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November 12, 2004

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

RE: Final Environmental Assessment (FEA) and Finding of No Significant Impact (FONSI) for the Keauhou Ranch Upper Boundary Protective Fencing Project, TMKs (3) 9-9-1:4; (3) 3-8-1:1, Island of Hawai'i

Dear Ms. Salmonson:

The Draft Environmental Assessment for the Keauhou Ranch Upper Boundary Protective Fencing Project on the Big Island was published in the OEQC Bulletin of September 23, 2004. During the public comment period, eleven written comments were received. After review of the public comments and of the Final Environmental Assessment, the Division of Forestry and Wildlife has determined that this project will not have significant negative effect on the environment. Thus, we have issued a Finding of No Significant Impact. Please publish this notice in the next OEQC Environmental Notice (November 23, 2004).

Enclosed are four copies of the Final Environmental Assessment and a completed OEQC publication form. Please call me or Christen Mitchell, DOFAW planner, at 587-0051 if you have any questions.

Sincerely,

PAUL J. CONRY
DOFAW Administrator

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Enclosures

2004-11-23 FONSI
KEAUHOU RANCH UPPER BOUNDARY
PROTECTIVE FENCING PROJECT

FILE COPY

FINAL ENVIRONMENTAL ASSESSMENT

KEAUHOU RANCH UPPER BOUNDARY PROTECTIVE FENCING PROJECT

Boundary between Keauhou Ranch and Mauna Loa Forest Reserve
Ka'ū and North Hilo Districts
Island of Hawai'i

In accordance with
Chapter 343, Hawai'i Revised Statutes

Proposed by:

'Ōla'a-Kīlauea Partnership
P.O. Box 52
Hawai'i National Park, Hawai'i 96718

November 2004

DEC. OF ENVIRONMENT/
QUALITY CONTROL

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PROTECTIVE FENCING PROJECT
KEATHON RANCH UPPER BOUNDARY
2004-11-23 FONSI

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ENVIRONMENTAL
PROTECTION
AGENCY

I. SUMMARY

<u>Project Name</u>	Keauhou Ranch Upper Boundary Protective Fencing Project
<u>Project Location</u>	Boundary area between Keauhou Ranch & Mauna Loa Forest Reserve Ka'ū and North Hilo Districts Island of Hawai'i TMK (3) 9-9-1:4 (Keauhou Ranch: Kamehameha Schools) TMK (3) 3-8-1:1 (Mauna Loa Forest Reserve: State of Hawai'i)
<u>Land Use</u>	Conservation District, Protective Subzone Agricultural District
<u>Applicant</u>	'Ōla'a-Kīlauea Partnership
<u>Landowner</u>	Kamehameha Schools; State of Hawai'i
<u>Approving Agency</u>	State of Hawai'i Department of Land and Natural Resources
<u>Anticipated Determination</u>	Finding of No Significant Impact
<u>Agencies & Organizations Consulted</u>	
Federal:	US Army Garrison Hawai'i, Pōhakuloa Training Area USDA Forest Service USDA Natural Resources Conservation Service US Fish and Wildlife Service, Pacific Islands Field Office US Fish and Wildlife Service, Hakalau Wildlife Refuge US Geological Survey, Biological Resources Division US National Park Service, Hawai'i Volcanoes National Park US Senator Daniel Inouye US Senator Daniel Akaka US Representative Ed Case

State:

Department of Hawaiian Home Lands
Department of Health
Department of Land and Natural Resources
 Division of Conservation and Resources
 Enforcement
 Division of Forestry and Wildlife
 Division of Historic Preservation
 Division of Historic Preservation,
 Hawai'i Island Office
 Land Division
 Office of Conservation and Coastal
 Lands
 State Parks
Department of Public Safety, Kūlani
Correctional Facility
Hawai'i Island Burial Council
Office of Environmental Quality Control
Office of Hawaiian Affairs
Office of Mauna Kea Management, University
of Hawai'i-Hilo
Office of Planning
University of Hawai'i, Environmental Center
University of Hawai'i, Institute for Astronomy

County of Hawai'i:

Office of the Mayor
Department of Public Works
Department of Water Supply
Planning Department

Other Organizations:

'Ahahui Mālama I Ka Lōkahi
Big Island Bird Hunters
Big Island Bow Hunters
Big Island Field Trial Association
Big Island Gun Club
Big Island Gun Dogs
Big Island Trap Club
Bishop Museum, Hawai'i Biological Survey
Conservation Council for Hawai'i
Earthjustice Legal Defense Fund
Hawai'i Audubon Society
Hawai'i County Native Hawaiian Chamber of
Commerce
Hawaiian Civic Club of Hilo
Prince David Kawanānakoā Hawaiian Civic
Club
Hawai'i Electric Light Company (HELCO)

Hawai'i Hunting Advisory Council
Hawai'i Island Archery Club
Hawai'i Island Economic Development Board
Hawai'i Volcanoes National Park Kūpuna
Committee
Hilo Outdoor Circle
Hualalai Archery Club
Hui Mālama I Na Kūpuna o Hawai'i Nei
'Ōlio'ulaokalani Coalition
Kahea – the Hawaiian-Environmental Alliance
Kahu Ku Mauna Council
Kamehameha Schools
Kilauea Sporting Skeet Club
National Wild Turkey Federation
Native Hawaiian Legal Corporation
North Kohala Gun Club
'Ōla'a-Kīlauea Partnership
Pig Hunters of Hawai'i
San Diego Zoo
Sierra Club, Moku Loa Chapter
The Nature Conservancy of Hawai'i
Volcano Community Association
Waimea Outdoor Circle
Wildlife Conservation Association of Hawai'i

Summary of Action

The 'Ōla'a-Kīlauea Partnership proposes the construction of approximately six and a half miles of ungulate-proof fencing along the boundary between Keauhou Ranch, lands owned by Kamehameha Schools, and the Mauna Loa Forest Reserve, owned by the State of Hawai'i. The proposed fencing will protect approximately 30,000 acres of Keauhou Ranch land, including native forest, subalpine habitat, pioneer vegetation in new lava flows, and former pasture targeted for restoration, from feral ungulates (hooved animals). Feral ungulates, especially mouflon sheep, are the most critical threat to native species and habitat at Keauhou. These animals consume and trample native plants, create conditions favorable for invasive weed infestation and establishment, and disrupt soil nutrient cycling. The proposed barrier fence is needed to prevent mouflon ingress and to effectively remove feral ungulates from the Ranch property, and its construction will protect important natural resources and support restoration activities on Ranch land. This fencing will also support conservation efforts in the region beyond the Ranch boundaries by protecting adjacent fenced areas within Hawai'i Volcanoes National Park and Kīlauea Forest from mouflon sheep. Over the long-

term, this fencing will prevent the decline of intact native forest and contribute towards the recovery of 16 endangered plant and animal species.

The proposed fencing is part of the ongoing conservation efforts of the 'Ōla'a-Kīlauea Partnership, members of which include Kamehameha Schools, the Division of Forestry and Wildlife of the Department of Land and Natural Resources, Hawai'i Volcanoes National Park, Kūlanī Correctional Facility (State Department of Public Safety), USGS Biological Resource Division, the US Fish and Wildlife Service, the USDA Forest Service, and The Nature Conservancy of Hawai'i. The Partnership currently includes over 400,000 acres.

Fence construction will involve bulldozing over the lava to facilitate fence construction. The planned fence will be approximately seven feet tall, made of hogwire.

Potential impacts include disturbance to native birds, especially 'ua'u (Hawaiian petrels) and 'ake'ake (Band-rumped storm-petrels). Impact mitigation measures include surveys to route the fencing away from "bird activity" areas and using materials and construction methods to make the fence more noticeable to approaching birds.

II. PROJECT PURPOSE AND NEED

Forest ecosystems of the Hawaiian Islands provide among the world's most spectacular examples of the ecological and evolutionary processes of speciation and adaptation. Millions of years of isolation from continental land masses have resulted in outstanding adaptive radiations of native forest birds, plants, and insects from relatively few colonizing events. Notable examples are the endemic Hawaiian honeycreepers (*Drepanidinae*), lobeliads (*Lobeliaceae*), and pomace flies (*Drosophilade*), each of which are represented by dozens of species exhibiting a variety of forms and habits, and each having evolved from perhaps a single colonizing species. These biological resources are integral elements of the natural and cultural heritage of the Hawaiian Islands and their people.

Hawai'i's forests also play a critical role as watersheds, providing recharge to critical underground aquifers and/or supplying surfacewater to agricultural, residential and commercial users each year. Unfortunately, many of the natural forest ecosystems of Hawai'i have been destroyed or degraded. Forested watersheds are under great pressure from increasing demand for water and continued degradation due to feral animals and

invasive alien plant species. Many forested areas on private lands have been cleared for pasture use or development.

The proposed action is to fence the upper boundary of the Keauhou Ranch property to exclude feral ungulates (hooved animals). Mouflon sheep are currently the most critical threat to native plants and animals at Keauhou Ranch and adjacent lands. Their activity degrades the native ecosystem; they are difficult to control; their numbers are rapidly increasing; and their range is expanding. These sheep also jump over fences built for the purposes of controlling pigs. Other feral ungulates, including pigs, are also a significant threat to the native ecosystem at Keauhou. Hooved animals consume and trample native plants, create conditions favorable for non-native plant infestation by disturbance of surface soil and vegetation cover, and serve as vectors for the dispersal of non-native plants.

Fencing the upper boundary of Keauhou Ranch is the highest priority fencing project in the regional conservation effort managed by the 'Ōla'a-Kīlauea Partnership, members of which include Kamehameha Schools, the Division of Forestry and Wildlife of the Department of Land and Natural Resources, Hawai'i Volcanoes National Park, Kūlani Correctional Facility (State Department of Public Safety), USGS Biological Resource Division, the US Fish and Wildlife Service, the USDA Forest Service, and The Nature Conservancy of Hawai'i. The long-term protection planned for Keauhou Ranch builds upon the Partnership's prior actions and will significantly contribute towards the protection and restoration of important forested watershed in the Ka'ū District.

The proposed fencing will protect approximately 30,000 acres of native forest, subalpine habitat, pioneer vegetation in new lava flows, and former pasture targeted for restoration from feral ungulates. Regionally, the proposed fencing will tie directly into existing fences and will add to the network of contiguous, fenced management areas that serve as a core area for the protection of native ecosystems, important watershed, and rare and endangered species (a map of the 'Ōla'a-Kīlauea Partnership area and existing fences is found in Appendix A). The proposed fencing will also protect adjacent pig-free fenced management units in Hawai'i Volcanoes National Park and Kīlauea Forest from mouflon sheep ingress via Keauhou Ranch. These units are important restoration sites and are currently vulnerable to mouflon ingress as their fences were not originally designed to protect against mouflon. The fencing will also limit potential movement and ingress by other ungulates and increase the success of invasive weed control by limiting vectors. Ultimately, this fencing will prevent the decline of intact native forest, will protect important watershed, and will contribute towards the recovery of 16 endangered plant and animal species. Finally, the fencing will contribute to

Kamehameha School's vision for the land: ho'ōla 'āina, of healing the land from the undesirable damage caused by large grazing animals, unsustainable resource extraction, and the effects of non-native introduced pests.

After fencing is complete, the 'Ōla'a-Kīlauea Partnership proposes to control and remove feral ungulates within the fenced unit. Initial efforts will focus on mouflon sheep but will eventually include the removal of all feral ungulates, including pigs, goat, sheep and feral cattle. Over the long-term, Kamehameha Schools proposes large-scale conservation of Keauhou Ranch, including the replanting of thousands of acres of native forest and shrublands of varied types known from historical descriptions and the experience of expert biologists, the control and removal of invasive weed species, and other appropriate conservation actions.

Long-term protection and restoration of Keauhou Ranch will prevent the decline and disappearance of important native ecosystems, increase available habitat for forest birds, and provide an important corridor linking remaining populations of endangered forest birds found at Kūlani Correctional Facility and Hawai'i Volcanoes National Park. As Keauhou Ranch provides an important link between wetter ecosystems to the east and drier ecosystems to the west, long-term protection will benefit the watershed. Finally, long-term protection of Keauhou Ranch will benefit several severely endangered plant species and may possibly prevent future extinctions.

The project area is partially located within the Conservation District, and for ease of construction, the final routing of the fencing may be partially located on State land adjacent to the Keauhou Ranch (Mauna Loa Forest Reserve). As such, the project requires that an Environmental Assessment to be written in accordance with Chapter 343 of the Hawai'i Revised Statutes.

III. PROJECT DESCRIPTION

The 'Ōla'a-Kīlauea Partnership proposes to construct approximately six and one half miles of protective fencing along the boundary between Keauhou Ranch and the Mauna Loa Forest Reserve ("upper boundary" or "project area"). Maps of the project area are included in Appendix A. The goal of this project is to protect approximately 30,000 acres from feral ungulates (hooved animals), especially mouflon sheep. After construction of the boundary fencing, feral ungulates within the enclosed area will be removed and conservation management actions, such as outplanting and invasive weed removal, will take place.

As a Partnership project, each of the primary members of the 'Ōla'a-Kīlauea Partnership will contribute to the development and implementation of the proposed fencing. 'Ōla'a-Kīlauea Partnership members and staff developed the alternative fencing alignments. Division of Forestry and Wildlife – Natural Area Reserves staff surveyed the project area for both plant and animal species, including threatened and endangered species. National Park Service staff conducted an archaeological survey in the project area and provided input on fencing specifications and design. 'Ōla'a-Kīlauea staff, Division of Forestry and Wildlife staff, and volunteers participated in petrel surveys in the project area. Kūlani Correctional Facility provided access to the project area and staff and inmates may assist with construction, especially along the Kūlani side. Kamehameha Schools contributed funding towards the project and plans to conduct future conservation on the property.

The Draft Environmental Assessment discussed three potential fencing alignments, outlined in more detail in the Alternatives Considered section of this Environmental Assessment. The three alignments differ in how the fence crosses the kīpuka located on the eastern end of the boundary, but each alignment is predominantly located on recent lava flows (a map of the three alignments under consideration is included in Appendix A). Based on the public comments and testimony received at a public hearing, the Partnership has identified Alignment 2 as the preferred alignment.

To facilitate construction of the fencing, it is anticipated that a corridor 16 to 24 feet wide will be bulldozed across recent lava flows for a distance of approximately six miles beginning at the eastern end of the boundary fencing. A D-8 bulldozer will flatten the lava flow into a rough four wheel-drive road with turn-arounds every quarter-mile for construction purposes. The road will be used during construction to transport materials and facilitate fence construction. The road will not be maintained or improved after construction; all-terrain vehicles (ATVs) will be used for future inspection and maintenance of the fence line.

Fencing would be constructed on the edge of the bulldozed pathway, so that the road would be located within the fenced area. Bulldozing the lava flows will make fence construction easier by leveling the ground and will also reduce the costs of construction. In addition, mouflon take advantage of rock outcroppings to jump fences, and bulldozing will reduce the ability of mouflon to jump over the fence or of pigs to crawl underneath the fence. Because of the remoteness of the project area, the bulldozed road would not connect to any existing public roads and future use would be limited to fence maintenance and related management activities.

Towards the western end of the boundary fencing, around the 9,000-foot elevation, the geological forms (including spatter cones) and features in the area make it extremely difficult to bulldoze. The fencing alignment for approximately the last half-mile would follow a route below the actual boundary line, on older lava flows, along an alignment that would be safer and easier to build on. In this area, the ground would be leveled by hand as needed to construct the fencing, and a corridor no wider than 10 feet would be disturbed.

The fences will be approximately seven feet tall, made of steel posts, steel wire, and barbed wire. Fence construction will involve driving posts into the ground no more than 10 feet apart along the fence route. High tensile galvanized or Bezinol-coated steel woven wire mesh will be attached to the outside of the posts. Where needed, an apron of hog wire will be laid horizontally on the ground and attached to the outside of the standing fence to prevent entry by feral animals such as pigs. Electric fence tape, made of woven wire approximately 1½ inch wide, will be installed on the fencing for visibility to commuting birds. The tape will not be electrified.

During all construction activities, if any federally listed threatened or endangered species, archaeological sites or artifacts are encountered, fencing construction will halt, the appropriate agencies notified, and efforts to re-route the fence line to avoid these elements will be made. Bulldozing will avoid lava tubes or openings along the fence corridor to avoid unintentional damage to cultural or archaeological resources and protect potential habitat for the endangered fern *Asplenium peruvianum* var. *insulare*.

Fencing may be constructed in phases, as needed due to funding limitations, unanticipated challenges, or alignment changes needed to avoid bird nesting areas, botanical resources, geologic features, or archaeological features.

Helicopters will be used to transport the fencing material and supplies to the project area. The fencing crew may drive to the project area when working along the eastern edge of the boundary fencing, but as the fencing moves west, they will more likely be helicoptered to the work site.

When fencing is nearly complete, feral ungulates such as pigs, goat or sheep within Keauhou Ranch will be removed through a variety of methods, which may include the use of professional hunters and aerial shooting. Invasive plant species will be monitored and removed.

Outplanting of rare and endangered native plants is likely to occur in the future. Feral ungulates have damaged or destroyed many of the native species that were once found within Keauhou Ranch and fencing will provide protected habitat suitable for outplanting many of these species as part of recovery efforts. Selection of the appropriate species and planting sites will be conducted only after consultation with experienced botanists and sufficient funding.

Timing & Costs

Fence construction is planned to occur once all permissions and approvals have been received. Fencing is anticipated to take approximately 12 months.

The cost estimates for the project are as follows:

Item	Cost
Planning (includes surveys and preparation of EA)	\$ 30,000
Fence materials and equipment	\$121,000
Fence Construction	\$200,000
Ungulate removal	\$189,000
Total	\$530,000

Funding for this project includes \$299,000 from the U.S. Fish and Wildlife Service as part of the Landowner Incentive Program administered by the State of Hawai'i, \$130,000 in funds from Kamehameha Schools, \$50,000 from the Hawai'i Community Foundation, and \$26,750 from the Division of Forestry and Wildlife Natural Area Reserves fund (watershed funds). Additional funding will be sought as needed to complete the project.

IV. SUMMARY DESCRIPTION OF AFFECTED ENVIRONMENT

Location and Physical Characteristics of the General Area

Keauhou Ranch is located to the east of Hawai'i Volcanoes National Park, adjacent to the Mauna Loa strip section, and to the south of Mauna Loa Forest Reserve and the Kīpuka 'Āinahou Nēnē Sanctuary. The project area – the Keauhou Ranch upper boundary - is located in the 'ili of Keauhou, considered part of the ahupua'a of Kapāpala, within the moku of Ka'u, in East Hawai'i (a map illustrating the location of Keauhou Ranch is included in Appendix A).

