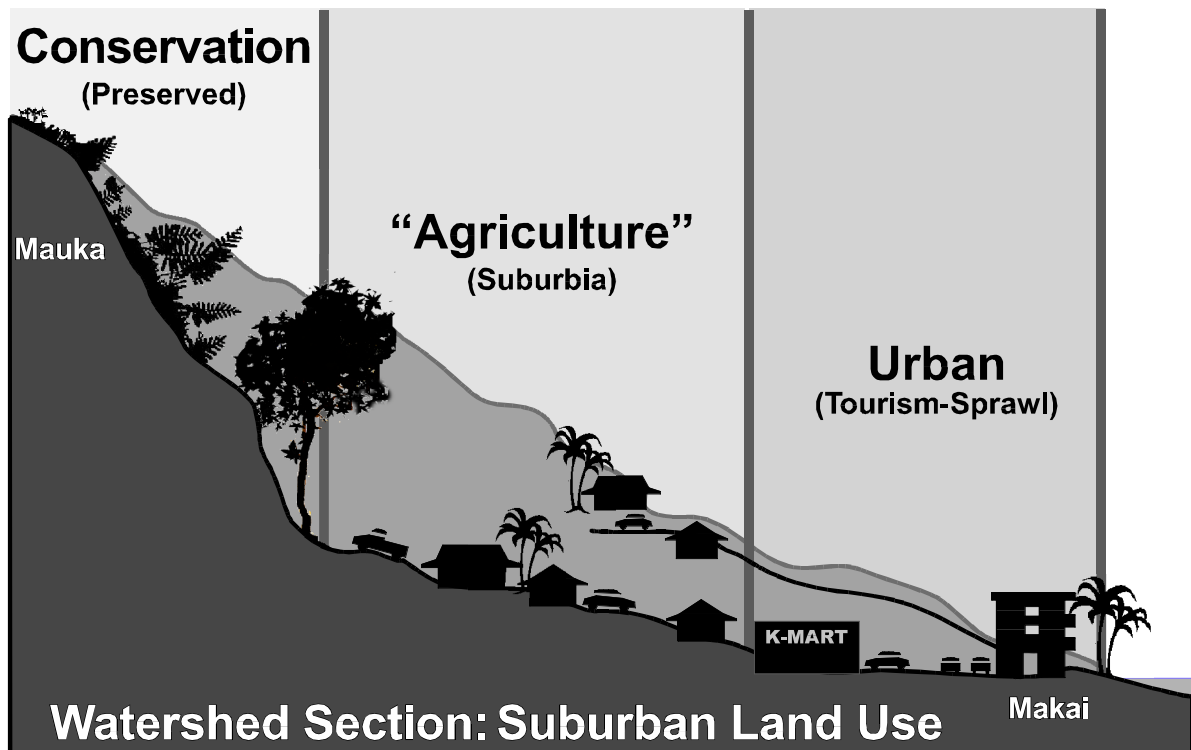
Wao Lani (Chief's Region) is upper forest and a place of heavenly spirits. It was a depository of shared natural resources and was a necessity in ancient times. Koa for canoes herbs for medicinals grew in Wao Lani. It was an uninhabited area without agriculture but some forest management provided by alii and kahuna.

Wao Kanaka (People's Region) is the lower forested areas where most Hawaiians lived. The Wao Kanaka was where agriculture was practiced and man had the most influence on the land. It was in the lowland valleys where people were meant to be and had the most freedom.



