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DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

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FEB 20 2004

MEMORANDUM

TO: Genevieve Salmonson, Director
Office of Environmental Quality Control

FROM: Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

SUBJECT: Final Environmental Assessment (FEA)/Finding of No Significant Impact (FONSI) for Conservation District Use Application (CDUA) HA-3164

The Department has reviewed the Uila Ranch CDUA HA-3164, and Final Environmental Assessment (FEA) for invasive species control and pasture re-establishment. The Draft Environmental Assessment (DEA) for CDUA HA-3164 was published in OEQC's November 8, 2003 Environmental Notice for the subject project.

The FEA is being submitted to OEQC. We have determined that this project will not have significant environmental effects, and have therefore issued a FONSI. Please publish this notice in OEQC's upcoming March 8, 2004 Environmental Notice.

We have enclosed four copies of the FEA and CDUA HA-3164 for the project. The OEQC Bulletin Publication Form is attached. Comments on the draft EA were sought from relevant agencies and the public, and were included in the FEA.

Please contact Tiger Mills of our Office of Conservation and Coastal Lands staff at 587-0382 if you have any questions on this matter.

Enclosures

cc: Mary Ellen Wong

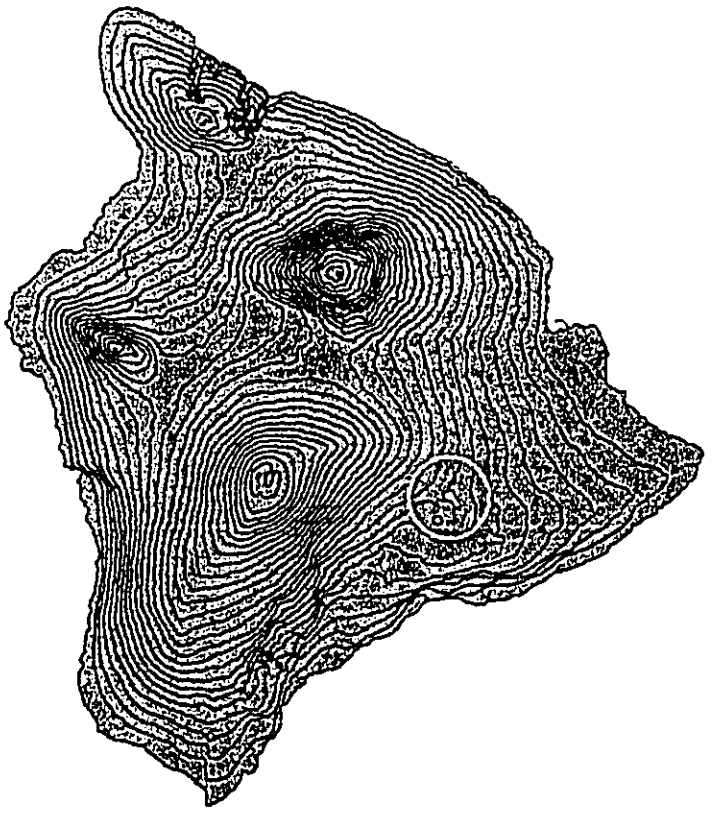
2004-03-08 FONSI
UILA RANCH INVASIVE SPECIES CONTROL/PASTURE
RE-ESTABLISHMENT

Invasive Species Control / Pasture Re-establishment

'Uila Ranch - Volcano, Hawaii

FINAL ENVIRONMENTAL ASSESSMENT and

CONSERVATION DISTRICT USE APPLICATION



Submitted by:

Mary Ellen Wong, Rancher

January, 2004

COMMONLY USED ABBREVIATIONS:

DLNR	Department of Land and Natural Resources
EA	Environmental Assessment
HAR	Hawaii Administrative Rules
HAVO	Hawaii Volcanoes National Park
HRS	Hawaii Revised Statutes
NRCS	Natural Resources Conservation Service
OEQC	Office of Environmental Quality Control

GLOSSARY:

Allelopathy – indirect effects of one plant on another through modifications in the environment.

Endemic – native species, existing and having evolved exclusively in a specified geographic area (e.g. Hawaiian Islands).

Table of Contents

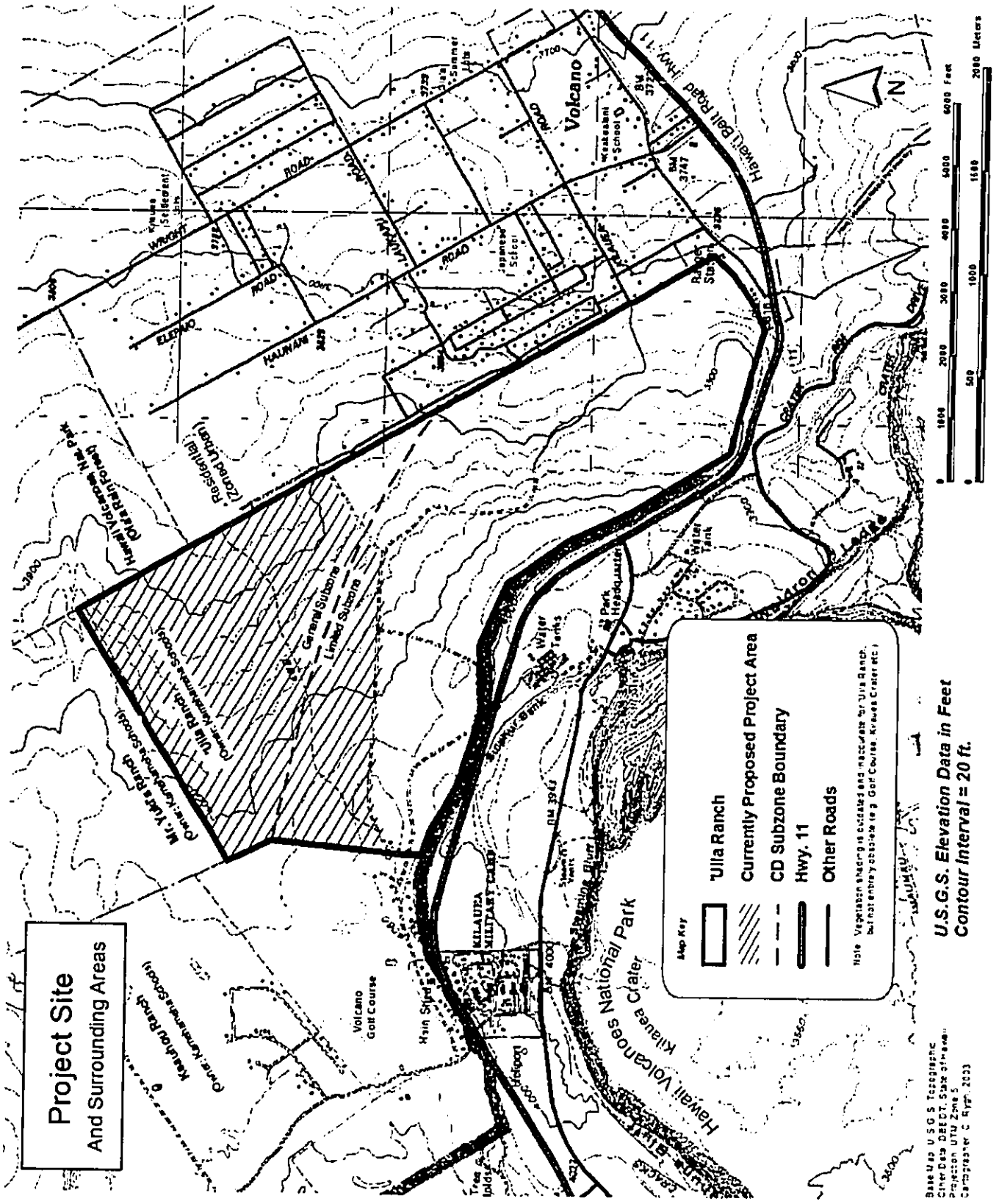
ENVIRONMENTAL ASSESSMENT

(EA)

Project Summary

Project Name:	'Uila Ranch: Invasive Species Control / Pasture Re-establishment.
Applicant:	Kenneth and Mary Ellen Wong (Lessee)
Landowner:	Kamehameha Schools
Tax Map Key:	(3) 9-9-01:17
Existing Use:	Cattle Ranch
Proposed Use:	Invasive species control within a 500-acre portion of the ranch. Minor ground disturbance in 180 acres.
Land Use Designations:	*State Land Use*: Conservation (General and Limited Subzones) *County General Plan Map:* Conservation *County Designation*: Kilauea Forest Reserve
SMA:	There are no *Special Management Areas* within / surrounding the project site.
Action Requested:	Conservation District Use Permit (CDUP)
Approving Agency:	Board of Land and Natural Resources

Figure 1. *Project site map with Conservation District Subzone delineation.*

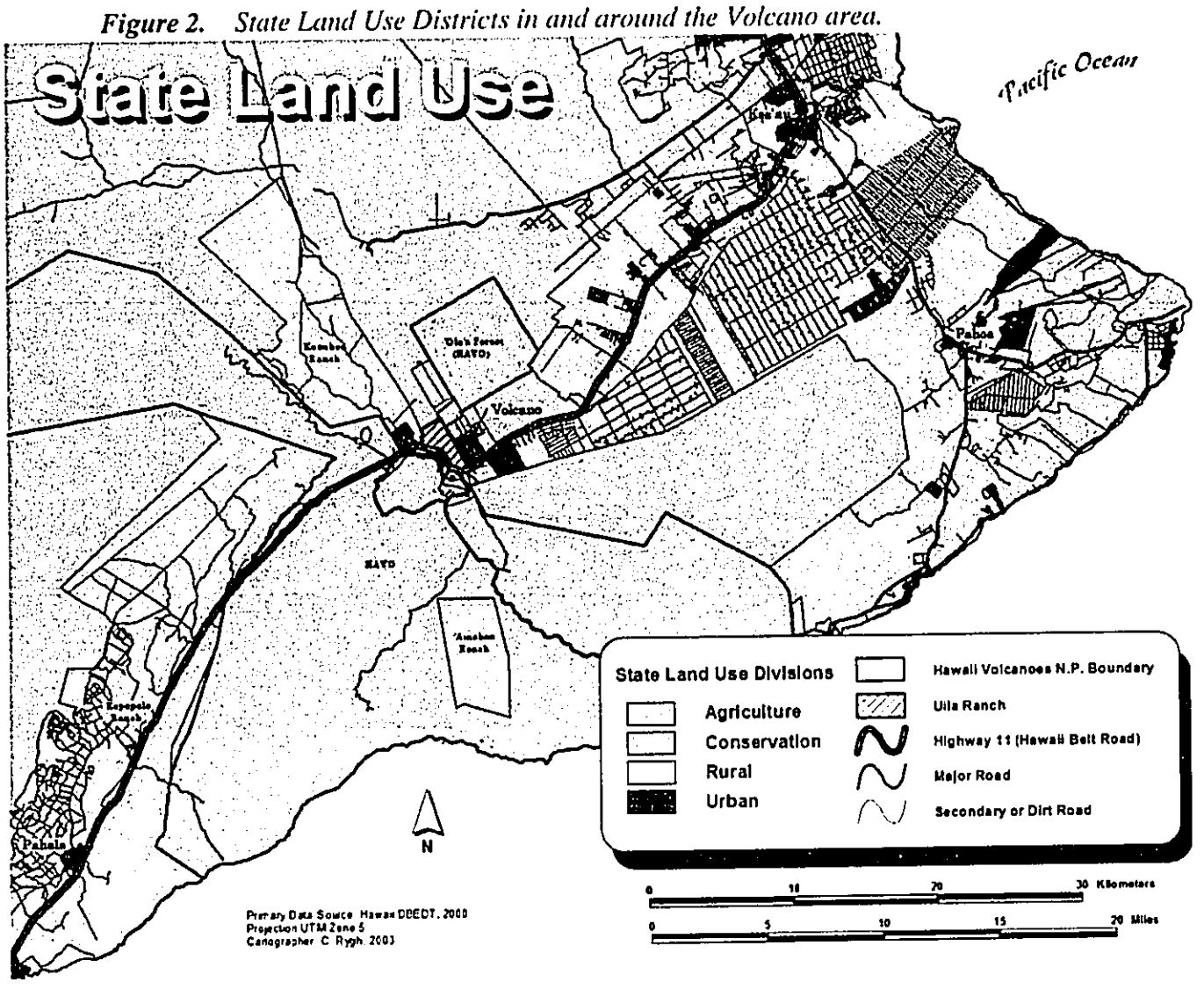


Part 1: Project Location, Purpose, and Need

1.1 Project Location

'Uila Ranch is located on the mauka side of Highway 11, directly across from the entrance area at Hawaii Volcanoes National Park (HAVO). The 1020-acre parcel borders HAVO to the south and southwest, residential lots to the east (and a few on the west), a golf course to the west, and other ranches to the north. A non-contiguous portion of HAVO also shares a small boundary at the north-east corner of the ranch (see Figure 1). Also, included in figure 1 is the location of the General/Limited Subzone boundary (pursuant to HAR 13-5-17). The entire parcel is within the State Land Use Conservation District but shares borders with both Urban and Agricultural Districts (see figure 2).

Figure 2. *State Land Use Districts in and around the Volcano area.*



1.2 Purpose and Need for Action

Private

The growth of noxious weeds, particularly yellow Himalayan raspberry *(Rubus ellipticus)*, is so severe that simple ranching operations such as herding and rotating cattle are made very difficult. The action is needed to maintain the basic functionality and economic viability of the ranching operation. The action is also needed in order for the applicants to fulfill the conditions of their lease from B.P. Bishop Estate / Kamehameha Schools.

Public

The proposed action is anticipated to benefit the public in the following ways:

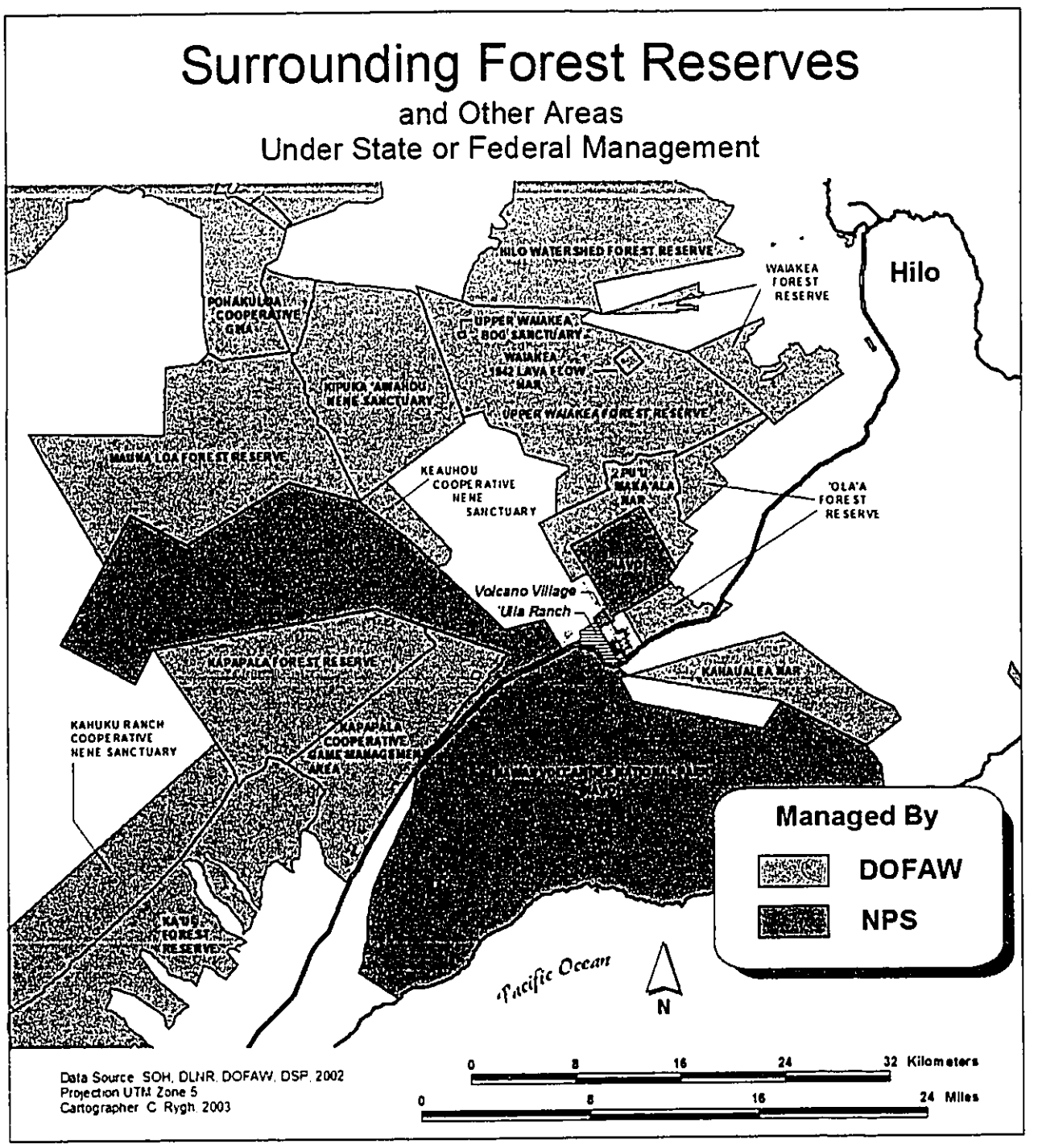
1) Improve the aesthetics of the ranch and possibly open view planes for properties adjacent to the ranch (views of both Mauna Kea and Mauna Loa are possible from the ranch on a clear day).

2) Deter illegal use of the property for marijuana growing (a reoccurring problem in the ranch's overgrown areas).

3) Complement regional efforts (by public and non-profit organizations) in abating the spread of noxious/invasive species into the higher-integrity native forests of Hawaii Volcanoes National Park (HAVO) and several State forest reserves. The ranch is closely surrounded by forest reserves and park lands that are managed by public agencies such as the Department of Land and Natural Resources (D.L.N.R.) and the National Park Service (N.P.S.) (see Figure 3). Considering the present extent and dispersal rate of key invasive species and the large scope of the public lands to be managed, it seems as though the pertinent agencies would benefit from private sector efforts in regional eradication tasks. Removing the seed repository of problematic species from 'Uila Ranch will complement regional efforts of controlling these species. Native species and ecosystems are probably the most important natural resource for the region, short of the volcano itself, and carry implications for the future attractiveness of Hawaii Volcanoes National Park – a major tourism generator for the Big Island and the State of Hawaii.

4) Improve the participatory "classroom" for native Hawaiian and part-native Hawaiian schoolchildren. 'Uila Ranch has the potential to be a stimulating environment for embracing challenging concepts such as resource conservation, economic sustainability, and cultural history. Although the ranch, for practical reasons, can not hold open its gates to the general public for free tours, the applicants do facilitate access for Kamehameha Schools' fieldtrips. Other legitimate educational inquires may also be entertained.

Figure 3. *'Uila Ranch and surrounding forest reserves.*



Abbreviations: (DOFAW) Hawaii Dept. of Forestry and Wildlife, (NPS) National Park Service
(NAR) Natural Area Reserve, (GMA) Game Management Area

1.3 Project Description and Phasing

(For more detailed description of currently proposed action, see Section 3.4)

The Natural Resources Conservation Service (N.R.C.S.) offers assistance to farmers and ranchers who wish to improve the conservation value of their landholdings. The agency has prescribed several ranch improvement activities for 'Uila Ranch in a Conservation Plan (see Appendix 6), and is promoting them through cost-sharing in an Environmental Quality Incentives Program (EQIP) contract. The cooperator is responsible for paying for the implementation of the plan, and will be reimbursed (70% up to $56, 626) for completed portions that meet N.R.C.S. specifications.

Generally speaking, the N.R.C.S. Conservation Plan has three major phases:

1- PROPOSED Removing *R. ellipticus* (and other invasive plants) from existing pastureland.
2- NOT PROPOSED Removing *M. faya* (and other invasive plants) from forested paddocks.
3- NOT PROPOSED Installing fence and irrigation lines to subdivide existing forested paddocks.

Due to the large scope of work outlined in the N.R.C.S. Conservation Plan, and the current economic and practical constraints on the ranch, the applicants wish to apply for a CDUP for phase 1 of the N.R.C.S. plan and implement it, and then proceed in permitting and implementing subsequent phases. The phase for which a CDUP is currently being sought only includes actions for approximately 500 acres of previously cleared pastureland (paddocks 2, 5, 6, and 7). This is the most imperative phase of the project in terms of both invasive species eradication efforts and the ranch's economic revival.

It is believed that phasing will permit more time and capital to develop the best suitable implementation plan for forested portions of the ranch (areas shown as paddocks 3a, 3b, 4a, 4b, and 4 on figure 4). Phase 1 is expected to revive the profitability of the ranch, increasing the budget for later phases. Furthermore, it would be impractical to develop the entire ranch simultaneously, as the livestock will require substantial space to graze while activities ensue in other paddocks. Also, plan details are subject to change after results from phase 1 are analyzed and/or technical advances in alien species management are incorporated.

The currently proposed action (paddocks 2, 5, 6, and 7) consists of grubbing and raking of invasive species in the most heavily infested areas, immediately followed by pasture planting. No grading, or intentional ground disturbance is scheduled. The proposed mechanical clearing will consist of 180 acres staggered into three 60-acre phases, each of which will be further divided into strips based on contour (see Section 4.3, Figure 8). Areas of light to moderate pest infestations will receive herbicide treatment in lieu of mechanical clearing.

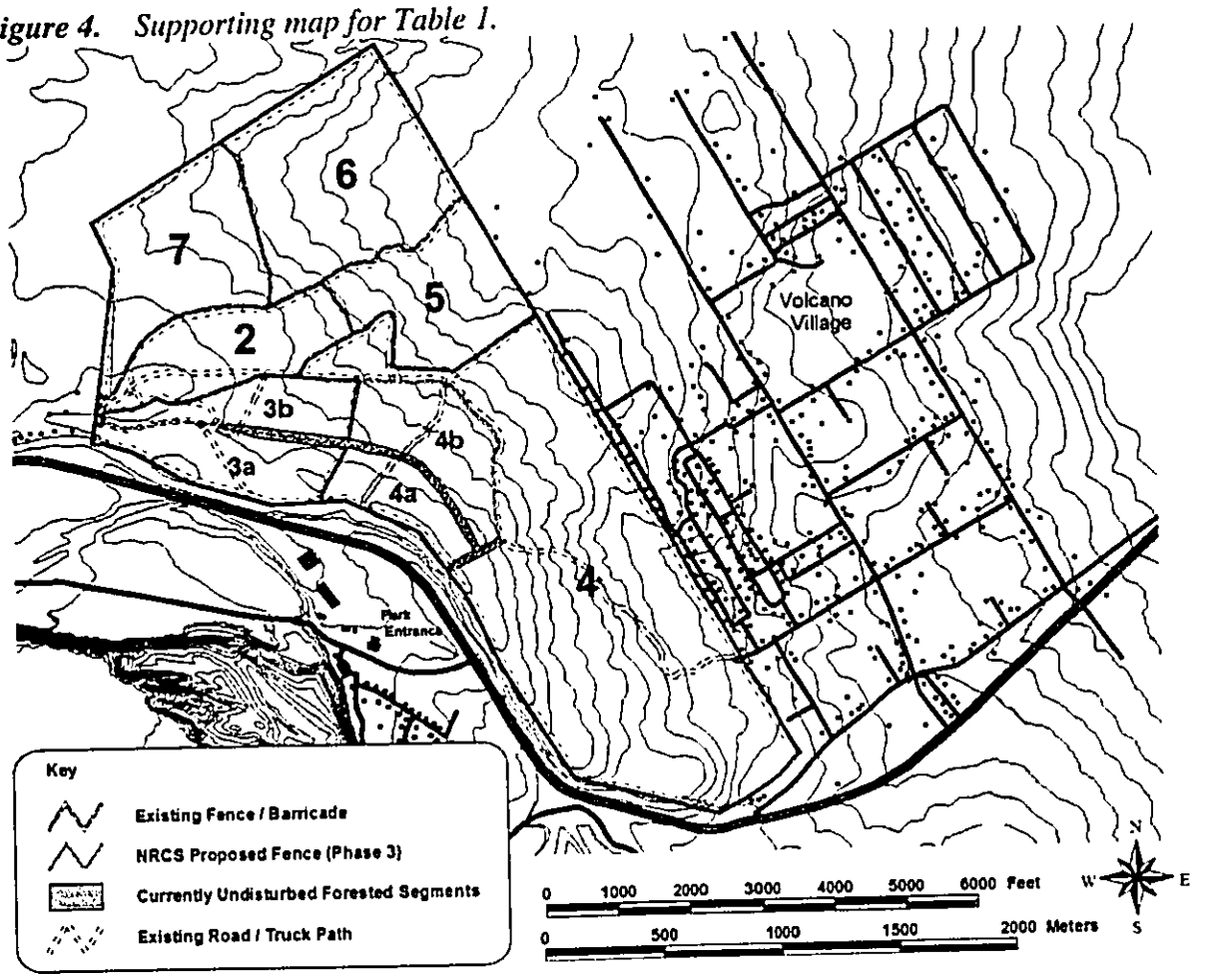
In 2007, after a second EA/CDUA has been accepted, forest improvement activities, and subdivision of existing forested paddocks may ensue. Minor irrigation improvements will be required to service the newly formed paddocks and encourage a more even dispersal of cattle-grazing throughout the ranch. Herbicide follow-up and nutrient management is common to all paddocks (phase 1 and 2).

The starting dates for significant actions specified in the N.R.C.S. Conservation Plan have been summarized in Table 1. For brevity, the table excludes certain items that are either already implemented (e.g. water troughs in yr. 2000), or redundant to listed items.

Table 1. *Summary of N.R.C.S. Conservation Plan* (See Appendix 6 for full plan text).

Paddock (P) →	P6	P5	P2	P7	P3a	P3b	P4	P4a	P4b
Planned Action ↓	*Phase 1* Invasive Species Control in Pastures				*Phase 2* Invasive Species Control in Forested Paddocks				
Nutrient Management	2002, Oct.	2003, Oct.	2004, Oct.	2004, Oct.	2007, Feb.	2007, Feb.	2007, Feb.	2007, Feb.	2007, Feb.
Brush Management	2002, Oct.	2003, Oct.	2004, Oct.	2004, Oct.	2007, Oct.	2007, Oct.	2007, Oct.	2007, Oct.	2007, Oct.
Kikuyu Grass Planting	2002, Oct.	2003, Oct.	2004, Oct.	2004, Oct.	2007, Oct.	2007, Oct.	2007, Oct.	2007, Oct.	2007, Oct.
Herbicide Applications	2002, Oct.	2003, Oct.	2004, Oct.	2004, Oct.	2008, Feb.	2008, Feb.	2008, Feb.	2008, Feb.	2008, Feb.
Forest Stand Improvement	NA	NA	NA	NA	2008, Feb.	2008, Jan.	2008, Feb.	2008, Feb.	2008, Feb.
					Phase 3 Subdividing Forested Paddocks (TO CREATE P3A, P3B, P4A, P4B)				
Fence (approx. 11,200 ft. total)					2007, July	2007, July	2007, July	2007, July	2007, July
Water Line						2007, July			2007, July
Water Trough						2007, July			

Figure 4. *Supporting map for Table 1.*



1.4 Background

The land area comprising 'Uila Ranch, was once a peripheral part of the greater Keauhou Ranch, and was probably utilized for rangeland on a regular basis by the beginning of the 20th Century. Early historical records of cattle sightings in the Volcano area predate 1850. The parcel was first deforested and converted to pasture in the Mid-1960s following the landowner's successful petition to permit such uses within the Kilauea Forest Reserve.

For the first lessee, deforesting the property in yearly increments was a necessary condition of the lease (Appendix 3 contains some documentation of this), as well as maintaining the pastures from being reclaimed by weeds. The ranch's archives reveal that the problem of noxious and invasive plant species retaking the cleared areas was recognized before the forest clearing was even complete. Every subsequent lessee to our knowledge has resorted to bulldozing to effectively fulfill the maintenance conditions of their lease within the budgetary constraints of a relatively small ranching operation. However, environmental regulations have since changed to require a CDUP (Conservation District Use Permit) and an EA (Environmental Assessment) prior to undertaking such activities in an area of more than 10,000 sq. ft. in a Conservation District (HAR 13-5-23, Chapter 343, HRS).

A band of forest along the SW portion of the ranch was never cleared during the ranch's initial deforestation or thereafter. These areas have been intermittently grazed for decades, and have been colonized by *Morella (Myrica) faya* ("faya tree") and other invasive species such as *Rubus ellipticus* ("yellow Himalayan raspberry"). The cattle are rotated into these areas resulting in substantial managerial control over species of ginger that are known to be problematic in Hawaii Volcanoes National Park and other surrounding areas. Control over *M. faya* seedlings is notable but ineffective after seedlings are given the first opportunity to spurt past browse height. No managerial influence is evident for the thorny, unpalatable *R. ellipticus,* which is colonizing gaps and edges of forested areas and quickly overtaking open pastures. Commercial hapu'u fern harvesting by previous lessees may have left the forest under-story particularly vulnerable to this competitive shrub. The land-use regulations within conservation districts have changed considerably since the time of the ranch's inception – placing much stricter regulations on proprietary harvesting of forest resources.

1.5 Public Involvement and Agency Coordination

The Following agencies were consulted during the preparation of the Draft Environmental Assessment:

Hawaii County Council
Hawaii County Planning Department
Hawaii County Department of Public Works
U.S.G.S. Biological Resources Division
Hawaii State Department of Agriculture

Hawaii State Department of Land and Natural Resources (D.L.N.R.)
Department of Forestry and Wildlife (D.L.N.R.)
Historic Preservation Division (D.L.N.R.)
Hawaii Volcanoes National Park, Office of Resources Management
Hawaii Volcanoes National Park, Office of Cultural Resources Management
Ka'u Soil and Water Conservation District
Historic Hawai'i Foundation
Sierra Club
The Nature Conservancy
Hawaii's Thousand Friends
The Outdoor Circle

The Volcano Community Association Board was consulted in April, 2003 and found to be helpful in recommending highly visible places to post a community notice. The notice was similar to the consultation letter sent to the agencies, only it had a large bold heading reading "Attention Volcano Community Members" and was placed prominently on display boards at Volcano Village shopping and convenience destinations. The modified public notice also included a brief explanation of the EA publication and commentary process, and directed their attention to the OEQC's *Environmental Notice.*

Preliminary opinions amongst the Community Association Board members were diverse and insightful. When asked about the previous lessee's clearing activities, one member expressed discontent that the last ranch operators that bulldozed did not seek the appropriate permit(s) and took down old-growth 'ohi'a trees indiscriminately. A question was raised over the size and maneuverability of the bulldozer to be employed. Another board member saw fit to add the importance of preserving some of the young 'ohi'a trees as well as the old ones, for wildlife habitat diversity and sustainability. Another board member and long-time resident of the Volcano area avidly shared the applicant's proactive sentiment toward eradicating *R. ellipticus*, and added his personal observation that birds were the chief dispersal agent of *R. ellipticus* seeds. The board was informed of the environmental review process (EA) and instructed where to send official comments.

A brief article summarizing the project and contact information for the EA was later published in the Volcano Community's monthly newsletter at the start of May, 2003.

Cultural resource administrators at Hawaii Volcanoes National Park expressed a general concern over undisturbed, forested portions of the ranch, while natural resource administrators welcomed efforts to remove *R. ellipticus* from pastured areas and encouraged 1) removing invasive species from the remaining forested areas of the ranch and 2) fostering the long-term regeneration of 'ohi'a trees on the property.

On January 12th, 2004 following the Draft EA comment period there was a public hearing at the Cooper Center in Volcano Village. The hearing lasted nearly three hours and was a great outlet for the community to exchange views and for concerns to be addressed. The following is a brief summary of the proceedings at the hearing.

The DLNR hearing officer explained the proceedings to come, and informed the public of their right to a contested case hearing and how to go about filing. He then introduced the project environmental consultant.

The project environmental consultant began by introducing himself and his credentials, and proceeded to explain the general concept of the Conservation District, that it was privately-owned land, yet all tax-paying citizens of Hawai'i (and future generations) were stakeholders. Then he introduced the proposed action. Then he defined the problem (invasive species) and divulged on the specific menace of Himalayan Raspberry, its limited range relative to other naturalized weeds, its two endemic cousins which preclude the use of biological control agents, and that the birds were capable of spreading seeds into surrounding lands of high ecological conservation value. He then explained that the decision to begin with the 500-acre proposed project area was made because it contained the worst species, was the most important pasture area, was the least sloped, and had the least amount of down-slope adjacent residences. Thus, it was the area with the strongest imperative and the least amount of risk.

The consultant explained his early concerns regarding the proposed project, and what had been done to address those concerns. Since the primary concern of the community seemed to be drainage and flooding, the consultant proceeded to read the mitigation measures proposed in the relevant section of the DEA. Subsequently, he noted the additional mitigation that had been included after hearing community concerns during the comment period. The additional mitigation measures that were not in the DEA were listed as follows:

1. Clearing activities will only take place during the months of April through September (drier season).
2. Mechanical clearing will have a maximum limit of 300 acres (only the areas with the thickest infestations). Note: This was further reduced to 180 acres following the hearing.
3. Light infestations (elsewhere in the project area) will be treated with herbicide only and mitigation with respect to herbicide usage has also been included.
4. Two 20-30 acre strips running generally parallel to contour will be cleared in opposite areas of the proposed project area and replanted in grass before the next two strips can be cleared.

The consultant also added that the Cooperative Extension Service has been consulted and that they were eager to participate in doing some test trials on the ranch to determine the best chemical concentrations and methods for using herbicide on Himalayan raspberry. This information would then help the Cooperative Extension Service to help other farmers, ranchers, and residents in the future.

Edwin Miranda of the NRCS then gave a brief discussion of the Environmental Quality Incentives Program and the scheduled oversight and commitment of the NRCS. He explained that either he or a technician from the NRCS would visit the site regularly to oversee the project and also make follow-up visits for status checks.

The hearing had a good turnout of over thirty people. Thirteen people gave testimony. Out of thirteen, five were strong proponents of the proposed project, five had strong reservations about the project, and three strongly advocated action but had reservations about plan specifics.

By far, the issue of most concern to the dissenters (and those of mixed opinions) was flooding. Most (if not all) of the people strongly opposed to the project reside at 'I'iwi Rd.

directly adjacent and down slope from the ranch. However, only one of them lives directly down slope from the proposed project area, the rest live adjacent to areas that are not currently proposed. Nonetheless, past flood incidents have made some of the residents of 'I'iwi road very skeptical of the ranch's clearing activities. The person down slope from the proposed project area testified that his five acre parcel would be twenty feet under water after a heavy rain. Another individual brought photographs of the 1990 flood which occurred while the previous lessees were illegally clearing trees in areas above his property.

Of the seven or eight individuals that expressed concern over flooding, the following comments or references were also made:

- What is going to be done about the flooding...who will be liable?
- Could you plant rows of (native) trees after the clearing?
- What is going to be done after the clearing to ensure that the weeds don't grow right back again?
- What stage is the EA currently in?
- Why can't you leave a buffer strip of forest along the residential area bordering 'I'iwi road (an area that is not currently proposed)?
- Asked NRCS for a drainage study for Volcano Village in the future. (Note: this residential area does not have a drainage plan).
- The roots of 'ohi'a trees can be badly damaged by bulldozers even if the trees themselves are avoided.
- The flooding gets continually worse since the clearing activities of the previous lessee.
- Cleared strips (proposed at the hearing) should run along contour.

There were also several people there who strongly advocated the project. One of them, a rancher who had cleared yellow Himalayan raspberry on his ranch before said, you don't even need to touch the (bulldozer) blade to the ground, it (raspberry plants) has shallow roots and comes right up without needing to grub. He continued, a rancher is a grass farmer...the applicant is not going to disturb any more pasture than necessary (because it is counterproductive). Two other people with hands-on experience also testified that one doesn't need to lower the blade to the ground to remove these shallow rooted plants. One of them was a career bulldozer operator who had years of experience with the U.S. Forest Service. When asked what to do with the piles of removed brush so that they don't grow back, he responded that when the roots came up, you rolled the brush a few times and the dirt shakes off of the roots, then you pile it up "keep the dirt out of the deck" and let the pile decompose....come back next year and run over the pile until it has the consistency of mulch and spray with herbicide only if necessary.

Another neighbor on the upper side of the ranch emphasized the importance of getting these invasive species under control, said that the applicant is trying hard to do the right thing and that the flooding may have been worsened when the ranch was originally cleared, but that wasn't the applicant's fault, and that the proposed brush removal would not make much difference.

Another testimony came from an environmental law professor that included a legal / conceptual comment regarding the EA process and the DEA - Public hearing – FEA chronology. She asked the DLNR representative why the public hearing came prior to the

FEA and suggested that this sequence means that parties with reservations must request a contested case in order to protect their right to do so – before the FEA has been published. She then urged the concerned members to file for a contested case hearing because after ten days there would be no other options.

Two individuals testified that they wished to request a contested case hearing.

1.6 Regulatory Requirements and Necessary Permits

The proposed actions are identified land uses within the Conservation District, but ones that require a Conservation District Use Permit (CDUP) (HAR 13-5-23, L-4) and also invoke the public review process (EA) outlined in Chapter 343, HRS (and implemented through HAR 11-200-12). For the proposed action, Chapter 343, HRS is invoked on the basis of anticipated ground disturbance in an area of more than 10,000 sq. ft.

Previous correspondence (see Appendix 3) between the D.L.N.R. and the applicant established that the ranch is located in both the limited and general subzones. The boundary location can be seen in figure 1.

It is anticipated that an EA will result in a Finding of No Significant Impact, since the project is comprised of identified land uses (with respect to the subzones) and no significant, detrimental impacts to the environment are expected. Furthermore, a conservation plan is being implemented in conjunction with the U.S.D.A. Natural Resource Conservation Service (N.R.C.S.) (see Appendix 6).

1.7 Consistency with Government Plans and Policies

The State Land Use designation for the property is Conservation. The proposed action is an identified use in both the Limited and General subzones. The D.L.N.R. permitted the land to be cleared in the 1960s and used for livestock ever since. But Chapter 13, HAR has since been revised to place stricter guidelines on tree harvesting activities in the Conservation District as well as maintenance activities such as thinning out more than 5 noxious trees. The environment, the public, and the future generations are all stakeholders in the lands protected under the Conservation District. However, the lands are privately owned by Kamehameha Schools (formerly B.P. Bishop Estate). By filing a CDUA and initiating a public environmental review process (EA), and complying with N.R.C.S. implementation standards, the applicant seeks to arrive at a solution that balances ranch maintenance concerns with cost-feasibility and environmental (public) benefit.