Located approximately seven miles from Saddle Road, the project area is remote and difficult to access due to past volcanic activity by Mauna Loa, including lava flows from 1852, 1942 and 1984, and limited roads. The Powerline Road used to run from Saddle Road to the eastern part of the project area, but portions of this section of the Powerline Road were covered by the 1984 lava flow and remain impassable to vehicles. The four-wheel drive Mauna Loa Access Road provides access to the project area and is open for use with a permit from the Division of Forestry and Wildlife, but it is estimated that driving from Mauna Loa Observatory to the project area would take approximately 1 ½ hours (and 3 ½ hours from Hilo). Four-wheel drive roads to the eastern part of the project area exist through Kūlani Correctional Facility, but there is no public access allowed through this secure facility. Finally, the project area can be reached by the Pu'u 'O'o Trail, for foot and horse traffic only. The trail heads south from Saddle Road, crosses the Keauhou upper boundary approximately ¼ mile from the eastern boundary with Kūlani Correctional Facility, and winds down through Keauhou Ranch towards Volcano.

The Keauhou Ranch upper boundary runs from approximately 6,000 feet in elevation on the eastern border to approximately 9,000 feet in elevation on the west. Rainfall decreases from approximately 80 inches annually on the eastern border to less than half that on the drier western side.

The geologic setting of Keauhou Ranch is almost entirely lava from the east rift of Mauna Loa. The project area is located in Volcanic Hazard Zone 2, an area adjacent to and downslope from active rift zones. Lava flows in the area range from roughly 10,000 to 20 years in age. The project area is extensively covered by the 1984 and 1942 lava flows, but there are several scattered kīpuka along the upper boundary, with a fairly large kīpuka located on the eastern boundary adjacent to Kūlani Correctional Facility.

Substrate along the upper boundary is predominantly 'a'ā and pāhoehoe, and soils in the project area are characterized as rLV (lava flows, 'a'ā) and rLW (lava flows, pāhoehoe). Both lava flows contribute to the underground water supply in areas of high rainfall. Substrate under the kīpuka located on the boundary in the eastern corner adjacent to Kūlani Correctional Facility is characterized as rRO (rock land), a miscellaneous land type that consists of pāhoehoe lava bedrock covered in places by a thin layer of soil material with an average depth of between six to eight inches. The hazard of water erosion is slight for all soil types in the project area.

Current Land Use

Most of Keauhou Ranch is located within the Agricultural District, with the exception of a portion of land on the western edge of Keauhou which is zoned Conservation (Protective Subzone) and identified as a nēnē sanctuary (a map illustrating the Conservation District and Agricultural District boundaries is included in Appendix A). Keauhou Ranch is zoned Agricultural (A-20a) by the County, except for the portion zoned Conservation by the State which is zoned as Open by the County. The General Plan Designation for Keauhou Ranch is for Extensive Agriculture and Conservation. The State land to the north of Keauhou Ranch, Mauna Loa Forest Reserve, is zoned Conservation by both the State (Protective Subzone) and the County. Neither the Ranch nor the adjacent State land is located in the County of Hawai'i's Special Management Area.

Keauhou Ranch is owned by Kamehameha Schools, with limited access by the public. Land surrounding the Keauhou Ranch upper boundary is owned by the State of Hawai'i or the National Park Service, and is largely uninhabited. The primary use of adjacent State land (Mauna Loa Forest Reserve) is Forest Reserve and Wildlife Sanctuary. It is also designated as part of State Hunting Unit E, which allows hunting of wild pigs, sheep and goat by archery only, on weekends and holidays March through October, of game birds weekends and holidays November through mid-January, and of wild turkey daily in March. The adjacent Federal land is designated as official wilderness and is managed for native ecosystems and rare species.

Flora

The project area is predominantly characterized by recent lava flows, of both 'a'ā and pāhoehoe. Both substrate types contain little to no soil covering. The predominant natural community type is pioneer vegetation on lava flow. The vegetation consists mainly of mosses and lichens, with very scattered *Dubautia* species, 'ōhelo berry (*Vaccinium* sp.), small 'ōhi'a trees (*Metrosideros polymorpha*), and 'a'ali'i (*Dodonaea viscosa*).

The predominant natural community type for the kīpuka found along the upper boundary ranges from open lava to subalpine eolian desert to subalpine shrubland to open 'ōhi'a woodland. The kīpuka typically contain low stature 'ōhi'a trees interspersed with native trees, shrubs and the native grass *Deschampsia nubigena*. Depressions in the lava flow surface collect water and have formed small perennial bogs containing native grasses and sedges. These are scattered in the dry 'ōhi'a area.

Over 27 native plants have been observed in the project area and are primarily located within the kīpuka found along the upper boundary. These include 'ōhi'a (*Metrosideros polymorpha*), koa (*Acacia koa*), 'a'ali'i (*Dodonaea viscosa*), pilo (*Coprosma* sp.), 'iliahi (*Santalum paniculatum* var. *paniculatum*), hāpu'u (*Cibotium glaucum*), laukahi (*Dryopteris wallichiana*), uluhe (*Dicranopteris linearis*), and na'ena'e (*Dubautia* sp.). While the project area is primarily composed of native vegetation, non-native plants have been observed in the project area, mainly non-native grasses. The State land within the project area was identified as V-1, the category for the highest quality native ecosystem, during development of the Division of Forestry and Wildlife's Draft Management Guidelines. The V-1 rating recognizes that the area still has low levels (less than 10%) of non-native plants in any vegetative layer. Appendix B contains a list of vegetation observed in the project area.

The proposed fencing will protect the following natural communities found within Keauhou Ranch: pioneer vegetation on lava flow; pūkiawe subalpine dry shrubland; 'ōhi'a subalpine dry forest; koa/māmane montane dry forest; 'ōhi'a montane dry forest; koa/'ōhi'a /mānele montane mesic forest; koa/'ōhi'a montane mesic forest; koa/'ōhi'a /hāpu'u montane wet forest; 'ōhi'a /hāpu'u montane wet forest; and 'ōhi'a montane wet forest. The proposed fencing will also provide protection or allow for restoration of the following endangered plant species: *Argyroxiphium kauense*, *Asplenium peruvianum* var. *insulare*, *Clermontia lindseyana*, *Cyanea shipmanii*, *Cyanea stictophylla*, *Plantago hawaiiensis*, *Phyllostegia racemosa*, *Phyllostegia velutina*, *Pittosporum hawaiienses*, and *Vicia menziesii*, as well as additional rare plant species.

Fauna

Several native birds endemic to the Hawaiian Islands have been observed in the project area including the endangered Hawai'i creeper (*Oreomystis mana*), the endangered 'ākepa (*Loxops coccineus*), 'i'iwi (*Vestiaria coccinea*), 'apapane (*Himatione sanguinea*), 'amakihī (*Hemignathus virens*), 'elepaio (*Chasiempis sandwichensis sandwichensis*), 'ōma'o (*Myadestes obscurus*), the candidate species 'ake'ake (Band-rumped storm-petrel) (*Oceanodroma castro*), and the endangered 'ua'u (Hawaiian petrel) (*Pterodroma sandwichensis*).

Most of the honeycreepers have been observed on the eastern part of the project area, within or adjacent to existing kīpuka. The 'ōpe'ape'a, or the Hawaiian Hoary Bat (*Lasiurus cinereus semotus*), has been observed seasonally in the vicinity of the Kūlani Correctional Facility and is likely to be present on the eastern part of the project area.

'Ua'u (Hawaiian petrel) and 'ake'ake (Band-rumped storm-petrel) have been observed flying over the project area, and nests and activity for these birds have been observed on the western side of the project area on the older pāhoehoe flows above the 7,500 foot elevation. Additional ground surveys were conducted in 2001 and 2004 in the kīpuka along the fencing corridor above the 7,500 foot elevation most likely to contain petrel nests; no active petrel nests were found during either survey. An old nēnē (*Branta=nesochen sandvicensis*) nest was found in a kīpuka near the 8,000 foot elevation during the 2004 survey.

The proposed fencing is anticipated to protect habitat for the following endangered birds: Hawai'i 'ākepa (*Loxops coccineus*), 'akiapōlā'au (*Hemignathus munroi*), Hawai'i creeper (*Oreomystis mana*), 'ō'ū (*Psittirostra psittacea*) (potentially extinct), 'io (Hawaiian hawk, *Buteo solitarius*), 'ua'u (Hawaiian petrel, *Pterodroma sandwichensis*), and nēnē (Hawaiian goose, *Branta = nesochen sandvicensis*).

The proposed fencing may also support the potential reintroduction of the endangered Hawaiian crow, the 'alalā (*Corvus hawaiiensis*). There are currently no individuals known to exist in the wild, and approximately 40 'alalā in captivity at the Keauhou and Maui Bird Conservation Centers. Approximately 4,000 acres of Keauhou Ranch and Kūlani Correctional Facility land were identified as an alternative release site in the Draft Environmental Assessment for the reestablishment of the 'alalā in the wild, and the proposed fencing would facilitate 'alalā habitat restoration in this area by preventing ungulate access and disturbance.

No specific studies of the invertebrate community are known to have been done in the project area, but given the relatively intact condition of the native vegetation in the kīpuka and studies in similar areas, it is suspected the kīpuka located along the upper boundary support native arthropods and other native invertebrates that comprise significant components of the ecosystem. Other native invertebrates are suspected of being present within the lava flows themselves.

Non-native birds observed include the Japanese White-eye (*Zosterops japonica*) and the Kalij pheasant (*Lophura leucomelana*), a game bird. The hunting of game birds is permitted in Mauna Loa Forest Reserve, implying that wild turkeys and other game birds such as francolin and quail may also be present in the project area.

Non-native animals observed or thought to occur in the project area include feral pigs (*Sus scrofa*), rats (*Rattus spp.*), cats (*Felis catus*), mongoose (*Herpestes auropunctatus*), mouflon sheep (*Ovis musimon*), and hybrid feral sheep (*Ovis musimon x Ovis aries*). A species list of fauna thought to be located in the project area is included in Appendix C.

Significant and Sensitive Habitats

State land adjacent to the eastern portion of the upper boundary is located within the federally designated critical habitat for the endangered plant, *Argyroxiphium kauense* (Mauna Loa silversword). The Kūlanī Correctional Facility land adjacent to the project area to the east contains critical habitat for four plants: *Argyroxiphium kauense*, *Phyllostegia velutina*, *Cyanea shipmanii* (hāhā), and *Clermontia lindseyana* ('ōhā wai). There is no designated critical habitat for plants on Keauhou Ranch land.

Archaeological Sites and Cultural Practices

The following steps were taken to determine the cultural and historical significance of the project area: (1) general literature review to determine if there were any reports or studies with relevant information regarding Keauhou; (2) discussions with Kamehameha Schools personnel about the history of Keauhou; (3) the sending of pre-consultation letters to a wide variety of agencies and organizations that might be interested in the project or have relevant information, including: Hawai'i Volcanoes National Park Kūpuna Committee, State Historic Preservation Division, Office of Hawaiian Affairs, Department of Hawaiian Home Lands, Hawai'i Island Burial Council, Kahu Ku Mauna Council, 'Ahahui Mālama I Ka Lōkahi, Hawai'i County Native Hawaiian Chamber of Commerce, Hawaiian Civic Club of Hilo, Prince David Kawanānakoā Hawaiian Civic Club, Hui Mālama I Na Kūpuna o Hawai'i Nei, 'Īlio'ulaokalani Coalition, Kahea – the Hawaiian-Environmental Coalition, Native Hawaiian Legal Corporation, Earthjustice Legal Defense Fund, Kamehameha Schools, and the Volcano Community Association; (4) attendance at a Hawai'i Volcanoes National Park Kūpuna Committee meeting (April 7, 2004) to present the project and receive input; and (5) survey of the project area by a Hawai'i Volcanoes National Park Service archaeologist, a DOFW Natural Area Reserve System Specialist, and 'Ōla'a-Kīlauea staff to determine if there were any visible archaeological features, such as rock walls, or any features potentially used for cultural reasons, such as lava tubes or caves.

History of land use at Keauhou and adjacent area

Prior to Western contact, the lands of Keauhou Ranch were part of the large ahupua'a of Kapāpala, in the moku (district) of Ka'ū. This ahupua'a extended from the subalpine zone of Mauna Loa down to the ocean. Based on information gathered by Kamehameha Schools, the ahupua'a of Keauhou was traditionally an area of significant cultural value. The area is part of the traditions that involve the foundations of Hawaiian creation, and the long litany of the chiefs of Hilo, Puna, and Ka'ū and their varying tenures, are part of the cultural significance of Keauhou. Keauhou is rich in resources directly related to the traditional

material culture of Hawai'i, from the wood of koa and 'ōhi'a, to the feathers of forest birds, from the use of hāpu'u in funerary practice, to the use of mau'u-hō'ula-ili (*Sisyrrhynchium acre*) in temporary tattoos commemorating a visit to the wahi pana (significant cultural or historic places) of Kīlauea. Finally, Keauhou offers itself as a place of spiritual and intellectual value, offering inspiration and balance, both on the individual and as captured in mele and oli celebrating the area.

During the pre-contact period, mauka Keauhou Ranch and the surrounding area was wao akua, and particularly, it was 'āina Pele, as it included Halema'uma'u (now within the adjacent Hawai'i Volcanoes National Park), the abode of Pele.

Going makai, Keauhou Ranch provided important forest resources. While the lower elevation koa forests above Hilo and Kona were the primary traditional sources for canoes, being closer to the ocean, the forest of Keauhou provided for a number of edible and medicinal plants. The upper elevation forests were probably not entered as often as lower forests bearing the same resources closer to the wao kanaka (realm of human habitation and cultivation). At the time of western contact, native forest birds were plentiful in forests extending to sea level, reducing the need for Native Hawaiians to venture deep into the forest to procure the vast majority of forest materials. Evidence of human-modified holes in kīpuka along the upper boundary indicate that some Native Hawaiians ventured up this high, presumably to encourage petrels to nest so that nestlings could be gathered as a delicacy for the chiefs.

Boundary Commission testimonies describe trails through the forest lands, rising from the lowlands of Waiākea, 'Ōla'a, Keauhou, and Humu'ula. Based on the native traditions and kama'āina testimonies given before the Boundary Commission, it is likely that "practitioner" trails existed throughout the forest region. Features such as "*kauhale manu*" (bird-catcher's shelters), "*kahua kālaiwa'a*" (canoe-makers clearings), "*o'io'ina*" (trailside resting places and shelters), the "*ala hele*" (trails), and other features associated with traditional and customary accesses, would leave little evidence in the present-day, as the traditional features and uses generally had minimal impact on the natural landscape. Those things left behind, not cared for or maintained, were simply reabsorbed into the landscape.

These trails not only granted access to the forest resources, but enabled travel between districts. Of these trails, the Pu'u 'O'o trail remains recognizable today and runs through Keauhou Ranch from north to south along the eastern boundary. It is thought that this trail is prehistoric and according to the archaeological studies done for the Saddle Road Draft Environmental Impact Statement, the trail was possibly

used for the passage of Hawaiian armies, though this has not been confirmed. By the late 1800s and through the 1940s, the primary users of the trails in the Keauhou area were ranchers, traveling between Humu'ula and Pu'u 'O'o to Keawewai and Keauhou, and those traveling on to Kapāpala and Kahuku.

For much of the post-contact period to 1900, the land use of Keauhou Ranch would not have changed significantly, but indirect impacts to the forest would have begun as cattle and goats introduced by Vancouver in 1778 spread across the island of Hawai'i. In 1801, the Ke'āmoku lava flow covered a significant percentage of the land area of Keauhou Ranch, mainly affecting the drier upper and western half of the area. Beginning in the 1820s and continuing into the 20th century, the mesic forested lands of Keauhou were logged and burned to clear the land for cattle ranching. In 1861, the ahupua'a of Keauhou was passed to Victoria Kamāmalu, then to Princess Ruth Ke'elikolani in 1872. Princess Ruth willed the Keauhou lands to Bernice Pauahi Bishop. Some attempts were made to harvest the pulu (downy hairs) of hāpu'u tree ferns in the wetter (eastern) portion of Keauhou, but these ventures did not last long.

In 1916, Hawai'i Volcanoes National Park was created, and the lands from just mauka of Kīlauea Crater to the sea were dedicated to the park. Various ranching lessees, including Shipman, Nobriga, C. Brewer, Parker Ranch, Hawaiian Ranch Co., and K. Dillingham, converted the forest in Keauhou Ranch to grassland.

It was not until after 1941, that a road was cut up through the Waiākea-'Ōla'a forest lands in conjunction with the opening of the Kūlani Prison Farm. In the late 1940s, an access road was cut from the Kūlani facility to the summit region of Mauna Loa for a weather observatory (Mauna Loa Access Road). At one point, the program manager proposed that the road be planted with the trees of the world, as a scenic drive to Mauna Loa, but the plan was never realized.

By the mid 1970's, a good portion of lower Keauhou Ranch was non-native grassland. However, the upper part of Keauhou Ranch above 5,000 feet elevation contained the largest known population of the endangered Hawaiian vetch, *Vicia menziesii*, as well as good populations of more than 10 species of rare and endangered plants. At the same time, the forests of neighboring Kīlauea Forest Reserve were fenced as part of the ranch lease agreements and thus retained high quality native canopy and understory.

In 1976, the logging of koa began on Keauhou Ranch land, continuing until 1992, and resulting in the loss of *Vicia* population noted above. From 1994 to end of the 20th century, a series of changes shifting

from ranching and logging to conservation took place, including joining the 'Ōla'a-Kīlauea Management Partnership, the establishment of the Keauhou Bird Conservation Center (1996), the initiation of conservation and reforestation projects, and finally, the buyback of the ranching lease (2003-2004). Currently, Kamehameha Schools is developing a management plan for Keauhou Ranch that embraces the establishment of strong partnerships with educational institutions and cultural practitioners to meld education and culture into the stewardship actions proposed.

Archaeological features

Field surveys for archaeological features within the project area were conducted on March 31, 2004, May 12, 2004, and May 24, 2004. Two particular areas were surveyed: the area between the 6,040 foot and 6,320 foot elevation (the eastern side of the proposed fence line adjacent to Kūlani Correctional Facility) ("Area 1") and the area between the 8,720 foot and 8,920 foot elevation (the western side of the proposed fence line adjacent to Hawai'i Volcanoes National Park) ("Area 2").