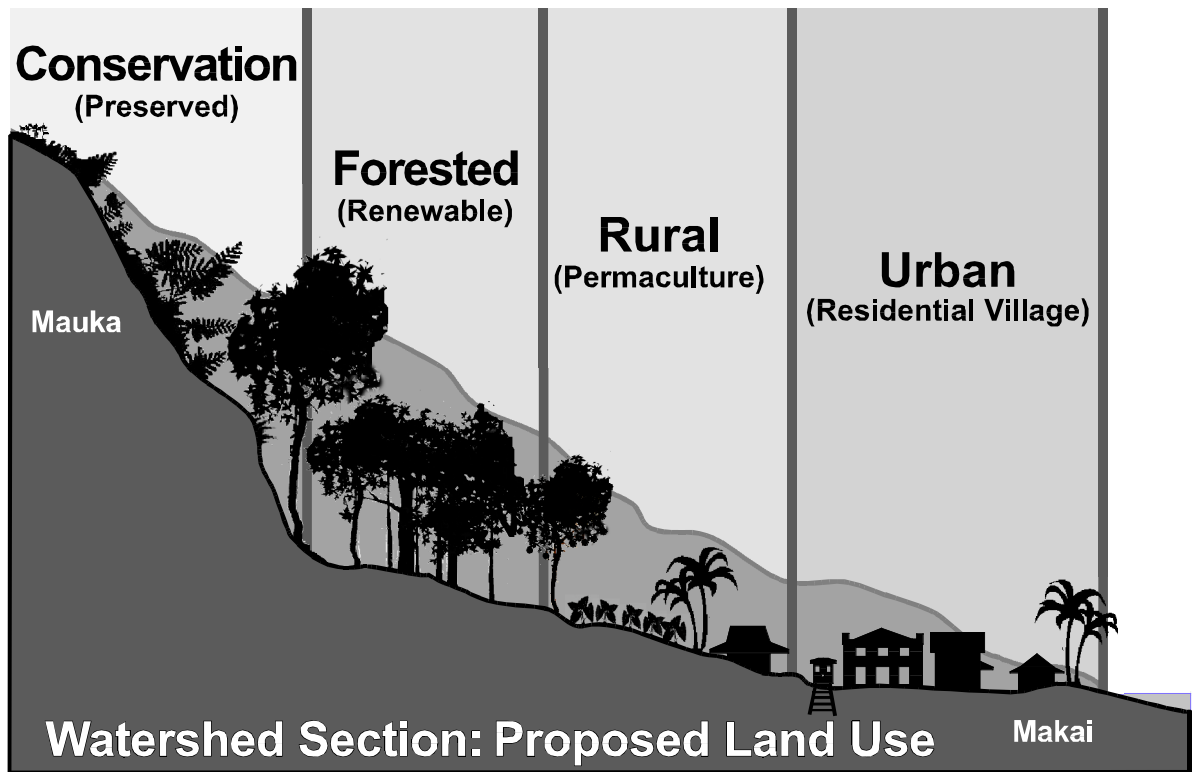
PLANTATION LAND USE SECTION

When Europeans came to Hawaii they plundered the resources. They cut down the forests and slaughtered whales. Then they created plantations. Today's State Land Use designations are a hangover from the plantation days.



SUBURBIA LAND USE SECTION

This is where we are now. Cars and cul-de-sacs working their way up through the Agland. The suburbs were not designed for the accommodation of people to one another, but for the convenience of vehicles. Suburbia only works if the cars work. With the inevitably increasing cost of oil, this suburban lifestyle is poised to fail.



PROPOSED LAND USE SECTION

Those living in walking distance to town will be the lucky ones. As the car “stops working for us” there will have to be accommodations.

- We'll grow food in our yards
- We'll bike to the local village shops
- We'll take the bus to visit relatives
- We'll work at home
- We'll entertain ourselves
- We'll walk to the local town hall