The findings of the EA conclude that the immediate removal of *R. ellipticus* from the heavily-infested, existing pastures (paddocks 2, 5, 6, and 7) will fulfill the objectives of the Conservation District and that the *No Action* Alternative will certainly allow the important natural resources of the property and surrounding private and public lands to depreciate by aiding the spread of noxious, invasive species throughout one of the most

valuable conservation areas in the State of Hawai'i. Other alternatives are impractical and/or unaffordable.

The County designation is Kilauea Forest Reserve, and the property is not located in or adjacent to Hawai'i County's Special Management Area (SMA). The following courses of action for the Ka'u District (in the County General Plan) are embodied by the proposed action:

- The County shall assist the further development of agriculture in the area.
- The natural beauty of the area should be recognized as a major economic and social asset.

Part 2 Technical Background

Cattle as a Biological Control Agent

The most important biological control capacity of cattle on 'Uila Ranch can be readily observed on the SW boundary of the ranch; the applicant's ranch is nearly free from ginger, while directly on the HAVO side of the fence, the ginger is growing rampant (see photo A, p. 17). Cattle are also commonly observed browsing juvenile *Morella (Myrica) faya* (one of the most problematic species for HAVO) and slowing its vertical growth considerably (see photo B, p. 17). Once the *M. faya* trees are permitted to grow taller than browse height – the cattle exert little or no control. Unfortunately, the present herd on 'Uila Ranch appears to have little or no management influence over the thorny yellow Himalayan raspberry (*R. ellipticus*) plant, regardless of grazing method.

The biological control capacity of cattle in forested and partly-forested environments is hinged on grazing management capability, as well as stocking rate, and the palatability and digestibility of targeted pests. In general, smaller paddocks allow the herd's appetite to be focused to perform brush management functions in a timely rotation – avoiding nutritional losses in the herd. By contrast, having large undivided forest paddocks complicates rotation scheduling decisions, effectively obscuring the threshold between unrealized weed-control potential (a long-term management concern) and incomplete nutritional intake (an immediate management concern). The final phase of the N.R.C.S. Conservation Plan (NOT PROPOSED AT THIS TIME) intends to increase the biological control capacity of cattle in the forested areas of the ranch by subdividing forested paddocks to increase grazing management capabilities.

'Ohi'a and Cattle

There are several prominent examples of 'ohi'a and cattle coexisting on the landscape throughout East Hawaii. Even juvenile 'ohi'a trees are selectively avoided by cattle, probably due to the low digestible content and poor palatability of the leaves. While cattle do not favor 'ohi'a, consistently high stocking rates and dense pasture may prohibit the ongoing regeneration of 'ohi'a forest. On intensively grazed ranches, 'ohi'a regeneration may be limited to areas where fallen trees act as nurse logs. On 'Uila Ranch the stocking rates have been relatively low; large stands of 'ohi'a saplings can be seen in several areas of the ranch, indicating that at current stocking rates, regeneration is possible (see photo C, p. 18). Interestingly, the largest, most homogenous stands of 'ohi'a saplings seem to correspond with areas that were previously bulldozed. Indeed, 'ohi'a trees are specialized at re-establishing disturbed areas.

'Ohi'a represents a somewhat positive anomaly amidst many historical difficulties associated with livestock (particularly feral livestock) in the Hawaiian Islands' ecosystems. Cattle inevitably change a landscape's attributes, and graze palatable plants indiscriminant of their endangered status. However, a limited degree of wildlife protection (trees and particularly birds) can be accomplished in conjunction with this agricultural land use, under management regimes that reflect this intention. Photograph D

(p. 18) shows one of the better-faring portions of the ranch and is an exhibit of the desired outcome of the proposed activities.

The 'ohi'a trees are desirable for the ranching operation as well. 'Ohi'a trees provide shade for cattle during hot days and wind-break during cold nights, and are believed to moderate the microclimate to the liking of kikuyu grass – a shade tolerant forage. 'Ohi'a roots assist in soil stability and erosion control. The ranch operators (applicants) feel that 'ohi'a trees contribute to the aesthetics and character of the ranch as well.

Old-growth / New-growth 'Ohi'a

Upon recognizing a concern in the adjacent community, the applicants have decided to take substantial measures to ensure that several cohorts of seedling and juvenile 'ohi'a trees be avoided in the clearing process, in addition to native trees 6 inches or more in diameter. These measures will help ensure the long-term survival of 'ohi'a on the ranch after the remnant, old-growth individuals collapse. Many of these large trees (left behind upon the initial deforestation of the ranch) are quite old and appear to be undergoing considerable dieback. The older 'ohi'a trees are an asset to insect-feeding native birds such as the 'Akepa (*Loxops coccineus)*, whereas the new-growth and middle-aged trees are an asset to native birds that consume lehua nectar, or some combination of the two.

Kikuyu Grass

The portion of the ranch where clearing is currently being proposed will be planted with kikuyu sprigs immediately after clearing. Kikuyu (*Pennisetum clandestinum*) is a deep rooted grass whose chief propagation method is vegetative (i.e. spreads via "runners"). Kikuyu is favored by land managers in East Hawaii for its rapid re-establishment properties and ability to quickly stabilize soil on slopes after disturbances. Although it should be noted that kikuyu itself is an invasive species, it is already naturalized in the Volcano area and is commonly planted for agrarian, domestic, and development uses throughout the State. Generally, kikuyu is not considered noxious or threatening to native Hawaiian ecosystems. For perspective, consider its dry land African counterpart, fountain grass (*Pennisetum setaceum*), which is ravishing the delicate mesic ecosystems on the leeward side of the Big Island and dramatically increasing regional fire hazard risk. The N.R.C.S. Conservation Plan's outlined strategy towards combating re-colonization by *R. ellipticus* relies heavily on the swift establishment and high competitiveness of kikuyu grass. Kikuyu is a highly competitive forage grass due to its rapid propagation, allelopathy, and shade-tolerance properties. The primary native habitat of kikuyu grass is along the forest margins of the highland plateaus of central and eastern Africa (Marias, 2001). This may be a natural endowment for competing with *R. ellipticus* along edges of the forested areas on 'Uila Ranch. The presence of established mats of kikuyu on neighboring Keauhou Ranch was acknowledged as a principle deterring force to *R. ellipticus*, without which the current outbreak would probably be far worse (Koch, unpublished).

Relative to other forage grasses, kikuyu is high in protein and low in carbohydrates – so much so, that a diet consisting strictly of kikuyu could lead to toxic levels of nitrate in the cow's bloodstream (resulting in oxygen starvation) in some instances. This problem is ameliorated by supplemental intake of readily digestible carbohydrates (Marias, 2001). This suggests that although kikuyu is a relatively high-value forage by local standards, cattle in forest / pasture systems based solely on kikuyu pasture will proactively seek other vegetative sources for missing dietary elements on a regular basis, as opposed to only browsing alternative sources (e.g. ginger, juvenile *M. faya*) when there is a shortage in kikuyu grass.

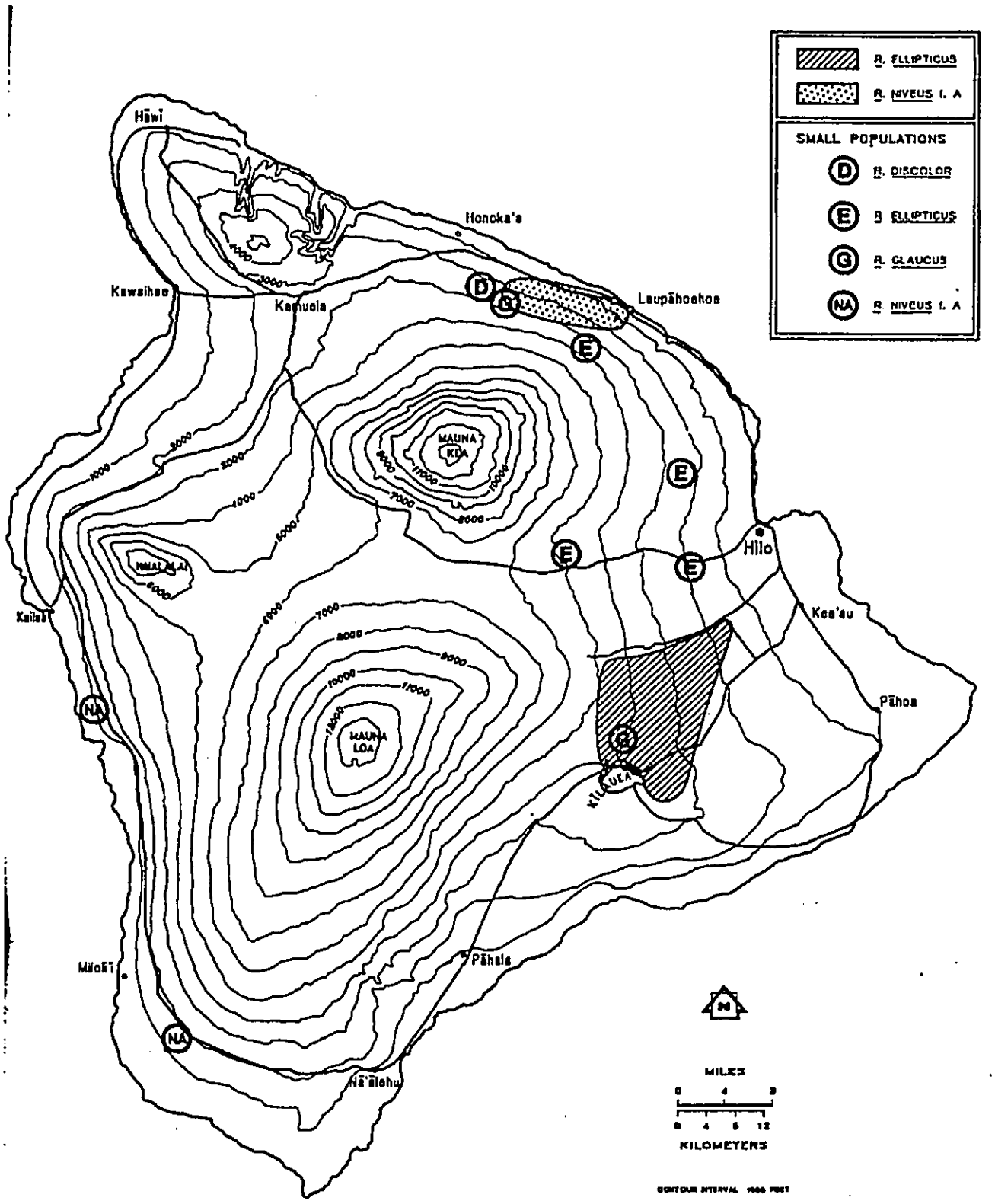
Yellow Himalayan Raspberry

Yellow Himalayan raspberry (*Rubus ellipticus*) is native to a wide variety of habitats across a broad geographic range encompassing the Himalayan region of northern India, much of southern and central China, and parts of Tibet and Burma. It was introduced to Volcano Agricultural Experiment Station and is first reported to have escaped their nursery as early as 1961. Since then it has spread vigorously in the Volcano area. An extensive report on the range of *R. ellipticus* was conducted by Gerrish, Stemmermann, and Gardner (1992) for the Cooperative National Park Resources Studies Unit, from data sources ranging from 1976 to 1992; it is therefore probably under-representative of current range. The main infestation range as of 1992 was still limited to the Volcano area, where it is a concern for private and public land managers
(see map in Figure 5).

It is widely believed that birds are the chief vector for *R. ellipticus* seeds. In general, *R. ellipticus* berries are not believed to be an important food source for endemic Hawaiian birds. However, the thorny berry patches constitute a huge food source for opportunistic alien birds, potentially increasing the size and range of their populations in the Volcano area. While invasive bird species such as the Kalij pheasant (prolific and abundant on the ranch) may not offer direct competition with any Hawaiian honeycreepers (for example), they are likely host populations for avian malaria – the nemesis of honeycreepers and other rare endemic birds.

Supporting burgeoning populations of malaria-resistant birds in the Volcano area may be of particular concern since it corresponds with the lower-altitudinal-range of many precious, endemic bird species, and the warm season, upper-altitudinal-limit of mosquitoes. Mosquitoes are the vectors that transmit avian malaria from resistant carriers (foreign birds) to Hawaii's endemic birds, which are extremely vulnerable to the disease owing to the fact that their recent evolution was in isolation from it. We present no data to verify and quantify the benefit of the proposed project to native birds, but maintain that the abundance of Himalayan raspberries on the ranch is a substantial food source that favors opportunistic, invasive birds (particularly the wild game birds whose populations are very high on the ranch), more so than endemic bird species, which are (typically) specialized to exploit native vegetative habitat.

Figure 5. The ranges of four alien Rubus species (Gerrish et al., 1992)



As previously mentioned, the biological control capacity of cattle over *R. ellipticus* is negligible (at present stocking rate). Nor are there any other known species, native or naturalized to the Hawaiian Islands, which wholly consume the *R. ellipticus* plant, or otherwise limit its population growth. Several predatory and disease-inducing biological agents have been discovered by researchers in northern India. The most promising agents up to date in the scientific literature are fungal agents, many of which are known agricultural pathogens. Other identified fungal agents have not undergone sufficient field testing to establish host ranges and other preliminary data necessary to commit them to common use (Gardner, 1999).

Introductions of biological agents to oceanic island ecosystems typically carry more profound implications (in terms of species conservation) than similar introductions in continental settings. A relatively high proportion of endemic species makes these ecosystems particularly important to global biodiversity. For Hawai'i, prudence is doubly necessary since endemic raspberry species (*Rubus hawaiensis* and *Rubus macarei*) exist here. Furthermore, the reduced competitiveness of these species (e.g. endemic raspberries lost their thorns) and the relatively low total species composition common to native oceanic-island ecosystems – makes Hawaiian ecosystems less resilient to the potentially destabilizing effects of newly introduced species. Thus, it is very unlikely that biological control agents for *R. ellipticus* will be permitted / implemented in Hawai'i in the foreseeable future.

Shading is another control technique that is not pragmatic for eradicating *R. ellipticus*, due to its height/stature and shade-tolerant properties. Established forest may inhibit its spread to some degree, but this is not a viable method of controlling existing thickets. The diverse native habitats of *R. ellipticus* suggest that it is also tolerant to moisture and nutrient deficiencies (Gardner, 1999).

Experimental trials on the nearby Keauhou ranch (by Forest Solutions Inc.) have indicated that herbicide alone can be effective against *R. ellipticus*, but large amounts of herbicide and labor are required. It should also be noted that the long-term efficacy of this removal practice has yet to be evaluated. A particular management concern that is evident from first-hand observation at 'Uila Ranch is the tendency for *R. ellipticus* to physically restrict access to humans and cattle, (see photo E, p. 19) effectively precluding management access for itself and other invasive species that occur within heavy *R. ellipticus* thickets.

Morella (Myrica) faya

Presently, this species is wreaking havoc in the native forests of Ka'u and elsewhere (see Photo F, p. 19). Hawaii Volcanoes National Park has seen a dramatic influx of this fast-growing species over the past decades. Unlike *R. ellipticus*, the range of this tree species has far exceeded the threshold at which containment is still a viable strategy. However, since there are no endemic Hawaiian species that are closely related to *Morella faya*, biological control techniques still offer hope of controlling this pest.

Two biological control agents have already been extensively tested and shown to be either ineffective or insufficiently effective. One agent is *Septoria myricae*, a leaf spot fungus field-tested by USGS – Biological Resources Division and the Hawaii State Department of Agriculture. The other agent that has undergone substantial field testing in Hawaii is *Caloptila schinella*, a leaf-mining moth tested by USDA Forest Service. Other agents have been targeted but not yet approved or field-tested in Hawaii.

For the time being, there is no easy way to manage *M. faya*. Years ago, the ranch hosted field trials for the above-mentioned leaf spot fungus, administered by the Hawaii State Dept. of Agriculture. The trials yielded no significant effects.

Total eradication of *M. faya* trees from the ranch would be costly and difficult and make little impact on the widespread distribution of this species, unlike *R. ellipticus* which is still relatively limited in range. Therefore, the Conservation Plan prioritizes *R. ellipticus* removal activities in existing pastures where *R. ellipticus* infestation is the most extreme. Reclaiming these existing paddocks to pasture will revive the profitability of the ranch, so that capital can be committed to the forest improvement phases of the Conservation Plan.

A separate EA and CDUP will be submitted for forested portions of the ranch. A small possibility exists that an effective biological control agent for *M. faya* will be discovered by then. Unlike *R. ellipticus*, neither the family, nor the genus, nor the species of *M. faya* is represented in the native Hawaiian biota. Many private and public land managers in Ka'u, particularly Hawaii Volcanoes National Park, anxiously await an effective biological agent for *M. faya.*

Cattle are effective at browsing *M. faya* trees down to shrub height, given adequate stocking rates and/or rotation periods. However, once the trees grow tall enough to maintain leaf cover above browse height, they flourish unimpeded by livestock, and proceed in overtaking native forest.

Anticipated Conservation Value of the Proposed Project

While the conservation of 'ohi'a trees is desirable, it should be noted that 'ohi'a trees are neither threatened nor endangered. However, their presence is a stabilizing force against overall native ecosystem collapse and they provide important functions as food / habitat for several endemic bird species. The Volcano area is located in one of the most important avian conservation regions in the State. Several species of Hawaiian honeycreepers exist in this region, which are known to utilize lehua nectar and/or eat

insects from the bark of 'ohi'a trees. A multi-generational population of 'ohi'a trees on the ranch will contribute to the regional contiguity of these important food resources. Several active recovery plans for endangered bird species specifically reference the Kilauea Forest Reserve and adjacent lands as having important habitat in need of protection.

In so far as endangered plants, the botanical survey conducted on the ranch (see Appendix 1) indicates that years of cattle ranching has already caused their disappearance from the 500 acres for which a CDUP is currently being sought. By conserving 'ohi'a and other native trees on this property, and removing noxious plants, the project aims to mitigate the ranch's negative impacts on the native ecosystem and reinforce regional *R. ellipticus* eradication efforts.

Although the N.R.C.S. Conservation Plan mentions improving habitat for native and game birds, the latter is not broadly recognized as having great conservation value in Hawaii, where endemic, native birds take precedence. In fact, exotic game birds like the Kalij pheasants are probably the main dispersal agents of *R. ellipticus* seeds as well as immune carriers of avian malaria. Furthermore, the applicants do not promote bird hunting on the property, so there is no proposed management for game bird populations.

Educating local schoolchildren about the native forest and its management challenges, is perhaps one of the most valuable long-term conservation objectives in the plan. The realization of this objective is hinged on the level of scholastic participation as well as the success of the Conservation Plan by its own outlined objective – i.e. the compatibility of native forest with a sound livestock management system.

PHOTO - A Ginger invading under-story in HAVO is nearly absent on ranch. However, this forested portion of HAVO does not have nearly as much *R. ellipticus* as the forested portions of the ranch (not shown), owing partly to the fact that the ranch's hapu'u has been harvested and grazed in decades past.

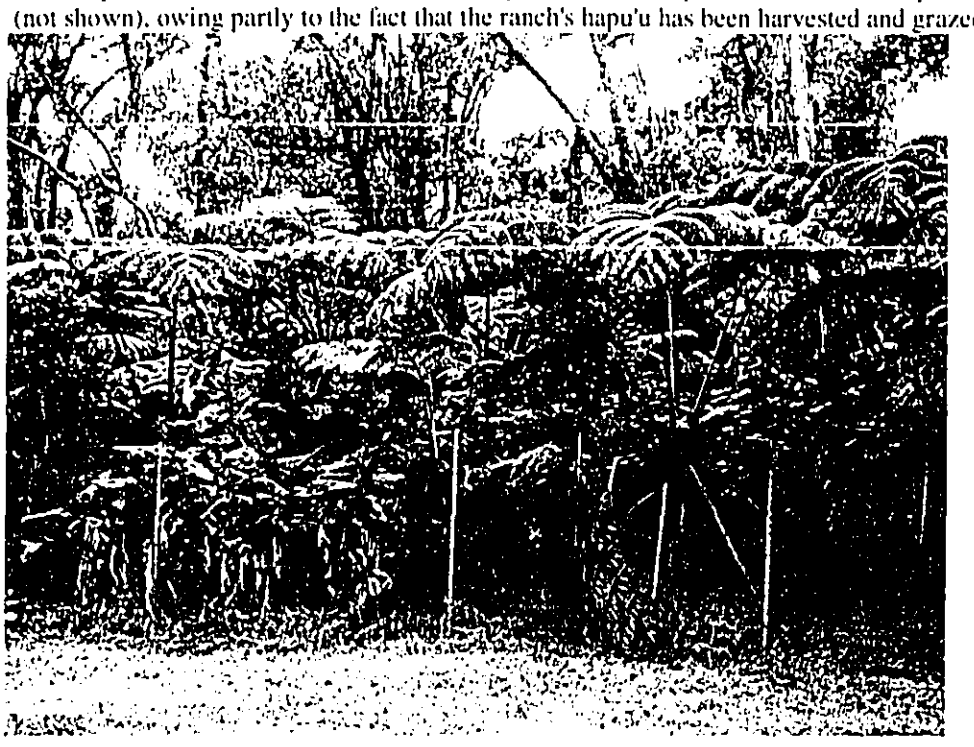


PHOTO - B *M. faya* is one of the most threatening invasive tree species in Hawaii Volcanoes National Park and the Ka'u district. It is well established and extremely aggressive. Cattle have some potential in abating its growth and spread, but are ineffective after the seedlings are given an opportunity to spurt past browse height. The cattle may play an important role in an integrated pest management system, but are unable to completely control *M. faya* without substantial managerial input.

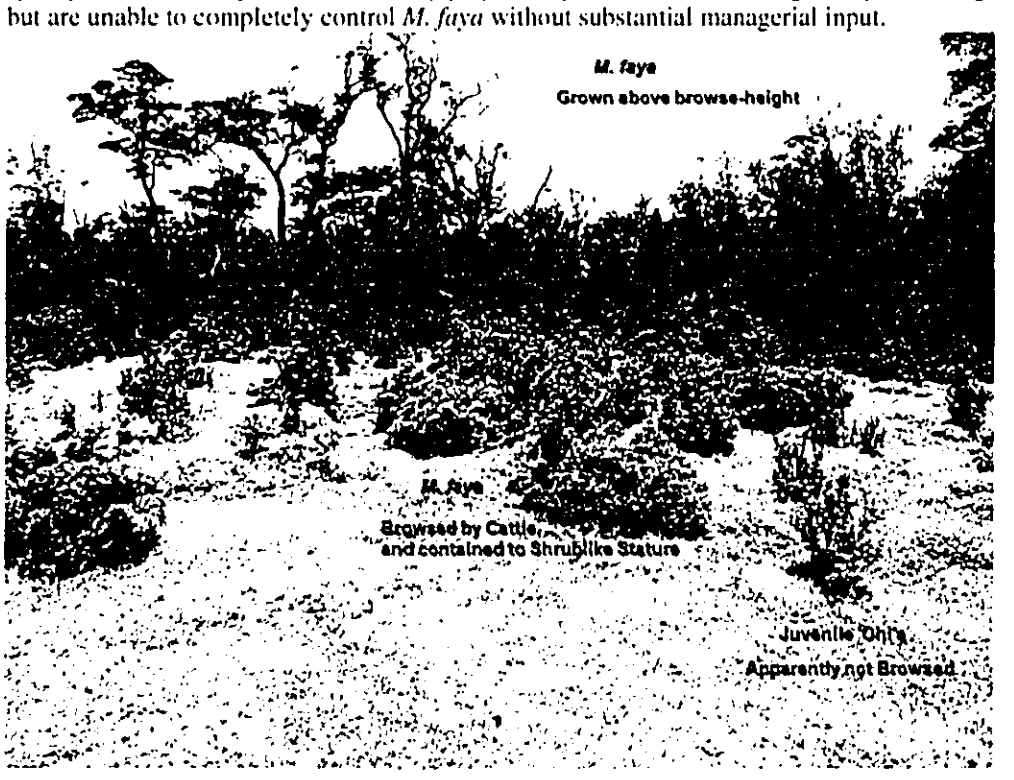


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PHOTO - C One of the areas exhibiting pasture w/ dense 'ohi'a re-growth. Areas such as this one will be avoided during clearing activities, as well as the scattered old-growth individuals. This is evidence that 'ohi'a regeneration is possible on the ranch at present stocking rates.

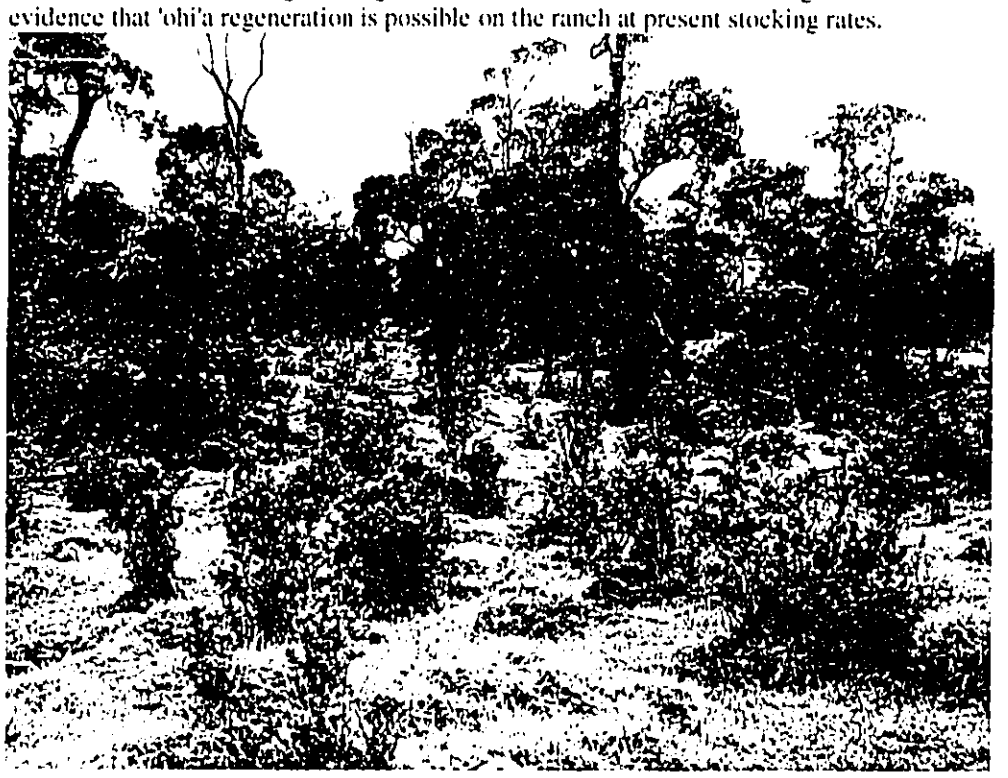


PHOTO - D One of the non-infested areas existing on the ranch exhibits the desired outcome of the project and gives a sense of the level of conservation attainable on the ranch. 'Ohi'a trees make a limited contribution to the regional contiguity of potential foraging locations for several species of honeycreepers. A large variety of native plant species are not present due to decades of cattle grazing.

RECEIVED AS FOLLOWS

PHOTO - E *R. ellipticus* (in the left foreground) grows to impenetrable thickets that restrict the access of cattle to graze and maintain other pests such as *M. faya*. This invasive species is growing rampant in pastures and is beginning to overtake gaps and edges of forested areas of the ranch as well. Its removal from the ranch would make a substantial impact, since its range is still fairly limited to the Volcano area. Furthermore, *R. ellipticus* is among the least likely to be controlled by introduced biological control agents since Hawaii is home to two endemic species of the same genus.

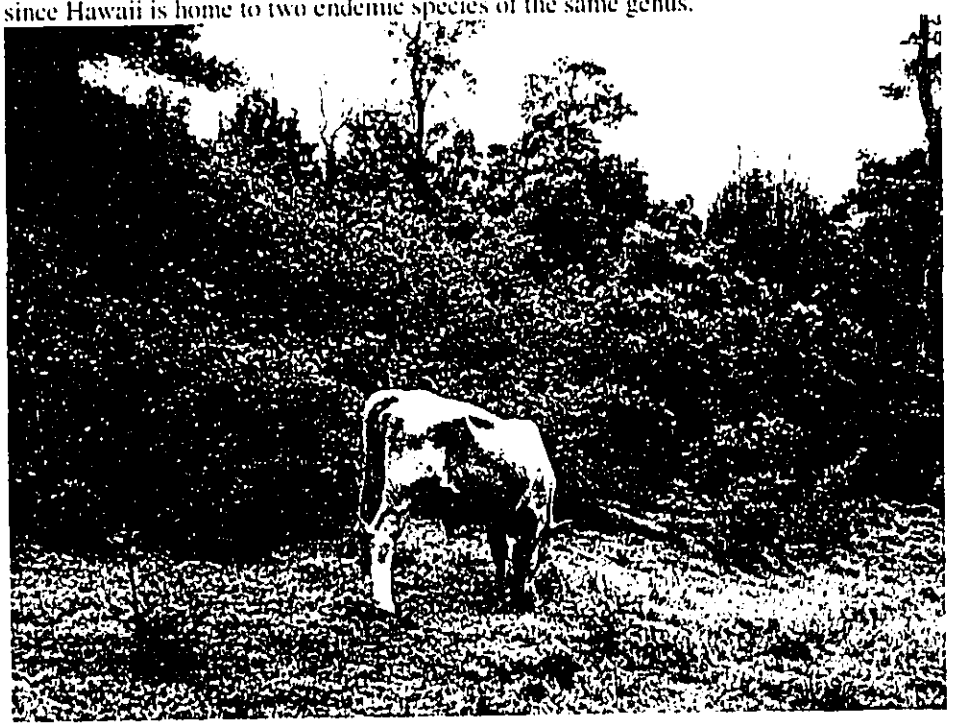
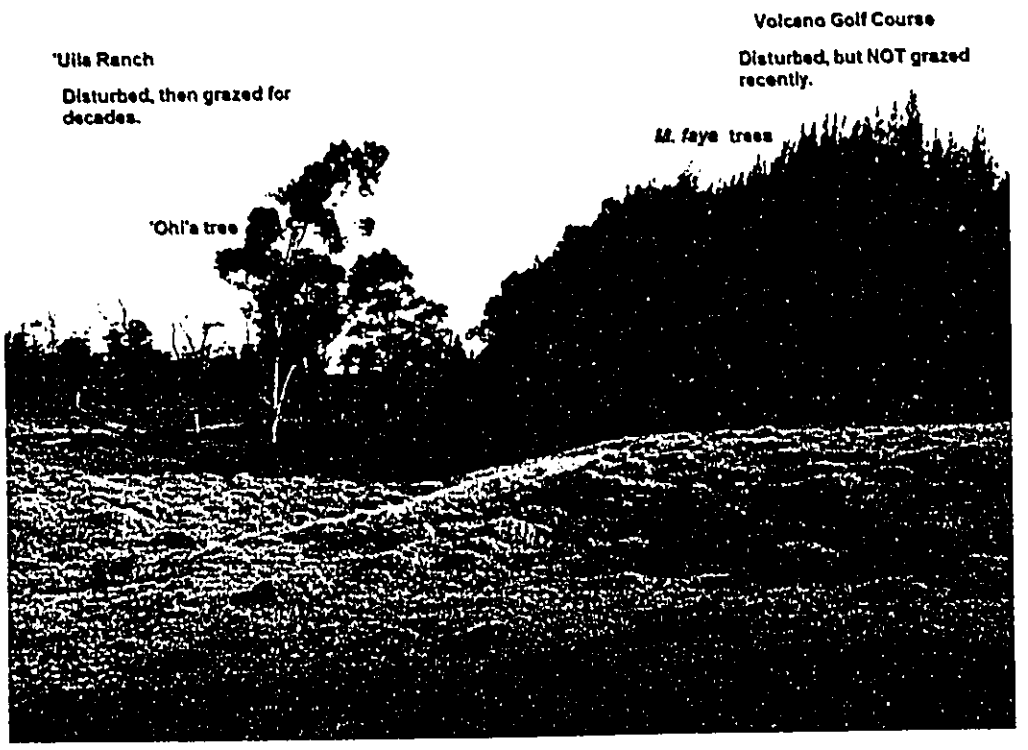


PHOTO - F Another boundary contrasting effects of differing land-uses. Although portions of the ranch also harbor *M. faya* trees, the managerial influence of cattle has great potential.



Part 3: Alternatives

3.1 No Action

The no action alternative offers no abatement to the current invasive species problem on the ranch or its potentially long-reaching effects on surrounding publicly-managed lands. The management situation clearly worsens with time as thickets grow taller and more impenetrable. More importantly, the ranch in its current state constitutes a major *R. ellipticus* seed source that probably contributes hundreds of *R. ellipticus* seeds to surrounding publicly managed lands each time a passing bird stops to forage for *R. ellipticus* berries. Thus, the No-Action alternative may conceivably incur additional costs and setbacks to *R. ellipticus* management efforts in the surrounding region by the D.L.N.R., N.P.S., and private land owners. Inaction is largely responsible for the current situation; ranch management efforts have been limited by lessee transitioning, and the economic constraints of the current lessee (applicant), who is attempting to procure the N.R.C.S. Conservation Plan assistance funds.

3.2 Biological Control

Biological Control of *R. ellipticus* is not possible for the foreseeable future, due to the presence of two endemic species of the genus *Rubus* found on the Big Island. Thus, bio-control is not a feasible alternative for the currently proposed phase of the Conservation Plan.

Discovering an effective biological control agent for *Morella (Myrica) faya* is a high research priority for the Hawaii State Dept. of Agriculture and the U.S.D.A. Forest Service, which have already shown several potential control species to be ineffective. Field trials of a leaf spot fungus (*Septoria myricae)* were actually conducted on 'Uila Ranch by the Hawaii State Dept. of Agriculture, which determined that the agent was ineffective.

For the time being, biological control is not a viable alternative for either *R. ellipticus* or *M. faya.* However, it is possible that effective biological control solutions for *M. faya* may be developed in the coming years. This could dramatically reduce both environmental and financial costs of implementing the secondary phase(s) of the project. Thus, a separate EA/CDUA will be submitted later, to address the forest improvement phase of the Conservation Plan just before it is implemented.

3.3 Chemical Control

Chemical control trials of *R. ellipticus* have recently been implemented on neighboring Keauhou ranch with a specific objective of researching (Koch, unpublished) the cost-effectiveness and site-suitability of this control method. The project cost-summary analysis suggests that the implementation of this control method by itself would cost the applicants upwards of $80,000 for the proposed 500 acres alone. Also, the long term effectiveness of this method has yet to be studied. So far, the evidence suggests that incomplete coverage by herbicides results in plant survival, so a considerable task (which

was not figured in the study) persists in monitoring the success rate, reapplying to those that were insufficiently treated, and waiting for the brush to rot away. The latter point confirms the inappropriateness of this control method for a ranch. The focus of the cost-benefit study for the chemical method was geared toward planting Koa saplings amid the decaying brush. For the applicants, follow-up herbicide, pasture planting, monitoring, and grazing would be forced to wait until the *R. ellipticus* brush died and withered away. Meanwhile, *R. ellipticus* and other pests may have re-established themselves within the inaccessible thickets of decaying *R. ellipticus*. Also, the proposed action requires far less herbicide use than this option.

3.4 Proposed Action (see also Section 1.3)

For discussion purposes, there are three general phases to the activities outlined in the N.R.C.S. Conservation Plan:

1- PROPOSED Removing *R. ellipticus* (and other invasive plants) from existing pastureland.
2- NOT PROPOSED Removing *M. faya* (and other invasive plants) from forested paddocks.
3- NOT PROPOSED Installing fence and irrigation lines to subdivide existing forested paddocks.

This EA/CDUA only assesses the environmental impacts for phase 1, which involves approximately 500 acres of previously deforested pasture. To summarize, the currently proposed project involves initial mechanical clearing (raking and grubbing) of *R. ellipticus* in existing pastures to open immediate access for pasture replanting and herbicide management of *R. ellipticus* seedlings and other noxious volunteers. The yellow-shading in Figure 10-A represents areas where *R. ellipticus* is the dominant coverage, wherein mechanical clearing is planned. Although Himalayan raspberry is shallow rooted and can be removed with relatively little ground disturbance, the applicant will commit to several mitigation measures in light of drainage concerns in the adjacent community. The total area of proposed mechanical clearing has been reduced to 180 acres, which will be cleared in three staggered phases of no more than 60 acres each. In addition, each 60-acre phase will be further subdivided into contour-based strips with buffers in between, closely resembling the schematic in Figure 8. Mechanical clearing will only be permitted from the months of April through September and will immediately be followed by grass planting. Unless pasture re-establishment goes much quicker than anticipated, clearing the 180 acres will probably take three years (three summers) to ensure that no more than 60 acres is de-vegetated at the same time.

Areas where invasive species are not the dominant coverage will be sprayed with herbicide instead, to reduce the acreage of anticipated ground disturbance. Also, spots with remaining pest plants where the bulldozer steered clear of 'ohi'a trees will need to be sprayed with herbicide. The "drizzle method" will be employed for its target-accuracy and reduced-drift characteristics. All treated areas will probably require herbicide follow-up on a gradual basis to eradicate seed-bank volunteers. Resilient individuals in the spray-only areas may also need follow-up treatment. These applications will persist on a gradual basis over the next few years as seedlings (and new growth) emerge, and before they reach statures and quantities that require large amounts of herbicide. The herbicide

(triclophyr) will be mixed (not exceeding recommended concentrations) with a surfactant and anti-drift agent, and a color dye. This should ameliorate secondary effects to non-target plants and animals and prevent accidental double-spraying respectively. According to the UH Cooperative Extension Service (2002), triclophyr is: mobile in soils, relatively non-persistant (half-life of 10-46 days), degraded by soil micro-organisms and sunlight, and has a low order of toxicity (2140 mg/kg in rats). The applicants will also mitigate potential side effects by using low-volume applicators for spot spraying and will avoid spraying during windy or rainy weather conditions.

The applicants propose a 180-acre maximum on mechanically cleared areas as a condition of the CDUP and will further limit grubbed acreage if chemical treatments in heavily infested areas prove to be effective and do not require excessive application of herbicide. For example, many of the outlying patches scheduled to be mechanically cleared during summer, 2006 (see Figure 8) may already have been treated chemically by that time. Thus, the final 60-acre mechanical phase may be substantially reduced. All clearing activities and herbicide treatments will carefully avoid damaging remnant old-growth 'ohi'a trees that are interspersed throughout the existing pastures, as well as recognizable concentrations of juvenile 'ohi'a trees. Due to the combination of mechanical and chemical methods, the staggered schedule of chemical applications, and the appropriate mitigation measures proposed, significant non-point-source pollution is not anticipated.

