JOHN WAIHEE
GOVERNOR OF HAWAII

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

WILLIAM W. PATY, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
John P. Keppeler, II
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AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION PROGRAM
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

FILE NO.: HA-2/6/92-2551
DOC. ID.: 169

MEMORANDUM

FEB 26 1992

TO: The Honorable Brian J. J. Choy, Director
Office of Environmental Quality Control

FROM: William W. Paty, Chairperson
Board of Land and Natural Resources

SUBJECT: Document for Publication in the OEQC Bulletin
Environmental Assessment for Conservation District Use Application HA-2/6/92-2551 for Hakalau Forest National Wildlife Refuge fencing at Honohina, Maulua Nui, and Hakalau, North and South Hilo, Hawaii
TMK: 2-8-2; 3-3-01: 3,8; 3-7-01

The above mentioned Chapter 343 document was reviewed and a negative declaration was declared based upon the environmental assessment provided with the CDUA.

Please feel free to call me or Roy Schaefer of our Office of Conservation and Environmental Affairs, at 587-0377, if you have any questions.

HA-255]
1992-03-08-HI-FEA-Hakalau Forest National Wildlife Refuge Fencing, No. & So. Hilo

CONSERVATION DISTRICT USE PERMIT APPLICATION for the

HAKALAU FOREST NATIONAL WILDLIFE REFUGE FENCING

Hakalau, Hawaii

FEBRUARY 1992

PREPARED FOR:

U.S. Fish & Wildlife Service
Department of the Interior

RMTC

R. M. Towill Corporation

420 Waiakamilo Rd., Suite 411
Honolulu, Hawaii 96817-4941
(808) 842-1133 • Fax: (808) 842-1937

February 1983

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

FOR DLNR USE ONLY
Reviewed by
Date
Accepted by
Date
Docket/File No.
180-Day Exp.
EIS Required
PH Required
Board Approved
Disapproved
Well No.

DEPARTMENT MASTER APPLICATION FORM

(Print or Type)

I. LANDOWNER/WATER SOURCE OWNER (If State land, to be filled in by Government Agency in control of property)

Name: U. S. Fish and Wildlife Service
Address: 154 Waianuenue Ave. Room 219 Hilo, Hawaii 96720

Telephone No. 969-9909
SIGNATURE Richard C. Wass
Date Jan. 30, 1992

II. APPLICANT (Water Use, omit if applicant is landowner)

Name: U. S. Fish and Wildlife Service
Address: 154 Waianuenue Ave. Room 219 Hilo, Hawaii 96720

Telephone No. 969-9909
Interest in Property Owner & Manager of the Hakalau Wildlife Refuge
(Indicate interest in property; submit written evidence of this interest)
*SIGNATURE Richard C. Wass
Date Jan. 30, 1992

*If for a Corporation, Partnership, Agency or Organization, must be signed by an authorized officer.

III. TYPE OF PERMIT(S) APPLYING FOR

( ) A. State Lands
(X) B. Conservation District Use
( ) C. Withdraw Water From A Ground Water Control Area
( ) D. Supply Water From A Ground Water Control Area
( ) E. Well Drilling/Modification

V. Environmental Requirements
An Environmental Assessment of the proposed use is attached as Exhibit A.

IV. WELL OR LAND PARCEL LOCATION REQUESTED

District: North & South Hilo
Island: Hawaii
County: Hawaii
Tax Map Key: 2-8-02; 3-3-01: Pors. 3 & 8; 3-7-01
Area of Parcel: 24,222 acs. (Indicate in acres or sq. ft.)
Term (if lease): Not Applic.

INFORMATION FOR ALL USES WITHIN THE STATE LAND USE CONSERVATION DISTRICT

I. Description of Parcel

The property is located on the northwestern slopes of Mauna Kea approximately 20 miles northwest of Hilo, in the Honohina, Maulua Nui, and Hakalau Ahupua'as of the North and South Hilo District boundaries on the Island of Hawaii. The proposed hogwire fence will run continuously between the 2,500-foot and 5,000 foot elevation. The total project area consists of approximately 24,000 acres and its main access is from jeep roads leading to Keanakolu Road mauka of the property. There are no existing structures on the property. The present use of the property is a wildlife refuge known as the Hakalau Forest National Wildlife Refuge within the Hilo Forest Reserve.

The refuge is currently comprised of six parcels totalling 15,484 acres. Two additional parcels will likely be added to the refuge in 1992: 1) approximately 16,000 acres owned by the World Union Industrial Corporation; and 2) 1,034 acres owned by the Liliuokalani Trust.

The existing vegetation consists mainly of ohia and koa trees with ferns dominating the groundcover. The ohia rain forest is the most common forest type in this project area. As in most forest reserve areas, there are a variety of native and some exotic plants. Subcanopy trees and shrubs include kawau, kolea, kopiko, and olapa. The understory is dominated by tree ferns. Conspicuous in this wet forest habitat are several species of Clermontia and many more species of epiphytic ferns.

The topography of the project area is gently sloping towards the east (makai direction) with slopes less than 40 percent.

There are no known easements or covenants on the property. The property is owned by or soon to be purchased by the U. S. government under the management of the U. S. Fish & Wildlife Service (USFWS).

There are no known historic sites within the immediate area.

II. Description of the Activity Proposed

The USFWS proposes to install approximately 337,000 feet (or 63.8 miles) of hogwire fences in the Hakalau Forest National Wildlife Refuge to prevent the gradual degradation and destruction of endangered Hawaiian forest bird habitats. The proposed project, when completed and the feral ungulates removed from the enclosed area, will provide a barrier against further intrusion of feral cattle and pigs

into this forested area.

The corridor that will be cleared by hand prior to installation of the fence for each parcel will, in essence, follow the path of least resistance on the ground in order to avoid disturbing the natural vegetation and other existing resources in the refuge. The same corridor will be used as access for future maintenance purposes. The fence line will deviate around most trees leaving the canopy intact.

A biologist will be on site during construction to coordinate work with the Department of Land and Natural Resources and for monitoring follow up activities regarding endangered species.

Upon completion of the installation of the hogwire fence for each management unit, the USFWS will remove feral cattle and pigs within the project area.

III. Commencement and Completion Dates

The USFWS proposes to begin construction as soon as the necessary governmental permits are obtained and complete the installation of the fence for Phase I ("Unit 3") within six to twelve months. In the future, as funding becomes available, approximately one to two units per year will be fenced in the same manner.

IV. Type of Use Requested

The project is primarily located within the State Land Use Conservation District, Resource Subzone. A portion of the project is designated within the State Land Use Agricultural District and zoned Ag-40; i.e., Agriculture 40-acre minimum lot size. The project falls under the category of "programs for control of animal, plant, and marine population, to include fishing and hunting," which is a permitted use within the Resource Subzone under Sections 13-2-11 Protective (P) Subzone and 13-2-13 Resource Subzone of Title 13, Chapter 2, Conservation Districts.

A State Land Use District Boundary Interpretation prepared by the Land Use Commission is attached as Appendix B.

The County of Hawaii General Plan land use designation for the area is Conservation and Extensive Agriculture.

ENVIRONMENTAL ASSESSMENT

HOGWIRE FENCE FOR THE HAKALAU FOREST NATIONAL WILDLIFE REFUGE

HONOHINA, MAULUANUI, & HAKALAU, NORTH & SOUTH HILO,
ISLAND AND COUNTY OF HAWAII

PREPARED FOR:

UNITED STATES FISH AND WILDLIFE SERVICE
DEPARTMENT OF THE INTERIOR

UNITED STATES OF AMERICA

ACCEPTING AUTHORITY:

Department of Land & Natural Resources
State of Hawaii

PREPARED BY:

R. M. Towill Corporation
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817-4941

FEBRUARY 1992

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LIST OF FIGURES

SUMMARY INFORMATION

Applicant:		United States of America, Department of the Interior, United States Fish and Wildlife Service
Consultant	:	R. M. Towill Corporation 420 Waiakamilo Road, Suite 411 Honolulu, Hawaii 96817-4941 Agent: Colette Sakoda, Sr. Planner
Location	:	Honohina, Mauluanui & Hakalau, North & South Hilo, Island and County of Hawaii (Figure 1)
Tax Map Key	:	2-8-02; 3-3-01: Por 8; and 3-7-01
Land Area	:	24,222 acres
State Land Use Designation	:	Conservation
Conservation District Subzone	:	Resource
General Plan Land Use Pattern Allocation Guide Map	:	Conservation and Extensive Agriculture
Existing Zoning	:	Conservation
Landowner	:	United States of America
Accepting Authority	:	Department of Land & Natural Resources

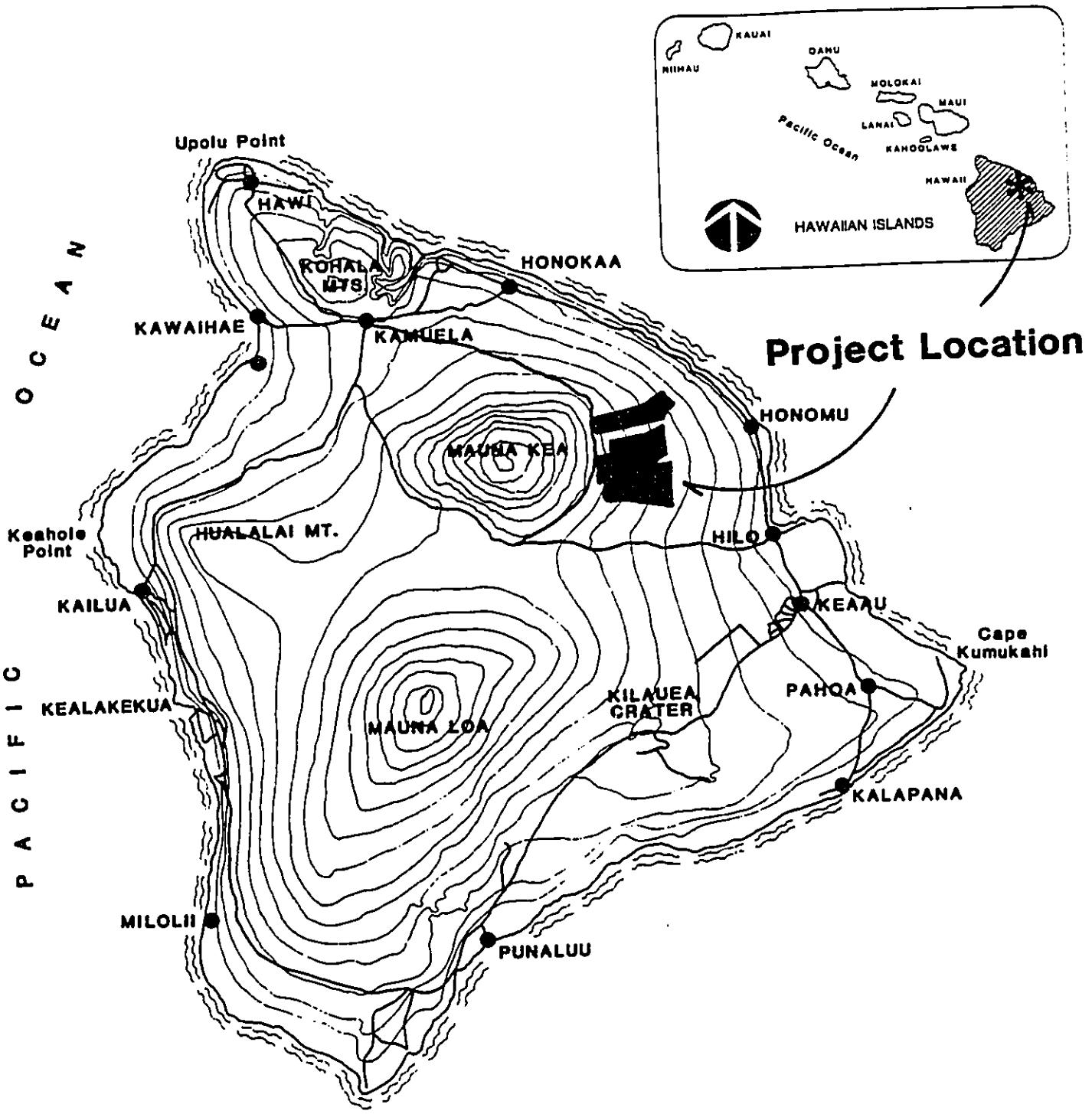


FIGURE 1
LOCATION MAP
Island of Hawaii
HAKALAU FOREST
NATIONAL WILDLIFE REFUGE

0 14 28
MILES

R. M. TOWILL CORPORATION
DECEMBER 1991

SECTION 1

STATEMENT OF PURPOSE

The United States Fish and Wildlife Service, Department of the Interior, U. S. A. (Applicant), proposes to install a hogwire fence in the Hakalau Forest National Wildlife Refuge to prevent the gradual degradation and destruction of endangered Hawaiian forest bird habitats. The proposed project, when completed and the feral ungulates removed from the enclosed area, will provide a barrier against further intrusion of feral cattle and pigs into this forested area. These persistent feral animals have destroyed much native forest and through their grazing, trampling and rooting activities prevent regeneration of these rainforest ecosystems.

The objectives of this project are to restore, protect and maintain forest habitat for endangered native bird species such as Hawaii Akepa, Hawaii Creeper, Ou, Akiapolaau and the Hawaiian Hawk, as well as numerous endangered and candidate endangered plant species, and Hawaii's only native land mammal, the Hoary Bat.

The anticipated result of the proposed action will be the restoration and maintenance of the rainforest habitat and the prevention from extinction of all or many of the endangered species that reside in this habitat.

Currently, Hakalau Forest National Wildlife Refuge consists of 15,484 acres. In the long term, the USFWS intends to acquire an additional 16,275 acres of land to place in reserve as the Hakalau Forest National Wildlife Refuge. Upon successful acquisition of the targeted property from the current owner, fencing as described above will proceed in phases (or "management units") to achieve the objectives of the wildlife refuge program. Management units 1 and 2 (Figure 3) have already been fenced: the perimeter fencing of unit 1 was completed in 1989 and feral ungulates have been removed; and perimeter fencing of unit 2 was completed in November 1991, and eradication is underway.

The segmentation of the property into management units will allow the USFWS a means of managing and maintaining the fencing for the more than 30,000 acres contained in the Hakalau Wildlife Refuge. The proposed perimeter fencing of the wildlife refuge is not the final step in this project; it is part of an ongoing feral cattle and pig population control program. The lands will be managed and maintained by the USFWS to ensure the restoration and protection of the rainforest habitat and attendant preservation of the endangered species habitat.

SECTION 2

DEVELOPMENT PROPOSAL

2.1 LOCATION

The project area is located on the eastern flank of Mauna Kea Volcano on the Island of Hawaii, on both sides of the North Hilo/South Hilo District Boundary within the Honohina, Maulua Nui and Hakalau Ahupua'as, North and South Hilo Districts (Figure 2). The proposed hogwire fence will run continuously between the 2,500-foot and 6,500-foot elevation. Installation of the fence will be done in several phases as acquisition and project funding of each management unit occurs.

2.2 PROJECT DESCRIPTION

The Applicant proposes to install a total of 337,000 feet (63.8 miles) of hogwire fence measuring approximately 5 feet high to prevent the degradation and destruction of endangered Hawaiian forest bird habitat in the Hakalau Forest National Wildlife Refuge. The fence will be installed in phases (management "units" as identified in Figure 3) over a several year period.

A total of 16 management units as shown in Figure 3, are planned to be fenced. Of these, units 1 and 2, located at the western end, have already been fenced. They were acquired and funded at earlier dates. The proposed project involves the following procedures:

1) Clearing a 4- to 6-foot corridor of brush by hand;

2) Construction of the hogwire fence (Figure 4);

3) Regular maintenance of the completed fence; and

4) Eradication of feral cattle and pigs.

The project consists of lands that straddle the North Hilo/South Hilo District Boundary

