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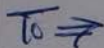
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About the Institute

The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.



DRS. DEGENER
WALALUA
OAHU



PO BOX 154
Volcano, HI 96785



DEAR DR'S:

PLEASE INDULGE THESE QUESTIONS.

THE OHIA-AI SHEET IN VOLS 1-4
MY COPY DOES NOT HAVE — ∴ DOES IT EXIST?

WHERE IS KOKIA COCKEI DEGENER GROWING
ON MOLOKAI?

WHERE IS THE COUNTRY HOME OF W.M. GIFFARD
WHERE HIBISCADOLPHUS GIFFARDIANUS ROCK
GROWS?

WHAT IS THE PROBLEM OF BREEDING THE
MOUNTAIN GARDELIA OF MOLOKAI?

DOES ANY ONE HAVE A PARTIAL BOTANICAL
GEOGRAPHY OF HAWAII — ESPECIALLY CONCERNING
THE ENDANGERED SPECIES?

Faithfully yours

John B.

Any plants which I can help distribute
that were previously indigenous to Kohala
I would, provided I knew what the
population looked like before the
onset ~~of~~ ^{onset} of man & his herds of 4-legged
locusts.

Let me know whether I can help raise
any seriously endangered species!

—D. H. H.

July 1, 1971

AIR MAIL

Dr. Thomas B. Croat
Summit Herbarium and Library (ISEB)
Drawer S
Balboa Heights, CANAL ZONE

Dear Tom:

Thanks for your letters of June 14 and 23 and the missing label. I can most easily answer your Ormosia questions by sending you a copy of my paper, which I assumed you had. In the key you sent you seem to have reversed the characters of O. coccinea var. subsimplex and those of O. panamensis.

As to Machaerium arboreum and M. dariense, they are part of a complex of 8-12 species that I have not yet sorted out. I will try to send you the word when I do.

Sincerely,

Velva E. Rudd
Curator
Department of Botany

Enclosure

VERudd/chl

Waialeale, Oahu, Hawaii 9671
July 27, 1971.

RECEIVED

AUG 20 1971

HUNT
BOTANICAL LIBRARY

Dear Mr. Bossert:

As mentioned in 1949 in my "Naturalist South Pacific Expedition: Fiji," on page 286, "Printed labels, accompanying the specimens are not as authoritative and reliable regarding locality and date of collection as are the herbarium and field labels written by myself in script."

I mailed Dr. A.C. Smith, who has been working toward a flora of Fiji for the last three or more decades, all my Fiji collection, each number labeled in script by me from my field label.

As I had thousands of duplicate specimens for Smith to distribute to a score or so museums in the World, he segregated my numbers more or less according to island districts, and then struck off new labels in proper quantities. Unfortunately, such generalized labels are often quoted in publications (often for type localities) as my own quotes, when my own would be far more precise regarding locality, habitat, date of collection and perhaps regarding what natives related at time of collecting or pressing. Some years hence, after my 1940-41 collection will have increased in historical value, listing such authentic labels verbatim in a brief article may be worth while - please let later Hunt librarians decide. It would be a pity to offend Dr. A.C. Smith for an act of his which he considers extremely efficient.

Aloha,

Hunt Institute for Botanical Documentation

PATSY T. MINK
MEMBER AT LARGE
HAWAII

COMMITTEE ON EDUCATION
AND LABOR

SELECT SUBCOMMITTEE ON EDUCATION
GENERAL SUBCOMMITTEE ON EDUCATION
GENERAL SUBCOMMITTEE ON LABOR

COMMITTEE ON INTERIOR AND
INSULAR AFFAIRS

SUBCOMMITTEE ON TERRITORIAL AND
INSULAR AFFAIRS
SUBCOMMITTEE ON NATIONAL PARKS
AND RECREATION
SUBCOMMITTEE ON INDIAN AFFAIRS

Congress of the United States
House of Representatives
Washington, D.C. 20515

HAFU-11
OFFICES
WASHINGTON, D.C.
228 CANNON BUILDING
PHONE: 225-4506

HONOLULU, HAWAII
346-348 FEDERAL BUILDING
PHONE: 531-4602

August 7, 1971

Mr. Sunao Kido
Chairman
Department of Land & Natural Resources
State Office Bldg.
465 So. King St.
Honolulu, Hawaii 96813

Dear Mr. Kido:

I am disturbed by reports from Drs. Otto and Isa Degener, of Volcano, Hawaii, of the threat posed to some 3,000 acres of conservation district lands by a Bishop Estate proposal for hapuu "harvesting." A public hearing is to be held on August 13, 1971, on the Estate's request for use of these Kilauea Forest Reserve lands.

Drs. Degener believe that these lands are magnificent tree-fern jungle that is unmatched in Hawaii Volcanoes National Park or anywhere else in the world, and that the proposed "harvesting" will destroy it for all time.

I request that a permit for hapuu harvesting be denied pending competent investigation of the possible detrimental effects to the natural environment of Hawaii. Please make this letter part of the public hearing record.

Very truly yours,

PATSY T. MINK
Member of Congress

JOHN A. BURNS
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 621
HONOLULU, HAWAII 96809

October 13, 1971

701-22-1071
DIVISIONS:
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

INFORMATION COPY

Honorable Patsy T. Mink
Member of Congress
House of Representative
Washington, D. C. 20515

Dear Mrs. Mink:

At the public hearing held in Hilo on August 13, 1971, numerous opinions were presented to the Board of Land and Natural Resources, both for and against the application by Bishop Estate for Hapuu Harvesting Use within the Kilauea Forest Reserve.

At its meeting on Oct. 8th, the Board approved an area of approximately 150 acres of the total 2,956 acres requested by Bishop Estate, as a test harvest area. The Board made its decision on the basis that the test harvest will give us information about the feasibility of commercial hapuu harvesting in our natural forests, and more important, provide us with needed research data on the growth patterns of hapuu, which is essential to the Board and to the Division of Forestry for the purpose of outlining future management proposals or actions on similar issues in the future.

Enclosed is a copy of the staff report on the application which includes a summary of the public hearing.

If we may provide you with any other information on this matter, please feel free to write us again.

Very truly yours,

BOARD OF LAND AND NATURAL RESOURCES

SUNAO KIDO
Chairman and Member

encl.

State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
Honolulu, Hawaii

October 8, 1971

Board of Land and
Natural Resources
State of Hawaii
Honolulu, Hawaii

INFORMATION COPY

Gentlemen:

Conservation District Use Application
for Hapuu Harvesting Use at Kulani,
Hawaii, by Bernice P. Bishop Estate
(HA-71/4/16 - 192)

APPLICANT: Bernice P. Bishop Estate
519 Halekauwila Street
Honolulu, Hawaii 96813

USE REQUESTED: Hapuu Harvesting

LOCATION: Volcano, Hawaii, TMK: 9-9-01:07

AREA: Approximately 2,956 Acres

BACKGROUND: The application for Hapuu Harvesting Use within the Kilauea Forest Reserve was submitted to the department on April 16, 1971. The proposed harvest area is within the Conservation District General Use Subzone, and the Use is one of the permitted uses within this subzone.

DESCRIPTION
OF AREA:

The area requested for harvesting use involves approximately 2,956 acres within the Kilauea Forest Reserve located about 2 miles mauka of the Kilauea Military Camp.

The area is a narrow, elongated parcel, about seven miles long, and about one mile at the widest point. It abuts farm lots at the south east side. On the north-western parcel are areas presently being logged for koa. The western and northern side of the area are lands presently being used for grazing. On the eastern portion of the area are native forest areas. About one mile to the east is an area under E. O. to the National Park.

Vegetation of the lower portion of the parcel consists of native ohia and koa overstory, and an understory of hapuu, lobelia, olapa and other scrubby native trees. The upper portions of the area has low scrubby ohia and does not contain merchantable trap fern.

ITEM H-4

Soil of the proposed harvest area includes lithosol, regosol and reddish-brown. The edaphic features vary from almost bare "aa" to deep reddish brown soil. Average rainfall is about 90 inches and the area is frequently foggy.

Access to the area is through Wright Road Extension.

DESCRIPTION OF PROPOSED USE:

The applicant proposes to divide the subject area into four blocks of approximately 700 acres each. Block one, the makai most area, will be harvested first. Harvest in this block will supply enough hapuu material for a term of five-seven years. It is anticipated that 100-150 acres will be harvested per year.