Note: Permitting and implementing the currently proposed project will not necessitate a commitment for further actions.

Part 4: Description of Existing Environments, Impacts, and Proposed Mitigation Measures

4.1 Climate

Mean monthly temperatures on the ranch range from 58°F in February to just under 64°F in August. The ranch is located in a climatic transition zone where moist, rising air releases orographic rain before descending into the Ka'u desert. Therefore, there is a noteworthy discrepancy in rainfall between the easternmost and westernmost portions of the ranch. Table 2 below contains monthly rainfall averages according to the nearest weather station with consistent data (VLC NP HQ 54). The data from this station are averaged from 1919 to 1995 and are the most representative of 'Uila Ranch, given the station's close proximity and the direction of the rainfall gradient (see fig. 6).

Table 2. Average Monthly Rainfall

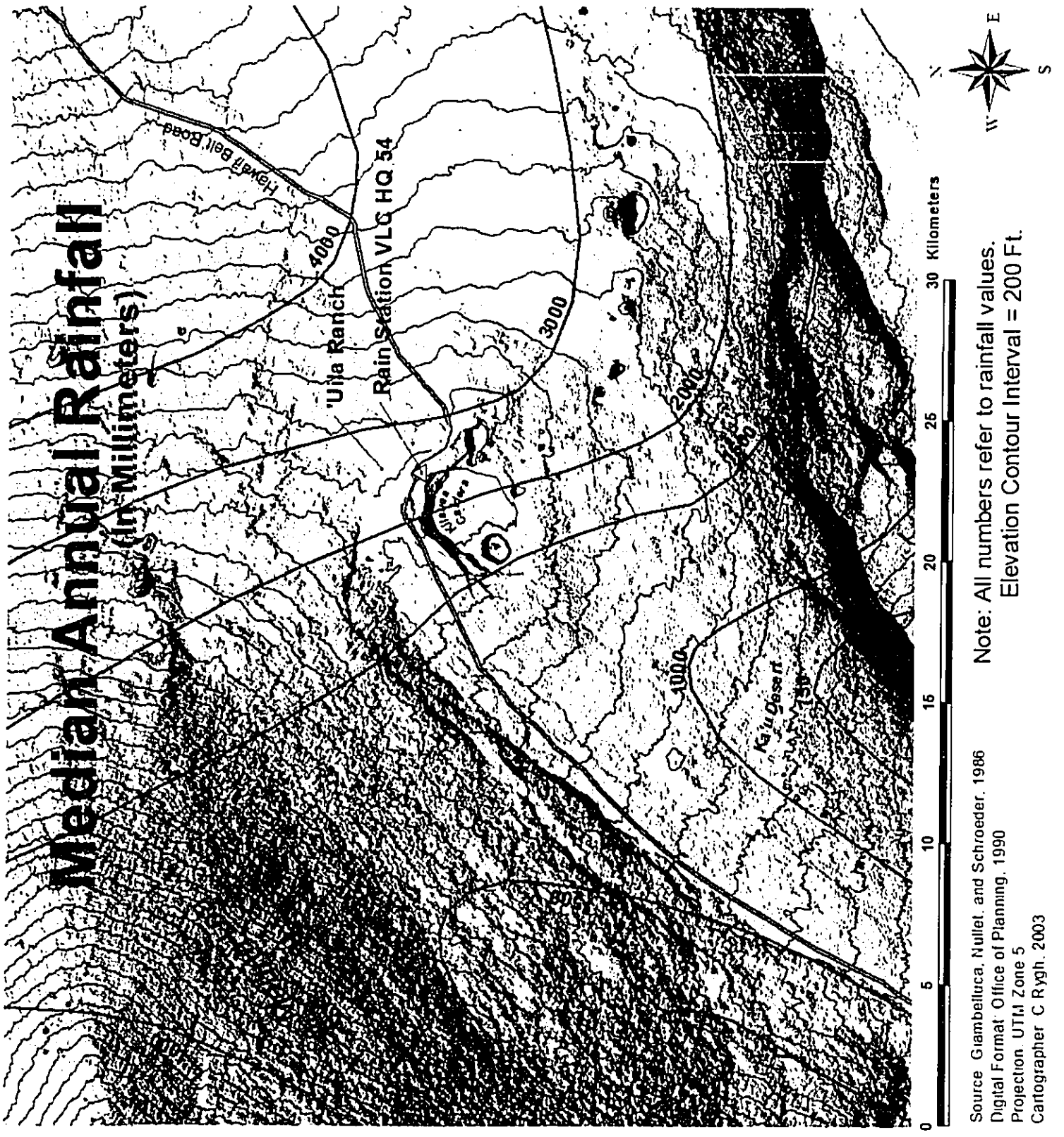
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yearly
mm	284.7	218.1	310.7	249.9	168.9	110.9	143.3	185.9	143.9	171.2	280.9	286.4	2556
inches	11.2	8.6	12.2	9.8	6.6	4.4	5.6	7.3	5.7	6.7	11.1	11.3	100.6

Source: NCDC Cooperative Stations

Impacts and Mitigation

No significant impacts on existing climate are anticipated. Therefore, no mitigation is proposed.

Fig. 6 Median Annual Rainfall.



4.2 Soils

The N.R.C.S. Soil Survey indicates that the project parcel contains two major categories of soils. Their approximate distribution on the ranch is shown in Fig. 7. Below are the N.R.C.S. general descriptions.

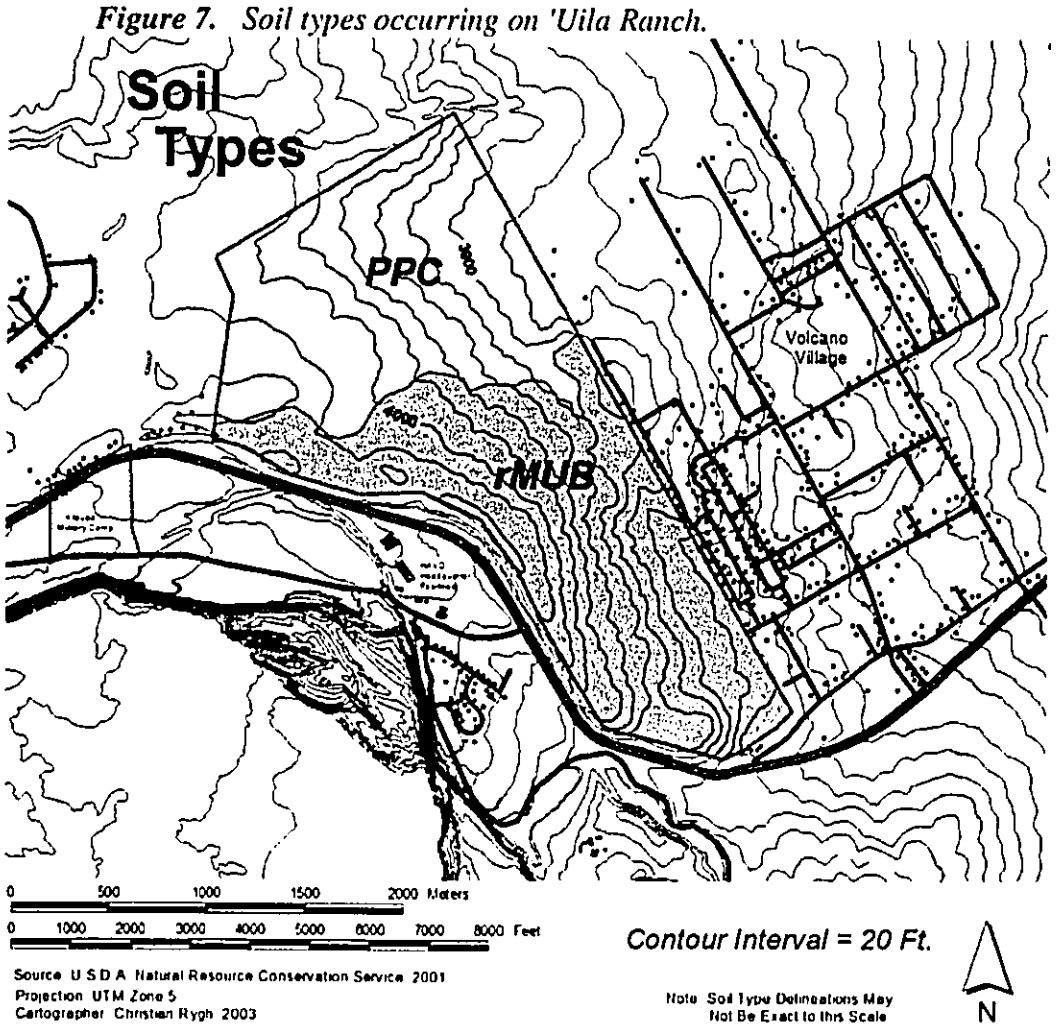
PPC – "Puaulu Silt Loam"

This very deep, well drained soil occurs on nearly level to moderately sloping uplands. It formed in volcanic ash. The surface layer is a silt loam and the underlying layers are stratified with volcanic ash, cinders, and pumice. The soil is very strongly acid in the surface layer and neutral to moderately acid in the underlying layers. Permeability is rapid, runoff is slow and the erosion hazard is slight.

rMUB – "Manu Silt Loam"

This well drained soil occurs on gently sloping uplands. It formed in volcanic ash, cinders, and pumice. The soil is moderately deep, about 36 inches to Pahoehoe lava bedrock. The soil grades from moderately acid in the surface layer to neutral in the lower part of the subsoil. Permeability is rapid, runoff is slow, and the erosion hazard is slight.

Figure 7. *Soil types occurring on 'Uila Ranch.*



Impacts and Mitigation

Impacts to soil are inevitable wherever bulldozing takes place. However, no earthworks or grading are intended in this project; ground disturbance will be as minimal as possible. Some soil erosion is anticipated in de-vegetated areas if/when heavy or prolonged precipitation events follow clearing activities before new pasture is established. The amount and intensity of this rainfall will largely dictate the extent of soil erosion. The N.R.C.S. soil classifications indicate that the two soil types within the project area are permeable, with slow runoff, and low erosion hazard. The project is being promoted and overseen by the N.R.C.S., which is the Federal agency that specializes in soil conservation issues.

Several mitigation measures are proposed:

- The steeper, forested areas adjacent to the most heavily populated boundary (paddock 4) are NOT currently proposed.
- Mechanical clearing activities in proposed areas will only transpire during the drier half of the year (April through September).
- Most of the mechanical clearing will implement the rake method, not allowing the bulldozer blade to penetrate the ground surface. If grubbing is required in certain instances, it will be done as shallow as possible.
- Interspersed, old growth 'ohi'a trees will be left in place. Recognizable concentrations of juvenile 'ohi'a trees will be left in place. Individuals and groups of trees will increase the landscape's capacity to absorb rainfall and decelerate surface runoff.
- The majority of the 500-acre project area (the light to moderate infestations) will be treated with herbicide in lieu of bulldozing to minimize the acreage of anticipated ground disturbance. The applicants propose a 180-acre maximum on bulldozing as a condition of the CDUP (areas of heaviest infestation). This concession has been proposed in response to community concerns voiced in comment letters and the January 12th public hearing.
- The proposed 180-acres will be staggered into three 60-acre phases. Each 60-acre phase will consist of non-contiguous contour strips and patches similar to the clearing scheme in Figure 8.
- Each section cleared will immediately be planted with pasture grass. When the first 60-acre clearing phase has been fully re-vegetated in pasture grass, it will serve as a buffer for the following phase (see figure 8).

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4.3 Topography and Drainage

The ranch is located outside the 500-year floodplain (Zone X) according to the Flood Insurance Rate Maps (FIRM) prepared by the Federal Emergency Management Agency. In consultation, the Department of Public Works in Hilo determined that no formal flooding complaints were on file for the entire TMK plat (3) 9-9-01. However, a high rainfall incident in the late 1990s did spark tension between members of the Volcano community and the former lessee of the ranch.

Naturally, some members of the community were quick to blame the concurrent clearing activities of the ranch's former lessee and others in the agriculturally zoned areas further upslope. Unlike the currently proposed clearing activities, the former lessee was deliberately knocking down mature 'ohi'a trees and did not seek appropriate permits. The most vocal complaints came from residents of 'I'iwi St., which borders the ranch to the east. A mediator from the Center for Alternative Dispute Resolution in Honolulu was involved, and a conference was held on July 23, 1991, at the Cooper Center, located within the Volcano community. A summary of the outcomes of this conference and other pertinent exhibits are included in Appendix 5.

At the outcome of the conference, official requests for a drainage study were made to the Puna and Ka'u Soil and Water Conservation District offices. No such study ensued.

Common assumptions agreed upon at the dispute resolution conference included the consensus that there had been "at least three, unusually severe storms in a row" (see section 1 of conference summary letter, Appendix 5).

The monthly rainfall data in section 4.1, Table 2, is insufficient to address this concept, since it is comprised of averages taken over several decades. More appropriate, is the precipitation data in the table below. Table 3 contains DPNP values (Departure from Normal Monthly Precipitation) for the weather station nearest the ranch.

Table 3 indicates that (over a twenty year period) the month of October, in 1990 received 3422 mm (134.7 inches) **more rainfall than the October average** for this particular weather station (for station location refer to Fig. 6).

November, 1990 saw 877 mm (34.5 inches) more than the November average etc. (the negative values correspond with months / years that experienced less than average rainfall).

Highlighted in **RED** are the values for months over this twenty-year period that experienced more than **3000 mm ABOVE AVERAGE rainfall.**

Highlighted **ORANGE** are the months over the twenty year period that received over **2000 mm ABOVE AVERAGE rainfall.**

Table 3. Departure from Normal Monthly Precipitation (for available months 1980 -2000)

Month / YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	ANNUAL
1980	-864	5861	-170	-86	418	41	-301	67	-77	-455	-988	No Data
1981	-844	-571	-228	-296	-286	-277	219	314	-172	-21	1249	No Data
1982	623	1055	19	-44	116	1151	1265	254	-138	-450	-447	2692
1983	-1134	-1337	-380	135	-27	-21	91	427	66	-995	-180	-4460
1984	-152	-1261	278	-326	-58	-72	-208	-261	-352	1026	616	-1447
1985	-968	1624	-347	353	-291	45	98	177	165	-731	-669	-829
1986	-905	-844	2265	-93	335	896	181	546	-202	1057	-894	1310
1987	-517	-1035	-354	108	165	284	-492	249	123	-188	1722	-931
1988	-616	-718	-505	-274	-141	-151	107	-57	-113	746	205	-1941
1989	1453	-14	-34	709	342	1804	-190	178	819	-1034	-906	2799
1990	1773	-250	-796	-149	389	258	-253	994	400	3422	877	7573
1991	-739	1993	-304	-149	121	-92	367	150	-220	-568	591	339
1992	-987	99	4	No Data	No Data	99	7	No Data	No Data	99	10	No Data
1993	No Data	3	No Data	No Data	99	6	No Data	1038	43	-27	204	-634
1994	-572	-98	-394	-329	262	136	739	1946	55	2076	-488	4037
1995	222	-1081	-394	-279	-180	-22	226	-191	-182	-599	-880	-4248
1996	611	257	-604	-497	-5	105	-418	-163	254	1242	-47	1653
1997	-531	482	-850	-225	1329	1215	-136	66	-30	-651	-549	-111
1998	-1036	-852	170	477	241	-468	-121	-115	108	-79	30	-2494
1999	143	-55	-73	-611	-199	-501	-232	-168	-152	-675	394	-1101
2000	-50	-673	-759	-577	-175	340	351	55	590	No Data	0	99

Source NCDC online climate data, 2003 December values and "No Data" items are missing from original data source.

The blue row (1990) shows that the four month period ending with November saw sustained, above-average rainfall. The data in Table 3 suggests that the flood conditions that community residents experienced were very much a result of extreme weather circumstances – the moisture-holding capacity of local soil and substrate were reached via sustained, high rainfall in October and hence unable to absorb the impact of a few high-intensity events in October/November. A Volcano community newsletter, dated Dec. 7, 1990, reads, "The 52 inches of rainfall we did not enjoy during November, most of it in a four day period, did damage all the way from Wright Road to I'iwi St...."(see Appendix 5). Therefore, it can be concluded that damages were not the direct result of former clearing activities on the ranch. However, it is possible that the concurrent clearing activities of the former lessee and others upslope may have exacerbated the ill-effects of this prolonged and severe rainfall period, particularly for residents of 'I'iwi Rd. (adjacent to 'Uila Ranch).

Taking legitimate community concerns into consideration, the applicants in conjunction with the N.R.C.S. are planning several measures to reduce the chances of worsening the effects of another severe rainfall event, in the case that one transpires during the project's implementation. Surface impacts to drainage characteristics resulting from de-vegetation

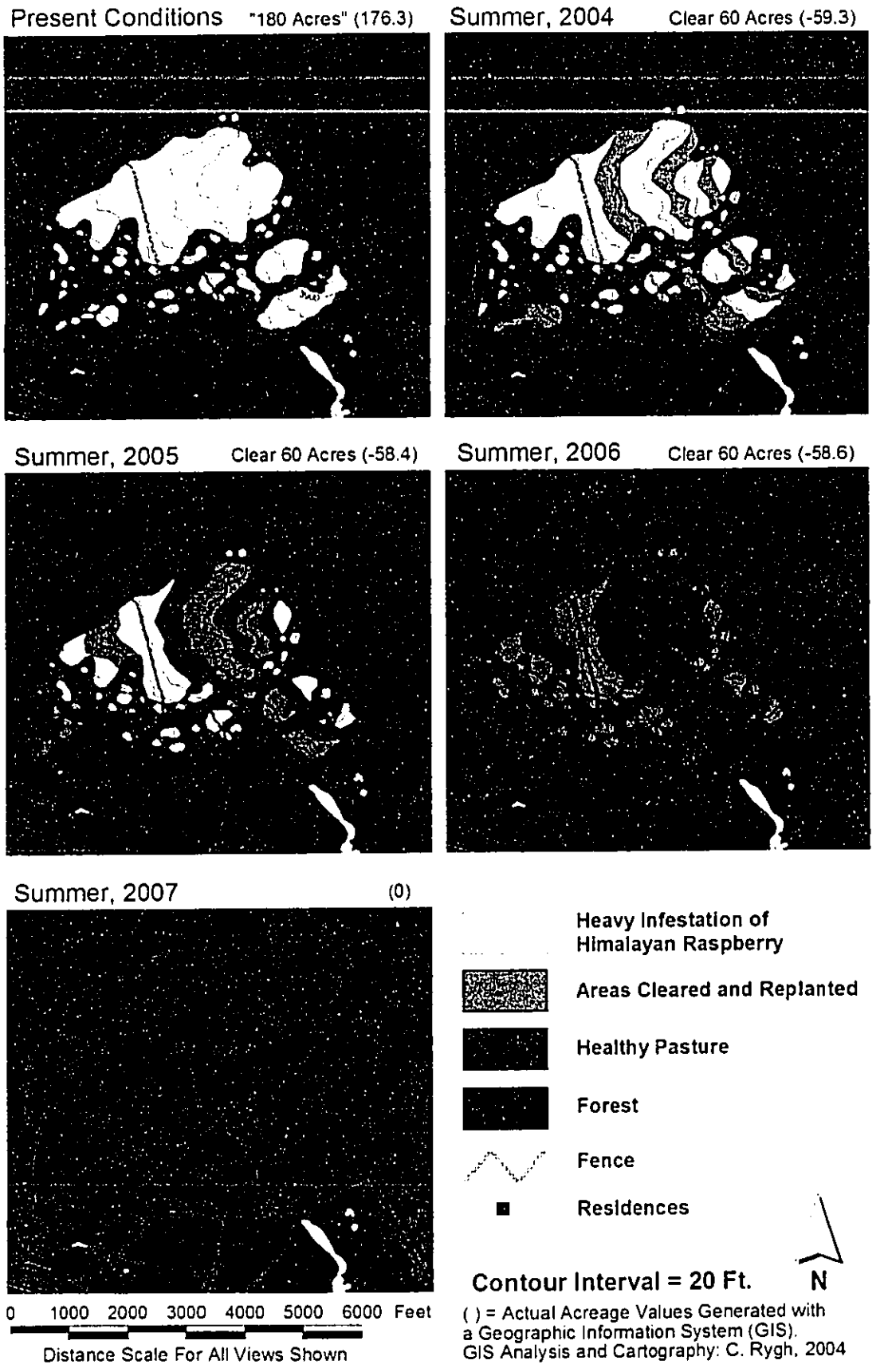
will be minimal and temporary, while kikuyu pasture is being re-established. No earthworks or intentional manipulation of topography for water diversion purposes is being proposed. Furthermore, three testimonies from an experienced rancher, a geologist, and a career bulldozer operator (at the January 12th public hearing) maintain that the shallow-rooted Himalayan raspberry plant uproots easily and does not require the bulldozer blade to touch the ground surface. In other words most of the proposed mechanical clearing could be classified as raking, rather than grubbing.

Proposed Mitigation

Naturally, the occurrence of an extreme rainfall event is unpredictable. The mitigation measures below are proposed to reduce the chances of worsening the effects of an unforeseen flood:

- The steeper, forested areas adjacent to the most heavily populated boundary (paddock 4) are NOT currently proposed.
- Mechanical clearing activities in proposed areas will only transpire during the drier half of the year (April through September).
- Most of the mechanical clearing will implement the rake method, not allowing the bulldozer blade to penetrate the ground surface. If grubbing is required in certain instances, it will be done as shallow as possible.
- Interspersed, old growth 'ohi'a trees will be left in place. Recognizable concentrations of juvenile 'ohi'a trees will be left in place. Individuals and groups of trees will increase the landscape's capacity to absorb rainfall and decelerate surface runoff.
- The majority of the 500-acre project area (the light to moderate infestations) will be treated with herbicide in lieu of bulldozing to minimize the acreage of anticipated ground disturbance. The applicants propose a 180-acre maximum on bulldozing as a condition of the CDUP (areas of heaviest infestation). This concession has been proposed in response to community concerns voiced in comment letters and the January 12th public hearing.
- The proposed 180-acres will be staggered into three 60-acre phases. Each 60-acre phase will consist of non-contiguous contour strips and patches similar to the clearing scheme in Figure 8.
- Each section cleared will immediately be planted with pasture grass. When the first 60-acre clearing phase has been fully re-vegetated in pasture grass, it will serve as a buffer for the following phase (see figure 8).

Figure 8. Proposed Clearing Scheme for Drainage Mitigation



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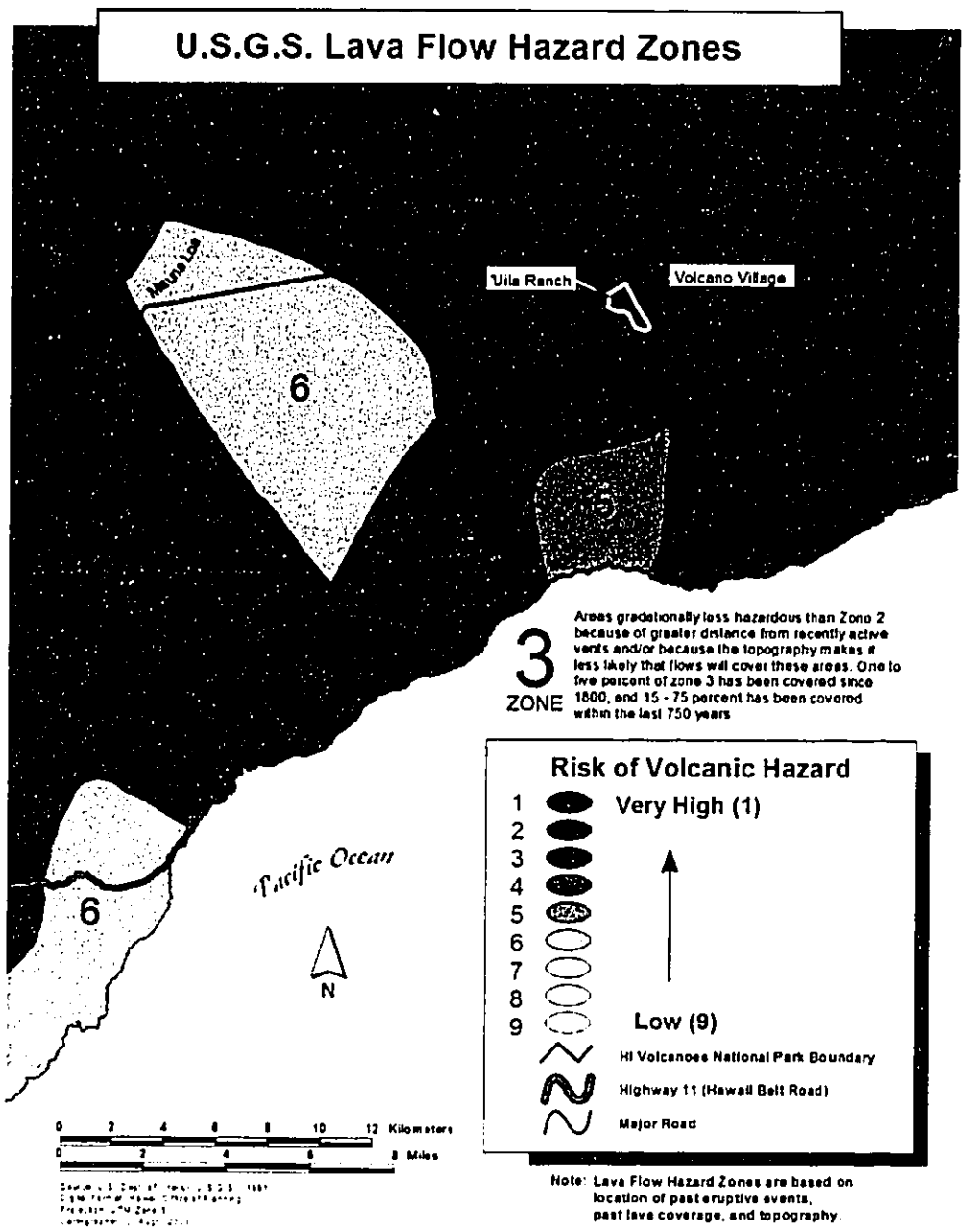
4.4 Geology and Volcanic Hazards

The ranch, like the rest of the Big Island is in Zone 4 Seismic Probability Rating. Since there are no building structures in the plan, and no steep slopes under development, seismic hazards are not believed to impose constraints on the project.

Despite the close proximity of the ranch to Kilauea Caldera, it is located in U.S.G.S. Lava Flow Hazard Zone 3 (see Figure 9). If Kilauea Caldera became active enough to spill over the northwestern side (high side) of Kilauea Caldera, the project activities would make little difference on the fate of Volcano Village.

Figure 9. *Lava flow hazard zones.*



The risk of cave collapse and other mass-wasting events is minimal for the currently proposed phase of the project, which is confined to gently sloping areas that have previously been bulldozed without any such incidents.

Proposed Mitigation
No impacts to geologic and volcanic hazards are anticipated, therefore, no mitigation is proposed.

4.5 Flora, Fauna, Wetlands, and Threatened or Endangered Species.

The currently proposed phase of the Conservation Plan focuses on removing *R. ellipticus* from existing pastures in paddocks 2, 5, 6, and 7. A botanical survey for threatened and endangered plants was conducted by Ron Terry, Ph.D. and Patrick Hart, Ph.D. within this 500-acre area. Their survey concluded that no threatened or endangered botanical species would be adversely impacted due to the general lack of such species left on the property after decades of cattle grazing. They also conclude that *R. ellipticus* has become, by far, the dominant vegetation within the project area, which was once pastureland with intermittent old-growth 'ohi'a trees. Decades of ranching have greatly depleted the mid-canopy and under-story plant species. Additionally, hapu'u ferns (*Cibotium glaucum)* and koa trees *(Acacia koa)* where mostly harvested from the property by previous lessees. A list of the species encountered during the botanical survey is included in the botanical reconnaissance report in Appendix 1.

A map of dominant vegetation type (Fig. 10-A) was compiled by a geographer, utilizing a GPS (Global Positioning System) and a GIS (Geographic Information System), qualitative field observations, and aerial photographs. This map-inventory gives a general indication of the spatial variation in dominant vegetation for the whole ranch. The map may help cooperators to plan and implement the forest improvement and fence line construction phases of the project and also highlights practical reasons for dividing the Conservation Plan into phases. The map provides a ground-truth interpretation of aerial photographs such as the one in Figure 10-B. The extent of *R. ellipticus* infestation on the ranch has increased since the time of the photo (1992).

With the exception of cattle, Kalij pheasants seem to be the most prevalent fauna on the ranch. Wild turkeys, Peafowl, feral pigs, and mongoose can also be readily observed. Due to the vegetative characteristics ('ohi'a trees) and geographic location of the ranch, it is likely that several species of Hawaiian honeycreepers may frequent the ranch in search of food, such as 'I'iwi (*Vestiaria coccinea*), 'Apapane (*Himatione sanguinea*), 'Amakihi (*Hemignathus virens*), and 'Akepa (*Loxops coccineus*). However, since these species are not ground dwelling, and since 'ohi'a trees will be avoided, no impacts to these canopy birds are anticipated.

Nene geese *(Branta sandwincensis)* are frequently observed near the ranch house and reservoir, but have not been seen wandering into the *R. ellipticus* thickets where bulldozers are scheduled to grub/rake. Harry Toki, N.R.C.S. district conservationist, has indicated that the project will have low impact potential on the Nene geese, and that

although the endangered, Hawaiian Hawk has been seen flying in the area, no known nests occur within the project area. The U.S. Fish and Wildlife Service concurred that the project's implementation was not likely to adversely affect any federally listed or proposed species, or proposed or designated critical habitat (See Appendix 1). The Fish and Wildlife Service also added that the Hawaiian Hawk *(Buteo solitarius)*, is able to forage in disturbed areas and thus is not likely to be adversely affected.

Positive impacts to the vegetative environment should far outweigh any incidental negative impacts. Incidental takes to juvenile 'ohi'a trees that stand alone amid dense *R. ellipticus* thickets may realistically occur while attempting to remove noxious plants, but recognizable concentrations of juvenile 'ohi'a trees will be carefully avoided. Also, mature 'ohi'a trees and less frequently occurring native tees such as 'olapa (*Cheirodendron trigynum*) will be left intact. The removal of *R. ellipticus* will greatly improve the vegetative landscape, which is currently being overrun by this noxious weed.

The project will take away a major food source for ground dwelling birds such as the Kalij pheasant, which is essentially a pest species, since the applicants are not avid hunters. Native birds, in general, are highly specialized to forage for native food sources, so this aspect should have little or no bearing on them. The Nene geese have never been observed foraging for *R. ellipticus* berries, yet it is not inconceivable, since native berries constitute a major part of their diet. Nene geese reportedly favor open grassy areas such as the one by the ranch house and reservoir. One of the outcomes of the project will be more open grassy areas.

Proposed Mitigation

Any *R. ellipticus* clearing done in the vicinity of the open area where Nene geese have been repeatedly observed, will be done by hand. If Nene geese are blocking access for heavy machinery, another route will be used, or entry will be postponed until Nene geese have moved on. If nests are discovered, the vicinity will be avoided, and the Department of Fish and Wildlife will immediately be notified.

All herbicide usage will comply with regulations on the label. Following the recommendations of weed control specialists of the UH Cooperative Extension Service, the chemical triclophyr will be used. Triclophyr is: mobile in soils, relatively non-persistant (half-life of 10-46 days), degraded by soil micro-organisms and sunlight, and has a low order of toxicity (2140 mg/kg in rats) (UH Cooperative Extension Service, 2002). Initial herbicide applications will occur on a staggered basis, and follow-up applications will occur as seedlings emerge, and before they reach statures and quantities that require large amounts of herbicide. Herbicide will be mixed with a surfactant and a color dye. This should ameliorate secondary effects to non-target plants and animals and prevent accidental double-spraying respectively. The applicants will also mitigate potential side effects by using low-volume applicators for spot-spraying and will avoid spraying during windy or rainy weather conditions. The "drizzle method" will be employed, which is highly regarded for its target accuracy, minimal waste and drift, and its conservation of herbicide (UH Cooperative Extension Service, 2002). Due to the combination of mechanical and chemical methods, the staggered schedule of chemical applications, and the appropriate mitigation measures proposed, non-point-source pollution and significant impacts to non-target biota are not anticipated.

Figure 10-A. Generalized vegetation map.

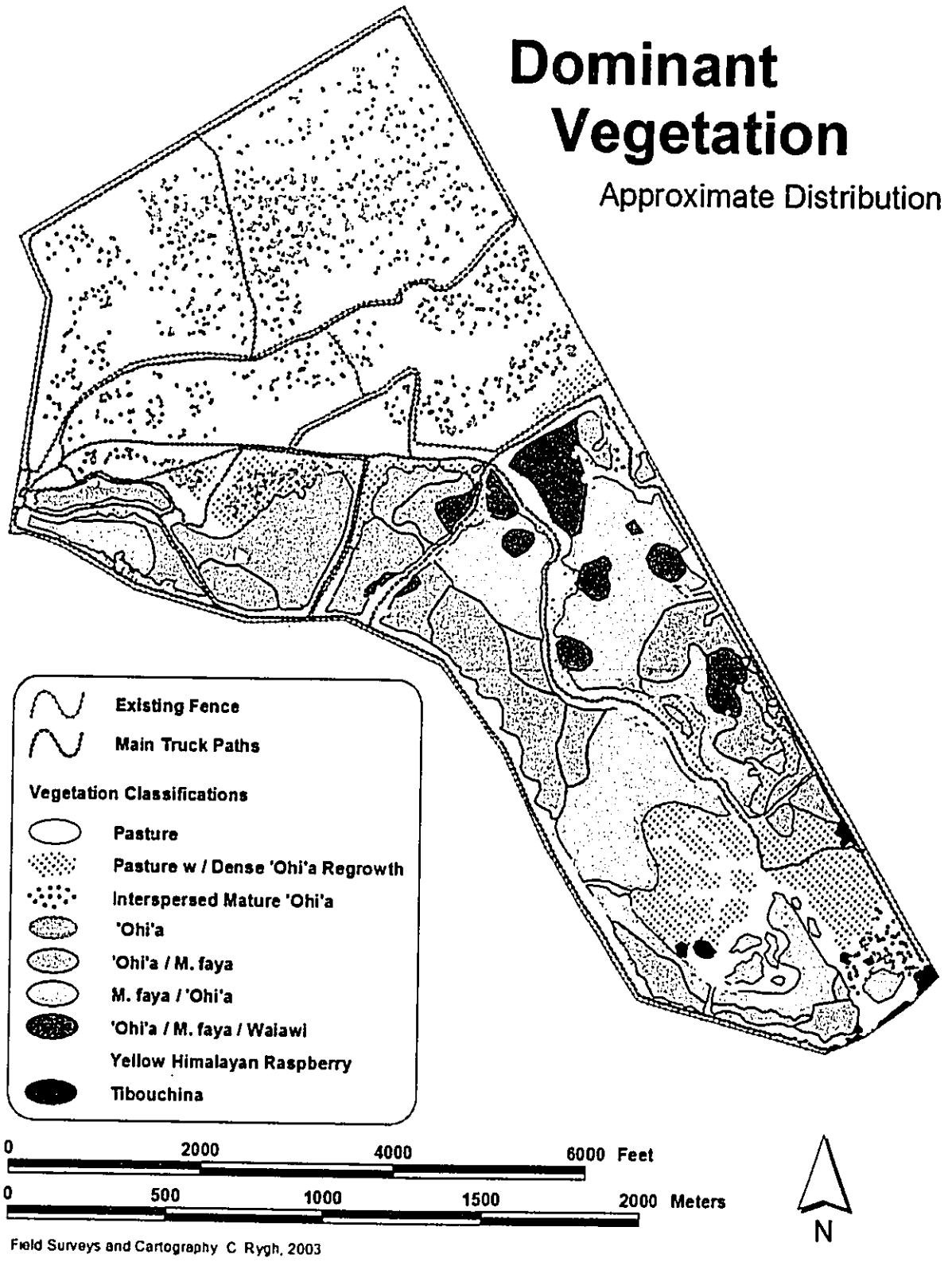


Figure 10-B. Infrared aerial photograph from 1992.

This photograph is a decade old, but gives a good indication of the present forested and non-forested extents of the ranch. For interpretation of vegetation, compare with Fig. 10-A on previous page. Corner segments of the ranch are not shown in this photo.

4.6 Socio-Economic Environment

The socio-economic environment in and around Volcano hosts an interesting mixture of mainstream tourism, bed and breakfasts, agriculture, livestock, forestry, a winery, a military camp, a golf course, several campgrounds, a middle-class urban district, and the multiple employment and recreation (biking/hiking) opportunities provided by Hawaii Volcanoes National Park. The socioeconomic characteristics of Volcano residents are compared with county-wide values in Table 4.

It should be noted that the socio-economic influences of the National Park affect the whole county, and indeed the entire State of Hawaii, via employment, technical training, education, and tourism. Ironically, the general attractiveness and relatively low property values of the local residential areas can both be partly attributed to the close proximity of an active volcano park.

The proposed project is expected to have the following positive influences on the socio-economic environment:

- Create temporary employment for a bulldozer operator, and other laborers that implement the Conservation Plan in the field.
- Improve the productivity of the ranch.
- Provide federally funded assistance (up to $56,000) to reimburse 70% of cost of implementing specific work objectives in the N.R.C.S. Conservation Plan.
- Indirectly improve the long-term sustainability of native forest in Volcanoes National Park and surrounding State forest reserves, which in turn has positive implications for tourism and recreation.

The nearby golf course and National Park are sufficiently distanced from proposed activities that they should not be detrimentally impacted by aesthetic and noise incursions that typically accompany the use of bulldozers. The access road to 'Uila Ranch borders a segment of the local golf course, but increased traffic to and from the ranch is not anticipated.

Proposed mitigation

No long-lasting or substantial negative impacts are anticipated towards the existing socio-economic conditions of the surrounding areas. No specific mitigation is proposed, however, mitigation measures listed under sections 4.3 and 4.8 may apply.