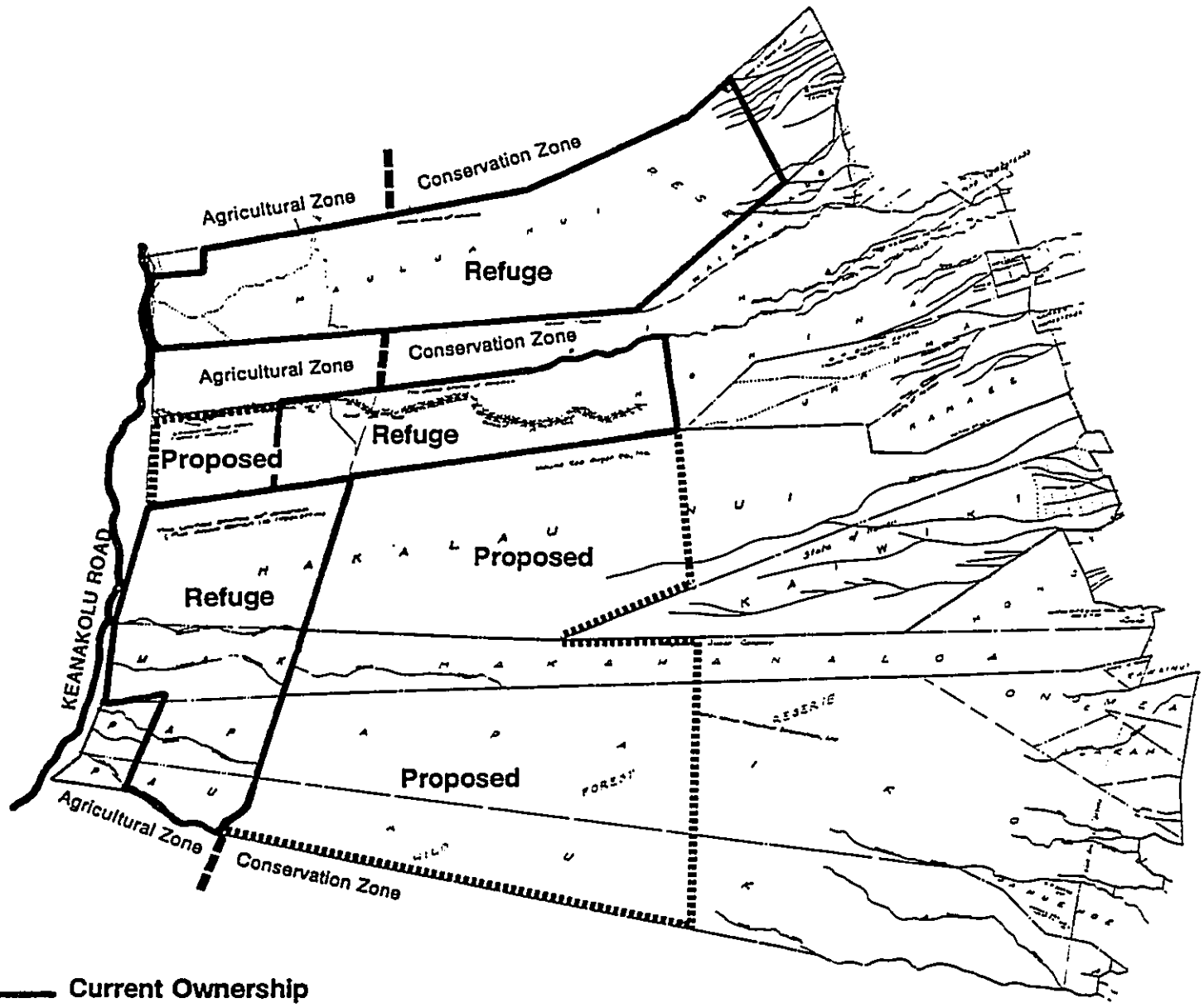


FIGURE 2
SITE MAP
HAKALAU FOREST
NATIONAL WILDLIFE REFUGE

0 8000 16000
FEET

R. M. TOWILL CORPORATION
DECEMBER 1991

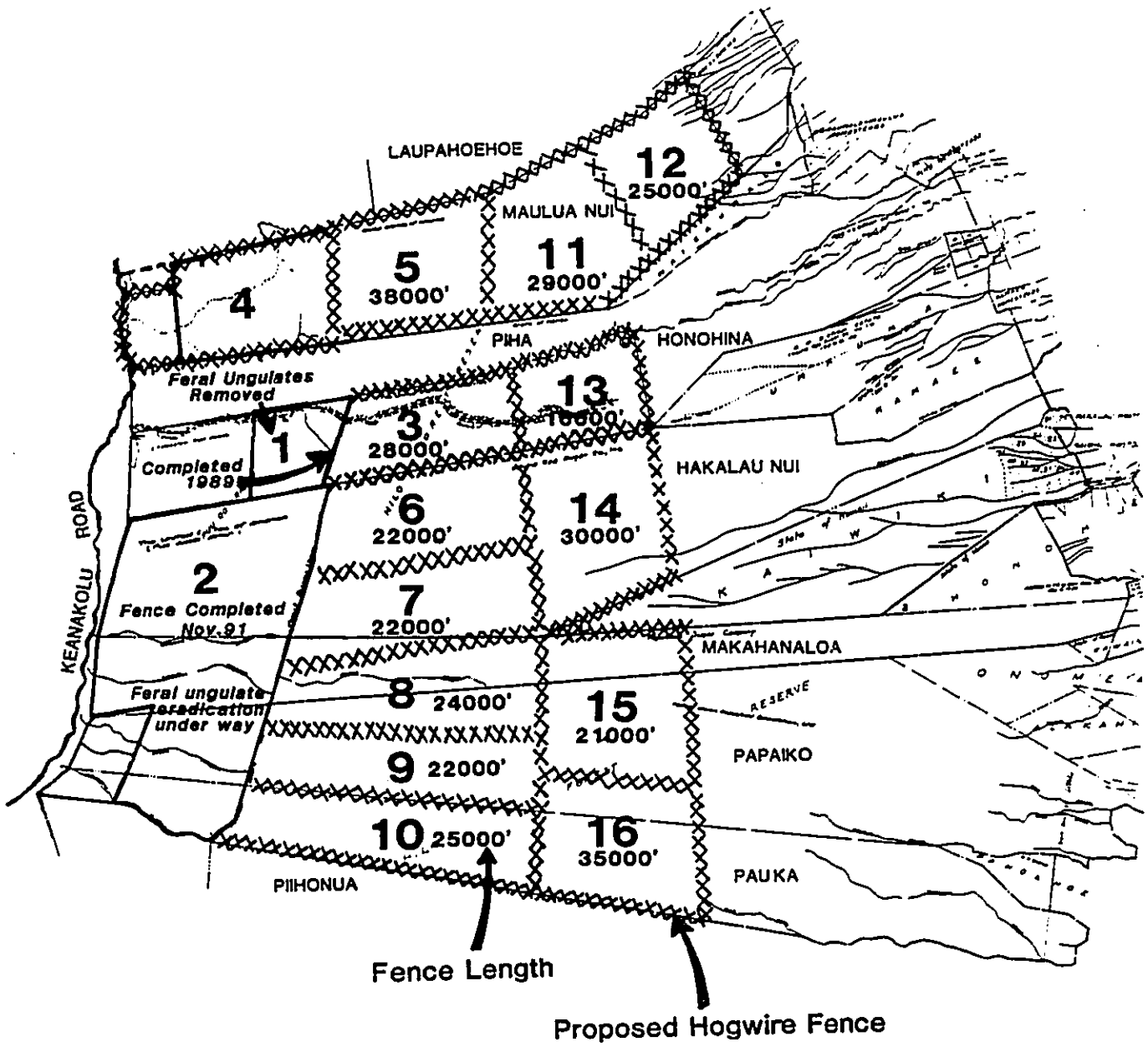


FIGURE 3
MANAGEMENT UNITS FENCING PLAN
HAKALAU FOREST
NATIONAL WILDLIFE REFUGE

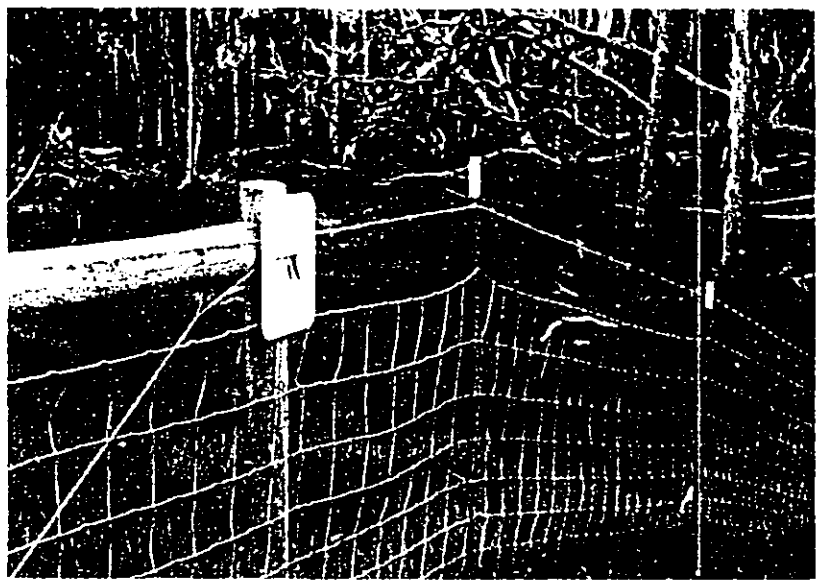
0 8000 16000
FEET

R. M. TOWILL CORPORATION
DECEMBER 1991

Photo of existing hogwire fence northwest of project site. Left of fence is the Hakalau Wildlife Refuge and right of fence is an existing pasture.

Photo of damage to base of tree fern caused by feral pigs within Hakalau Wildlife Refuge.

Photo of damage to ground cover caused by feral pigs in search of food.



Closeup of typical hogwire fence and gate frame. Note barbed wire at top and bottom, and wire grid sunk below grade.

FIGURE 4

between the 2,500- to 6,500-foot elevations.

The corridor that will be cleared by hand prior to installation of the fence for each parcel will, in essence, follow the path of least resistance on the ground in order to avoid disturbance of the natural vegetation and other existing resources. The fence line will deviate around most trees leaving the canopy intact. The same corridor will be used as access for future maintenance purposes.

Gullies and other natural barriers will be utilized or incorporated into the fencing corridor to the extent possible.

Fencing and installation materials, which will consist of rolls of hogwire, metal and wood posts, handtools, and support equipment, will be flown in by helicopter. The materials will be air lifted to drop sites along the corridor; no wheeled vehicles will be allowed along the fence line; foot traffic and horses only will be used by the construction crew to minimize any possible impacts on the existing vegetation and grounds.

A biologist knowledgeable in plant and animal species will be on-site during corridor clearing and construction to coordinate work with the Department of Land & Natural Resources and for monitoring follow up activities regarding endangered species.

Upon completion of the installation of the hogwire fence for each management unit, the Applicant will remove feral cattle and pigs within the project area.

2.3 DEVELOPMENT SCHEDULE

The Applicant proposes to begin construction as soon as the necessary governmental permits are obtained and bids are accepted. Completion of the installation of the fence for Phase I (Management unit 3) will be within approximately 6 to 12 months. As funding for future phases becomes available, one to two management units per year can be fenced.

2.4 DEVELOPMENT COSTS

The Applicant projects that the total estimated cost for the proposed fencing of all 25,315 acres will be approximately $4,044,000 (1991 dollars).

SECTION 3

EXISTING CONDITIONS AND PROJECT IMPACTS

3.1 EXISTING AND SURROUNDING USES

The project area consists of typical mixtures of Hawaiian montane rain forest dominated by ohia and in some areas, ohia and koa trees. The ohia rain forest is the most common forest type in the area.

The uppermost elevations of the Refuge have been in cattle grazing for several decades and feral cattle have been present in the area for over a 100 years. Introduced grasses are found in heavily grazed areas.

The present use of the property is a wildlife refuge.

3.2 GEOLOGY AND SOILS

The project area is located on the east flank of Mauna Kea Volcano. The last eruption of Mauna Kea was about four thousand years ago; its oldest rocks above sea level are about 240 thousand years old (Wolfe et al., in press). The project area is underlain by lavas from the Laupahoehoe Group, which are less than 65 thousand years old (Wolfe et al., in press). Most of the flows on the project site are 30 to 50 thousand years old.

Geothermal energy is being developed on the island of Hawaii along the east rift zone of Kilauea Volcano. Due to its proximity to Kilauea Volcano, the project site was studied for its potential for geothermal energy development. Study results indicate that there is no evidence of any geothermal resource on the project site (Garcia and Hulsebosch, April 1991).

The soils in the area are fairly well developed organic soils. The characteristics of the soils were found to be moist to fairly well drained with a moderately fine textured subsoil. Soils in the upper elevations are similar but slightly drier and coarser.

3.3 CLIMATE

The climate of the area is characterized by warm temperatures, with a mean high of 68 to 80 degrees Fahrenheit and a mean low of of 55 to 64 degrees Fahrenheit. Rainfall in the area averages 200 to 300 inches per year at the lower elevations (3,500 feet). Rainfall levels decrease as elevation increases.

3.4 AIR QUALITY

The area's air quality is relatively clear and low in pollution. This is due in part from the prevailing trades and the distance from major urban areas which produce the majority of the pollutants. The project will not impact short term or long term air quality in the area.

3.5 NOISE

Although noise levels were not measured at the sites, noise emanating from the area is typically low in levels due to wildlife refuge use.

During installation of the fencing, helicopter noise and human presence may cause minor temporary impacts and harassment to the endangered birds. To reduce this disturbance to endangered and other native birds in the area, the helicopter will fly only above the fence corridor and at safe flying altitudes. Birds displaced by this activity are expected to return to the area once construction has ceased. No listed birds are expected to be injured or killed as a result of the proposed action. The helicopter will not be used during the endangered bird breeding season (March through May).

3.6 ARCHAEOLOGY

There are no known historic or archaeological sites in the project area. A cultural resources assessment will be conducted in compliance with Section 106 of the National Historic Preservation Act during corridor surveys, flagging and staking. Further, should any cultural remains be discovered during site preparation, work would be halted and mitigation measures would be implemented prior to resumption of construction activities.

3.7 FLORA/FAUNA

The ohia rain forest is generally found in moderately moist to wet situations in the lower and middle elevations, 3,600 - 5,000 feet. Subcanopy trees and shrubs include kawau (Ilex anomala), kolea (Myrsine lessertiana), kopiko (Psychotria spp.) and olapa (Cheirodendron trigyum). The understory is dominated by tree ferns (primarily Cibotium glaucum). Conspicuous in this wetter forest habitat are several species of Clermontia and many more species of epiphytic ferns. The groundcover is typically dominated by tree ferns.

At the lowest elevation of the project area is the bog - ohia dieback community. This unit is actually a mosaic of open bog, matted fern and native shrub communities, and open to scattered wet ohia forest with many standing dead or partially defoliated trees. The forest dieback in this area is believed to be a result of the poor rooting conditions found in this extremely wet habitat (Jacobi 1983) but the area is now showing signs of regeneration. The wet open boggy areas are dominated by introduced grass and sedge species with scattered native shrubs.

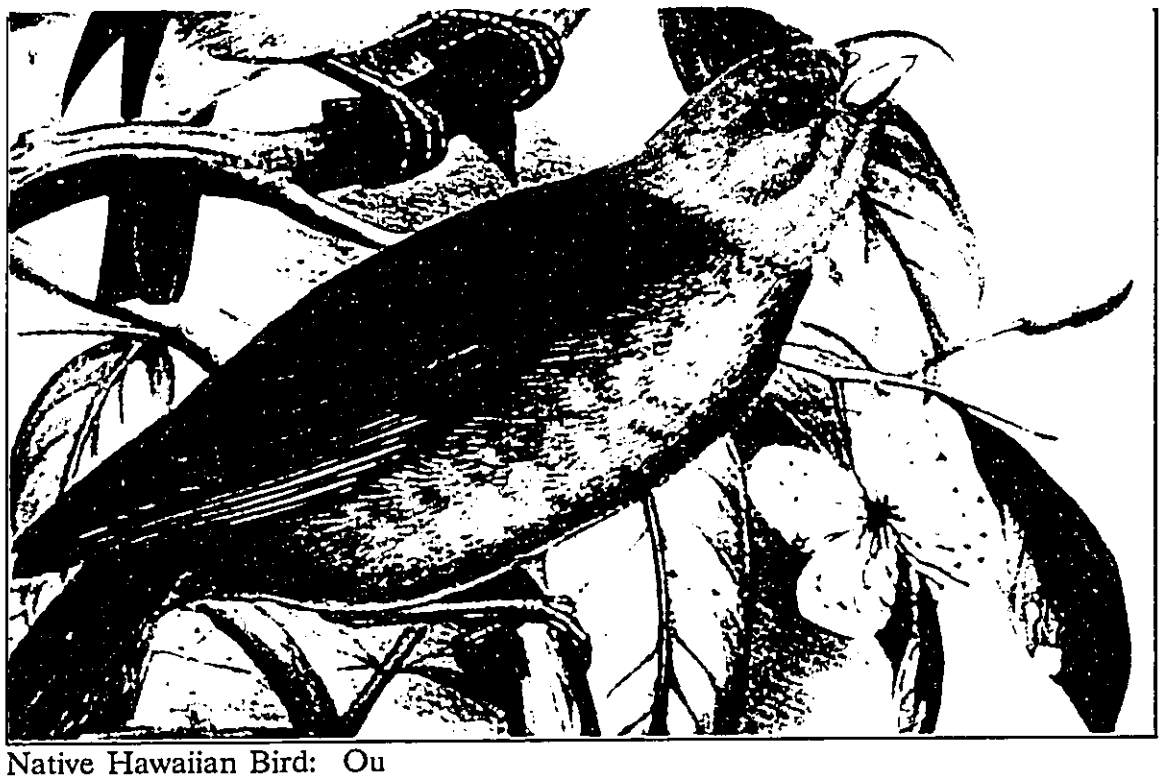
At the higher elevations, generally between 4,600 and 5,600 feet, koa becomes a codominant or dominant tree species in the forest. The structure of a typical koa-ohia rain forest is characterized by tall koa and ohia trees forming a closed tree canopy 50 - 80 feet tall, ohia trees forming the mid-story with tree ferns (Cibotium spp.) and native shrubs forming the understory (Mueller-Dombois 1981). The wet koa-ohia forest extends across the project area in a narrow band between 4,600 and 5,300 feet. Subcanopy trees in this particular forest type include those found in the wet ohia forest.

To minimize impacts on rare native plants, a person knowledgeable in native Hawaiian plant species will accompany the fence line survey team to identify and mark those plants that are of major concern. The fence corridor will then deviate around those plants reducing possible impacts. The corridor will be regularly monitored for newly established weed species such as gorse, banana poka, blackberry, and fire tree. If found, they will be uprooted before they have the opportunity to colonize a broader area.

Endangered native bird species in the Hakalau Forest National Wildlife Refuge include the Hawaii Akepa, Hawaii Creeper, Ou, Akiapolaau, and the Hawaiian Hawk (Figure 5). Hawaii's only native land mammal, the Hoary Bat, is also known to live in the project area.

All of the endangered birds on the Refuge require native forest as their habitat, of which mature ohia and koa trees are particularly important. The amount of habitat impacted by the present action is insignificant when compared to that continuously destroyed by feral pigs and cattle. Once the fence is complete, control measures will eliminate most or all of the feral animals.

Native Hawaiian Bird: Hawaii Akepa



Native Hawaiian Bird: Ou

Figure 5

Photographs of Endangered Hawaii Forest Birds

Native Hawaiian Bird: Akiapolaau

Native Hawaiian Bird: Hawaii Creeper

FIGURE 5
Photographs of Endangered Hawaii Forest Birds

Native Hawaiian Bird: Hawaiian Hawk

FIGURE 5
Photographs of Endangered Hawaii Forest Birds

This will end over a century of continuous forest degradation by feral animals allowing the native forest to regenerate unhindered within the protected management unit and will assist in the recovery of endangered native forest birds inhabiting the Refuge. These benefits outweigh the temporary loss of a few young trees and the low risk of new weeds of becoming established.

SECTION 4

PUBLIC SERVICES AND FACILITIES/PROJECT IMPACTS

The closest existing public roadway to the project site is Keanakolu Road, which runs along the western boundary of the site. No impacts upon public services or facilities are anticipated. The project involves the installation of hogwire femce held with metal and wooden posts that are sunk into the ground with handtools within an area where there are no public utilities or facilities.

SECTION 5

SOCIO-ECONOMIC CONDITIONS/PROJECT IMPACTS

No socio-economic impacts are anticipated from the installation of hogwire fencing. The project will be located in an area void of population and in wildlife use. The project is expected to have positive long-term benefits in terms of furthering the program goals and objectives of the U. S. Department of Interior's Fish and Wildlife Service for the Hakalau Forest National Wildlife Refuge (summarized in Appendix A). The project is expected to help assure the protection of environmentally critical plant and animal species in the endangered habitat of the rainforest.

SECTION 6

LAND USE REGULATIONS/PROJECT IMPACTS

6.1 STATE LAND USE

The subject property is designated within the Conservation and Agricultural Districts by the State Land Use Commission. The Board of Land & Natural Resources designates the area within the Conservation District as Resource Subzone. The Resource Subzone allows forestry activities such as cattle grazing, subject to obtaining a Conservation District Use Permit (CDUP), which results in the decline of native bird habitat quality. Any uses within the Conservation District, including the installation of fencing, requires a CDUP.

6.2 COUNTY PLANS AND PROGRAMS

The County of Hawaii (County) designates the area as Conservation and Extensive Agriculture under its General Plan Land Use Pattern Allocation Guide Map.

The County zoning for the area is Conservation and Agriculture with a 40-acre minimum lot size. Agriculture zoning permits cattle grazing and logging.

6.3 COUNTY SPECIAL MANAGEMENT AREA

The subject property is not located within the county's Special Management Area.

SECTION 7

ALTERNATIVES TO THE PROPOSED ACTION

7.1 NO ACTION

The "no action" alternative will allow the continued and gradual destruction of endangered bird habitat. This would contribute to the lowering of endangered bird and plant populations and possible extinction of certain rare species.

An alternative action would be hunting either by the public or by USFWS staff. However, the only existing public access, Keanakolu Road, is located at the highest point (6,500-foot elevation) of the project site thereby making it inconvenient and limited in terms of accessibility. There are no public funds available to construct any new roadways in this vicinity. Finally, the number of pig hunters necessary to effectively reduce the pig population in the project area would be enormous. Thus, the large influx of human beings on the project site may ultimately result in extensive damage to the existing botanical resources and endangered bird habitat.

All in all, to be effective, a fence is still required to prevent ingress of any feral cattle and pigs from outside areas.

SECTION 8

NECESSARY PERMITS AND APPROVALS

Since a portion of the project is located within the State Land Use Conservation District, a Conservation District Use Permit is required before work can proceed.

Approvals for the portion of the hogwire fence within the Agricultural District, such as building permits, can be obtained from the County.

A USFWS biologist knowledgeable in plant and animal species will be on site during construction to monitor activities for impacts to endangered species.

SECTION 9

SUMMARY OF IMPACTS AND EIS DETERMINATION

9.1 SUMMARY OF IMPACTS

No long term negative physical impacts are anticipated from the implementation of the proposed action. Short term impacts emanating from construction activities will be mitigated by complying with applicable county and state regulations.

No long term negative impacts are anticipated to the socio-economic environment as a result of the implementation of the project. Short term benefits include the creation of construction and related jobs.

The long term positive impacts will result in the regeneration and preservation of environmentally critical bird habitats in the Hakalau Forest National Wildlife Refuge and in the state. This will contribute toward maintaining a crucial balance within a delicate, natural environment that constantly faces extinction.

9.2 NEED FOR AN ENVIRONMENTAL IMPACT STATEMENT

Since no long term adverse impacts are anticipated from the implementation of the project, it is determined that an Environmental Impact Statement, in accordance with Chapter 343, Hawaii Revised Statutes, as amended, is not required.

LIST OF REFERENCES

U. S. Fish & Wildlife Service, "Intra-Service Section 7 Evaluation Form Consultation/Conference/Concurrence," Draft, 12 July 91.

The Nature Conservancy, "Conservation District Use Permit Application for Proposed Acquisition of Property from the Liliuokalani Trust for Proposed Upper Hakalau National Wildlife Refuge," including an Environmental Assessment, February 1986.

U. S. Fish & Wildlife Service, "Review of Progress and Accomplishments at Hakalau Forest National Wildlife Refuge Since the Refuge was Established in 1985," December 1991.

Drs. Michael Garcia and Thomas Hulsebosch, "Geologic Report on the Soil Mineralogy and Chemistry and the Geothermal Potential of the World Union Property, Hawaii," prepared for the U. S. Fish & Wildlife Service, April 1991.

APPENDICES

APPENDIX A

REVIEW OF PROGRESS AND ACCOMPLISHMENTS AT HAKALAU FOREST NATIONAL WILDLIFE REFUGE SINCE THE REFUGE WAS ESTABLISHED IN 1985

1. Staff: The Refuge Manager's position was filled January 1, 1987. A Maintenance Worker was hired April 20, 1988. A second Maintenance Worker was hired April 15, 1990. A Wildlife Biologist was hired September 9, 1990. An Office Automation Clerk will be hired January 13, 1992. Three additional positions, including a Resource Management Specialist and two more Maintenance Workers, have been approved for hire during the Spring of 1992. The three new positions will have responsibilities for clearing fence corridors, monitoring fence contractors, maintaining fences and eradication of feral ungulates.