The harvest license between B. P. Bishop Estate and Niu Nursery is for a term of 20 years terminating in 1986. The terms of the license will permit construction of an access road, sheds and other structures reasonably necessary for operations.

The applicant proposes to selectively harvest only mature and fallen fern. All young and immature fern will not be touched and all fern tops will be left to regenerate new fern plants.

Only light equipment will be used in the harvest operations. Chain saws will be used to cut mature and fallen logs into chips. A small tractor, such as a D-4 tractor mover, will be used to sled out the fern chips and logs.

Prior to the submission of this application, an area of approximately 10-12 acres was cleared by Niu Nursery. The area cleared was for access and equipment storage purposes.

All work was stopped when Niu Nursery was apprised of the need to obtain a Use Permit from this department in March, 1971.

SUMMARY OF COMMENTS RECEIVED:

The Hawaii County Planning Department states that:

1. Little is known of the rate of growth or productivity of tree ferns.
2. Harvesting activities will initiate irreversible ecological changes to the area and it will be impossible to preserve or restore the area to its present condition.
3. There is a unique koa forest at the upper end of the proposed harvest area.

They recommend that:

1. The request for harvesting use be denied.

2. Harvesting be done in areas where large-scale land clearing is anticipated.
3. Studies be undertaken to learn more about the tree fern and the possibility of cultivation of tree ferns.
4. The subject area be considered for permanent protection by such means as land acquisition, land exchange, lease or by encouraging the rededication of this parcel to the State Forest Reserve System.
5. Commercial harvesting of tree ferns not be permitted in any area of the Conservation District supporting a relatively intact native forest.

The County of Hawaii's Department of Water Supply, State Dept. of Health, DLNR Divisions of Land Management and Water and Land Development have no objections to the proposed use.

The Division of State Parks recommends approval of a portion of the area only.

They suggest that further increments be granted only after the applicant's harvesting operations have been observed to be satisfactory from the standpoint of maintaining and perpetuating the forest.

The Division of Fish and Game states that the subject area is a fairly important habitat for native forest birds. However, none of these birds are among rare and endangered species. Endangered species have been observed in areas adjacent to the proposed area and may possibly occur in the subject area. They state that from the standpoint of bird preservation, it would be desirable to leave the area undisturbed. However, if harvesting is permitted, they urge that the Division of Forestry's recommendations be adopted.

The Division of Forestry recommends approval of the application subject to the following:

1. The Applicant shall submit:
 - a. An agreement on the location of the harvesting units.
 - b. A harvesting schedule.
 - c. A soil erosion and fire protection plan.
 - d. The specification of a merchantable tree fern.
 - e. The utilization standard to be practiced.
2. The use shall be terminated by the department if the applicant does not abide by the conditions imposed in granting the use.

3. Department personnel shall have access to the area for enforcement and inspection purposes.
4. The applicant shall meet all State and County law, ordinances and regulations.

The Hawaii Volcanoes National Park Service states that the proposed harvest area is a portion of one of the still intact and sizeable, primitive rain forest environments. The area is recognized by the Society of American Foresters as outstanding and worthy of wilderness - type preservation. They express their concern regarding the adverse impact on the ecology of the Kilauea Forest Reserve and adjoining areas that would occur if the entire area is harvested. They suggest that the harvest area be limited and other requirements be imposed such as:

1. Requiring the applicant to replant the harvested lands with appropriate indigenous forest species to aid in regeneration.
2. Allowing the applicant to harvest only mature hapuu.
3. Staggering the harvest program.

The Office of Environmental Quality states that while hapuu harvesting is a perfectly legitimate and worthwhile activity, there is a potential threat of serious environmental consequence. They suggest that the Forestry Division develop reasonable requirements whereby harvesting would be on a selected basis and conducted in such a manner so as to minimize unnecessary disturbances to the environment.

Congresswoman Patsy T. Mink states her concern about the proposed harvesting use. She requests that the permit be denied pending a competent investigation of possible detrimental effects to the natural environment that would result from the harvesting use.

Senator Nadao Yoshinaga requests that serious consideration be given to Drs. Otto and Isa Degner's concerns regarding the effect of hapuu harvesting on the environment.

Dieter Mueller-Dombois, Scientific Coordinator of the Hawaii International Biological Program;
Andrew J. Berger, co-director of the IBP; and

Mr. J. Linsley Gresset, Chairman of the Natural Area Reserves System Commission state that the IBP is presently conducting intensive research studies in the area. The studies have revealed that the Kilauea Forest is the habitat of several endangered species of birds. The proposed harvesting may cause these birds to recede further into the forest area. The harvesting may also open the area to invasion by exotic plants. They suggest the establishment of hapuu farming as an alternative to harvesting from forest areas. (Please note subsequent letter to Mr. Carlson dated Aug. 31, 1971.)

Dr. Otto Degener opposes the proposed harvesting. He believes that the harvesting will wipe out the hapuu, wreck aesthetic values, change the climate of the area, curtail the artesian water supply and wipe out scientific values of the area. He suggests that the area be acquired by either the Federal or State governments.

The Hawaii Audubon Society opposes the hapuu harvesting use. They state that the harvesting could destroy the significant and valuable native forest ecosystem. Once disturbed, the area will be invaded by undesirable exotic plants. They suggest that the area be preserved and protected as one of the few remaining near-virgin forest environments of its type in the area; and that the already disturbed forests in non-conservation areas east of the Kilauea Forest Reserve be used for harvesting instead.

Friends of the Earth opposes the proposed use. They recommend saving the intact virgin forest which contains rare tree fern growth and large mature koa stands, duplicated nowhere else. They suggest that Bishop Estate consider selling the land to the Nature Conservancy.

SUMMARY OF PUBLIC HEARING:

In accordance with Act 264, 1969 SLH, a public hearing was held on August 13, 1971, to receive testimony on the application.

Mr. Norman Carlson testified on behalf of Bishop Estate. He made the following statements:

In 1970, the Trustees authorized a study of the biotic problems of the Kilauea Forest Reserve, and a \$5,000 grant was given to the International Biological Program. In 1971, the IBP recommended that a comprehensive ecological study of the area be made, from which the trend of vegetative development could be determined. The study is presently underway.

This area was selected for harvesting because:

1. Niu Nursery has spent considerable money for access to these lands.
- 2.. The forest is decadent and will not revitalize under present conditions. The proposed hapuu harvesting will give the koa and ohia trees a chance to reseed and grow. This will also improve the bird habitat, since hapuu is of little use to birds and koa and ohia are their main food sources.
3. With access to the area, from the harvesting operations, exotic weed growth can be controlled.

Bishop Estate recommends the following revision of the harvest license:

1. Limit the harvest area to 200 acres. At the end of five years, review the harvest operations to determine the effects on the forest.
- 2.. Require that non-usable hapuu materials be left for regrowth of the forest.
3. Require that noxious plants be eliminated from the area.
4. Require that the licensee obtain assistance from the Division of Forestry where regrowth is not adequate.
5. Install sample fenced plots for scientific evaluation of the harvesting.
6. Require that only hapuu be harvested.
7. Allow pig hunting in the area to be regulated by the Hawaii Fish and Game (no hunting in the area at present).

Mr. Sidney Goo, Vice President and General Manager of Niu Nursery, stated the need of the flower growing industry for hapuu media. He stated that the subject area has hapuu which is ideal for potting media use. Mr. Goo also gave details of the proposed harvest operations (included in the description of the use section of this report). He stated that their present harvest operations have not been done on a selective basis since they have an agreement with private landowners to remove all vegetation from the land.

Representatives of the flower industry testifying in favor of the proposed use were: Mr. Richard Kirtch, President and General Manager, William Kirtch Orchids; Mr. Masatoshi Miyamoto, M. Miyamoto Orchids. All supported the proposed use on the basis that the hapuu media is needed for the Flower Industry. They stated that hapuu is the best potting media there is, and it is important for the Flower Industry to be able to grow top quality plants to compete with other flower growers in the world.

TESTIMONIES AGAINST THE PROPOSED USE:

Mr. Robert Chase, representing Life of the Land, stated that the forest area should be kept intact and available for public enjoyment. He suggested that adjacent lands already cleared be used to study hapuu regeneration.