Table 4 Selected Social Characteristics - 2000 Census

CHARACTERISTIC	GEOGRAPHIC AREAS	
	Hawai'i Island	Volcano
Total Population	148,677	2,231
Percent Caucasian	31.5	47.9
Percent Japanese	13.6	6.1
Percent Hawaiian	9.7	11.7
Percent Filipino	9.1	2.1
Percent Two or more races	28.4	26.1
Percent Under 18 Years	26.1	20.3
Percent Over 65 Years	13.5	11.9
Median Age	38.6	41.3
Percent High School Graduates (of 25 and older subset)	86.4	86.9
Percent in Labor Force (of 16 and older subset)	61.7	57
Percent with Disability (of ages 21 to 64 subset)	19.2	20.1
Median Household Income (Dollars)	39,805	35,977
Percent Below Poverty Level	15.7	14.3
Total Housing Units	62,674	1,258
Percent Owner-Occupied Housing	47.7	42.3
Median Contract Rent Value (Dollars per Month)	645	644
Median Home Price (Dollars)	153,700	118,600

Source: U.S. Census Bureau, Census 2000:
"Table DP-1. Profile of General Demographic Characteristics: 2000"

4.7 Cultural and Historic Landscapes

The contemporary cultural setting of Volcano is diverse. Table 3 indicates that ethnicities are quite mixed, including a Hawaiian proportion above the Hawaii County average. In addition to full time residents in the Volcano community, there is a considerable level of perennial and seasonal visitation to the area by: military personnel enjoying the R&R facilities at Kilauea Military Camp, golfers at the local golf course, enthusiasts for local artwork, recreation-seekers, and lava enthusiasts, some of whom make yearly pilgrimages from far-away continents. Hawaii Volcanoes National Park is still frequented by devout worshippers of Pele, the volcano deity, who receives their chants and traditional ceremonious adornments at unpublicized times and locations within the park.

The westernization of the Volcano area's cultural landscape has been long and gradual, experiencing successive and overlapping eras of cattle ranches, commercial forestry, urban development, scientific research, and now international tourism. All such activities have disrupted or displaced the area's original cultural uses to varying degrees depending on one's perspective. However, in their wake, they have left cultural histories of their own, some of which are nationally recognized, such as Herbert Shipman's Volcano ranch house at 'Ainahou (located within the national park), which is on the National Register of Historic Places. Also once a peripheral part of the greater Keauhou Ranch, this ranch was developed and used by the famous 20th century philanthropist as a vacation home, ranch, botanical garden, and Nene sanctuary in the mid 1900s.

'Uila Ranch (formerly called 'Ohi'a Ranch) does not have any substantial historic significance. It too was once peripheral rangeland belonging to Keauhou Ranch. It was subdivided and developed into rotational-type pastures in the 1960s. The ranch house at 'Uila Ranch was designed and built to be a rain shelter and base station for operations and not a dwelling for permanent human use. It is noteworthy that a small portion of the cattle-range was used to cultivate Irish-type potatoes for U.S. troops stationed at nearby bases during WWII, who were unaccustomed to local staple foods like taro and sweet potato. This area is not believed to contain any artifacts valuable to this historic period and has moreover been repeatedly bulldozed.

A major battle of importance to Hawaiian history (The Battle of the Bitter Rain) was fought between Keoua (a chief of Ka'u) and Ka'iana (an ally of Kamehameha) beginning at 'Ainapo, and lasting through a series of retreats all the way to Kapapala. In a later episode, a division of Keoua's forces was overcome by debris from a volcanic eruption of Kilauea, while on the way back from Hilo to regroup in Ka'u. This is one of the most famous scenes of Hawaiian (post-contact) history during Kamehameha's extended war to unite the Hawaiian Islands (ca. 1781-1810). It should be noted that this eruption was widely viewed by Hawaiians as a direct, supernatural response of Pele showing disfavor for Keoua's armies. Although explanations for her wrath vary considerably, the belief that volcanic eruptions are willed by a supernatural being named Pele are widespread among Hawaiians and non-Hawaiians alike (on the Big Island in particular), even to this day. Her name is therefore deeply infused with the history and prehistory of the Volcano region, and the religious significance of Kilauea can not be disregarded as a fairy tale of times long past.

It is believed that the area immediately surrounding and above the Volcano was not a densely populated area in prehistoric times and is therefore probably not rich in conventional-type cultural artifacts (e.g. tools, dwellings, etc.). However, the undisturbed forest areas of 'Uila Ranch could possibly contain caves and trails that are of cultural significance. Intact remains of temporary dwellings for bird catchers *(kia manu)* could potentially exist in the undisturbed forested areas of the ranch, although none have been discovered. Priests (*Kahuna*) and bird catchers were the only mortal humans likely to have frequented the vicinity above Kilauea Caldera in pre-contact times, because of a general taboo (*kapu)* on commoners visiting the sacred vicinity of Pele's pit (*Ka Lua Pele).*

Specific references of *kapu* places within the ranch's present-day boundaries are not readily apparent in mainstream literature on this topic, whereas references to *kapu* areas immediately surrounding the caldera are abundant. For example, the HAVO Visitors Center, Kilauea Military Camp, and Volcano Observatory are all located in extremely significant, *kapu* areas for which numerous, site-specific references exist (e.g. *'Akani kolea, Wahine kapu, and 'Uwekahuna*). The absence or lack of specific *kapu* references to sites on the present-day ranch may be indicative of a general decrease in *kapu* restrictions with decreasing proximity to the caldera *(Ka Lua (o) Pele)*, or may be the result of an incomplete literary (and cartographic) information base, which (according to Western enthusiasm) is disproportionately comprehensive for areas immediately surrounding the caldera.

During the post-contact era until the very recent past, much of the native-Hawaiian knowledge-base suffered greatly from decreased oral practice and plummeting participation levels. This is particularly true for linguistics associated with traditional belief systems in the wake of early missionary influences. The specificity of place-names in pre-contact Hawaii was far greater than that depicted on modern maps, and reflected an intimacy with the landscape unparalleled in modern times. This geographic knowledge base was chiefly maintained and transmitted through recitation in daily-traversing, chanting, or story-telling. Thus, it would be fallacious to draw the conclusion that *kapu* areas did not exist in the modern-day 'Uila Ranch area, based on the lack of specific written testimony of such sites. In general, it is widely believed that the summit area of Kilauea (probably including the present-day ranch area) was not often visited by commoners in pre-contact Hawaii in accordance with religious conventions of those times.

The cultural significance of Kilauea should not be underestimated or overlooked. The close proximity and adjacency of the ranch to Kilauea Caldera should prompt vigilance and sensitivity for the cultural landscape. The summit / caldera of Kilauea is an extremely sacred place (*wahi pana*), renown as the home and principle dwelling place of Pele and her siblings. Its religious and cultural significance is reverberated in scores of traditional stories, which are important to native descendents of the Keauhou ahupua'a, the Ka'u District, the Island of Hawai'i, the Hawaiian Islands (in general), Tahiti, and Polynesia at varying levels of specificity and intensity.

One may argue that the ranch property is also culturally significant, due to its close proximity to Kilauea's summit. No documented traditional stories were found that specifically referenced Hawaiian place-names corresponding with present-day 'Uila

Ranch. However, there are significant gaps in the documentation of such stories and the exact locations of old Hawaiian place names – particularly for areas outside the lime light of the caldera's immediate vicinity. Therefore, it would be insensitive and irresponsible to claim that the property does not bear cultural, ancestral, or religious importance based on the absence of obvious literary references. Two well-known traditional stories, translated by Nathaniel Emerson in the early 20th century, illustrate this point.

The dramatic departure of Hi'iaka to Kaua'i to fetch Lohiau for Pele, is said to have begun with a series of hesitations in the hills just above Kilauea Caldera, by a young and inexperienced Hi'iaka who faced the caldera and sang a series of songs (*mele*) to ask for material and spiritual endowments from her older sister Pele, in order to keep her safe in the face of adversity and to finalize the terms of their pact. The scene marks the conferring of *mana* (supernatural or divine powers) from Pele to Hi'iaka as she embarks on her epic journey to Kaua'i and back, which constitutes one of the most important episodes in Hawaiian oral history. Three times she heads for the uplands and quickly returns with a request. After reading the text of *Pele and Hi'iaka* (Emerson, 1915) and contemplating the spatial interface of the caldera (*Ka Lua Pele*) and 'Uila Ranch, it seems likely that the ranch may contain portions of the original backdrop for this dramatic departure scene in this important traditional story and associated *mele*.

Hi'iaka's journey to Kaua'i and back to Kilauea is highly symbolic. Its interpretations have profound humanistic and psychological importance to contemporary native Hawaiians. For Hi'iaka, the cyclical journey connotes a maturation cycle, a right of passage from mortal to deity. As she leaves the raw, elemental hearth of her home in Kilauea she is naïve, protected by her elder siblings, and renowned as Pele's favorite younger sister. As she journeys, she learns to overcome adversity independently. While on Kaua'i she experiences an older, more complex social structure, and her dance forms also become more complex. Hi'iaka is the only Hawaiian deity to begin and complete her maturation cycle in the Hawaiian Islands, underscoring the importance of this oral history to the cultural identity of the Hawaiian people. Her return to Kilauea, the place of her departure, is highly symbolic of her completing a right of passage and affirms the sacred connection between Kilauea Mountain and the cultural identity of the Hawaiian people.

Another important moment in Hawaiian oral history may also have transpired in the area of present-day 'Uila Ranch, although no specific location reference is available to prove or disprove this possibility. Few realize that Pele was not the original volcanic deity that inhabited the summit of Kilauea. The former occupying fire-deity was thought to be inferior, and quickly vanished at the news of her approach. According to Emerson's rendition (1915), Pele and her associates may have first laid eyes on Kilauea Caldera (her home-to-be) from the surrounding heights, seemingly on the northwest side. Although no specific locality is mentioned, the story specifies that Pele and her voyaging party were traveling from Puako beach in North Kona to Kilauea Caldera along the flank of Mauna Loa. According to oral history, the traveling party spent the night at a location just before reaching the caldera, then rose the next morning to behold and divine (use *paoa* staff) the future home of Pele and her sisters (*Ka Lua Pele*) below them. The backdrop for this sunrise scene may well have included portions of present-day 'Uila Ranch or its general vicinity. This speculation is based on the direction of travel (from Puako to Kilauea), the aspect and proximity of the ranch and the caldera, and the lofty topographic relief of

portions of 'Uila Ranch, which in the absence of present-day forests would have made an exceptional vantage point from which to view the caldera region.

Foreseeable Impacts

Since all currently proposed bulldozing activities are scheduled for areas that have been bulldozed (in some areas repeatedly) in the past, it is not expected that any significant archaeological resources will be impacted by the proposed project. The N.R.C.S. Cultural Resources Review by Carol Kawachi (N.R.C.S. Cultural Resource Specialist) concludes that the proposed project will not affect any historic properties (see Appendix 4).

The ground itself will not be graded or significantly altered. The removal of invasive vegetation will improve the native and scenic characteristics of the ranch, especially since 'ohi'a trees will be left in place.

In traditional Hawaiian belief systems, there may be thousands of deities, all manifest in the tangible environment. Therefore, inflicting destruction upon the elements of the environment is synonymous with inflicting destruction upon the pertinent deities. This concept is important to recognize, since it contrasts greatly with western religions, which usually view creation and its creator as distinct and separate entities. Following the traditional Hawaiian logic, significant ground disturbance on Kilauea Mountain is very unwelcome, particularly so close to the focal point of Pele's domain. However, there are also hundreds of minor deities that are embodied in the uniquely Hawaiian Fauna and Flora of the region, which may benefit greatly from removing a large, concentrated population of highly invasive species from the ranch and surrounding region. Quoting a native Hawaiian cultural practitioner that was consulted for this project, aggressive / invasive species in Hawaii are "eating up our gods". If the applicants take care to avoid native species and minimize ground disturbance, then the cultural impacts of the currently proposed actions appear much less severe than the cultural impacts of inaction – which threaten endangered species (and the deities they embody) throughout an extremely significant region of biological and cultural importance. Hence, the preceding argument of the biological impacts of a dense, invasive (plant) seed-source (and invasive bird populations) in the midst of a sea of high-value (biological) conservation lands can be applied in the cultural context as well.

The ranch is not frequented by native Hawaiians in search of ethno-botanical resources since they are scarce on the ranch in comparison to the nearby National Park, where they are openly permitted to be gathered. The scant botanical resources remaining in the currently proposed project area are mostly epiphytes growing in 'ohi'a trees and will not be impacted by the proposed project. A separate botanical survey for the remaining areas of the ranch should be conducted prior to permitting and implementing later phases of the N.R.C.S. Conservation Plan. Also, any future disturbances to undisturbed forested areas should be collaborated with prominent native Hawaiian cultural practitioners. It is important to recognize that a lack of archaeological resources does not preclude cultural significance – which to native Hawaiians is often claimed on the basis of topography, geological structure, vegetation, and/or the deities associated with a place.

Trails or caves and potentially larger, more significant archaeological finds of native-Hawaiian cultural significance may potentially exist within the undisturbed, forested areas of the ranch (NOT PROPOSED AT THIS TIME). An archaeological assessment should be made prior to implementing secondary and tertiary phases of the N.R.C.S. plan, particularly to address locales where vegetation suggests a lack of previous ground disturbance. It should be noted that archeological resources may be well-hidden from the untrained eye, due to the known overlap in the sequence of cultural activity and huge ash deposits from Kilauea Caldera (e.g. the Keanakako'i steam explosions of 1400-1700 A.D).

According to the State Historic Preservation Division (Hawaii Island office), there are no known burial sites on the property so no grave disturbances are anticipated. Also, no State or Federal historic sites will be affected by the proposed project.

Proposed Mitigation

- Bulldozing activities will be limited to raking and grubbing of noxious vegetation. No grading or deliberate alteration of topography is currently proposed. Bulldozer operator will attempt to remove shrubs with as little soil disturbance as possible. Areas of light to moderate infestation will be treated chemically in lieu of bulldozing. The applicants propose a 180-acre maximum on bulldozing as a condition of the CDUP.

- Work in the undisturbed forest segments of the ranch is not being proposed until a later date, when more is known about the exact course of proposed fence lines and the archaeological impacts to these select areas.

- If any open entrance caves, human remains, petroglyphs, or rock-wall features are encountered during the clearing activities, work in the vicinity will cease, and the State Historic Preservation Division will be immediately consulted.

4.8 Noise and Aesthetics

The scheduled bulldozing activities are expected to be audible in residential areas adjacent to the sites being cleared. However, we do not anticipate sustained noise levels will exceed 55 dBA in residential properties or National Park lands adjacent to the project parcel, since most of the bulldozing activity will be removed from property boundaries.

The proposed project may also temporarily diminish aesthetic qualities for adjacent properties along the northeastern boundary, during and immediately after bulldozing activities. In the long term, the project is expected to improve the general aesthetics and view planes for adjacent properties, particularly those lots along the northeastern boundary of the ranch.

Proposed Mitigation

Noise impacts will be mitigated by ensuring that the bulldozer has a proper muffler and that its use be restricted to daylight hours only. Visual impacts will be mitigated by leaving native trees intact, and by parking bulldozer away from residential boundaries when not in use.

4.9 Cumulative Impacts

Many would advocate that ranching (which requires extensive land-area) is not a good use for conservation lands in Hawaii because of the high degree of endemic species that occur in the relatively small land-area of the Hawaiian Islands. Nearby forest reserves and Hawaii Volcanoes National Park contain some of the best examples of Hawaiian Rainforest and other eco-types, which are important habitat for several rare and endangered species. However, decades of cattle-grazing have already changed the native landscape on present-day 'Uila Ranch, depreciating its overall species-conservation value. Thus, the species conservation objectives of the proposed activities focus on the surrounding lands that have higher native species integrity. The cumulative impacts of eliminating a large, concentrated seed source of *R. Ellipticus* from 'Uila ranch may be realized: as far away as the birds may carry it, and as many times as there are raspberry seeds in nearly 500 acres of interspersed *R. ellipticus* patches.

Phase 2 of the project will probably need to be more sensitive to drainage and aesthetic issues as areas in Paddock 4 are more heavily forested, with more immediate neighbors, and a slightly steeper slope. The potential cumulative drainage impacts of clearing all scheduled paddocks at once were influential in the decision to phase in the Conservation Plan. A prolonged (followed by intense) rainfall period in the year 1990 led to noteworthy protest by certain members of the adjacent Volcano community, who felt the concurrent bulldozing (in Paddock 4 by previous lessee) was responsible for creating or worsening the 1990 flood's impacts to their residences. No official complaints were filed at the County's Department of Public Works for the whole TMK plat 9:9:01, however, a

public dispute mediator was brought in (See section 4.3 and Appendix 5). Changes in alien species control technology (particularly for *M. faya*), gradual increases in the cooperators budget, and public response from phase 1 will all be incorporated into the best suitable implementation plan for the more sensitive phases of the activities outlined in the N.R.C.S. Conservation Plan. These secondary phases of the Conservation Plan will undergo an additional permit process when the plan details, and hence the plan's environmental impacts, can be clearly and comprehensively assessed. If permitted, the activities scheduled in forested paddocks may ensue as early as 2007 or 2008. Since the cooperator is responsible for initial investment of the capital needed to contract workers, supplies, and equipment, the mode of implementation for secondary phases hinges on the economic returns of the pasture rehabilitation and the level of N.R.C.S. reimbursement following the implementation of phase 1 (The currently proposed action).

By phasing the activities outlined in the N.R.C.S. plan, and staggering the clearing activities within the currently proposed project area – potential cumulative drainage impacts within the ranch's 1020 acres will be ameliorated, if not completely avoided. Phase 2 (importantly paddock 4) will not ensue until new pasture has been fully established in phase 1 areas (paddocks 2, 5, 6, and 7) and a separate EA and CDUA has been filed and approved. The proposed project is also not related to other activities in the region in such a way as to produce adverse cumulative effects.

Part 5: Anticipated Determination with Supporting Findings and Reasons

The proposed action consists of identified land uses within the conservation districts (general and limited) wherein the project site is located, and is being implemented under the guidance and supervision of the Natural Resource Conservation Service (N.R.C.S.). The findings of the Environmental Assessment indicate that the positive environmental impacts of the proposed project will far outweigh the any incidental negative impacts. The findings and reasons described in the EA are summarized in the following section to address the specifications of Hawaii Administrative Rules (11-200-12) concerning SIGNIFICANT environmental impacts. The discussion addresses the environmental parameters of the proposed activities in specific relation to the significance criteria (items 1-13 below) put forth by the Department of Health.

5.1 Findings and Reasons

(1) The proposed project will not involve an irrevocable commitment or loss or destruction of any natural or cultural resources. The existing conditions analyzed suggest that most of the important biological resources (i.e. endemic, threatened, and endangered species, and intact native ecosystems) have already been removed from the project area. The ones that remain, (i.e. Nene geese, Hawaiian Hawk, and possibly Hawaiian honeycreepers), will not be adversely impacted by the proposed project, which targets invasive brush and includes substantial mitigation measures to avoid incidental take of both infrequent (e.g. 'olapa) and frequently occurring (e.g. 'ohi'a trees) native species.

Temporary adverse impacts to noise and aesthetic qualities should be minor, and will give way to long-term positive aesthetic improvements when noxious brush is removed and pasture is re-established. The soil and watershed conservation properties of the ranch will similarly undergo minor short-term disruptions with anticipated long-term improvements, and is being promoted and supervised by the N.R.C.S.

Material cultural resources within the project area have not been identified and thus no adverse impacts to such resources are anticipated. However, several items should be noted, particularly for audiences residing outside of East Hawaii or unfamiliar with its cultural origins. Firstly, the summit area of Kilauea has profound spiritual, mythological, and religious importance for the believers and worshippers of Pele. Secondly, Pele also has genealogical / ancestral ties with the original inhabitants of the present-day Ka'u district and their descendents. Thirdly, material resources such as structures, traditional or ceremonial artifacts, and petroglyphs may have been hidden and/or destroyed by the

original deforestation and previous clearing of the project area (1960s to present) as well as by the sedimentary accumulation resulting from periodic steam explosions of Kilauea Caldera – such as the historically documented one of 1924 and the more voluminous ash deposits of the Keanakako'i explosions (estimated to have occurred around 1400 -1700 A.D.). Thus awareness and sensitivity should accompany the use of heavy machinery in the vicinity of Kilauea summit area, despite no tangible archaeological resources having been identified. If any anthropogenic rock formations or other such features are discovered during clearing, the activities will cease until the State Historic Preservation Office has been notified and issued a determination. Phase 3 of the Conservation Plan (not proposed at this time) may involve ground disturbance to create fence paths in forested areas that were never previously disturbed with heavy machinery. The cultural and archaeological assessments for phase 3 should accordingly be more rigorous than those included in this EA, which only addresses the impacts to previously bulldozed areas (paddocks 2, 5, 6, and 7). The currently proposed actions are not likely to cause the loss or destruction of cultural resources due to their absence, disappearance, or previous destruction. Furthermore, no grading or deep ground disturbance is proposed.

(2) The proposed project will not curtail the range of beneficial uses of the environment. The purpose of the conservation district is primarily to limit the range of human uses and traffic in its designated areas. However, many environmental characteristics have fluctuating and permeable boundaries that are not restricted by man-made property boundaries. For example, removing *R. ellipticus* thickets from the ranch is expected to improve aesthetics for properties neighboring the ranch. More importantly, it is expected to relieve the colonization pressure of *R. ellipticus* on surrounding private and public lands. Removing vegetation from ranch will slightly elevate the risk of exacerbating potential flood conditions, if a flood happens to occur during the project's implementation. However, the long-term watershed and soil conservation characteristics of the ranch are expected to improve after pasture is fully re-established.

(3) The proposed project will not conflict with the State's long-term environmental policies. The proposed project is consistent with the environmental policies set forth in Chapter 344, HRS. The chances of significantly exacerbating the effects of infrequent, high-rainfall events are remote. The chances of ameliorating the colonization pressure of invasive species in surrounding, high-value forest reserves are high. Aesthetic and open space characteristics of the ranch will definitely be improved by the proposed project.

(4) The proposed project will not substantially affect the economic or social welfare of the community or State. Direct economic benefit of the proposed action will only be realized by the applicant and workers hired to implement the project. It is conceivable that the removal of such a substantial population of *R. ellipticus* will ameliorate its colonization pressure on adjacent residential properties, State-managed forest reserves, and Hawaii Volcanoes National Park. All of the respective land managers may forgo some expenses as a result, but the amount is not measurable and difficult to predict. No depreciation of economic or social welfare conditions is anticipated.

(5) The proposed project does not substantially affect public health in any detrimental way. The repeated reference to drainage conditions is in light of previous unsubstantiated claims of Volcano Village residents following a severe rainfall period. The gentle slope, moderate rainfall, and absorbent soil characteristics, as well as the designated flood zone

X (areas outside the 500-year floodplain) indicate that the chances of flooding are remote. If a severe rainfall event unfortunately transpired after brush removal and prior to pasture re-establishment, it is conceivable that the effects of such a flood on down-slope residences may be exacerbated. Several mitigation measures are proposed, including (but not limited to) the staggering of clearing activities followed by immediate pasture planting. The applications herbicides will be also be staggered and should not culminate in significant non-point-source pollution. Several mitigation measures are proposed to limit non-target impacts of herbicide. For a full description, refer to mitigation measures in section 4.5. We feel that an appropriate mix of mechanical and chemical methods is the best solution to minimize risks to public health from flooding and chemical exposure.

(6) The proposed project will not involve substantial secondary impacts, such as population changes or effects on public facilities. No such impacts are anticipated.

(7) The proposed project will not involve a substantial degradation of environmental quality. Noise and aesthetic incursions will be moderate, but only last temporarily during project implementation. Furthermore, these impacts will be very slight for all affected areas except those immediately adjacent to residential lots. The long-term impacts to environmental quality will be improved, in terms of open space, aesthetics, and invasive species control.

(8) The proposed project is not one, which is individually limited but cumulatively may have considerable effects upon the environment or involves a commitment for larger actions. The project is not related to other activities in the region in such a way as to produce adverse cumulative impacts or involve a commitment for larger actions. Since kikuyu pasture will be planted immediately after each section of brush clearing, the soil surface in the proposed project area (paddocks 2, 5, 6, and 7) will be stabilized long before secondary and tertiary phases of the N.R.C.S. Conservation Plan are permitted and implemented. Segmenting the project, and staggering the treatments within each phase is deliberately intended to ameliorate the risks associated with leaving large areas de-vegetated over long durations. Furthermore, the implementation of the proposed project (phase 1 of Conservation Plan), does not necessitate a commitment for future phases alluded to in the N.R.C.S. Conservation Plan.

(9) The proposed project will not substantially affect any rare, threatened, or endangered species or their habitat. The native ecosystem in the project area is largely defunct, due to decades of cattle grazing and koa / hapu'u harvesting. The biggest advantages to removing invasive vegetation from the site will be realized off-site, in surrounding State forest reserves (and Hawaii Volcanoes National Park) wherein native ecosystems still have high integrity in many locales. The biologists consulted indicated that the project would have low impact potential on the Nene geese that frequent a particular area of the ranch, which is removed from proposed clearing activities. Nene are known to prefer open grassy environments, which are in no need of clearing. State biologists articulated that the Hawaiian Hawk is able to hunt in disturbed environments and that no known nests exist on the ranch. No sightings of rare Hawaiian honeycreepers are on record for the ranch, but there is a high likelihood that they may frequent the area in search of food (lehua nectar and insects under 'ohi'a bark). Sparing 'ohi'a trees of all ages throughout the pastures will help to ensure that the limited contribution of the ranch to the regional contiguity of these food sources continue or improve. The botanical

survey indicates that rare or endangered plant species are no longer present in the project area. Several mitigation measures are proposed to prevent non-point-source pollution and impacts to non-target species.

(10) The proposed project will not detrimentally affect air or water quality or ambient noise levels. No substantial affects to air or water quality would occur. Noise incursions from bulldozers will be temporary. Except for times when areas immediately adjacent to residential lots are being cleared, the noise incursions produced by machinery will be minor to hardly noticeable, depending on the distance from such areas.

(11) The project is not located in a flood plain, tsunami zone, erosion-prone area, estuary, fresh water, or coastal area. However, the project site has a relatively high potential for earthquakes and volcanic hazards. Volcanic hazards are the main reason why the southern portion of the ranch is designated part of the limited subzone (of the Conservation District). This does not warrant major concern since no public facilities are being proposed. Alternative project location is not a relevant option for this project. Furthermore, the proposed action is not expected to increase the risk or severity of volcanic or seismic hazards.

(12) The proposed project will not detrimentally impact scenic vistas and view planes identified in County or State plans or studies. In fact, the positive impacts to view planes may be substantial. Mauna Loa and Mauna Kea are prominently visible from much of the ranch on a clear day. From the perspective of Volcano Village residents adjacent to paddocks 5 and 6, the view towards Mauna Loa may significantly improve when large thickets of *R. ellipticus* and other brush are cleared from pastures.

(13) The project will not require substantial energy consumption. Insubstantial amounts of fuel will be used to power machinery. Pesticides are made of and manufactured with fossil fuels also. No viable alternatives presently exist that would eliminate the need for minor amounts energy consumption.

5.2 Anticipated Determination

It is anticipated that a Finding Of No Significant Impact (FONSI) will be filed and that the preparation of an Environmental Impact Statement is not warranted.
The proposed project is not anticipated to cause any significant, adverse impacts to the environment with respect to the 13 significance criteria set forth by the Department of Health. Positive impacts will far outweigh negative impacts especially when primary, secondary, and cumulative; short-term and long-term; and on-site and off-site parameters are incorporated into the analysis. By contrast, the possible negative impacts are mainly short-term, primary, on-site impacts and / or impacts that only accompany infrequent environmental conditions (i.e. exacerbating drainage problems during a severe flood).

Part 6: References

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Boundary Determination Testimonies for the Ahupua'a of Keauhou, District of Ka'u. October 24, 1873. Testimonies by Kenoi and Keliilohi.

Desha, Stephen L., Translated (from Hawaiian to English) by Frazier, Frances N. 2000. *Kamehameha and His Warrior Kekuhaupi'o.* Kamehameha Schools Press, Honolulu.

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Jackson, Frances. 1997. *History of the 'Ili'aina of Keauhou and 'Ainahou Ranch Ka'u.* Hana Maiau, Inc. (Hawaii).

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Marias, J.P. 2001. *Factors affecting the nutritive value of kikuyu grass (Pennisetum clandestinum) – a review.* Tropical Grasslands vol. 35, pp. 65-84. Qld, Australia: 2001

Motooka, P., Lincoln, C., and Nagai, G. 2002. *Herbicidal Weed Control Methods for Pastures and Natural Areas of Hawaii.* Cooperative Extension Service, UH CTAHR.

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Terry, R. and Hart, P. 2003 (unpublished). *Botanical Reconnaissance 500-Acre Portion of 'Uila Ranch Volcano, Island of Hawai'i.* (included in Appendix 1).

U.S. Census Bureau, Census 2000. *Profile of General Demographic Characteristics: 2000.* Table DP-1 (Hawaii County and Volcano CDP, Hawaii).

DIGITAL MAP RESOURCES:

Hawaii Department of Business, Economic Development, and Tourism
http://www.state.hi.us/dbedt.htm

National Oceanic and Atmospheric Administration
http://biogeo.nos.noaa.gov/

U.S.D.A. Natural Resources Conservation Service (Volcano Soils Data)

County of Hawaii, Data Systems Department.

INFORMANTS:

Keola Awong (Hawaii Volcanoes National Park, Curator)

Bobby Camara (Naturalist)

Pat Conan (Hawai'i State Dept. of Agriculture)

Mike DuPont (UH Cooperative Extension Service)

Kekuhi Kanahele Frias (Hawaiian Cultural Practitioner w/ Edith Kanaka'ole Foundation)

Phil Motooka (UH Cooperative Extension Service)

Laura Schuster (Hawaii Volcanoes National Park, Chief of Cultural Resources)

Tim Tunison (Hawaii Volcanoes National Park, Chief of Resources Management)

Jennifer Waipa (Hawaii Volcanoes National Park, Archaeologist)

Chris Zimmer (Hawaii Volcanoes National Park, Vegetation Management)

CONSERVATION DISTRICT USE APPLICATION

(CDUA)

Dec. 1994

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/Fine No.
180-Day Exp.
EIS Required
PH Required
Board Approved
Disapproved

CONSERVATION DISTRICT USE APPLICATION FORM

(Print or Type)

SUMMARY PAGE

I. LANDOWNER
(If State land, to be filled by State of Hawaii or government entity with management control over parcel.)

Name Kamehameha Schools

Address P.O. Box 486
Pauoilo, Hawai'i 96776

Telephone No. (808) 776-1104

SIGNATURE

DATE 8/14/03

NOTE: Signature of an authorized representative of DLNR under this section is not to be construed as an approval or as an application which shall be submitted separately with the appropriate fee. Also, for private lands with multiple owners, the application shall be signed by landowners whose property interests constitute or exceed 85% of the fee ownership of the parcel(s).

II. APPLICANT

Name Kenneth and Mary Ellen Wong

Address P.O. Box 250
Volcano, HI 96785

Telephone No. (808) 967-7224

Interest in Property Lessee
20-year lease for cattle ranch
(Indicate interest in property; submit written evidence of this interest.)

*SIGNATURE

Date Aug. 12, 2003

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

AGENT

Name Christian Rygh

Address HCR 1 Box 3822
Kea'au, HI 96749

Telephone No. (808) 982-9639

III. TYPE OF PERMIT

(1) Departmental permit (see section 13-5-33);
(2) Board permit (see section 13-5-34)
(3) Emergency permit (see section 13-5-35)
(4) Temporary variance (see section 13-5-36)
(5) Nonconforming uses (see section 13-5-37)
(6) Site plan approval (see section 13-5-38); or
(7) Management plan (see section 13-5-39)

IV. LAND PARCEL LOCATION

Island: Hawaii
County: Hawaii
District: Ka'u
Tax Map Key(s): (3) 9-9-01:17
Area of Parcel: 1,020 Acres (Indicate in acres or sq. ft.)
Term (if lease): 20 Years

V. SUMMARY OF PROPOSED IDENTIFIED LAND USE: Landscaping and removal of noxious plants in an area more than 10,000 sq. ft. with ground disturbance (HAR 13-5-23, L-4)

VI. ENVIRONMENTAL REQUIREMENTS

Pursuant to Chapter 343, Hawaii Revised Statutes, and in accordance with Title 11; Chapter 200, Environmental Impact Statement Rules for applicant actions, a Draft Environmental Assessment of the proposed use must be attached. The Draft Environmental Assessment shall include, but not be limited to the following:

(1) Identification of applicant or proposing agency;

(2) Identification of approving agency, if applicable;

(3) Identification of agencies consulted in making assessment;

(4) General description of the action's technical, economic, social, and environmental characteristics;

(5) Summary description of the affected environment, including suitable and adequate location and site maps;

(6) Identification and summary of major impacts and alternatives considered, if any;

(7) Proposed mitigation measures, if any;

(8) Determination;

(9) Findings and reasons supporting determination; and

(10) Agencies to be consulted in the preparation of the EIS, if applicable.

A Draft Environmental Assessment prepared in accordance with Chapter 343, Hawaii Revised Statutes and with Hawaii Administrative Rules, Title 11, Chapter 200, Environmental Impact Statement Rules - is attached.

VII. DESCRIPTION OF PARCEL

A. Existing structures/use. (Attach description or map and one set of original photographs. Also, if applicable, include any previously obtained Federal, State and/or County permit approvals.)

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

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

D. Flora and Fauna. (Describe and provide map showing location and types of flora and fauna. Indicate if rare or endangered native plants and/or animals 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 encumbrances.)

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

See Attached Environmental Assessment.

VIII. COMMENCEMENT DATE: **April, 2004 (or immediately upon receiving CDUP).**

COMPLETION DATE: **April, 2007 (or approximately 3 years after commencement).**

IX. CITE AND DESCRIBE IN DETAIL THE PROPOSED IDENTIFIED LAND USE:

See Attached Environmental Assessment

X. AREA OF PROPOSED USE: **Approximately 500 Acres (maximum 180 grubbed)**
(Indicate in acres or sq. ft.)

XI. NAME AND DISTANCE OF NEAREST TOWN OR LANDMARK:

The property lies on the mauka side of Hwy. 11, across from the headquarters / main entrance area of Hawaii Volcanoes National Park. Gravel access road runs parallel to highwey, starting from Volcano Country Club.

XII. LAND USE COMMISSION BOUNDARY INTERPRETATION: If the area is within fifty feet of the boundary of the Conservation District, include a map showing the interpretation of the boundary by the State Land Use Commission.

Previous correspondence between the applicant and the DLNR have established that the ranch is located within the State Conservation District (see attached EA, Appendix 6). State Land Use Districts in the project vicinity are shown in Figure 3 of the attached EA.

XIII. SUBZONE BOUNDARY DETERMINATION:

Previous correspondence between the applicant and the DLNR have established that the ranch is located in both Limited and General Subzones of the State Conservation District (see attached EA, Appendix 6). The Limited / General Subzone boundary is included in the project location map (see attached EA, Figure 1).

XIV. FEES. Each application shall be accompanied by such filing fees as specified in Chapter 13-5, HAR. All fees shall be in the form of cash, certified or cashier's check, and payable to the State of Hawaii.

A fee of $100 is enclosed.

XV. PLANS. All applications shall contain associated plans such as a location map, site plan, floor plan, elevations and landscaping plans drawn to scale. Additionally, all plans should include a 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. (For Site Plan Approvals, see Section 13-5-38, HAR.)

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: If required, refer to Section 13-5-39, HAR, and Exhibit 3, entitled "Management Plan Requirements, dated September 6, 1994.

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.

All pertinent plans are included in the attached Environmental Assessment

XVI. DEMONSTRATE THAT THE PROPOSED USE IS CONSISTENT WITH THE FOLLOWING CRITERIA (1-8):

(Note: For references to plan phases and numbered paddocks, see exhibits in section 1.3 of the attached Environmental Assessment.)

1. The proposed land use is consistent with the purpose of the Conservation District;

According to HAR, 13-5-1:
"The purpose of this chapter is to regulate land use in the conservation district for the purpose of conserving, protecting, and preserving the important natural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare."

Removing noxious brush from the existing pastures (and replanting grass) on 'Uila Ranch will have positive impacts on the open space and aesthetic values of the property. More importantly, the removal of a large, dense population of yellow Himalayan raspberry (*Rubus ellipticus*) in particular, has implications for safeguarding native ecosystems (biological resources) in the broader Volcano area, and abating the island-wide spread of this particularly noxious, invasive species. The project is *expected to have some* temporary negative impacts on soil surface, but the long-term soil and watershed conservation values of the ranch will be improved by brush control and pasture re-establishment.

By ranch standards, 'Uila Ranch maintains a large number of 'ohi'a trees (*Metrosideros polymorpha*) on the property, both in forested areas, and scattered throughout the existing pastures. The applicants have no intention of removing 'ohi'a trees from pastures, since they provide shade for cattle and ameliorate climatic extremes (e.g. drought). 'Ohi'a trees on the property represent a potential food source for a variety of native Hawaiian honeycreepers, and make a limited contribution (more than a treeless ranch) to the regional contiguity of such food sources. The surrounding region has been identified as one of the most important native bird conservation areas in the State of Hawaii, and consists predominantly of publicly-managed Conservation District lands (see figures 2 and 3 in attached EA).

The findings of the attached EA indicate that no endangered plant species are present after decades of cattle grazing. Many common native plants, especially koa trees (*Acacia koa*) and hapu'u ferns (*Cibotium glaucum*), both ubiquitous in this ecological zone in times past, are scantly represented on the ranch, due to previous lessees' harvesting activities in addition to the ordinary effects of long-term cattle grazing.

The current outbreak of *R. ellipticus* on 'Uila Ranch represents a substantial seed source that continually threatens surrounding conservation lands where stakes are higher, since more of the native habitat is intact. Since the seeds of the raspberries are easily and commonly spread by birds, the indirect regional impacts of the No-Action alternative may be extensive and mounting.

As section 1.3 of the attached EA explains, there are three phases to the N.R.C.S. Conservation Plan, only the first of which is being proposed at this time:

1) Removing *R. ellipticus* (and other invasive plants) from existing pastureland.
2) Removing *M. faya* (and other invasive plants) from forested paddocks.
3) Installing fence and irrigation lines to subdivide existing forested paddocks.

The public health, safety, and welfare of Volcano Village residents are not at risk from the currently proposed phase of the conservation plan. The final implementation plan for phase 2 and 3 will be addressed in a future EA/CDUA, when methodological and economic constraints are better known. Public review of phase 1 may also contribute to planning a reasonably affordable implementation plan for phase 2 that will accomplish maintenance objectives with least possible risk to adjacent (down-slope) residential properties. Phase 3 is also not finalized, but will probably involve some minor disturbances to previously undisturbed forest. By comparison, phase 1 is the most imperative

for ranch functionality and regional biological conservation objectives, and the least likely to have adverse impacts on the environment.

2. The proposed land use is consistent with the objectives of the subzone of the land on which the use will occur;

According to HAR, 13-5-14:
General Subzone Objective – "The objective of this subzone is to designate open space where specific conservation uses may not be defined, but where urban uses would be premature."