2. The refuge is currently comprised of six parcels totalling 15,484 acres. Two additional parcels will likely be added to the refuge in 1992: 1) approximately 16,000 acres owned by the World Union Industrial Corporation; and 2) 1,034 acres owned by the Liliuokalani Trust.

3. An 832 square foot bunkhouse that sleeps 16 has been constructed on the refuge in three increments completed in 1986, 1989 and 1991. It is solar-powered, fully plumbed and complete with kitchen and bathroom. An 896 square foot garage/workshop on a concrete slab was completed in 1990.

4. Grazing by domestic cattle was terminated on the Shipman Parcel in 1989. Domestic grazing on the upper Maulua Parcel was terminated in 1991. No domestic grazing currently occurs on the refuge.

5. Almost 18 miles of pig/cattle fence have been constructed around two feral ungulate management units (the 550 acre Honohina Unit and the 5,000 acre Shipman Unit) at a cost of more than $400,000.

6. All cattle and all but about two pigs were removed from the Honohina Unit in 1989. 150 head of wild cattle and almost 100 pigs have been removed from the Shipman unit through 11/91.

7. Gorse has been almost eliminated (99% reduction) from the refuge (a 1,000 acre area was infested) as the result of herbicide application and prescribed burning by contractors and refuge staff.

8. An intensive banana poka control effort (without the use of herbicide) by contractors, volunteers, refuge staff and grazing cattle has resulted in a 90% reduction of this weed on refuge property.

9. A 5-acre experimental reforestation plot was established and fenced in an upper elevation pasture near Magnetic Hill. Koa, mamane and ohia seedlings were planted there in April 1987. Many of the koa seedlings have since grown to a height of 10 feet.

10. A 40-acre experimental reforestation plot was established and fenced in a lower elevation area with a scattered overstory of native trees. Subplots were scarified with a disc-harrow in July 1987 to stimulate natural seed germination. Hundreds of koa and other seedlings and root sprouts came up. Some of the koa seedlings are now over 12 feet tall. The plot is being monitored to document native plant recovery and the successional stages of the reforestation process.

11. During the latter half of 1989, 12,000 koa seedlings were planted by refuge staff and volunteers in disced corridors linking mature koa trees. After two years, the survival rate for these seedlings was 60% and the average height was 50 inches.

12. An additional 5,000 koa seedlings were planted in mauka-makai strips in July and September 1991. Six methods for preparing the soil and reducing grass competition are being tested. Seedling survival and growth rate as well as cost effectiveness will be measured and documented for each treatment.

13. An elaborate system of 14 transects and 233 counting stations was set up during 1986-87 to allow researchers to estimate bird populations by species. Ten censuses were subsequently conducted--two each year since 1987. Data analysis indicates that native bird populations in the Hakalau area have remained fairly stable since an earlier census conducted in 1977.

14. The University of Hawaii established a research camp on the refuge in 1987, primarily to study native forest birds. The camp has been more-or-less continuously staffed by one or more students and professors since 1988.

15. Forty-three Special Use Permits have been issued for a variety of activities including scientific research, commercial photography, educational visits, and grazing.

16. The Maulua Tract (between Piha and Laupahoehoe) will be opened to the public for pig hunting and other recreational use beginning February 1, 1992. State game mammal hunting regulations will be followed except there is no limit on the number of pigs that may be taken.

APPENDIX B

CDUP APPLICATION FOR ESTABLISHMENT OF

ORIGINAL HAKALAU WILDLIFE REFUGE

CARLSMITH, WICHMAN, CASE, MUKAI AND ICHIKI
ATTORNEYS AT LAW
A PARTNERSHIP INCLUDING LAW CORPORATIONS
1001 BISHOP STREET
PACIFIC TOWER, SUITE 2200
HONOLULU, HAWAII 96813

HONOLULU OFFICE:
P. O. BOX 656
HONOLULU, HAWAII 96809
(808) 523-2500

GUAM OFFICE:
P. O. BOX BF
AGANA, GUAM 96910
(671) 472-6813
TELEX 721-6445 CWCMI GM

LOS ANGELES OFFICE:
P. O. BOX 71169
LOS ANGELES, CALIFORNIA 90071-0169
(213) 955-1200

HILO OFFICE:
P. O. BOX 686
HILO, HAWAII 96721-0686
(808) 935-6644

KONA OFFICE:
P. O. BOX 1720
KAILUA-KONA, HAWAII 96745-1720
(808) 329-6464

MAUI OFFICE:
P. O. BOX 1086
WAILUKU, HAWAII 96793
(808) 242-4535

February 5, 1986

Mr. Peter Stine
United States Department
of the Interior
Fish and Wildlife Service
300 Ala Moana Boulevard
P. O. Box 50167
Honolulu, Hawaii 96850

Re: The Nature Conservancy/Liliuokalani Trust Application

Dear Mr. Stine:

Enclosed is a copy of the application submitted to the Department of Land and Natural Resources in the above-referenced matter.

Very truly yours,

Stanley D. Suyat

SDS:shh
Enclosure

CABLE ADDRESS CWCMI
TELECOPIER (808) 523-2633
TELEX 723-8770 CWCMI HR

February 1983

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

FOR DLNR USE ONLY
Reviewed by
Date
Accepted by
Date
Docket/File No.
180-Day Exp.
EIS Required
PH Required
Board Approved
Disapproved
Well No.

DEPARTMENT MASTER APPLICATION FORM

(Print or Type)

I. LANDOWNER/WATER SOURCE OWNER (If State land, to be filled in by Government Agency in control of property)
Name Trustees of the Liliuokalani Trust
Address c/o First Hawaiian Bank
P. O. Box 3200
Honolulu, HI 96801
Telephone No. 525-7164
SIGNATURE Managing Trustee
Date 1-31-86

II. APPLICANT (Water Use, omit if applicant is landowner)
Name The Nature Conservancy
Address 1116 Smith Street
Suite 201
Honolulu, HI 96817
Telephone No. 537-4508
Interest in Property Purchaser
Please refer to attached Option Agreement, Exhibit "A"
(Indicate interest in property; submit written evidence of this interest)
*SIGNATURE
Director
Date 2-3-86

*If for a Corporation, Partnership, Agency or Organization, must be signed by an authorized officer.

III. TYPE OF PERMIT(S) APPLYING FOR
( ) A. State Lands
(X) B. Conservation District Use
( ) C. Withdraw Water From A Ground Water Control Area
( ) D. Supply Water From A Ground Water Control Area
( ) E. Well Drilling/Modification

IV. WELL OR LAND PARCEL LOCATION REQUESTED
District
Island
County
Tax Map Key
Area of Parcel (Indicate in acres or sq. ft.)
Term (if lease)

V. Environmental Requirements Please refer to Environmental Assessment, Exhibit "B"

Pursuant to Chapter 343, Hawaii Revised Statutes, and in accordance with Section 1:30B of the EIS Regulations for applicant actions, an Environmental Assessment of the proposed use must be attached. The Environmental Assessment shall include, but not be limited to the following:

A. Identification of application;

B. Description of proposed use and statement of objectives;

C. Description of affected environment, including appropriate maps and plans to show location, topography, site improvements, existing utilities and vegetation and archaeological/historical sites, if any. (See page 5, section I).

D. General description of the technical, economic, social and environmental characteristics of the proposed use.

NOTE: The Environmental Assessment may be substituted in lieu of the information required above.

INFORMATION REQUIRED FOR ALL USES

I. Description of Parcel — Please refer to Attachment I

A. Existing structures/Use. (Attach description or map).

B. Existing utilities. (If available, indicate size and location on map. Include electricity, water, telephone, drainage, and sewarage).

C. Existing access. (Provide map showing roadways, trails, if any. Give street name. Indicate width, type of paving and ownership).

D. Vegetation. (Describe or provide map showing location and types of vegetation. Indicate if rare native plants are present).

E. Topography; if ocean area, give depths. (Submit contour maps for ocean areas and areas where slopes are 40% or more. Contour maps will also be required for uses involving tall structures, gravity flow and other special cases).

F. If shoreline area, describe shoreline. (Indicate if shoreline is sandy, muddy, rocky, etc. Indicate cliffs, reefs, or other features such as access to shoreline).

G. Existing covenants, easements, restrictions. (If State lands, indicate present encumberances).

H. Historic sites affected. (If applicable, attach map and descriptions).

II. Description: Describe the activity proposed, its purpose and all operations to be conducted. (Use additional sheets as necessary). Please refer to Attachment II

III. Commencement Date: Approx. April 1, 1986

Completion Date: Permanent use

IV. TYPE OF USE REQUESTED (Mark where appropriate)

1. Permitted Use (exception occasional use);
DLNR Title 13, Chapter 2, Section 13; Subzone R.

2. Accessory Use (accessory to a permitted use):
DLNR Title 13, Chapter 2, Section _____; Subzone _____.

3. Occasional Use: Subzone _____.

4. Temporary Variance: Subzone _____.

5. Conditional Use: Subzone _____.

Area of Proposed Use 2,420 acres (approx.)
(Indicate in acres or sq. ft.)

Name & Distance of Nearest Town or Landmark
Approximately 12 miles northwest of Hilo (20 km)

Boundary Interpretation (If the area is within 40 feet of the boundary of the Conservation District, include map showing interpretation of the boundary by the State Land Use Commission).

Conservation District Subzone Resource
County General Plan Designation Conservation

V. FILING FEE

1. Enclose $50.00. All fees shall be in the form of cash, certified or cashier's check, and payable to the State of Hawaii.

2. If use is commercial, as defined, submit additional public hearing fee of $50.00.

INFORMATION REQUIRED FOR CONDITIONAL USE ONLY N/A

I. Plans: (All plans should include north arrow and graphic scale).

A. Area Plan: Area plan should include but not be limited to relationship of proposed uses to existing and future uses in abutting parcels; identification of major existing facilities; names and addresses of adjacent property owners.

B. Site Plan: Site plan (maps) should include, but not be limited to, dimensions and shape of lot; metes and bounds, including easements and their use; existing features, including vegetation, water area, roads, and utilities.

C. Construction Plan: Construction plans should include, but not be limited to, existing and proposed changes in contours; all buildings and structures with indicated use and critical dimensions (including floor plans); open space and recreation areas; landscaping, including buffers; roadways, including widths; offstreet parking area; existing and proposed drainage; proposed utilities and other improvements; revegetation plans; drainage plans including erosion sedimentation controls; and grading, trenching, filling, dredging or soil disposal.

D. Maintenance Plans: For all uses involving power transmission, fuel lines, drainage systems, unmanned communication facilities and roadways not maintained by a public agency, plans for maintenance shall be included.

E. Management Plans: For any appropriate use of animal, plant, or mineral resources, management plans are required.

F. Historic or Archaeological Site Plan: Where there exists historic or archaeological sites on the State or Federal Register, a plan must be submitted including a survey of the site(s); significant features; protection, salvage, or restoration plans.

II. Subzone Objective: Demonstrate that the intended use is consistent with the objective of the subject Conservation District Subzone (as stated in Title 13, Chapter 2).

ATTACHMENT I

DESCRIPTION OF PARCEL

A. Use and Structures. The property is in a region known as the upper Hakalau forest and has not been put to human usage. There are no known existing structures. Please refer to the Environmental Assessment, Figure 4 and Exhibit "B" of the Option Agreement for maps regarding the property.

B. Utilities. There are no known utilities on the property.

C. Access. A fifty-foot wide easement for ingress and egress over and across the adjoining parcel (Tax Map Key No. 3-3-01-7) which joins Keanakolu Road (see Option Agreement, Exhibit "B") will provide access to the property. Keanakolu Road is an unimproved dirt road leading in towards the project site from the Saddle Road, State Highway 20.

D. Vegetation. Please refer to the Environmental Assessment, pages 18 through 20, Table 3 at 22, for a discussion of vegetation in the area.

E. Topography. Please refer to the Environmental Assessment, page 17 and the contour map included as Figure 1, at page 3, for a discussion of the topography of the area.

F. Shoreline. Not applicable.

G. Covenants, Easements, and Restrictions. Please refer to the attached Status Title Report, Exhibit "C", for a discussion of covenants, easements and restrictions. Pursuant to the Option Agreement, the property is to be delivered free from all liens, encumbrances, with certain exceptions.

H. Historic Sites. There are no known historic sites on the property.

ATTACHMENT II

DESCRIPTION OF PROPOSED ACTIVITY

The property is to be a portion of a national wildlife refuge of approximately 33,500 acres. The Nature Conservancy, a private nonprofit organization and the applicant herein, proposes to acquire the property from the Liliuokalani Trust and simultaneously convey it to the U.S. Fish and Wildlife Service, a federal agency.

The proposed national wildlife refuge is being established to assure the perpetuation of native forest habitats of the Upper Hakalau Forest for the protection of a number of endangered animals and plants endemic to the area.

The project, which will be known as the Upper Hakalau National Wildlife Refuge, will be administered by the U.S. Fish and Wildlife Service, Department of the Interior, in conjunction with the Department of Land and Natural Resources, State of Hawaii, because State-owned land may be included within the refuge area.

Management and maintenance plans for the refuge will be formulated through a comprehensive master planning procedure which will include a full public review of a proposed land management strategy, soliciting comments on a draft federal environmental impact statement, and formulation of a comprehensive land management plan, including an archaeological site plan.

Acquisition of the remaining privately-owned parcels within the refuge area, including this 2,420 acre parcel owned by the Liliuokalani Trust, has been subject to the Gramm-Rudman Act, which proposes to reduce the federal deficit. Since the act will be effective March 1, 1986, the parties wish to obligate the federal funds allocated for the acquisition of this parcel as soon as possible.

According to the terms of the Option Agreement, this parcel may be transferred after a subdivision has occurred, since the 2,420 acres are a portion of a larger, unsubdivided parcel. A DLNR permit is needed prior to subdivision because the land is within a conservation district.

The act mandates that the 1986 fiscal year federal deficit shall be no more than $172 billion. Congress must establish spending levels that meet this requirement by March 1, 1986.

Should Congress be unable to agree, the Office of Management and Budget is directed to make the necessary budget cuts. One half of the budget cuts must come from defense and federal retirement programs; the other half of the cuts will come from other domestic programs, with certain specified exceptions. The funds allocated for the acquisition of this parcel is in the non-exempt, domestic category.

Applicant respectfully requests an expedited review of the application submitted herein.

OPTION AGREEMENT

THIS AGREEMENT is made this ____ day of _____, 1985, by and between the LILIUOKALANI TRUST (the "Owner") and THE NATURE CONSERVANCY, a non-profit corporation of the District of Columbia (the "Conservancy"), who hereby agree as follows:

1. RECITALS.

1.1 Owner desires to grant to the Conservancy an option to acquire in fee simple that certain property located on the Island of Hawaii, State of Hawaii, containing 3,130 acres, more or less, more particularly described in Exhibit A attached hereto and incorporated herein by this reference (the "Property"), as shown on the map attached hereto as Exhibit B.

1.2 The Conservancy desires to acquire the Property subject to the terms and conditions set forth hereinbelow.

2. OPTION.

2.1 Grant of Option. In consideration of the sum of One Thousand and No/100 Dollars ($1,000.00) paid by the Conservancy, and other good and valuable consideration, the receipt of which is hereby acknowledged, and of the mutual covenants and agreements contained in this Agreement, Owner hereby grants to the Conservancy the exclusive right and option (the "Option") to acquire the Property on the terms and conditions contained herein.

2.2 Exercise Date. The Owner agrees that this Option will remain in effect until and through 180 days from the date of execution hereof by Owner (the "Exercise Date"). The Exercise Date may be extended by the Conservancy for an additional 90 days upon the Conservancy's providing written notice of such extension and an additional $1,000.00 option payment to Owner not less than 10 days prior to the originally scheduled Exercise Date.

2.3 Exercise of Option. The Conservancy may exercise this Option by providing written notice to the Owner at the address specified in paragraph 4.5 below, and the option shall be considered exercised upon receipt of such notice by Owner.

EXHIBIT A

2.4 Failure to Exercise Option. If the Conservancy fails to timely and properly exercise this Option, as it may be extended, this Option and all rights of the Conservancy hereunder shall immediately and automatically terminate. Except as set forth below, any payments made by the Conservancy to Owner in consideration of the Option shall also be forfeited to Owner.

2.5 Purchase Price. The total purchase price for the Property will be an amount equal to $1,090,800 less the Conservancy's out-of-pocket expenses incurred in subdividing the Property, acquiring it and financing the acquisition through a back-to-back sale to the United States Fish and Wildlife Service; provided, however, that in no event shall the purchase price be less than $1,000,000.00. Such out-of-pocket expenses may include, but shall not be limited to, costs and expenses incurred for appraisals, survey, legal, accounting, travel, long distance telephone, governmental approvals and permits, title searching and insurance costs, and closing costs. At Closing, the Conservancy shall deliver to Owner a schedule of the Conservancy's out-of-pocket expenses broken down by the Conservancy's standard accounting categories. The amounts paid as consideration for this option will be a part of the purchase price and the balance of the purchase price will be paid at closing.

2.6 Access to Property During Option Period. Owner shall cooperate with the Conservancy in its study of the Property by permitting the Conservancy and its employees, consultants and contractors to come on the Property as reasonably necessary to make biological surveys, boundary surveys, and other studies relating to the Property. All expenses incurred by the Conservancy in doing such surveys, tests and other work relating to the Property shall be paid by the Conservancy. The Conservancy shall indemnify and hold Owner harmless from and against any and all loss, cost or damage (including reasonable attorneys' fees) arising by reason of any claim for the payment of any cost and/or service relating to such expenses (including mechanics' liens filed against the Property), or arising by reason of damage to the Property caused by the Conservancy, its employees, consultants and contractors. The Conservancy will also require that such consultants and contractors provide evidence of liability and accident insurance covering these activities.

3. TRANSFER OF PROPERTY.

3.1 Acquisition. The acquisition of the Property shall take place through escrow at Title Guaranty Escrow Services, Inc. in Honolulu, Hawaii (the "Escrow").

3.2 Closing. The closing of the Escrow (the "Closing") shall occur within thirty (30) days after exercise of the option by the Conservancy, provided all necessary subdivision approvals have been obtained. Such subdivision approvals (including any surveys that may be required in connection with the subdivision) shall be paid for by the Conservancy; provided, however, that Owner shall cooperate fully with the Conservancy in obtaining such approvals. If such subdivision approvals are not obtained, all option payments made to Owner shall be returned to the Conservancy.

3.3 Title. At Closing, Owner shall transfer fee simple title to the Property, together with all buildings and improvements thereon, if any, all water and water rights, minerals and mineral rights, and all rights, hereditaments, easements and appurtenances thereunto belonging, to the Conservancy by a good and sufficient recordable trustee's limited warranty deed free and clear of all liens, encumbrances or exceptions except such easements, restrictions and other exceptions of record as are agreed to in accordance with paragraph 3.5 below.

3.4 Title Insurance. At Closing, Owner shall deliver to the Conservancy through the Escrow a standard owner's policy of title insurance covering the Property in the amount of the purchase price, insuring title to the Property to be free from all liens, encumbrances and other exceptions, except such exceptions as are approved by the Conservancy pursuant to paragraph 3.5 below.

3.5 Title Commitments. Owner shall deliver to the Conservancy within thirty (30) days of the execution hereof a commitment for title insurance for the Property. The Conservancy shall have sixty (60) days from the receipt of the commitment in which to examine it and object to Owner's title or disapprove any title exceptions. Such objections or disapprovals must be conveyed in writing to the Owner within such sixty-day period or the condition of Owner's title shall be deemed approved. In the event that the Conservancy objects to Owner's title or disapproves any

matter disclosed by such title report and Owner fails to remove said objectionable exceptions within thirty (30) days after receipt of the Conservancy's objections, the Conservancy may either (a) decline to exercise its option and obtain a refund of all option payments made to Owner, or (b) elect to waive its objections and proceed with the transaction.

3.6 Costs. At the close of Escrow, costs shall be apportioned between the Conservancy and the Owner as follows, except as otherwise expressly provided elsewhere in this Agreement: Owner shall pay for one-half of the Escrow fee, all the costs and expenses incurred by Owner, the title insurance premiums and any conveyance taxes. The Conservancy shall pay for one-half the Escrow fee, all other costs and expenses incurred by the Conservancy, and the costs of recording the warranty deed. Property taxes shall be pro-rated as of the date of Closing.

4. MISCELLANEOUS.

4.1 Risk of Loss. All risk of loss or damage to the Property will pass from the Owner to the Conservancy at Closing. In the event that such loss or damage occurs prior to Closing, the Conservancy may, without liability, refuse to accept the conveyance of title, in which event the consideration paid on account of this option shall be refunded to the Conservancy.