In Area 1, an archaeologist with the National Park Service walked the fence alignment that follows the actual boundary between Keauhou Ranch and State land. In Area 2, the archaeologist walked the proposed alignment. The area between the 6,320 foot and 8,720 foot elevation was not walked as most of it lies on the 1984 Mauna Loa lava flow. The Area of Potential Effect for the surveys was determined as the fence line with up to 10 meters on either side (to include a working area and stockpile zone).

Six archaeological features were observed during the surveys, composed of four feature types (cave, lava blister, trail, and walled structure). One cave was identified, defined as an area with total length of at least 50 feet, containing areas of total darkness, and/or the length of the cave passage exceeds the width of the entrance. Caves are often utilized and modified for a variety of purposes including habitation, burial or storage. Three lava blisters were identified, defined as a natural bubble or blister that occurs within a lava flow. The protected, cave-like area is often utilized and modified for a variety of purposes including habitation, burial or storage. One trail was identified, defined as a linear pathway that indicates route of transportation. Finally, one walled structure was identified, defined as an area defined by a partially enclosing wall and usually described in terms of the shape or plan view of the wall. Of these six features, only two were located within the Area of Potential Effect: the Pu'u 'O'o trail and an unnamed cave with two entrances that was not entered.

The Pu'u 'O'o Trail is listed on a 1921 map of the Kīlauea area and a 1930 Humu'ula map and is located in Area 1. From the Mauna Loa

Access Road (north of the boundary between Keauhou Ranch and State land), the trail crosses a 1942 'a'ā flow and takes the form of a two-track vehicle path. As it moves south into the vegetated kīpuka, it is not recognizable as a trail. At the time of the ground survey, the trail had been marked recently by blue flagging tape (replacing an earlier-placed pink flagging tape). At some unknown point, it was also marked by railroad spikes pounded into the ground at distant intervals. Historically, it has been used at least as early as the 1900's by cowboys to drive cattle between Pu'u 'O'o Ranch and Keauhou and 'Āinahou Ranches. Other ranches were also involved in using the trail at various times in the ranching era, such as Kahuku and Parker Ranches. Although documents do not specifically mention the Pu'u 'O'o Trail existence in prehistory, there is a good possibility it is, with the various ranches utilizing an already established route. The trail is eligible for the National Register under Criterion C as an example of historic/ranching trails in Hawai'i. It is also eligible under Criterion D for its ability to yield important information on the history and/or prehistory of Hawai'i.

The unnamed cave identified during ground surveys is located in Area 2. Two entrances were observed to the cave, located northeast and southwest of each other by approximately 20 meters. The northeast entrance is approximately 20x10 meters and 15 to 20 meters deep and would require ropes or ladders to enter. The southwest entrance, approximately 10x5 meters, is accessible by a steep slope of pāhoehoe boulders. They are probably two entrances to the same cave. This cave was not entered during field surveys, and it is unknown whether any cultural features may exist within it. While this feature is located within the Area of Potential Effect, it is not anticipated to be affected by the fencing project because based on the survey, the fence alignment has now been readjusted to route approximately 10 meters away from the cave. Further, the cave is located in the northern portion of the alignment where bulldozing will not occur, eliminating the likelihood of damage by heavy construction equipment. Finally, the cave is not expected to be affected by the fence line or construction activities due to the depth of the cave and the difficult access into its interior.

The other features observed during the field surveys (Waiākea Camp walled structure and lava blisters) are not anticipated to be impacted by the proposed project due to their location outside the Area of Potential Effect.

Contemporary cultural practices

There were no cultural practices identified by consulted parties during pre-consultation as practices that may be impacted by the proposed fencing. Kamehameha Schools is not aware of any traditional or cultural practices currently being exercised on Keauhou Ranch land

that could be impacted by the proposed fencing. On the State land adjacent to Keauhou Ranch, the contemporary cultural practice of public hunting occurs and could be impacted by the proposed fencing.

The State lands to the north of Keauhou Ranch are within the Mauna Loa Forest Reserve and have been designated as the Kīpuka 'Āinahou Nēnē Sanctuary pursuant to Administrative Rule (HAR Chapter 125). This area is located within State Hunting Unit E, where hunting for wild pigs, sheep and goats is allowed Saturday, Sunday, and holidays March through October by archery only and dogs are not permitted. The bag limit is one pig, one goat and one sheep per day. Game bird hunting is also permitted the first weekend of November through Martin Luther King Day or the third Sunday in January (whichever is later) on Saturdays, Sundays and holidays, with a special wild turkey hunt daily during the month of March.

Under the Division of Forestry and Wildlife's Draft Management Guidelines, the area is classified as A-2 for game birds, sheep and goat, and A-3 for pigs. An A-2 ranking reflects that game management is an objective integrated with other uses, that habitat may be manipulated for game enhancement, and that game populations are managed to acceptable levels using public hunting. An A-3 ranking reflects that resource protection is the primary objective, with emphasis on native plant communities and watersheds, and that seasons and bag limits are designed for public hunting to reduce impacts on native resources.

During Fiscal Year 2004, Division of Forestry and Wildlife staff recorded 67 hunter trips and 13 mammals taken for the Kīpuka 'Āinahou Nene Sanctuary and the Mauna Loa Game Management Area. Pre-consultation letters were distributed to the Hawai'i Hunting Advisory Council, the Pig Hunters of Hawai'i, the Big Island Trap Club, and the Big Island chapter of the National Wild Turkey Federation to inform these groups of the planned fencing and to invite them to share any information or concerns. The Draft Environmental Assessment was also shared with these and additional identified hunter organizations for their review and comment. No concerns about potential impacts to public hunting opportunities were raised by any of these groups during the public comment period.

V. ALTERNATIVES CONSIDERED

Two project alternatives are described: the proposed fencing (preferred alternative) and a no-action alternative.

Alternative #1: Construct conservation fencing along the boundary of Keauhou Ranch (preferred alternative)

The preferred alternative is to fence the upper boundary of the Keauhou Ranch property to exclude feral ungulates (hooved animals), particularly mouflon sheep. The proposed fencing will protect approximately 30,000 acres, including native forest, subalpine habitat, pioneer vegetation in new lava flows, and former pasture targeted for restoration, from feral ungulates. The preferred alternative will build upon regional conservation efforts to protect core areas containing native ecosystems, important watershed, and rare and endangered species by tying directly into existing fences. It will reduce the need to retrofit adjacent fences to exclude mouflon, limit potential movement and ingress by other ungulates, and increase the success of invasive weed control by limiting vectors. Ultimately, this fencing will prevent the decline of intact native forest, will protect important watershed, will support future restoration activities, will increase available habitat for forest birds, and will contribute towards the recovery of several rare plant and animal species.

Under the preferred alternative, three possible alignments for the eastern section of the fence line (approximately two miles) were discussed in the Draft Environmental Assessment. A map illustrating the alignments is included in Appendix A. Based on the public comments and testimony received at a public hearing, and considering the location of the existing boundary, the cost associated with the different alignment alternatives, the impact on native vegetation and habitat, the impact on native birds, the impact on cultural and historic sites and practices, the presence of geological hazards, the Partnership has identified Alignment 2 as the preferred alignment.

The three alignments considered are discussed in detail below:

Alignment 1: Actual boundary

Constructing fencing along the actual boundary would involve hand-clearing approximately 1.7 miles through a vegetated kīpuka located on the eastern part of the boundary. A rough road would be bulldozed on State land on the 1942 flow from the Powerline Road to the end of the kīpuka, so that the bulldozer would be available to level the lava flow along the boundary once the fencing exits the kīpuka.

By following as closely as possible the actual boundary between Keauhou Ranch and the adjacent State Mauna Loa Forest Reserve, this alignment avoids the removal of 150 acres from State Hunting Unit E. However, this alignment would also necessitate the removal of a significant amount of native vegetation found with the 1.7 mile fencing

corridor within the kīpuka, require at least an additional month of work before fence construction could begin, and would involve additional labor costs. In addition, this alignment would cross the Pu'u 'O'o trail within the kīpuka, crossing a portion of the trail undamaged by lava flows. Selecting this alignment would require additional consultation with the State Historic Preservation Division to determine what changes to the fencing design or other action might be needed to prevent adverse impact to this historic feature. Further, this alignment would provide limited benefits to adjacent conservation fencing. Specifically, the "Boys School Unit" at Kūlani Correctional Facility to the east of the project area was constructed of four-foot high fencing to exclude pigs and will likely need future retrofitting at additional cost to prevent mouflon sheep from entering from State land and ensure protection for existing silversword outplantings if this alignment is selected. Finally, approximately 150 acres of intact, high-quality native vegetation on State land would be left unprotected and exposed to continued degradation by mouflon sheep, goat and pigs.

Alignment 2: Complete avoidance of kīpuka (Preferred Alignment)

Under this alignment alternative, the fencing would begin at the Powerline Road and skirt the northern edge of the kīpuka located on the eastern part of the boundary on the State side of the boundary. The fencing would be constructed solely on the 1984 and 1942 lava flows along a bulldozed pathway, avoiding kīpuka.

This alternative would result in the removal of approximately 150 acres of land from State Hunting Unit E. At the same time, this alternative would avoid the destruction of native vegetation and habitat for endangered birds in the area because vegetation is relatively sparse on the recent lava flows. By crossing the Pu'u 'O'o trail on the recent lava flow, this alternative would avoid the possibility of damaging historic aspects of the trail by following the recommendation of the State Historic Preservation Division to avoid crossing the older sections of the Pu'u 'O'o trail. In addition, by beginning north of the actual boundary of Keauhou Ranch, this alternative would contribute to regional conservation efforts by increasing protection for the existing Boys School Unit and reducing the need to retrofit the fence to prevent mouflon access. This alignment reduces overall costs and could be completed more quickly, since it avoids the need to construct fencing through vegetated areas requiring clearing by hand. Finally, by protecting 150 acres of State land from eventual destruction by feral animals, this alignment would provide the State with a secure area in which to outplant the endangered plant *Argyroxiphium kauense* as well as other rare plants historically found in the area. Critical habitat for *Argyroxiphium kauense* was designated in 2003 and overlaps with State Hunting Unit E. Protection of this plant's critical habitat through the proposed fencing could reduce conditions on Pittman-Robertson funding (Federal funding used to support the selection,

restoration, rehabilitation, and improvement of game animal habitat and management research) imposed through future section 7 consultations.

Alignment 3: Partial avoidance of kīpuka

Under this alignment alternative, the fencing alignment would follow the 1942 flow from the Powerline Road, skirting the northern edge of the kīpuka located on the eastern part of the boundary on the State side of the boundary. The alignment would then cut south through the kīpuka to the 1984 lava flow, and turn west to follow the 1984 flow on Kamehameha Schools land below the actual boundary until the 1984 flow crosses the actual boundary.

This alignment would result in no net loss of hunting land, as the removal of approximately 55 acres of State land from public hunting would be offset by approximately 55 acres of Kamehameha land outside the fencing being made available for public hunting. This alignment would result in disturbance of native vegetation, but less than the alignment identified above due to the shorter distance involved and the ability to route the fencing in the open areas of the kīpuka containing less vegetation. Because this alignment would cross the Pu'u 'O'o trail on the 1942 flow, rather than within the kīpuka, it would avoid the possibility of damaging historic aspects of the trail by following the recommendation of the State Historic Preservation Division to avoid crossing the older sections of the Pu'u 'O'o trail. Finally, this alignment contributes to regional conservation efforts by beginning north of the actual boundary of Keauhou Ranch, protecting the adjacent Boys School Unit within Kūlanī Correctional Facility from mouflon sheep.

Alternative #2. No action.

The no-action alternative fails to take advantage of existing funding opportunities to protect and conserve threatened and endangered species on private lands. The no-action alternative also fails to protect approximately 30,000 acres from the damaging impact of mouflon sheep, pig, and goats. With no action, the valuable natural resources contained within Keauhou Ranch may eventually be degraded and destroyed, depriving future generations of the opportunity to appreciate these resources. Further, a no-action alternative would require additional expenditures to maintain existing protection of the natural resources on adjacent land (Kūlanī Correctional Facility and Hawai'i Volcanoes National Park), in the form of costs to retrofit existing fences to prevent mouflon ingress. Finally, the no-action alternative reduces the potential for success of affirmative conservation measures, such as outplanting, that are necessary for the long-term recovery of many species.

VI. GENERAL DESCRIPTION OF THE ACTION INCLUDING ENVIRONMENTAL AND SOCIOECONOMIC CHARACTERISTICS

Environmental Impacts

Native birds

Based on known petrel strikes on National Park fencing at similar elevation and observed petrel nests in the general vicinity of the project area, there is the possibility that petrels on their way to and from nests or activity areas could fly into the fencing and become entangled, leading to injury or possibly death. Surveys were conducted in 2001 and 2004 to locate areas near the proposed fence line that are actively used by 'ua'u (Hawaiian petrels)(federally endangered) and 'ake'ake (Band-rumped storm-petrels)(candidate species) for nesting, displaying, and commuting. Two-person teams were placed in sites identified by biologists as likely locations for petrel activity along the planned fence line above the 7,400 foot elevation. Teams conducted ground surveys for nests and evening surveys for commuting petrels (auditory supplemented by night-vision goggles). Based on these surveys, no display areas or active nesting sites are known to be located within 50 meters of the fence line, but commuting petrels (both 'ua'u and 'ake'ake) were heard in the fence corridor and observed following the recent lava flows up Mauna Loa. Research conducted by Roberta Swift at Hawai'i Volcanoes National Park during 2003-04 indicates that commuting petrels typically fly higher than the seven-foot fencing proposed and that petrels are able to see and take steps to avoid fencing. While the possibility exists that native birds, specifically the 'ua'u (Hawaiian petrel) and 'ake'ake (Band-rumped storm-petrel), may fly into the fencing and become injured or killed, based on the available information and the planned mitigation measures, the overall impact on native birds is not anticipated to be significant.

Native vegetation

Construction within any kīpuka would result in the disturbance and destruction of native vegetation as a result of the clearing needed to remove potential hazards to crew and to facilitate construction. Plants would be pruned or removed along the entire corridor, and the width of this corridor could be up to ten feet. While areas of sensitive botanically resources would be avoided, the removal of common native plants would be unavoidable. Bulldozing the alignment would crush existing lava flows, damaging pioneer lava vegetation. Although most of the vegetation could be expected to grow back over time, ongoing fence inspection and maintenance would require that the corridors be kept cleared of vegetation, resulting in a permanent alteration of some acreage. Under the preferred alignment, very little native vegetation is anticipated to be impacted by fence construction, as the route is primarily located on recent lava flows.

Water impacts

Due to the nature of the terrain and the extensive coverage of the project area by recent lava flows, no significant changes in the normal runoff or percolation patterns is anticipated as a result of this project.

Alien species

Disturbance along the fencing corridor, as well as the transport of fence materials, equipment, and crew, could increase the potential accidental introduction of non-native plants to the project site.

Air pollution

Limited air pollution from helicopter sling loads and the use of small power tools will be unavoidable during fence construction. Use of this equipment is temporary and is not anticipated to significantly contribute to the overall air quality in the region.

Environmental benefits

Environmental benefits associated with the project include the benefits associated with the exclusion of feral animals, which represent one of the most significant threats to the long-term health of native forest and watershed. Rooting and browsing of the native vegetation, compaction of soils, and spread of nonnative weed species by pigs, goats and sheep disturb the native ecosystem, harming native vegetation, native invertebrates, and native birds. Ample evidence exists to show that damage caused by feral pigs, for example, can lead to the eventual replacement of unique Hawaiian vegetation by introduced weeds. If feral animals are removed before disturbance becomes too severe, native vegetation is able to recover naturally and the spread of weeds is slowed or even reversed. Fencing and removing these feral animals provides long-term protection for the native ecosystem and secures a protected area for future research and restoration efforts related to threatened and endangered species.

Social Impacts

Periodic noise from helicopter flights, power tools, and other activity associated with fence building will be unavoidable during the construction period. Overall, social impacts of this project are expected to be positive. The protection of Hawai'i's native forest will enhance opportunities for stewardship, education, cultural enrichment, and research.

The potential use of Kūlani Correction Facility inmates would benefit society by providing inmates with work training and an opportunity to learn new skills, such as fence construction and plant and bird identification.

This practical work experience and education could increase their opportunities for employment after release.

Economic Impacts

The proposed action involves the expenditures of funds necessary to complete the project, including the purchase of fencing materials, the contracting of crews, and the purchase or rental of equipment including helicopters. The estimated total cost of the fence construction is approximately \$530,000. Current funding for the project includes funds provided by the U.S. Fish and Wildlife Service, the State DLNR, Division of Forestry and Wildlife, Kamehameha Schools, and the Hawai'i Community Foundation.

The project is not expected to have any major negative economic impacts. Positive economic impacts will result from the release of project funds into the State economy through the purchase of goods and services from local vendors, as well as short-term employment for fence workers. The proposed action may attract additional funding for restoration activities after the fencing is complete.

Cultural Impacts

The proposed action is not expected to significantly affect archaeological sites or historical features. To ensure continued access along the historic trail, a gate or cross-over will be constructed at the location where the trail crosses the fencing. Under the preferred alignment, the fencing crosses the Pu'u 'O'o trail on a recent lava flow and avoids impact to the historical character of the trail. If the alignment changes so that the fence line crosses the trail within a vegetated kīpuka, the 'Ōla'a-Kīlauea Partnership will work closely with the State Historic Preservation Division and incorporate any measures needed to ensure that the fencing does not adversely impact the historic nature of the trail.

Because the fencing will be located primarily on recent lava flows and require minimal line cutting, it is anticipated that construction of fencing will pose little risk to any sites unidentified during surveys. As presently designed, the fencing is not anticipated to pose long-term impacts to archaeological sites. Over the long-term, the fencing project would help preserve any unknown archaeological resources within Keauhou Ranch, by preventing soil disturbance and trampling of sites by hooved animals.

The proposed action is also not expected to significantly impact Native Hawaiian traditional and cultural practices. Based on the remoteness of the project area, the difficult access, the conservation

purpose of the fencing, and the incorporation of a gate along the Pu'u O'o trail, it is thought that fencing would have little to no impact on Native Hawaiian practices.