According to HAR, 13-5-12:
Limited Subzone Objective – "The objective of this subzone is to limit uses where natural conditions suggest constraints on human activities."

Most of the currently proposed clearing activities will occur in the General Subzone, whereas portions of paddocks 2 and 5 are located in the Limited Subzone. The proposed activities constitute an identified land use in both general and limited subzones. Clearing noxious brush in existing pastures will improve the open space characteristics of the ranch. Furthermore, the proposed action will not broaden the scope of human activities in the limited subzone. This concept will potentially become more relevant in the environmental assessment of phase 3, which may seek to improve accessibility in the limited subzone so that Kamehameha Schools' field trips can incorporate the educational opportunities of the forested areas therein.

The currently proposed actions (phase 1) are consistent with the objectives of both the general and limited subzones.

3. The proposed land use complies with provisions and guidelines contained in Chapter 205A, Hawaii Revised Statutes (HRS), entitled "Coastal Zone Management", where applicable.

Chapter 205A does not apply since the project occurs inland at circa 4000 ft. elevation, far removed from the coast, with no waterways (e.g. streams) connecting to the coast. The property is outside the County's Special Management Area.

4. The proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community, or region;

The current proposal (phase 1) presents little risk of causing substantial adverse impacts to natural resources and provides an important service to high-integrity native ecosystems in the surrounding region by removing a substantial *R. ellipticus* seed source. In light of previous flooding that transpired concurrently with the unauthorized bulldozing of the ranch's former lessee, drainage issues have been given much attention in the attached EA. However, no grading or intentional alteration of topography for water diversion is proposed. The N.R.C.S. has prescribed staggered clearing activities and will oversee the project to ensure that each section is replanted in kikuyu grass promptly after being de-vegetated. The ranch and pertinent residential areas are not in an identified flood zone according to the Flood Insurance Rate Maps (Zone X). However, the applicants have proposed several mitigation measures to address the concerns of the adjacent community (see FEA section 4.3). The project is not likely to substantially impact soil and watershed resources. Much of the mitigation proposed are precautionary measures to minimize the risk of exacerbating impacts to adjacent residential properties if a flood unfortunately transpired during the project's implementation.

Given the unique evolutionary setting of the Hawaiian Islands (i.e. the large number of endemic species), and since the project area is not steep or particularly wet – native ecosystem issues generally take precedence over soil and watershed conservation issues. Since the native ecosystem is largely defunct on the ranch itself, the true environmental benefits of invasive species removal will be most realized in the surrounding, publicly-managed forest reserves, where ecosystems have higher native integrity, and more rare and endangered species. Negative impacts to native flora and fauna on the ranch will be carefully avoided (see section 4.5 of attached EA). Also, there are no lakes, streams, wetlands, or groundwater resources in the region that might be impacted by clearing activities or herbicide usage.

5. The proposed land use, including buildings, structures, and facilities, shall be compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels;

The proposed actions are maintenance activities that will temporarily increase noise and decrease aesthetic appeal for the residences immediately adjacent to paddocks 5 and 6. The end-results of the proposed action will make the ranch more compatible with surrounding areas by improving vistas and open space characteristics and deterring the use of overgrown areas for marijuana cultivation.

6. The existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable.

Currently, the paddocks affected by the proposed action are completely overgrown with large impenetrable thickets of *R. ellipticus*, which depreciates natural beauty and open space characteristics. The proposed action will remedy this situation on site, but perhaps more importantly, it will abate the current flow of *R. ellipticus* seeds to surrounding lands, where high-value native forest still exists. The existing pastures are dotted with old growth 'ohi'a trees, which will be carefully avoided during the proposed brush removal. Aesthetic values of the ranch will be greatly improved by the removal of *R. ellipticus* and other noxious brush from pastures.

7. Subdivision of the land will not be utilized to increase the intensity of land uses in the Conservation District;

The parcel is not being subdivided.

8. The proposed land use will not be materially detrimental to the public health, safety, and welfare.

The N.R.C.S. maintains that the proposed project will not be materially detrimental to public health, safety, and welfare. Grubbing of invasive vegetation is expected to disrupt the soil surface temporarily, but is not expected to permanently alter drainage characteristics, induce mass wasting, or exacerbate existing volcanic hazards. Mechanical intervention will be employed in the worst-infested areas only (up to but not exceeding 180 acres as a condition of the CDUP). Herbicide applications will be employed in the remaining portions of the project area, where invasive plant infestations are not so dense as to severely obstruct ranching and maintenance activities. Follow-up herbicide applications will also be needed on a gradual basis in all treated areas as seed-bank volunteers emerge. There are no streams, lakes, or ground-water resources in the area. Were it not for the ranching constraints imposed by dense stands of slowly decaying vegetation, the chemical control alternative may have been practical for the entire project area. The hybrid approach (half mechanical / half chemical) was decided upon after responses to the DEA revealed that the adjacent community preferred chemical applications over mechanical methods, which cause ground disturbance and may potentially exacerbate flooding impacts to their properties should a flood occur during the project's implementation. Section 4.3 of the attached EA contains further discussion of mitigation for potential drainage impacts.

Chemicals will be used in accordance with their labeling and will not be sprayed during windy or rainy weather conditions. A number of other mitigation measures with regard to herbicide usage are proposed in the Final EA (see sections 3.4 and 4.5). Due to the staggered application schedule and mitigation measures discussed, non-point-source pollution and significant impacts to non-target biota are not anticipated.

Phase 2 of the conservation plan will involve slightly steeper lands, more adjacent residences, and more invasive tree (as opposed to shrub) removal than phase 1, suggesting that concerns over ground disturbance may be equal or greater than those for phase 1. The environmental impacts of phase 2 and 3 will be addressed in a subsequent EA and CDUA, when more details on budget and implementation methodology are evident.

APPENDIX 1

SUPPORTING DOCUMENTS (TECHNICAL)

BOTANICAL RECONNAISSANCE
500-ACRE PORTION OF `UILA RANCH
VOLCANO, ISLAND OF HAWAI'I

By Ron Terry, Ph.D. and Patrick Hart, Ph.D.
March 2003

Introduction

This report describes the results of a botanical reconnaissance of an approximately 500-acre portion of a cattle ranch in Volcano, Hawai'i, owned by Mary Ellen Wong. Maps of the area are included in the document to which this report is an appendix.

Purpose and Methodology

A U.S. Natural Resources Conservation Service (NRCS) Conservation Plan calls for the mechanical and chemical treatment of alien species, especially Himalayan blackberry (*Rubus ellipticus*) and faya tree (*Myrica faya*), in order to improve range conditions on the ranch. These aggressive aliens have invaded the pastures and threaten not only grazing land but also the health of remnant individuals and stands of native trees within the ranch, as well as that of neighboring native forest. The Conservation Plancalls for NRCS personnel to ensure that state and federally (USFWS 1999) listed threatened and endangered plant species are protected during these operations by walking ahead of tractors and sprayers to flag any such species that might be present. The primary purpose of this survey was to determine if there were any concentrations of threatened and endangered species within the 500-acre area. Secondary purposes were to describe the basic vegetation and flora and to note any special botanical conditions. Knowledge of these conditions will streamline the proposed alien species removal activities and ensure protection of valuable plant species.

On February 14 and 27, 2002, a team of two botanists walked a series of transects that offered a representative sample of the entire area and served as bases for detecting pockets of native vegetation. The survey was not intended to (and did not achieve) 100 percent cover, but it did provide the basis for a reasonably thorough assessment of the property's vegetation and flora.

Results

Large (30 – 70cm dbh, 15-25m tall), old growth 'ohi'a (*Metrosideros* polymorpha) trees are found throughout the survey area. Decades of cattle ranching have greatly reduced the density of the mid-canopy trees and understory plant species. Nevertheless, the ranch still contains most elements (species) that are found in the adjacent Ola'a rainforest of Hawai'i Volcanoes National Park. Mid-canopy trees such as kawa'u (*Ilex anomala*), kolea (*Myrsine lessertiana*), and olapa (*Cheirodendron trigynum*) grow primarily on

steep banks or rocky hills that may afford some protection from grazing cattle. Most native understory shrubs such as *Clermontia parviflora* and *Astelia menziesiana* are growing on tree-falls or as epiphytes on live trees. With the exception of a few very old hapu`u (*Cibotium glaucum*), most ferns are growing on tree falls and as epiphytes. By far the dominant plant species on the ranch is the Himalayan raspberry. The density of this thorny, highly invasive shrub increases with distance from the ranch house. In some areas, this weed has coalesced into thickets that are impenetrable by cattle or humans. Other invasive species, such as faya tree, have not spread as widely on the ranch, presumably because of cattle grazing. However, the thorny *Pyracantha angustifolia* is becoming established. Table 1, below, lists all plant species encountered.

Table 1
Plant Species Observed on Site

Scientific Name	Family	Common Name	Life Form	Status
Ageratina riparia	Asteraceae	Pamakani	Shrub	A
Anemone hupehensis	Ranunculaceae	Japanese anemone	Herb	A
Astelia menziesiana	Liliaceae	Kaluaha	Shrub	E
Cheirodendron trigynum	Araliaceae	Olapa	Tree	E
Cibotium glaucum	Dicksoniaceae	Hapuu	Tree fern	E
Cirsium vulgare	Asteraceae	Bull thistle	Herb	A
Clermontia parviflora	Campanulaceae	Haha	Shrub	E
Conyza bonariensis	Asteraceae	Hairy horseweed	Herb	A
Coprosma montana	Rubiaceae	Pilo	Tree	E
Cynodon dactylon	Poaceae	Crabgrass	Grass	A
Dryopteris wallichiana	Dryopteridaceae	'I'o nui	Fern	I
Dubautia scabra	Asteraceae	Dubautia	Shrub	E
Elaphoglossum crassifiolium	Lomariopsidaceae	Ekaha	Fern	E
Elaphoglossum paleaceum	Lomariopsidaceae	Maku'e	Fern	E
Fragaria vesca	Rosaceae	European strawberry	Herb	A
Geranium homeanum	Geraniaceae	Geranium	Herb	A
Hypochoeris radicata	Asteraceae	Hairy cat's ear	Herb	A
Ilex anomala	Aquifoliaceae	Kawau	Tree	I
Juncus effusus	Juncaceae	Japanese mat rush	Rush	A
Metrosideros polymorpha	Myrtaceae	Ohia	Tree	E
Myrica faya	Myricaceae	Myrica	Tree	A
Myrsine lessertiana	Myrsinaceae	Kolea	Tree	E
Nephrolepis multiflora	Nephrolepidaceae	Nephrolepis	Fern	A
Pennisetum clandestinum	Poaceae	Kikuyu grass	Grass	A
Perrottetia sandwicensis	Celastraceae	Olomea	Tree	E
Pluchea symphytifolia	Asteraceae	Sourbush	Shrub	A
Polygonum capitatum	Polygonaceae	Knotweed	Shrub	A
Pyracantha angustifolia	Rosaceae	Firethorn	Shrub	A
Rubus argutus	Rosaceae	Florida blackberry	Shrub	A
Rubus ellipticus	Rosaceae	Himalayan Raspberry	Shrub	A
Sacciolepis indica	Poaceae	Glenwood grass	Grass	A
Sadleria cyatheoides	Blechnaceae	Amau	Tree fern	E
Vaccinium calycinum	Ericaceae	Ohelo	Shrub	E

* A = alien, E = endemic, I = indigenous Flowering plant names follow Wagner et al 1990. Ferns classified according to Palmer 2003.

Conclusions

No threatened or endangered plant species were found during the survey. Decades of cattle grazing make it highly unlikely that they are present anywhere in this area of the ranch. Nevertheless, we endorse any plans by the NRCS to conduct walk-though surveys prior to mechanical or chemical operations in any areas of the ranch that contain remnant patches of native forest. Even if these patches do not contain threatened or endangered species, they should be protected and expanded, if practical, in order to increase habitat diversity.

Literature Cited

Federal Register 1999. Department of the Interior, Fish and Wildlife Service."Endangered and Threatened Wildlife and Plants." 50CFR 17:11 and 17:12 – December 3, 1999.

Wagner, W.L, D.R.Herbst, and S.H. Sohmer, eds. *Manual of the Flowering Plants of Hawaii*. 2 vols. Honolulu: University of Hawaii Press.

Palmer, D.D. 2003. *Hawaii's Ferns and Fern Allies*. University of Hawaii Press, Honolulu.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Box 50088
Honolulu, Hawaii 96850

In Reply Refer To:
1-2-2003-I-11

OCT 29 2002

Mr. Kenneth M. Kaneshiro
State Conservationist
Natural Resources Conservation Service
P.O. Box 50004
Honolulu, Hawaii 96850

Re: Informal Consultation for the Environmental Quality Incentives Program (EQIP) Contract and Implementation of a Conservation Plan with the Natural Resources Conservation Service (NRCS) and Mary Ellen Wong of Uila Ranch on Bishop Estate Land (TMK: (3) 9-9-01: 17 (1020 acres), Island of Hawaii

Dear Mr. Kaneshiro:

This responds to your October 11, 2002, letter in which you request concurrence from the U. S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act (Act) with the NRCS's determination that the above referenced project is not likely to adversely affect any federally listed or proposed species, or proposed or designated critical habitat. Your letter was received in this office on October 16, 2002. The proposed project intends to control noxious weeds (yellow himalayan raspberry, firetree, glory bush, and firehorn by bulldozing and applying chemicals. Mrs. Wong will also implement the following practices: pasture planting, nutrient management, pest management, and upland wildlife habitat management.

According to data from the Hawaii Natural Heritage Program, the hawaiian hawk, or 'io (*Buteo solitarius*), has been seen flying in the vicinity but there are no known nests nearby. NRCS has observed a pair of nene geese (*Branta sandwincensis*) frequenting the ranch reservoir on occasion. According to a phone conversation on October 17, 2002 with Harry Toki, District Conservationist, the project will have low impact potential on the nene geese. The reservoir is unlikely to be affected, since the noxious weeds will be hand-removed as much as possible and chemical application will be restricted to spot-spraying. No other endangered or threatened plant or animal species are known to occur in the area.

Based on the information you provided and information in our files, the Service concurs with the NRCS's determination that implementation of the proposed project is not likely to adversely

affect any federally listed or proposed species, or proposed or designated critical habitat. The hawaiian hawk is able to forage in disturbed areas and thus is not likely to be adversely affected.

We appreciate your interest and concern for natural resources. If you have any questions, please contact Eric VanderWerf, Hawaiian Bird Recovery Coordinator (phone: 808/541-3441; fax: 808/541-3473).

Sincerely,

Gina Shultz

Paul Henson, Ph.D.
Field Supervisor

APPENDIX 2A

PRECONSULTATION COMMENT LETTERS

Harry Kim
Mayor

Christopher J. Yuen
Director

Roy R. Takemoto
Deputy Director

County of Hawaii

PLANNING DEPARTMENT
25 Aupuni Street, Room 109 • Hilo, Hawaii 96720-4252
(808) 961-8288 • Fax (808) 961-8742

March 3, 2003

Mr. Christian Rygh
HCR 1 Box 5022
Keaau, HI 96749

Dear Mr. Rygh:

Subject: **Preliminary Consultation on a Draft Environmental Assessment**
Applicant: **M/M Wong**
Project: **Landclearing at 'Uila Ranch**
TMK: **9-9-001: 017, Keauhou-Kapapala, Ka'u, Hawaii**

This is to acknowledge receipt of your letter dated February 26, 2003 requesting preliminary comments on proposed land clearing activities at 'Uila Ranch, in preparation of an environmental assessment (EA). The applicant is applying for a Conservation District Use Permit, and the EA is necessary because the project involves the use of lands within the Conservation District.

The State Land Use designation for the property is Conservation and the County designation is Kilauea Forest Reserve. Likewise, the General Plan LUPAG Map designation is Conservation and the property is not situated in the County's Special Management Area.

Thank you for the opportunity to provide comments. If you have any questions, please call us at 961-8288.

Sincerely,

CHRISTOPHER J. YUEN
Planning Director

PF:pak
p:\wpwin60\Ch343\2003\DEARyghUilaRanch.doc

cc: Long Range Planning

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

HRD03-949

May 5, 2003

Christian Rygh
HCR 1 Box 5022
Kea'au, HI 96749

Re: Environmental Assessment, 'Uila Ranch, Ka'u, TMK (3) 9-9-01:17

Dear Mr. Rygh,

OHA is in receipt of your request for comment on the above referenced project, which we received on April 11, 2003.

OHA has no comment at this time. We encourage you to contact members of local Hawaiian Civic clubs or Royal societies who may be able to comment on the project. We look forward to review of the Draft Environmental Impact Statement.

If you have further questions, please contact Pua Aiu at 594-1931 or e-mail her at paiu@oha.org.

Sincerely,

Peter L. Yee
Director
Nationhood and Native Rights

APPENDIX 2B

COMMENT LETTERS

TO DRAFT EA AND RESPONSES

LINDA LINGLE
GOVERNOR OF HAWAII

RECEIVED
LAND DIVISION

2003 NOV -5 A 10:01

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Office of Conservation and Coastal Lands
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

Ref.:OCCL: TM

File No.: HA-3164

180 Day Expiration Date: 04/28/04
SUSPENSE DATE: 21 Days from
stamped date OCT 28 2003

MEMORANDUM:

TO: Aquatic Resources, Forestry and Wildlife, Historic Preservation, Conservation and Resources Enforcement, Engineering, State Parks, Hawaii District Land Agent

FROM: Dierdre S. Mamiya, Acting Administrator
Office of Conservation and Coastal Lands

SUBJECT: REQUEST FOR COMMENTS
Draft Environmental Assessment/Conservation District Use Application
HA-3164
BOARD PERMIT
Uila Ranch Invasive Species Control/ Pasture Re-establishment

APPLICANT: Uila Ranch/ Mary Ellen Wong

TMKs: See Materials

LOCATION: See Acceptance Letter and attachments

PUBLIC HEARING: **YES X** NO

Please contact Tiger Mills at 587-0382, should you have any questions on this matter.

If no response is received by the suspense date, we will assume there are no comments. The suspense date starts from the date stamp.

Attachment(s)

***NOTE: DEA is available for viewing at Land Division

(X) We have no comments

Date: 11/4/03

Signed:
ERIC T. HIRANO, CHIEF ENGINEER

DOCARE-18

File Number	DOCARE-18 / 3164-HA
Applicant	UILA RANCH/MARY ELLEN WONG
Contact	CHRISTIAN RYGH, 982-5638
Location	TMK: (3) 9-9-01:17 (ACROSS ENTRANCE TO HAWAII VOLCANOES NATL PARK
Project Summary	INVASIVE SPECIES CONTROL AND PASTURE REESTABLISHMENT
Project Description	APPLICANT IS PROPOSING TO REMOVE NOXIOUS BRUSH FROM THE EXISTING PASTURES (AND REPLANTING GRASS) ON UILA RANCH WHICH IS ENTIRELY WITHIN THE STATE CONSERVATION DISTRICT - GENERAL AND LIMITED SUBZONES.
Branch Assigned	HAWAII
Date Referred	11/10/2003
Date Due	11/24/2003
Instructions	REVIEW THE ATTACHED APPLICATION AND COMMENT WITH RESPECT TO DOCARE'S CURRENT AND FUTURE PROGRAMS. NO SITE INSPECTION IS NEEDED. IF NO RESPONSE IS RECEIVED, LAND DIVISION WILL ASSUME THAT THERE ARE NO COMMENTS
Branch Report Number	HA-04-589
Officer Assigned	Peter Kerr
Date Assigned	11-16-03
Date of Inspection	
Has Work Been Initiated	Yes ☐ No ☐
Describe	
Were Any Descrepancies Noted	Yes ☐ No ☐
Remarks	
Is Approval Recommended	Yes ☐ No ☐
Notes	No Comment
Final Disposition	CLOSED: RECORD ONLY

RECEIVED
DOCARE
HILO, HAWAII
2003 NOV 13 P

LINDA LINGLE
GOVERNOR OF HAWAII

DIVISION OF AQUATIC RESOURCES
DIRECTOR
Suspense Date:
Project & File
HA-3164
RE

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Office of Conservation and Coastal Lands
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
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CONSERVATION AND COASTAL LANDS
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FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

RECEIVED
NOV 3 2003
AQUATIC RESOURCES

Ref: OCCL: TM

File No.: HA-3164

180 Day Expiration Date: 04/28/04
SUSPENSE DATE: 21 Days from
stamped date OCT 28 2003
11/12

MEMORANDUM:

TO: Aquatic Resources, Forestry and Wildlife, Historic Preservation, Conservation and Resources Enforcement, Engineering, State Parks, Hawaii District Land Agent

FROM: Dierdre S. Mamiya, Acting Administrator
Office of Conservation and Coastal Lands

SUBJECT: REQUEST FOR COMMENTS
Draft Environmental Assessment/Conservation District Use Application
HA-3164
BOARD PERMIT
Uila Ranch Invasive Species Control/ Pasture Re-establishment

RECEIVED
LAND DIVISION
2003 NOV 14 P 3:32
DEPT OF LAND & NATURAL RESOURCES
STATE OF HAWAII

APPLICANT: Uila Ranch/ Mary Ellen Wong

TMKs: See Materials

LOCATION: See Acceptance Letter and attachments

PUBLIC HEARING: **YES X** NO

Please contact Tiger Mills at 587-0382, should you have any questions on this matter.

If no response is received by the suspense date, we will assume there are no comments. The suspense date starts from the date stamp.

Attachment(s)

- No objections

W. Dmiya

11/13/03

LINDA LINGLE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Office of Conservation and Coastal Lands

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

PETER T. YOUNG
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COMMISSION ON WATER RESOURCE MANAGEMENT

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HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

Ref.:OCCL: TM

File No.: HA-3164

180 Day Expiration Date: 04/28/04
SUSPENSE DATE: 21 Days from
stamped date OCT 2 8 2003

MEMORANDUM:

TO: Aquatic Resources, Forestry and Wildlife, Historic Preservation, Conservation and Resources Enforcement, Engineering, State Parks, Hawaii District Land Agent

FROM: Dierdre S. Mamiya, Acting Administrator
Office of Conservation and Coastal Lands

SUBJECT: REQUEST FOR COMMENTS
Draft Environmental Assessment/Conservation District Use Application
HA-3164
BOARD PERMIT
Uila Ranch Invasive Species Control/ Pasture Re-establishment

APPLICANT: Uila Ranch/ Mary Ellen Wong

TMKs: See Materials

LOCATION: See Acceptance Letter and attachments

PUBLIC HEARING: **YES X** NO

RECEIVED
LAND DIVISION
2003 NOV 17 A 10:27
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

RECEIVED
LAND DIVISION
2003 OCT 29 A 8:
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

Please contact Tiger Mills at 587-0382, should you have any questions on this matter.

If no response is received by the suspense date, we will assume there are no comments. The suspense date starts from the date stamp.

Attachment(s)

11/14/03
The DLNR Land Division (HI District Branch)
has no comments regarding this request.

LINDA LINGLE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Office of Conservation and Coastal Lands

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

TO:
___ADMINISTRATOR
___ASST ADMIN
___DEV BR
___PLAN BR
___RES MGT BR
___CLERICAL
___ADMIN ASST
___INTERP BR

FOR:
___DIRECTOR/STAFF RM
___COMMENTS & REC
___DRAFT REPLY
___FILE
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___INFO
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___RUSH DUE
___SEE ME
___FAX/SEND COPY TO

1940

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
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BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
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CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

Ref.:OCCL: TM

File No.: HA-3164

180 Day Expiration Date: 04/28/04
SUSPENSE DATE: 21 Days from stamped date OCT 28 2003

MEMORANDUM:

TO: Aquatic Resources, Forestry and Wildlife, Historic Preservation, Conservation and Resources Enforcement, Engineering, State Parks, Hawaii District Land Agent

FROM: Dierdre S. Mamiya, Acting Administrator
Office of Conservation and Coastal Lands

SUBJECT: REQUEST FOR COMMENTS
Draft Environmental Assessment/Conservation District Use Application HA-3164
BOARD PERMIT
Uila Ranch Invasive Species Control/ Pasture Re-establishment

APPLICANT: Uila Ranch/ Mary Ellen Wong

TMKs: See Materials

LOCATION: See Acceptance Letter and attachments

RECEIVED
LAND DIVISION
2003 NOV 18 P
DEPT. OF LAND
NATURAL RESOUR
STATE OF HAWAI
Nov 18, 2003

PUBLIC HEARING: YES X NO

Please contact Tiger Mills at 587-0382, should you have any questions on this matter. There are no State Parks concerns or it is not near any of our parks.

If no response is received by the suspense date, we will presume that you have no comments. The suspense date starts from the date of this memo, not within any agency.

Attachment(s)

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

REF.: OCCL:TM

FILE NO.: HA-3164
Acceptance Date: 10/24/03
180-Day Exp. Date: 4/28/04

OCT 2 8 2003

Mr. Christian Rygh
HCR 1 Box 5022
Kea'au, Hawaii 96749

Dear Mr. Rygh:

NOTICE OF ACCEPTANCE AND PRELIMINARY ENVIRONMENTAL DETERMINATION
CONSERVATION DISTRICT USE APPLICATION (CDUA) HA-3164
BOARD PERMIT

This letter acknowledges the acceptance for processing of the CDUA submitted by Uila Ranch for Phase I of the Invasive Species Control/ Pasture Re-establishment Project. According to the information provided by you, the project will take place within a non-forested, previously cleared, 500-acre portion of Uila Ranch located at Volcano in Ka'u on the island of Hawaii, [TMK: (3) 9-9-01:17]. Uila Ranch is located in the Limited and General Subzones of the Conservation District. The application states that the proposed action involves grubbing and raking by bulldozing select targeted *Rubus ellipticus* (and other invasive plants) pest species, immediately followed by planting of kikuyu grass. Application of herbicides will take place for several years to successfully eradicate new growth of invasive plants.

After reviewing the application, we find that:

1. The proposed use is an identified land use (L-4, Landscaping and Removal of Noxious Plants; D-1) within the Conservation District, pursuant to Section 13-5-23 of the Hawaii Administrative Rules (HAR); please be advised, however, that this finding does not constitute approval of the proposal;

2. Pursuant to Section 13-5-40(a), HAR, a public hearing will be required, as the land will be utilized for the raising of cattle for commercial purposes.

3. In conformance with Chapter 343, Hawaii Revised Statutes (HRS), as amended, and Chapter 11-200, HAR, a finding of no significant impact to the environment (FONSI) is anticipated for the proposed project. Additional information needs to be provided.

    a. The proposed action states, "Bulldozers will be selectively grubbing and raking targeted pest species." Please be more explicit in defining the land area in which this is to take place.

    b. The proposed action states, "Follow-up herbicide applications will probably be required for several years." Please list the different types of herbicides that will be utilized. Explain how it will be applied and the known affects of the application. The secondary impacts upon flora and fauna and the herbicides, as a possible non-point pollution source, needs to be discussed.

Satisfaction of the Special Management Area has been met with documentation dated March 3, 2003 from the County of Hawaii referenced in Appendix 2A of the Draft Environmental Assessment and Conservation District Use Application which has determined that the property is outside the Special Management Area.

Upon completion of the application review process, the item will be scheduled for Board decision-making. Should you have any questions regarding your CDUA application, please contact Tiger Mills of our Office of Conservation and Coastal Lands, at 587-0382.

Sincerely,

PETER T. YOUNG, Chairperson

cc: Hawaii Board Member
Hawaii Land Agent
DOH/OHA/DHHL/OEQC
County of Hawaii, Department of Planning
County of Hawaii, Department of Public Works
County of Hawaii, Department of Water Supply
DAR/DOFAW/DOCARE/SHPO/SP
USFWS
NRCS
Mountain View Library

Christian Rygh
HCR 1 Box 5022
Kea'au, HI 96749

Mr. Peter Young, Director
Hawai'i State Department of Land and Natural Resources
P.O. Box 621
Honolulu HI 96809

December 29, 2003

Dear Mr. Young:

Subject: Comment Letter on Draft Environmental Assessment for 'Uila Ranch
Invasive Species Control / Pasture Re-establishment, TMK (3) 9-9-01:17

Thank you for your letter of October 28, 2003, concerning the Draft EA. In your letter you requested additional information on two topics. Our response to your individual comments follows:

A) Defining Land Area. All currently proposed grubbing and raking will occur within the shaded area of Figure 1 on page 2 of the Draft EA (Project Site Map). Keeping this boundary in mind, please refer to the yellow-shaded areas in Figure 9-A (Dominant Vegetation Map) on pg. 34. These yellow shaded areas within the northern portion of the ranch (defined in Figure 1) are where most of the grubbing and raking will occur. The grey dots within this area represent intermittent 'ohi'a trees which will be avoided. In response to the concerns of the adjacent community, the applicants have agreed to spray herbicide in lieu of bulldozing for areas of light- to moderate-density pest infestations, where clearing is not absolutely necessary for ranch functionality and maintenance. Since there is no practical way to delineate these exact areas on a map, the applicants propose a 300-acre maximum as a condition of the CDUP. In general, the most dense areas in need of grubbing are within the yellow areas on Figure 9-A.

B) Follow-up herbicide applications. We propose to use the chemical triclophyr based on the documented success of this treatment on *R. ellipticus* on neighboring Keauhou Ranch and consultation with the UH Cooperative Extension Service. The herbicide will be mixed with a surfactant and anti-drift agent, and a color dye. This should ameliorate secondary effects to non-target plants and animals and prevent accidental double spraying respectively. According to a recent publication by the UH Cooperative Extension Service triclophyr is: mobile in soils, relatively non-persistent (half-life of 10-46 days), degraded by soil micro-organisms and sunlight, and has a low order of toxicity (2140 mg/kg in rats). Please also note that the region is void of lakes, streams, wetlands, and ground-water resources.

In light of DEA responses voicing the community's concerns over ground disturbance, the applicants have decided to employ chemical control in areas of light to moderate infestations in lieu of grubbing in these areas, to reduce the acreage of anticipated ground disturbance. Although only minor ground disturbance is anticipated and the NRCS has endorsed the project, the applicants wish to compromise and be as sensitive to community concerns as possible. The modified proposal is to bulldoze up to 300 acres where outbreak is particularly dense and to spray the remaining infested portions with herbicide. All treated areas will require monitoring and herbicide follow-up to ensure the project's success. Initial herbicide applications will occur on a staggered basis, and follow-up applications will occur gradually as seedlings (and stump re-growth) emerge, and before they reach statures and quantities that require large amounts of herbicide. The "drizzle method" will be employed, which is highly regarded for its target accuracy, minimal waste and drift, and its conservation of herbicide.

Chemicals will be used in accordance with their labeling and will not be sprayed during windy or rainy weather conditions. Due to the gradual application schedule and mitigation measures discussed, non-point-source pollution and significant impacts to non-target biota are not anticipated. Your comments and concerns regarding this important topic are very much appreciated.

Sincerely,

Christian Rygh

Division of Forestry & Wildlife

1151 Punchbowl Street, Rm. 325 ● Honolulu, HI 96813 ● (808) 587-0166 ● Fax: (808) 587-0160

October 30, 2003

MEMORANDUM

TO: Tiger Mills, Planner
Office of Conservation and Coastal Lands

THRU: Dierdre S. Mamiya, Acting Administrator
Office of Conservation and Coastal Lands

FROM: Michael G. Buck, Administrator
Division of Forestry and Wildlife

SUBJECT: **Request for Comments - CDUA, HA - 3164, Uila Ranch Weed Control of Pasture Land (500 acres) by Mary Ellen Wong, Lessee, Kamehameha Schools Landowner at Volcano, Hawaii.**

We have reviewed this CDUA application HA-3164 and have no objections to this project located in "Limited" and "General" subzones of the State Conservation District. A Conservation Plan signed and approved by Ka'u SWCD, NRCS, District Conservationist, and the Landowner will help in its compliance with Hawaii County's Grading Ordinance: grading and grubbing of 500 acres for pasture management. In addition, all herbicide applications must be followed and applied consistently with its label. Thank you for the opportunity to comment on this application.

C: Hawaii DOFAW Branch

Christian Rygh
HCR 1 Box 5022
Kea'au, HI 96749
(808)982-5638

Mr. Michael Buck, Administrator
Division of Forestry and Wildlife
1151 Punchbowl Street, Rm. 325
Honolulu, HI 96813

December 29, 2003

Dear Mr. Buck:

Subject: Comment Letter on Draft Environmental Assessment for 'Uila Ranch
Invasive Species Control / Pasture Re-establishment, TMK (3) 9-9-01:17

Thank you for your letter of October 30, 2003 concerning the Draft EA. In your letter you stated that your department has no objections to the proposed project and also added some additional comments. Our response to your comments follows:

Your lack of objections to the proposed project is much appreciated as well as your additional comments. Controlling the infestation of invasive species on 'Uila Ranch will greatly benefit surrounding lands, which contain important habitat for threatened and endangered species.

A signed copy of the Conservation Plan will most definitely be included in the Final EA. Thank you for bringing our attention to the unsigned copy that was appended to the Draft EA. Also, please note that no grading is proposed, but rather grubbing and raking only.

Additional notes and mitigation measures concerning the use of herbicides have been added to the Final EA in sections 3.4 and 4.5. The applicants are committed to applying herbicides in a manner that is consistent with the labeling. The applicants are in close communication with the UH Cooperative Extension Service regarding herbicide type and application methods. The "drizzle method" is to be employed for its accuracy and efficiency. As expressed in the DEA, the applicants fully intend to avoid impacting native trees on the property.

Sincerely,

Christian Rygh

NRCS Natural Resources Conservation Service

USDA United States Department of Agriculture

154 Walanuenue Ave.
Room 322
Hilo, HI. 96720
FAX: 808-933-8362

RECEIVED
'03 NOV -7 A8 :51
DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

November 3, 2003

To: Tiger Mills
Dept. of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809

Subject: Request for Comments/Uila Ranch CDUA Permit

Aloha Ms. Mills,

I'd like to submit comments regarding Uila Ranch Conservation District Use Permit Application. I am the Soil Conservationist that assisted Uila Ranch in developing their Conservation Plan. As you know from the Draft Environmental Assessment and Conservation District Use Application (DEA/CDUA) prepared by Christian Rygd and submitted by Mary Ellen Wong of Uila Ranch, there is a noxious weed problem. Mrs. Mary Ellen Wong has been approved as a participant of the Environmental Quality Incentive Program (EQIP). This is a USDA Farm Bill Program that addresses resource concerns such as "noxious weeds, accelerated sedimentation, and waste management". Mary Ellen Wong has been funded to do brush management on 500 acres which comprised of paddocks 2, 5, 6, and 7 (please refer to page 7 of the DEA). These paddocks are considered the main forage pastures. Uila Ranch is leased from Kamehameha Schools/Bishop Estate. One of the conditions for lease is to do brush control. In order to fulfill this obligation, Mrs. Mary Ellen Wong applied for funding assistance in EQIP. If steps are not taken now to remove invasive weeds, then it will be too costly and unprofitable to operate their Uila Ranch. Noxious weeds impact:

1) Forage quantity and quality,
2) Increase costs of management inputs,
3) Operations,
4) Aesthetics of pasture, and
5) Safety.

I consider this project a benefit to the community, native eco-systems and other ranches that border Uila Ranch.

Sincerely,

Edwin Miranda

Edwin Miranda
Soil Conservationist

RECEIVED
LAND DIVISION
2003 NOV -7 A 9:45
DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

Cc: Harry Toki, District Conservationist
Ka'u Soil & Water Conservation District

Christian Rygh
HCR 1 Box 5022
Kea'au, HI 96749
(808) 982-5638

Mr. Edwin Miranda, Soil Conservationist
Natural Resource Conservation Service
154 Waianuenue Ave.
Hilo, HI 96720

December 29, 2003

Dear Mr. Miranda:

Subject: Comment Letter on Draft Environmental Assessment for 'Uila Ranch Invasive Species Control / Pasture Re-establishment, TMK (3) 9-9-01:17

Thank you for your letter of November 3, 2003 concerning the Draft EA. In your letter you re-emphasize your endorsement of the proposed project and give useful background information. Your comments also state five key points explaining the applicant's need for the proposed action. This information is a useful supplement to the EA, balancing the rancher's perspective with the environmental impacts and neighboring concerns that an EA is obligated to address.

We appreciate your endorsement and commitment to the proposed project. We hope that your presence at the January 12th public hearing will help to settle specific concerns of the adjacent community. The unauthorized clearing activities of the previous lessee and coinciding high rainfall events seem to be the cause of considerable concern by Volcano Village residents.

Sincerely,

Christian Rygh

Harry Kim
Mayor

Christopher J. Yuen
Director

Roy R. Takemoto
Deputy Director

County of Hawaii
PLANNING DEPARTMENT

101 Pauahi Street, Suite 3 • Hilo, Hawaii 96720-3043
(808) 961-8288 • Fax (808) 961-8742

November 14, 2003

Ms. Dierdre S. Mamiya, Acting Administrator
Department of Land and Natural Resources
Office of Conservation and Coastal Lands
P. O. Box 621
Honolulu HI 96809

Dear Ms. Mamiya:

Subject: Draft Environmental Assessment and CDUA HA-3164 (Board Permit)
Request: 'Uila Ranch Invasive Species Control/Pasture Re-establishment
Keauhou, Kau
Tax Map Key: 9-9-1:17

This is in response to the above-referenced application for clearing targeted weed species with a bulldozer within a previously cleared, 500-acre portion of the subject parcel.

Please note that the parcel consists of 1020.5 acres and not 1050 acres as stated in Section 1.1 Project Location of the Draft Environmental Assessment and Conservation District Use Application.

Other than the foregoing, we have no further comments to offer.

Should you have questions, please feel free to contact Esther Imamura or Larry Brown of our office at (808) 961-8288.

Sincerely,

CHRISTOPHER J. YUEN
Planning Director

ETI:pak
P:\WPWIN60\ETI\CDUA\MamiyaUilaRanch99001017.doc

xc: Planning Department – Kona

Christian Rygh
HCR 1 Box 5022
Kea'au, HI 96749
(808) 982-5638

December 29, 2003

Mr. Christopher Yuen, Director
County of Hawaii Planning Department
101 Pauahi Street, Suite 3
Hilo, HI 96720-3043

Dear Mr. Yuen:

Subject: Comment Letter on Draft Environmental Assessment for 'Uila Ranch Invasive Species Control / Pasture Re-establishment, TMK (3) 9-9-01:17

Thank you for your letter of November 14, 2003 concerning the Draft EA. In your letter, you pointed out an error concerning the size of the subject parcel. This typographic error has been corrected in the Final EA. Thank you for bringing it to our attention.

