

AGENDA

Gene C. Rogers

*9:30
10:00
10:30
11:00
11:30
12:00*

Name of Group: BIG ISLAND RC&D
 Title of Meeting: RC&D Forestry Committee
 Meeting Called By: Tommy Crabb
 Meeting Type: Feedback/Decision Making "

Date: December 13, 1984
 Starting Time: 10:00 A.M.
 Ending Time: 12:00 P.M.
 Place: Kamuela State Conference Room, Extension Service
 Background Materials:

- Desired Outcomes:
1. Committee's review of the forestry resource report.
 2. Koa Forest Management Information Program. Discuss format and schedule.
 3. Discuss financial status of fiscal year 84' and 85' RC&D funds.

Manager Chairperson: Tommy Crabb
 Facilitator: Mike Tulang
 Recorder: Melissa Pang-Ching
 Group Members:
 Observers: N/A
 Resource Persons: N/A

Meeting Method: Conference
 Decision Making Method: Consensus
 Final Decision Maker: RC&D Council
 Please Bring: Forestry Resource Report
 Special Notes: N/A

Order of Agenda Items	Persons Responsible	Process	Time Allocated
1. Forestry Resource Report	Peter Simmons	Report	1 hour
2. Koa Forest Management Program	Kimo Vincent	Discussion	30 minutes
3. Fiscal Year 84' and 85' Funds	Mike Tulang	Report	10 minutes

SPACE FOR CHANT

From the time of the earliest Hawaiians, the forests of Hawaii have been esteemed for their magnitude and diversity. Today, the forests offer extensive recreational, scientific, aesthetic, and commercial opportunities. Yet, there are tremendous difficulties to be faced by those who would manage and maximize the utility of this exceptional resource.

Each new group of people who have come to Hawaii has wanted to improve upon its indigenous flora and fauna, some with positive effects and some with negative effects on the overall ecology. The first inhabitants of our islands brought with them plants and animals from their former homes. To assure themselves of sustenance, shelter, fiber and medicine, (1) they introduced over 25 species including taro, coconut, kukui, breadfruit, sugarcane, yams and ti. Doubtless, the pigs and rats brought by the Polynesians altered the pristine ecology of the Islands irrevocably. The alterations to the ecosystem initiated by these early Hawaiians affected the islands to the 600 feet level.

Captain Cook needed to provide stores for his ships; he released goats; Vancouver introduced *cattle; others brought sheep and horses. The islands and her forests were taken over by introduced flora and trampled and eaten by the quickly

multiplying feral, hooved animals.

Hawaiian alii entered into commerce with the merchants of the sea. While a few nobles became wealthy, the sandalwood forests were exhausted. The new economic partnerships brought destruction to the native vegetation. Later as Europeans and Americans arrived and areas were cleared for plantations of introduced species, more damage was done to the once pristine ecosystem. By the turn of the century, there were few, if any, truly pristine areas and the ecology of the island and her forests had been changed forever.

There is no constructive reason to blame or praise those who introduced the various animals and plants. We are all in this land together and have benefited greatly from many of the various introductions. Rather, we should ask what we can learn and how we can best manage this tremendous resource to the greatest benefit of all the varied interests, yet preserve and improve the forest resource itself.

Approximately 2/3 of the State's land mass is located on the island of Hawaii. About 60% of the State's forest lands are found on the Big Island. One-half of that area, 567,000 acres, is of commercial quality, meaning those lands either producing or capable of producing commercial quality and volume of timber. Fifty-two percent of the commercial forest land is owned by the State. Of the State's portion, 197,200 acres are in forest

reserves within conservation districts. Those forest lands which exist outside of the forest reserves are primarily lease for cattle grazing.(2)

272,800 acres of commercial forest land is privately owned, generally in large blocks. 77,000 acres of this private land has been in reserve status *since the turn of the century.(3)

Graphs and maps

The greatest portion of the timber resource in the commercial forest is of native forest types. By far, the most valued of sawtimber is the renowned koa acacia, monarch of the Hawaiian woods. The beauty, workability and durability of this exceptional tree have been appreciated by everyone who has worked with it from the first Hawaiians to today's fine craftspeople producing superb cabinets and furniture. They have all understood the properties of their forest products in loving detail.

From the 1880s to today, the decline of the koa forest has been well documented. Joseph F. Rock wrote in 1913, "Large tracts of koa forest which 20 years or so ago were in their prime have now perished, and nothing is left but the dead trunks with their huge branches dangling on strings of bark. . .above Kealakekua, in South Kona, of the once beautiful koa forest. Ninety percent (90%) of the trees are now dead and the remaining 10 percent (10%) are in a dying condition." Mr. Rock also states quite directly that "cattle are the enemy of koa."