Finally, the proposed action is not anticipated to significantly impact contemporary cultural practices. The fencing is not designed to block access by people, but to limit animal movement. While the State land in the project area is within State Hunting Unit E, no comments about the potential impact on hunting were received from hunters or hunting groups during pre-consultation or during the public comment period on the Draft Environmental Assessment. Any reduction in hunting acreage resulting from construction of fencing represents a very small portion of the total hunting area available in the immediate vicinity, which will remain open for public hunting for the foreseeable future. As a result, this project is not anticipated to impact any contemporary cultural practices.

VII. MITIGATION MEASURES

While this project is not expected to have any significant negative impacts on the environment, the following items have been identified as possible areas of concern. Planned actions to mitigate possible negative effects are described below.

Native Birds

As discussed above, there is the concern that the 'ua'u (Hawaiian petrel) and 'ake'ake (Band-rumped storm-petrel) could be impacted by ungulate-proof fencing if they fly into the fence and become entangled, injured, or killed. While there is no way to completely prevent this occurrence, the following steps will be taken to reduce the risk of harm to the endangered petrel. The fence will be routed around nesting and display areas and constructed to maximize the visibility of the fence to the birds. If nesting sites or other evidence of bird activity is found during bulldozing, more intensive surveys will be conducted to determine if the fence line needs re-alignment. No barbed wire will be used along the top or bottom of the fencing, to reduce the extent of injury should a strike occur. In addition, electric fence tape will be installed on the fencing for visibility. This tape, made of woven wire, is expected to make the fencing more visible to commuting birds and will not be electrified. Maintenance of the fence line will include monitoring for the presence of injured animals. If it appears that birds are being injured or killed through contact with the fence, additional mitigation measures will be developed and implemented. Finally, because this project is receiving Federal funding, the U.S. Fish and Wildlife Service will conduct a section 7 consultation, and additional mitigation measures may be incorporated if needed.

Native vegetation

Under the preferred alignment, very little native vegetation is anticipated to be impacted by fence construction, as the route is primarily located on recent lava flows. If the alignment changes and construction of the fencing requires the removal and/or pruning of some common native plants, in order to minimize overall damage to native vegetation, the following guidelines will be followed. Where possible, the fence will be aligned so that it passes through open or sparsely vegetated areas. During construction of the fence, common species of native plants will be removed only when necessary, and removal of native plants greater than 6 inches in diameter will be avoided as much as possible. Cut vegetation will be left to decompose. Areas with sensitive biological resources will be avoided. It is anticipated that the natural recovery of plants protected by the fencing will compensate for any damage to common species incurred during construction.

Alien species

The disturbance to the ground surface and vegetation involved with building a fence may create conditions suitable for the establishment of weedy plants. The following practices will be implemented to minimize the introduction of alien plants and insects and to reduce the possibility of establishment. First, boots, equipment and materials will be inspected for seeds, eggs, larvae, etc., prior to delivery and/or entry into the project area, and cleaned as necessary. Any bulldozer or large truck used during construction will be inspected and cleaned as needed, following appropriate alien species prevention protocol. All construction workers will be instructed on specific procedures to prevent the spread or introduction of noxious alien plants in the project area. In addition, precautions will be taken to prevent spreading alien plants already found in the project area, and all food, refuse, tools, gear, and construction scrap will be removed upon completion of work.

Public Access

The incorporation of a gate or cross-over where the proposed fencing crosses the Pu'u 'O'o trail will ensure continued access along this historic feature.

Archaeological or culturally significant sites

While there are no archaeological or cultural sites anticipated to be affected by the proposed action, should evidence of any archaeological or culturally significant sites be encountered during construction, vegetation clearing and fence construction would immediately cease and the appropriate agencies, including the State Division of Historic Preservation, would be consulted immediately. If necessary, the fence alignment will be adjusted to reduce or eliminate impact to any features located during construction.

VIII. ANTICIPATED DETERMINATION

It is not expected that this project will have a significant negative impact on the environment, and a Finding of No Significant Impact is anticipated.

IX. FINDINGS AND REASONS SUPPORTING EXPECTED DETERMINATION

The goal of the proposed action is to provide long-term protection for approximately 30,000 acres of Keauhou Ranch through the construction of ungulate-proof fencing. Without fencing, mouflon sheep and pigs would be expected to continue to damage important watershed and rare native ecosystems. As mouflon numbers increase and their numbers expand, these animals pose a growing threat to currently fenced conservation areas due to their ability to jump over existing pig-proof fencing.

Fencing and ungulate removal from Keauhou Ranch is anticipated to facilitate natural forest recovery, allow for successful reforestation and outplanting efforts, support effective alien species control and removal, and protect important watershed and habitat for native birds and plants. Recovery and restoration of Keauhou Ranch contributes to the regional conservation efforts by reducing the need for adjacent fenced areas to retrofit their fences to exclude mouflon. The fencing will add to the network of contiguous, fenced management areas that serve as a core area for the protection of native ecosystems, important watershed, and rare and endangered species. Recovery and restoration of Keauhou Ranch will connect existing protected habitat for native birds, creating an extensive corridor running from Kīlauea Forest Reserve and Kūlani to Hawai'i Volcanoes National Park and linking previously isolated communities.

The anticipated Finding of No Significant Impact is based on the evaluation of the project in relation to the following criteria identified in the Hawai'i Administrative Rules § 11-200-12:

- 1) *Involves an irrevocable commitment to loss or destruction of any natural or cultural resource.*

The proposed action does not involve an irrevocable commitment to loss or destruction of any natural or cultural resource. Instead, the goal of the proposed action is to benefit the natural environment by protecting

existing native forest, watershed and habitat for native plants and animals from feral ungulates, especially mouflon sheep, and allowing for future forest restoration projects.

2) *Curtails the range of beneficial uses of the environment.*

The proposed action will not curtail beneficial uses of the environment. Instead, the project will protect an important piece of land that hosts many native plants and animals, including critically endangered species. The project will also facilitate future conservation activities within Keauhou Ranch by providing an extensive ungulate-free area that can be used for forest restoration, outplanting, and educational activities. Fencing and actively managing the project area will increase the beneficial uses of the environment.

3) *Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders.*

The proposed action is consistent with the environmental policies established in Chapter 344, Hawai'i Revised Statutes (HRS) and contributes to the conservation of threatened and endangered species, as covered by Chapter 195D, HRS. It is also consistent with Section 4 of the County of Hawai'i General Plan (1989), which sets policies for maintaining environmental quality. The action is consistent with goals and objectives of the 'Ōla'a-Kīlauea Partnership and with the policies outlined in the Memorandum of Understanding of the Hawai'i Association of Watershed Partnerships. Finally, protection of the native forest within Keauhou Ranch implements one of the actions recommended in the US Fish & Wildlife Service Recovery Plan for Hawaiian Forest Birds (2003).

4) *Substantially affects the economic or social welfare of the community or state.*

The proposed action will not adversely affect the economic or social welfare of the community or state. The ecosystem-related goals of the project will directly benefit the economic, cultural, educational, and recreational interests of the community and the State.

5) *Substantially affects public health.*

The proposed action is not anticipated to substantially affect public health. The proposed action may have a positive impact on public health by protecting native forest and plants and removing feral sheep and pigs from the area.

- 6) *Involves substantial secondary impacts, such as population changes or effects on public facilities.*

The proposed action is not anticipated to result in any substantial secondary impacts, such as population changes or effects on public facilities.

- 7) *Involves a substantial degradation of environmental quality.*

The proposed action does not involve a substantial degradation of environmental quality. Instead, environmental quality is anticipated to improve with the implementation of the proposed action. Fencing will enhance environmental quality by providing long-term protection for watershed, native forest, and habitat for rare plants and animals from the destructive impact of feral sheep, pigs, and goats.

- 8) *Is individually limited but cumulatively has considerable effect upon environment or involves a commitment for larger actions.*

The proposed action involves fencing of the upper boundary of Keauhou Ranch and the removal of ungulates from within the fenced area. Potential future related projects include reforestation, outplanting, and cultural and educational activities within Keauhou Ranch. While the ungulate-proof fencing is needed for the long-term success of any restoration or outplanting, the cumulative effect on the environment is positive. Moreover, the fencing does not necessarily require the commitment for larger action as fencing and ungulate removal alone have value by protecting existing native forest and allowing for its natural recovery.

- 9) *Substantially affects a rare, threatened or endangered species, or its habitat.*

There are no known rare, threatened or endangered plants within the planned fencing corridor; however, several threatened and endangered plants will benefit from the protection this fencing will provide. If no action is taken, decline in endangered plant populations and potential extinction is possible. Exclusion of mouflon sheep, feral pigs, and goats by fencing has been shown repeatedly to be one of the most important actions that can be taken to protect rare, threatened and endangered species in Hawai'i. Protection of the native forest within Keauhou Ranch is a recommended action of US Fish and Wildlife Service Recovery Plan for Hawaiian Forest Birds (2003).

There are threatened, endangered, and rare birds found within or near the project area, particularly native forest birds and seabirds. The

fencing will provide a benefit to native forest birds by protecting important habitat, creating a corridor that links previously isolated areas of protected habitat. The fencing will also provide a benefit to 'ua'u (Hawaiian petrel) and 'ake'ake (Band-rumped storm-petrel) by protecting nests and areas suitable for nesting from trampling and disturbance by large feral animals.

Because of the location of the fencing within the corridor used by petrels commuting from the ocean to their nests, the possibility exists for petrels to become injured by striking the fencing on the way to nests or activity areas. To avoid this risk, the fence will be routed around nesting and display areas and constructed to maximize the visibility of the fence to the birds. If nesting sites or other evidence of bird activity is found during bulldozing, more intensive surveys will be conducted to determine if the fence line needs re-alignment. No barbed wire will be used along the top or bottom of the fencing, to reduce the extent of injury should a strike occur. In addition, electric fence tape will be installed on the fencing for visibility. This tape, made of woven wire, is expected to make the fencing more visible to commuting birds and will not be electrified. Maintenance of the fence line will include monitoring for the presence of injured animals. Because this project is receiving Federal funding, the U.S. Fish and Wildlife Service will conduct a section 7 consultation, and additional mitigation measures may be incorporated if needed. Finally, after construction, if it appears that birds are being injured or killed through contact with the fence, additional mitigation measures will be developed and implemented. Based on these planned actions, it is not anticipated that the project will substantially affect a rare, threatened or endangered species.

10) Detrimentially affects air or water quality or ambient noise levels.

The proposed action will have no detrimental effects on air quality, water quality, or noise levels. The area is remote, and construction noise will be localized and temporary.

11) Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.

The project area is located on the slope of Mauna Loa surrounded by recent lava flows and is classified in Volcanic Hazard Zone 2. There is a possibility that the fencing could be damaged by a lava flow, if Mauna Loa were to erupt again. However, the value of protective fencing that excludes feral ungulates from approximately 30,000 acres, protecting native forest and watershed and providing opportunities for forest

restoration and outplanting, outweighs the potential costs associated with loss of fencing due to damage from a lava flow. The planned fencing has a lifespan of approximately 10 to 20 years, and it is hoped that the benefits of the fencing and ungulate removal will be visible before the next lava flow. The proposed action will not damage or adversely affect any environmentally sensitive areas.

- 12) *Substantially affects scenic vistas and view planes identified in county or state plans or studies.*

The proposed action is not anticipated to affect any vistas or view planes identified in county or state plans or studies. For the most part, the fence is not anticipated to be visible to most residents due to the remote location of the fencing. Based on experience with fences in the surrounding area (on National Park Service land or at Kūlani Correctional Facility), the fencing is not expected to be noticeable from a distance.

- 13) *Requires substantial energy consumption.*

The proposed action does not require substantial energy consumption, but instead will consume small amounts of energy during fence construction through the use of small power tools and transportation of materials and crews.

X. LIST OF PERMITS REQUIRED FOR PROJECT

Construction of the project is anticipated to require the following permits:

Permit	Issuing Agency	Comment
Conservation District Use Permit	State Board of Land and Natural Resources	A portion of the project is to be constructed in the Protective Subzone of the Conservation District.
Building Permit	County of Hawai'i Department of Public Works	Building permit required for any structure over six feet in height.
Grading/Grubbing Permit	County of Hawai'i Department of Public Works	Grading permit required if more than 100 cubic yards of fill; Grubbing permit required if the area cleared exceeds one acre.
National Pollution Discharge Elimination System (NPDES) General Permit	State Department of Health Clean Water Branch	NPDES general permit coverage required if construction activities involve clearing, grading and excavation that result in the disturbance of one or more acres.

XI. ENVIRONMENTAL ASSESSMENT PREPARATION INFORMATION

This Environmental Assessment was prepared by:

Christen Mitchell
Planner, Division of Forestry & Wildlife
Department of Land and Natural Resources
in cooperation with staff and members of the
'Ōla'a-Kīlauea Partnership

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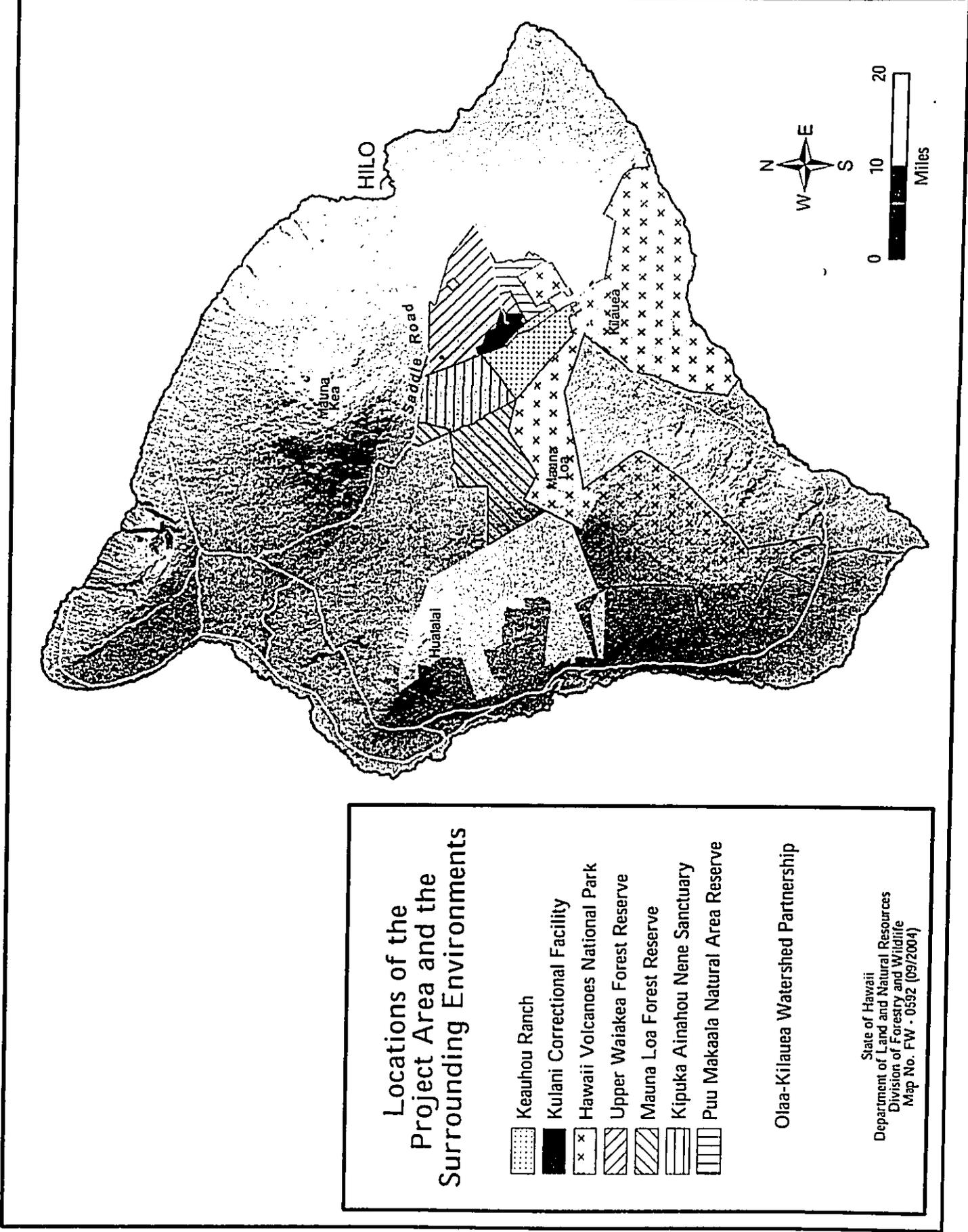
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APPENDIX A
Maps of the Project Area

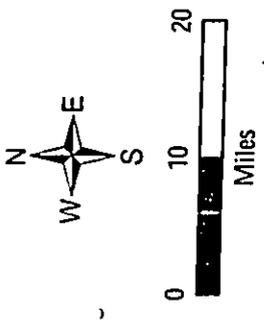


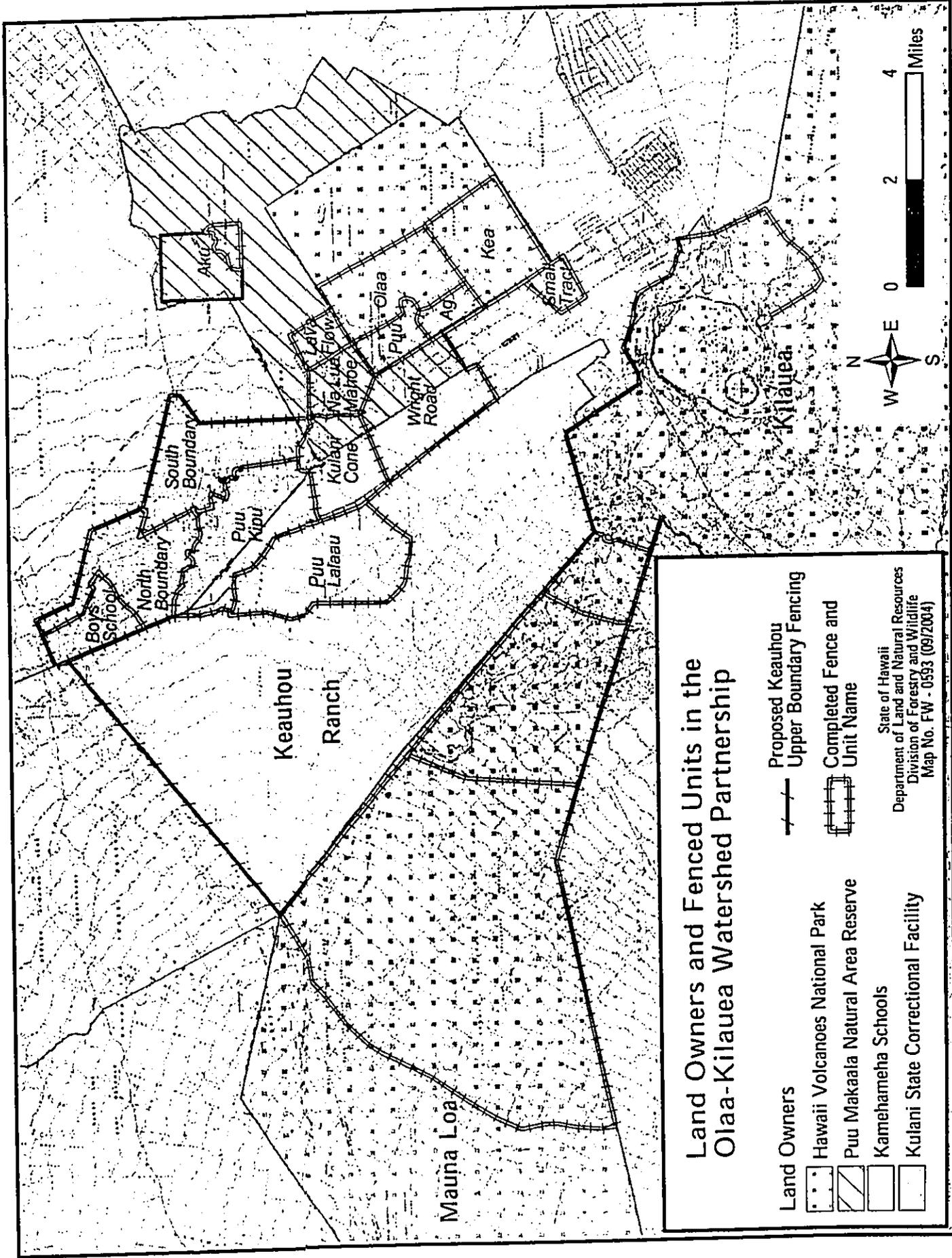
Locations of the Project Area and the Surrounding Environments