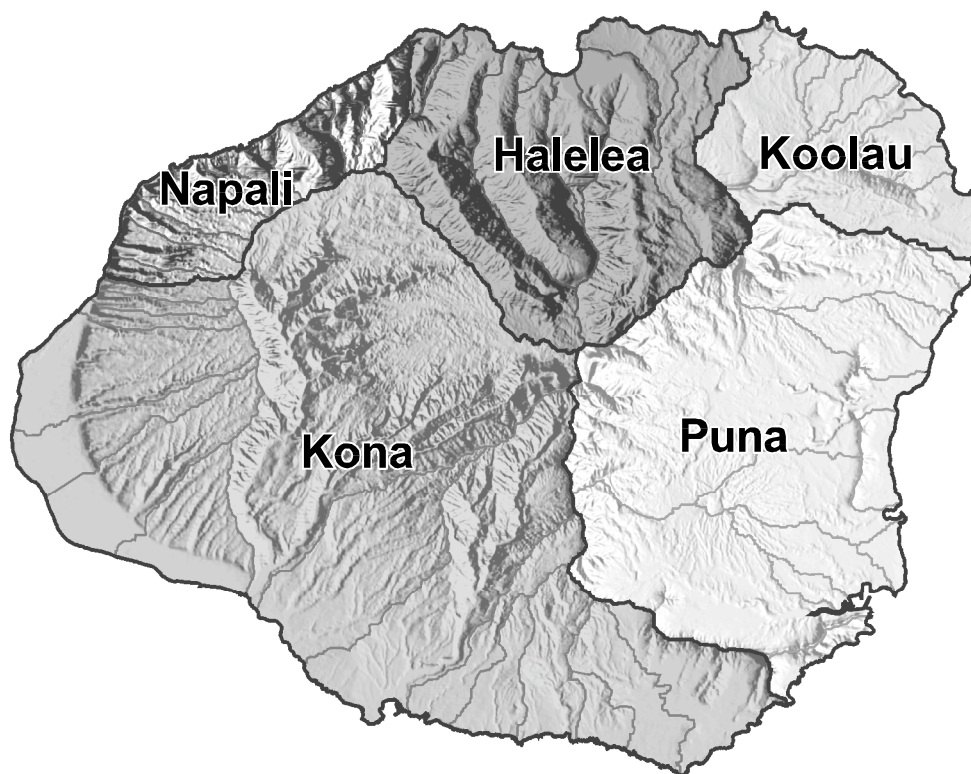
This new life will be centered at the local village and the natural landscape around it. What planning will best accommodate this lifestyle?

AHUPUAA AND MOKU

The Hawaiians had groups of Ahupuaa that made up regional kingdoms called Moku. There were five on Kauai.

One was called Koolau (meaning the Windward Side), and another called Kona (meaning the Leeward Side). The other three were Napali, Halelea and Puna. In seeking a method for managing Permaculture district we found a dilemma.

The Ahupuaa seemed to small a region unit to manage the island by, where as the Moku seemed to big. The “just right” Goldilocks solution was to find something in between. The Hawaiians had such a unit - The Kalana. A district that was a portion of a Moku made up of a group of Ahupuaa. The Mana Plain was such a division historically.



WHY NOT MOKU?

There have been numerous attempts to find reasonable Kalana divisions to manage the island. Some focused on property ownership others on the natural environment. We wanted to make a balance between existing human settlements and historic sustainability success. As a result, we have chosen to break Kona into three Kalana; and Puna into two Kalana. Altogether this would make up eight districts (or townships) on Kauai. Politically, this could be the basis of a new representation on our County Council.

EXISTING LAND USE

Let's look at existing Land Use as it relates to these Kalana Townships. There are only four categories of land use in our state system. Conservation, Agricultural, Rural and Urban.

Conservation:

is about 55% percent of the island and includes mostly the higher center portion of the island. This area was too steep or too remote for plantations use.

Agriculture:

is about a 40% the area of the island and includes all the areas that were pineapple, sugarcane and other cultivation practices.