To the fine wood connoisseur, Koa is known for its color and deep beauty. To cattle, it is a highly relished, tasty and nutritious meal. "The native forest suffered greatly from a *controlled grazing by wild goats, sheep, cattle and pigs during the last century. . . Exposed to erosion by over grazing of both wild and domestic animals and by some unwise clearings, denuded lands became a danger to water supplies."

This difficult situation precipitated the creation of the Bureau of Agriculture and Forestry in 1893. Since that time, the State has attempted a leadership role as custodian and guardian of the State's forest, although the attempt has been sporadic at best. There have been numerous studies, some 50,000 acres of tree plantings, and some ___ miles of fencing, but in general, the State has not really specified what forest management should be. There was a surge of interest in the mid-sixties as there had been periodically previously. At that time, forest decadence, lack of management and forest potential were studied, and the multiple-use approach was adopted, but not without opposition by various interests..... In 1976, Governor George R. Ariyoshi wrote in the forward to FORESTRY POTENTIALS FOR HAWAII, "I firmly believe that Hawaii's forest resources have potential for providing new jobs and new income for our people without sacrificing our environmental ideas."(5) That was eight years ago, and we've made very poor progress since then as shown in the

accelerated decadence of the forest and the current ^{lack of a strong} ~~water supply~~

^{Forest Economy} ~~problems.~~ The most optimistic state action to date is the Senate Resolution Number 98 passed in 1984 demanding that another study be completed to suggest how the forest should be managed.

The economy of the Big Island will be well served by creative use its forest resource. Although land use by the early Hawaiians tended to be multiple, allowing a complete economy to be supported by land units called "ahupuaas"(6), Europeans and Americans developed huge land areas into plantations for single purposes such as pineapples, sugarcane and cattle. Today, all of these industries are in trouble. Due to over-grazing and undermanagement of its lands, the cattle business needs to diversify to generate income to reverse its downward spiral. Partly because of the difficulties of pricing and marketing sugar at a profit, the sugar companies have had a long history of interest in other crops. Considerable acres are being turned from sugarcane to macadamia nuts. The plantations have experimented with many varieties of tree crops, and currently the C. Brewer Company is carrying out a Bio Energy project in conjunction with the Department of Energy, with a little help from the State. The pineapple industry does not present a thriving, rosy economic picture. Large areas are unproductive. Employment in this once thriving industry has contracted. The State of Hawaii has one of the highest tax rates in the country and would clearly benefit from a higher economic use of its land

resource. The island with the greatest unemployment and greatest economic need is the one with the greatest forest potential. The Big Island needs an active, high quality, effective forestry program.



Recreational interests, too, would benefit from creative forest management. Although a growing number of people over the years have expressed their interest in utilizing the upland forest for recreation, it is rough going to gain entrance to even the State forests on the Big Island. Few people can venture into the forest even though the appeal from the roadside vistas may be strong; access is difficult and can be dangerous. Large areas lack roads, trails and directional signs. Some areas are world renown for their extremely difficult terrain.

Further restricting easy access for recreation are Hawaii's complex laws of land ownership. What forest trails exist meander through different land ownerships and the access laws are not clear. During the early days, the parcels were controlled by one owner and offered few problems of access. This is no longer

true. In several instances, public access to private lands had been permitted in the past. Unfortunately, abuse by a small percentage of users caused the landowners to discontinue easy access. If the pressure of demand is great enough, some public access should be pursued. Recognizing a potential conflict with land owners, some benefits should accrue to those who would give others access through their lands to State forests. Active State participation in seeking a solution to access problems would encourage a spirit of cooperation in the resolution of conflicts.

The unique Biota within the forest's ecosystem of this island has been of considerable interest to the scientist and layman alike. Besides interest in the plants of which many are rare and some endangered. Many scientifically interesting fauna also live in forest ecology. Just as there have been difficulties and conflicts both created and incurred by recreationalists, there have been difficulties both caused and incurred by the scientific community. Some scientists have created bad feelings among land owners by reporting rare and endangered species on private land which can result in the area being placed in restricted status which takes control of the land out of its owner's hands. Many land managers feel that the past activities of the scientific community has helped them of properly development of the forest resource very little. The state could take an active role in assisting these parties to mend fences for the well being of

both. Much good can be gained if a spirit of cooperation replaced the climate of confrontation that now exists.