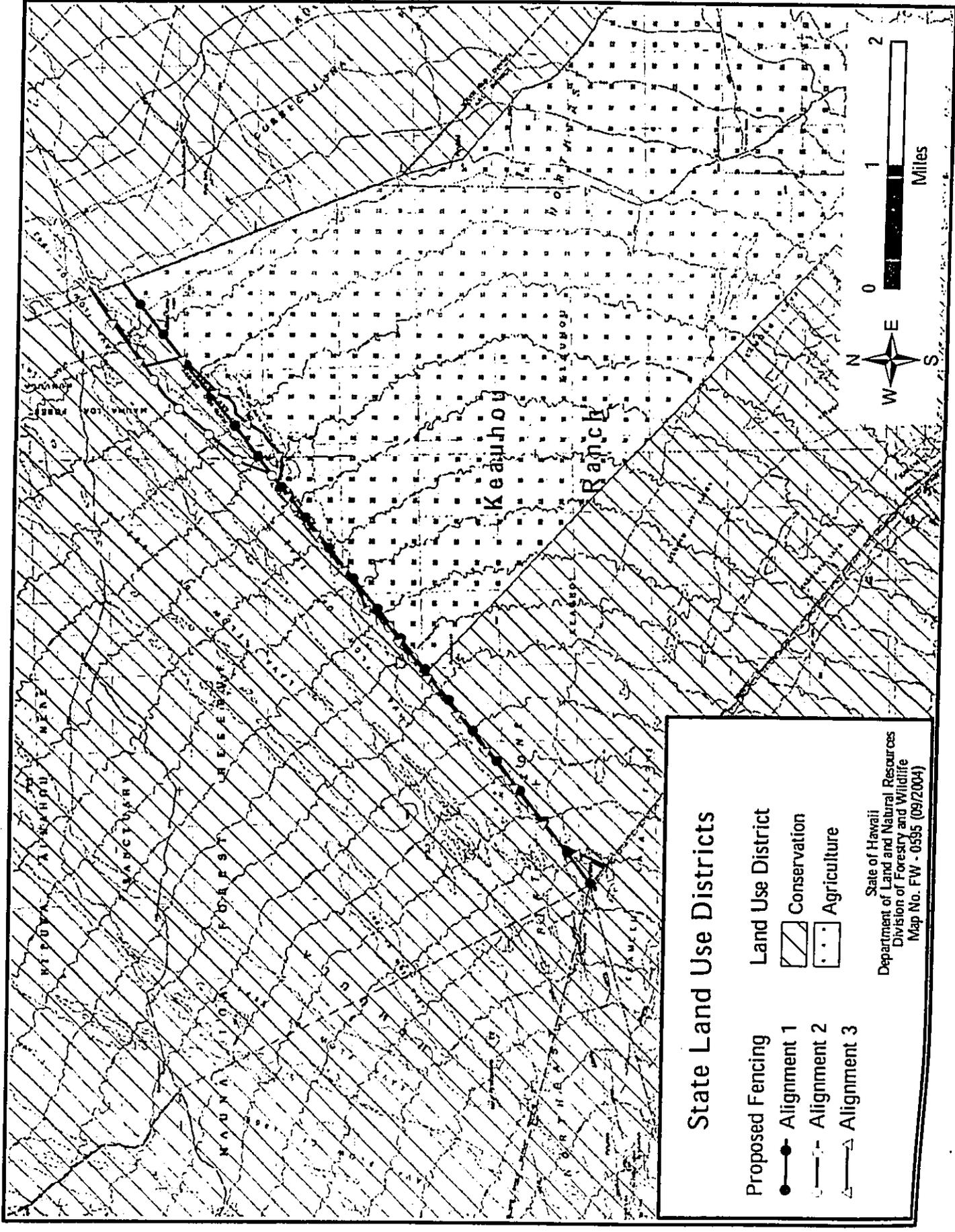
-  Keauhou Ranch
-  Kulani Correctional Facility
-  Hawaii Volcanoes National Park
-  Upper Waiakea Forest Reserve
-  Mauna Loa Forest Reserve
-  Kipuka Ainahou Nene Sanctuary
-  Puu Makaala Natural Area Reserve

Olaa-Kilauea Watershed Partnership

State of Hawaii
 Department of Land and Natural Resources
 Division of Forestry and Wildlife
 Map No. FW - 0592 (09/2004)







State Land Use Districts

- Proposed Fencing**
- Alignment 1
 - - - Alignment 2
 - △— Alignment 3

- Land Use District**
- ▨ Conservation
 - ▤ Agriculture

State of Hawaii
 Department of Land and Natural Resources
 Division of Forestry and Wildlife
 Map No. FW - 0595 (09/2004)

APPENDIX B

Flora Observed Within or Adjacent to the Project Area

Scientific Name	Common or Hawaiian Name	Native or Non- native
<i>Acacia koa</i>	Koa	Native (endemic)
<i>Andropogon virginicus</i>	Broomsedge	Non-native
<i>Anthozanthum odoratum</i>	Vernal grass	Non-native
<i>Arundina graminifolia</i>	Bamboo orchid	Non-native
<i>Asplenium trichomanes</i>	'Oali'i	Native (endemic)
<i>Axonopus fissifolius</i>	Carpetgrass	Non-native
<i>Cibotium glaucum</i>	Hāpu'u pulu	Native (endemic)
<i>Coprosma ernodeoides</i>	Pilo	Native (endemic)
<i>Coprosma montana</i>	Pilo	Native (endemic)
<i>Deschampsia nubigena</i>	Hairgrass	Native (endemic)
<i>Dicranopteris linearis</i>	Uluhe	Native (indigenous)
<i>Digitaria ciliaris</i>	Crabgrass	Non-native
<i>Dodonaea viscosa</i>	'A'ali'i	Native (endemic)
<i>Dryopteris wallichiana</i>	Laukahi	Native (indigenous)
<i>Dubautia ciliolata</i>	Na'ena'e	Native (endemic)
<i>Dubautia scabra</i>	Na'ena'e	Native (endemic)
<i>Ehrharta stipoides</i>	Weeping grass	Non-native
<i>Elaphoglossum wawrae</i>	'Ekaha	Native (endemic)
<i>Elaphoglossum hirtum</i>	'Ekaha	Native (endemic)
<i>Exocarpus menziesii</i>	Heau	Native (endemic)
<i>Fragaria vesca</i>	European strawberry	Non-native
<i>Gahnia gahniiformis</i>	Gahnia	Native (endemic)
<i>Geranium cuneatum</i>	Nohoanu	Native (endemic)
<i>Gnaphalium sandwicense</i>	'Ena'ena	Native (indigenous)
<i>Holcus lanatus</i>	Velvet grass	Non-native
<i>Hypochaeris radicata</i>	Hairy Cat's Ear	Non-native
<i>Ilex anomala</i>	Kawa'u	Native (endemic)
<i>Juncus planifolius</i>	Rush	Non-native
<i>Luzula hawaiiensis</i> var. <i>hawaiiensis</i>	Wood rush	Native (endemic)
<i>Metrosideros polymorpha</i> var. <i>polymorpha</i>	'Ōhi'a	Native (endemic)
<i>Nephrolepis cordifolia</i>	Sword fern	Native (indigenous)
<i>Pellaea ternifolia</i>	Kalamoho	Non-native
<i>Polygonum capitatum</i>	Knotweed	Non-native
<i>Prunella vulgaris</i>	Selfheal	Non-native
<i>Pseudongaphalium japonica</i>		Non-native
<i>Pteris aquilinum</i>	Bracken fern	Native (endemic)
<i>Santalum paniculatum</i> var. <i>paniculatum</i>	'Iliahi	Native (endemic)
<i>Schizachyrium condensatum</i>	Bush beardgrass	Non-native
<i>Styphelia tameiameia</i>	Pūkiawe	Native (endemic)
<i>Trisetum glomeratum</i>	Pili uka	Native (endemic)

APPENDIX B (cont'd)

Scientific Name	Common Name	Native or Non-native
Vaccinium dentatum	'Ōhelo	Native (endemic)
Vaccinium reticulatum	'Ōhelo	Native (endemic)
Veronica plebius	Trailing speedwell	Non-native
Youngia japonica	Oriental hawksbeard	Non-native

APPENDIX C

Fauna Observed or Thought to Occur In or Near the Project Area

Scientific Name	Common Name	Federal Status
Native Birds		
<i>Branta sandvicensis</i>	Nēnē	Endangered
<i>Buteo solitarus</i>	Hawaiian hawk, 'Io	Endangered
<i>Chasiempis sandwichensis</i>	'Elepaio	
<i>sandwichensis</i>		
<i>Hemignathus virens virens</i>	Hawai'i 'amakihi	
<i>Himatione sanguinea</i>	'Apapane	
<i>sanguinea</i>		
<i>Loxops coccineus</i>	'Ākepa	Endangered
<i>Myadestes obscurus</i>	'Ōma'o	
<i>Oceanodroma castro</i>	Band-rumped storm-petrel ('ake'ake)	Candidate
<i>Oreomystis mana</i>	Hawai'i creeper	Endangered
<i>Pterodroma sandwichensis</i>	Hawaiian Petrel ('ua'u)	Endangered
<i>Vestiaria coccinea</i>	'I'iwi	
Non-native Birds		
<i>Lophura leucomelana</i>	Kalij Pheasant	
<i>Zosterops japonicus</i>	Japanese White-eye	
Native Mammals		
<i>Lasiurus cinereus semotus</i>	Hawaiian Hoary Bat ('ōpe'ape'a)	Endangered
Non-native Mammals		
<i>Capra hircus hircus</i>	Goat	
<i>Felis catus</i>	Feral cat	
<i>Herpestes auropunctatus</i>	Mongoose	
<i>Ovis musimon X Ovis aries</i>	Hybrid feral sheep	
<i>Ovis musimon</i>	Mouflon sheep	
<i>Rattus spp.</i>	Rats	
<i>Sus scrofa scrofa</i>	Pig	

APPENDIX D
Letters Received During Pre-Consultation

LINDA LINGLE
GOVERNOR OF HAWAII



GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 06813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186
E-mail: oeqc@hawaii.state.hi.us

March 8, 2004

Mr. Christen Mitchell, Planner
State of Hawaii
Department of Land and Natural Resources
Division of Forestry and Wildlife
1151 Punchbowl St. Rm 325
Honolulu, HI 96813

Subject: Pre-Consultation for Protective Fencing along Keauhou Ranch Boundary
by the Olaa-Kilauea Partnership, Island of Hawaii

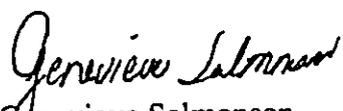
Dear Mr. Mitchell,

We have reviewed the information provided for the proposed protective fencing by the Olaa-Kilauea partnership. We have a suggestion that you consult with the local hunting clubs and individuals.

We have no other comment to offer at this time, but will reserve further comments when the document is submitted.

Should you have any questions, please feel free to call our office at 586-4185.

Sincerely,


Genevieve Salmonson
Director

LINDA LINGLE
GOVERNOR OF HAWAII



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

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

In reply, please refer to:
EPO-04-046

March 11, 2004

Ola'a – Kilauea Partnership
P.O. Box 52
Hawai'i National Park, Hawaii 96718

Attention: Mr. Mitchell

Dear Mr. Mitchell:

**SUBJECT: Pre-Consultation on Environmental Assessment for Protective Fencing
along Keauhou Ranch Boundary by the Olaa-Kilauea Partnership, Island
of Hawaii**

Thank you for allowing us to review and comment on the subject document. We have the attached standard comments to offer. If you have any questions about the attached standard comments please contact Ryan Davenport at 586-4346.

Sincerely,

A handwritten signature in cursive script that reads "June F. Harrigan-Lum".

JUNE F. HARRIGAN-LUM, MANAGER
Environmental Planning Office

Enclosures

c: CAB
EPO
SHWB
NRAIQ
CWB
WWB
HEER

Standard Comments

Environmental Planning Office Dated 3/2/04

The Environmental Planning Office (EPO) is responsible for several surface water quality management programs mandated by the federal Clean Water Act or dictated by State policy . (<http://www.state.hi.us/doh/eh/cpo/wqm/wqm.htm>). Among these responsibilities, EPO:

- maintains the *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)* (<http://www.state.hi.us/doh/eh/cpo/wqm/303dpcfinal.pdf>);
- develops and establishes Total Maximum Daily Loads (TMDLs) for listed waters (suggesting how much existing pollutant loads should be reduced in order to attain water quality standards, please see <http://www.epa.gov/owow/tmdl/intro.html>);
- writes TMDL Implementation Plans describing how suggested pollutant load reductions can be achieved; and
- conducts assessments of stream habitat quality and biological integrity.

To facilitate TMDL development and planning, and to assist our assessment of the potential impact of proposed actions upon water quality, pollutant loading, and biological resources in receiving waters, we suggest that environmental review documents, permit applications, and related submittals include the following standard information and analyses:

Waterbody type and class

1. Identify the waterbody type and class, as defined in Hawaii Administrative Rules Chapter 11-54 (<http://www.state.hi.us/doh/rules/11-54.pdf>), of all potentially affected water bodies¹.

Existing water quality management actions

2. Identify any existing National Pollutant Discharge Elimination System (NPDES) permits and related connection permits (issued by permittees) that will govern the management of water that runs off or is discharged from the proposed project site or facility. Please include NPDES and other permit numbers; names of permittees, permitted facilities, and receiving waters (including waterbody type and class as in 1. above); diagrams showing drainage/discharge pathways and outfall locations; and note any permit conditions that may specifically apply to the proposed project.
3. Identify any planning documents, groups, and projects that include specific prescriptions for water quality management at the proposed project site and in the

potentially affected waterbodies. Please note those prescriptions that may specifically apply to the proposed project.

Pending water quality management actions

4. Identify all potentially affected water bodies that appear on the current *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)* including the listed waterbody, geographic scope of listing, and pollutant(s) (See Table 7 at <http://www.state.hi.us/doh/eh/epo/wqm/303dpcfinal.pdf>).
5. If the proposed project involves potentially affected water bodies that appear on the current *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)*, identify and quantify expected changes in the following site and watershed conditions and characteristics:
 - surface permeability
 - hydrologic response of surface (timing, magnitude, and pathways)
 - receiving water hydrology
 - runoff and discharge constituents
 - pollutant concentrations and loads in receiving waters
 - aquatic habitat quality and the integrity of aquatic biota

Where TMDLs are already established they include pollutant load allocations for the surrounding lands and point source discharges. In these cases, we suggest that the submittal specify how the proposed project would contribute to achieving the applicable load reductions.

Where TMDLs are yet to be established and implemented, a first step in achieving TMDL objectives is to prevent any project-related increases in pollutant loads. This is generally accomplished through the proper application of suitable best management practices in all phases of the project and adherence to any applicable ordinances, standards, and permit conditions. In these cases we suggest that the submittal specify how the proposed project would contribute to reducing the polluted discharge and runoff entering the receiving waters, including plans for additional pollutant load reduction practices in future management of the surrounding lands and drainage/discharge systems.

Proposed Action and Alternatives Considered

We suggest that each submittal identify and analyze potential project impacts at a watershed scale by considering consider the potential contribution of the proposed project to cumulative, multi-project watershed effects on hydrology, water quality, and aquatic and riparian ecosystems.

We also suggest that each submittal broadly evaluate project alternatives by identifying more than one engineering solution for proposed projects. In particular, we suggest the consideration of "alternative," "soft," and "green" engineering solutions for channel

modifications that would provide a more environmentally friendly and aesthetically pleasing channel environment and minimize the destruction of natural landscapes.

If you have any questions about these comments or EPO programs, please contact Ryan Davenport at 586-4346.

¹"Potentially affected waterbodies" means those in which proposed project activity would take place and any that could receive water discharged by the proposed project activity or water flowing down from the proposed project site. These waterbodies can be presented as a chain of receiving waters whose top link is at the project site upslope and whose bottom link is in the Pacific Ocean, and can be named according to conventions established by Chapter 11-54 and the *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)*. For example, a recent project proposed for Nuhelewai Stream, Oahu might potentially affect Nuhelewai Stream, Kapalama Canal, and Honolulu Harbor and Shore Areas.

[OTHER EXAMPLES OR DIAGRAM??]

Solid and Hazardous Waste Branch Dated 3/2/04

1)
The OSWM recommends the development of a solid waste management plan that encompasses all project phases including demolition, construction, and occupation/operation of the completed project.