4.2 Preservation of Property. The Owner agrees that, from and after the execution of this Agreement by Owner, Owner will not take any action or permit any action to be taken which would adversely affect the Conservancy's intended use of the Property as a nature preserve or similar use. The Conservancy agrees that W. H. Shipman, Limited and Pua Akala Ranch, respectively, will have the right to use the Property in accordance with the terms and conditions of their Lease and Sublease until such time as the Lease and Sublease are terminated not later than one (1) year from the date of Closing. Owner agrees to obtain a cancellation of the Lease with Mauna Kea Agribusiness Co., Inc. at closing.

4.3 Assignment. This Agreement shall not be assigned by either party without the prior written consent of the other, which consent may be withheld at either party's sole discretion; provided, however, that the Conservancy may assign this Option to the United States Fish and Wildlife Service without the Owner's consent.

4.4 Successors and Assigns. Subject to paragraph 4.3, this Agreement shall be binding upon and shall inure to the benefit of the successors, assigns and legal representatives of each party hereto.

4.5 Notices. All notices required to be given hereunder shall be in writing. Such notices shall be either personally delivered or sent by United States registered or certified mail, return receipt requested, postage prepaid, addressed as follows:

If to Owner:
Liliuokalani Trust
P. O. Box 3200
Honolulu, Hawaii 96801

If to the Conservancy:
The Nature Conservancy
785 Market Street, 3rd Floor
San Francisco, California 94103
Attention: Laurel Mayer, Esq.

or at such other place as either Owner or the Conservancy may, from time to time, respectively, designate in a written notice given to the other. Notices shall be deemed served upon receipt, if personally delivered, or as indicated on the return receipt, if mailed.

4.6 Affidavit. The Owner agrees at or prior to Closing to furnish the Conservancy with a Nonforeign Affidavit in the form attached hereto as Exhibit C.

4.7 Interpretation and Application. This Agreement shall be governed by, and construed and enforced according to, the laws of the State of Hawaii. The captions of the paragraphs hereof are for convenience only and are not a part of this Agreement and do not in any way limit or amplify the terms and provisions hereof.

4.8 Entire Agreement. This Agreement and the exhibits attached hereto contain the entire agreement of the parties and shall supersede any other instruments purporting to be an agreement of the parties relating to the transaction contemplated hereby. This Agreement cannot be modified or added to except in a writing signed by the parties hereto.

4.9 Survival. The agreements herein shall survive the close of Escrow.

DATED: October 10, 1985 THE NATURE CONSERVANCY

By _____
Its Hawaii State Director

Conservancy

DATED: October 10, 1985 LILIUOKALANI TRUST

By _____
Clorinda Lucas, Trustee

By _____
David M. Peters, Trustee

By First Hawaiian Bank, Trustee

By _____
Its

Owner

Parcel First:

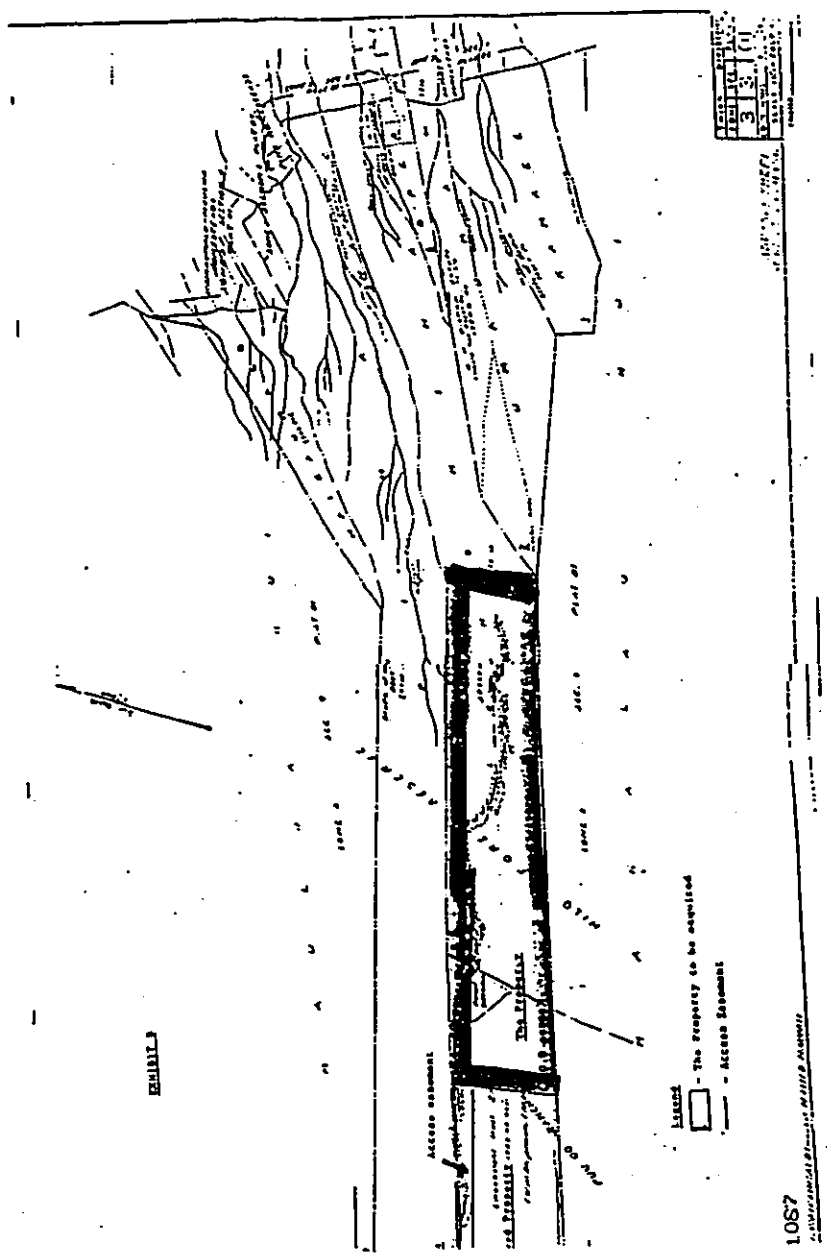
A portion of Tax Map Parcel 3-3-01 parcel 3, as shown on Exhibit B, containing an area of 2,420.0 acres, more or less.

Parcel Second:

A portion of Tax Map Parcel 3-3-01 parcel 7, as shown on Exhibit B, containing an area of 710.0 acres, more or less.

Together with a 50-foot-wide easement for ingress and egress over and across the Reserved Property from Keanakolu Road to the Property as shown on Exhibit B attached hereto for the use and benefit of the Property and all other adjacent lands of the Conservancy, and its successors and assigns.

EXHIBIT A



UPPER HAKALAU FOREST

HAWAII COUNTY, HAWAII

Environmental Assessment

EXHIBIT B

UPPER HAKALAU

Hawaii County, Hawaii

Environmental Assessment

ENVIRONMENTAL ASSESSMENT

PROPOSAL TO ESTABLISH AN

UPPER HAKALAU NATIONAL WILDLIFE REFUGE

HAWAII COUNTY, HAWAII

PREPARED BY

DEPARTMENT OF THE INTERIOR

U.S. FISH AND WILDLIFE SERVICE

HONOLULU, HAWAII

Author: Peter Stine

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I. PURPOSE AND NEED FOR ACTION

In recent years, the U.S. Fish and Wildlife Service (USFWS), in cooperation with the State of Hawaii and other entities, has proposed and undertaken a number of actions to ensure the continued existence of endangered Hawaiian forest birds. The approved recovery plan for the Hawaii Forest birds (Scott et. al. 1983) is the driving force in guiding this effort. Included among those actions is the perpetuation of habitats in the Upper Hakalau Forest situated on the island of Hawaii. This is a high priority action in the Hawaii Forest Bird Recovery Plan.

As a preferred alternative to effect protection of that ecosystem, the USFWS proposes to establish the Upper Hakalau National Wildlife Refuge within boundaries as identified on the map in Figure 4.

In developing this proposal a number of alternatives were taken into consideration and are identified in Section II of this assessment.

A. Purpose of Action

A major purpose of the Endandgered Species Act of 1973 (ESA) is ". . . to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved". Protection and maintenance of habitats is a crucial element of conserving most fish, wildlife, and plants facing extinction. Thus, the USFWS must use its expertise and resources to protect and maintain endangered and threatened species habitat.

On the island of Hawaii, there are 20 species of plants or animals which have been formally listed as threatened or endangered (1 reptile, 13 birds, 1 mammal, and 5 plants). Many more candidate[1] species are also found on the island of Hawaii. A large number of these taxa, both listed and candidates, are found in the mesic (moist) and wet forests on the slopes of Mauna Kea and Mauna Loa, the two largest volcanoes on the island. Although much of this forest habitat is in public ownership, some vitally important forest habitat is privately owned. One significant area, essential to the long-term stability of three or perhaps four endangered forest bird populations, is a region known as the Upper Hakalau forest. This area contains some of the finest stands of koa (Acacia koa) -ohia (Metrosideros collina) and ohia forests remaining in Hawaii (and the world).

The Upper Hakalau forest region is part of the expansive middle forest zone of the mesic and wet koa-ohia forest on the windward slopes of Mauna Kea (Rock 1913). It is located about 20 km northwest of Hilo at elevations between 1,200 m and 2,200 m (Figure 1). An important feature of the koa-ohia and ohia forests of this region is the substantial populations of native birds found there. In particular, the area supports a large percentage of the known populations of the endangered Akiapolaau [Hemignathus munroi (=wilsoni)], Hawaii Akepa (Loxops coccineus coccineus) and Hawaii Creeper [Oreomystis (=Loxops) mana)] (Figure 2). The endangered Hawaiian Hawk or Io (Buteo solitarius) is found throughout much of this area and the endangered Ou (Psittirostra psittacea) is present, although very rare, in the mid-elevation (around 1,300 m) ohia forest of this region (Scott et. al. in press). The endangered Hawaiian hoary bat (Lasiurus cinereus semotus) is also present throughout this area.

[1] Candidate - A species which is a subject of a Notice in the Federal Register and may be considered for a proposal to be listed as threatened or endangered at some future date.

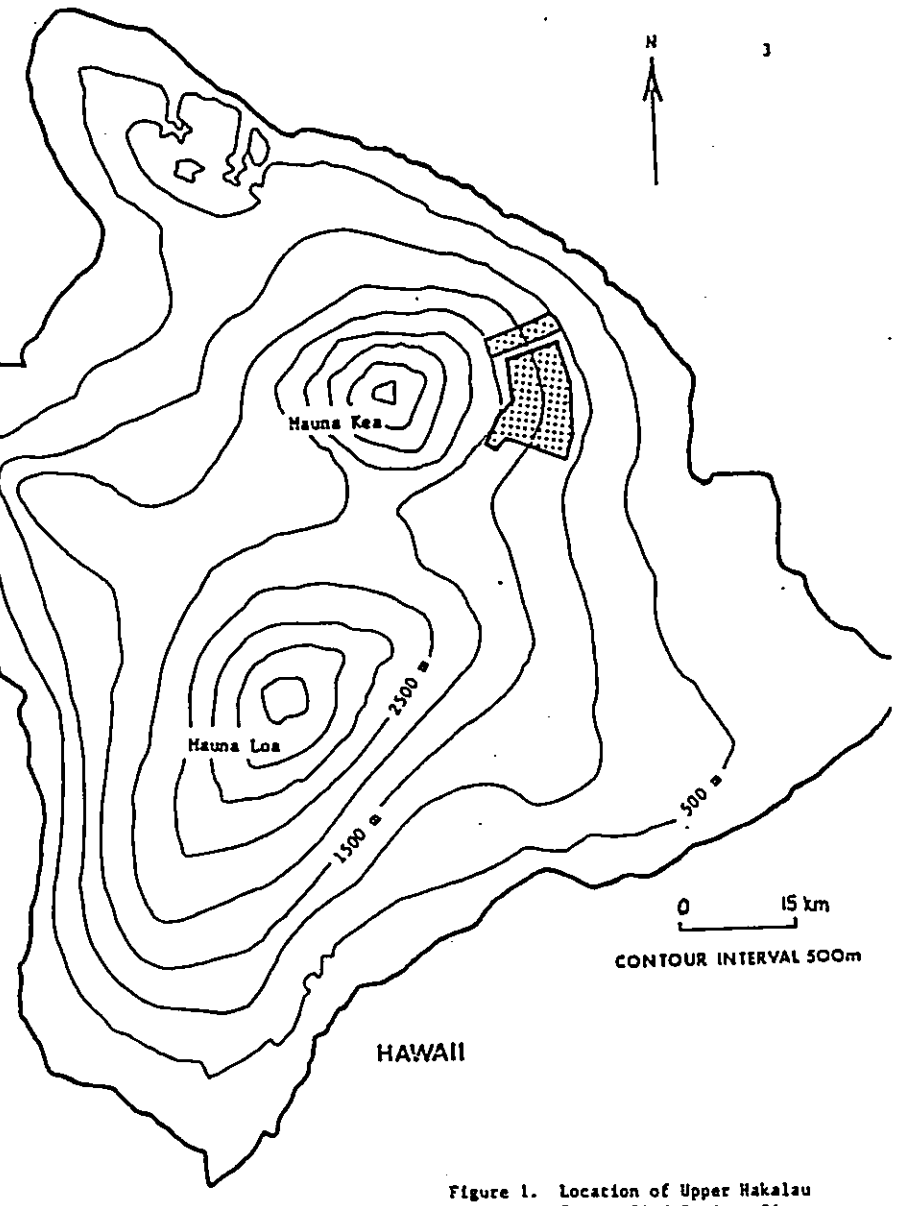


Figure 1. Location of Upper Hakalau Forest Bird Project Site

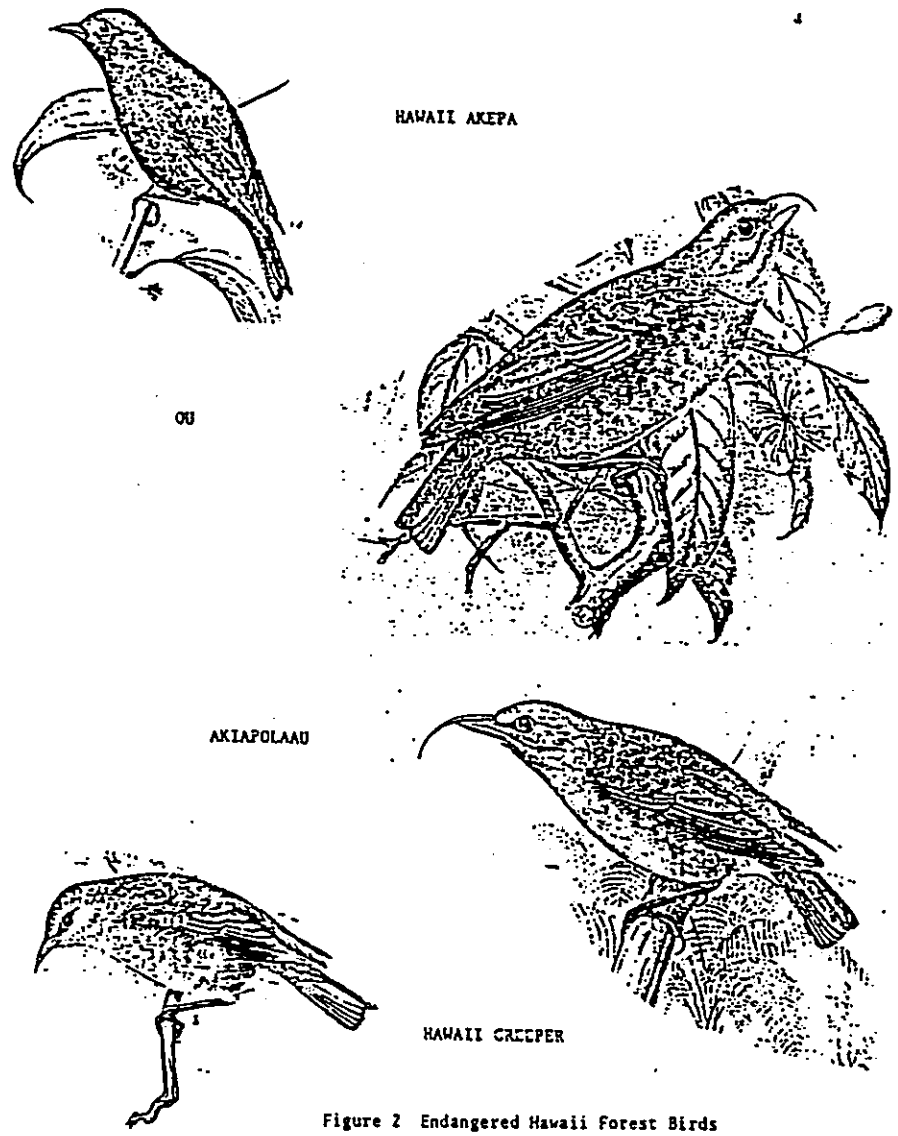


Figure 2 Endangered Hawaii Forest Birds

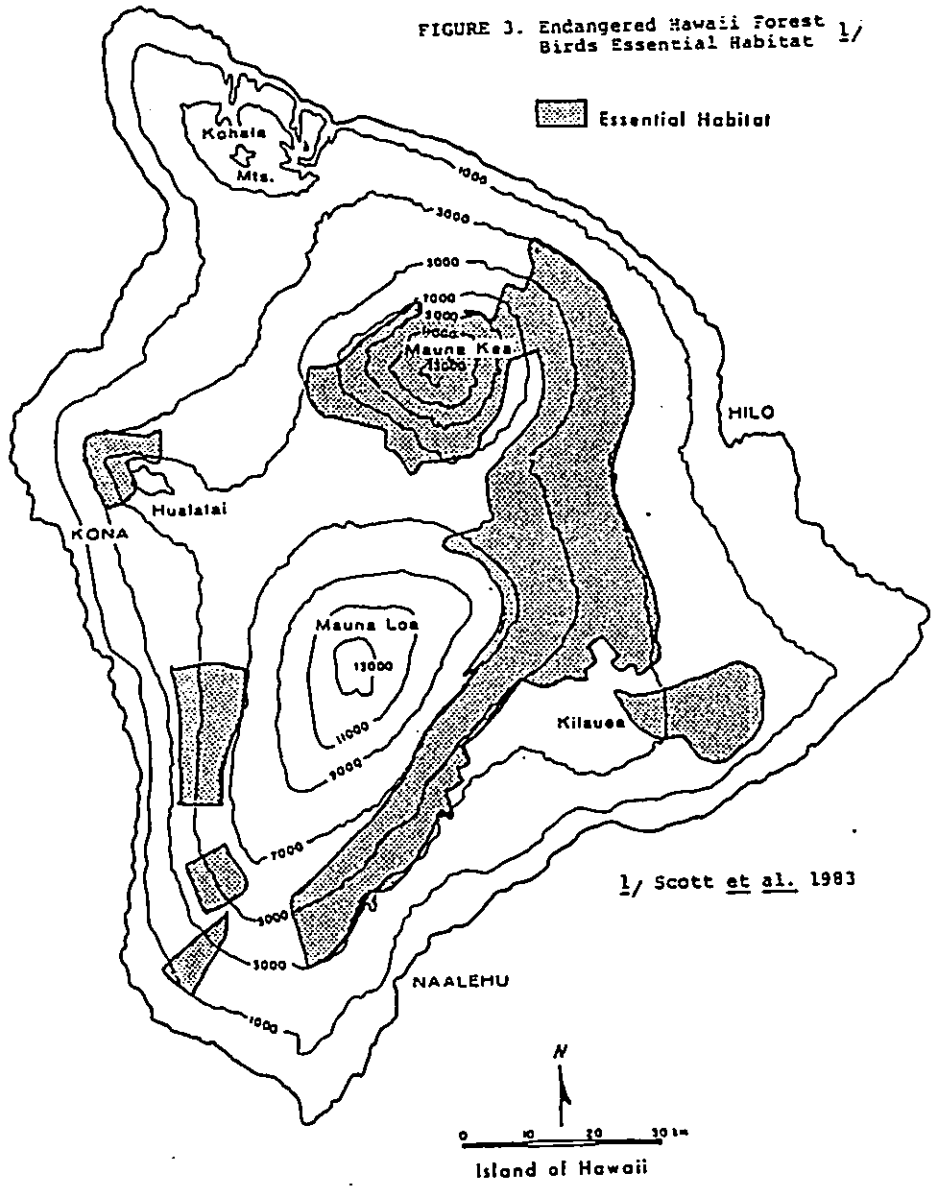
The Upper Hakalau forest region is an integral component of the continuous belt of mid-elevation forest from windward Mauna Kea to leeward Mauna Loa. Much of this continuous belt of forest constitutes the essential habitat identified in the recovery plan (Scott et. al. 1983) prepared for the four endangered forest birds on the Big Island (Figure 3). Upper Hakalau forest is a core of the current discribution of these endangered forest birds. The purpose of the proposed action is to sustain the naturally evolving mid-elevation rain forest of this area and, as necessary, allow for the management of this forest and its assemblage of native and non-native plants and animals. If accomplished, the Upper Hakalau forest community could function as a hub of the native koa-ohia and ohia forest habitat, allowing for the long-term maintenance of these systems and their component organisms including six endangered species and many more candidate or rare species. This objective can be met by implementing one or a combination of the alternatives presented in this report. The Service's preferred alternative is Alternative B, formation of a National Wildlife Refuge.