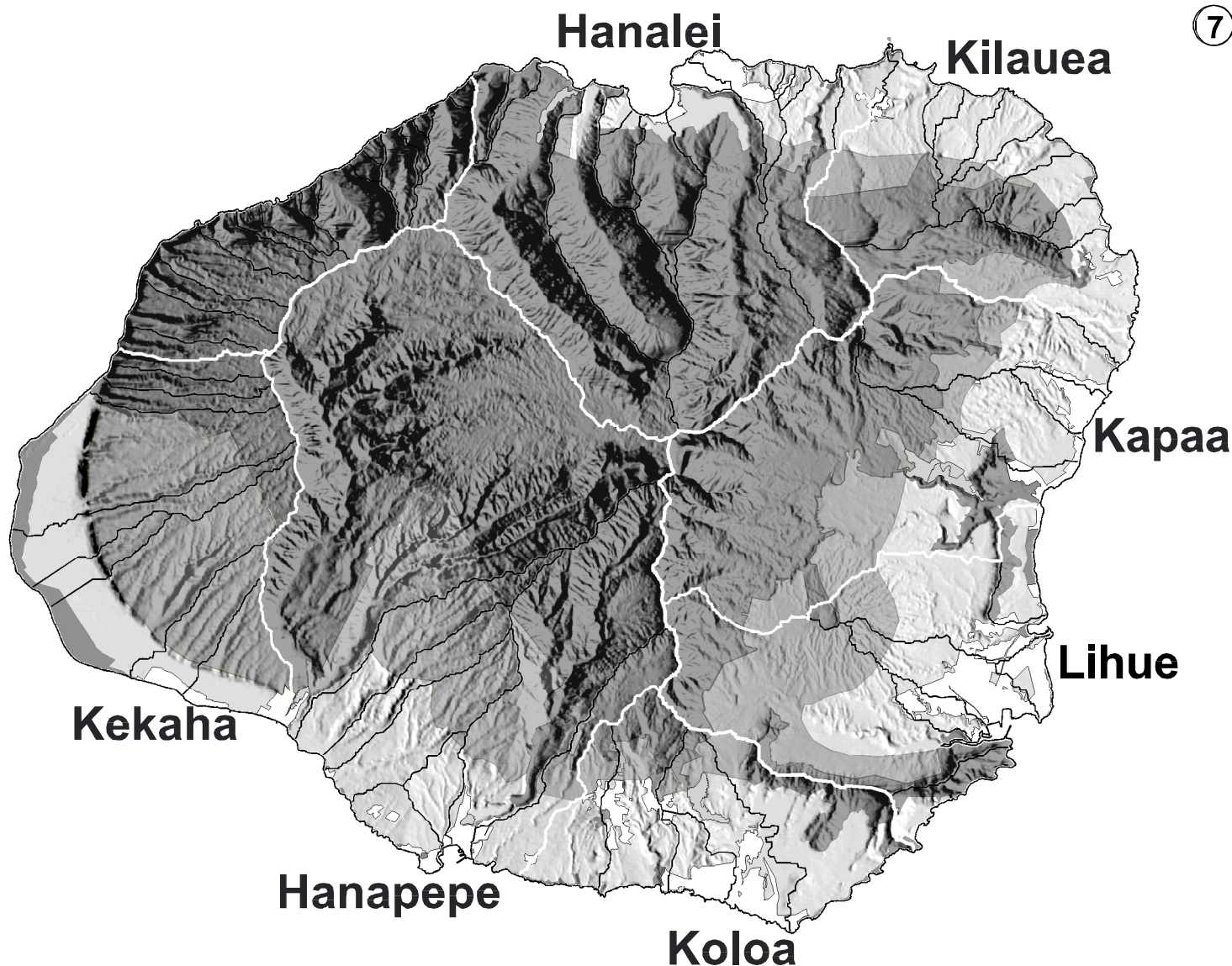
Urban:

is about 4% of the island and represents the commercial centers, company towns and independent villages scattered around the island.

Rural:

is about 1/2% of the island. It is the smallest category and is found generally in the lowland valleys where the Hawaiians once thrived. Water diversion from the valleys had much to do with unraveling that rural lifestyle.

SLIDE #14 PROPOSED LAND USE



Like the historic Moku that the Hawaiians used, each Kalana or Township should be a self sustaining unit. It might trade with others districts for desired products, but each should be able to feed itself. The whole is sustainable if its parts are. 1

We propose eliminating the Land Use designation of Agriculture. We offer to split that designation on a greatly expanded area of Rural use and a new designation "Forest". Forest in this case does not mean wilderness (as in a preservation or conservation sense).

Forest Land Use means a return to a more natural ecological plan that can sustain itself without large inputs of energy, water and resources. These lands would provide a renewable stream of needed natural products that would be carefully managed.

Like the Conservation areas, the Forest land would not be residential. But unlike the Conservation areas, there would be regular controlled harvest and restoration of species.

Rural Land Use would be where as many as half the island population would live practicing permaculture. For the most part they would be family farms.