Specific examples of elements that the plan should address include:

- The recycling of green-waste during clear and grub activities;
- Recycling construction and demolition wastes, if appropriate;
- The use of locally produced compost in landscaping;
- The use of recycled content building materials;
- The provision of recycling facilities in the design of the project.

2)
The developer shall ensure that all solid waste generated during project construction is directed to a Department of Health permitted solid waste disposal or recycling facility.

3)
The developer should consider providing space in the development for recycling activities. The provision of space for recycling bins for paper, glass, and food/wet waste would help to encourage the recycling of solid waste(s) generated by building occupants.

4)
The discussion of solid waste issues contained in the document is restricted to activities within the completed project. The OSWM recommends the development of a solid waste management plan that encompasses all project phases, from construction (and or demolition) to occupation of the project.

Specific examples of plan elements include: the recycling of green-waste during clear and grub activities; maximizing the recycling of construction and demolition wastes; the use of locally produced compost in the landscaping of the project; and the provision of recycling facilities in the design of the project.

5)

Hawaii Revised Statutes Chapter 103D-407 stipulates that all highway and road construction and improvement projects funded by the State or a county or roadways that are to be accepted by the State or a county as public roads shall utilize a minimum of ten per cent crushed glass aggregate as specified by the department of transportation in all base-course (treated or untreated) and sub-base when the glass is available to the quarry or contractor at a price no greater than that of the equivalent aggregate.

If you have any questions, please contact the Solid and Hazardous Waste Branch at (808) 586-4240.

Noise, Radiation & Indoor Air Quality Branch Dated 3/2/04

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

- Chapter 11-39 Air Conditioning and Ventilating.
- Chapter 11-45 Radiation Control.
- Chapter 11-46 Community Noise Control.
- Chapter 11-501 Asbestos Requirements.
- Chapter 11-502 Asbestos-Containing Materials in Schools.
- Chapter 11-503 Fees for Asbestos Removal and Certification
- Chapter 11-504 Asbestos Abatement Certification Program

Should there be any questions, please contact Russell S. Takata, Environmental Health Program Manager, Noise, Radiation and Indoor Air Quality Branch, at 586-4701.”

Clean Water Branch Dated 3/2/04

1. The Army Corps of Engineers should be contacted at (808) 438-9258 to identify whether a Federal license or permit (including a Department of Army permit) is required for this project. Pursuant to Section 401(a)(1) of the Federal Water Pollution Act (commonly known as the “Clean Water Act”), a Section 401 Water Quality Certification is required for “[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters....”
2. A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for the following activities:
 - a. Storm water associated with industrial activities, as defined in Title 40, Code of Federal Regulations, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi).

- b. Construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. **An NPDES permit is required before the commencement of the construction activities.**
- c. Discharges of treated effluent from leaking underground storage tank remedial activities.
- d. Discharges of once through cooling water less than one (1) million gallons per day.
- e. Discharges of hydrotesting water.
- f. Discharges of construction dewatering effluent.
- g. Discharges of treated effluent from petroleum bulk stations and terminals.
- h. Discharges of treated effluent from well drilling activities.
- i. Discharges of treated effluent from recycled water distribution systems.
- j. Discharges of storm water from a small municipal separate storm sewer system.
- k. Discharges of circulation water from decorative ponds or tanks.

The CWB requires that a Notice of Intent (NOI) to be covered by a NPDES general permit for any of the above activities be submitted at least 30 days before the commencement of the respective activities. The NOI forms may be picked up at our office or downloaded from our website at <http://www.state.hi.us/health/eh/cwb/forms/genl-index.html>.

- 3. The applicant may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State waters and/or coverage of the discharge(s) under the NPDES general permit(s) is not permissible (i.e. NPDES general permits do not cover discharges into Class 1 or Class AA receiving waters). An application for the NPDES permit is to be submitted at least 180 days before the commencement of the respective activities. The NPDES application forms may also be picked up at our office or downloaded from our website at <http://www.state.hi.us/health/eh/cwb/forms/indiv-index.html>.
- 4. Hawaii Administrative Rules, Section 11-55-38, also requires the owner to either submit a copy of the new NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the DOH that the project, activity, or site covered by the NOI or application has been or is being reviewed by SHPD. Please submit a copy of the request for review by SHPD or SHPD's determination letter for the project.

If you have any questions, please contact the CWB at 586-4309.

Waste Water Branch Dated 3/2/04

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems". We do reserve the right to review the detailed wastewater plans for conformance to applicable rules.

Should you have any questions, please contact the Planning & Design Section of the Wastewater Branch at 586-4294.

Clean Air Branch Dated 3/2/04

Construction/Demolition Involving Asbestos:

Since the proposed project would entail renovation/demolition activities which may involve asbestos, the applicant should contact the Asbestos Abatement Office in the Noise, Radiation and Indoor Air Quality Branch at 586-5800.

Control of Fugitive Dust:

A significant potential for fugitive dust emissions exists during all phases of construction. Proposed construction activities will occur in proximity to **existing residences, businesses, public areas and thoroughfares**, thereby exacerbating potential dust problems. It is recommended that a dust control management plan be developed which identifies and addresses all activities that have a potential to generate fugitive dust. Implementation of adequate dust control measures during all phases of development and construction activities is warranted.

Construction activities must comply with the provisions of Hawaii Administrative Rules, §11-60.1-33 on Fugitive Dust.

The contractor should provide adequate measures to control dust from the road areas and during the various phases of construction. These measures include, but are not limited to, the following:

- a) Plan the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potential dust-generating equipment in areas of the least impact;
- b) Provide an adequate water source at the site prior to start-up of construction activities;
- c) Landscape and provide rapid covering of bare areas, including slopes, starting from the initial grading phase;
- d) Minimize dust from shoulders and access roads;
- e) Provide adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and
- f) Control dust from debris being hauled away from the project site.

Hazard Evaluation and Emergency Response Office(HEER) Dated 3/2/04

1. A phase I Environmental Site Assessment (ESA) should be conducted for developments or redevelopments. If the investigation shows that a release of petroleum, hazardous substance, pollutants or contaminants occurred at the site, the site should be properly characterized through an approved Hawaii State Department of Health (DOH)/Hazard Evaluation and Emergency Response Office (HEER) soil and or groundwater sampling plan. If the site is found to be contaminated, then all removal and remedial actions to clean up hazardous substance or oil releases by past and present owners/tenants must comply with chapter 128D, Environmental Response Law, HRS, and Title 11, Chapter 451, HAR, State Contingency Plan.
2. All lands formerly in the production of sugarcane should be characterized for arsenic contamination, If arsenic is detected above the US EPA Region (preliminary remediation goal (PRG) for non-cancer effects, then a removal and or remedial plan must be submitted to the Hazard Evaluation and Emergency Response (HEER) Office of the State Department of Health for approval. The plan must comply with Chapter 128D, Environmental Response Law, HRS, and Title 11, Chapter 451, HAR, State Contingency Plan.
3. If the land has a history of previous releases of petroleum, hazardous substances, pollutants, or contaminants, we recommend that the applicant request a "no further action" (NFA) letter from the Hawaii State Department of Health (DOH)/ Hazard Evaluation and Emergency Response (HEER) Office prior to the approval of the land use change or permit approval.

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

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

March 13, 2004

FENCEKEAUHOUDOF AW.RCM
LD-NAV

Christen Mitchell
Department of Land and Natural Resources
Division of Forestry and Wildlife
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Ms. Mitchell:

SUBJECT: Pre-Assessment Consultation for the Preparation of a Draft Environmental Assessment for Protective Fencing along Keauhou Ranch Boundary by the Olaa-Kilauea Partnership, Island of Hawaii

Thank you for the opportunity to review and comment on the subject matter.

A copy of your letter dated March 2, 2004 (description of project) covering the subject matter was distributed to the following Land Division Branches for their review and comment:

- Planning and Development
- Hawaii District Land Office

The Land Division has no comment to offer on the subject matter.

Should you have any questions, please contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 587-0384.

Very truly yours,

A handwritten signature in black ink, appearing to read "Dierdre S. Mamiya".

DIERDRE S. MAMIYA
Administrator

C: HDLO

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

March 15, 2004

Ms. Christen Mitchell
Planner, DLNR
Division of Forestry and Wildlife
P. O. Box 52
Hawaii National Park HI 96718

Dear Ms. Mitchell:

Subject: Pre-Consultation on Environmental Assessment
Applicant: Olaa-Kilauea Partnership
Project: Protective Fencing along Keauhou Ranch Boundary
TMK: 3-8-1:1 (North Hilo) and 9-9-1:4 (Kau), Hawaii

This is in response to your March 2, 2004 letter concerning Olaa-Kilauea Partnership's proposal to establish approximately 6.5 miles of protective fencing along the Keauhou Ranch/State of Hawaii property boundary. This barrier fence is needed to prevent mouflon ingress and to provide a more effective means to remove ungulates from the Ranch.

Please note the following for each parcel:

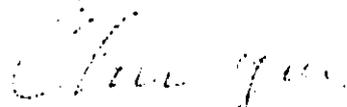
	TMK: 3-8-1:1	TMK: 9-9-1:4
State Land Use Designation	Conservation	Agricultural/Conservation
County Zoning	Conservation District	Agricultural (A-20a)/Open
General Plan Designation	Conservation	Extensive Agriculture/ Conservation
Area	52,981.699 acres	27,180.985 acres
Special Management Area	No	No

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

Ms. Christen Mitchell
Planner, DLNR
Division of Forestry and Wildlife
Page 2
March 15, 2004

Should you have questions or require further information, please feel free to contact Esther Imamura or Larry Brown of our Department at 961-8288.

Sincerely,


CHRISTOPHER J. YUEN
Planning Director

ETI:pak
P:\WPWIN60\ETI\EA\draft\Pre-consul\Olaa-KilaueaPartnership38001001-99001004.doc

xc: Mayor's Office

APPENDIX E
Letters Received During Public Comment

LINDA LINGLE
GOVERNOR
STATE OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

September 24, 2004

Ms. Tanya Rubenstein
Olaa-Kilauea Partnership
P. O. Box 52
Hawaii National Park, Hawaii 96718

Dear Ms. Rubenstein:

Thank you for the opportunity to review the draft environmental assessment report for the Keauhou Boundary Protective Fencing project in the Kau and North Hilo areas on the island of Hawaii. The Department of Hawaiian Home Lands has no comments to offer at this time.

If you have any questions, please call me at 586-3801 or call our Planning Office at 586-3836.

Aloha and mahalo,

A handwritten signature in black ink, appearing to read "Micah Kane".

Micah A. Kane, Chairman
Hawaiian Homes Commission

c: Christen Mitchell, DLNR
OEQC

'Ola'a - Kilauea Partnership
P.O. Box 52
Hawai'i National Park, HI 96718
(808) 985-6197
FAX (808) 985-6029

Hawai'i Dept. of Land & Natural Resources
U.S.G.S. Biological Resources Division
Kamohamcha Schools
U.S.D.A. Forest Service
Hawai'i Dept. of Public Safety
Hawai'i Volcanoes National Park
U.S. Fish and Wildlife Service
The Nature Conservancy of Hawai'i

November 10, 2004

Mr. Micah Kane
Chairman
Hawaiian Homes Commission
Department of Hawaiian Home Lands
PO Box 1879
Honolulu, HI 96805

Re: Draft Environmental Assessment, Keauhou Ranch Upper Boundary Protective Fencing Project

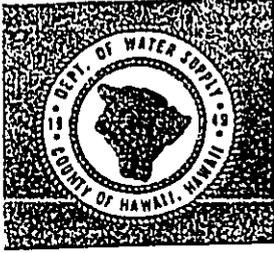
Dear Mr. Kane:

Thank you and your staff for taking the time to review the Draft Environmental Assessment (EA) for the Keauhou Ranch Upper Boundary Protective Fencing Project on the Big Island. We understand that you have no comments at this time. If you have any future questions or concerns about this project, please feel free to contact me at 985-6197.

Sincerely,



Tanya Rubenstein
Coordinator, 'Ola'a-Kilauea Partnership



DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII
345 KEKOAŌA STREET, SUITE 20 • HILO, HAWAII 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8857

October 12, 2004

Ms. Tanya Rubenstein
'Ōla'a-Kīlauea Partnership
P.O. Box 52
Hawaii National Park, HI 96718

**KEAUHOU RANCH BOUNDARY PROTECTIVE FENCING PROJECT
DRAFT ENVIRONMENTAL ASSESSMENT (DEA)
TAX MAP KEYS 9-9-001:004 AND 3-8-001:001**

Thank you for the opportunity to review the Draft Environmental Assessment for the Keauhou Ranch Boundary Protective Fencing Project.

We have no comments to offer at this time.

Should there be any questions, please contact Ms. Shari Komata of our Water Resources and Planning Branch at 961-8070, extension 252.

Sincerely yours,

Milton D. Pavao, P.E.
Manager

SHK:sco

copy – Director, Office of Environmental Quality Control
Christen Mitchell, Department of Land and Natural Resources

... Water brings progress...

'Ola'a - Kilauea Partnership
P.O. Box 52
Hawai'i National Park, HI 96718
(808) 985-6197
FAX (808) 985-6029

Hawai'i Dept. of Land & Natural Resources
U.S.G.S. Biological Resources Division
Kamehameha Schools
U.S.D.A. Forest Service
Hawai'i Dept. of Public Safety
Hawai'i Volcanoes National Park
U.S. Fish and Wildlife Service
The Nature Conservancy of Hawai'i

November 10, 2004

Mr. Milton Pavao
Manager
County of Hawaii Department of Water Supply
345 Kekuanaoa Street, Suite 20
Hilo, HI 96720

Re: Draft Environmental Assessment, Keauhou Ranch Upper Boundary Protective Fencing Project

Dear Mr. Pavao:

Thank you and your staff for taking the time to review the Draft Environmental Assessment (EA) for the Keauhou Ranch Upper Boundary Protective Fencing Project on the Big Island. We understand that you have no comments at this time. If you have any future questions or concerns about this project, please feel free to contact me at 985-6197.

Sincerely,



Tanya Rubenstein
Coordinator, 'Ola'a-Kilauea Partnership



DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES ARMY GARRISON, HAWAII
SCHOFIELD BARRACKS, HI 96857-5000

October 14, 2004

Office of the Pohakuloa
Training Area Commander

Ms. Christen Mitchell
Planner, State of Hawaii DLNR
Division of Forestry & Wildlife
Room 325
1151 Punchbowl Street
Honolulu, Hawaii 96813

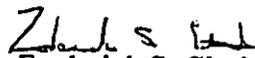
Dear Ms. Mitchell:

Per Ms. Rubenstein's letter received by this office on September 22, 2004, the comments to the draft Environmental Assessment for the Keauhou Ranch Boundary Protective Fencing Project on the Island of Hawai'i are attached for your information.

A copy of this letter along with the enclosed attachment is copy furnished to the OEQC 235 South Beretania Street, Suite 702, Honolulu, Hawaii 96813.

If you have any questions or comments, please contact William Godby and/or Sean Gleason, at (808) 969-3340/1966, respectively.

Sincerely,


Frederick S. Clarke
Lieutenant Colonel, US Army
Commanding Officer

Enclosures

Comments on: Draft Environmental Assessment, Keauhou Ranch Upper Boundary Protective Fencing Project
 Comments by: Sean Gleason, Biologist, Pohakuloa Training Area, US Army

page	paragraph	sentence	comment
		general	The document is well written. The authors have obviously solicited input from many agencies, organizations, and subject experts. The favored alternative will benefit native ecosystems at minimal cost. Several general comments follow:
5	1	4	There is good published research supporting these statements. I would suggest you reference these documents in the text of this EA. Groups opposed to fencing often argue that there is no real science to support these claims. I'm not sure about any study examining altered nutrient cycling, but there is good supporting documentation for general habitat degradation.
6	3	all	I agree with everything, but you might want to include some references.
6	5	all	I think it would be a very good idea to include references for these statements... even if they're just personal communications with people doing unpublished research. Especially comments like, "... their numbers are rapidly increasing; and their range is expanding". I think it's a good possibility that wording like this could be challenged. My advice would be to bolster the entire document with as many good references that you can find. If something is not general knowledge and you can't find a good reference, I recommend that it be omitted. Also, avoid using words like, "rapidly, extremely, profusely, very, etc.". They tend to evoke reactions that you may not intend.
7	4		I'm not sure if it would be possible, but for our fence units we initially had a public hunt for about two months, using black powder weapons and archery. We ran this hunt for about two months before controlling the animals from a helicopter. I understand that this may not work for your group.
8	2		Several statements in this paragraph would benefit from a reference.
8	3	2	Omit "to"
9	3		In the past, we've airlifted fence materials into remote locations to avoid road construction. If this is economically feasible for you folks, you may want to consider this alternative. On the other hand, a bulldozed 4x4 road could also serve as a firebreak.
10	4		If you're going to put a road in couldn't you drive the materials in?
10	6		We'd love to participate in any outplanting that you do. We have several rare plants that would probably do well in this exclosure. Please keep us in mind if the fence is built and you are looking for additional conservation partners.
11	table		It might be a good idea to provide a little more detail on how you will do the animal control. Will you use ground hunters, aerial hunting, both? I'd recommend both.
12	4		This was a good idea to include this information.
13	flora		I would include the Latin/scientific names for all plant species, at least at first mention. You've done this for the animals, but not for the plants.
13	5		<i>Asplenium fragile</i> has been changed to <i>Asplenium pruviana</i> var. <i>insulare</i>

14	1	"...as well as additional rare plant species". This statement seems a little out of place. What species? Are they federally listed, etc. ...might want to omit that last part or include a little more detail.
20	3 last	Hunting "could be" or "would be" affected?
21 V. 1	3	It might be better to just say "rare species" rather than "rare and endangered". I know endangered implies a legal description, but it's not really explicit.
25 env. Ben.		Again, this section would probably benefit from some references.
		I would recommend that you concentrate on the <i>present</i> threat of mouflon rather than an expected increase in density and range. I think, the way this sentence is structured, it's likely to solicit a challenge from the community. I would have to agree, without a referenced document, that it's a difficult statement to make. However, the present threat of mouflon is real and well documented.
29 IX	3	
32 top		Reference statement

Comments on: Draft Environmental Assessment, Keaouhou Ranch Upper Boundary Protective Fencing Project			
Comments by: Bill Godby, Archaeologist, Pohakuloa Training Area, US Army			
page	paragraph	sentence	comment
		general	This is a complete and comprehensive EA. There are references that could be used for this statement regarding the use of "human-modified holes". See Moniz-Nakamura, Jadelyn J., Kathleen Sherry, and Laila Tamimi 1998 Foraging for Food? Prehistoric Pit Feature at Pohakuloa, Hawaii'i Island. Rapa Nui Journal. 12(4):110-117 and also Hu, Darcy, Catherine Glidden, Jill S. Lippert, Lena Schnell, James S. MacIvor, and Julian Meisler. 1996. Habitat Use and Limiting Factors in a Population of Hawaiian Dark-Rumped Petrels on Mauna Loa, Hawaii.
16	4	all	Were the surveys conducted by an archaeologist? It would be good to reference who did the surveys. I would like to see maps showing what area was surveyed and also explain why certain areas were surveyed and other weren't. Clearly this is due to dates and morphology of lava flows. There should also be a general map showing arch site locations in relation to project area.
18	4	all	There is no clear differentiation being made here between an archaeological feature and a site. A feature is part of a site. This needs to be clear. Additional these features should have been recorded and given state site numbers, or feature numbers if they were part of one site. Perhaps the Pu'u O'o Trail has a state site number already. Even though only two "features" were identified within the APE, the remaining four should have been recorded by the archaeologist doing the surveys.
18	6	1	Some attempt should be made to determine presence or absence of cultural deposits/materials at this site. Additionally, ten meters away is not very far and if there are in fact cultural materials or perhaps burials, they would be at risk from construction activities and future fence maintenance. We have numerous caves at PTA that have difficult entries, however attempts always made to determine presence or absence of cultural materials, assisting in proper management of the resources.
19	6	all	

Hawai'i Dept. of Land & Natural Resources
U.S.G.S. Biological Resources Division
Kamehameha Schools
U.S.D.A. Forest Service
Hawai'i Dept. of Public Safety
Hawai'i Volcanoes National Park
U.S. Fish and Wildlife Service
The Nature Conservancy of Hawai'i

`Ola`a - Kilauea Partnership
P.O. Box 52
Hawai'i National Park, HI 96718
(808) 985-6197
FAX (808) 985-6029

November 10, 2004

Mr. Frederick S. Clarke
Lieutenant Colonel, US Army
Commanding Officer
Office of the Pohakuloa Training Area Commander
US Army Garrison Hawaii
Schofield Barracks, HI 96857

Re: Draft Environmental Assessment, Keauhou Ranch Upper Boundary Protective Fencing Project

Dear Lt. Colonel Clarke:

Thank you and your staff for taking the time to review the Draft Environmental Assessment (EA) for the Keauhou Ranch Upper Boundary Protective Fencing Project on the Big Island and submitting a comment letter dated October 14, 2004.