Sincerely,

Christian Rygh

LINDA LINGLE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HAWAII 96801-3378

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

In reply, please refer to:
File:

November 20, 2003

TO: *Diedre S. Mamiya-Acting Administrator*
State Department of Land & Natural Resources
Office of Conservation and Coastal Lands

FROM: Russell S. Takata, Program Manager
Noise, Radiation & IAQ Branch

SUBJECT: **Comments to the Draft Environmental Assessment and Conservation District Use Application**
Uila Ranch Invasive Species Control/Pasture Re-establishment
Kau, Hawaii TMK: 9-9-01: 17

Our comments should be printed as follows:

"Project activities shall comply with the Administrative Rules of the Department of Health:

- Chapter 11-46 Community Noise Control.

Should there be any questions, please contact me at 586-4701.

Christian Rygh
HCR 1 Box 5022
Kea'au, HI 96749
(808)982-5638

Mr. Russell Takata,
Noise, Radiation, and IAQ Branch
State of Hawaii Department of Health
P.O. Box 3378
Honolulu, HI 96801-3378

December 29, 2003

Dear Mr. Takata:

Subject: Comment Letter on Draft Environmental Assessment for 'Uila Ranch
Invasive Species Control / Pasture Re-establishment, TMK (3) 9-9-01:17

Thank you for your letter of November 20, 2003 concerning the Draft EA. In your letter you stated that the proposed project shall comply with HAR, Chapter 11-46 Community Noise Control. Our response to your comment follows:

We do not anticipate sustained noise levels exceeding 55 dBA in residential properties or National Park lands adjacent to the project parcel. No demolition of structures or deep grading (disturbance of bedrock) is proposed. The applicants will ensure that the operating equipment (a D-6 bulldozer) be equipped with a proper muffler. Clearing operations will not take place after dark.

The schedule and duration of proposed clearing activities is difficult to predict since the applicants wish to avoid clearing during rainy weather conditions. Furthermore, clearing activities will be staggered with pasture re-planting activities to lessen the risk of exacerbating any unforeseen flood events. An estimate of 1000 bulldozer hours is predicted over the course of two or three years. Only a small fraction of these hours will be in areas immediately adjacent to residential areas. The project proposal has been modified to include a bulldozing maximum of 300 acres as a condition of the CDUP. The areas where bulldozing is needed generally occur within the yellow shaded areas on Figure 9-A of the EA.

Please call me if you have any concerns that have not been addressed.

Sincerely,

Christian Rygh

LINDA LINGLE
GOVERNOR OF HAWAII

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186
E-mail: oeqc@health.state.hi.us

December 8, 2003

Mr. Kenneth & Mrs. Mary Ellen Wong
P.O. Box 250
Volcano, Hawai'i 96785

Mr. Christian Rygh
HCR 1 Box 5022
Keaau, Hawai'i 96749

Ms. Dawn Hegger
Land Division, Department of Land and Natural Resources
State of Hawai'i
P.O. Box 621
Honolulu, Hawai'i 96809

Dear Mr. & Mrs. Wong, Mr. Rygh and Ms. Hegger:

We have reviewed your draft environmental assessment (DEA) for a conservation district use permit to clear invasive species such as Yellow Himalayan raspberry (*Rubus ellipticus*) from 500 acres of existing pasture land on Uila Ranch in Volcano at Tax Map Key 9-9-01, parcel 17 in the district of Ka'u. We offer the following comments for your consideration and response.

(1) ***Avian Take Mitigation***: in Section 4.5, mitigation is proposed for Nene (*Branta sandvicensis*) but not for other unique birds such as Hawaiian honeycreepers which may frequent the ranch. We would like to suggest that visual observation of trees in conjunction with the Division of Forestry and Wildlife, Department of Land and Natural Resources, and the U.S. Fish and Wildlife Service take place prior to clearing to minimize takes to these species.
(2) ***Photographs***: Thank you for including photographs of the project area to illustrate the nature and extent of the problem. .

If there are any questions, please call Leslie Segundo of my staff at (808) 586-4185. Thank you for the opportunity to comment.

Sincerely,

Genevieve Salmonson

GENEVIEVE SALMONSON
Director

Enclosures

Christian Rygh
HCR 1 Box 5022
Kea'au, HI 96749
(808) 982-5638

Ms. Genevieve Salmonson, Director
State of Hawai'i, Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, HI 96813

December 29, 2003

Dear Ms. Salmonson:

Subject: Comment Letter on Draft Environmental Assessment for 'Uila Ranch Invasive Species Control / Pasture Re-establishment, TMK (3) 9-9-01:17

Thank you for your letter of December 8, 2003, concerning the Draft EA. In your letter you commented on two topics. Our response to your individual comments follows:

1) Avian Take Mitigation. We appreciate your concern over the honeycreepers, one of the unique riches of Hawaii's natural heritage, and a textbook example of the evolutionary concept of adaptive radiation. The reason mitigation was only proposed with regards to Nene, is that Nene are the only ground-dwelling (and more importantly ground-nesting) native birds of concern in the area. Since native trees will be avoided in the clearing process, no impacts to other native birds are anticipated. As mentioned on pg. 17 of the EA (and in the caption of Photo-D), 'ohi'a trees on the ranch make a limited contribution to the regional contiguity of foraging resources for honeycreepers. The ranch is an unlikely place for these birds to nest due.to presence of cattle, machinery, people, and noise associated with ranching activities. If nests are present on the ranch, they would likely be located in a considerable or mature-sized 'ohi'a tree, the likes of which will be painstakingly avoided during the course of the proposed project. A statement to this regard has been added to the Final EA (section 4.5), since the Draft EA did not explicitly state this. Also, information about herbicide use and mitigation has been added (also section 4.5) following comments from the DLNR, and serve as general mitigation for all non-target flora and fauna. Again, thank you for bringing this to our attention.

Regarding your suggestion that representatives from the DLNR, DOFAW, and U.S. Fish and Wildlife visit the ranch and inspect for honeycreepers and other birds, Mr. and Mrs. Wong would gladly welcome them. However, all three of these agencies have been consulted for the project and did not voice these concerns. We feel that if we insisted that all of these agencies send representatives before implementing the project, the project may be unnecessarily and indefinitely delayed – which has far worse implications for the higher-value conservation lands in the surrounding region. Please try to imagine the number of seeds in one raspberry × the number of berries on one bush × the number of bushes in the project area × the number of passing alien birds that feed on these berries when they are in season. The potential for dispersal of this noxious shrub to high-value wildlife conservation lands in the region is enormous, and does not pause while we deliberate. Please also note the concurrence from U.S. Fish and Wildlife regarding Section 7 of the Endangered Species Act (see Appendix 1).

2) *Photographs.* I wish there were also a way to show the spatial extent of dense Himalayan Raspberry growth in a photograph; one can easily get lost in the thickets. Please note that the yellow areas in figure 9-A (vegetation map) represent areas where raspberry thicket covers more square footage than pasture!

Sincerely,

Christian Rygh

United States Department of the Interior

NATIONAL PARK SERVICE
Hawaii Volcanoes National Park
P. O. Box 52
Hawai'i 96718-0052
808/985-6000
808/967-8186 (FAX)

In Reply Refer to:

L7617 (HAVO)

December 8, 2003

Dear Mr. Rygh:

Thank you for the opportunity to comment on your draft environmental assessment about pasture clearing at Uila Ranch. The park shares the Wong's concerns for control of invasive alien plants including Himalayan raspberry, firetree, and kahili ginger and the perpetuation of native ohia. Reducing the Uila Ranch population of these aggressive weeds will certainly benefit the Kilauea summit area. We hope for the Wong's success in controlling raspberry and faya tree, two aggressive and difficult to manage species.

The park prefers Alternative 3.3 of the Environmental Assessment, Chemical Control. I would rather see the use of herbicide on Himalayan raspberry and faya tree in pasture lands, rather than bulldozing, following the example of Keauhou Ranch. To my knowledge, several small, local contractors are now available for this kind of work to keep contract costs down. Herbicides will certainly be needed in the very near future to prevent the inevitable and rapid reestablishment of Himalayan raspberry. Because of the small size of the ranch staff, I do not feel confident that the required vigilant follow up would be provided after bulldozing, unless the ranch plunged into herbicide control from the start. Without persistent chemical following there will be a continuation of the cycle of weed establishment and bulldozer clearing. Favored by its unpalatability, Himalayan raspberry is a fast growing plant that thrives on disturbance, high light levels, and reduced competition from grasses in a grazed pasture environment. It would take frequent monitoring to find and spray newly established plants. This regime will probably be needed for many years, considering the seed bank, established populations in nearby areas, and bird dispersal. If done properly by conscientious applicators, non-target plants such as ohia can be avoided.

I suspect that bulldozing is the most realistic alternative economically. Before, bulldozing is done, the hydrology/drainage study be done. This study was recommended by a group of Volcano citizens that met with the Ohia Ranch leasee and a mediator, Peter Adler, following the 1990 flooding. There may be simple measures that could be taken to prevent flooding during high rain fall events. If bulldozing is done, I recommend a combination of using small bulldozer and herbicides. A number of Volcano property owners have utilized a small, locally-owned D2 bulldozer to clear tibouchina, smaller faya trees, and other weeds in forested environments. The small machine can knock down the large patches of Himalayan raspberry to allow access for follow up spraying, with only minor soil disturbance.. To remove roots of this root-sprouting raspberry a large bulldozer would have to grub deeply. It takes many months for Kikuyu grass to become established to provide protection for the soil. In the meantime, the soil will be subject to erosion during unpredictable high rain fall events.

Sincerely,

James F. Martin
Superintendent Dece

Christian Rygh
HCR 1 Box 5022
Kea'au, HI 96720
(808) 982-5638

Mr. James Martin, Superintendent
Hawai'i Volcanoes National Park
P.O. Box 52
Hawai'i 96718-0052

December 29, 2003

Dear Mr. Martin:

Subject: Comment Letter on Draft Environmental Assessment for 'Uila Ranch Invasive Species Control / Pasture Re-establishment, TMK (3) 9-9-01:17

Thank you for your letter of December 8, 2003 concerning the Draft EA. Our response to your comments follows:

We appreciate your shared enthusiasm for the seemingly never-ending battle of invasive species control in the Kilauea area. Since the laws of nature operate independently from man-made boundaries, cooperation and understanding between ranchers, residents, and stewards of public lands is a necessity for success.

We concur with your comments regarding the rapid and persistent volunteerism and re-establishment of Himalayan Raspberry – it is truly a noxious pest. Please also understand that it is not only financial limitations that have precluded the choice of alternative 3.3, Chemical Control. The Keauhou example you cite was planting tree saplings within the decaying brush, whereas pasture planting and cattle grazing in such an environment is not practical (particularly for areas with dense, thorny brush). Cattle would be deterred from grazing in dense thickets of decaying brush for quite some time and monitoring and treating weed re-growth and volunteers within thickets would be very difficult. Please also appreciate that the applicants must balance your concerns with those of the Department of Land and Natural Resources (DLNR), which has commented on the possibility of excessive herbicide use leading to non-point-source pollution and effects on non-target flora and fauna. As your concluding paragraph suggests, we also feel that an appropriate mix of chemical and mechanical treatment is warranted. Your comments have also re-emphasized our commitment to clear small sections at a time in order to 1) mitigate the risks associated with leaving large surfaces disturbed, and 2) focus the replanting of Kikuyu and the herbicide follow-up on areas small enough for the applicants (and their hired help) to manage.

In regard to your comments regarding the drainage study, we offer the following:

The Natural Resource Conservation Service (NRCS) is the Federal soil conservation agency that specializes in hydrology, drainage, and soil erosion issues. Representatives of the NRCS have visited the proposed project site repeatedly, drafted and endorsed the plan, and are committed to overseeing every stage of the project's implementation. The NRCS does not feel that a formal drainage study is warranted, despite the unfortunate flooding events that occurred in 1990, following the un-endorsed (by NRCS) and unauthorized (by DLNR) clearing activities of the former lessee. We realize that many Volcano Village residents were negatively impacted by the flooding, and several (particularly those residing adjacent and down slope from the ranch) thought the former lessees of the ranch to be responsible for causing or substantially exacerbating the impacts of the flood. However, such views were not expressed by the National Park Service following these events to our knowledge, and we

Christian Rygh
HCR 1 Box 5022
Kea'au, HI 96720
(808) 982-5638

certainly do not anticipate any significant drainage impacts to Hawaii Volcanoes National Park lands during the course of the proposed project.

We are eager to continue dialogue with the Volcano Village community, which seems more likely to have potential drainage impacts in the event of a flood. Since the preliminary consensus from the Volcano Village community also seems to be a preference for chemical methods over mechanical ones, the applicants have tentatively decided to employ chemical control in areas of light to moderate infestations in lieu of grubbing in these areas, to reduce the acreage of anticipated ground disturbance. Although only minor ground disturbance is anticipated and the NRCS has endorsed the project, the applicants wish to compromise and be as sensitive to community concerns as possible. The modified proposal is to bulldoze where outbreak is particularly dense (not exceeding 300 acres) and to spray the remaining infested portions with herbicide. All treated areas will require monitoring and herbicide follow-up to ensure the project's success.

The applicants themselves have every intention of avoiding unnecessary disturbance to soil and native trees. However, due to the scope of the task at hand, they cannot commit to using a D2 for the entire job. The modified plan proposes to use herbicide (in lieu of bulldozing) in steeper-sloped locales, and in areas where infestations are not so dense as to obstruct access and grazing. However, we feel it is unreasonable that relatively flat areas with homogenous stands of Himalayan Raspberry be cleared with a D2, when the scale of the problem is substantially greater than that of the smaller landowners to which you refer. The bulldozer operator will attempt to remove targeted weeds with as little soil disturbance as possible.

With regards to Kikuyu grass, the NRCS maintains that it is the best forage grass alternative. Please refer to the Technical Background section of the EA for relevant information about the suitability of kikuyu grass for the proposed project. Also, please note additional information in the Final EA regarding herbicide treatments (in sections 3.4 and 4.5), and our response to the DLNR's comment letter in Appendix 2B.

On behalf of the applicants, I would like to extend appreciation for the expertise and kokua that has come from several knowledgeable employees of Hawaii Volcanoes National Park, during and in years prior to the preparation of this EA. The applicants also acknowledge the National Park Service's commitment to cooperate with local residents and ranchers for conservation and education imperatives, as so eloquently expressed during the recent eighty-seventh anniversary celebration of the park, where Senator Inouye announced the acquisition of Kahuku Ranch.

Sincerely,

Christian Rygh

Department of Land and Natural Resources

PO Box 250

Honolulu, Hi 96809

Office of Conservation and Coastal Land

Attn: Tiger

Fax: 1(808) 587-0455

Phone: 1(808) 587-0380

8 November, 2003

Dear Tiger:

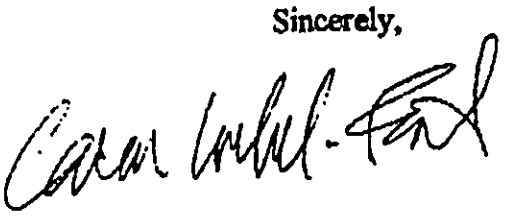
I am writing to express my concern about Uila Ranch's application for a conservation District Land Use Permit to use bulldozers to complete eradication of noxious shrubs on lands leased from the Kamehameha School/Bernice Pauahi Bishop Estate. Uila Ranch's blithe dismissal of acceptable clearance methods in favor of lower cost bulldozing methods without regard for damage done to the conservation land and trees is unacceptable to me.

The native trees on Uila Ranch must be left standing. There would be unfortunate consequences to Uila Ranch's use of bulldozers. Flooding, which increased dramatically after Uila Ranch's non-permitted clearing of trees in 1990 will be further increased. Native birds will lose their habitat. A valuable cultural and environmental resource will be lost to the community and the state. The immediate neighbors of the ranch, Volcano National Park and the residents of Volcano Village will feel the effect of the loss of these trees most dramatically, but the loss of this natural resource will be felt globally as well. These trees are standing on conservation land. Please do not allow a use permit to rob them of their protected status.

If you feel you must grant this use permit, I ask that you provide a monitor to check the eradication process. According to the ranch's own environmental assessment, their bulldozers will avoid trees only if it is "feasible." This is simply not an option. The noxious shrubs must be cleared by hand and poisoned at the root, the acceptable method of eradication for this type of plant and a method which is safe for the native trees.

The reason why I brought a home on `Iiwi Road was because of the beautiful back yard view of the Ola`a Forest Reserve, with the tall `Ohi`a trees and the forest birds living in those trees. Please help keep it as it is! I will ask that you accept my concerns and honor the valuable natural resources that are our native trees.

Sincerely,



Caren Loebel-Fried

P.O. Box 913

Volcano, Hawai'i 96785

December 29, 2003

Ms. Caren Loebel-Fried
P.O. Box 913
Volcano, HI 96785

Christian Rygh
HCR 1 Box 5022
Kea'au, HI 96749
(808) 982-5638

Dear Ms. Loebel-Fried:

Subject: Comment Letter on Draft Environmental Assessment for 'Uila Ranch

Your impassioned response concerning the proposed project on conservation district lands near your residence is greatly appreciated. Were it not for active citizens such as yourself, the environmental review process would be impotent, and simple miscommunications would be given the chance to develop into permanent misunderstandings.

Native Trees. In light of your comments, we have been made aware that the use of the phrase "wherever feasible" may have been perceived equivalent with "wherever convenient", but this is inconsistent with our true intentions. During the planning of the project and preparation of the EA, the consideration of native trees on 'Uila Ranch has been extensive. All adult 'ohi'a trees and recognizable concentrations of 'ohi'a saplings will be painstakingly avoided – this is and was our original intention. For brevity, I attached the words "wherever feasible" at the end of this statement, when I probably should have expounded to say: "Individual 'ohi'a saplings that occur within a dense thicket of Himalayan Raspberry may realistically be cleared, but such incidental takes will be avoided as much as possible". Please consider that the same unlucky saplings that are hidden in raspberry thickets would also likely be impacted if the Chemical Control or No Action alternatives were selected. The Final EA will read differently, to avoid similar misinterpretations by others. Thank you.

Native Birds. We hope the above statements will also calm your misgivings about the impacts on native birds. Although you were not specific, we assume you refer to honeycreepers and other birds that may benefit from the presence of 'ohi'a trees on the ranch. Additional comments concerning honeycreepers have been incorporated into the Final EA (which will be available at Cooper Center and Mt. View library).

Global Loss. While it is true that Hawaii (including the Volcano region) is an extremely important physiographic region for global biodiversity, incidental takes to juvenile 'ohi'a trees in an area not designated as critical habitat for any threatened or endangered species is not a cause for global concern. 'Ohi'a trees themselves are nowhere near endangered, as Big Island residents can clearly see. More important concerns from a species conservation standpoint are 1) the transmittal of avian malaria from alien birds to native birds and 2) the spread of aggressive, invasive plant species into remaining, high-integrity native forests that are critical habitat for endemic flora and fauna.

Flooding. The proposed project will not be done in the same manner as the un-permitted clearing activities of the former lessee. As previously mentioned, native trees will be painstakingly avoided. The bulldozer operator will attempt to remove the targeted weeds with as little soil disturbance as possible. The Natural Resource Conservation Service (NRCS) is the Federal soil conservation agency that specializes in hydrology, drainage, and soil erosion issues. Representatives of the NRCS have visited the proposed project site repeatedly, drafted and endorsed the plan, and are committed to overseeing every stage of the project's implementation. However, taking the drainage concerns of you and other nearby residents into consideration (and in light of the fact that floods can not be predicted), the applicants have decided that bulldozing will only be necessary in locations where the pest outbreak is particularly dense (about 250-300 acres). Light to moderate concentrations will receive herbicide treatment only (i.e. areas where access for spraying, monitoring, pasture replanting, and grazing would not be obstructed by dense stands of slowly decaying brush). Please refer to the Final EA for specifics on revised implementation methods.

Sincerely,

Christian Rygh

Name ROBERTA BAKER
Address PO BOX 458
VOLCANO HI 96785

Date DEC 5, 2003

Department of Land and Natural Resources
PO Box 250
Honolulu, HI 96809
Attn: Office of Conservation and Costal Land
Tiger
Fax: 1 (808) 587-0455
Phone: 1 (808) 587-0380

RECEIVED
LAND DIVISION
2003 DEC -8 A 10:30
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

Dear Tiger:

I am writing to express my concern about Uila Ranch's application for a conservation District Land Use Permit to use bulldozers to complete eradication of noxious shrubs on lands leased from the Kamehameha School/Bernice Pauahi Bishop Estate. Uila Ranch's blithe dismissal of acceptable clearance methods in favor of the lower cost bulldozing methods without regard for damage done to the conservation land and trees is unacceptable to me.

The native trees on Uila Ranch must be left standing. There would be unfortunate consequences to Uila Ranch's use of bulldozers. Flooding, which increased dramatically after Uila Ranch's unpermitted clearing of trees in 1990 will be further increased. Native birds will loose their habitat. A valuable cultural and environmental resource will be lost to the community and the state. The immediate neighbors of the ranch, Volcano National Park and the residents of Volcano Village will feel the effects of the loss of these trees most dramatically, but the loss of this natural resource will be felt globally as well. These trees are standing on conservation land. Please do not allow a use permit to rob them of their protected status.

If you feel you must grant this use permit, I ask that you provide a monitor to check the eradication process. According to the ranch's own environmental assessment, their bulldozers will avoid trees only if it is "feasible." This is simply not an option. The noxious shrubs must be cleared by hand and poisoned at the root, the acceptable method of eradication for this type of plant and a method which is safe for the native trees.

I will ask that you accept my concerns and honor the valuable natural resources that are our native trees.

Sincerely,

Signature Roberta Baker

Name (Print) ROBERTA BAKER

December 29, 2003

Ms. Roberta Baker
P.O. Box 458
Volcano, HI 96785

Christian Rygh
HCR 1 Box 5022
Kea'au, HI 96749
(808) 982-5638

Dear Ms. Baker:

Subject: Comment Letter on Draft Environmental Assessment for 'Uila Ranch

Your impassioned response concerning the proposed project on conservation district lands near your residence is greatly appreciated. Were it not for active citizens such as yourself, the environmental review process would be impotent, and simple miscommunications would be given the chance to develop into permanent misunderstandings.

Native Trees. In light of your comments, we have been made aware that the use of the phrase "wherever feasible" may have been perceived equivalent with "wherever convenient", but this is inconsistent with our true intentions. During the planning of the project and preparation of the EA, the consideration of native trees on 'Uila Ranch has been extensive. All adult 'ohi'a trees and recognizable concentrations of 'ohi'a saplings will be painstakingly avoided – this is and was our original intention. For brevity, I attached the words "wherever feasible" at the end of this statement, when I probably should have expounded to say: "Individual 'ohi'a saplings that occur within a dense thicket of Himalayan Raspberry may realistically be cleared, but such incidental takes will be avoided as much as possible". Please consider that the same unlucky saplings that are hidden in raspberry thickets would also likely be impacted if the Chemical Control or No Action alternatives were selected. The Final EA will read differently, to avoid similar misinterpretations by others. Thank you.

Native Birds. We hope the above statements will also calm your misgivings about the impacts on native birds. Although you were not specific, we assume you refer to honeycreepers and other birds that may benefit from the presence of 'ohi'a trees on the ranch. Additional comments concerning honeycreepers have been incorporated into the Final EA (which will be available at Cooper Center and Mt. View library).

Global Loss. While it is true that Hawaii (including the Volcano region) is an extremely important physiographic region for global biodiversity, incidental takes to juvenile 'ohi'a trees in an area not designated as critical habitat for any threatened or endangered species is not a cause for global concern. 'Ohi'a trees themselves are nowhere near endangered, as Big Island residents can clearly see. More important concerns from a species conservation standpoint are 1) the transmittal of avian malaria from alien birds to native birds and 2) the spread of aggressive, invasive plant species into remaining, high-integrity native forests that are critical habitat for endemic flora and fauna.

Flooding. The proposed project will not be done in the same manner as the un-permitted clearing activities of the former lessee. As previously mentioned, native trees will be painstakingly avoided. The bulldozer operator will attempt to remove the targeted weeds with as little soil disturbance as possible. The Natural Resource Conservation Service (NRCS) is the Federal soil conservation agency that specializes in hydrology, drainage, and soil erosion issues. Representatives of the NRCS have visited the proposed project site repeatedly, drafted and endorsed the plan, and are committed to overseeing every stage of the project's implementation. However, taking the drainage concerns of you and other nearby residents into consideration (and in light of the fact that floods can not be predicted), the applicants have decided that bulldozing will only be necessary in locations where the pest outbreak is particularly dense (about 250-300 acres). Light to moderate concentrations will receive herbicide treatment only (i.e. areas where access for spraying, monitoring, pasture replanting, and grazing would not be obstructed by dense stands of slowly decaying brush). Please refer to the Final EA for specifics on revised implementation methods.

Sincerely,

Christian Rygh

Name ROD REILLY
Address P.O. BOX 458
VOLCANO HI 96785

Date Dec 5 2003

Department of Land and Natural Resources
PO Box 250
Honolulu, HI 96809
Attn: Office of Conservation and Costal Land
Tiger
Fax: 1 (808) 587-0455
Phone: 1 (808) 587-0380

Dear Tiger:

I am writing to express my concern about Uila Ranch's application for a conservation District Land Use Permit to use bulldozers to complete eradication of noxious shrubs on lands leased from the Kamehameha School/Bernice Pauahi Bishop Estate. Uila Ranch's blithe dismissal of acceptable clearance methods in favor of the lower cost bulldozing methods without regard for damage done to the conservation land and trees is unacceptable to me.

The native trees on Uila Ranch must be left standing. There would be unfortunate consequences to Uila Ranch's use of bulldozers. Flooding, which increased dramatically after Uila Ranch's unpermitted clearing of trees in 1990 will be further increased. Native birds will loose their habitat. A valuable cultural and environmental resource will be lost to the community and the state. The immediate neighbors of the ranch, Volcano National Park and the residents of Volcano Village will feel the effects of the loss of these trees most dramatically, but the loss of this natural resource will be felt globally as well. These trees are standing on conservation land. Please do not allow a use permit to rob them of their protected status.

[illegible] is with great sadness that I write this letter. The [illegible] recent [illegible] threats to have [illegible] declared by name and location and this [illegible] matter of protection for this type of plant and I urge [illegible] to take [illegible] years.

I will also thank you once more for your concern and honor the valuable [illegible] that we have continually shown.

Sincerely,

Signed: _____

Name (print): _____

December 29, 2003

Mr. Ron Reilly
P.O. Box 458
Volcano, HI 96785

Christian Rygh
HCR 1 Box 5022
Kea'au, HI 96749
(808) 982-5638

Dear Mr. Reilly:

Subject: Comment Letter on Draft Environmental Assessment for 'Uila Ranch

Your impassioned response concerning the proposed project on conservation district lands near your residence is greatly appreciated. Were it not for active citizens such as yourself, the environmental review process would be impotent, and simple miscommunications would be given the chance to develop into permanent misunderstandings.

Native Trees. In light of your comments, we have been made aware that the use of the phrase "wherever feasible" may have been perceived equivalent with "wherever convenient", but this is inconsistent with our true intentions. During the planning of the project and preparation of the EA, the consideration of native trees on 'Uila Ranch has been extensive. All adult 'ohi'a trees and recognizable concentrations of 'ohi'a saplings will be painstakingly avoided – this is and was our original intention. For brevity, I attached the words "wherever feasible" at the end of this statement, when I probably should have expounded to say: "Individual 'ohi'a saplings that occur within a dense thicket of Himalayan Raspberry may realistically be cleared, but such incidental takes will be avoided as much as possible". Please consider that the same unlucky saplings that are hidden in raspberry thickets would also likely be impacted if the Chemical Control or No Action alternatives were selected. The Final EA will read differently, to avoid similar misinterpretations by others. Thank you.

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Sincerely,

Christian Rygh

Department of Land and Natural Resources
PO Box 250
Honolulu, HI 96809
Office of Conservation and Coastal Land
Attn: Tiger
Fax: 1(808) 587-0455
Phone: 1(808) 587-0380

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I will ask that you accept my concerns and honor the valuable natural resources that are our native trees.

Sincerely,

Signature _____ 12/7/03

Name (Print) Antoinette Bullough

Address PO Box 511, Volcano 96785

December 29, 2003

Ms. Antoinette Bullough
P.O. Box 511
Volcano, HI 96785

Christian Rygh
HCR 1 Box 5022
Kea'au, HI 96749
(808) 982-5638

Dear Ms. Bullough:

Subject: Comment Letter on Draft Environmental Assessment for 'Uila Ranch

Your impassioned response concerning the proposed project on conservation district lands near your residence is greatly appreciated. Were it not for active citizens such as yourself, the environmental review process would be impotent, and simple miscommunications would be given the chance to develop into permanent misunderstandings.

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Sincerely,

Christian Rygh

Name MARTA M. LEPES
Address PO BOX 867
VOLCANO, HI 96785

Date 7 DEC 2003

Department of Land and Natural Resources
PO Box 250
Honolulu, HI 96809
Attn: Office of Conservation and Costal Land
Tiger
Fax: 1 (808) 587-0455
Phone: 1 (808) 587-0380

RECEIVED
LAND DIVISION
2003 DEC 8 P 1:30
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

Dear Tiger:

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I will ask that you accept my concerns and honor the valuable natural resources that are our native trees.

Sincerely,

Signature Marta M. Lepes

Name (Print) MARTA M. LÉPES

December 29, 2003

Ms. Martha M. Lepes
P.O. Box 867
Volcano, HI 96785

Christian Rygh
HCR 1 Box 5022
Kea'au, HI 96749
(808) 982-5638

Dear Ms. Lepes:

Subject: Comment Letter on Draft Environmental Assessment for 'Uila Ranch

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Sincerely,

Christian Rygh

Department of Land and Natural Resources
December 8,2003

RECEIVED
LAND DIVISION

2003 DEC -8 P 1:09

Re: U'ila Ranch Conservation District Use Permit Application

DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

Dear Sirs: While I have not received direct notice of this application and further have not received a full copy of the request, I have generally been informed of the plans to bulldoze 500 acres of ranch lands.

This is an area just above Iiwi Road in Volcano Village. I am a resident and home owner at the end of Iiwi Road. Further I have seen the results of the last illegal dozing done by the ranch.

I am at the present time opposed to allowing any further destruction of the above referred to land. The results thus far have been continual flooding of my and others property during rains because of the past action of U'ila Ranch.

I understand that a public hearing will be held on January 12, 2004 at Cooper Center. I will express my opposition to the permit being requested. I would also like a copy of the request for the permit, if at all possible and the justifications.

Yours very truly;

William E. Smith Esq.

P.O. Box 471
Volcano, Hawaii 96785
808-967-8147
Resident at the end of I'iwi Road

Office Number 808-961-0466
Office of the Prosecuting Attorney

Christian Rygh
HCR 1 Box 5022
Kea'au, HI 96749
(808) 982-5638

December 29, 2003

Mr. William E. Smith
P.O. Box 471
Volcano, HI 96785

Dear Mr. Smith:

Subject: Comment Letter on Draft Environmental Assessment for 'Uila Ranch
Invasive Species Control / Pasture Re-establishment, TMK (3) 9-9-01:17

Shortly after receiving a copy of your letter to the Department of Land and Natural resources, I left a message on your answering machine explaining where the Draft EA could be accessed and how to contact me if you had questions or required a personal copy. Following the un-permitted bulldozing activities of the ranch's previous lessee, I can understand your concerns. However, unlike the former clearing activities which knocked down mature 'ohi'a trees indiscriminately, the proposed activities will painstakingly avoid damage to mature 'ohi'a trees and recognizable concentrations of 'ohi'a saplings. Furthermore, the proposed plan has been endorsed by the Natural Resource Conservation Service, which is the Federal agency that specializes in soil erosion, hydrology, and drainage issues. Several mitigation measures regarding flooding concerns and other environmental parameters have been proposed.

In light of your comment letter and other letters expressing drainage concerns, the applicants have amended the proposal to include a 300-acre bulldozing maximum as a condition of the Conservation District Use Permit. In case you have not yet read the Draft EA, it should be noted that no grading is planned, rather grubbing and raking of invasive brush. The bulldozer operator will attempt to remove brush with as little soil disturbance as possible, and kikuyu grass will swiftly be planted in its place. For locales that are steeper sloped and areas that have light to moderate pest infestations, herbicide will be employed in lieu of bulldozing. The chief environmental benefit of the proposed project is to remove a huge seed source of Himalayan Raspberry *(Rubus ellipticus)* from an area within dispersal range of high-integrity native ecosystems.

The applicants and I look forward to hearing your concerns at the public hearing and hope that you have had a chance to read the Draft EA before January 12th. Multiple copies of the Final EA will be made available at the Cooper Center and the Mt. View Public library. The applicants have been advised to use regular herbicide control (after the proposed project) to pre-empt invasive species from again reaching infestation levels that require mechanical intervention. Please do not hesitate to call me or Mr. and Mrs. Wong (967-7224) if you have any questions.

Sincerely,

Christian Rygh

Department of Land and Natural Resources
PO Box 250
Honolulu, HI 96809
Office of Conservation and Coastal Land
Attn: Tiger
Fax: 1(808) 587-0455
Phone: 1(808) 587-0380

Dear Tiger:
I am writing to express my concern about Ulla Ranch's application for a conservation District Land Use Permit to use bulldozers to complete eradication of noxious shrubs on lands leased from the Kamehameha School/Bernice Pauahi Bishop Estate. Ulla Ranch's blithe dismissal of acceptable clearance methods in favor of lower cost bulldozing methods without regard for damage done to the conservation land and trees is unacceptable to me.

The native trees on Ulla Ranch must be left standing. There would be unfortunate consequences to Ulla Ranch's use of bulldozers. Flooding, which increased dramatically after Ulla Ranch's non-permitted clearing of trees in 1990 will be further increased. Native birds will lose their habitat. A valuable cultural and environmental resource will be lost to the community and the state. The immediate neighbors of the ranch, Volcano National Park and the residents of Volcano Village will feel the effect of the loss of these trees most dramatically, but the loss of this natural resource will be felt globally as well. These trees are standing on conservation land. Please do not allow a use permit to rob them of their protected status.

If you feel you must grant this use permit, I ask that you provide a monitor to check the eradication process. According to the ranch's own environmental assessment, their bulldozers will avoid trees only if it is "feasible." This is simply not an option. The noxious shrubs must be cleared by hand and poisoned at the root, the acceptable method of eradication for this type of plant and a method which is safe for the native trees.

I will ask that you accept my concerns and honor the valuable natural resources that are our native trees.

Sincerely,

Signature J D Whitler

Name (Print) James Douglas Whitler

Address 19425 Iiwi Rd Volcano Village

December 29, 2003

Mr. James Douglas Whisler
194225 I'iwi Rd.
Volcano, HI 96785

Christian Rygh
HCR 1 Box 5022
Kea'au, HI 96749
(808) 982-5638

Dear Mr.Whisler:

Subject: Comment Letter on Draft Environmental Assessment for 'Uila Ranch

Your impassioned response concerning the proposed project on conservation district lands near your residence is greatly appreciated. Were it not for active citizens such as yourself, the environmental review process would be impotent, and simple miscommunications would be given the chance to develop into permanent misunderstandings.

Native Trees. In light of your comments, we have been made aware that the use of the phrase "wherever feasible" may have been perceived equivalent with "wherever convenient", but this is inconsistent with our true intentions. During the planning of the project and preparation of the EA, the consideration of native trees on 'Uila Ranch has been extensive. All adult 'ohi'a trees and recognizable concentrations of 'ohi'a saplings will be painstakingly avoided – this is and was our original intention. For brevity, I attached the words "wherever feasible" at the end of this statement, when I probably should have expounded to say: "Individual 'ohi'a saplings that occur within a dense thicket of Himalayan Raspberry may realistically be cleared, but such incidental takes will be avoided as much as possible". Please consider that the same unlucky saplings that are hidden in raspberry thickets would also likely be impacted if the Chemical Control or No Action alternatives were selected. The Final EA will read differently, to avoid similar misinterpretations by others. Thank you.

Native Birds. We hope the above statements will also calm your misgivings about the impacts on native birds. Although you were not specific, we assume you refer to honeycreepers and other birds that may benefit from the presence of 'ohi'a trees on the ranch. Additional comments concerning honeycreepers have been incorporated into the Final EA (which will be available at Cooper Center and Mt. View library).

Global Loss. While it is true that Hawaii (including the Volcano region) is an extremely important physiographic region for global biodiversity, incidental takes to juvenile 'ohi'a trees in an area not designated as critical habitat for any threatened or endangered species is not a cause for global concern. 'Ohi'a trees themselves are nowhere near endangered, as Big Island residents can clearly see. More important concerns from a species conservation standpoint are 1) the transmittal of avian malaria from alien birds to native birds and 2) the spread of aggressive, invasive plant species into remaining, high-integrity native forests that are critical habitat for endemic flora and fauna.

Flooding. The proposed project will not be done in the same manner as the un-permitted clearing activities of the former lessee. As previously mentioned, native trees will be painstakingly avoided. The bulldozer operator will attempt to remove the targeted weeds with as little soil disturbance as possible. The Natural Resource Conservation Service (NRCS) is the Federal soil conservation agency that specializes in hydrology, drainage, and soil erosion issues. Representatives of the NRCS have visited the proposed project site repeatedly, drafted and endorsed the plan, and are committed to overseeing every stage of the project's implementation. However, taking the drainage concerns of you and other nearby residents into consideration (and in light of the fact that floods can not be predicted), the applicants have decided that bulldozing will only be necessary in locations where the pest outbreak is particularly dense (about 250-300 acres). Light to moderate concentrations will receive herbicide treatment only (i.e. areas where access for spraying, monitoring, pasture replanting, and grazing would not be obstructed by dense stands of slowly decaying brush). Please refer to the Final EA for specifics on revised implementation methods.

Sincerely,

Christian Rygh

Department of Land and Natural Resources
PO Box 250
Honolulu, HI 96809
Office of Conservation and Coastal Land
Attn: Tiger
Fax: 1(808) 587-0455
Phone: 1(808) 587-0380

Dear Tiger:
I am writing to express my concern about Ulla Ranch's application for a conservation District Land Use Permit to use bulldozers to complete eradication of noxious shrubs on lands leased from the Kamehameha School/Bernice Pauahi Bishop Estate. Ulla Ranch's blithe dismissal of acceptable clearance methods in favor of lower cost bulldozing methods without regard for damage done to the conservation land and trees is unacceptable to me.

The native trees on Ulla Ranch must be left standing. There would be unfortunate consequences to Ulla Ranch's use of bulldozers. Flooding, which increased dramatically after Ulla Ranch's non-permitted clearing of trees in 1990 will be further increased. Native birds will lose their habitat. A valuable cultural and environmental resource will be lost to the community and the state. The immediate neighbors of the ranch, Volcano National Park and the residents of Volcano Village will feel the effect of the loss of these trees most dramatically, but the loss of this natural resource will be felt globally as well. These trees are standing on conservation land. Please do not allow a use permit to rob them of their protected status.