Mr. Roger Baldwin, representing the Hawaii Chapter of the Conservation Council stated they are opposed to the Use on the basis that:

1. The harvesting will destroy a unique native forest which has scientific and aesthetic values;
2. Once harvested, the area will be invaded by other plants and the hapuu will not regenerate;
3. The area is the habitat of the rare o'u bird and is unique in that it is only inhabited by native birds;
4. The forest is part of the Hawaiian cultural heritage;
5. The area is part of the Hilo watershed;
6. The Use will alter the soils of the area;
7. Road construction costs incurred by the licensee do not justify allowing the harvesting use.

They suggest that the area be exchanged with State Land elsewhere.

Other persons testifying against the proposed use were: Mr. Fred Bianci, U. H. Entymologist; Mr. Ted Hickie, former Park Service Ranger; Mr. Herbert Shipman, hapuu collector; Prof. Millecart, University of Hawaii; Mr. John Tan, former forester; Mr. Al Calworthy, electrical engineer; Mrs. Helen Baldwin; and Prof. Carson, U. of H.

Generally, objections were based on the following:

1. The applicant's past harvesting operations have not been done on a controlled and selective basis.
2. Exotic weeds will enter the area once the area is harvested.
3. The hapuu will never regenerate to its original condition.
4. The area is a virgin, unique hapuu forest and should be preserved for scientific and aesthetic purposes.
5. The area is part of the Hilo watershed.
6. Harvesting will tend to create soil erosion in the area.
7. Rare plants may exist in the harvest area.
8. Hapuu should be farmed rather than harvested from natural forest areas.
9. There are other adjacent areas from which hapuu could be harvested.
10. Very little is known about hapuu regeneration.
11. The orchid industry can find other substitutes for hapuu.

NEW INFORMATION:

Following the public hearing, Bishop Estate submitted a synopsis of their discussion with Dr. F. Raymond Fosberg (Research Botanist) regarding the proposed hapuu harvesting.

Dr. Fosberg made the following statements:

1. The hapuu forest is not decadent but is probably stable at the pre or post climax level.
2. Very little is known about hapuu, however, it does have certain unusual characteristics which make it of particular value.

3. Should substantial quantities of hapuu be removed, it is likely that some exotics would take over and a control program would have to be instituted.
4. All the 3,000 acres should not be harvested.
5. A study should be undertaken to determine what happens to the eleven acres already cleared.

Although Dr. Rosberg could not state whether the proposal to harvest 200 acres with care and with following-up studies, was a good one, he stated that if this alternative were selected, he would be willing to make an on-site study, time permitting, to develop guidelines.

CONCLUSIONS:

Strong objections have been raised against the proposed harvesting use on the basis that:

The area is a unique hapuu forest which should be preserved for scientific and aesthetic purposes; harvesting will have an adverse effect on the area as a habitat for rare and endangered species, as well as native birds; the climatic conditions of the area will be changed by harvesting; harvesting will have an adverse effect on the use of the area as a watershed; very little is known about hapuu regeneration, and harvesting may cause irreparable damage to the hapuu forest and adjoining areas; as an alternative to harvesting natural forest areas, the possibility of hapuu farming should be investigated and the flower industry should search for substitutes for hapuu.

It has been stated that the area is a unique hapuu forest and should be acquired for scientific and aesthetic purposes. Information available indicates, however, that there are other similar hapuu forests in the area. Also, approximately four miles from the subject area is a 2,600 acre forest area which is proposed for inclusion within the Natural Area Reserve System, and about 3/4 miles away, is a 9,655 forest area set aside to the National Park. There are no known programs to acquire this area.

Concern has been expressed that harvesting will destroy the forest and that regeneration will not occur. Testimonies received indicate a consensus of opinion that little is known about the growth patterns of hapuu and that more detailed studies are required in this area. The Division of Forestry

has conducted preliminary studies on hapuu growth. They have found that hapuu does regrow, if tops are left in the area. The Division of Forestry is of the opinion that selective harvesting under controlled conditions can be undertaken without adversely affecting the forest. It is pointed out that previous hapuu harvesting, observed by persons who have testified against the harvest use, was not carried out under controlled conditions, or on a selective harvesting basis.

The applicant has indicated willingness to reduce the proposed harvest area to a test plot, in order that the results of commercial hapuu harvesting can be studied, before other areas are committed to this use. It is staff's opinion that test harvesting under controlled conditions will yield valuable information regarding the growth patterns of hapuu, as well as provide important data about the feasibility of controlled commercial hapuu harvesting.

The possibility of commercial harvesting of our hapuu forest should be examined, particularly in view of the importance of hapuu products as a growing media for a major segment of our flower industry (orchid and anthurium).

It has been stated that the flower industry should seek substitutes for hapuu media so our hapuu forests can be left intact. Representatives from the local flower industry have pointed out however, that hapuu makes a particularly good potting media, for which no comparable substitute has been found. They state that hapuu as a potting media is one of the elements which enables them to raise top quality flowers and remain competitive in the market.

It has not been conclusively determined that rare and endangered bird species inhabit the hapuu forest. Expert opinion indicates that birdlife seek tree forests and do not thrive on hapuu. Also, it is the opinion of the Division of Fish and Game that under controlled harvesting conditions, adverse effects to any type of birdlife in the area can be minimized.

It has been stated that the subject area is part of the upper Hilo watershed and harvesting will adversely affect the water supply of the area. Discussion with DOWALD, and the County Board of Water Supply's comments indicate that the proposed harvest use will not adversely affect the water sources of the area. Under controlled conditions, soil erosion problems will also be minimized.

Based on available information, it is staff's opinion that the climate of the area will not be affected by the use if harvesting is controlled and large areas are not denuded.

Based on these considerations, staff is of the opinion that it is important that the Division of Forestry conduct field research to learn more about our hapuu forest, and test the feasibility of commercial hapuu harvesting without destroying the character of our hapuu forests. The applicant's proposal to harvest on a small test scale, presents an excellent opportunity to gain basic data in these areas.

RECOMMENDATION:

In view of the above conclusions, it is staff's recommendation that, of the total 2,956 acres requested by Bishop Estate for the harvesting use, the Board approve an area of approximately 150 acres only, and that this area be harvested under controlled conditions for the purpose of obtaining data on the regrowth of hapuu, and to determine the feasibility of commercial harvesting of our hapuu forest areas without damaging them.

It is also recommended that this area be located in the makai sector of the proposed harvesting area, as shown on the attached map.

It is further recommended that this approval be made subject to the following conditions:

1. The user shall maintain a 100 ft. wide buffer zone on the makai, eastern and western borders of the harvest area.
2. Only mature hapuu, as defined by the Division of Forestry, will be harvested. No tops shall be taken.
3. The user shall notify the Dept. of Land and Natural Resources prior to initiation of harvesting operations and upon completion of harvesting operations.
4. Prior to initiating harvest operations, the user shall submit a harvesting plan to the Division of Forestry for approval.
5. All trails for the harvesting use shall be subject to Division of Forestry approval, and use of heavy equipment shall be limited to trails selected by the Division of Forestry.
6. Heavy equipment to be used in the harvest operations shall be limited to one D-4 type tractor for skidding out fern chips and logs.
7. The Division of Forestry shall closely supervise all harvesting work.
8. The Division of Forestry shall monitor the effect of the harvesting on forest regeneration and noxious infestation.

October 8, 1971

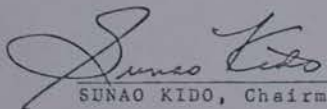
9. The Division of Fish and Game shall monitor the effect of harvesting on birdlife in the area.
10. DLNR personnel shall have free access to the area for enforcement and inspection purposes.
11. The user shall replant harvested areas with fern tops and appropriate plants to aid in regeneration, as directed by the Division of Forestry.
12. All debris from the harvest operations shall be removed to approved disposal sites.
13. The user shall submit a \$5,000 performance bond to the Dept. of Land and Natural Resources to insure compliance with the conditions of this permit.
14. At any time, should it appear that the user is not carrying out the provisions of the permit, or that the harvesting is causing destruction of the forest, all work shall be stopped immediately, and immediate remedial measures shall be taken.
15. The permit shall be revoked should it be shown that harvesting is adversely affecting the hapuu forest.
16. The user shall adhere to all applicable Federal, State and County laws, regulations, and ordinances.