We appreciate the comments made by Sean Gleason, biologist at Pohakuloa Training Area. The Partnership does intend to airlift some of the fence materials to the remote locations along the fence corridor. The bulldozing is anticipated to create a rough road that may not even be drivable with four-wheel drive vehicles. The primary purpose of the bulldozing is not to create a roadway, but to flatten the ground along the fence line corridor, to make fence construction easier by minimizing the amount of hand-leveling required and to reduce the ability of mouflon to use rock outcroppings to jump over the fencing.

Thank you for your offer to participate in future outplantings; we will coordinate with you after the fencing is complete to discuss future opportunities to work together. We appreciate your suggestion to use both ground hunts and aerial control to remove animals once the fence is built. The methods of ungulate control have not been finalized yet, but it is likely that both options will be explored.

We have made changes to the text of the Final EA to include the Latin/scientific names of all plant species on first mention and to reflect that *Asplenium fragile* has been changed to *Asplenium peruvianum* var. *insulare*. In response to your question about the impact on public hunting, we anticipate that hunting could be affected, though we are not sure it would be because no specific concerns have been raised by the hunting community.

In response to your request for providing references in the text, the decision was made to provide all references at the end of the document to enhance readability of the document. If any of the public comments questioned the validity of any of the statements, the specific supporting reference could be provided to them. For this project, no such comments were received and the Final EA has not been changed to provide references in the text. However, for future projects, we will consider providing specific references in the text.

We also appreciate the comments made by Bill Godby, archaeologist at Pohakuloa Training Area, including references regarding the use of "human-modified holes." The field surveys of March 31, 2004, May 12, 2004, and May 24, 2004 were surveyed by an archaeologist with the National Park Service. The areas to be surveyed were selected based on the areas most likely to contain

archaeological features. No on-the-ground surveys were conducted along the portion of the alignment where the proposed corridor was located on the 1984 lava flow. Due to the sensitive nature of archaeological features, maps indicating their location were not included in the EA. However, the location of these features was recorded by the archaeologist as part of the survey and has been shared with the State Historic Preservation Division. We acknowledge your suggestion that attempts be made to determine the presence or absence of cultural deposits at the site. As the fencing alignment is finalized, the Partnership will continue to work with staff from the National Park Service to ensure that cultural materials or areas containing potential cultural materials will not be disturbed or at risk due to construction activities, future fence maintenance, and other future management activities.

Thank you again for taking the time to provide comments on this project. If you have any future questions or concerns about this project, please feel free to contact me at 985-6197.

Sincerely,



Tanya Rubenstein
Coordinator, 'Ōla'a-Kīlauea Partnership

PHONE (808) 594-1888

FAX (808) 594-1865



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

HRD04/1577

October 18, 2004

Tanya Rubenstein
'Ōla'a-Kīlauea Partnership
P.O. Box 52
Hawai'i National Park, HI 96718

**RE: Request for Comment on Draft Environmental Assessment for the Keauhou Ranch
Boundary Protective Fencing Project, Hawai'i, TMKs: 9-9-001:004 and 3-8-001:001**

Dear Tanya Rubenstein,

The Office of Hawaiian Affairs (OHA) is in receipt of your September 2004 request for comments on the above project, which would entail the construction of animal-proof fencing along the boundary between Keauhou Ranch and the Mauna Loa Forest Reserve, enclosing approximately 30,000 acres. OHA offers the following comments and recommendations.

OHA generally supports the concept of fencing to protect native, rare and endangered plants – further protecting the birds that depend on those plants – from ungulates. We also support weed control efforts and removal of existing, damaging ungulates from the areas proposed to be enclosed.

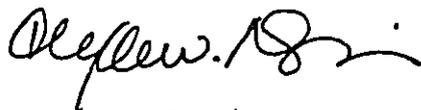
Care must be taken to avoid caves and lava tubes which may exist in the area. Furthermore, any testing to find such tubes should be conducted with respect and care to assure no accidental break-throughs of the tubes or disturbances of potential sacred and cultural sites.

Because of the above concerns, OHA prefers the selection of Alignment 2, provided that the project will continue to afford Native Hawaiian gathering and cultural access rights to the area via pass-through gates created for those access purposes and for hunter access, particularly along any traditional trails that may be crossed by this alignment.

OHA will rely on assurances from the applicant that should this project go forward, and should iwi or Native Hawaiian cultural or traditional deposits be found during ground disturbance or excavation, work will cease, and the appropriate agencies will be contacted pursuant to applicable law.

Thank you for the opportunity to comment. If you have any questions, please contact Heidi Guth at 594-1962 or e-mail her at heidig@oha.org.

Sincerely,



Clyde W. Nāmu'o
Administrator

CC: Christen Mitchell
State of Hawai'i
Department of Land and Natural Resources
Division of Forestry and Wildlife
1151 Punchbowl Street
Honolulu, HI 96813

Office of Environmental Quality Control
235 S. Beretania Street
Suite 702
Honolulu, HI 96813

'Ola`a - Kilauea Partnership
P.O. Box 52
Hawai'i National Park, HI 96718
(808) 985-6197
FAX (808) 985-6029

Hawai'i Dept. of Land & Natural Resources
U.S.G.S. Biological Resources Division
Kamehameha Schools
U.S.D.A. Forest Service
Hawai'i Dept. of Public Safety
Hawai'i Volcanoes National Park
U.S. Fish and Wildlife Service
The Nature Conservancy of Hawai'i

November 10, 2004

Mr. Clyde Namuo
Administrator
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, HI 96813

Re: Draft Environmental Assessment, Keauhou Ranch Upper Boundary Protective Fencing Project

Dear Mr. Namuo:

Thank you and your staff for taking the time to review the Draft Environmental Assessment (EA) for the Keauhou Ranch Upper Boundary Protective Fencing Project on the Big Island and submitting a comment letter dated October 18, 2004.

We appreciate OHA's support of conservation fencing projects, invasive weed control, and ungulate removal to protect rare native plants and animals. We acknowledge your request that care be taken to avoid caves and lava tubes which may exist and that any testing to find such tubes be conducted with respect and care to ensure no accidental break-through or disturbance of potential sacred and cultural sites. Further, we acknowledge your preference for Alignment 2, provided that the project will continue to afford Native Hawaiian gathering and cultural access rights to the area via pass-through gates.

The Olaa-Kilauea Partnership has decided that Alignment 2 is the preferred fencing alignment for the project. Further, the Partnership is working closely with personnel from the National Park Service who have experience constructing fencing in sensitive areas and plan to take every precaution to avoid caves and lava tubes. Finally, we confirm that should any iwi or Native Hawaiian cultural or traditional deposits be found during ground disturbance or excavation, all work will immediately cease and the appropriate agencies be contacted pursuant to applicable law.

Thank you again for taking the time to provide comments on this project. If you have any future questions or concerns about this project, please feel free to contact me at 985-6197.

Sincerely,



Tanya Rubenstein
Coordinator, 'Ola'a-Kilauea Partnership

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

October 18, 2004

Ms. Tanya Rubenstein
Olaa-Kilauea Partnership
P. O. Box 52
Hawaii National Park HI 96718

Dear Ms. Rubenstein:

Subject: Draft Environmental Assessment
Applicant: Olaa-Kilauea Partnership
Project: Keauhou Ranch Boundary Protective Fencing Project
TMK: 9-9-1:4 (Kau) and 3-8-1:1 (North Hilo), Hawaii

This is in response to your request for comments on the Draft Environmental Assessment for the Keauhou Ranch Boundary Protective Fencing Project.

The proposed project will involve the construction of animal-proof fencing along the boundary between Keauhou Ranch and the Mauna Loa Forest Reserve. After fencing is complete, the Olaa-Kilauea Partnership proposes to control and remove feral ungulates within the fenced unit. Subsequently, conservation management actions such as outplanting and invasive weed removal will take place.

Please note that the tax map key numbers should be described as (3) 9-9-1: 4 and (3) 3-8-1: 1.

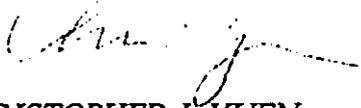
Other than the information in our letter dated March 15, 2004, we have no further comments to offer.

Hawai'i County is an equal opportunity provider and employer

Ms. Tanya Rubenstein
Olaa-Kilauea Partnership
Page 2
October 18, 2004

If you have questions, please feel free to contact Esther Imamura or Larry Brown of this office at 961-8288.

Sincerely,



CHRISTOPHER J. YUEN
Planning Director

ETI: cd
P:\WPWIN60\ETI\EA\draft\Pre-consult\Olaa-KilaueaPartnership2.doc

xc: Mayor's Office

Genevieve Salmonson, Director
Office of Environmental Quality Control
235 S. Beretania Street, Suite 702
Honolulu HI 96813

Ms. Christen Mitchell
DLNR – Division of Forestry & Wildlife
Department of Land & Natural Resources
1151 Punchbowl Street, Room 325
Honolulu HI 96813

Hawai'i Dept. of Land & Natural Resources
U.S.G.S. Biological Resources Division
Kamehameha Schools
U.S.D.A. Forest Service
Hawai'i Dept. of Public Safety
Hawai'i Volcanoes National Park
U.S. Fish and Wildlife Service
The Nature Conservancy of Hawai'i

'Ola'a - Kilauea Partnership
P.O. Box 52
Hawai'i National Park, HI 96718
(808) 985-6197
FAX (808) 985-6029

November 10, 2004

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

Re: Draft Environmental Assessment, Keauhou Ranch Upper Boundary Protective Fencing Project

Dear Mr. Yuen:

Thank you and your staff for taking the time to review the Draft Environmental Assessment (EA) for the Keauhou Ranch Upper Boundary Protective Fencing Project on the Big Island. We appreciate your providing the proper description of the tax map key numbers; this has been corrected in the Final EA. If you have any future questions or concerns about this project, please feel free to contact me at 985-6197.

Sincerely,



Tanya Rubenstein
Coordinator, 'Ola'a-Kilauea Partnership



U. S Department of the Interior
U.S. Geological Survey
Biological Resources Division
Pacific Island Ecosystems Research Center
Kilauea Field Station
PO Box 44, Building 216
Hawaii National Park, Hawaii 96718
(808) 985-6072 Fax (808) 967-7153
Email: linda_w_pratt@usgs.gov



October 19, 2004

Memorandum

TO: Tanya Rubenstein
FROM: Linda W. Pratt, Botanist
SUBJECT: Keauhou Ranch Upper Boundary Fencing Project EA

Thanks for the opportunity to review the draft Environmental Assessment for the Keauhou Ranch fencing boundary. The EA is very well written and thorough and it addresses many points of possible concern, such as how to mitigate the potential spread of weeds along the fence corridor. I was very pleased to read of the actions that will be taken to prevent the inadvertent introduction and spread of alien plants, such as cleaning and inspecting the bulldozer and other materials and equipment.

In general, I strongly support the action of building the fence and removing mouflon sheep and feral animals within the enclosed portion of the Ranch. This is a very important area for the conservation of endangered and other native forest birds, as well as more than 10 rare native plant species. The Keauhou Ranch is a key parcel linking the Hawaii Volcanoes National Park to important conservation lands on Kulani Project and Mauna Loa Forest Reserve. I commend the Kamehameha Schools for initiating this action and wish them every success with the project.

As for which of the proposed fence routes to select, I would prefer the "Alignment 2" that goes around vegetated kipuka and does not bulldoze native forest vegetation. It would seem a minor loss to include a small acreage of State land within the fenced enclosure, however, I realize that some citizens may object strenuously to any loss of use of a part of the Mauna Loa Forest Reserve hunting unit. If Alignment 2 is rejected, I think that Alignment 3, the partial avoidance of kipuka vegetation, is preferable to building the fence along the actual Keauhou boundary, without regard to the loss of natural resources.

I have several comments about rare plant species that may potentially be on or near the fence corridor. The threatened *Silene hawaiiensis* may be in the area, as some of the corridor crosses suitable habitat at appropriate elevations. I suggest that those working on laying the fence or selecting the route be familiarized with this species, so that they may recognize it and

avoid it. The EA states that the endangered fern *Asplenium fragile* var. *insulare*, now known as *Asplenium peruvianum* var. *insulare*, is in the area. I would add to the EA the statement that no lava tubes or openings will be bulldozed along the fence corridor. This avoidance will protect potential habitat for the endangered fern.

A minor point is a statement on page 18 that since the 1970s, a good portion of Keauhou Ranch has been non-native grassland. I worked on a survey of rare plants at Keauhou Ranch and Kilauea Forest in 1979-1980, and at that time the upper part of Keauhou Ranch above 5,000 ft elevation was not alien grassland, but rather forest that had been selectively logged and was being used as pasture. However, it was by no means "alien grassland," as it contained the largest known population of the endangered Hawaiian vetch or *Vicia menziesii*, as well as good populations of more than 10 species of rare and endangered native plants. It was not grazing that destroyed these upper forests, but rather bulldozing for koa silviculture that flattened *Vicia* habitat and the diverse mesic forests of much of Keauhou Ranch.

Thanks for allowing me to comment on the Draft Environmental Assessment and I look forward to the successful completion of this ambitious conservation project.

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Thanks for allowing me to comment on the Draft Environmental Assessment and I look forward to the successful completion of this ambitious conservation project.



United States Department of the Interior

NATIONAL PARK SERVICE
Hawaii Volcanoes National Park
P. O. Box 52
Hawai'i 96718-0052
808/985-6087
808/985-6029 (FAX)

COPY

In Reply Refer to:

L7617 (HAVO)

October 20, 2004

Tanya Rubenstein
Olaa-Kilauea Partnership Coordinator
PO Box 52
Hawaii National Park, HI 96718

Subject: Draft Environmental Assessment for the Keauhou Ranch Boundary Protective Fencing Project on the Island of Hawaii

Dear Ms. Rubenstein,

Thank you very much for the opportunity to review the subject document. We have consulted with our resource personnel and we fully support the proposed project. Your proposed action to fence, and remove ungulates and alien plants in Keauhou Ranch is a high priority partnership goal of Hawaii Volcanoes National Park (HAVO) identified since the 1970's and is consistent with the mandates of the US Fish and Wildlife Service Forest Bird Recovery Plans for the endangered Akiapolaau, Akepa, and Hawaii Creeper.

These endangered birds formerly occupied the forest of Mauna Loa Strip at HAVO up to the late 1950's. However, it is believed that the fragmentation of forest to create ranchlands contributed to the extirpation of these birds from HAVO. Your proposed action to restore Keauhou Ranch would link native forest lands on both sides of the project thus creating an extensive forested corridor from the wet forest at Kulani and Kilauea Forest to the dry mesic forest at Mauna Loa Strip at HAVO. This long-term native forest restoration project will definitely benefit HAVO and the entire regional landscape.

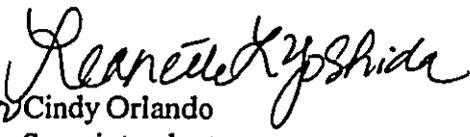
Currently, HAVO is outplanting the endangered Kau silverswords to re-establish these populations on Mauna Loa Strip area. Your proposed actions to restore Keauhou would provide additional protected habitat for outplanting rare and endangered plants which would compliment the park's effort and provide for greater genetic diversity.

Since the early 1990's, one of the major threats to HAVO is the impact of mouflon sheep. These animals have dramatically increased in numbers in neighboring lands and have the ability to jump over the boundary fences at HAVO. The proposed Keauhou fencing and mouflon control

will definitely mitigate the threats to HAVO. In the long-term, HAVO might not need to retrofit its boundary fences and there will be major cost savings for the park due to your proposed actions.

We have reviewed all aspects of the draft EA and support the preferred alternative to fence Keauhou boundary, and remove feral animals and alien plants. Thank you very much for the opportunity to comment. If you have any questions, please contact my office at 985-6025.