If you feel you must grant this use permit, I ask that you provide a monitor to check the eradication process. According to the ranch's own environmental assessment, their bulldozers will avoid trees only if it is "feasible." This is simply not an option. The noxious shrubs must be cleared by hand and poisoned at the root, the acceptable method of eradication for this type of plant and a method which is safe for the native trees.

I will ask that you accept my concerns and honor the valuable natural resources that are our native trees.

Sincerely,

Signature Claire Trester

Name (Print) CLAIRE TRESTER

Address 19425 Iiwi Rd Volcano Village

December 29, 2003

Christian Rygh
HCR 1 Box 5022
Kea'au, HI 96749
(808) 982-5638

Ms. Claire Trester
194225 Iiwi Rd.
Volcano, HI 96785

Dear Ms. Trester:

Subject: Comment Letter on Draft Environmental Assessment for 'Uila Ranch

Your impassioned response concerning the proposed project on conservation district lands near your residence is greatly appreciated. Were it not for active citizens such as yourself, the environmental review process would be impotent, and simple miscommunications would be given the chance to develop into permanent misunderstandings.

Native Trees. In light of your comments, we have been made aware that the use of the phrase "wherever feasible" may have been perceived equivalent with "wherever convenient", but this is inconsistent with our true intentions. During the planning of the project and preparation of the EA, the consideration of native trees on 'Uila Ranch has been extensive. All adult 'ohi'a trees and recognizable concentrations of 'ohi'a saplings will be painstakingly avoided – *this is and was our original intention.* For brevity, I attached the words "wherever feasible" at the end of this statement, when I probably should have expounded to say: "Individual 'ohi'a saplings that occur within a dense thicket of Himalayan Raspberry may realistically be cleared, but such incidental takes will be avoided as much as possible". Please consider that the same unlucky saplings that are hidden in raspberry thickets would also likely be impacted if the Chemical Control or No Action alternatives were selected. The Final EA will read differently, to avoid similar misinterpretations by others. Thank you.

Native Birds. We hope the above statements will also calm your misgivings about the impacts on native birds. Although you were not specific, we assume you refer to honeycreepers and other birds that may benefit from the presence of 'ohi'a trees on the ranch. Additional comments concerning honeycreepers have been incorporated into the Final EA (which will be available at Cooper Center and Mt. View library).

Global Loss. While it is true that Hawaii (including the Volcano region) is an extremely important physiographic region for global biodiversity, incidental takes to juvenile 'ohi'a trees in an area not designated as critical habitat for any threatened or endangered species is not a cause for global concern. 'Ohi'a trees themselves are nowhere near endangered, as Big Island residents can clearly see. More important concerns from a species conservation standpoint are 1) the transmittal of avian malaria from alien birds to native birds and 2) the spread of aggressive, invasive plant species into remaining, high-integrity native forests that are critical habitat for endemic flora and fauna.

Flooding. The proposed project will not be done in the same manner as the un-permitted clearing activities of the former lessee. As previously mentioned, native trees will be painstakingly avoided. The bulldozer operator will attempt to remove the targeted weeds with as little soil disturbance as possible. The Natural Resource Conservation Service (NRCS) is the Federal soil conservation agency that specializes in hydrology, drainage, and soil erosion issues. Representatives of the NRCS have visited the proposed project site repeatedly, drafted and endorsed the plan, and are committed to overseeing every stage of the project's implementation. However, taking the drainage concerns of you and other nearby residents into consideration (and in light of the fact that floods can not be predicted), the applicants have decided that bulldozing will only be necessary in locations where the pest outbreak is particularly dense (about 250-300 acres). Light to moderate concentrations will receive herbicide treatment only (i.e. areas where access for spraying, monitoring, pasture replanting, and grazing would not be obstructed by dense stands of slowly decaying brush). Please refer to the Final EA for specifics on revised implementation methods.

Sincerely,

Christian Rygh

Name Wilhelmina Markiewicz. Date Dec 8 2003

Address P.O. Box 237
Volcano HI 96785

Department of Land and Natural Resources
PO Box 250
Honolulu, HI 96809
Attn: Office of Conservation and Costal Land
Tiger
Fax: 1 (808) 587-0455
Phone: 1 (808) 587-0380

RECEIVED
LAND DIVISION
2003 DEC -8 P 3:50
DEPT OF LAND & NATURAL RESOURCES STATE OF HAWAII

Dear Tiger:

I am writing to express my concern about Uila Ranch's application for a conservation District Land Use Permit to use buildozers to complete eradication of noxious shrubs on lands leased from the Kamehameha School/Bernice Pauahi Bishop Estate. Uila Ranch's blithe dismissal of acceptable clearance methods in favor of the lower cost buildozing methods without regard for damage done to the conservation land and trees is unacceptable to me.

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I will ask that you accept my concerns and honor the valuable natural resources that are our native trees.

Sincerely,

Signature Wilhelmina S. Markiewicz

Name (Print) WILHELMINA L. MARKIEWICZ

December 29, 2003

Ms. Wilhelmina Markiewicz
P.O. Box 237
Volcano, HI 96785

Christian Rygh
HCR 1 Box 5022
Kea'au, HI 96749
(808) 982-5638

Dear Ms. Markiewicz:

Subject: Comment Letter on Draft Environmental Assessment for 'Uila Ranch

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Sincerely,

Christian Rygh

APPENDIX 3

RELEVANT CORRESPONDENCE

(Between DLNR, Applicants, the Land Owner, and Previous Lessees)

BISHOP ESTATE

GENERAL CORRESPONDENCE

602

RECEIVED
BERNICE P. BISHOP ESTATE
MAY 11 8 42 AM '61
PRES'D ___ ACK'D ___
FIN. ACT. ___ ANS'D ___

April 20, 1961

L-10359
14,358

Mr. M. A. Blair
c/o Mr. Norman K. Carlson
P. O. Box 686
Kealakekua, Hawaii

Dear Mr. Blair:

Offer of Lease, Lot A,
Kilauea Forest Reserve - Kau, Hawaii

At their meeting held April 6, 1961, the Trustees of this Estate voted to offer you a lease covering Lot A, containing an area of approximately 1,050 acres, as shown on the sketch attached hereto, Kilauea Forest Reserve, Kau, Hawaii, on the following terms and conditions:

1. Term - 5 years, commencing the first day of the month after the area is rezoned, with an option to renew for 25 years.

2. Rental - For the first 3 years of the lease term to be $1.00 on demand; for the next 2 years of the lease term to be $1.00 per acre per annum, with rental for the 25-year option period to be determined by appraisal, based on the animal unit carrying capacity of the lands at their full potential use. All rental is to be net to the Trustees above taxes, assessments and other charges.

3. Development - Each year, at least 200 acres will be cleared and planted to high-producing grasses, legumes and pasture, or until the entire usable area has been cleared and planted.

Blair Ltd.

MANUFACTURER — RETAILER — WHOLESALER
FINEST SELECTIONS OF CARVED WOODS & CUSTOM BUILT FURNITURE
Cable "BLAIRHON"

Phone 564-907

404 Ward Ave.

Honolulu, Hawaii 96814

May 19th, 1966

C-LAND

Bernice P. Bishop Estate
519 Halekauwila St.
Honolulu, Hawaii 96801

ATTN: Mr. George Loomis

Dear Mr. Loomis:

Progress Report
Lease No. 14,358
Keauhou, Kau, Hawaii

I have cleared approximately three hundred(300) acres and have just finished planting it with kekua grass. I will sow tree foil seeds in the same area within the next sixty (60) days. I will put two bulldozers to clearing the remaining seven hundred (700) acres in July and should have this area planted with grass in approximately one (1) year.

Very truly yours,

M.A. Blair

MAB:mo

14,358

LP

BISHOP ESTATE
GENERAL CORRESPONDENCE

FILE

May 3, 1967

Mr. Millard A. Blair
404 Ward Avenue
Honolulu, Hawaii 96814

Dear Mr. Blair:

Clearing Activities, Etc.
Lease No. 14,358, Kilauea Forest Reserve
Keauhou, Kau, Hawaii

The Trustees at their meeting held May 2, 1967, were advised that you have failed to reply to the Trustees' letter of April 29, 1966. This letter requested that you comply with Covenant No. 12 of your lease; this covenant calls for annual reports of activities on this leasehold.

The Trustees also wish to remind you that this lease calls for annual clearing and planting. Inspection of your area in April 1967 showed --

200 - 300 acres cleared (required as of 1967, 500 acres).
Rapid invasion of noxious plants such as pamakani and blackberry.
Inefficient planting operation.

It appears to the Trustees that for you to sucessfully develop into pasture these 1000 acres, you need someone with ranching experience to supervise and move forward this operation. Otherwise there is a possibility of failure, loss of investment and lease. The Trustees are much concerned with the invasion of noxious plants.

In view of the above, the Trustees voted to request that you submit the required detailed annual report covering your operations for the period commencing October 1, 1963, and ending October 1, 1966 -- further, that you outline your program as it

Blair Ltd.

Phone 564-907

MANUFACTURER — RETAILER — WHOLESALER
FINEST SELECTIONS OF CARVED WOODS & CUSTOM BUILT FURNITURE
Cable "BLAIRHON"

404 Ward Ave.

Honolulu, Hawaii 96814

C-Roy

May 23rd, 1967

Trustees of the Bernice P. Bishop Estate
519 Halekauwila Street
P. O. Box 3466
Honolulu, Hawaii 96801

Gentlemen:

Thank you for your letter of May 3rd.

I apologize for having overlooked making an annual report covering lease #14358.

On April 4th, 1967, we started a new clearing and grass planting program, employing five men and with use of one bulldozer. Since that time, we have cleared and planted approximately 100 acres. We will continue this program until the entire 1,000 acres are cleared and planted. The clearing and planting should be completed by the early part of 1968.

On my next trip to Hilo, I will check the invasion of noxious plants and take steps to remove or poison them.

Very truly yours,

BLAIR LTD.

14,358

M. A. BLAIR
PRESIDENT

MAB:js

cc: Mr. Norman K. Carlson

STATE

GENERAL CORRESPONDENCE

September 15, 1988

Mr. William W. Paty, Chairperson
Board of Land and Natural Resources
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Paty:

Notice and Order to Cease Activity Within the Conservation District, TMK 3-9-9-001:010, Keauhou, Kau, Hawaii (Lease No. 14,358)

This will advise you that since receiving your Notice and Order letter of September 2, 1988, we have been in contact with Mr. Ed Henry of your Office of Conservation and Environmental Affairs regarding this matter.

We appreciate any concern you may have regarding the illegal clearing of virgin Kilauea Forest land within the Conservation district, but do not believe this to be occurring. At the time we received your attached 1987 letter, we advised our newest lessee (and the only one that may have had development requirements) to refrain from opening any new pasture lands. By your 1987 letter, we assumed that maintenance of the existing pasture areas would continue to be allowed. To our knowledge, no new areas have been cleared and only maintenance of the existing and previously developed pastures are on going. It is understandable that, with the dense overgrowth which has occurred in some of these pasture areas, an aerial inspection might mistakenly assume that new development in the Kilauea Forest was occurring.

We are continuing to stay in contact with Mr. Henry and hope to resolve this matter shortly. Should you have further questions, Mr. Sydney Kelii-pulecle of our office at 523-6240 will be happy to answer them for you.

Very truly yours,

Guido Giacometti
Director, Land Division

BF:dwl
Enclosure

cc: Bill Rosehill

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P.O. BOX 621
HONOLULU, HAWAII 96809

MAY 6 2002

Ms. Mary Ellen Wong
P.O. Box 250
Volcano, Hawaii 96785

Dear Ms. Wong:

Subject: Clearing of Noxious Weeds at Keauhou Ranch, Volcano, Hawaii

We are in receipt of your March 25, 2002 letter seeking a determination on whether a Conservation District Use Permit (CDUP) is required for the clearing of noxious weeds on privately owned Conservation Lands.

It is our understanding that you will be submitting a Conservation Plan to this office so that we may assess the proposed action and determine what if any permits are required from the Department of Land and Natural Resources.

Should you have any questions on any of these conditions, please feel free to contact Sam Lemmo of our Planning Branch at 587-0381.

Aloha,

Dierdre S. Mamiya, Administrator
Land Division

Cc: Chairman

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

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGEMENT

Ref: PB:DH

File No.:HA-02-98

JUN 6 2002

Mary Ellen Wong
P.O. Box 250
Volcano, Hawaii 96785

Dear Mrs. Wong

SUBJECT: Clearing of Noxious Plants at Uila Ranch [TMK: (3) 9-9-01:17]

The Department of Land and Natural Resources (DLNR) is in receipt of your letter, received on May 22, 2002, and the Conservation Plan sent from the USDA Natural Resources Conservation Service (NRCS) for the 1,020-acre ranch.

In the information you have supplied to DLNR, you propose to clear Himalayan Raspberry from the northwest part of the ranch, and Fiya Bush, Himalayan Blackberry and Vive from the southeast part of the ranch.

The NRCS Conservation Plan describes three proposed objectives: 1) to improve pastures for cattle production and wildlife habitat; 2) to protect and enhance native forest; and 3) to educate children about the native forest. In order to accomplish these three objectives the following is proposed: Brush Management; Installation of Fence(s); Pasture and Hay Planting; Installation of Pipeline(s); Nutrient Management; Pest Management; Installation of Tank(s) and/or Trough(s); Upland Wildlife Habitat Management; Forest Stand Improvement; Prescribed Grazing; Cover and Green Manure Crop; Pond Construction; and Water Harvesting Catchment.

Uila Ranch is located in the Limited and General Subzones of the Conservation District. A Board Permit will be required from DLNR. The proposed identified land use can be found in Hawaii Administrative Rules (HAR), Chapter 13-5, Section 13-5-23, Identified Land Uses in the Limited Subzone, under L-4 LANDSCAPING AND REMOVAL OF NOXIOUS PLANTS. The removal of noxious plants for maintenance purposes in an area of more than ten thousand square feet that results in significant ground disturbance (e.g. clearing or grubbing) requires a Board Permit and Management Plan.

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

JAN 21 2003

Re:PB:DH

Correspondence: HA-03-68

Mr. Peter D. Simmons
Senior Land Manager/ Land Assets Division
Kamehameha Schools
P.O. Box 495
Paauilo, Hawaii 96776

Dear Mr. Simmons,

SUBJECT: Clearing of Noxious Plants at Uila Ranch (TMK: (3) 9-9-01:17)

The Department of Land and Natural Resources (DLNR) is in receipt of your letter, dated November 19, 2002, regarding the clearing of noxious weeds at Mrs. Wong's (your lessee) 1,020 acre Uila Ranch, located in Volcano, Hawaii (TMK: (3) 9-9-01:17).

On June 6, 2002 the Department replied to Mrs. Wong's letter, dated May 22, 2002, which noted the following improvements: 1) clear Himalayan Raspberry from the northwest part of the ranch, and 2) clear Fiya Bush, Himalayan Blackberry and Vive from the southeast part of the ranch. These two objectives would: 1) improve pastures for cattle production and wildlife habitat; 2) protect and enhance native forest; and 3) help educate children about the native forest.

In order to meet the Mrs. Wong's objectives and improvements, A USDA Natural Resources Conservation Service Conservation (NRCS) Management Plan was submitted. The following project improvements were proposed: 1) Brush Management; 2) Installation of Fence(s); 3) Pasture and Hay Planting; 4) Installation of Pipeline(s); 5) Nutrient Management; 6) Pest Management; 7) Installation of Tank(s) and/or Trough(s); 8) Upland Wildlife Habitat Management; 9) Forest Stand Improvement; 10) Prescribed Grazing; 11) Cover and Green Manure Crop; 12) Pond Construction; 14) and Water Harvesting Catchment. All these improvements were proposed to take place within the next five years, on certain portions of the ranch, totaling approximately 520 acres of land.

The Department noted Uila Ranch was in the Limited and General Subzones of the Conservation District, and a Conservation District Use Application (CDUA) for a Board permit would be required from DLNR. The proposed identified land use can be found in Hawaii Administrative Rules (HAR), Chapter 13-5, Section 13-5-23, Identified Land Uses in the Limited Subzone, L-4 LANDSCAPING AND REMOVAL OF NOXIOUS PLANTS, "removal of noxious plants for maintenance purposes in an area of more than ten thousand square feet that results in significant ground disturbance (e.g. clearing or grubbing) requires a Board Permit and Management Plan.

The submitted NRCS Conservation Plan met the requirements of a Management Plan. Thus, Mrs. Wong was instructed to submit a CDUA for the proposed project. A copy of Hawaii Administrative Rules (HAR), Chapter 13-5, and a Conservation District Use Application were attached.

The Department recognizes that Kamehameha School and Mrs. Wong are taking a proactive approach to protecting and preserving the land, and has for past generations. However, a CDUA will need to be filed and presented before the Board of Land and Natural Resources due to the following reasons; 1) the number of acres impacted by the proposed project and 2) the scope of proposed project.

The NRCS Conservation Plan indicates that over a period of five years, for each of the subject categories i.e. brush management, pasture and hay planting, nutrient management, pest management, upland wildlife habitat management, prescribed grazing (*Paddocks (P) 3A -60 acres, P3B -60 acres, P4 -314 acres, P4A -40 acres, P4B –45*), a total of 520 acres will be affected.

Since the proposed action is affecting, at the smallest unit, *a 40 acre portion of land*, Chapter 13-5, Conservation District, Section 13-5-22 L-4, LANDSCAPING AND REMOVAL OF NOXIOUS PLANTS, notes for the removal of noxious plants for maintenance purposes in an area of more than *ten thousand square feet that results in significant ground disturbance* (i.e. clearing or grubbing) a Board permit is required from DLNR.

Secondly, the scope of the project is large. The following HAR, Chapter 13-5 rules and regulations apply to the project's improvements:

- *Forest Stand Improvement* - Section 13-5-22, P-12, TREE REMOVAL, requires a Departmental or Board permit, depending on the number and diameter of the trees being removed.
- *One (1) Water Harvesting Catchment System, one (1) Pond 1,000 feet, one (1) Pipeline, three (3) Trough/Tank, and 1 acre of Cover and green manure crop, Fencing 14,300 feet* - Section 13-5-23, L-1, AGRICULTURE, requires a Departmental Permit.

These two separate actions could be covered under the aforementioned Board permit for Landscaping and Removal of Noxious Plants.

If you require any further information, please feel free to contact Sam Lemmo of our Planning Branch at 587-0381.

Aloha

Dierdre S. Mamiya, Administrator
Land Division

cc: Hawaii District Land Agent
Edwin Miranda –Natural Resources Conservation Service
Mary Ellen Wong

APPENDIX 4

NRCS CULTURAL RESOURCES REVIEW

(And Boundary Testimonies for Keauhou Ahupua'a)

NRCS Natural Resources Conservation Service

USDA United States Department of Agriculture

Our People...Our Islands...In Harmony

USDA KEALAKEKUA
SERVICE CENTER
81-948 Waena 'Oihana Lp
CKC Bldg 9 Suite 101
Kealakekua, HI 96750
Phone: 808-322-2484
FAX: 808-322-3735

5 September 2003

TO: Edwin Miranda
Soil Conservationist
Hilo Service Center

FROM: Carol Kawachi
Cultural Resources Specialist

SUBJECT: Mary Ellen Wong/Uila Ranch
Program EQIP
Keauhou, Ka`u, Hawai`i Island
TMK: 9-9-01: 017

Thank you for the opportunity to review this project for cultural resources. This review will be based on limited literature and map search and a field check.

A field check was done on Thursday, 21 August 2003 by Edwin Miranda, Soil Conservationist, from the Hilo Service Center, Carol Kawachi, Cultural Resources Specialist from Kona and the lessee, Mrs. Mary Ellen Wong.

The 1020.5 acre (413ha) project parcel is located in Keauhou *ahupua`a* in the Ka`u district between approximately the 3814 and 4065 foot (1163 and 1239m) elevation contours. The Area of Potential Effect (APE) is 815.5 acres (330ha) with 500 acres (202ha) where noxious vegetation need to be removed. 205 acres will be fenced by Kamehameha Schools/Bishop Estate (landowner) to preserve mature *`ōhi`a* trees for educational purposes and native wildlife.

Many of the proposed conservation practices are mainly management practices (brush, nutrient, pest, wildlife habitat) and will not impact the landscape. Many of the fence lines and pipelines were pre-existing. Documentation and field investigation indicate the area has most likely been bulldozed and cleared in 1960s. It is not likely that the installation of new fences and troughs/tanks will affect cultural resources. The mechanical bulldozing needed to remove fire tree (*Myrica faya*), fire thorn (*Pyracantha*), yellow Himalayan raspberry (*Rubus ellipticus*), and white ginger (*Hedychium coronarium*) will not affect significant historic properties.

If you have any questions, please contact Carol Kawachi at (808) 322-2484 x105 or Carol.Kawachi@hi. usda.gov.

CULTURAL RESOURCES REVIEW
Mary Ellen Wong/Uila Ranch
Program EQIP
Keauhou, Ka`u, Hawai`i Island
TMK: 9-9-01: 017

The 1020.5 acre (413ha) project parcel is located in Keauhou *ahupua`a* in the Ka`u district northeast of Kilauea Crater on the island of Hawai`I between approximately the 3814 and 4065 foot (1163 and 1239m) elevation contours. Annual rainfall is about 75 inches (1905mm). The soil is described as Puaulu and Manu silt loam: well drained silty loam formed in volcanic ash on 0-10 percent slopes cinders and pumice overlaying pahoehoe lava bedrock used mainly for woodland, pasture, truck crops, and some for orchards.

The land is owned by Kamehameha Schools/Bishop Estate and is leased by the client. The parcel was previously known as Ohia Ranch under the former lessee.

A field check by Soil Conservationist Edwin Miranda on 16 April 2002 found some of the area already developed, and other parts left in forest. Some old timber harvesting equipment was observed. The vegetation included `ōhi`a (*Metrosideros*), *kōpiko* (*Psychotria*), fire tree (*Myrica faya*), hāpu`u tree fern (Cibotium), white ginger (*Hedychium coronarium*), fire thorn (*Pyracantha*), yellow Himalayan raspberry (*Rubus ellipticus*), and kikuyu grass (*Pennisetum clandestinum*).

The proposed conservation practices are:

- Brush management - to control woody vegetation by chemical or biological means to improve plant cover for livestock, wildlife and erosion control.
- Cover & Green Manure crop
- Fencing
- Forest stand improvement
- Nutrient & pest management
- Pasture & hay planting
- Pond
- Prescribed grazing - Cattle grazing will be the main resource tool to control invasive weeds and unwanted forbs, shrubs and grasses within the paddocks.
- Trough or tank – all will be above surface.
- Upland wildlife habitat
- Water Harvesting & catchment (ranch headquarters roof)

The project parcel is presently divided into nine fields with a headquarters (1 acre), two ponds, seven troughs, ten fence lines, and eight pipelines.

Field	Acres	Field	Acres	Field	Acres
2	80.	4	314	5	105.
3A	60.	4A	40.	6	160.
3B	60.	4B	45.	7	155.

Land use of the parcel in the past included ranching, timber harvesting and again most recently, beef cattle ranching. The client has leased the land for cattle ranching for about five years. About 205 acres (83ha) of paddocks 3A, 3b, 4A and 4B has mature ʻōhiʻa lehua trees (*Metrosideros*) which landowner Kamehameha Schools/Bishop propose to fence and use for educational purposes as well as to encourage native wildlife.

The State Historic Preservation Division website shows no archaeological survey has previously been done of the project parcel.

The project parcel is located in Keauhou *ahupua*ʻa in the Kaʻu district northeast of Kilauea Crater on the island of Hawai ʻi between approximately the 3814 and 4065 foot (1163 and 1239m) elevation contours. The parcel's northeastern boundary is the boundary line between Puna and Kaʻu districts.

The project parcel is located north-northeast of the Volcanoes National Park, Kilauea Military Camp (KMC), suiphur banks and the Park Headquarters and Volcano House. The golf course is west of the project area. The Crater Rim Drive is south of the project area, Kilauea and Kilauea Iki Craters,south-southwest of the project area. To the northeast are the Olaʻa Summer Lots. Its southern boundary parallels, but does not border up to, the old Volcano Road or Mamalahoa/Highway 11. The tax map indicates the project parcel to be within the Kilauea Forest Reserve.

Keauhou *ahupua*ʻa is the easternmost *ahupua*ʻa in Kaʻ u district. It is roughly rectangular and extends from the coast near Keauhou Point almost paralleling Halape Trail going *mauka-makai.* The large Kilauea Crater and smaller Kilauea Iki and craters along the Chain of Craters road all lie within the *ahupua*ʻa. The *ahupua*ʻa extends approximately 12 miles (19km) northwestward from Kilauea Crater to the Kaʻu-North Hilo boundary. Lands not owned b the National Parks Service is owned by Kamehameha Schools/Bishop Estate.

Keauhou *ahupua*ʻa was awarded to Victoria Kamāmalu as Land Commission Award (LCA) 7713: *apana* 11 during the Great Mahele of 1848. Princess Victoria Kamāmalu was the sister of Kamehameha IV (Liholiho) and Kamehameha V (Lot Kapuāiwa). When she died in May 1866, her father Mataio Kekūanaoa inherited her lands (Barrère 1994:228). High Chief Kekūanaoa was a companion of and served in the court of Kamehameha II (Liholiho) as well as serving as Governor of Oʻahu for over twenty years, member of the House of Nobles, Privy Council and the Board of Education (Kwan & Ching 1989:19). Upon his death in 1868, the lands went to Ruth Keelikolani (Barrère 1994:352), his daughter from a previous marriage. Princess Ruth then willed the lands to her cousin Bernice Pauahi Bishop upon her death in 1883. When Pauahi died a year later in 1884, all the lands she had inherited went to her husband Charles Reed Bishop. Today this collection of Kamehameha family lands are known as Kamehameha Schools/Bishop Estate lands.

The awarding of the land to such a high ranking *aliʻi* suggests these lands were of high value and had great significance. They were rich in natural resources (koa, bird

feathers, *hapu`u*) and in this case included Kilauea Crater, home of Madame Pele, goddess of the Volcano, sacred land.

Located between 3814 and 4065 foot (1163 and 1239m) elevation, it is not likely that the early Native Hawaiians cultivated any crops up here – too wet, too cold. It is more likely the `ōhi`a/koa forest was left in its natural state: the native birds were captured, their colorful feathers removed and then let go; the `ōhi`a trees were used for house construction and other structures; koa wood was prized for canoes, bowls and other items. Ellis mentions the Native Hawaiians coming "to procure wood for building, or to cut down trees and hollow them out for canoes" (1979:267).

The coast is approximately 10 miles or so through the forest and down cliffs. The Keauhou Trail follows the Ka`u/Puna district boundary fairly closely. It is likely that seasonal use temporary residential structures might have been built in the project area or small caves or lava tubes used for temporary habitation. Thurston Lava Tube is less than a mile away to the south on the boundary. The wet and cold conditions would not have been desirable for permanent residency when the warmer, drier coastal area was less than a day's walk away. A tsunami in 1868 washed away the ancient village of Keauhou (Pukui et al 1981:104).

Archaeological work at a cave in Hilina Pali to the west in Kapapala *ahupua`a* date the presence of Hawaiians in the area by A.D.1600 (Cleghorn 1980). He found evidence in shelters, trails, and trail markers for seasonal use of the area for sweet potato cultivation, harvesting *māmaki* for *tapa* manufacture, and fresh water collecting and transporting to settlements along the coast (Cleghorn 1980:30).

Ethnographic accounts from early visitors to the area (Ellis 1823, Bird 1843) tell of people living and working in large caves in the general area. They describe the small fresh water pools, the sulphur banks and their smell, the intense heat, the rough and bare terrain with ohelo bushes and fern. Mark Twain visited the area via horseback and on foot in 1866. He noted the *ahu* or "pyramids of stones painted white, . . . set up at intervals to mark the path to the lookout house and guard unaccustomed feet from wandering into the abundant chasms that line the way" (Day 1966:293).). Already, Twain noted "the whole country is given up to cattle ranching" (Day 1966:289).

In about 1895, Oliver (Ollie) Shipman decided to go into ranching and leased 35,000 acres from Bishop Estate which includes the project area in Keauhou *ahupua`a*. Shipman named his ranch Kuapaawela. A few years later when his brother Willie bought the ranch, Willie re-named the ranch Keauhou (Cahill 1996:185).

Lorrin Thurston, grandson of the pioneer missionaries Asa and Lucy Goodale Thurston, visited the "nearly virgin area" of Volcano in 1880. Thurston was appointed Minister of the Interior of the kingdom of Hawaii by King Kalākaua in 1887 and through this role, "took an activist position in preserving large areas of land on the major islands for public parks" (Cahill 1996:174-5). Thurston had a dream to develop the "Kilauea Volcano National Park" (Cahill 1996:172). To implement this dream, he replaced the 30-mile

horse trail from Hilo to Volcano which "crossed through dense ohia forests and heavy growths of large tree ferns, . . . rough lava flows" (Cahill 1996:177).

Hawaii Volcanoes National Park was established in 1916 created to preserve the region's unique volcanic features, its early human history, and the plant and animal life that is part of this special bioregion (HVNP 1999). According to Hawaiian legends. Kīlauea is the home of Pele, Hawaiian goddess of fire.

Although it is not exactly clear where, Willie Shipman leased land to both the Olaa and Puna sugar plantations (Cahill 1996:185). The Olaa Sugar company was formed in 1900 by Thurston, Benjamin Dillingham, James Castle and others who purchased land and leases from the former `Ōla`a coffee homesteaders. One of the first products of the Olaa Sugar company was *`ōhi`a* wood for "`fence posts, railroad ties and firewood'" (Kelly et al 1981:144). This was a good way to make a profit as well as clearing the forest in preparation for planting sugarcane.

Thurston and Dillingham also financed and promoted the Hilo Railroad Company (after reorganization, the Hawaiian Consolidated Railway, Ltd) (Dorrance & Morgan 2000:106) which provided transportation for the `Ōla`a and Puna sugar plantations and access to the `Ōla`a homesteaders (Cahill 1996:185). A 1923 map of this part of the island and the lines of the Hawaii Consolidated Railway show the railway stopping at Glenwood, just a few miles short of the project parcel. The project area is designated as "cattle" (Kelly et al 1981:164).

Per the lessee, the level area in the northwestern part of the parcel (fields 6 & 7) was planted in potatoes during the war for the military (1940s). This was the area of the best soil.

Ethnographic accounts from early travelers tell of the discomfort of the wet and cold, the rough terrain, the dense forest of *`ōhi`a* and tree ferns, the sulphurous smell of the sulphur banks of the area. Ranching was in place by 1866 (see above). It is not likely that the project area was in sugar due to its wetness, elevation and temperature. *`Ōhi`a* has probably been harvested on a large scale since the start of the railroad (1899).

It is also not likely that the Native Hawaiians would have had permanent residential structures at this wet and cold elevation when the warmer, drier coastal area was available less than a day's walk away. Small caves or lava tubes were more likely to have been used for seasonal forays into the area. Thurston Lava Tube, less than a mile away to the south on the boundary, may once have been used for temporary habitation. A village, once present along the coast, was washed away by the tsunami in 1868 (Pukui et al 1981:104). The presence of a village and a major trail suggest the resources within the *ahupua`a* were valuable and accessible to many.

The proximity of the old Volcano Road and Kilauea Crater with a village along the coast suggest the presence of possible cultural resources such as rest stops, trail markers and other evidence of human presence, both pre- and post-contact. The Crater was a "tourist" attraction for both Hawaiian *ali`i* and commoners alike, as well as foreign

visitors. Structures made of vegetative material (wood, leaves) would not survive the damp and cold of the area. Modern roads were often built over old trails. Modernization and widening of roads to accommodate visitors to the National Park has probably obliterated trail markers and other cultural resources such as those seen by Twain in 1866.

It is likely that the lands Shipman leased to the sugar plantations were lower in elevation, warmer and drier than the project area. "Cane grows best near sea level" (Neal 1965: 78). The project area is much too wet and too high in elevation for sugar to do well.

The client has copies of correspondence from the landlord regarding the history of this parcel. One letter dated April 20, 1961, states that:

- Each year, at least 200 acres will be cleared and planted to high-producing grasses, legumes and pasture, or until the entire usable area has been cleared and planted.
- The Trustees further reserve the right to harvest hapuu and koa, providing such right would not obstruct or impede the lessee in his clearing operations.

The present state of the land shows evidence of this clearing: on majority of the property, no old growths of `ōhi`a lehua trees (*Metrosideros*), or much hāpu`u tree fern (Cibotium) were observed. No koa (*Acacia koa*) was observed. *Kōpiko* (*Psychotria*) was observed on the National Park side of the fence. Introduced species such as fire tree (*Myrica faya*), fire thorn (*Pyracantha*), yellow Himalayan raspberry (*Rubus ellipticus*), white ginger (*Hedychium coronarium*) and kikuyu grass (*Pennisetum clandestinum)* dominate.

The 1981 USGS topographic quad map of the area show several unimproved/4-wheel drive roads. Most of them do not correspond to what is presently being used. The client told us that the previous lessee had put in some of the roads used today, not necessarily those shown on the quad map.

A field check was done on Thursday, 21 August 2003, by Edwin Miranda, Soil Conservationist, from the Hilo Service Center, Carol Kawachi, Cultural Resources Specialist from Kona and the lessee, Mrs. Mary Ellen Wong. From the entrance in the southwestern corner, we drove northward to the northeastern corner of the property, turned southward along the district boundary, cut southwestward and then along the National Park boundary, turned roughly northward and back to our starting point. The land has obviously been bulldozed. The "roads" where we drove were not roads per se – they were areas bulldozed and cleared of vegetation by previous lessees. Others are not in use and overgrown. There was a noticeable absence of bird songs suggesting a loss of natural bird habitat.

Only occasional pahoehoe was visible on the surface. There were no rock features visible on the ground surface. We climbed down into a large but narrow crevice but did not note any cultural features. The sides were steep with many downed hāpu`u and overgrown with ginger and thorny shrubs.

Kamehameha Schools/Bishop Estate, the landowners, propose to install fencelines to split paddock 3 and 4 into two sections, 3A and 3B, 4A and 4B, respectively, to preserve the mature ʻōhiʻa lehua trees for educational purposes as well as native wildlife. The lay-out of the fenceline will e re-routed if any old mature ʻōhiʻa lehua or koa trees lie within the proposed fenceline path.

Rusted remains from the koa mill attributed to Blair who sold koa wood objects (bowls, etc.) in the 1960s and a boulder-sized piece of concrete were the only cultural remains observed. The latter was obviously pushed out of place. It was not far from the mill remains and the district boundary but no identifying marks could be discerned. On the 1965 aerial photo used in the Soil Survey publication and overlying it with the quad map, this mill site appear to have been about .5 mile (0.8km) from the southern boundary and less than 0.14 mile (0.23km) from the eastern boundary, at about the 3860 foot (1177m) elevation. The unimproved road shown on the Volcano quad appears to have led to this mill. As part of the lease, the client will need to remove these mill remains from the property. Per Mary Anne Maigret, State Historic Preservation Division (SHPD) Hawai'i island Assistant Archaeologist (pers comm. 9/05/03) no recordation of the remains will be necessary as it is less than 50 years old – it is not a historic property.

The client wishes to clear the land of the fire thorn (*Pyracantha*) and yellow Himalayan raspberry (*Rubus ellipticus*) as they have spread over much of the property. The longer they are allowed to grow, the more difficult it will be to get rid of them. Already, the cattle are unable to control the growth as the fire thorn (*Pyracantha*) and yellow Himalayan raspberry (*Rubus ellipticus*) have attained great heights and density.

The proposed conservation practices will not affect any historic properties. It is not likely significant historic properties still remain.

If you have any questions, please contact Carol Kawachi at (808) 322-2484 x105 or Carol.Kawachi@hi.usda.gov.

A chronology of the project area:

Pre-1800	Native forest used for gathering of natural resources.
1823	Ellis visits
1848	Great Mahele awarded *ahupua`a* to Victoria Kamamamalu
1866	Father Mataio inherits
1866	Mark Twain visits area & notes cattle ranching
1868	Ruth inherits
1873	Isabella Bird visits
1880	Lorrin Thurston visits area
1883	Bernice Pauahi Bishop inherits
1884	Husband Charles Reed Bishop inherits
1895	Shipman leases land for ranching
1899	Hilo RR co. started & `ōhi`a harvested for ties.
1900	Ola`a Sugar Company formed
1900	First Puna Sugar Company founded
1916	Hawai`I Consolidated RR incorporated
1916	HVNP created
1936	Puna and Ola`a Sugar co. merged
1940s	Section planted in potatoes for the war effort
1960s	Sections cleared by koa harvesting

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COPY

THE AHUPUAA OF KEAUHOU, DISTRICT OF KAU 24 OCTOBER 1873

TESTIMONY

Kenoi K. Sworn

I was born at Kapapala, Ka'u at the time of Kiholomua and lived on said land or adjoining lands until about 11 years since. Am a kama'aina of Keauhou and know its boundaries; my father, Kaheana (now dead) told them to me when we used to go after uwau and geese.
Kapapala bounds Keauhou on the south side commencing at the seashore at a heiau called Makoloa.
Thence, the boundary between these two lands runs mauka to Lapo (Kuhalu is a small pali on Kapapala near the boundary). Lapo is the lower pali of the two.
Thence to Hale o Lono, a hill above the pali.
Thence to Pohakuloa to an ohia tree on the pahoehoe.
Thence to Kulanaokuaiki, a pali Kahuamanu where Kainas man jumped off.
Thence to Aiaawa, ohia trees and awaawa.
Thence to Kaaiwaa or Ahuahoewale, a puu and ahu.
Thence to Kamokukolau, an ohia grove.
Thence the boundary runs to the south side of the crater, Keanakakoi.
Thence to Wekahuna crossing the crater of Kilauea a little to the southwest of the highest point of the bluff (highest bank of the crater).
Thence to Kilomoku, a small grove of koa and ohia; The large grove to the southwest being on Kapapala.
Thence to Ohinale, a long grove of trees in aa.
Thence to Keakaualoa, passing up the center of the aa flow.
Thence along the Hilo side of the aa to Puukulua, two small hills the boundary passing between the two a little Kau and Hilo of Puu Ulaula (as I came along over the road today and was looking at the mountain, I saw I had made a mistake in saying Puu Ulaula was the boundary.)
From Puu Kulua (I do not know what land cuts it off, Waimea perhaps) the boundary runs Kau and Hilo to Kaamamauloa an aa flow on the Hilo side of the mountain. Cannot say where it is exactly as it is a long time since I have been there. There the boundary turns makai towards Kilauea to the southwest side of Kipuu, the hill mauka of Kulani.
Thence makai along Olaa to Kaloulukeapiha.
Thence to Kaloi an open spot in the woods.