Authority for establishing the needed protection is derived from the Endangered Species Act of 1973, (87 Stat. 884) as amended. Funding is available through the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 4601-4 to 4601-11) pursuant to Section 5 of the ESA.

B. Need for Action

The native forested habitats on the island of Hawaii have been subject to many disruptive factors since Hawaii was discovered by people 1500 years ago (Kirch 1983). The rate of changes in the character of the land has increased dramatically in the last 200

FIGURE 3. Endangered Hawaii Forest Birds Essential Habitat 1/



1/ Scott et al. 1983

years. The wet and dry lowland forests have been almost entirely eliminated by the activities of early Polynesians and by agricultural development and urbanization over the last 100 years. Major portions of mid to upper elevation native forest have been logged and/or cleared for rangeland development or reforested in silviculture projects which primarily utilized introduced tree species.

The major changes in native forests on the island of Hawaii have had a corresponding effect on virtually all populations of native forest birds (Scott et al. in press). In conjunction with other major limiting factors (e.g. competition with introduced birds, vulnerability to avian diseases, and predation), loss of suitable habitat (or portions of its components such as key food items) has decreased the range and drastically reduced the populations of all native birds. Table 1 summarizes estimated populations and distribution status of all Hawaii forest birds from data collected during the Hawaii Forest Bird Survey (Scott et al. in press). Seven of these birds are listed as endangered; of these seven, five are found within the Upper Hakalau region.

The Hawaiian Hawk is actually fairly widespread on the island. It presently occupies an estimated 90% of its historical range. The Upper Hakalau region, however, provides a significant part of the total present-day habitat for Akiapolaau, Hawaii Creeper, Hawaii Akepa and to some extent, Ou. An estimated 12% of the extant population of Akiapolaau is found in the upper elevation koa-ohia forests in the Upper Hakalau area. These birds seem to prefer areas with stands of large koa trees in a relatively mesic koa-ohia woodland.

The Hawaii Creeper appears to be most common in the wet, dense

TABLE 1

Status and Distribution of Extant Endemic Hawaii Forest Birds[1]

Species	Status	Estimated[2] Total Populations	% of Original Range Still Occupied
Alala	E	76 (most recent estimates are less than 25 birds)	3
*Ou	E	400	2
*Akiapolaau	E	1,500	5
*Hawaiian Hawk	E	1,600 - 2,500	90 +
Palila	E	2,200	5
*Hawaii Creeper	E	12,500	15
*Hawaii Akepa	E	14,000	10
*Omao		170,000	19
*Elepaio		215,000	36
*Iiwi		311,000	38
*Common Amakihi		870,000	34
*Apapane		1,090,000	39

* = found in the Upper Hakalau area.
E = endangered.

[1] (from Scott et al. In Press)

[2] Based on data collected from 1976-1979.

forests at higher elevations where large koa trees are fairly common. About 22% of the entire extant population of Hawaii Creeper is found in the Upper Hakalau area.

Almost 35% of the entire extant population of Hawaii Akepa occupy the Upper Hakalau region. They are most abundant in the mesic to wet forests in this area between 1,500 and 2,100 m (Scott et al. in press). The habitat preferences and year-round distribution of Ou are not as well understood but this species has been recorded from the lower reaches of the Upper Hakalau forests. They are found in this area to below 1,300 m where they occupy wet ohia forests (Scott et al. in press).

Although large numbers of endangered forest birds occupy koa-ohia and ohia forests of Upper Hakalau, the habitat is changing. Portions of the upper elevation koa forests are continually subjected to cattle grazing, and maintenance and regeneration of this forest is threatened. Grazing thins out the understory and eliminates koa regeneration (Scott et. al. in press). Some of the fine stands of koa found throughout Upper Hakalau area have been partially logged in the past, and remaining stands are under increasing pressure for potential logging because other sources of koa are dwindling. The pressure of some form of direct economic use of all these lands continues to affect land use decisions.

Concurrent with various direct human land uses which deteriorate native forest conditions is the continuous degradation of some native forests by feral (wild) ungulates (hoofed mammals). Feral cattle (Bos taurus) and pigs (Sus scrofa) continue to cause noticeable changes in native forests through grazing, trampling, or

rooting activities. Introduced plants such as banana poka (Passiflora mollissima) (on the Piha and Laupahoehoe State forest lands) have become well established in certain forested areas of the island of Hawaii and threaten to overwhelm large tracts of native forests.

II. ALTERNATIVES, INCLUDING THE PROPOSED ACTION

The Upper Hakalau forest bird habitat project area, hereafter referred to as the project, includes or comprises those private land holdings within the boundaries shown in Figure 4. The major landowners of the project site are listed and the tax map keys of the units of land are described in Table 2 and Figure 4.

The following alternatives have been considered as possible means for achieving the objective of maintaining and where necessary, restoring the Upper Hakalau forest system for endangered forest birds and associated components of the koa-ohia and ohia forest of this area.

A. No Action

As the "no action" term implies, the Fish and Wildlife Service would pursue no activity towards preserving the Upper Hakalau forest. The Service also would not be involved in encouraging others to do anything toward assuring that the Upper Hakalau forest retains those values necessary for the perpetuation of the endangered species using it.

Such an action would be inconsistent with the historical role of the Service and would be contrary to the intent of the Endangered Species Act of 1973.

The following alternatives, having the potential to assure the perpetuation of the habitat within the project area in a manner that would be conducive to the continued existence of the endangered and threatened

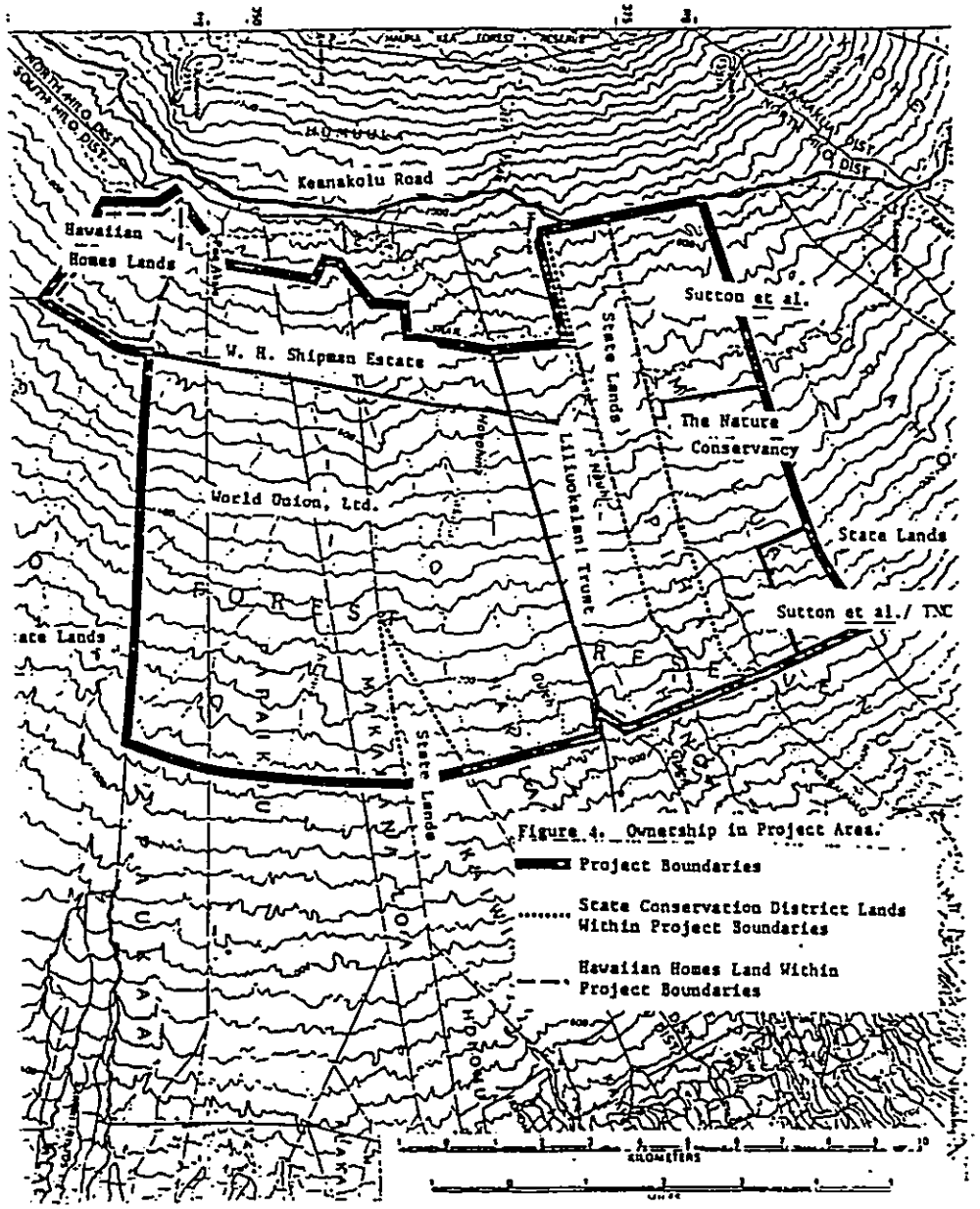


Figure 4. Ownership in Project Area.

TABLE 2

Owner	Tax Map Key Zone	Sec.	Plat	Parcel	Acres (estimated) Inside Project Area	Outside Project Area
World Union Industrial Corp. Ltd.	2	7	01	1	8,050	10,052
	2	8	01	2	2,150	1,600
	2	9	05	2	6,075	2,910
				TOTAL	16,275 (6,589 ha)	14,562 (5,895 ha)
W. H. Shipman Ltd.	2	7	01	4	1,500	308
	2	8	01	1	955	302
	2	9	05	3	1,215.5	1,213.5
				TOTAL	3,670.5 (1,480 ha)	1,823.5 (738 ha)
The Nature Conservancy	3	7	01	1	3,300 (1,336 ha)	
Liliuokalani Trust	3	3	01	3	2,420	1,355
	3	3	01	7	710	1,042
				TOTAL	3,130 (1,267 ha)	2,398 (971 ha)
Richard and Anne Sutton et al.	3	7	01	01	2,628 (1,064 ha)	
TNC/Sutton et al.	3	7	01	01	640 (258 ha)	
			PRIVATE	SUBTOTAL	29,743.5 acres (12,000 ha)	
Hawaiian Homelands	2	6	18	2B	1,437 (582 ha)	
				TOTAL	31,180 (12,622 ha)	

species now inhabiting the site, have been considered.

B. Create a National Wildlife Refuge Through Fee Title Acquisition

(the preferred alternative)

The USFWS would purchase fee title to those privately owned lands within the project area (see figure 4), using Land and Water Conservation Fund monies. These acquired lands would then constitute the Upper Hakalau National Wildlife Refuge to be managed primarily for the benefit of endemic endangered and threatened species in accordance with the various rules and regulations governing the operation and management of the National Wildlife Refuge System. Acquisitions would be based on the appraised fair market value of the rights purchased. Landowners who qualify would be eligible for applicable benefits available under the Uniform Relocation Assistance and Land Acquisition Policies Act of 1970 (P.L. 91-646). Such benefits include:

1. Reimbursement of moving and related expenses or certain substitute payments.
2. Replacement housing allowance under certain conditions.
3. Relocation assistance services to help relocate replacement housing, farms, or business properties.
4. Reimbursement of certain expenses incurred in selling real property to the Government.

The public (State) lands inside (and those adjacent to) the project boundaries are not part of this acquisition proposal. They are, however, part of the same ecosytem, and thus are important components with respect to habitat protection. It is the objective of this overall project to work with the state to manage the entire system as one system.

C. Regulatory or Restrictive Zoning

Regulation of use of most public and private forest lands in Hawaii is governed by State zoning regulations as prescribed by Title 13, Chapter 2, Department of Land and Natural Resources. Any one of five different subzones (P-Protective, L-Limited, R-Resource, G-General, S-Special) is assigned to these Conservation District Lands, affording varying degrees of restrictions and resource protection.

The majority of the Upper Hakalau forest region is presently classified as Conservation District - "R" subzone. The uphill portions of the project are zoned "Ag 40," which allows use appropriate in the agricultural zone (including grazing and logging) and subdivision to 40-acre lots. The "R" subzone, which covers the rest of the area, restricts most land uses but it permits forestry activities which normally result in decline in quality of native forest bird habitat. However, the State Board of Land and Natural Resources must approve any proposed use within the Conservation District even if the use is permitted within any subzone. In addition, permission for activities normally not allowed in a particular subzone, for example cattle grazing on "R" subzone lands, may possibly be obtained through approval of a Conservation District Use Application (CDUA) by the Board of Land and Natural Resources.

The most restrictive zoning within Conservation District Lands, subzone "P", could be imposed on the properties. Permission for restricted activities can be obtained even within this subzone.

Therefore, it would be necessary to ensure at the onset that any activities detrimental to the furtherance of endangered species objectives would not be allowed.

The Fish and Wildlife Service has no authority to impose such a zoning ordinance over private property. This authority lies with the Board of Land and Natural Resources of the State of Hawaii.

D. Acquisition/Management by Others

There are organizations other than the Fish and Wildlife Service that could acquire and manage the project area for the protection and conservation of its endangered species and other native wildlife community resources. Potentials include:

1) The Division of Forestry and Wildlife within the Hawaii Department of Land and Natural Resources.

2) Non-governmental conservation organizations such as The Nature Conservancy or the Trust for Public Lands.

3) The National Park Service within the U.S. Department of the Interior.

All have a commitment toward and a deep interest in habitat protection for endangered species. In fact, portions of the Upper Hakalau forest are already owned by the Hawaii Department of Land and Natural Resources and The Nature Conservancy (see Figure 4). However, perhaps due to the magnitude of the effort, none have expressed an intention to undertake the entire project, and most have encouraged FWS involvement because of the endangered wildlife focus of this project.

E. Exchange for Public Land

This would entail the exchange, on an equal-value basis, of private for publicly owned properties within Hawaii. While the exchange of private lands within the Upper Hakalau forest for either federal or state lands is a potential alternative, its feasibility is quite restricted due to the limited acreage (if any) of available public lands within the state that would also be of interest to landowners.

From an administrative perspective, it would be highly impractical to entertain a concept of exchanging private lands on the islands for public lands on the mainland.

F. Acquisition of Partial Interest

A conservation easement or a similar less-than-fee title acquisition, purchased by either a private or governmental entity, could be utilized to protect the Upper Hakalau site. To be effective for the long-term it would be necessary to preclude activities such as timber removal, grazing and other uses that would be detrimental to endangered species utilizing the area. Obtaining such rights would probably approach costs similar to fee title purchase and may leave the owners with little more than the right to pay taxes. If purchased by a non-governmental entity, rights to manipulate the habitat for the benefit of endangered species could be negotiated, whereas the expenditure of public funds for management activities (e.g., fencing to contain or exclude wild pigs, or banana poka control) on private lands may not be feasible.

III. AFFECTED ENVIRONMENT

A. Physical Environment

The Upper Hakalau forest area is located on the Island of Hawaii. This island has been formed over the last 1 million years by tremendous outpourings of lava from five volcanoes; Kohala, Mauna Kea, Hualalai, Mauna Loa, and Kilauea. The Upper Hakalau forest area is situated on the southeast flank of Mauna Kea. This volcanic dome is about 13,785 feet (4,177 m) high, the highest insular peak on earth (Stearns 1966).

The project area begins at about 3,500 feet (1,060 m) elevation and stretches upslope to about 7,260 feet (2,200 m). The organic soils are fairly well developed and continuous. The bedrock is old lava, probably about 4,000 years old. The lower elevation lands contain deep, gentle to steep, and moist to fairly well drained soils with a moderately fine textured subsoil (Sato et al. 1973). The soils on the upper elevation portions of the site are similar but slightly drier and coarser.

The climate is characterized by warm temperatures, with mean high temperatures from 68 to 80 degrees fahrenheit and mean low temperatures from 55 to 64 degrees fahrenheit. Trade wind precipitation predominates, with a mean annual rainfall of up to 280 inches (700 cm) (highest on the island) recorded from the lower elevations. Widespread cloudiness characterizes these windward slopes, particularly during trade wind weather.

B. Biological Environment

The Upper Hakalau area consists of typical mixtures of Hawaiian montane rain forest dominated by ohia and, in some areas, both ohia and koa trees. The ohia rain forest is the most common forest type in this project area. It is generally found in moderately moist to wet situations in the lower and middle elevations, 3,600 - 5,000 feet (1,100 - 1,500 m). Subcanopy trees and shrubs include kawau (Ilex anomala), kolea (Myrsine lessertiana), kopiko (Psychotria spp.) and olapa (Cheirodendron trigynum). The understory is dominated by tree ferns (primarily Cibotium glaucum). Conspicuous in this wetter forest habitat are several species of Clermontia and many more species of epiphytic ferns.

At the lowest elevation of the project area is the bog - ohia dieback community. This unit is actually a mosaic of open bog, matted fern and native shrub communities, and open to scattered wet ohia forest with many standing dead or partially defoliated trees. The forest dieback in this area is believed to be a result of the poor rooting conditions found in this extremely wet habitat (Jacobi 1983) but the area is now showing signs of regeneration. The wet open boggy areas are dominated by introduced grass and sedge species with scattered native shrubs.

At the higher elevations, generally between 4,600 and 6,400 feet (1,400 and 1,950 m), koa becomes a codominant or dominant tree species in the forest. The structure of a typical koa-ohia rain forest is characterized by tall koa and ohia trees forming a closed tree canopy 50 - 80 feet (15 - 25 m) tall, ohia trees

forming the mid-story, and tree ferns (Cibotium spp.) and native shrubs forming the understory (Mueller-Dombois 1981). The wet koa-ohia forest extends across the project area in a narrow band between 4,600 and 5,300 feet (1,400 and 1,600 m). Sub canopy trees in this particular forest type include those found in the wet ohia forest. Less than 50% of the estimated 85,000 acres (35,000 ha) of the original distribution of this habitat remains today (Jacobi and Scott in press).

The mesic koa-ohia forest with native shrub dominated understory extends from 5,300 to 6,400 feet (1,600 to 1,950 m). Today this particular forest type is fairly restricted in distribution, being found only where cattle grazing has been absent. Subdominant trees include kolea, kawau, and kopiko and the understory is chiefly comprised of native shrubs such as kanawao (Broussaisia arguta), akala (Rubus hawaiiensis), ohelo (Vaccium calycinum) and some ferns. Mesic koa-ohia forest is especially rich in endemic forest birds. This habitat type has also undergone the most significant changes in recent decades. Less than 15% of the estimated 100,000 acres (40,000 ha) of the original distribution of this vegetation type remains today (Jacobi and Scott in press).

The uppermost elevations of the project area have been subjected to managed cattle grazing for several decades and wild cattle have been present in this general area for over a century. This has resulted in a slow but steady change in the character of the forest habitats naturally found at these elevations. In areas that have been more heavily grazed, introduced grasses cover much

of the ground. Populations of native shrubs and ferns are reduced. The overstory is largely in good condition, providing valuable habitat for birds. However, little regeneration of woody vegetation survives grazing in these areas.

Fairly large areas, upslope from (outside) the project are dominated by a dry habitat type of introduced grasses with only occasional koa or other native or introduced trees. These areas have been heavily grazed for many decades; whatever woody vegetation naturally occurred in this area has been replaced by open rangeland dominated by exotic grasses.

Figure 5 provides a detailed vegetation map of the project area. Table 3 provides a list of candidate (category 1 or 3C) or uncommon plants from the project area.