There are deep within the forest, nestled into the heads of valleys, areas so rare and pure that they have been visited by very few people. The rugged turrain and remoteness has made them inaccessible to ferral animals as well. If there exists a pristine, unspoiled Hawaii it is here. These areas draw from us the religious feeling of awe and respect. In other areas there will be a burial cave where the air is thick with mana. These areas must be respected and not disturbed. In both areas to uncover is to destroy. They are either to pristine or sacred to allow access except by the few who are trained with correct religion and/or science to preserve. These should be the quiet, guarded areas; undisturbed and totally protected. And yet, unwanted pests, parasites or disease if threating the pristine areas would best be served with science by knowledgeable people in forestry so as to preserve ecosystem. If sacred areas are threatened by development of the forest they too need to be assisted by trained people so that they can be cherished.

In the same area where Hawaiians have strong cultural and religious interests, archeologists have deep scientific interests. They both have a great desire to know about and document the ancient culture and yet, "to discover is to destroy". That is an axiom of archeology but also is true of the

mana concept in the Hawaaiian religious system. Gaining access for either the religious or culturally motivated Hawaiian or the scientist will be difficult for some of the same reasons it is for the recreationalist. Furthermore access to extremely remote areas might cut destructive paths into a possible pristine forest floor ^{which might be} covered with endangered species. To decide who is qualified and should be allowed to enter and what studies would be of benefit to our community the state can play an active and creative role. In determining which areas are to be preserved and how access is to be made the state is already involved.

When one considers some of the pernicious effects of previous tamperings with the ecosystem of the forest, it is not difficult to understand the source of many environmentalists attitudes towards the development of the forest resource and "progress". The delicate ecosystem that greeted and then was irrevocable altered by the Hawaaiians, then the Europeans, Americans, and Orientals simply no longer exists. It is not surprising that some people are reluctant to allow more man-made deliberate alteration in the forest. One argument suggests that the best way to protect the forest is to preserve the status quo. This argument suggests fencing off the forest and curtailing all forest activity except perhaps scientific study. This view does not recognize the diseased condition of the forest. Or If it does it chooses to do nothing more than to study the decline and ruin of the forest. Some of the life forms in our forest are specific to small areas

and if their habitat is disturbed, ~~then~~ we might lose forever the opportunity to appreciate them. That areas and species need to be protected and preserved should not be questioned. But many of the areas that should be preserved need active, creative management to ensure their future. They will not in general be best served by merely isolating them. The desire to develop the forest resource for purposes of economic and conservation purposes have in the recent past conflicted with the interest to strictly preserve the status quo. These conflicts create bad feeling amongst the participants and are detrimental to the very forest that is the source of their concern and attention. We have the structure of state and federal foresters to help resolve these conflicts. The state should take the opportunity to lead the participants through the conflicts creatively and judicially for the betterment of our diverse community of interests and the wellness of the forest.

The price for such creative management opportunities would be staggering. Building roads, fences, cabins, scientific and public facilities would cost several millions of dollars. Even to maintain what exists as it is in a state of decline is costly. Certainly pursuing full multiple use management would best satisfy the many and varied interests as well as being best for forest conservation. How to pay for is a formidable task.

Fortunately, one aspect of multi-use planning has to do with

the forest's economic potential. Estimates in 1969 dollars of the full economic potential of the commercial forest is a staggering \$150,000,000 to \$200,000,000/ yearly-(conservatively). This undertaking would employ 15,000 to 20,000 people. And these figures are just for timber production. Other spinoff forest products industries would generate a terrific economy. Horwitz and Frame, who did the study that the above estimates came from stated, "the ultimate long-range potential of this complex of related industries could produce a annual return of at least twice that...while employing as many as 30,000 to 35,000 people."

There are 1.4 million acres of commercial forest.⁷ In graph #1 we discern that 65 percent of the commercial forest land is on the Big Island. In graph #2, we can see that 40 percent of the commercial forest supports non-commercial trees. This island is ripe for the creation of a new industry that some estimate could be bigger than cattle, sugarcane, or pineapple. There are a wide variety of forest products that can be grown on this island. One proven winner in the market place and a natural for our declining forests is koa acacia. Its most productive habitat is between the 3,000 to 5,500 foot level. At other elevations other species would give a better economic yield. Here in Hawaii's forest the time is right for conservation, economics, science, and common sense to unite in the creative development of our forests. 8

The Government has a long standing commitment to curtail dependence on imported fuel. C. Brewer leases land and is engaged in a bio mass project that will determine by experimental planting and harvesting how best to exploit Hawaii's superb conditions for rapid growth of trees which yield high quality energy. Although many benefits can be reaped from this energy form, it must be realized that the men who are conducting the experiments are the pioneers of progress and that they are standing at the fronteer of technology. 9 *Tony Cribbs report.*

To date a six year harvest cycle seems feasible and seems to give sufficient yield to be economically wise to utilize more acreage. The best candidate is the Australian Eucalyptus family. Bio Energy Development Corporation has 700 acres in experimental production. The potential economic benefits were bright enough to receive an extention and additional funding to contine the research. Bio mass, if successfully implemented, would reduce our dependence on foreign fossil fuels, create employment, broaden the economic base and perhaps lower energy costs.