Thence to Kaolapalapa, a pali at the road.
Thence along the road to Pohakuloa junction of the roads to Hilo and Keauhou.
Thence along the road along Keaau to Kaluaike, a crater on the east side of the road on Kahaualea.
Thence along Kahaualea along the road to Kamamakalei, a large ohia on the Kau side of the road.
Thence makai along the road to Kilohana junction of Keauhou and Puna roads.
Thence along the land of Apua along the road to Ohiakuapuu, a cave.
Thence through the bush to Kuehu, a cave on the road from Kau to Panau.
Thence to Opuohau, a cave.
Thence to Pali o Keawe to a kukui tree on the side of the pali.
Thence to Keamoku, a small flow of aa on the pahoehoe; the aa on Apua boundary is on the southwest side of it.
Thence to Hinanuhi, a pali from which you can see the seashore.
Thence down the pali to Kealaakahewahewa, an ahu at the makai road to Puna and Kau.
Thence to Okioki ahu, a pile of stones at the seashore, two piles of stones and a mawae.
The land of Keauhou is bounded on the makai side by the sea and has ancient fishing rights extending out to sea.

Kaniakahanau is the high pali above Lapo on the southwest side of Kapapala. I remember a cave called Kapukalua. It is above Kilomoku on the pahoehoe. Oiloli is a grove of trees in the aa. Ohiaale is the true boundary and is on the Hilo side of Oiloli (witness is rested 10 minutes to give him an opportunity to think it over). The true boundary between Kapapala and Keauhou is at Puu Ike, a small hill between Puu Ulaula and Puu Kulua on the eastern slope of 'Mauna Loa. Kaolapalapa is the pali above the volcano road on the makai side as you go towards the junction of the Keauhou and Hilo road. Kaloi is on Keauhou. There used to be a road from Keauhou to Kilauea, passing Kamokukolau and coming along Kupinae at the foot of Makaulii pali. I have never heard that that road is the boundary between Keauhou and Kahaualea.

COPY

The ahupuaa of Keauhou, District of Kau. October 27, 1873.

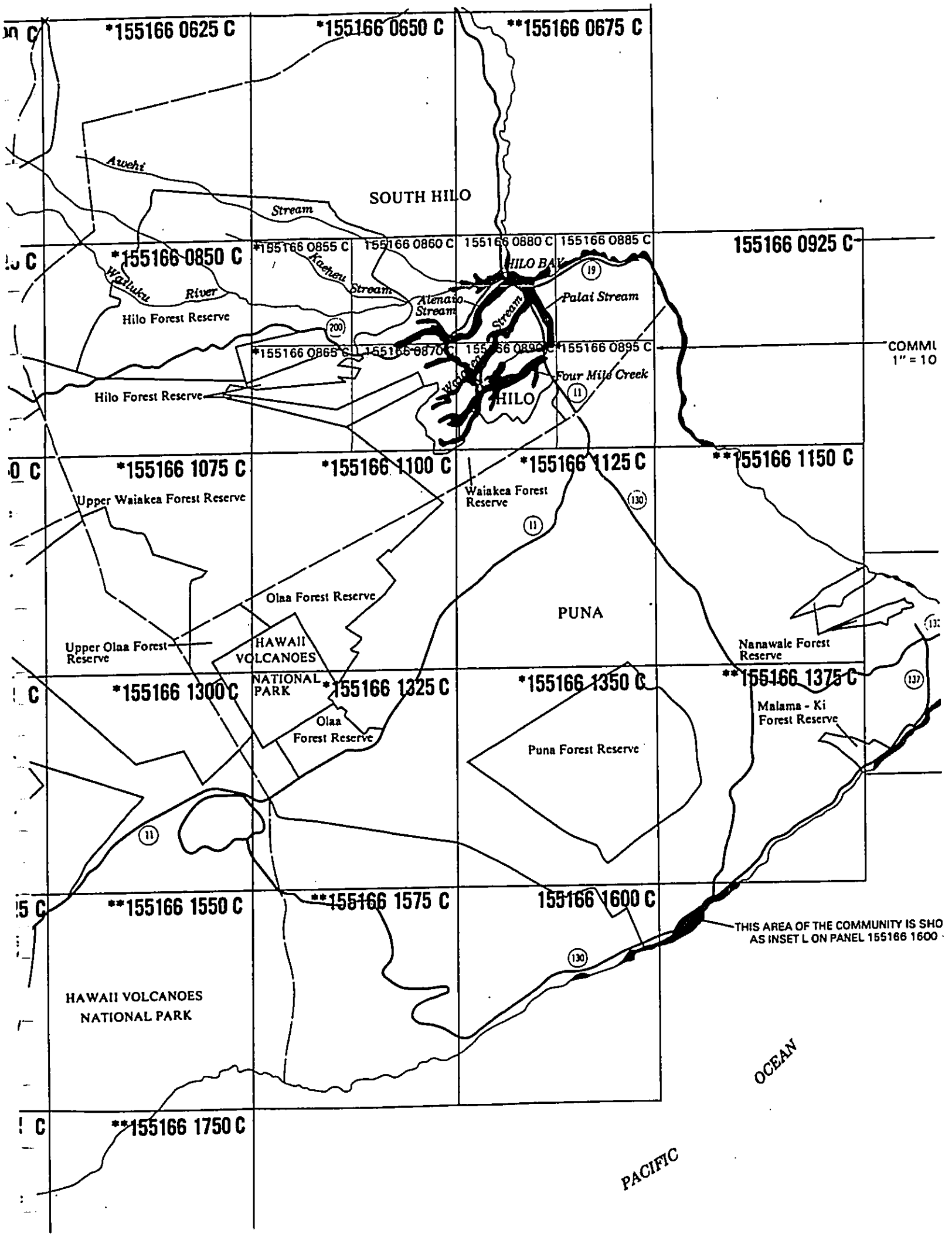
Keliilohi K. Sworn

I was born at Keauhou ili of Kapapala at the time of Okuu and lived there til 8 years since. I now live in Hilo. Am a kamaaina of Keauhou and know its boundaries. My kupuna and parents, (Kaialii) told me the boundaries. Keauhou is bounded at shore on the Hilo side by the land of Apua. Along a pile of stones called Okioki aho is on the boundary at the seashore.
Thence mauka to Papaakiikii on Oioina on the makai pali.
Thence to Kokoa ahu, a cave with waterholes.
Thence to Keaumoku, an old kauhale.
Thence to Poliokeawe, a kauhale and kukui tree on top of the pali.
Thence to Kapuulei, an old kauhale.
Thence to Opuohau, a cave.
Thence to Kuehu, a kauhale and cave with waterholes on Apua at the road from Kau to Puna.
Thence to Ohiakuapu, a cave where the boundary strikes the road from Keauhou to Kilauea.
Thence to Kalāi, the junction of the Keauhou and Puna roads, the mauka corner of Apua.
Thence Keauhou. I have always been told is bounded by Kahaualea.
Thence the boundary runs up the road to a large ohia tree and two mounds on each side of the road. This place is called Namanuakalei.
Thence to Kilohana, a resting place, palipali, and ohia tree.
Thence to Mawaeholopa, a crack in the road where sticks are laid across to form a bridge.
Thence to Kaluaiki, a crater on the Hamakua side of the road. I have heard that this crater is on Kahaualea.
Thence to Pohakuloa which is a junction of the Hilo, Puna and Kau roads.
Thence along the land of Olaa towards Kulani hill to a place called Kalai. Two open spots in the woods about as large as the courthouse yard. The one toward Hamakua being the smallest covered with hapuu and ferns.
Thence to Kaloulukea, a palm tree.
Thence to Kulani hill.
Thence to Namaunamaka, a place where we used to catch birds.
Thence along the land of Waiakea to Kiipu, a hill.
Thence to Kaamamauloa aa about as far as from here to Kalepolepo above the woods. This is as far as I know the boundaries. I have heard that Waiakea bounds it on the Hamakua side. There is a large mawae there that runs mauka and

makai.
Thence, the boundary runs up the mountain to Puumahoe called Puu Ulaula and Puu Iki at the junction of Keauhoua and Kapapala. Kapapala bounds this land on the Kau side. The boundary at shore is at teh eastern base of a hill called Kuhalu.
Thence to Lapo.
Thence to Kalakuono.
Thence to the Kau side of Hale o Lono.
Thence to Limahina.
Thence to Kapuuwai, a water cave.
Thence to Kulonokuaiki, where Kainas man was killed by jumping off of the pali.
Thence to Aiaawa.
Thence to Kahaualoa, at the road to Kilauea.
Thence to Wepiipaa, a pali on the Kau side of Keanakaakoi. Kamokukolau is on Keauhou.
Thence to Kilauea, passing around the south end of the crater Wekahuna.
Thence mauka towards the mountain to Puaulu aa, to Kauhiulii, the aa belonging to Kapapala and aa to this land.
Thence to Kahiolo, aa, thence to Mokuloa, a large aa flow.
Thence to Kapuna, a grove of small koa in the aa.
Thence to Kahoaka, a grove of koa above Keawewai.
Thence to Puu Laula between this and Puu Ike.

APPENDIX 5

DOCUMENTS RELATING TO THE FLOOD OF 1990


*155166 0625 C
*155166 0650 C
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SOUTH HILO
Awehi
Stream
*155166 0850 C
*155166 0855 C
155166 0860 C
155166 0880 C
155166 0885 C
155166 0925 C
Wailuku
River
Hilo Forest Reserve
Kaeheu
Stream
Alenaio
Stream
HILO BAY
Palai Stream
Stream
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155166 0870 C
*155166 0895 C
Four Mile Creek
HILO
Hilo Forest Reserve
*155166 1075 C
*155166 1100 C
*155166 1125 C
**155166 1150 C
Upper Waiakea Forest Reserve
Waiakea Forest Reserve
Olaa Forest Reserve
PUNA
Upper Olaa Forest Reserve
HAWAII VOLCANOES NATIONAL PARK
Nanawale Forest Reserve
*155166 1300 C
*155166 1325 C
*155166 1350 C
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Olaa Forest Reserve
Malama - Ki Forest Reserve
Puna Forest Reserve
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THIS AREA OF THE COMMUNITY IS SHO
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HAWAII VOLCANOES NATIONAL PARK
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VOLCANO COMMUNITY ASSOCIATION

DEC. 7 , 1990

NEWSLETTER # 20

FESTIVAL OF JOY IN VOLCANO

Everyone is invited to Volcano's "Christmas Festival of Angels and Elves" on Sunday, Dec. 23, at 7 p.m. at Cooper Center. All you have to bring is your yuletide spirit and a dessert.

The evening's program will feature chamber music by the Volcano Chamber Players, adult and children's choir, ballet dancing, story-telling by Peter Charlot, and community Christmas caroling.

All this will be followed by a dessert party and hot cider. For more information call Susan McGovern at 967-7680 evenings.

VILLAGE FLOODS DURING RECENT RAINS

Last month's rain and the flooding it caused has become a hot issue in Volcano. To handle the complaints, the Long Range Planning Committee of the VCA will hold a town meeting Dec. 10 at 7 p.m. at Cooper Center.

The 52 inches of rainfall we did not enjoy during November, most of it in a four day period, did damage all the way from Wright Road to Iiwi St. Homes stood so deep in water that residents could not get out, driveways washed away along with garbage cans and lawn chairs, and cars stood in water up to their floor boards.

Why this flooding problem that never was before? And what can be done about it? This is the agenda at the town meeting.

POSTMASTER RETIRES AFTER 35 YEARS

Kazu, full name Kazumasa Okamoto, our postmaster for the past 35 years, retired last week. He will be missed in a million ways. Everyone in Volcano has a host of memories of how Kazu was much more to everyone of us than just a post office civil service worker.

There was no post office in Volcano prior to President Dwight Eisenhower created one and appointed Kazu the first postmaster. That first P.O. was in the space now housing the defunct restaurant at the Village General store.

Before becoming postmaster, Kazu was on the staff of the old Naniloa Hotel in Hilo. He has lived in Volcano since 1938 where his father and uncle had a farm at the end of Haunani Road. Their first crop was cucumbers.

Over the years Kazu has been active Boy Scouts and has won many national awards. His hobby is the Bonzai culture.

Filling Kazu's position at Volcan apparently will not be easy. Fou postmasters on the Big Island retired this year, and the Postmaster General (who now appoints postmasters instead of th President) is having a hard time findin qualified people. Bob Hirano of the Pahal post office is officer in charge of Volcan until a new postmaster is found.

VCA MEETING

Christian

C. WILLIAM CHIKASUYE
Attorney at Law

180 Kinoole Street
Suite 116
Hilo, Hawaii 96720
(808) 969-1102

November 12, 1991

Mr. Jeff McCall
Puna Soil and Water Conservation District
P. O. Box 752
Volcano, Hawaii 96785

Mr. Bud Doty
Puna Soil and Water Conservation District
P. O. Box 917
Volcano, Hawaii 96785

Gentlemen:

Per the Center for Alternative Dispute Resolution mediation conference which we attended on July 23, 1991, please consider this letter as a formal request by the undersigned organizations for a hydrology/drainage study of the Volcano village and surrounding upslope ranch lands as an initial step in seeking solutions to the flooding and drainage problems which were the focus of the above-referenced conference.

This letter is being circulated among the various organizations listed below and I would appreciate it if any response or acknowlegement to this request could be copied and sent to each person signing this letter for dissemination to the various interested organizations and their membership. Thank you very much.

[redacted]

C. William Chikasuye
Attorney for Ohia Ranch
(Paul Hirota & Mary Ellen Wong)

Volcano Community Association: _____
Bonnie Goodell
title: _____

Iiwi Road Association: _____
Sheri Siegel
title: _____

CENTER FOR
ALTERNATIVE DISPUTE RESOLUTION

Office of the Administrative Director of the Courts
The Judiciary • State of Hawaii

Post Office Box 2560 Honolulu, Hawaii 96804

July 26, 1991

Mr. David Blackmeer
P.O. Box
Volcano, HI 96785
Phone:

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P.O. Box
Mountain View, HI 96771
Phone: 969-1102
Home:

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Kau Soil and Water Conservation District
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Volcano, HI 96785
Phone: ~~967-8150~~ 985-8912

Ms. Bonnie Goodell
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Phone:

Ms. Martha Lockwood
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Volcano, HI
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Private Addresses and Telephone Numbers Omitted For EA Publication

Judiciary

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Private Addresses and Telephone Numbers Omitted For EA Publication

Mr. Ira Ono

Volcano, HI 96785
Phone: !

Mr. Bill Rosehill
Bishop Estate & Kamehameha Schools
78-6831 Alii Drive Suite #232
Kailua-Kona, Hawaii 96740
Phone: 322-6088
Fax: 322-9446

Ms. Sheri Siegal
Iiwi Road Association
P.O. Box 201
Volcano, Hawaii 96785

Tim Tunis
P.O. Box
Volcano, HI 96785
Phone:

Ladies and Gentlemen:

Thank you for attending the mediation conference on July 23, 1991 at the Cooper Center in Volcano. This letter summarizes the agreements and understandings that I heard at the meeting. Please note that the comments in items #1 and #2 are taken almost verbatim from the newsprint notes generated during the first part of the discussion.

I. Assumptions. Although there are different views about what specifically has caused the flooding on Iiwi Road, you all agree -- for initial discussion purposes -- on the following assumptions:

1. There have been at least three unusually severe storms in a row.

2. There has been a considerable amount of growth and development along Iiwi Road.

3. At least some of the water that is causing the problems iscoming from outsidethe Bishop Estate lands.

4. Athough it can be interpreted in different ways, the law basically seems to say that you cannot change the pattern of water flow or add to its velocity.

5. The vegetation and canopy in the area has diminished over the years.

6. There haven't been any good drainage studies in the Puna area.

7. The flooding problem seems to be increasing.

8. Both the Bishop Estate and Paul Hirota have legitimate economic interests and need to make money.

[redacted]. Although there are different ideas about what be causing the flooding on Iiwi Road, you all generally agreed that the following information would be useful and could potentially improve your collective understanding of the problems:

1. Additional documentation about historic rainfall.

2. Additional information about Paul Hirota's conservation plan.

3. A hydrology and drainage study of the area, including estimations of increases.

III. Agreements/Next Steps. You specifically agreed as follows:

1. Bonnie Goodell and Bill Chikasue will initiate a draft and circulate to all persons at the meeting a proposed joint letter that would go out under the name of Volcano Community Association, Bishop Estate (lessor), Paul Hirota (lessee) and the Iiwi Road Association. This letter will request the Soil and Water Conservation District (SWCD) to allocate resources and conduct a hydrology/drainage study of the area. Jeff McCall agreed that he would advise on language if asked.

2. All persons attending agreed that they would, as individuals, write personal letters making the same request.

3. Bud Doty and Jeff McCall agreed that they would support this request and raise the request internally.

4. All parties agreed to enlist, via copy of this letter to Mr. Roger Evans, the cooperation of the Department of Land

Natural Resources in securing such a study.

5. Sheri Siegel agreed that, should anyone deem it desireable as a way of improving everyone's understanding of the topography the land, she would take the initiative to contact Bill Rosehill and Paul Hirota to organize a walking tour of the Bishop Estate land now leased to Paul Hirota. Paul and Bill agreed that they would support and cooperate completely with such a tour.

6. Bill Chikasuye and Paul Hirota agreed to send a letter to the Volcano Community Association reaffirming their intent to bulldoze only for the control of noxious plants and, wherever possible, to protect chia, hapuu, and other native plants.

These are my understandings of the outcomes of our meeting. If I have misstated or failed to properly recollect any of these, I urge you to forward to all persons attending the meeting such additions or corrections as may be needed. Even though there may not be any short-term solutions to the flooding problems, I sensed good [illegible] a genuine desire to avoid future misunderstandings. I strongly encourage you to stay in communication with each other.

In a few weeks I will be sending you a brief evaluation form about the meeting which we are required to use. I hope you'll fill it out and return it. In the meantime, thank you for taking the time out to come to the meeting.

Sincerely,

PETER S. ADLER
Director

cc: Mr. Roger Evans
Department of Land and Natural Resources
Kalanimoku Building
1151 Punchbowl Street
Honolulu, Hawaii 96813

APPENDIX 6

NRCS CONSERVATION PLAN

USDA Natural Resources Conservation Service
Hilo Field Office
154 Waianuenue Avenue, Room 322
Hilo, HI 96720
808-933-8358

E. Miranda
Soil Conservationist

Conservation Plan

MRS. MARY ELLEN WONG
P.O. Box 250
VOLCANO, HI 96785

Objective: To improve pastures for cattle production, wildlife habitat; to protect and enhance native forest, and to educate children about our native forest and it's compatibility with a sound livestock management system.

Uila Ranch (TMK:9309-9-01:17) is a 1020 acre property that is leased from Kamehameha Schools/Bishop Estate. This ranch was formerly called Ohia Ranch. This ranch is located in the Volcano Community. Elevation is approx. 3814' - 4065'. Annual rainfall is approx. 75". Cooperator raises beef cattle livestock. Soil Series is comprised of Puaulu Silt Loam (PPC) and Manu Silt Loam (rMUB).

Grazed Forest

Tract: 2111

BRUSH MANAGEMENT

control undesirable woody vegetation by mechanical, chemical, or biological means to improve plant cover for livestock, wildlife, and erosion control. Yellow Himalayan Raspberry, Fire Tree, Firethorn, Glory Bush, and Strawberry Guava are the main target species of noxious weeds.
Kamehameha Schools/Bishop Estate (KSBE) wants to install a fenceline to split paddock 3 into 3A and 3B, and a 85 acre portion of paddock 4 into 4A and 4B. The intent is to preserve the mature native ohia trees for educational puposes, as well as for native wildlife. Cattle grazing will be the main resource tool to control invasive weeds like Kahili ginger, white ginger, and other unwanted forbs, shrubs, and grasses within the planned areas of paddocks P3A, P3B, P4A, P4B, and P4. No mechanical bulldozers will be used to clear land unless to open a path for installing the future fenceline that would split paddock P3 into P3A & P3B, and this also will apply to an 85 acre section of paddock 4 that will be designated as P4A & P4B. The lay-out of the fenceline will be re-routed if any old mature ohia or koa trees lie within the fenceline's path.

Field	Planned Amount	Month	Year	Applied Amount	Date
P3A	60.0 ac.	10	2007		
Total:	60.0 ac.				

BRUSH MANAGEMENT

control undesirable woody vegetation by mechanical, chemical, or biological means to improve plant cover for livestock, wildlife, and erosion control.

Field	Planned Amount	Month	Year	Applied Amount	Date
P3B	60.0 ac.	10	2007		
P4	314.0 ac.	10	2007		
P4A	40.0 ac.	10	2007		
P4B	45.0 ac.	10	2007		
Total:	459.0 ac.				

FENCE

Construct a fence for use as a barrier to wildlife, livestock, or people.

Field	Planned Amount	Month	Year	Applied Amount	Date
P3A	3,800.0 ft.	7	2007		
P4	3,900.0 ft.	7	2007		
P4A	500.0 ft.	7	2007		
P4B	3,000.0 ft.	7	2007		
Total:	11,200.0 ft.				

PASTURE AND HAY PLANTING

To reduce erosion, to produce high-quality forage,and to adjust to land use. Also establishing and reestablishing long term stands of adapted species of perenial, biennial, or reseeding forage plants. The understory of the forested areas of P3A, P3B, P4A, P4B, and P4 will slowly be planted in Kikuyu grass to improve forage quality and capacity; improve organic matter; maintain erosion control, and provide wildlife habitat for native and game birds.

Field	Planned Amount	Month	Year	Applied Amount	Date
P3A	60.0 ac.	10	2007		
Total:	60.0 ac.				

PASTURE AND HAY PLANTING

To reduce erosion, to produce high-quality forage,and to adjust to land use. Also establishing and reestablishing long term stands of adapted species of perenial, biennial, or reseeding forage plants.

Field	Planned Amount	Month	Year	Applied Amount	Date
P3B	60.0 ac.	10	2007		
P4	314.0 ac.	7	2007		
P4A	40.0 ac.	10	2007		
P4B	45.0 ac.	10	2007		
Total:	459.0 ac.				

PIPELINE

Install a pipeline for livestock water at location shown on plan map.

Field	Planned Amount	Month	Year	Applied Amount	Date
P3B	500.0 ft.	7	2007		
P4	200.0 ft.	6	2000		
P4B	300.0 ft.	7	2007		
Total:	1,000.0 ft.				

NUTRIENT MANAGEMENT

Manage the amount, form, placement and timing of plant nutrient application.
Rancher will take soil and plant tissue samples every two years to be analysed by CES/Agricultural Diagnostic Service Center. The results will assist the rancher to monitor, assess, and make sound decisions to maintain soil and plant health.

Field	Planned Amount	Month	Year	Applied Amount	Date
P3A	60.0 ac.	2	2007		
Total:	60.0 ac.				

NUTRIENT MANAGEMENT

Manage the amount, form, placement and timing of plant nutrient application.

Field	Planned Amount	Month	Year	Applied Amount	Date
P3B	60.0 ac.	2	2007		
P4	314.0 ac.	2	2007		
P4A	40.0 ac.	2	2007		
P4B	45.0 ac.	2	2007		
Total:	459.0 ac.				

PEST MANAGEMENT

Herbicides will be used in the early stages of tree growth to control weeds. A diligent effort will be made in minimizing any adverse impacts to the natural resource base and adjacent communities. All Federal, State, and County regulations concerning pesticide use will be followed.
Chemical application and grazing pressure will be the main strategy to control invasive noxious weeds like Kahili ginger, yellow raspberry, strawberry quava, etc.

Field	Planned Amount	Month	Year	Applied Amount	Date
P3A	60.0 ac.	2	2008		
Total:	60.0 ac.				

PEST MANAGEMENT

Herbicides will be used in the early stages of tree growth to control weeds. A diligent effort will be made in minimizing any adverse impacts to the natural resource base and adjacent communities. All Federal, State, and County regulations concerning pesticide use will be followed.

Field	Planned Amount	Month	Year	Applied Amount	Date
P3B	60.0 ac.	2	2008		
P4	314.0 ac.	2	2008		
P4A	40.0 ac.	2	2008		
P4B	45.0 ac.	2	2008		
Total:	459.0 ac.				

TROUGH OR TANK

Install a water drinking facility for livestock and/or wildlife.

Field	Planned Amount	Month	Year	Applied Amount	Date
P3B	1.0 no.	7	2007		
P4	1.0 no.	6	2000		
P4B	1.0 no.	7	2007		
Total:	3.0 no.				

UPLAND WILDLIFE HABITAT MANAGEMENT

CREATING, MAINTAINING, OR ENHANCING AREAS, INCLUDING WETLAND, FOR FOOD AND COVER FOR UPLAND WILDLIFE. PURPOSE: TO ENHANCE HABITAT SUITABLE FOR SUSTAINING DESIRED KINDS OF UPLAND WILDLIFE.
Maintaining control of noxious weeds beneath the canopy of the old mature ohia and koa trees will provide better forage and roosting habitat for native and game birds like Kahlij and Ringneck pheasants, and Wild Turkeys.

Field	Planned Amount	Month	Year	Applied Amount	Date
P3A	60.0 ac.	10	2007		
Total:	60.0 ac.				

UPLAND WILDLIFE HABITAT MANAGEMENT

CREATING, MAINTAINING, OR ENHANCING AREAS, INCLUDING WETLAND, FOR FOOD AND COVER FOR UPLAND WILDLIFE. PURPOSE: TO ENHANCE HABITAT SUITABLE FOR SUSTAINING DESIRED KINDS OF UPLAND WILDLIFE.

Field	Planned Amount	Month	Year	Applied Amount	Date
P3B	60.0 ac.	10	2007		
P4	314.0 ac.	10	2002		
P4A	40.0 ac.	10	2007		
P4B	45.0 ac.	10	2007		
Total:	459.0 ac.				

FOREST STAND IMPROVEMENT

Manipulate specie composition by removing selected trees and understory vegetation. Undesirable removal of noxious weeds like Fire Tree, Strawberry Guava, etc., will improve forage for woodland grazing.

Field	Planned Amount	Month	Year	Applied Amount	Date
P3A	60.0 ac.	2	2008		
Total:	60.0 ac.				

FOREST STAND IMPROVEMENT

Manipulate specie composition by removing selected trees and understory vegetation. Removal of noxious weeds such as yellow himalayan raspberry, fire tree, firethorn, tibouchina, and strawberry guava are the main target species.

Field	Planned Amount	Month	Year	Applied Amount	Date
P3B	60.0 ac.	1	2008		
P4	314.0 ac.	2	2008		
P4A	40.0 ac.	2	2008		
P4B	45.0 ac.	2	2008		
Total:	459.0 ac.				

PRESCRIBED GRAZING

Grazing will be managed according to a schedule that meets the needs of the soil, water, air, plant and animal resources and the objectives of the resource manager.

Field	Planned Amount	Month	Year	Applied Amount	Date
P3A	60.0 ac.	1	2008		
P3B	60.0 ac.	1	2008		
P4	314.0 ac.	1	2008		
P4A	40.0 ac.	1	2008		
P4B	45.0 ac.	1	2008		
Total:	519.0 ac.				

Headquarters

Tract: 2111

COVER AND GREEN MANURE CROP

Permanent vegetative cover will be established from volunteer grass and legume species. Other natural cover species will be allowed to grow provided they are not a noxious species.

Field	Planned Amount	Month	Year	Applied Amount	Date
HQ	1.0 ac.	6	2000		
Total:	1.0 ac.				

POND

Construct pond to provide water for livestock, and for other purposes at location shown on plan map. An existing resevoir is adequate to meet the needs of the ranch for watering troughs and fire control.

Field	Planned Amount	Month	Year	Applied Amount	Date
HQ	1.0 no.	6	2000		
Total:	1.0 no.				

WATER HARVESTING CATCHMENT

A FACILITY FOR COLLECTING AND STORING PRECIPITATION. PURPOSE: TO PROVIDE WATER FOR LIVESTOCK, FISH, AND WILDLIFE, RECREATION, OR OTHER PURPOSES.
An existing water harvesting system is adequate to meet the ranchers need to provide water to their resevoir.

Field	Planned Amount	Month	Year	Applied Amount	Date
HQ	1.0 no.	6	2000		
Total:	1.0 no.				

Pasture

Tract: 2111

BRUSH MANAGEMENT

control undesirable woody vegetation by mechanical, chemical, or biological means to improve plant cover for livestock, wildlife, and erosion control.
Target species for control are Yellow Himalayan Raspberry, Fire Tree, Fire Thorn, and Glory Bush. A mechanical bulldozer will grub out heavy thickets of noxious weed in flat and easy terrain areas of paddocks P2, P5, P6, and P7. Chemical control will address areas where heavy thickets of noxious weeds surround any old and large ohia and koa trees. Pasture maintenance using Round-up and Remedy will be the primary herbicides to combat any new re-growth of noxious weeds. Portions of paddock P2, P5, and P7 are located in areas designated conservation limited and conservation general subzones by Hawaii State Dept. of Land and Natural Resources (DLNR). Paddock P6 location is designated conservation general subzone by Hawaii State DLNR.

Field	Planned Amount	Month	Year	Applied Amount	Date
P2	80.0 ac.	10	2004		
Total:	80.0 ac.				

BRUSH MANAGEMENT

control undesirable woody vegetation by mechanical, chemical, or biological means to improve plant cover for livestock, wildlife, and erosion control.

Field	Planned Amount	Month	Year	Applied Amount	Date
P5	105.0 ac.	10	2003		
P6	160.0 ac.	10	2002		
P7	155.0 ac.	10	2004		
Total:	420.0 ac.				

POND

To ensure that an adequate supply of water is availiable, where tanks and catchment are not a feasible alternative to contain the larger volume that is required.
An existing resevoir is adequate to meet the needs of the ranch for watering troughs and fire control.

Field	Planned Amount	Month	Year	Applied Amount	Date
P7	1.0 no.	6	2000		
Total:	1.0 no.				

FENCE

Construct a permanent power fence or conventional fence to control livestock movement at location shown on plan map. Esixting fences are sufficient to control movement of cattle.

Field	Planned Amount	Month	Year	Applied Amount	Date
P2	3,500.0 ft.	6	2000		
P5	3,000.0 ft.	6	2000		
P6	5,000.0 ft.	6	2000		
P7	5,000.0 ft.	6	2000		
Total:	16,500.0 ft.				

PASTURE AND HAY PLANTING

To reduce erosion, to produce high-quality forage,and to adjust to land use. Also establishing and reestablishing long term stands of adapted species of perenial, biennial, or reseeding forage plants. Areas that are exposed to bare soil after grubbing of noxious weeds will be fertilized and planted with Kikuyu grass and leguminous seeds.

Field	Planned Amount	Month	Year	Applied Amount	Date
P2	80.0 ac.	10	2004		
Total:	80.0 ac.				

PASTURE AND HAY PLANTING

To reduce erosion, to produce high-quality forage,and to adjust to land use. Also establishing and reestablishing long term stands of adapted species of perenial, biennial, or reseeding forage plants.

Field	Planned Amount	Month	Year	Applied Amount	Date
P5	105.0 ac.	10	2003		
P6	160.0 ac.	10	2002		
P7	155.0 ac.	10	2004		
Total:	420.0 ac.				

PIPELINE

Install a pipeline for livestock water at location shown on plan map. Existing pipeline is sufficient to provide water to cattle.

Field	Planned Amount	Month	Year	Applied Amount	Date
P2	1,000.0 ft.	6	2000		
P5	700.0 ft.	6	2000		
P6	2,100.0 ft.	6	2000		
P7	1,200.0 ft.	6	2000		
Total:	5,000.0 ft.				

NUTRIENT MANAGEMENT

Manage the amount, form, placement and timing of plant nutrient application.
Rancher will take soil and plant tissue samples every two years to be analysed by CES/Agricultural Diagnostic Service Center. The results will assist the rancher to monitor, assess, and make sound decisions to maintain soil and plant health.

Field	Planned Amount	Month	Year	Applied Amount	Date
P2	80.0 ac.	10	2004		
Total:	80.0 ac.				

NUTRIENT MANAGEMENT

Manage the amount, form, placement and timing of plant nutrient application.

Field	Planned Amount	Month	Year	Applied Amount	Date
P5	105.0 ac.	10	2003		
P6	160.0 ac.	10	2002		
P7	155.0 ac.	10	2004		
Total:	420.0 ac.				

PEST MANAGEMENT

Herbicides will be used in the early stages of tree growth to control weeds. A diligent effort will be made in minimizing any adverse impacts to the natural resource base and adjacent communities. All Federal, State, and County regulations concerning pesticide use will be followed.
Chemical applications will be used to combat re-growth of targeted noxious weeds.

Field	Planned Amount	Month	Year	Applied Amount	Date
P2	80.0 ac.	10	2002		
Total:	80.0 ac.				

PEST MANAGEMENT

Herbicides will be used in the early stages of tree growth to control weeds. A diligent effort will be made in minimizing any adverse impacts to the natural resource base and adjacent communities. All Federal, State, and County regulations concerning pesticide use will be followed.

Field	Planned Amount	Month	Year	Applied Amount	Date
P5	105.0 ac.	10	2003		
P6	160.0 ac.	10	2002		
P7	155.0 ac.	10	2004		
Total:	420.0 ac.				

TROUGH OR TANK

Install a water drinking facility for livestock and/or wildlife.

Existing troughs are adequate to meet the livestocks watering needs.

Field	Planned Amount	Month	Year	Applied Amount	Date
P2	1.0 no.	6	2000		
Total:	1.0 no.				

TROUGH OR TANK

Install a water drinking facility for livestock and/or wildlife.

Field	Planned Amount	Month	Year	Applied Amount	Date
P5	1.0 no.	6	2000		
P6	1.0 no.	6	2000		
P7	1.0 no.	6	2000		
Total:	3.0 no.				

UPLAND WILDLIFE HABITAT MANAGEMENT

CREATING, MAINTAINING, OR ENHANCING AREAS, INCLUDING WETLAND, FOR FOOD AND COVER FOR UPLAND WILDLIFE. PURPOSE: TO ENHANCE HABITAT SUITABLE FOR SUSTAINING DESIRED KINDS OF UPLAND WILDLIFE.

Removal of noxious weeds within the pasture will enhance wildlife habitat in terms of forage quality and capacity for native and game birds that are known to frequent the Volcano area.

Field	Planned Amount	Month	Year	Applied Amount	Date
P2	80.0 ac.	5	2005		
Total:	80.0 ac.				

UPLAND WILDLIFE HABITAT MANAGEMENT

CREATING, MAINTAINING, OR ENHANCING AREAS, INCLUDING WETLAND, FOR FOOD AND COVER FOR UPLAND WILDLIFE. PURPOSE: TO ENHANCE HABITAT SUITABLE FOR SUSTAINING DESIRED KINDS OF UPLAND WILDLIFE.

Field	Planned Amount	Month	Year	Applied Amount	Date
P5	105.0 ac.	5	2004		
P6	160.0 ac.	5	2003		
P7	155.0 ac.	5	2005		
Total:	420.0 ac.				

PRESCRIBED GRAZING

Grazing will be managed according to a schedule that meets the needs of the soil, water, air, plant and animal resources and the objectives of the resource manager.

Field	Planned Amount	Month	Year	Applied Amount	Date
P2	80.0 ac.	10	2005		
P5	105.0 ac.	10	2004		
P6	160.0 ac.	10	2003		
P7	155.0 ac.	10	2005		
Total:	500.0 ac.				

CERTIFICATION OF PARTICIPANTS

Cooperator Mary Ellen Wong 5/23/02

MRS. MARY ELLEN WONG Date

CERTIFICATION OF:

District Conservationist

Harry S. Toki 6/05/02

Harry S. Toki Date

CONSERVATION DISTRICT

Ka'u SWCD 6/5/02

Date

NONDISCRIMINATION STATEMENT

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

The following conservation practices are proposed for the individual fields:

Conservation practice	2	3A	3B	4	4A	4B	5	6	7	HQ
Brush management	x	x	x	x	x	x	x	x	x	
Cover & Green Manure crop										x
Fencing	3500'	3800'		3900'	500'	3000'	3000'	5000'	5000'	
Forest stand improvement		x	x	x	x	x				
Nutrient & pest management	x	x	x	x	x	x	x	x	x	
Pasture & hay planting	x	x	x	x	x	x	x	x	x	
Pipeline	1000'		500'	200'		300'	700'	2100'	1200'	
Pond									x	x
Prescribed grazing	x	x	x	x	x	x	x	x	x	
Trough or tank	x		x	x		x	x	x	x	
Upland wildlife habitat	x	x	x	x	x	x	x	x	x	
Water Harvesting & Catchment										x

Not all practices will be installed at the same time. . Some of the practices have already been installed, others will be installed very soon in the future.

Brush management will control woody vegetation by chemical or biological means to improve plant cover for livestock, wildlife and erosion control.

The fence line dividing paddocks 3 and 4 into A and B paddocks is to preserve the mature native `ōhi`a trees for educational purposes, as well as for native wildlife. Cattle grazing will be the main resource tool to control invasive weeds and unwanted forbs, shrubs and grasses within the paddocks. No mechanical bulldozers will be used to clear land unless to open paths for installing fence lines. The lay-out of the fence line will be re-routed if any old mature `ōhi`a or koa trees are found within the proposed fence line path.

Conservation practice	2	3A	3B	4	4A	4B	5	6	7	HQ
Brush management	10/04	10/07	10/07	10/07	10/07	10/07	10/03	10/02	10/04	
Cover & Green Manure crop										6/00
Fencing	6/00	7/07		7/07	7/07	7/07	6/00	6/00	6/00	
Forest stand improvement		2/08	1/08	2/08	2/08	2/08				
Nutrient management	10/04	2/07	2/07	2/07	2/07	2/07	10/03	10/02	10/04	
Pasture & hay planting	10/04	10/07	10/07	10/07	10/07	10/07	10/03	10/02	10/04	
Pest Management	10/02	2/08	2/08	2/08	2/08	2/08	10/03	10/02	10/04	
Pipeline	6/00		7/07	6/00		7/07	6/00	6/00	6/00	
Pond									6/00	6/00
Prescribed grazing	10/05	1/08	1/08	1/08	1/08	1/08	10/04	10/03	10/05	
Trough or tank	6/00		7/07	6/00	7/07		6/00	6/00	6/00	
Upland Wildlife Habitat Management	5/05	10/07	10/07	10/07	10/07	10/07	5/04	5/03	5/05	
Water Harvesting Catchment										6/00