The Upper Hakalau forest supports a superb avifauna, rich in species and high in density. Three of the four endangered forest birds of the island of Hawaii -- Akiapolaau, Hawaii Creeper, and Hawaii Akepa are represented with substantial populations (see Table 1). Portions of the koa-ohia forest habitats support up to 130-260 Akiapolaau/mi^2 (50-100/km^2) and much larger sections have between 26-130 birds/mi^2 (10-50/km^2) (Figure 6). The majority of the project area supports densities of Hawaii Creeper exceeding 260 birds/mi^2 (100/km^2) and a substantial parcel has densities of over 520/mi^2 (200/km^2) (Figure 7). The Hawaii Akepa appears to be the most numerous of the endangered birds here. Densities exceed 520/mi^2 (200/km^2) over a large part of the project site (Figure 8) (Scott et al. in press). Although the highest concentrations of

TABLE 3

List of Candidate (Category 1 or 3C)[1] or unconmon (U)[2] plants known from the project area[3]

Species		Status	Vegetation Unit
Clermontia lindseyana	Rock	1	mesic and wet koa-ohia forest
Clermontia pyrularia	Hillebr.	1	mesic koa-ohia forest
Cyanea fernaldii	Rock	1	wet koa-ohia forest
Cyanea shipmanii	Rock	1	mesic koa-ohia forest
Gouldia terminalis var. quadrangularis	Fosb.	1	mesic koa-ohia forest
Platydesma remyi	(Sherff)	1	wet koa-ohia forest
Clermontia peleana	Rock	3C	wet koa-ohia and ohia forest
Joinvillea ascendens	Brongn. & Gris.	3C	wet koa-ohia and ohia forest, bog/ohia dieback forest
Embelia pacifica	Hillebr.	U	mesic & wet koa-ohia forest wet ohia forest
Eurya sandwicensis	A. Gray	U	wet koa-ohia and ohia forest
Phyllostegia racemosa	Benth.	U	mesic koa-ohia forest
Platydesma spathulata	(A. Gray) Stone	U	wet koa-ohia and ohia forest
Pritchardia beccariana	Rock	U	wet koa-ohia and ohia forest, bog/ohia dieback forest

[1] Candidate species; Category 1 is defined as taxa for which there are adequate data to support listing as threatened or endangered; Category 3C is defined as taxa that are more abundant or widespread than previously thought but could be elevated in consideration if threats increase.

[2] U - Status unknown but thought to possibly be in jeopardy.

[3] USFWS, Hauna Loa Field Station unpubl. data.

Figure 6 AKIAPOLA'AU

Scott et al. in press

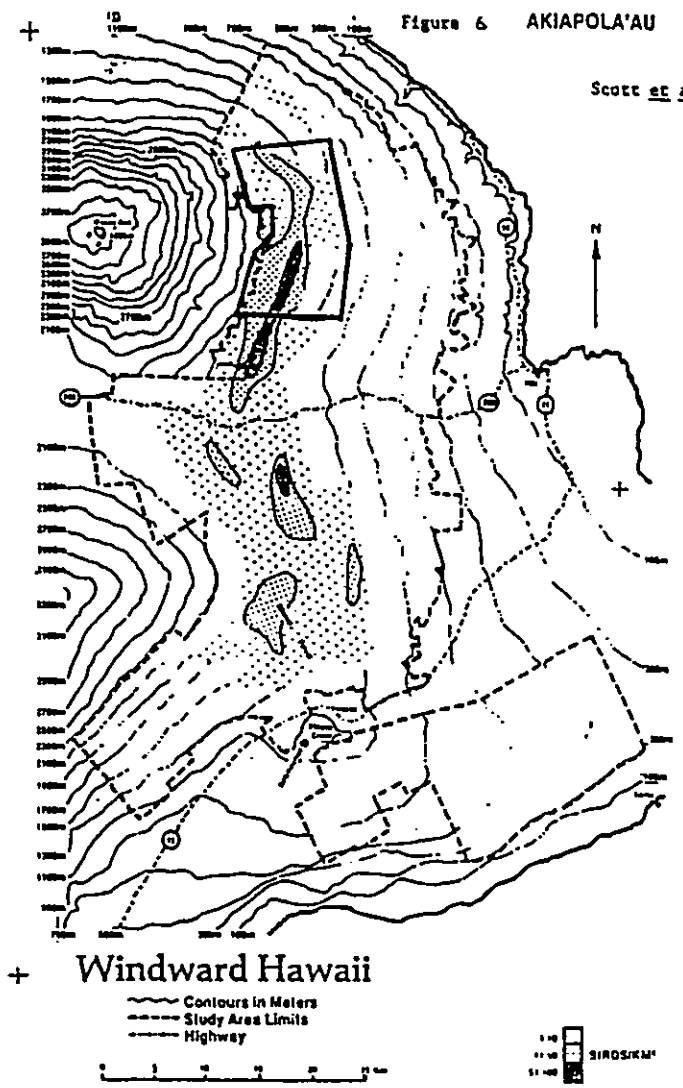


Figure 7. HAWAII CREEPER

Scott et al. in press

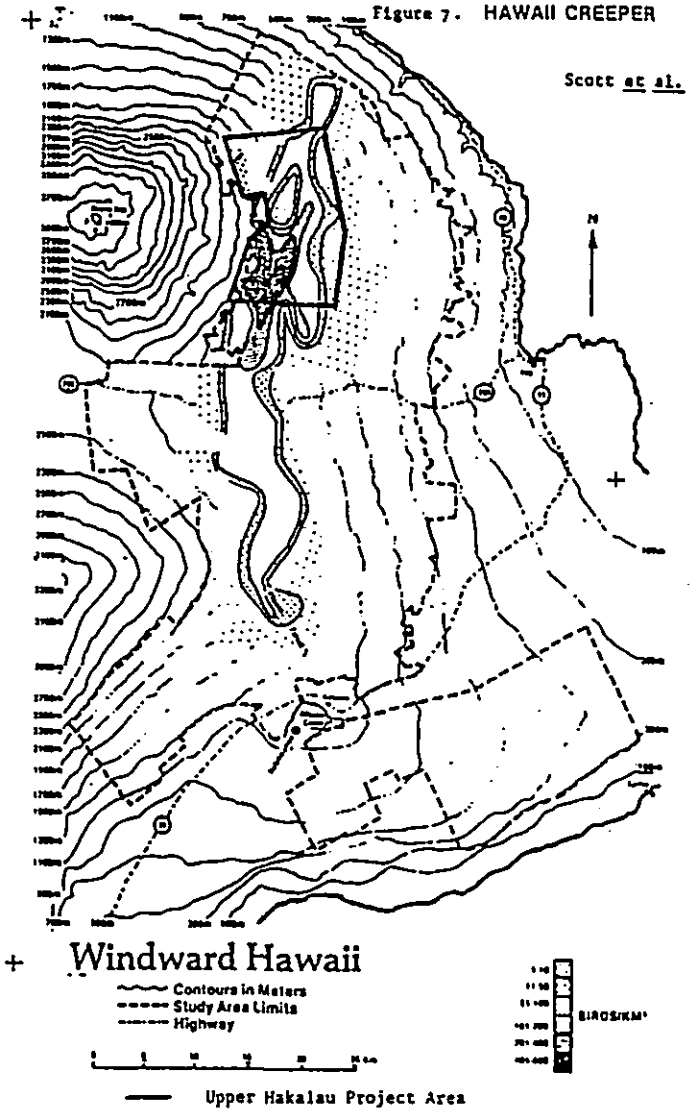
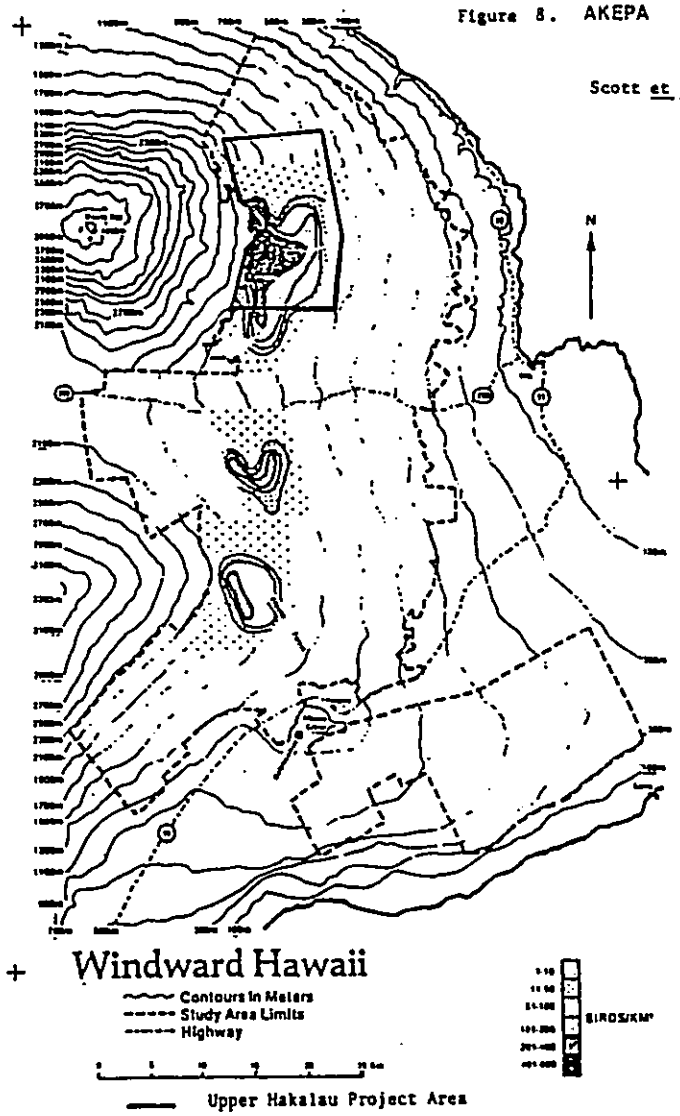


Figure 8. AKEPA

Scott et al. in prese



these species extend from the project area to the south, a short distance outside the boundary areas of the project, the areas south of the project are already public lands in the Conservation District.

The Ou is found infrequently in the lower elevation ohia forests. Patterns of the distribution of this very rare bird are not clear. Three other endangered birds are also found in or around the area. The Hawaiian Hawk is widespread throughout the Upper Hakalau region, the Nene (Nesochen sandvicensis) nests nearby and has been observed in areas adjoining the project area; and small numbers of the Hawaiian Duck or Koloa (Anas wyvilliana) use streams and other aquatic habitats within and near the project site. Three endemic subspecies are also commonly found in the area. These include the Common Amakihi (Hemignathus virens virens, the Hawaii Thrush or Omao (Phaeornis obscurus obscurus), and the Hawaii Elepaio (Chasiempis sandwichensis sandvichensis).

A number of other native birds and a variety of introduced birds are also common in the project area. The Iiwi (Vestiaria coccinea) has a patchy distribution throughout its historical range (occupying approximately 38% of former range). This species has apparently declined significantly in some areas but there still appear to be robust populations in the Upper Hakalau area. The Apapane (Himatione sanguinea) is the most common native bird on the island and is abundant in the Upper Hakalau area.

Several endemic taxa of birds, formerly found on the island of Hawaii are now extinct. The general vicinity of the project area includes the last known localities for the Hawaii Mano

(Drepanis pacifica) and the Greater Amakihi (Hemignathus sagittirostris) (Berger 1981). Table 4 lists extinct forest bird species formerly found on the island of Hawaii.

The only land mammal native to Hawaii is the Hawaiian Hoary Bat. It is found within the project area, but little data exist on distribution and abundance in the project area. A number of introduced mammals are frequently found in the area. Several rodents, [black rats (Rattus rattus), polynesian rats (Rattus exulans), and house mice (Mus musculus)], feral cats (Felis catus), mongoose (Herpestes auropunctatus), feral pigs and some feral cattle and feral dogs (Canis familiaris) all occur within the project area.

The invertebrate fauna of the project area is not well known. However, the Hawaiian invertebrate fauna is widely recognized for its remarkable examples of evolution, speciation and endemism (Zimmerman 1972). A large share of these endemic invertebrates inhabit the koa-ohia rain forest system. Detailed studies of invertebrate faunas in a similar mesic koa-ohia rain forest system about 30 km south of the project site are discussed in Mueller-Dombois et al. (1981).

C. Human Environment

The majority of these lands are presently in a wild, relatively pristine condition. Portions of the forest have been logged in the past and forest products (primarily koa wood) are harvested for lumber and cabinet wood. The upper elevations are adjacent to

TABLE 4

Extinct Forest Birds of the Island of Hawaii [1]

Species	
Hawaii Oo	Moho nobilis
Kioea	Chaetoptila angustipluma
Lesser koa-Finch	Rhodacanthis flaviceps
Greater koa-Finch	Rhodacanthis palmeri
Grosbeak Finch	Chloridops kona
Hawaii Akialoa	Hemignathus obscurus obscurus
Ula-ai-hawane	Ciridops anna
Hawaii Mamo	Drepanis pacifica

[1] This list does not include undescribed species from fossil remains of prehistoric birds.

(just downslope from) lands that are presently used as rangeland for grazing cattle. Portions of the project area have also been used for cattle grazing. On the whole, however, relatively little consumptive use has been made of the ohia and koa-ohia forests of the area.

The entire area has historically served as an important watershed for various agricultural and domestic uses. The private and public lands are classified by the State Department of Land and Natural Resources as Conservation District lands for the purpose of maintaining the watershed capabilities of the land as well as protecting other valuable natural resources.

Almost all of the private lands are in the "R" subzone. This particular subzone designation permits limited use and development, with appropriate management, of the natural resources of the area under sustained use practices. Commercial logging, biomass production, woodchipping, and other forestry uses that have been contemplated for portions of the project area come under this use category. Grazing is also permitted in certain forested areas because it was an established use before that land was designated as conservation lands.

Virtually no notable "improvements" (i.e. structures, etc.) to the land have been made in this area. One unimproved dirt road (Keanakolu Road) leads in towards the project site from State Highway 20 (the Saddle Road). This dirt road travels roughly along the uphill boundary of the project. Several jeep trails lead downslope into the forest to a few cabins or campsites.

There are also a few houses and storage buildings in and nearby the upslope end of the project site that support ranching operations. The Dr. David Douglas Historical Monument, a simple memorial at the site where this famous naturalist was killed in 1834, is located just north of the project site near Keanakolu Road.

IV. ENVIRONMENTAL CONSEQUENCES

Presented here are the environmental consequences or impacts expected to result from the various alternative actions described in part II.

A. No Action

Under this alternative, FWS will be limited to regulatory actions (Sections 7 and 9 of the ESA) to try to assure that the Upper Hakalau forest retains the attributes necessary to sustain the endangered species and their habitat found in the area. FWS will not encourage acquisition by any conservation interest. The lands would remain in private ownership.

Under these circumstances, the following conditions would probably develop:

- Current land use (some logging, some cattle grazing) will persist. Economic pressures will probably require that these uses be intensified and expanded to previously undisturbed habitat.
- Additional land uses, for example, silviculture of non-native trees for biomass production, will be contemplated. Further modification of the land will undoubtedly continue.
- FWS protection efforts through Section 7 (Inter-agency cooperation and regulations to prevent jeopardizing species) and Section 9 (Prohibition of taking) of the ESA will continue. It is anticipated that these provisions will be inadequate to

fully protect habitat.

— No management effort of significance could be undertaken to maintain native forests. Feral animal and introduced plant populations will persist/increase and cause further decline in the condition of the native forest.

— Wildland conditions will most likely endure but the nature of the forest would change. Many introduced plants will become established and some would become dominant species. Significant components of the native rain forest including the understory will eventually be replaced by a non-native assemblage of trees, shrubs, and grasses. The rate of this process is not certain but the end result is.

— The deterioration of the native forest system will be accompanied by significant declines in native fauna, including birds. Certain species, such as Common Amakihi, Hawaiian Thrush, and Apapane, may maintain themselves in small numbers. Other bird taxa, particularly the endangered ones, will likely decline to extremely low levels and eventually become extirpated from this area.

— Some number of unlisted taxa of endemic plants and animals will likely decline to levels at which they would become threatened or endangered. Loss of this habitat will mean the loss of an opportunity to protect a significant portion of the koa-ohia ecosystem and much of its component organisms. Additional species will need to be listed as threatened or endangered.

B. <u>Fee Acquisition of Private Lands, Formation of a National Wildlife Refuge</u>.

This alternative will require use of Land and Water Conservation Fund money to purchase, in fee, the private lands of the Upper Hakalau area. The lands will then become a National Wildlife Refuge, administered and managed by the FWS. Habitat protection specifically for the portion of the proposed refuge now under the control of the Department of Hawaiian Home Lands (DHHL) (see Figure 4) may be approached in a different fashion. As a public agency, DHHL's mission is to promote and facilitate homesteading of DHHL lands by native Hawaiians, which limits their opportunities to actually sell land. Thus protection of habitation DHHL lands may be accomplished by any one of several options.

The anticipated effects of this action include the following:

— Approximately 12,622 hectares of koa-ohia and ohia rain forest would be protected in perpetuity. With State owned lands (predominantly "P" subzone Forest Reserve or Natural Area Reserve) on the north and south flanks of this project area, this will provide an opportunity to manage virtually the entire band of montane rain forest from Keanakolu to the Kilauea Forest as one system. USFWS and HDLNR would be able to work together on one ecosystem.

— No significantly adverse modification of native forest habitat due to direct human use will occur. Land uses that cause detrimental changes in the quality of the native forest, such as timber harvest and cattle ranching, will no longer continue.

— Management of this refuge will minimize present and future effects of feral animals and introduced plants. Efforts will focus on perpetuating the natural functions of the ecosystem.

— Most or all endemic plant and animal populations in this forest will be maintained indefinitely. Several endangered species will be significantly closer to recovery goals. Increased numbers of Akepa, Creeper, and Akiapolaau could be expected as undergrowth comes back and canopy fills out.

Other rare taxa will probably sustain themselves at levels which do not require listing attention.

— Opportunities for educational, recreational and scientific pursuits in this area will be enhanced. Educational opportunities could include interpretive displays and self-guided tours, use by schools, etc. Wildlife oriented recreational possibilities include birdwatching, hiking, outdoor experiences for a variety of organizations, etc. A number of opportunities would exist for field research in a variety of biological/ecological disciplines.

— Public hunting of game mammals and birds may be included as part of a comprehensive management program for the project. This activity could be part of the overall management program to reduce feral animal populations to a level which does not significantly damage the ecosystem. It may be necessary to fence feral ungulates out of some areas to protect especially sensitive habitat. Public hunting could be used as one management tool, as long as it is consistent with the primary purposes of the refuge.

— Federal (FWS, NPS) and State (DLNR) land management agencies could work cooperatively on management of a contiguous band of montane rain forest. This rain forest, extending from windward Mauna Kea to leeward Mauna Loa, with the exception of a few areas, would be a continuous band of public lands. Vital watershed values will be maintained as well as a variety of other public uses.

— The impact on the local economy is not entirely clear. Existing land uses in the project area would cease, having an effect on a ranching operation and potential logging operations. Future economic use of the land will be extremely limited (except for watershed and flood control values). The tax base may decrease also, although other forms of payment to the county in the absence of property taxes would occur. Hawaii County will receive monies from the Refuge Revenue Sharing Act (49 Stat. 383, as amended 16 U.S.C. 715s) which provides annual compensation in lieu of discontinued taxation of private property[1]. Based on the formulas described below, this could result in significant payments to the Hawaii County possibly as high as 5 times that currently received in property taxes.

The attraction of this refuge may also have a positive effect on the visitor industry. The FWS 1980 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation states that about 28.8 million adults (17% of the American population) took trips primarily to observe

or photograph wildlife (USFWS 1982). This indicates that there might be visitor interest in a National Wildlife Refuge of this magnitude on the island of Hawaii.

A limited amount of full time and intermittent employment opportunities will also result from the establishment and subsequent management of this refuge.

C. Regulatory or Restrictive Zoning

Under this alternative, legal protection could be sought through designation and maintenance of maximum restrictive zoning for the project area. Under maximum restrictive zoning conditions, land use will be highly restricted and will remain compatible with habitat maintenance objectives for forest birds. Virtually no

[1]Refuge Revenue Sharing Act payments are made to counties on the basis of one of the following, whichever is highest:

1. Twenty-five percent of the net revenue received from operation of the refuge.
2. Three-fourths of one percent of the cost of the property. Property costs are adjusted every five years to reflect current market values.
3. Seventy-five cents per acre. The funding source for such payments derives from revenues generated from refuges throughout the country. In the event that insufficient revenues are available to make full-formula payments to the counties, the amount of payment is a determined percentage of the full amount calculated. Also, Congress may make up the insufficiency by special appropriation, if it chooses to do so.

land uses which alter the habitat would be permitted.

Ownership would remain private. It is unlikely that sufficient incentive will be available for the landowners to control populations of introduced animals and plants. Land use practices will remain relatively stable; however, the effects of introduced species will continue. In certain areas the effects may further deteriorate habitat conditions.