Respectfully submitted,



GORDON SOH, Program Planning
Coordinator

RECOMMENDED FOR APPROVAL



SUNAO KIDO, Chairman

SOUTH HILO
E-2, SEC. - 4, PLAT 08
W A I A K E A

KULANI PRISON

KULANI 150 acre test harvest site

20' E - 1

access road

SEC. - 9

KILAUEA

PUNA

RESERVE

DISTRICT

BOUNDARY

VOLCANO GOLF & COUNTRY CLUB SUB'D
UNIT I - F.P. 1036 (FOR)

100' wide buffer zones

(01)

(07)

(05)

(02)

UNIT II - F.P. 1103

(06)

UNIT I - F.P. 1036 (FOR)

(03)

L. C. ANARD

7713

AP. II

VOLCANO HOUSE

FLAG

KILAUEA CRATER

UREKAHUNA

Halemaunau

HAWAII NATIONAL

KILAUEA SECTION

August 11, 1971

95814

- To: Mr. Sunao Kido, Chairman and Member of the Board of Land and Natural Resources, State of Hawaii, 465 South King Street, Honolulu
- Re: Testimony on Item 5: Application for a commercial use permit by the Bernice P. Bishop Estate for hapa harvesting on 3,000 acres of Conservation District land in the Kiluaea Forest Reserve, Hawaii; public hearing on Friday, August 13, 1971, Conference Room, State Office Building, Hilo.

At the Board of Directors meeting of the Hawaii Audubon Society on August 9, 1971 it was the consensus of the officers present that the Society express its opposition to the subject Bishop Estate request for hapa harvesting in the Kiluaea Forest Reserve.

Responsible biologists in the Hawaii scientific community -- representing senior judgment in the fields of botany, zoology, entomology and ecology -- oppose the proposed hapa harvesting on the grounds that such harvesting of hapa in the area concerned could result in destruction of a significant and valuable native forest ecosystem.

The 5,000-acre Kiluaea Forest Reserve is zoned Conservation District Land because of its quality as a prime native forest. To disturb and degrade any part of that forest is to ignore the precise reason it has been assigned its special conservation status. To disturb 60% of it (i.e., the 3,000 acres in the Bishop Estate application) would be virtually to destroy it.

There is no question that commercial hapa harvesting disturbs a forest, no matter how much care and selectivity is exercised in the operation. Aside from direct effects of removing economically feasible quantities of the plant itself, the attendant disturbance to the soil and plant life in the area in general from cutting of access roads and operation of equipment is bound to do great damage to the ground cover and understory of a near-virgin plant community. I was struck personally by the extent of such damage to a hapa harvesting forest area I visited two weeks ago at the southern tip of the Kiluaea Forest Reserve just north of the Thurston Lava Tube and adjacent to Hawaii Volcanoes National Park.

Under the most ideal natural conditions, it would take centuries for such an area to recover its original character. Under existing conditions in the general Volcanoes area, it could never regain its endemic ecological balance. Continuing disturbance in contiguous forest areas makes the Kiluaea Forest Reserve vulnerable around its edges. Once the ground is disturbed and the deep shade of the hapa understory is broken within the Kiluaea forest itself, undesirable exotic plants will invade from their present footholds nearby, and the ecological integrity of the original forest environment will be destroyed forever.

Mr. Sunao Kido
Board of Land and Natural Resources
August 11, 1971

Certainly the extensive, already-disturbed forests in non-Conservation status east of the Kilauea Forest Reserve can serve as the source of the hapaui raw products required by Min Nursery. Can the short-range economic pittance that would accrue to the Bishop Estate and the State of Hawaii from harvesting hapaui in the Kilauea Forest Reserve be justified when weighed against the damage it will do to a prime native forest?

Thus we see no compelling reason, on any grounds, that the Kilauea forest must serve as a source for hapaui products. On the contrary, there seems every reason for preserving it and affording it even greater protection for its primary, long-range value as one of the few-remaining near-virgin forest environments of its type in the area. Accordingly, the Hawaii Audubon Society recommends that the Kilauea Forest Reserve not be used for hapaui harvesting.

We request that this statement be made part of the hearing public record. Since we are unable to attend the hearing in person, we would appreciate having the statement read to those in attendance, if possible.

Respectfully submitted,

William P. Mull
Vice President

2 HAP@	4.50	9.00
1 Iji	5.00	5.00
		14.00
	Ross 1/3	4.67
	post.	9.33
		42

102 1/2 Brandon Avenue,
Warrington, Florida
September 17, 1971.

9.75
32507
Total

Dear Dr. Degener,

It has been so long since I've written that I hope you haven't forgotten this obscure botanist in Warrington, Florida. It's just that I've been extremely busy with the struggle for everyday survival: you see, I'm not teaching anymore and now have a humble but honest--though not-very-well-paying--job working in a large local department store. I was teaching on merely a temporary one-year basis and after my certificate and contract expired automatically the demand for biology teachers coincidentally had decreased locally to such an extent that I was unable to get another teaching job. As they say, I've fallen on hard times; however, I am taking my situation stoically, as I intend to soon begin working toward a Master's Degree at the University of West Florida and things should then begin to get better.

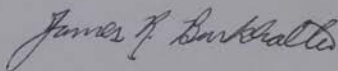
In reference to your last letter (which is temporarily misplaced at this time) I would like to comment that many of the plants in the misleadingly-titled book Native Trees and Plants for Florida Landscaping do not occur this far north in Florida. (You will remember that Warrington is located in the far northwestern corner of the state, quite close to the Alabama State Line.) The same is also true for many of the species which you singled out and listed in your letter. However, others, such as Cinnamomum camphora and Dichondra, for example, are quite common here, of course.

At this time I am ready to add another Degener volume to my botanical library. So, if it is still available, I would like a copy of Plants of Hawaii National Park with its genuine piece of tapa cloth as a bookmark. On second thought, perhaps you had better send two copies of the book, as I feel quite certain that when Dr. Edmisten at the University of West Florida sees it he'll want one for his library also, which is exactly what happened when he saw my set of the Flora Hawaiiensis. This, I believe, is the only Degener book which I don't already have. Or are there others about which I am not aware? Also, is volume seven of E. H. available yet?

A tragic---though not fatal---fate has recently befallen my combined volume of Books 1-4 of Flora Hawaiiensis. It seems that while I was out of town and had it stored away in an apparently sturdy box with several other books some voracious cockroaches managed to get in and have a feast of the cover of the said volume. This despite the fact that I had placed crystals of paradichlorobenzene in the box to prevent just such an occurrence. It is interesting to note that only the black portions of the cover were chewed upon and that only this volume of F. H. was so attacked. The appearance of this volume of F. H. is, as a result, quite shabby and ugly looking, but the book has not been harmed in any other way and is, therefore, still completely usable and beautiful within. However, I am wondering if you couldn't also send me a new set of covers for this volume so that I might restore it to its former condition. I guarantee that no cockroach will ever lay its mandibles upon this or any other of my books, as I am now keeping each of my many volumes in its own sealed plastic bag. This, I believe, should prove to be effective.

I look forward to hearing from you soon. Please give my regards to Mrs. Degener.

Yours sincerely,



James R. Burkhalter.



Dr. Otto & Isa Degener
P. O. Box 154
Volcano, Hawaii 96785
U. S. A.

Dec. 13, 1971.

Dear Sir:

I received the announcement about the Master Plan & Preliminary Wilderness Study regarding Haleakala National Park (including Kipahulu Valley). Mrs. Degener and I are familiar with the area, I intimately so, and its problems, reasons being cited in the footnote below. We are greatly in favor of establishing the Wilderness Area as described in the Plan of Sept. 1971. We wish, however, to add some pertinent comments and suggestions:

1. Regarding page 2, paragraph 2 of the "Master Plan. Env. Imp. Statement," there is reference to "vegetative restoration." We doubt the practicability of such work as conducted by the usual amateur. From observations made in other Parks, we find such restoration made unrealistically (plants set out in unnatural rows; wrong plant species introduced). To be sure, some endemic plants growing in the neighborhood can well be replanted (as by expert Ranger Donald Reeser in Haw. Volc. Nat. Park). Regarding the introduction of the wrong species, for example, we were upset that seeds of the Haleakala