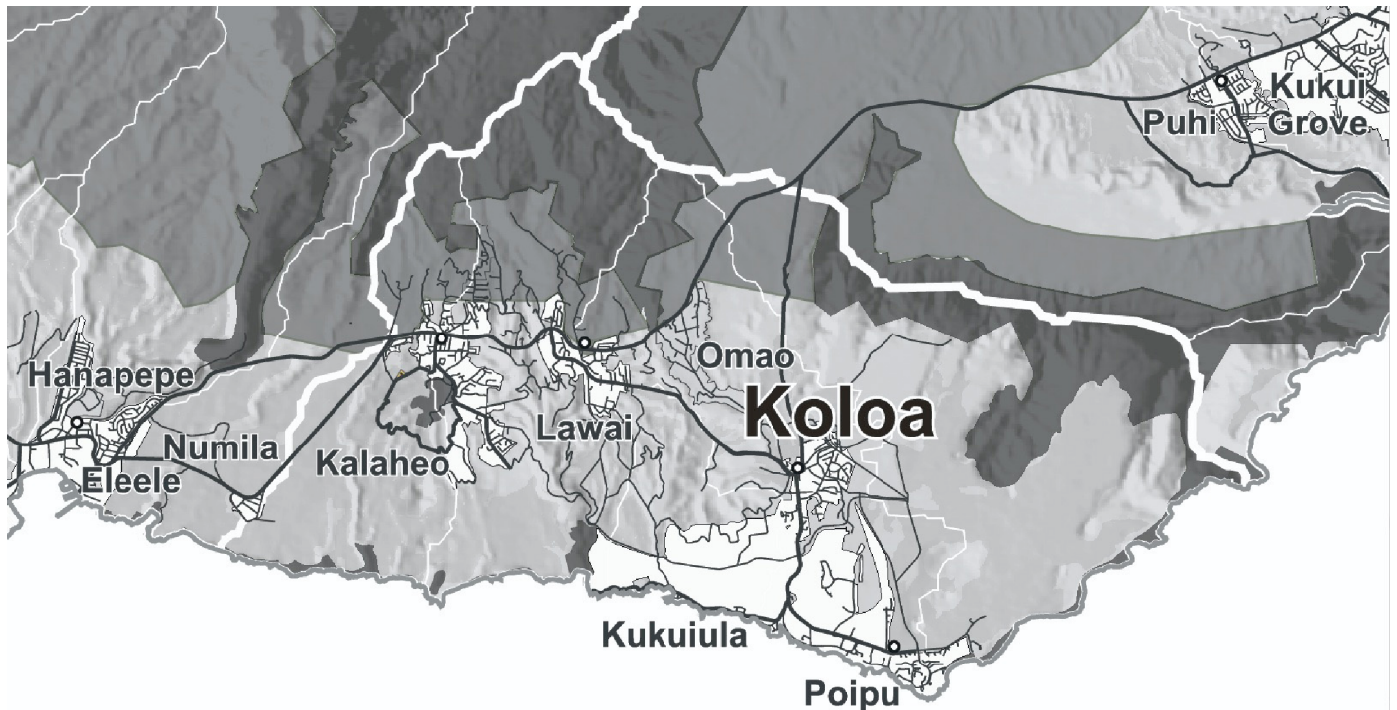
LAND USE TABLE

LANDUSE	OLD AREA	NEW AREA
Conservation	304 sqm	304 sqm
Agriculture	226 sqm	0 sqm
Forest	0 sqm	102 sqm
Rural	2 sqm	126 sqm
Urban	23 sqm	23 sqm
Total	555 sqm	555 sqm

Java and Bali practice approximately what we would call permaculture. They are on rich volcanic soils and have pretty reliable rainfall. These locations support 250 people per square kilometer. That's about one person per acre of land.