D. Acquisition/Management by Others

Under this alternative, acquisition and management would be assumed by another organization with interest in the conservation of endangered species and other native wildland resources. If another organization would be able to acquire the project area and establish a management program, the effects on the biological and human environment are anticipated to be very similar to establishment of a National Wildlife Refuge (Alternative B). The koa-ohia rain forest ecosystem would be maintained intact for the perpetuation of endangered species and other native wildland resources. No other entity has indicated an intent to acquire and manage these areas.

E. Exchange for Public Land

An exchange of the private lands of the project area for acceptable public lands would result in impacts similar to either alternative B or D. If federal lands were involved and/or the federal government would be responsible for subsequent management, the impacts discussed in Alternative B would result. If another organization provided the lands for exchange and assumed responsibility for management, the impacts in Alternative D (similar to Alternative B except a different organization is involved) would

result. No other organization has indicated an intent to exchange Lands for this area.

F. Acquisition of Partial Interest

Acquisition of simply a conservation easement or a similar less-than-fee title acquisition, would result in establishment of refuge and management program very similar to Alternative B. However, long-term commitments of resources for management purposes may be more limited than under Alternative B. Rights for management of the area may also have some limitation depending on the conditions of the easement (or other such agreement).

The lands would probably be maintained in a condition similar to that resulting under Alternative B for the duration of the easement term.

V. CONSULTATION AND COORDINATION

Consultation/coordination activities have been pursued as follows:

A. Policy and Legal Compliance

1. Executive Orders — Compliance by the FWS with Executive Order 11988 (Floodplain Management) and 11990 (Protection of Wetlands) will be adhered to since the FWS plans to make no significant changes relative to floodplain or wetlands on the Upper Hakalau forest lands once they are in refuge status.

2. Executive Order 12372 (Intergovernmental Review of Federal Programs) -- Copies of this Environmental Assessment will be sent to the Hawaii State Clearinghouse and concerned federal entities.

3. Archaeological and Historic Property Acts -- Following establishment of the refuge, the National Historic Preservation Act of 1966, as amended, and refuge policy will assure protection

to sites of significant importance.

4. Endangered Species Act -- Six endangered species occur in the Upper Hakalau area. Relative to the Endangered species Act of 1973, an internal Section 7 Consultation has been initiated.

B. Agencies and Organizations Contacted.

Initial reference to the importance of the Upper Hakalau forest area for endangered forest birds was made in the Hawaii Forest Birds Recovery Plan. Many government agencies and other organizations were contacted during the review process of this plan. Protection of the Upper Hakalau area was one of many tasks identified in the plan.

Upon completion and analysis of the Hawaii Forest Bird Survey data, protection of this area became a prime priority. Habitat protection proposals and budget initiatives were started.

Various interested and/or affected parties have been contacted over the last few months. These include:

W. H. Shipman Estate

Queen Liliuokalani Children's Trust

The Nature Conservancy

Department of Hawaiian Homelands

World Union Industrial Corporation

The Robertson Family

Richard Sutton

State Department of Land and Natural Resources

County of Hawaii

County Council of Hawaii

National Park Service

U.S. Forest Service

Governor of Hawaii

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ENVIRONMENTAL ASSESSMENT

PROPOSAL TO ESTABLISH

in

UPPER HAKALAU NATIONAL WILDLIFE REFUGE

HAWAII COUNTY, HAWAII

DEPARTMENT OF THE INTERIOR

U.S. FISH AND WILDLIFE SERVICE

HONOLULU, HAWAII

Prepared: May, 1985

by: Peter Stine

DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE
Region 1, Portland, Oregon

FINDING OF NO SIGNIFICANT IMPACT

PROPOSED ACQUISITION TO ESTABLISH THE UPPER HAKALAU NATIONAL WILDLIFE REFUGE
Hawaii County, Hawaii

The Fish and Wildlife Service (FWS) has prepared an Environmental Assessment (EA) to evaluate the effects associated with maintaining, and where necessary, restoring a portion of the Upper Hakalau forest system for endangered forest birds and associated components of the koa-ohia and ohia forests of the area.

Proposed Action:

To assure the perpetuation of native forest habitats of the Upper Hakalau Forest for the protection of a number of endangered animals and plants endemic to the area, the Fish and Wildlife Service proposes to acquire approximately 33,500 acres of privately owned lands and establish the Upper Hakalau National Wildlife Refuge. Authority to undertake such an action is provided the FWS by the Endangered Species Act of 1973 (16 U.S.C. 1531-1543; 87 Stat. 884) as amended, using funds to be made available through the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 4601-4-4601-11; 78 Stat. 897).

Alternatives to the proposed action that were considered in the EA and dismissed are: (1) Regulatory or Restrictive Zoning; (2) Acquisition/Management by Others; (3) Exchange for Public Land; (4) Acquisition of Partial Interest; and (5) a no-action alternative (see pages 10-16 of the EA). For further discussion of the purpose and need for the project, see pages 1-5 of the EA.

The following describes why the proposed action will not have a significant effect on the human environment:

1. The natural process under which most of the area has currently evolved will, with the exception of efforts intended to control exotic species, be permitted to continue. The influence of domestic cattle within the upper elevations of the area will be curtailed and those areas will be permitted to regenerate into natural habitat.

2. The proposal is consistent with the existing Conservation District zoning on approximately three-fourths of the area. A major human benefit derived from such zoning, i.e. the absorption and slow release of water from the watershed for utilization at lower elevations, will continue. The remainder of the project site, zoned as agricultural (Ag-40), will remain undeveloped, and as habitat regeneration occurs it is not expected to detract from the water retention capabilities of the area.

3. Mitigation for removing the lands from private and placing them into public ownership will be accomplished by compensating current owners the appraised market value for their property; and qualifying occupants would be eligible for benefits under the Relocation Assistance and Land Acquisition Policies Act of 1970.

4. A Section 7 Internal Consultation concerning the five endangered birds, one endangered mammal and a number of endangered plants now known to occur in the area, indicates the action would be beneficial to those species.

5. Consultation with the Hawaii State Historical Preservation Office (SHPO) within the Department of Land and Natural Resources (DLNR) indicates that no archaeological surveys have taken place within the project boundaries. At this time there are no known properties listed on or eligible for the National Register of Historic Places, or the National Register of Historic Landmarks within the area proposed for acquisition.

   Should any future development that might impact the area be contemplated, an intensive cultural survey of the development site would be undertaken beforehand and if the survey identifies any cultural or historic activity which may qualify for inclusion in the National Register, documentation regarding such activity would be forwarded to the DLNR for a determination of eligibility.

6. The FWS has evaluated the proposal with respect to various rules, regulation and legislation and has found it to be consistent with and in conformance to: Executive Orders 12372 (Intergovernmental Review of Federal Programs), 11990 (Protection of Wetlands), 11988 (Floodplain Management), 11593 (Protection of Historical, Archaeological and Scientific Properties); The Endangered Species Act of 1973; The Land and Water Conservation Fund Act of 1965; The National Wildlife Refuge Administration Act of 1966; and other public laws relative to this action.

7. This proposal is comparable to and has been preceded by similar actions within the FWS whereby lands are acquired for and made a part of the National Wildlife Refuge System.

Related Documents:

A Hawaiian Forest Birds Recovery Plan for the Akiapolaau, the Hawaii akepa, the Hawaii creeper, and the Ou, all found within the Upper Hakalau Forest, was prepared by an inter-entity

Hawaiian Forest Birds Recovery Team and approved by the Director of the FWS on February 3, 1983. A programmatic Environmental Impact Statement concerning Operation and Management of the National Wildlife Refuge System under which the Upper Hakalau National Wildlife Refuge would be managed, was completed in 1976 (FES 76-59). The FWS Regional Resource Plan of 1984 outlines Region I priorities, including goals relative to the recovery of endangered Hawaiian forest birds.

Public Availability:

The EA was distributed for a 35-day public review period to landowners of the project site, other interested entities, and to local governments via the Hawaii State Clearinghouse. Copies of this finding will also be distributed to those landowners, entities and governmental agencies which received the EA. In addition, copies are available upon request from the Chief, Office of Acquisition, USFWS, 500 N.E. Multnomah Street, Portland, OR, 97232; phone (503) 231-6209: or from the Pacific Islands Administrator, USFWS, 300 Ala Moana Blvd., Room 5302, Honolulu, HI, 96850; phone (808) 546-5608.

Determination:

Based upon information in the EA, the Fish and Wildlife Service has determined that this activity would not constitute a major federal action significantly affecting the quality of the human environment. Therefore, an environmental impact statement will not be prepared. This Finding of No Significant Impact will not be final nor will any acquisitions be undertaken pending a 30-day period for public review.

Issued in Portland, Oregon, 7/3/85.

Richard J. Myshak
Regional Director

References:

Environmental Assessment: Proposal to Establish an Upper Hakalau National Wildlife Refuge, Hawaii County, Hawaii

Hawiian Forest Bird Recovery Plan

Region I, USFWS, Regional Resource Plan

Operation and Management of the National Wildlife Refuge System, FEIS 76-59

--ADDENDUM--

Upper Hakalau Forest
Environmental Assessment

June 20, 1985

The project boundary of the proposed Upper Hakalau National Wildlife Refuge has been modified to reflect changes based on recent discussions with landowners, reviewer comments to the environmental assessment, and other information received pertaining to this proposal. The new boundaries (see attached map) include an additional approximately 2,500 acres of lands adjacent to and uphill from the project as identified in the May, 1985, environmental assessment.

The additions are parts of the W. H. Shipman Estate, and Liliuokalani Trust ownerships. Inclusion of these lands encompass the entire holdings of the Shipman Estate in the Tax Map Key 2-8-01-parcel 1, and 2-9-05-parcel 3, and all but 500 acres of 2-7-01-parcel 4. It also includes the entire holdings of the Liliuokalani Trust in Tax Map Key 3-3-01-parcel 7.

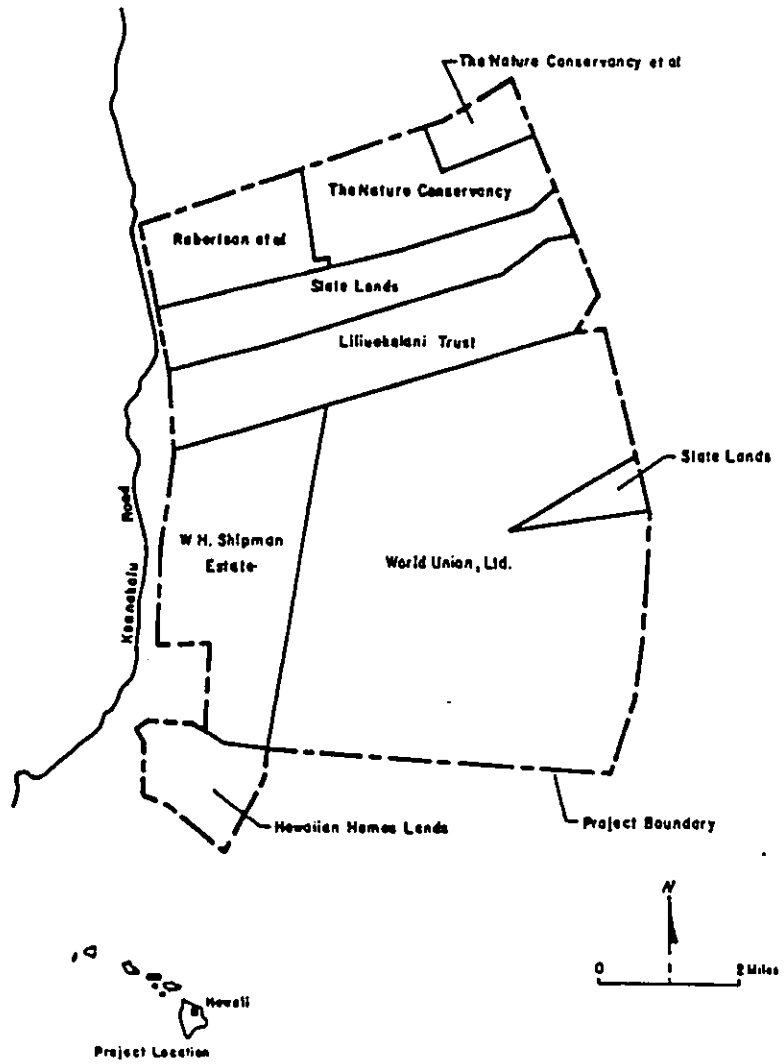
Shipman Estate representatives have expressed the desire to retain 500 acres around the original W. H. Shipman Ranch at Pua Akala. They also want to sell the balance of their lands in this area as one unit, thus purchasing the property will include both the forest and adjoining pasture lands. This adds approximately 1,500 acres to the project.

An additional 1,000± acres of Liliuokalani Trust lands have also been included within the new project boundary in the event that, as with the Shipman Estate, the board of directors for the Trust seek to divest the entire parcel rather than retain a fraction of it.

The preferred of two options being considered by the FWS in utilizing this additional acreage is to seek an owner who has forest lands that are either within or adjacent to the project boundary and see if an exchange for either all or a portion of the 2,500 acres can be arranged at the time of acquisition.

The second option would be for the FWS to retain the lands since they currently provide habitat values for the endangered nene goose and koloa duck. Within this option, the FWS would incorporate reforestation of the area in its long-range refuge plans. These sites historically supported the mesic koa-ohia forest habitat type, a rare and valuable habitat type represented by remnant stands immediately downslope. Forest rehabilitation/regeneration would be a long-term project for which there is no guarantee of success, and it could be several decades before any noteable results would be realized.

Based on the circumstances outlined above, the 2,500 acres described will be included in the project boundaries and the options outlined will be pursued.



PROPOSED UPPER HAKALAU NWR - REVISED BOUNDARY

EXECUTIVE SUMMARY

PROPOSED ACQUISITION

of

UPPER HAKALAU FOREST BIRD HABITAT

HAWAII COUNTY, HAWAII

July 19, 1985

I. HISTORY

A. BACKGROUND/PURPOSE

In recent years the U.S. Fish and Wildlife Service (FWS), in cooperation with the State of Hawaii and others, has proposed and undertaken a number of actions to ensure the continued existence of endangered Hawaiian forest birds. One such action was the multi-entity development of a Hawaii Forest Birds Recovery Plan which was approved by the Director of the FWS in 1983. A high priority action of that plan is the perpetuation of certain native rain forest habitats. Of the seven Hawaiian forest birds listed as endangered, five are found within the rain forest of the Upper Hakalau area on Hawaii, the largest island of the archipelago.

As a preferred alternative to protect that ecosystem, Region One proposes to establish a 33,500± acre Upper Hakalau National Wildlife Refuge. The boundaries are identified in Figure 1, and ownership of the seven private properties within the proposed project are as listed in Table I.

An Environmental Assessment concerning the proposal was prepared and provided for public review to the State Clearinghouse, local libraries, state and local government agencies, concerned landowners and other interested parties. As part of that public involvement process, news releases were distributed to identify the proposal and inform others where Assessments could be reviewed or obtained. In accordance with CEQ and Departmental guidelines, a Finding of No Significant Impact has been approved and copies have been distributed for public review.

An addendum to the Environmental Assessment was prepared following discussions with the Shipman Estate officials who desire to divest all but 500 acres of their 5,494-acre ranch rather than retain the upper elevation pasture lands as

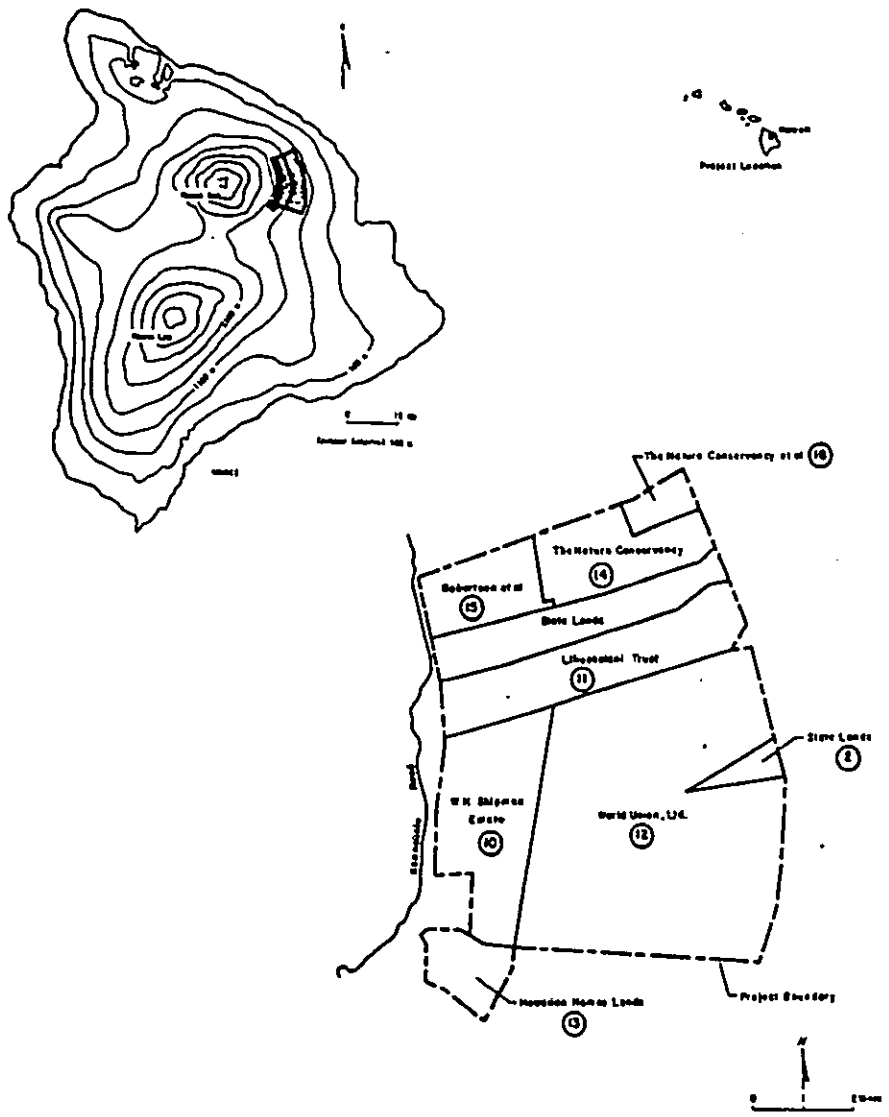


Figure 1. Upper Hakalau Location and Tract Map

earlier planned. At one time much of this higher land contained stands of koa and ohia trees that were logged. Since then the area has been grazed by cattle. If possible, FHS will exchange these open areas for forest bird habitats at lower elevations. If unable to do that, long-range management objectives will be to reestablish the koa-ohia forest habitats wherever possible. Anticipating the Liliuokalani Trust owners may wish to divest their upper pasture lands too, that concept was identified in the addendum and those areas were included within the project boundary as well.

Table 1 - UPPER HAKALAU OWNERSHIP

TRACT NO.	NAME OF OWNER	ZONE	SEC.	PLAT	PARCEL	APPROXIMATE ACRES INSIDE PROJECT AREA	APPROXIMATE ACRES OUTSIDE PROJECT AREA	COMMENTS
12	World Union Industrial Corporation Ltd.	2	7	01	1	8,050	10,052	Owners, a Hong Kong based firm, have expressed their desire/intent to pursue logging of their property and subsequent use of the area for biomass production.
		2	8	01	2	2,150	1,600	
		2	9	05	2	6,075	2,910	
10	W. H. Shipman Ltd.	2	7	01	4	1,308	500	Owners have expressed desire to retain 500 acres around original ranch site and divest the remainder of the ranch acreage. Current cattle ranching lessee would be phased out.
		2	8	01	1	1,287	-0-	
		2	9	05	3	2,429	-0-	
14	The Nature Conservancy	3	7	01	1	3,300	-0-	
11	Liliuokalani Trust	3	3	01	3	2,420	1,355	
		3	3	01	7	1,752	-0-	
15	Robertson et al.	3	7	01	01	2,628	-0-	
16	TNC et al.	3	7	01	01	640	-0-	
13	Hawaiian Homelands	2	6	18	29	1,437	-0-	A public agency which sponsors a homesteading program for native Hawaiians, they have indicated possible interest in exchanging their property for other lands.
					Totals:	33,446	16,417	

B. OBJECTIVES

The basic objective of U.S. Fish and Wildlife Service is to assure the protection and perpetuation of the Hakalau rain forests for the preservation and maintenance of habitats used by endangered forest birds. These lands (a) are within designated essential habitat as identified in the Hawaii Forest Bird Recovery Plan, (b) are of the magnitude that could be managed for and make a significant contribution toward assuring the survival of several of the endangered or threatened species (birds, plants and one mammal) that now occur on the site, and (c) would augment adjoining state lands which, through combined management efforts, will also contribute to the recovery of those species.