*I first visited Hawaii National Park, both Maui and Hawaii Sections, in 1922. I published an ecological paper about the Sulphur Banks area in Bot. Gaz. 77:89-95 in 1924. I botanized extensively in and about Haleakala, including the upper reaches of Kipahulu Valley in 1927. I concentrated on the ecology of the silversword and greensword insect pests and their beneficial parasites, suggesting ways of increasing the plants' abundance. Some of the results of my collecting were described by Otto Sweeney in "Insect fauna of the silversword and greensword," (Proc. Haw. Ent. Soc. 7:187-191. 1928.). Inspired by meeting Director Mather in 1927, I became Ranger-Naturalist of Haw. Nat. Park under Supt. Allen in 1929, publishing my book "Plants Haw. Nat. Park," 1-333 in 1930. David Keck based much of his monograph about "The Hawaiian Silverswords" (Bishop Museum Ocean. Pap. 9:1-38. 1936.) on my specimens collected on both East and West Maui. Mrs. Degener has lived within Haleakala with me, and is joint author of National Park and other plants in our "Flora Hawaiensis," of which Vol. 7 is presently in preparation. We have been botanical consultants for C.A.A. (now F.A.A.) for Canton Atoll on the Equator. I have been a staff member of the New York Botanical Garden since 1933; and Mrs. Degener has been a staff member of the Botanical Garden, Museum and University in Berlin, Germany, until her marriage and departure for Hawaii.

silversword were planted on Mauna Loa because the Mauna Loa silversword was rare. The introducer never realized that the Haleakala plant is a different species from the Mauna Loa one. Here I wish to quote a letter dated Aug. 31,

1959 from Mr. Robert W. Carpenter, former Naturalist at Haleakala: "In the planter in front of our new headquarters building there are two specimens grown from seed by Jimmy Lindsay. One is from a silversword from Haleakala. The other is from a silversword from Hawaii. The young plant from the Haleakala seed has typical stiff, nearly erect leaves. The one from Hawaii has longer, more flexible, but yet silvery leaves. Although approximately the same age, the two plants have different growth characteristics. How do you explain this if they are the same species?" The Haleakala plant is an exotic on Hawaii, and now may exterminate the Mauna Loa plant by hybridizing with it.

The most practicable way for plant restoration in most areas is to keep out intruding exotics so that the endemic plants can reseed themselves in the area temporarily laid bare.

Re: # 3 occurs the statement that "access to the proposed research natural area in upper Kipahulu will be strictly regulated by permit." On the Island of Lanai shooting of game is allowed at lower elevations only. As a result, browsing animals concentrate precisely in the summit forest that needs protection. That only a handful of non-hunting scientists shall have access to the higher Kipahulu elevations is wise indeed PROVIDED armed Park personnel regularly and continuously patrol the area with dogs to reduce feral pigs, goats and perhaps even occasionally cattle lest they breed and multiply. One pig in one day can cause as much damage in a forest as a dozen people in the same length of time. They are selective in their feeding, concentrating mainly on endemics and avoiding the introductions.

3. The Bird Park in Haw. Volc. Nat. Park, with its labeled Nature Trail and explanatory booklet is outstanding. The trails within and without Haleakala should be similarly outfitted. Merely giving the scientific names of the trees, as in Hosmer Grove, is better than nothing at all; but it is hardly as instructive and inspirational as the Bird Park booklet.

4. Re: # 2 (General) of "Wilderness, Env. Imp. Statement," so much emphasis is placed on the fact that "The park contains several species of birds that

are on the endangered list." No mention is made of hundreds of kinds of plants in the same area that are on the endangered list if not already extinct. In Koolau Gap the fog-swept aa was covered in 1927 with railliardia and dubautia (primitive silversword relatives), mints, plantains, Neurophyllodes ("geranium") trees 15 feet tall, greenswords, sandalwood, alkala, strawberry, etc., etc. Where are they now? My visit to the precise spot ten years ago where I had collected such voucher specimens for the New York Botanical Garden (of which I have been staff member since 1933) and the Smithsonian disclosed a thick mat of the exotic sweet vernal grass (Anthoxanthum odoratum), with only an occasional endemic strawberry struggling through the grass in an attempt to survive!

5. Re: page 2, # 1 ("20' Corridor"). We feel that ^{with} the perfection of wireless modes of communication, such as walkie-talkies and radios, 'phone lines and poles should be eliminated or at least reduced. They are ugly, unnatural additions just as are the seismograph cables and wires paralleling many visitor roads in Haw. Volc. Nat. Park - true eye-sores.

6. Re: "Areas Not Qualified" on page 2, we agree the lower areas of Kipahulu belong in this category. But we question whether the Service should not look to the future and contemplate seriously the coastal waters about Kuku Bay. The peculiar littoral and marine plant and animal life should be preserved for the visits of scientists and especially tourists. The coast should include a pavilion similar to the one at Wahaula, Hawaii (though duplication must be strenuously avoided), concentrating on exhibits concerning wind, wave, current, animals and plants of the ocean and birds above it, and how the ancient Hawaiians used the ocean. An ocean-wet Nature Trail is in order. The Park corridor toward Kuku Bay may need coastal widening to include beach, rocks and reef, the latter rare on Maui.

7. Re: the booklet "Master Plan" on page 12 ("Boundaries"), we consider the Koolau Gap area should be extended northward makai to include the magnificent apapapa (Gunnera mauriensis) grove exposed to the trade-wind clouds

drifting in from the north about 10 A.M. One umbrella-shaped leaf of this giant herb with boa-constrictor-like rhizomes is large enough to cover a man. At the edge of the present boundary, on the east side, in 1927 I came upon a lava tube of potential visitor interest. Years later Mrs. Degener and I with flares and flashlight explored this tunnel, which I facetiously named for my wife. It extends some hundred feet mauka (up hill), where perhaps an exist (or entrance) should be excavated to facilitate one-way tourist visits. The present entrance is roomy, but there is one frightening slab of rock cracked loose from the adjoining ceiling. This precariously pinched into place, is a body-crushing hazard needing removal or securing. The botanical features of this Koolau Gap region I discussed briefly elsewhere.

8. Re: page 17, "A detailed study of the park's native and exotic biota, to determine the best method of perpetuating the native ecosystem." First of all, too much printed park literature downgrades the uniqueness of our parks by using the word "native" when "endemic" is meant. It is a confusion in semantics, which the average visitor will soon distinguish. A plant or animal "native" to the Park can be also "native" to Samoa, Calif., Philippines and elsewhere. But a plant "endemic" to the Park grows in the Park and no other place on earth. Most of our native plants in Kipahulu are native to Kipahulu AND to wetter spots^s about Haleakala; but many are endemic to Kipahulu and not even found within Haleakala proper nor elsewhere (See bottom of page 273³ and top of 374 in accompanying Phytologia Vol. 21 of July 1971). As most of our plant and animal species are endemic, why not stress that unusual fact?

The great emphasis on determining "the best method of perpetuating the native ecosystem" is a farce. We have observed its "scientific" practice in another park. When a noxious weed is first observed, the student's interest may tend to concentrate on how it will fit in with the surrounding endemic flora. By the time the "best method" has been studied, the weed has

scattered its seeds far and wide and can never more be eradicated without the expenditure of a king's ransom. To perpetuate the native ecosystem, there is one cheap, practicable, common-sense way:

1. The moment an exotic animal is noted in the Park area, hunt it out and shoot to kill. Do not leave a single specimen to breed and multiply, thus avoiding present criticism of policy appearing in Nat. Parks & Cons. Mag. 45, No. 6 & 8, June & Aug. 1971, pages 32, 28.
2. The moment an exotic plant is noted in the Park area, before it has time to mature seed, rip it out, poison it, or burn it; and while doing so do not scatter its seeds or propagules to new areas (or the garbage dump) with the tools used in the eradication. Haw. Volc. Nat. Park is now a veritable weed patch in comparison to the condition in 1922, particularly about the Volcano House and Administration Building because of neglect of common sense methods under some early park administrators.

Re: page 18, # 2 states the fallacy that "Programs will also include the re-introduction of silversword on the west crater rim, and the reintroduction of the greensword from west Maui to its original range." With specific permit from the Superintendent, I investigated the decline of the Haleakala silversword and greensword in 1927, before collecting and studying the silver- and greenswords on Mt. Ike, West Maui. Perusal of my plant photos in David Keck's "The Hawaiian silverswords" in Bishop Museum Occas. Paper 9: 1-38, 1936, will show at a glance that the greensword of West Maui is entirely distinct from the greensword of Haleakala. The West Maui species is a profusely branched, bog creeper. Hence it would be a blunder and contrary to National Park policy to introduce a "counterfeit" species foreign to an area. There is of course a chance of finding a survivor (in 1927 there were numerous greenswords in the foggy area in and about Koolau Gap and about Pau Nianiau). Such plant should be carefully guarded and its seeds sown by expert horticulturists in pots before setting out in the proper environment. When seeds have become abundant enough to risk wasting, they should be raked in and scattered in likely places.