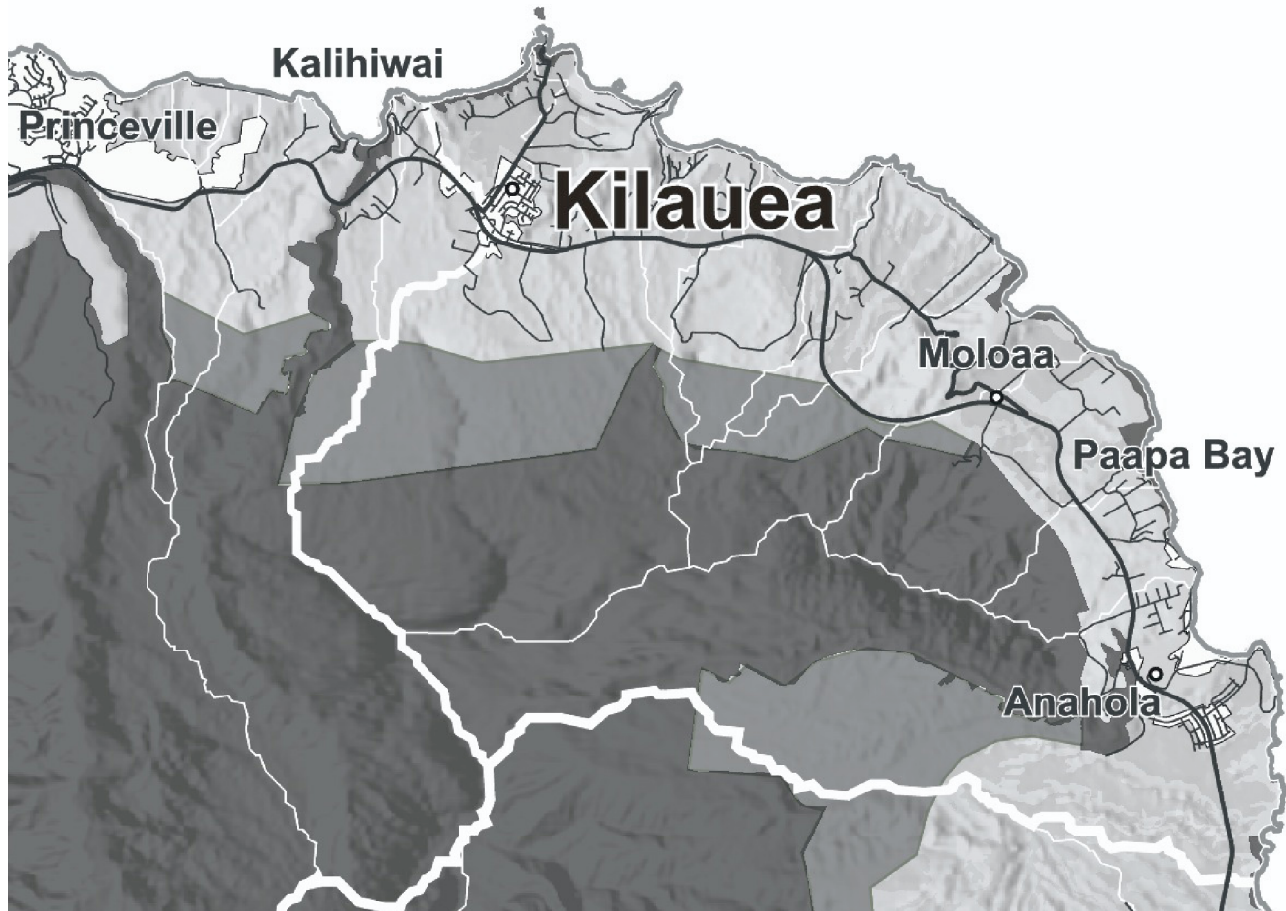
There are 81,000 acres of Rural Land Use. Of that, about 35,000 acres has been rated Grade A or B soil by the state. All that land should be used for food production and be excluded from residential subdivisions. That land could support 35,000 people. If the remaining 46,000 acres could support half that number (per acre) then all the rural land could support 58,000 people.

With fish and game making significant contribution to calories in our diet we may just be able to carry our existing population. Less would be better.



KOLOA IN TROUBLE

There are several large scale projects under construction now in the Koloa Township area. There are thirteen more major projects in the pipeline. All together these projects will double the population of the district. It is time to stop the permitting of projects that are destructive to Kauai. The county government should act on this issue now to save what we can of Koloa with a moratorium.



IS KILAUEA SUSTAINABLE?

We import 90% of our food and sustainability can only be reached by increasing our food production by tenfold. We cannot lose what little organic and permaculture efforts have begun on Kauai. A crucial element of permaculture practice is to slow the course of water running off the landscape. We must improve and expand our reservoir systems. There should be no retreat on this issue.

The sooner we move towards feeding ourselves the better off we'll be. Let's start building the future based on a new interpretation of Land Use. Just keep in mind "Eden was a garden, not a farm" and it didn't have parking lots.

CREDITS

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