There have been log chipping operations in Hawaii since 1972. The chips have been exported for paper production. There is reason to believe that eucalyptus chips could be made into pressed fence posts and pressboard; New Zealand is doing it and so might Hawaii. Bio mass is currently being used to help produce

electricity at the Puna Sugar Company. There has been recent opposition to chipping native ohia forests for this purpose. Eucalyptus would be a far more popular choice and it seems to produce a better quality wood chip for that purpose than does ohia. By continuing to explore the possible products made of all of our ~~forest~~ woods so that the highest economic use is given to each specie we can insure best utilization of our forest resource.

As mentioned earlier, the majestic koa forests are in serious jeopardy. The Bishop Estate has been fencing and planting koa at a rate of 50 acres per year since 1976. Recently, they raised the acreage to 100 acres per year. They are proving that it can be done. But so much more needs to be done and the state controls the lions share of the commercial forest land. Bishop Estate might lead and C. Brewer might lead, but so too can and should the state.

Although little is needed to begin to reforest with koa, simply disturb the soil where the seeds lie and keep the animals out with sufficient fencing. In 40 to 50 years, a forest will exist. Note the Keanakolu trees which were "planted" 55 years ago. Today some fine specimens exist-40 to 50 feet and clear to the crotch. To maximise production a silva culture needs to be developed for koa. Such questions as, how close to plant them, how and when and what is the best fertilizer to use on them need

to be answered to obtain the maximum high quality yield if tree farming of this species is to be economically feasible.

The people of Hawaii have almost a mystical respect and love for koa wood. They are proud of its fine characteristics and appreciate its history in Hawaiian culture. The word koa has much conotative meaning besides simply referring to the wood and the tree. There is a natural market, therefor, for this fine wood in the ^{Hawaiian} ~~local~~ market place.

There also is a strong demand for koa on the mainland and in foreign markets. There have been many ventures by sawyers in the past but today, competitively little lumber is being harvested. After building up the demand to over 1,000,000 board feet per year the largest saw mill shut down, packed up and left due to lack of available supply.

The koa industry is surviving but not thriving and the forest is in rapid decline. There are now 3 or 4 small mills cutting about 600,000 board feet per year. While the price rises in responce to lack of availability, the few small sawyers feel the economic exhilaration of large demand and small supply. But this feeling may be short lived. Good quality control, proper grading, proper forest safety ^{if not followed} ~~time~~ can yield astronomical insurance costs, as well as some control of the availability could well be helped by the state.

Many studies have been commissioned by the state and they all look extremely promising. Some say that the studies are overly optimistic, and create an unnecessarily rosy picture of the economic potential of the forest. The state senate has before it senate resolution 98 and this resolution demands a firm management plan be presented and pursued. There was a program plan for the 10 year period between 1977 to 1987, it was never implemented. If it had been, think of the resource that could have been developed. Now is another opportunity for significant action. We should have begun years ago, but we did not. Now there is a mandate for management action on the part of the state. The time is again right for vigorous action.

Some may argue that the findings of various studies are too optimistic. Some will argue against their merits on grounds of the preservation ~~of~~. Some may argue to save the forest man for themselves. There are going to be many arguments over the proper use of many of the acres the state controls. Let us argue about best use but let us not delay implementing good plans, especially for reforestation while the forest declines.

With a renewable, economic resource that has an annual potential value in excess of \$500,000,000 (optimistically or not) on the one hand and on the other certain large vested interests in the imported lumber supply business on the other, some economic conflicts of interest seem inevitable. But, just as

disagreements over forest use quite naturally arise between the land owners, the environmentalists, the hunters, the archeologists, the hiker, the tourists the scientists and the religeous Hawaiians, so too, we must expect them between economic interests. We must work together to help understand other's interests. Let us each remember that there ar^L many competing interests within the multi-use forest management system, but there is only one forest. Its vitality and future cannot be left to chance. The state of Hawaii representing all its people and controlling most of the forest land is in the best position to do what is best for all.