We have seen silverswords grown from seed in the botanical garden in Montreal, Canada. If the silversword lend itself to such treatment, the greensword may be similarly easy of propagation. With good care and fertilizer, some species of silversword will flower in 2 1/2 to 4 1/2 years.

the silversword habitat, contrary to a statement on the same page, is not "being replaced by exotic forms." It typically inhabited the sides of the cinder cones facing the Koolau Gap fog. Nothing competes with the silversword - the destroyer in 1927 were feral goats (and insects), and before that time it was man who shipped the balls dried to Japan for ornament. The greensword is the one that is being or has been exterminated by dense mats of sweet vernal grass in and about Koolau Gap.

Though not strictly pertinent to this discussion, we wish to digress as follows: To us, and we have expressed this opinion in print, it is putting the cart before the horse to overemphasize work on ecology in our Parks before the ecologists, whether botanists or zoologists, can identify the organisms they are studying! It is like writing a book without knowing the meaning of the words used. The scientific "Report of the Kipahulu Valley Expedition," so far as Botany is concerned, gives the ^{un}initiated executive and legislator the false idea that the flora of Kipahulu Valley is not too different from that of Oahu or even of Kauai. Actually, the Kipahulu flora is very distinct; and as animals (from snails through insects to birds) depend on the distinctive plants, it is reasonable to assume that the animals show a similar percentage of endemism. So if the non-biological executive or legislator reads the botanical part of the Report, he should glance at the plant name corrections in *Phytologia* 21:369-374. 1971, enclosed herewith. He will note what a wealth of endemics survive in Kipahulu that need preservation. And the list is based on a mere superficial expedition, not a protracted study.

10. Re: page 18 again emphasizes "ecological communities." Most visitors and scientists are, for example, interested in seeing a sandalwood and knowing precisely which one it is and something about its structure and history. Who cares whether it grows among koa, ohia, mamane or apple trees? Ecology is just one phase, and a minor one at that, of the Science of Botany.
11. Re: page 21, central paragraph: The Seven Pools would NOT make an excel-

lent environmental study^{area} for school groups, unless they wish to study exotic woods. Few endemics remain there.

12. Re: page 22 and irrigation water supplies: Rainfall and fog drip that fall in Kipahulu percolate for the most part down to augment the ground water supply. As irrigation ditches fall into disrepair and become obsolescent, the Service should help finance drilling and the digging of more or less horizontal tunnels to tap such rich sources of perched ground water. Such excavations, to tap the greatest amount of water, should be at lower elevations for example at about 1,000 feet. It would improve Kipahulu from a Wilderness standpoint and at the same time furnish the farming, residential and hotel communities with a more constant and greater supply of absolutely pure, potable water.

13. Re: the booklet "Wilderness Study," page 1 near the end, the author again harps on the find of several rare and endangered species of Hawaiian birds in 1967, never realizing that hundreds of species of endangered and extinct plants (not to mention hundreds of animal species) belong in the area.

14. Re: Page 2 mentions land surrounding Haleakala National Park and Kipahulu valley. The entire windward, rain- and fog-drenched slope of East Maui above about 3,000 to 4,000 feet elevation (as on the Island of Hawaii) is practically worthless from a commercial standpoint. The reasons are explained on page 3 in my Hawaii "Master Plan" entitled Caveat Emptor (Haw. Bot. Gard. Found. Newsletter 4:1-4, 1970.). This entire worthless area, on the contrary, has inestimable scientific and visitor appeal not much inferior to that of Kipahulu Valley. We feel this entire area belongs within Haleakala National Park as soon as biologically untrained citizens of the State of Hawaii can be prevailed upon to turn this white elephant over to the Federal Government.

15. Re: page 4, near the end again discusses "plant communities" rather than the plants themselves; while page 5 near the top again refers to a few

endangered kinds of birds. The valley is far more than just an aviary.
16. Re: page EE frowns upon "Water Development Projects in Wilderness Areas."
Our Item No. 12 suggests the collection of superior perched ground water as
ditches become obsolete with time.

Instead of making friends the Dale Carnegie way, the frank, honest giving of suggestions and expressing comments tends in the opposite direction. Our past criticism entitled "Caveat Haptor," of the Master Plan for Hawaii Volcanoes National Park was a gift worth \$20,000 to the National Park Service for which we have never even received the slightest acknowledgement. The above findings about the Haleakala and Kipahulu regions, we consider a gift worth \$5,000.

IN CONCLUSION, we are greatly in favor of a wilderness area within Haleakala as described in the Master Plan of September 1971 with, however, the few modifications explained above.

Aloha,

Dr. Otto Degener
Cc and/or excerpts to:
Adams, Barnett, Benson, Black, Carpenter, Henneberger, Hummel, Kasper,
Mortimer, Tobin, etc.

Waiāluā, Oahu, 96791.

May 30, 1971.

Dear Mr. Wriston: *(Attorney who made early Will I)*

It took a terrifically long time to unearth the enclosed data. But we were rather thorough as we wanted the information for our own records anyway. We believe it is rather evident that Mrs. Degener certainly did an unexpected amount of scientific work of rather high calibre in the field as well as laboratory. Many of the articles can be consulted in the Bishop Museum and similar botanical libraries. Her professional training, enabling such output, is published in *Leaders in American Science*, Seventh Edition, page 145, 1966-67.

Our rental units at Mokuoleia Beach, Waiāluā, Oahu, were constructed between 1955 and '57. The income naturally fluctuated, depending on vacancies and major repairs (such as roof), but on the average over the years it amounted to about two-thirds of our TOTAL income. Mrs. D., has the knack of dealing with tenants such as collecting rents, attending to furnishings, checking inventory, and attending to cleaning and minor repairs at tenant turn-overs. Hence I avoided this work.

Regarding the Volcano, Hawaii, property, we do not know whether the Bureau of Conveyances has recorded the gift. We have not yet received the transfer papers, nor the two tax return forms.

We like to get all this settle, so we can leave Oahu the end of June.

Aloha,



SAINT LOUIS UNIVERSITY

DEPARTMENT OF BIOLOGY

1504 SOUTH GRAND BOULEVARD
SAINT LOUIS, MISSOURI 63104
TOWNSEND 5-2288 - STA. 457

Nov. 29, 1971

Dr. Velva Rudd
Dept. of Botany
Smithsonian Institution
Washington, D.C.

Dear Velva:

Imagine hearing from me! Actually I am very busy and making a great deal of progress research-wise at the moment. During the Thanksgiving Holidays I got to do something which I have put off for quite a while. This is an analysis of the cards which Henri Pittier prepared for his collections in Panama in 1911, part of 1912, and a few in 1914. These cards were around the herbarium of the Missouri Bot. Garden for years, representing something that Dr. Woodson planned to investigate but never did. Pittier has written out in his own hand his own collection numbers, locality, date of collection, and whether the material is in flower and/or fruit. Other collectors like Hitchcock, Cowell, Maxon etc. are also listed. As the sequence of the cards is based on the family and the binomial rather than the collection number I have decided to undertake the laborious task of making a file-card system based on collection numbers. This is near completion.

My plan is to publish a paper dealing with Pittier's wanderings in Panama. Now I am equally interested in listing type collections, collections which have been identified (by him, I assume) under binomials which have not appeared in recent treatments of families in the Flora of Panama etc/

One problem I am encountering is that I have little data on his botanical collecting activities in 1912 (except for the months of Jan. and February). Maybe I lack the cards. My plan is to dig into the published revisions. It crossed my mind that the library at the Smithsonian, i.e. the botany library, may have a file on Pittier which may solve the problem. If there is material available, I may either go to Washington or hope that the stuff can be xeroxed.

Things are happening at the Garden and no doubt the grape-vine has supplied data. I am much impressed by Peter Raven,

If you can help me in any way I would appreciate the same. I have taken the liberty of sending your librarian a copy of this.

Sincerely

P.S. Mr. Wunderlin sends his best. Thanks
for helping him

John D. Dwyer Ph.D.
Prof. of Botany

December 6, 1971

Dr. John D. Dwyer
Department of Botany
St. Louis University
St. Louis, Missouri 63110

Dear John:

It was good to hear from you and to know that you are still among us.

Our librarian, Mrs. Schallert, will answer your letter re Pittier. We have some of his notebooks, but those from Panama are missing, I believe. Perhaps they are at the U.S.D.A. I seem to recall that when Mrs. Chase was writing a biographic sketch on Pittier just after he died, she came up against that problem.