Sincerely,


for Cindy Orlando
Superintendent

Hawai'i Dept. of Land & Natural Resources
U.S.G.S. Biological Resources Division
Kamchamcha Schools
U.S.D.A. Forest Service
Hawai'i Dept. of Public Safety
Hawai'i Volcanoes National Park
U.S. Fish and Wildlife Service
The Nature Conservancy of Hawai'i

'Ola'a - Kilauea Partnership
P.O. Box 52
Hawai'i National Park, HI 96718
(808) 985-6197
FAX (808) 985-6029

November 10, 2004

Ms. Cindy Orlando
National Park Service
Hawaii Volcanoes National Park
PO Box 52
Hawaii National Park, HI 96718

Re: Draft Environmental Assessment, Keauhou Ranch Upper Boundary Protective Fencing Project

Dear Ms. Orlando:

Thank you and your staff for taking the time to review the Draft Environmental Assessment (EA) for the Keauhou Ranch Upper Boundary Protective Fencing Project on the Big Island and submitting a comment letter dated October 20, 2004.

We appreciate your support of the conservation fencing project and agree with your comments about the importance of this area for the conservation of endangered, threatened and rare native species. We also agree with your summary of the anticipated benefits of this project to native birds and plants, by connecting native forest, providing additional protected habitat for outplanting, and increasing protection against mouflon sheep.

Thank you again for taking the time to provide comments on this project. If you have any future questions or concerns about this project, please feel free to contact me at 985-6197.

Sincerely,



Tanya Rubenstein
Coordinator, 'Ola'a-Kilauea Partnership

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) 586-4180
E-mail: oeqc@health.state.hi.us

October 20, 2004

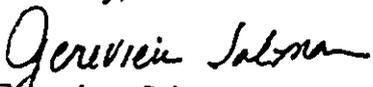
Mr. Peter Young, Chair
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawai'i 96809

Dear Mr. Young:

Subject: Draft Environmental Assessment for the Keahou Ranch Upper Boundary Protective
Fencing, Hawaii

Thank you for the opportunity to review the subject document. We have no comments. Should you have any questions, please call Jeyan Thirugnanam at 586-4185.

Sincerely,


Genevieve Salmonson
Director

Hawai'i Dept. of Land & Natural Resources
U.S.G.S. Biological Resources Division
Kamehameha Schools
U.S.D.A. Forest Service
Hawai'i Dept. of Public Safety
Hawai'i Volcanoes National Park
U.S. Fish and Wildlife Service
The Nature Conservancy of Hawai'i

'Ola`a - Kilauea Partnership
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Hawai'i National Park, HI 96718
(808) 985-6197
FAX (808) 985-6029

November 10, 2004

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

Re: Draft Environmental Assessment, Keauhou Ranch Upper Boundary Protective Fencing Project

Dear Ms. Salmonson:

Thank you and your staff for taking the time to review the Draft Environmental Assessment (EA) for the Keauhou Ranch Upper Boundary Protective Fencing Project on the Big Island. We understand that you have no comments at this time. If you have any future questions or concerns about this project, please feel free to contact me at 985-6197.

Sincerely,



Tanya Rubenstein
Coordinator, 'Ola'a-Kilauea Partnership



Marjorie Ziegler
<mz@conservehi.org>

10/21/2004 02:32 PM

Please respond to
mz@conservehi.org

To <Tanya_Rubenstein@contractor.nps.gov>

cc <Christen.W.Mitchell@hawaii.gov>,
<OEQC@mail.health.state.hi.us>

bcc

Subject CCH comments Keauhou Fence DEA

Aloha! Attached are the Conservation Council for Hawai'i's comments on the Draft EA for the Keauhou Ranch Upper Boundary Protective Fence. Do you need hardcopy with my signature? Keep up the great work! Mahalo.

Marjorie Ziegler
593-0255



CCH Keauhou Fence comments.doc



Conservation Council for Hawai`i

October 21, 2004

Tanya Rubenstein
'Ola'a-Kilauea Partnership
P.O. Box 52
Hawai'i National Park, HI 96718

Re: Draft Environmental Assessment Keauhou Ranch Upper Boundary Protective Fencing Project

Dear Ms. Rubenstein,

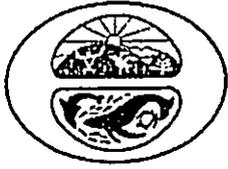
Aloha! The Conservation Council for Hawai'i provides the following comments on the Draft Environmental Assessment of the Keauhou Ranch Upper Boundary Protective Fencing Project, dated August 24, 2004. Conservation Council for Hawai'i strongly supports the proposed fencing project. This proposed action will protect 30,000 acres of native forest at Keauhou Ranch and adjacent ceded lands currently managed for native-resource values. The proposed action is the highest-priority fencing project in the regional conservation effort managed by the 'Ola'a-Kilauea Partnership. The Partnership has already protected thousands of acres of forest and other native ecosystems, and is a model of effective resource management in Hawai'i. The Kamehameha Schools' commitment to species conservation and reversal of destructive land uses at Keauhou Ranch are especially encouraging.

Protecting the native forest and watershed, and providing habitat for rare and endangered Hawaiian species at Keauhou Ranch is the highest and best use of this land. As of August 2004, 30 percent of the threatened and endangered species in the United States were from the Hawaiian Islands. The proposed action will contribute to the recovery of 16 endangered plant and animal species, and may possibly prevent future extinctions.

The U.S. Fish and Wildlife Service's Recovery Plan for Hawaiian Forest Birds identifies the protection of native forest at Keauhou Ranch as necessary to recover endangered Big Island birds. The proposed action will provide habitat for the endangered 'akiapola'au, Hawai'i 'akepa, Hawai'i creeper, 'o'u, 'io, 'ua'u, and nene. It will provide an important corridor linking remaining populations of endangered forest birds at the Kulani Correctional Facility and Hawai'i Volcanoes National Park. Approximately 4000 acres at Keauhou Ranch and the Kulani Correctional Facility – identified as a possible reintroduction site for the endangered 'alala – will benefit from the proposed action as well.



Telephone/Fax 808.593.9255 • email: info@conservchi.org • web: www@conservchi.org
P.O. Box 2923 • Honolulu, HI 96802 • Office: 250 Ward Ave., Suite 217 • Honolulu, HI 96814



Conservation Council for Hawai'i

The proposed action will protect or facilitate the recovery of 10 endangered plant species. It will also protect designated critical habitat for the endangered Mauna Loa silversword and other endangered plants on adjacent state lands.

The proposed action is consistent with the affirmative duty of the Hawai'i Department of Land and Natural Resources and U.S. Fish and Wildlife Service to conserve threatened and endangered species. Allowing the native forest and watershed to be destroyed by introduced mouflon, feral pigs, and cattle would be a tragedy. Any unauthorized take of listed threatened and endangered species would also violate state and federal laws.

Precious public and private funding for conservation is available to proceed with the project. The proposed fence will save money by reducing the need to retrofit adjacent fences to exclude mouflon. The proposed action will also protect significant public and private investment in the protection of the 'Ola'a-Kilauea region.

Fence Alignment 3 appears to be the most beneficial. This alignment will protect the adjacent Boys School Unit within the Kulani Correctional Facility, in addition to 30,000 acres at Keauhou Ranch. We defer to the Partnership to determine the final configuration.

The proposed mitigation measures are reasonable and sound, and will avoid or minimize the project's impacts. We are confident that the long-term benefits of building this fence and excluding ungulates will far outweigh any short-term impacts by the proposed action. We urge the appropriate agencies to approve and implement the project as soon as possible.

Please notify us if there is a need for community volunteers, or if CCH can assist in other ways. We would be happy to provide this year's wildlife poster and teacher's guide – celebrating the 'akiapola'au and koa – to school children and others interested in saving this special Hawaiian place.

Mahalo nui loa for the opportunity to comment on the Draft Environmental Assessment.

Sincerely,

Marjorie Ziegler



Telephone/Fax 808.593.0255 • email: info@conservchi.org • web: www.cchconservchi.org
P.O. Box 2923 • Honolulu, HI 96802 • Office: 250 Ward Ave., Suite 217 • Honolulu, HI 96814

Hawai'i Dept. of Land & Natural Resources
U.S.G.S. Biological Resources Division
Kamohameha Schools
U.S.D.A. Forest Service
Hawai'i Dept. of Public Safety
Hawai'i Volcanoes National Park
U.S. Fish and Wildlife Service
The Nature Conservancy of Hawai'i

'Ola'a - Kilauea Partnership
P.O. Box 52
Hawai'i National Park, HI 96718
(808) 985-6197
FAX (808) 985-6029

November 10, 2004

Ms. Marjorie Ziegler
Conservation Council for Hawaii
PO Box 2923
Honolulu, HI 96802

Re: Draft Environmental Assessment, Keauhou Ranch Upper Boundary Protective Fencing Project

Dear Ms. Ziegler:

Thank you for taking the time to review the Draft Environmental Assessment (EA) for the Keauhou Ranch Upper Boundary Protective Fencing Project on the Big Island and submitting a comment letter dated October 21, 2004.

We appreciate your support of the conservation fencing project and agree with your comments about the importance of this area for the conservation of endangered, threatened and rare native species.

We acknowledge your deferral to the Partnership to determine the final configuration. The Olaa-Kilauea Partnership has decided that Alignment 2 is the preferred fencing alignment for the project as it remains on recent lava flows, limiting the amount of vegetation that must be cleared and minimizing impact on the historic Puu Oo trail.

Finally, we appreciate your offer to assist by providing volunteers or by providing copies of this year's wildlife poster and teacher's guide and will follow up on your offer as needed. Thank you again for taking the time to provide comments on this project. If you have any future questions or concerns about this project, please feel free to contact me at 985-6197.

Sincerely,



Tanya Rubenstein
Coordinator, 'Ola'a-Kilauea Partnership



Mashuri Waite
<mashuri@hawaii.edu>
10/22/2004 01:31 PM

To Tanya_Rubenstein@contactor.nps.gov
cc Christen.W.Mitchell@hawaii.gov,
OEQC@mail.health.state.hi.us

bcc

Subject comment on keahou fence

Re: Draft Environmental Assessment Keauhou Ranch Upper Boundary
Protective Fencing Project

Dear Ms. Rubenstein.

I am writing in support of the proposed action of constructing ungulate exclusion fence (particularly Fence Alignment 3) to protect 30,000 acres of native forest habitat from further destruction by feral pigs, cattle, and mouflon. I have personally seen the damage caused by feral pigs to native forests in the nearby Waiakea Forest Reserve and so look forward to any success in excluding ungulates from native forest to allow recovery of the rare and endangered plant species and dependent native animals.

Thanks,

Mashuri Waite
728 Mahiai St. Apt D
Honolulu, HI 96826

'Ola'a - Kilauea Partnership
P.O. Box 52
Hawai'i National Park, HI 96718
(808) 985-6197
FAX (808) 985-6029

Hawai'i Dept. of Land & Natural Resources
U.S.G.S. Biological Resources Division
Kamehameha Schools
U.S.D.A. Forest Service
Hawai'i Dept. of Public Safety
Hawai'i Volcanoes National Park
U.S. Fish and Wildlife Service
The Nature Conservancy of Hawai'i

November 10, 2004

Ms. Mashuri Waite
728 Mahiai Street, Apt. D
Honolulu, HI 96826

Re: Draft Environmental Assessment, Keauhou Ranch Upper Boundary Protective Fencing Project

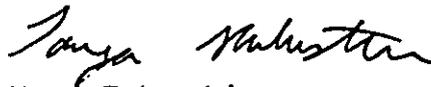
Dear Ms. Waite:

Thank you for taking the time to review the Draft Environmental Assessment (EA) for the Keauhou Ranch Upper Boundary Protective Fencing Project on the Big Island and submitting a comment letter via email on October 22, 2004.

We appreciate your support of the conservation fencing project and acknowledge your observations of ungulate damage to native forest in the nearby Waiakea Forest Reserve. The Olaa-Kilauea Partnership has decided that Alignment 2 is the preferred fencing alignment for the project as it remains on recent lava flows, limiting the amount of vegetation that must be cleared and minimizing impact on the historic Puu Oo trail.

Thank you again for taking the time to provide comments on this project. If you have any future questions or concerns about this project, please feel free to contact me at 985-6197.

Sincerely,



Tanya Rubenstein
Coordinator, 'Ola'a-Kilauea Partnership

23OCT04

Office of Environmental Quality Control
235 S. Beretania St., Suite 702
Honolulu, Hawaii 96813

Dear Administrator,

These comments address the Draft Environmental Assessment for the proposed Keauhou Ranch Upper Boundary Protective Fencing Project.

I am a biologist quite familiar with the specific and general area of the fence line including its biological resources, and have spent much time in the area for over 30 years. I also have traversed portions of the Pu'u O'o trail on foot many times and in its entirety by horse once. The trail is magnificent, and should not be damaged at all or have its view planes impaired by too close a proximity to the proposed fence.

My main concerns about this project relate to the three alignments proposed for the lower two miles of the fence. Only **Alignment 2** (all fence on recent flow surfaces) makes sense from the perspectives of natural and cultural resources conservation, and I urge strongly that this is the alignment chosen. To utilize this alignment prevents crossing the original portions of the trail by placing the fence atop broad, recent lava flows, and thereby also preserves the view plane as best as can be done. These recent flows covered sections of the original trail and newer connectors have replaced them, so no original trail need be disturbed with Alignment 2. I recently observed (on an older openly vegetated flow) an old ahu about two miles above the Waiakea camp section of the Pu'u O'o trail, and midway between the Pu'u O'o trail and the petrel colony area above, in the same general area as the proposed fence. I wonder if it is part of a connecting trail used by old 'ua'u collectors in ancient times, and raise the possibility that more remnants might be found on the older flows of the area, including the older vegetated kipuka that the other two alternative alignments pass through.

I have done lots of vegetation survey work in the area of the fence line, and note that the vegetation is about as pristine and native dominated as one will find, except where disturbed. If disturbance occurs on older, vegetated flows (as in Alternatives 1 and 3), it is a given that this disturbed surface will be colonized in large part by introduced species, providing them opportunity to spread more of their seed into the surrounding landscape. Colonization of new (1942, 1984) flows by weeds after bulldozing is very much reduced due to the harsher conditions on the new flow. Keeping the entire lower portion of the fence on new flows is only allowed in Alignment 2, and should be the choice selected.

If either Alignment 1 or 3 are selected, then the fence will pass through a significant area of native vegetation, vegetation which will attract the presence of mouflon (as it now does). This would elevate the chance of sheep incursion into the Keauhou side should the fence become damaged. If this lower part of the fence is built entirely on recent flows and there exists a broad expanse of barren recent flows between the fence and the populations of sheep to the north, as Alignment 2 presents, then there would be no motivation for the sheep to travel to the fence and to be a threat should the fence become damaged. Again, Alignment 2 should be the choice selected.

The area to the north of the proposed Keauhou fence is operated by the DLNR as a high game density hunting area. Here the combination of locked gates (on the power line road's Saddle Road end and on the side road from the Mauna Loa Observatory road), seasonal hunting restrictions, and limitation to archery only has allowed very high numbers of mouflon to build up and encouraged their migration into Keauhou in recent years. These trespassing animals have greatly impacted the native vegetation of the whole area, including Keauhou. Some endangered plants that I was monitoring at Keauhou disappeared at about the time this trespass started. Given the State's responsibility towards endangered plants on public and private lands, it would seem only logical that the DLNR would encourage the Alignment 2 construction, and be glad that about 150 acres of public land is being fenced and protected from sheep with somebody else's funding. This area would be an excellent area to restore any rare native plants that would naturally occur in this 150 acres. Perhaps some of the thousands of vulnerable and depleted *Sisyrinchium acre* plants that occur in a similar kipuka immediately north of the 1984 flow could be given this chance.

Having participated in two petrel surveys along the fence alignment, I realize that there may be some low level of risk to the two species of petrels that do overfly the area. I do have confidence that practical mitigation measures will minimize this possibility. I also feel strongly that if the agencies involved in the fence and in the birds' well-being put effort into effective predator control at the colonies, that this would more than compensate for any potential loss of birds on the fence.

In summary, I strongly support the construction of this crucial and strategic fence, and feel that the level of environmental impact is tiny compared with the consequences of not building the fence. The spread of mouflon and hybrid sheep out of the Mauna Kea game management area into very large surrounding areas has introduced a serious threat to native ecosystems, even those which have been previously fenced and cleared of other ungulates. The mouflon and hybrids' ability to jump previously constructed conservation fences has rendered these very expensive fences obsolete, and is causing the owners of conservation areas great losses in biological resources and in expenses to replace former fences with those tall enough to exclude mouflon. I have witnessed losses of rare plants in protected areas and know that the uncontrolled spread of these sheep is a rapidly expanding threat to numerous native species, witnessed or otherwise. The State has a responsibility (and some say liability) to do everything it can to encourage fences such as the proposed fence and to cooperate in every way with their permitting and construction.

Aloha,

Rick Warshauer, Conservation biologist
PO Box 192
Volcano, Hawaii 96785

cc. Chairperson, DLNR

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U.S.D.A. Forest Service
Hawai'i Dept. of Public Safety
Hawai'i Volcanoes National Park
U.S. Fish and Wildlife Service
The Nature Conservancy of Hawai'i

November 10, 2004

Mr. Rick Warshauer
PO Box 192
Volcano, HI 96785

Re: Draft Environmental Assessment, Keauhou Ranch Upper Boundary Protective Fencing Project

Dear Mr. Warshauer:

Thank you for taking the time to review the Draft Environmental Assessment (EA) for the Keauhou Ranch Upper Boundary Protective Fencing Project on the Big Island and submitting a comment letter dated October 23, 2004.

We appreciate your support of the conservation fencing project. We acknowledge your recommendation for Alignment 2, based upon your experience and familiarity with the project area. Specifically, we recognize your concerns about the potential impact on remnant trails in the area between the Puu Oo trail and the petrel colony area, about the potential for colonization of invasive species, and about the elevated potential for mouflon sheep incursion, if any alignment besides Alignment 2 is selected. In addition, we recognize your recommendation to protect the additional 150 acres of kipuka to protect some State land from damage by mouflon and to serve as a potential outplanting area for rare native plants such as *Sisyrinchium acre*. After consideration of the public comments received and the environmental impact of each alternative, the Olaa-Kilauea Partnership has decided that Alignment 2 is the preferred fencing alignment for the project.

Thank you again for taking the time to provide comments on this project. If you have any future questions or concerns about this project, please feel free to contact me at 985-6197.

Sincerely,



Tanya Rubenstein
Coordinator, 'Ola'a-Kilauea Partnership