C. NEED/THREATS

Protection of this area is considered necessary to provide for long-term perpetuation of the (1) akiapolaau (2) Hawaii akepa (3) Hawaii creeper, (4) Hawaiian hawk, (5) ou, and (6) the Hawaiian hoary bat along with a number of threatened or endangered plants. Portions of the forested area are being used now for the grazing of cattle which is detrimental to the continuation of the rain forest habitats. These same rain forest habitats have potential for biomass production for energy needs, a practice increasingly being pursued in the islands. The upper elevations also have stands of koa trees, the wood from which is sought for use in furniture construction. In addition, several exotic species, particularly the banana poka vine and feral pigs, are inflicting damage which, if left unchecked, could cause significantly adverse impacts to the native forest habitats. As these actions and activities accelerate, the opportunity for establishing areas of sufficient size to maintain viable endangered forest bird populations diminishes.

II. ALTERNATIVES REVIEWED TO EFFECT THE OBJECTIVE

Alternatives considered to attain the objective of assuring the perpetuation of rain forest habitat on the 33,500+ acres described were as follows:

a) No Action
As the term implies, FWS would assume no active role regarding responsibilities to either the Endangered Species Act or Hawaiian forest bird habitat conservation measures, i.e., no FWS effort would be expended toward protecting lands within the proposed area. This would be inconsistent with the Service's obligation to administer requirements of the Endangered Species and other legislative acts it is charged with overseeing.

b) Acquire in Fee Title
Under this alternative (the preferred alternative) the FWS would acquire fee title to lands within the proposed area to be subsequently known as the Upper Hakalau National Wildlife Refuge (NWR). Fee purchase would probably be the most common means of acquiring the private parcels; however, donation of parcels, either directly to the FWS by current owners or through others such as the recently created National Fish and Wildlife Foundation (NFWF), The Nature Conservancy (TNC), Trust for Public Lands (TPL), etc., would be another means of obtaining fee title.

c) Acquisition of Partial Interests (Easements)
Easements would be purchased for the properties within the proposed area. To be effective it would be necessary to acquire development, habitat modification, and most use rights to any other actions (e.g., grazing, or use of off-road vehicles) that would be detrimental to the endangered species of concern. Purchase of such easements on all tracts within the proposed area would have to be on a willing-seller basis only since, while technically feasible, obtaining the necessary condemnation approvals to acquire an easement is highly improbable. The purchase of such easements would (1) approach fee title and therefore would not be cost effective, (2) leave owners with little more than the right to pay taxes, and (3) unduly complicate management activities such as feral animal or plant control.

d) Acquisition/Management by Others
This is, in effect, already being pursued insofar as the Department of Lands and Natural Resources (DLNR) administers state lands within and immediately adjacent to the project boundary. It is perceived that management of those lands will be consistent with refuge objectives for the area. No other entity has indicated a willingness to acquire and assume management responsibilities for parcels within the area. To the contrary, others, such as the Hawaii DLNR and The Nature Conservancy have sought and encouraged FWS involvement.

e) Zoning
Local governments could institute zoning or other land use limitations on the properties identified in excess of those zoning restrictions already in existence. To be effective, any new limitations imposed would have to be similar to those called for in the Easement Alternative, i.e., preclude development and other human uses detrimental to forest birds of the area. The Federal Government has no authority to impose such zoning restrictions and the probability of the county or state doing so is extremely unlikely.

f) Exchange
While the exchange of private lands for publicly owned lands is a potential alternative, its feasibility is quite restricted due to the limited acreage, if any, of available federal lands within the state. From an administrative perspective, it would be highly impractical to entertain a concept of exchanging private lands on the island for public lands on the mainland.

However, as described in the addendum to the EA, an exchange of pasture land, if acquired, for rain forest habitat is a distinct possibility and will be pursued as acquisition proceeds.

III. BENEFITS

The primary benefit of establishing the area as a NWR would be the significant contribution it will make toward assuring the perpetuation and eventual delisting of those endangered species unique to the montane rain forests of Hawaii. In addition, it will enable management, provide protection and will help to maintain healthy populations of other native plants and animals, perhaps reducing the need to someday list still more Hawaiian species as threatened or endangered.

In support of those benefits, the preferred alternative was considered and selected for the following reasons:

(1) It is feasible and will contribute toward ensuring the long-term protection of and eventual delisting of the several endangered species of the area.

(2) It is the most cost-effective means, on a long-term basis, relative to other alternatives.

(3) It will allow for more latitude and effective use of future management options compared to other alternatives.

(4) It is consistent with goals of the FWS in meeting objectives of the Endangered Species Act.

(5) It has Congressional and State of Hawaii support.

IV. ESTIMATED COSTS

Acquisition costs for the project are estimated to be a little over $10.5 million. As a part of the Hawaiian and Pacific Islands Complex of the NWR System, the refuge would

be managed primarily for the benefit of the endangered species found there. Estimated costs for development and management are identified in Table II.

Table II - ESTIMATED OPERATION, MAINTENANCE AND DEVELOPMENT COSTS

ANNUAL O&M				DEVELOPMENT	
I Personnel:				I Master Planning	$100K
1st Level:				II Cultural Resource Inventory	50K
Refuge Manager	GS-11/12	PFT	$70K	III Fencing	550K
Ecologist	GS-9/11	PFT	65K	IV Road and Trails	100K
Maintenance Worker	WG-6	PFT	50K	V Capitalized Equipment:	
Clerk Typist	GS-3	PPT	25K	Vehicles	45K
2nd Level:				Other	10K
Forester	GS-7/9	PFT	65K	Total	$855K
Wildlife Biologist	GS-9/11	PFT	65K		
Maintenance Worker	WG-6	PFT	45K		
II Office Rent & Utilities			35K		
III Recurring O&M			100K		
IV Research - for at least 3 years			50K		
Total			$570K		

V. SPECIAL CONSIDERATIONS

The Nature Conservancy is currently involved with land acquisition efforts within the Upper Hakalau and a January 9, 1985, FWS letter of intent to acquire lands within the proposed boundary was provided that organization. A $4.5 million appropriation was included in FWS's FY 1985 budget to initiate establishment of the refuge. In addition, the following circumstances have been considered and were pointed out in the Environmental Assessment which received wide public review (comments received from landowners, governmental entities and the general public were not considered significant enough to warrant modification of the document).

* If no action is taken to acquire and preserve the proposed area, the endangered species and the rain forest habitats they use will succumb to eventual exploitation by man and/or deterioration due to introduced biota. The wildlife value of adjacent lands owned by the Department of Lands and Natural Resources would then be

degraded. due to their isolation and reduced size, and their value as forest bird habitat would be greatly reduced.

* Project acquisition will preclude residential and agricultural development, intensive recreational uses, and surface disturbance associated with any logging and/or biomass harvesting on the properties. It would not exclude certain uses, such as hiking, photography, and research activities from the area.

* This action is not expected to have an adverse effect on existing cultural, visual, water retention capability or groundwater resources of the area. Federal acquisition will remove the property from local tax rolls, however, the loss of tax revenues would be offset by annual payments to Hawaii County in accordance with the Refuge Revenue Sharing Act (up to three-fourths of 1 percent of the appraised value of the lands within the refuge) which are projected to be equivalent to or exceed those property taxes now being received.

* As a part of the greater Hilo Forest Reserve watershed, the area will continue to serve as a retention and slow release area for freshwater so critical to human endeavors at elevations below the project site.

VI. RECOMMENDATIONS

In accordance with the Hawaiian Forest Bird Recovery Plan developed by the inter-entity endangered species team, including representatives from the State of Hawaii, and as outlined in the FWS's May 1985, Environmental Assessment, it is recommended that the Fish and Wildlife Service proceed with the acquisition and establishment of the Upper Hakalau as a new National Wildlife Refuge.

STATUS TITLE REPORT
(No Liability Hereunder)

Title Guaranty of Hawaii, Inc. hereby reports that title to the land described in Schedule "C" attached hereto is vested in:

-CLORINDA LOW LUCAS-

-DAVID M. PETERS-

and

-FIRST HAWAIIAN BANK-

(Trustees of the Liliuokalani Trust, under that certain Deed of Trust created by Queen Liliuokalani, dated December 2, 1909 and recorded in Liber 319 at Page 447, as amended)
(with full power and authority to sell, mortgage, lease, etc.)

Subject only to those matters set forth in Schedule "B" hereof. This report is to the hour of 8:00 o'clock A. M. on June 28, 1985.

Title Guaranty of Hawaii,
Incorporated

COPY

By _____

TITLE GUARANTY OF HAWAII
INCORPORATED

SCHEDULE B

1. Real Property Taxes have been fully paid up to and including June 30, 1985. (See Exhibits "A")

   Tax Key: 3-3-001-003 (3) Area assessed: 3776 acres Parcel First

   Tax Key: 3-3-001-007 (3) Area assessed: 1752 acres Parcel Second

   As to Parcel Second: Subject to possible rollback taxes.

2. Reservation in favor of the State of Hawaii of all mineral and metallic mines.

3. AS TO PARCEL FIRST:

   (A) Hilo Forest Reserve as designated on the tax map.

   (B) LEASE

   LESSOR : CLORINDA LOW LUCAS, GORDON S. MAY and FIRST NATIONAL BANK OF HAWAII (successor in interest to Cooke Trust Company, Limited), a national banking association, Trustees of the Liliuokalani Trust

   LESSEE : PEPEEKEO SUGAR COMPANY, a Hawaii corporation

   DATED : August 25, 1967
   RECORDED : Liber 5811 Page 65
   TERM : 20 years commencing January 1, 1967 up to and including December 31, 1986

   Leasing and demising said Parcel First, besides other land.

   ABOVE LEASE AMENDED BY INSTRUMENT

   DATED : December 15, 1977
   RECORDED : Liber 12623 Page 749

SCHEDULE B CONTINUED

   (C) Any matters that a modern survey may reveal.

4. AS TO PARCEL SECOND:

   (A) 148 acres, more or less, in the Northeast and Eastern portion of said Parcel Second between the existing fence lines and Courses 2 and 3 of said Parcel Second used by the State of Hawaii as part of the Forest Reserve, as set forth in Lease recorded in Liber 6037 at Page 6 and as shown on the tax map.

   (B) LEASE

   LESSOR : CLORINDA LOW LUCAS, GORDON S. MAY and COOKE TRUST COMPANY, LIMITED, a Hawaii corporation, as Trustees of the Liliuokalani Trust

   LESSEE : W. H. SHIPMAN, LIMITED, a Hawaii corporation

   DATED : July 11, 1966
   RECORDED : Liber 6037 Page 6
   TERM : 20 years commencing January 1, 1965

   (C) SUBLEASE

   SUBLESSOR : W. H. SHIPMAN, LIMITED

   SUBLESSEE : CASTLE KAILIMAI, MANUEL VEINCENT, JR., ROBERT PORTER and CHARLES CAMPBELL

   DATED : August 13, 1976
   RECORDED : Liber 11717 Page 139
   TERM : Commencing January 1, 1976 through December 31, 1984

   ABOVE SUBLEASE, BESIDES ANOTHER LEASE, WAS AMENDED BY INSTRUMENT

   DATED : June 12, 1979
   RECORDED : Liber 17590 Page 441

SCHEDULE B CONTINUED

CONSENTS : By W. H. SHIPMAN, LIMITED, a Hawaii corporation, by instrument dated March 2, 1982, recorded in Liber 17590 at Page 450, and by the TRUSTEES OF THE LILIUOKALANI TRUST, by instrument dated ---(acknowleged December 29, 1984), recorded in Liber 17590 at Page 452

ABOVE SUBLEASE, BESIDES ANOTHER LEASE, AS AMENDED, BY MESNE ASSIGNMENTS ASSIGNED

ASSIGNOR : J. DAHLBERG REALTY, LTD., a Hawaii corporation

ASSIGNEE : PUA AKALA RANCH, a Hawaii limited partnership

DATED : January 16, 1984
RECORDED : Liber 17681 Page 406
CONSENTS : By W. H. SHIPMAN, LIMITED, a Hawaii corporation, by instrument dated February 3, 1984, recorded in Liber 17681 at Page 417, and by THE TRUSTEES OF THE LILIUOKALANI TRUST, by instrument dated January 12, 1984, recorded in Liber 17681 at Page 420

Said Sublease, besides another lease, as amended, subject to the following:

(i) MORTGAGE, SECURITY AGREEMENT AND FINANCING STATEMENT

MORTGAGOR : J. DAHLBERG REALTY, LTD., a Hawaii corporation

MORTGAGEE : BANK OF HAWAII, a Hawaii corporation

DATED : December 28, 1983
RECORDED : Liber 17590 Page 487
AMOUNT : $400,000.00

CONSENT by W. H. SHIPMAN, LIMITED, a Hawaii corporation, by instrument dated December 29, 1983, recorded in Liber 17590 at Page 518.

SCHEDULE B CONTINUED

CONSENT AND ATTORNMENT AGREEMENT by THE TRUSTEES OF THE LILIUOKALANI TRUST, dated ---(acknowledged January 12, 1984), recorded in Liber 17590 at Page 524.

CONSENT by W. H. SHIPMAN, LIMITED, a Hawaii corporation, by instrument dated June 20, 1984, recorded in Liber 18015 at Page 376.

ABOVE MORTGAGE AMENDED BY ASSUMPTION AGREEMENT

DATED : January 16, 1984
RECORDED : Liber 18079 Page 528

(ii) MORTGAGE, SECURITY AGREEMENT AND FINANCING STATEMENT

MORTGAGOR : PUA AKALA RANCH, a Hawaii limited partnership

MORTGAGEE : J. DAHLBERG REALTY, LTD., a Hawaii corporation

DATED : January 16, 1984
RECORDED : Liber 17681 Page 426
AMOUNT : $47,000.00
CONSENTS : By THE TRUSTEES OF THE LILIUOKALANI TRUST, by instrument dated July 9, 1984, recorded in Liber 18015 at Page 370, and by BANK OF HAWAII, a Hawaii corporation, by instrument dated March 21, 1984, recorded in Liber 18015 at Page 382

by SUBORDINATION AGREEMENT dated January 16, 1984, recorded in Liber 17681 at Page 456, the foregoing Mortgage, Security Agreement and Financing Statement was subordinated to the lien of that certain Mortgage, Security Agreement and Financing Statement recorded in Liber 17590 at Page 487.

5. All trails or rights-of-way, claim to which may be predicated upon prescriptive use or ancient Hawaiian use or custom.

SCHEDULE B CONTINUED

6. Terms, conditions and provisions contained in LILIUOKALANI TRUST, as amended.

-N O T E:-

1. MAUNA KEA SUGAR COMPANY, INC. and PEPEEKEO SUGAR COMPANY, both Hawaii corporations, merged with and into M. K. SUGAR COMPANY, INC., a Hawaii corporation, by instrument dated April 26, 1973, recorded in Liber 9122 at Page 410.

2. M. K. SUGAR COMPANY, INC., a Hawaii corporation, changed its name to MAUNA KEA SUGAR COMPANY, INC., by instrument dated May 1, 1973, recorded in Liber 9119 at Page 142.

3. Filed with the Department of Commerce and Consumer Affairs of the State of Hawaii (Business Registration) is the change of name of MAUNA KEA SUGAR COMPANY, INC. to MAUNA KEA AGRIBUSINESS CO., INC. on July 26, 1984, effective August 1, 1984.

SCHEDULE C

FIRST:

All of that certain parcel of land (portion of the land described in and covered by Royal Patent Numbers 4386 and 7693, Land Commission Award Number 8452, Apana 18 to A. Keohokalole) situate, lying and being at Honohina, North Hilo, Island and County of Hawaii, State of Hawaii, bearing Tax Key designation 3-3-001-003 (3), and containing an area of 3,776 acres, more or less.

-Note:- The abstractors recommend that a modern metes and bounds survey be made of said premises that the boundaries be definitely established and area accurately computed.

SECOND:

All of that certain parcel of land (portion of the land described in and covered by Royal Patent Numbers 4386 and 7693, Land Commission Award Number 8452 to Keohokalole) situate, lying and being in the District of North Hilo, Island and County of Hawaii, State of Hawaii, being the upper or mauka portion of the Ahupuaa of Honohina, and thus bounded and described:

Beginning at the Southwest corner of this land at a H H cut in rock and adjoining the lands of Humuula and Hakalau, the coordinates of said point of beginning, referred to the Government Survey Trig. Station "Ashuwela," being 17713.4 feet North and 11356.4 feet East and running by true azimuths:

1.	175°	46'	00"	5,980.0	feet along the land of Humuula to a Forest Reserve Monument in the middle of an old Koa stump marked with an X, at the South bank of Nauhi Gulch;
2.	255°	00'		14,070.4	feet;
3.	10°	00'		4,249.8	feet;
4.	2°	27'	00"	362.6	feet along fence;

SCHEDULE C CONTINUED

5. 13° 22' 00" 1,616.6 feet along same to a 2 in. galvanized iron pipe;

6. 73° 50' 00" 12,517.4 feet along the land of Hakalau, Certificate of Boundaries #130, to point of beginning, containing an area of 1,752 acres, more or less.

TITLE GUARANTY OF HAWAII
INCORPORATED
HONOLULU, HAWAII

249159 CLF

05/14/85

EXHIBIT A

785 MARKET STREET, 3RD FLR.
IL CASWELL

STATEMENT . ASSESSED VALUES AND REAL PROPERTY TAXES DUE

STATUS :

320 DIVISION FILE NO. 249199 DATE 06/03/85

Name of Owner(s) Liliuokalani Tr. Est. W.K. Sugar Co. Inc.

Leased To

Tract Lot No. Block

Description (3P 4385, LCAW 8452, AP. 13 TO KEOHOKILOLE) Area 3776 ACRES

Location HONOHINA, NO. HILO, HAWAII Area Assessed

TAX KEY

CLASS	ZONE	SECTION	PLAT	PARCEL	HPR NO.
6	3	3	001	003	

ASSESSED VALUES: YEAR: 19 85

This certifies that the records of this division show the assessed values and taxes on the property designated by Tax Key shown above are as follows:

BUILDING	$ —
EXEMPTION	$ —
NET VALUE	$ —
LAND	$ 33,040
EXEMPTION	$ —
NET VALUE	$ 33,040
TOTAL NET VALUE	$ 33,040

CURRENT YEAR TAXES:

	AMOUNT DUE	
1st INSTALLMENT (DELINQUENT AFTER Aug. 20, 1985)	$	
2nd INSTALLMENT (DELINQUENT AFTER Feb. 20, 1986)	$	
TOTAL TAXES:	$	

☐ THERE ARE DELINQUENT TAXES (SEE ATTACHED STATEMENT FOR DELINQUENT AMOUNTS)

1984 TO 1985

165.20	PAID
165.20	PAID
330.40	

SIGNATURE

DATE 6/4/85

TITLE GUARANTY OF HAWAII
INCORPORATED

06/14/85 EXHIBIT A 785 MARKET STREET, 3RD FLR.
IL OASHELL

STATEMENT OF ASSESSED VALUES AND REAL PROPERTY TAXES DUE

3RD DIVISION FILE NO. 249199 DATE 05/03/85 STATUS 3

Name of Owner (s) Liliuokalani Tr. J. Dahlberg Ranley ...

Leased To P... Ak... R...

Tract ______ Lot No. ______ Block ______

Description (RP 4386, LCAW 8452, AP. 18 TO KEOHOKALOLE) Area 1752 ACRES

Location HONOHINA, NO. HILO, HAWAII Area Assessed ______

CLASS 5

TAX KEY			
ZONE	SECTION	PLAT	PARCEL
3	3	001	007

SUBJECT TO ROLLBACK TAXES

HPR NO. ______

ASSESSED VALUES: ______ YEAR: 19 85

This certifies that the records of this division show the assessed values and taxes on the property designated by Tax Key shown above are as follows:

BUILDING	$ —
EXEMPTION	$ —
NET VALUE	$ —
LAND	$ 94775 A/U
EXEMPTION	$ —
NET VALUE	$ 94775
TOTAL NET VALUE	$ 94775

CURRENT YEAR TAXES:

	AMOUNT DUE	
1st INSTALLMENT (DELINQUENT AFTER Aug. 20, 1985)	$	
2nd INSTALLMENT (DELINQUENT AFTER Feb. 20, 1986)	$	
TOTAL TAXES:	$	

☐ THERE ARE DELINQUENT TAXES
(SEE ATTACHED STATEMENT FOR DELINQUENT AMOUNTS)

19 84 TO 1985	
473.88	PAID
473.87	PAID
947.75	

N. Prior Del.

SIGNATURE [signature]

DATE 6/4/85

TITLE GUARANTY OF HAWAII INCORPORATED

TG Form 26