Sincerely,

Velva E. Rudd
Curator
Department of Botany

VERudd/chl



Dec. 13, 1971.

Dear Sir:

I received the announcement about the Master Plan & Preliminary Wilderness Study regarding Haleakala National Park (including Kipahulu Valley). Mrs. Mrs. Degener and I are familiar with the area, I intimately so, and its problems, reasons being cited in the footnote below. We are greatly in favoring establishing the Wilderness Area as described in the Plan of Sept. 1971. We wish, however, to add some pertinent comments and suggestions:

1. Regarding page 2, paragraph 2 of the "Master Plan. Env. Imp. Statement," there is reference to "vegetative restoration." We doubt the practicability of such work as conducted by the usual amateur. From observations made in other Parks, we find such restoration made unrealistically (plants set out in unnatural rows; wrong plant species introduced). To be sure, some endemic plants growing in the neighborhood can well be replanted (as by expert Ranger Donald Reaser in Haw. Volc. Nat. Park). Regarding the introduction of the wrong species, for example, we were upset that seeds of the Haleakala silversword were planted on Mauna Loa because the Mauna Loa silversword was rare. The introducer never realized that the Haleakala plant is a different species from the Mauna Loa one. Here I wish to quote a letter dated Aug. 31, 1959 from Mr. Robert W. Carpenter, former Naturalist at Haleakala: "In the planter in front of our new headquarters building there are two specimens grown from seed by Jimmy Lindsay. One is from a silversword from Haleakala. The other is from a silversword from Hawaii. The young plant from the Haleakala seed has typical stiff, nearly erect leaves. The one from Hawaii has longer, more flexible, but yet silvery leaves. Although approximately the same age, the two plants have different growth characteristics. How do you explain this if they are the same species?" The Haleakala plant is an exotic on Hawaii, and now may exterminate the Mauna Loa plant by hybridizing with it.

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3. The Bird Park in Haw. Volc. Nat. Park, with its labeled Nature Trail and explanatory booklet is outstanding. The trails within and without Haleakala should be similarly outfitted. Merely giving the scientific names of the trees, as in Kosmer Grove, is better than nothing at all; but it is hardly as instructive and inspirational as the Bird Park booklet.

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Re: Page 18, # 2 states the fallacy that "programs will also include the re-introduction of silversword on the west crater rim, and the reintroduction of the greensword from west Maui to its original range." With specific permit from the Superintendent, I investigated the decline of the Haleakala silversword and greensword in 1927, before collecting and studying the silver- and greenswords on Mt. Eo, West Maui. Lossal of my plant photos in David Keck's "The Hawaiian silverswords" in Bishop Assoc. Occas. Paper 9: 1-38, 1936, will show at a glance that the greensword of West Maui is entirely distinct from the greensword of Haleakala. The West Maui species is a profusely branched, bog creeper. Hence it would be a blunder and contrary to National Park policy to introduce a "counterfeit" species foreign to an area. There is of course a chance of finding a survivor (in 1927 there were numerous greenswords in the Foggy area in and about Koolau Gap and about Pau Mianian). Such plant should be carefully guarded and its seeds sown by expert horticulturists in pots before setting out in the proper environment. When seeds have become abundant enough to risk wasting, they should be raised in and scattered in likely places.

We have seen silverswords grown from seed in the botanical garden in Montreal, Canada. If the silversword lends itself to such treatment, the greensword may be similarly easy of propagation. With good care and fertilizer, some species of silversword will flower in 2 1/2 to 4 1/2 years!

The silversword habitat, contrary to a statement on the same page, is not being "replaced by exotic forms." It typically inhabited the sides of the cinder cones facing the Koolau Gap fog. Nothing competes with the silversword - the destroyer in 1927 were feral goats (and insects), and before that time it was man who shipped the balls dried to Japan for ornament. The greensword is the one that is being or has been exterminated by dense mats of sweet vernal grass in and about Koolau Gap.

Though not strictly pertinent to this discussion, we wish to digress as follows: To us, and we have expressed this opinion in print, it is putting the cart before the horse to overemphasize work on ecology in our Parks before the ecologists, whether botanists or zoologists, can identify the organisms they are studying! It is like writing a book without knowing the meaning of the words used. The scientific "Report of the Iki-shula Valley Expedition," so far as Botany is concerned, give the uninitiated executive and legislator the false idea that the flora of Iki-shula Valley is not too different from that of Oahu or even of Maui. Actually, the Iki-shula flora is very distinct; and as animals (from snails through insects to birds) depend on the distinctive plants, it is reasonable to assume that the animals show a similar percentage of endemism. So if the non-biological executive or legislator reads the botanical part of the Report, he should glance at the plant name corrections in Phytologia 21:369-374, 1971, enclos-

ed herewith. We will note what a wealth of endemics survive in it which that need preservation, and the list is based on a more or official expedition, not a protracted study.

10. Re: Page 18 again emphasizes "ecological communities." Not visitors and scientists are, for example, interested in seeing a sandalwood and knowing precisely which one it is and something about its structure and history. Who cares whether it grows around tea, ohia, eucalyptus or apple trees? Ecology is just one phase, and a minor one at that, of the Science of Botany.

11. Re: Page 21, central paragraph: The Seven Pools would NOT make an excellent environmental study area for school groups, unless they wish to study exotic weeds. Now endemics remain there.

12. Re: Page 22 and irrigation water supplies: Rainfall and fog drip that fall in Kipahulu percolate for the most part down to augment the ground water supply. As irrigation ditches fall into disrepair and become obsolescent, the Service should help finance drilling and the digging of more or less horizontal tunnels to tap such rich sources of perched ground water. Such excavations, to tap the greatest amount of water, should be at lower elevations for example at about 1,000 feet. It would improve Kipahulu from a wilderness standpoint and at the same time furnish the farming, residential and hotel community with a more constant and greater supply of absolutely pure, potable water.

13. Re: The booklet "Wilderness Study," page 1 near the end: the author again harps on the find of several rare and endangered species of Hawaiian birds in 1967, never realizing that hundreds of species of endangered and extinct plants (not to mention hundreds of animal species) belong in the area.

14. Re: Page 2 mentions land surrounding Haleakala National Park and Kipahulu Valley. The entire windward, rain- and fog-drenched slope of East Maui above about 3,000 to 4,000 foot elevation (as on the Island of Hawaii) is practically worthless from a commercial standpoint. The reasons are explained on page 3 in my Hawaii "Master Plan" entitled Caveat Emptor (Haw. Bot. Gard. Found. Newsletter 4:1-4, 1970.). This entire worthless area, on the contrary, has inestimable scientific and visitor appeal not much inferior to that of Kipahulu Valley. We feel this entire area belongs within Haleakala National Park as soon as biologically untrained citizens of the State of Hawaii can be prevailed upon to turn this white elephant over to the Federal Government.

15. Re: Page 4, near the end again discusses "plant communities" rather than the plants themselves; while page 5 near the top again refers to a few endangered kinds of birds. The valley is far more than just an aviary.

16. Re: Page EE frowns upon "Master Development Projects in Wilderness Areas." Our Item No. 12 suggests the collection of superior perched ground water as ditches become obsolete with time.

Instead of making friends the Dale Carnegie way, the Frank, honest giving of suggestions and expressive comments bend in the opposite direction. Our past criticism entitled "Caveat Emptor," of the Master Plan for Hawaii Volcanoes National Park was a gift worth \$5,000 to the National Park Service for which we have never even received the slightest acknowledgement. The above findings about the Haleakala and Kipahulu regions, we consider a gift worth \$5,000.

IN CONCLUSION, we are greatly in favor of a wilderness area within Haleakala as described in the Master Plan.

See few modifications explained above.

Alona,

 I first visited Hawaii National Park, both East and West Sections, in 1922. I published an ecological paper about the Sulphur Banks area in Bot. Gaz. 77:89-95 in 1924. I botanized extensively in and about Haleakala, including the upper reaches of Waipaho Valley in 1927. I concentrated on the ecology of the silversword and greensword insect pests and their beneficial parasites, suggesting ways of increasing the plants' abundance. Some of the results of my collecting were described by Otto Swartz, in "Insect fauna of the silversword and greensword," (Proc. Haw. Ent. Soc. 7:187-191, 1929.). Inspired by setting Director Hather in 1927, I became Ranger-Botanists of Haw. Nat. Park under Supt. Allen in 1929, publishing my book "Plants Haw. Nat. Park," 1-300 in 1931. David Keck based much of his monograph about 1934 "The Hawaiian Silverswords" (Bishop Museum Occas. Pap. 9:1-58, 1935.) on my specimens collected on both East and West Maui. Mrs. Degenor has lived within Haleakala with me, and is joint author of National Park and other plants in our "Flora Hawaiiana," of which Vol. 7 is presently in preparation. We have been botanical consultants for U.S.A. (now P.A.A.) for Canton Atoll on the Equator. I have been a staff member of the New York Botanical Garden since 1935; and Mrs. Degenor has been a staff member of the Botanical Garden, Museum and University in Berlin, Germany, until her marriage and departure for Hawaii.

December 17, 1971

Dr. John D. Dwyer
Department of Biology
Saint Louis University
1504 South Grand Boulevard
Saint Louis, Missouri 63104

Dear Dr. Dwyer:

I am sorry to report that we are unable to find anything covering the period in Pittier's life about which you recently inquired. The only original material we have in the library or the department is a group of five field notebooks. The first three cover the period of March, 1905 through December, 1911; the fourth and fifth belong to the Venequellan trip of 1917. There are no cards of any kind.

Velva mentioned that she remembered Mrs. Chase commenting on this gap when she was writing Pittier's obituary; I am enclosing a copy of it for you which seems to bear this out.

Dr. Archer, who has worked with the field notes and some botanists' correspondence here in the department, says he has seen no other Pittier material than what is here. He knows that the Department of Agriculture sent a quantity of material to the National Archives at one time, and believes there is a list of what was sent; Dr. Creech, of the New Crops division at Beltsville should have some knowledge of the list.

Since she wrote you, Velva has had some other ideas and asked me to pass them along to you. There are ~~these~~ people associated with Agriculture who might have some knowledge ~~during~~ working with material there of any Pittier notes or field books: Fred Myer, now at the National Arboretum and C. Earle Smith, Jr., now at the University of Alabama. Also Rogers McVaugh may have run across some Pittier things during his work on Palmer.

That about exhausts our possibilities; sorry we couldn't find anything for you.

Sincerely,

Ruth F. Schallert
(Mrs.) Ruth F. Schallert
Botany Branch Librarian

cc:
Dr. Velva Rudd

Frau

Dr. I s a D e g e n e r

RR 1 Box 89

Waialua, HI.

Hawaii 96791/ U S A

DEUTSCHE BOTANISCHE GESELLSCHAFT
DER VORSITZENDE

Berlin 33 (Dahlem)
Königin-Luise-Str. 6-8
den 21. Dezember 1971

Sehr geehrtes Mitglied !

Da seit der letzten Veröffentlichung eines Mitglieder-
verzeichnisses unserer Gesellschaft (Band 76, 1963) eine
ganze Reihe von Jahren verstrichen ist, wird z.Zt. ein neues
Verzeichnis vorbereitet, das in Heft 12 des Bandes 84 er-
scheinen soll. Bitte unterstützen Sie uns, damit unser Vor-
haben zu einem korrekten Ergebnis führt. Sie erhalten an-
bei einen Abdruck Ihrer Adresse, die der Eintragung in un-
serer Kartei entspricht. Bitte überprüfen Sie die Angaben
und senden die Karte korrigiert an mich zurück. Insbeson-
dere bitte ich, zu überlegen, ob Sie Ihre Privat- oder
Dienstadresse zu benutzen wünschen. Auch wenn keine Korrek-
tur notwendig ist, bin ich für eine Rücksendung dankbar.
Wenn wir die Karte bis zum 10.2.1972 nicht zurückerhalten
haben, nehme ich an, dass Sie mit der Eintragung einver-
standen sind. Später eingehende Karten werden wir nach Mög-
lichkeit bis zur Drucklegung berücksichtigen.

Mit freundlichen Grüßen

Ihr

Karlfried Hornhagen.

Page 40

Borden, Charles A., Sea Quest-1-352. 1967. P. 222. A century before Vasco da Gama and Columbus, Chinese master mariners under the eunuch Admiral Cheng Ho sailed in fleets of thirty to sixty or more junks on long transoceanic expeditions. They visited thirty countries in the Indian Archipelago and Ocean, cruised the Persian Gulf, traded in the markets of Aden and Mecca, and reached "lu-lu-tu-pu" - Agadise in Africa. Cheng Ho personally commanded sea quests totaling more than 75,000 miles to trade and spread the culture of the third emperor of the Ming dynasty throughout the Far East.

#238. A Rhode Island Irishman, Thomas ("Red") P. McKenny, arrived in Hong Kong in the mid-thirties with a large roll of blueprints and the backing of a number of international sportsmen, including Count Il'ya Tolstoy - grandson of the novelist - for an idea called the Ming Po Junk Expedition. - - - When backing for the Paris junk expedition fell short of expectations, - - - In 1939 McKenny was able to realize some of his long-cherished plans when Mrs. John D. Archbold, a wealthy New Yorker, commissioned him to supervise the building of a deluxe junk to provide transport for scientific expeditions in which she was interested. When the resourceful Irishman found that Chinese artisans built without blueprints as their forefathers have for centuries, and that in all of China there were no plans for a junk, he expeditious his own plans and supervised building of the Archbold junk to Lloyd's specifications in the venerable yard of Ah King. With the help of measurements taken from a century-old salt junk, the 89-foot-LOA 154-ton luxury craft with heavy, hand-sawn yacal frames, camphorwood knees, and three-inch plank, slowly took shape. An ancient temple idol was placed on the stern during building to bring good joss, and there were appropriate ceremonies at "the marrying of the keel" and on launching day to drive evil spirits into the sea. Across the stern of the large Ningpo-type poop, craftsmen carved a Holy Goose with wings spread, and directly below Seven Chinese Sages were seated to keep evil at bay. With an "improved junk rig," three shrouds to each mast, a ship's rudder in place of the traditional one, and twin diesels, the Cheng Ho, named for the Chinese admiral who sailed to Africa in the fifteenth century, cleared Hong Kong in the northeast monsoon for a fast passage across the China Sea to Manila. "At sea," said McKenny, a firm believer in tradition, "the British tar has his daily rum ration and the Chinese sailor has his ration of joss sticks." Aboard Cheng Ho each of the ten Chinese crewmen went daily, after each meal, to burn three joss sticks each in the dining saloon before a fireplace joss shrine. When the mizzen boom carried away in a gale that flung sheets of spray one hundred feet aft over the high poop, a dozen joss sticks were burned by some of the men in place of the usual three. From Manila the owner of Cheng Ho and members of the Fairchild Tropical Garden Expedition cruised down through the Philippines, collecting rare plants and other specimens. From Zamboanga they cruised the Celebes coasts and then crossed to Surabaya in Java. Many calls were made at seldom-visited spots in the Malay Archipelago. When Germany invaded Holland, war conditions brought the Fairchild Expedition to an abrupt end at Amboina, where most of the original crew left. Under Captain Ellis Skifford, the junk made her way slowly eastward through the tropics and against the prevailing easterlies to Suva, Fiji, where she arrived late in 1940. She then made a 5,000-mile plant expedition to the Islands of the Central Pacific for the Arnold Arboretum of Harvard University. Shortly before the attack on Pearl Harbor, Cheng Ho arrived in Hawaii and was "sold" to the U.S. Navy for one dollar to become patrol vessel LX52 in Hawaiian waters during the war years. In 1947, when she was returned to private ownership, the junk came under control of Otto Dognier and Eric De Bisschop, who formed the Cheng Ho Trading and Exploring Company to operate between Hawaii and French Oceania. Flying the French flag, Cheng Ho cleared Honolulu for Tahiti in January, 1948, with a group of adventurers and general cargo. Shortly after her return passage from Papeete with passengers and a cargo of vanilla beans, several libel suits were filed at Honolulu by crew members for back wages. After months of legal maneuvers, Cheng Ho cleared Hawaii for an eighteen-day passage to Papeete and remained in the Society Islands to become a co-trader. Legal battles over her ownership were not resolved until 1955. When she was ordered sold by a Papeete court. Promptly bought by a French firm, she was put back in the interisland trade in French Polynesia. Long a familiar sight in Papeete harbor, Cheng Ho was given two new diesels, renamed the Hiro, and set to carrying cargo between the Leeward Islands and Tahiti with occasional voyages through the Tuamotus.